DRAFT Eurobodalla Climate Action Plan

2022-2032

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eurobodalla shire council

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Introduction: Then and now

Climate change is important to all sectors of our community. This Climate Action Plan sets out what Eurobodalla Shire Council can do, understanding that everyone can make a difference and has a responsibility to reduce their footprint and tread lightly.

THEN

Eurobodalla Council has been actively addressing climate change for more than a decade. From 2007 to 2017, Council implemented two consecutive Greenhouse Action Plans. From 2017-2021 an Emissions Reduction Plan was implemented. Over time, these plans have substantially reduced Council's emissions, alongside Council programs that have assisted our community to do the same.

The Climate Action Plan 2022-2032 is the next iteration to progress the Eurobodalla's response to mitigating climate change and adapting to its impacts. It sets out some longer-term ambitions for reducing greenhouse gas (GHG) emissions and adapting to the impacts of climate change.

NOW

This Climate Action Plan is fundamentally different in scope from previous Council climate plans in two important ways. First, it covers both how we will reduce greenhouse gas emissions and how we will prepare for and adapt to the expected impacts of climate change. Second, it includes not only a focus on Council's own operations but how we can further assist the broader community.

Many stakeholders have a role to play in strengthening our resilience across Eurobodalla. The plan identifies actions that Council will take to further reduce its own carbon footprint and make its operations and service delivery for the community more resilient to the impacts of climate change. It also identifies how Council will support the households and businesses across Eurobodalla to reduce their greenhouse gas emissions and build climate resilience.

Eurobodalla Council recognises Aboriginal people as the original inhabitants and custodians of all land and water in the Eurobodalla and respects their enduring cultural and spiritual connection to it. We are on Yuin Country.

Aboriginal culture continues to strengthen and enrich our community and the Eurobodalla is now occupied by people who are drawn from many different lands, who share the values of tolerance and respect for one another.

1. Climate change and Eurobodalla

1.1 THE IMPACTS OF CLIMATE CHANGE AND RISKS FOR OUR REGION

There is a growing body of knowledge about the causes and impacts of climate change. The Intergovernmental Panel on Climate Change (IPCC) Sixth Global Assessment Report on the state of the science, the first part of which was published in August 2021, delivers the message that human activity is unequivocally affecting our climate and pushing the Earth's natural systems outside of the conditions that have until recently provided a stable climate.

While we have a good understanding of the pathways through which rising levels of carbon in our atmosphere are likely to affect the climate globally, it is more difficult to project exactly how climate change will affect conditions at a local scale like the Eurobodalla. There is, however, some information available. In 2014 the NSW Government published downscaled projections of climate impacts for NSW including for the South East and Tablelands region (OEH 2014), which covers a large area around the ACT extending to include the towns of Young, Crookwell, Mittagong, Batemans Bay, Eden, Bombala and Cooma.[1] In addition, data and tools available from the CSIRO and Bureau of Meteorology also offer valuable information about the expected trends over the coming decades.[2]

Both sources provide a consistent picture.

Figure 1.1 NSW Office of Environment and Heritage, South East and Tablelands climate change snapshot

PROJECTED TEMPERATURE CHANGES		
	Maximum temperatures are projected to **increase** in the near future by 0.5-1.0oc	Maximum temperatures are projected to **increase** in the far future by 1.8-2.5oc
	Minimum temperatures are projected to **increase** in the near future by 0.4-0.7oc	Minimum temperatures are projected to **increase** in the far future by 1.4-2.3oc
	The number of hot days will **increase**	The number of cold nights will **decrease**
PROJECTED RAINFALL CHANGES		
	Rainfall is projected to **decrease** in spring and winter	Rainfall is projected to **increase** in summer and autumn
PROJECTED FOREST FIRE DANGER INDEX (FFDI) CHANGES		
	Average fire weather is projected to **increase** in summer and spring	Number of days with severe fire weather is projected to **increase** in summer and spring

1 The OEH 2014 modelling was aligned with the IPCC's Fourth Assessment Report on Climate Change and used the CMIP3 model ensemble. Since that time CMIP5 model ensembles for the IPCC Fifth Assessment Report on Climate Change have been released in 2014 and CMIP6 model ensembles have recently been released for the IPCC Sixth Assessment Report in 2021. In the Fifth Assessment report the IPCC noted that, for both large-scale climate patterns and the magnitudes of climate change, there is overall consistency between the projections based on CMIP3 and CMIP5. Differences in global temperature projections are largely attributable to a change in emissions scenarios between the two reports. DPIE (2020) noted that the RCP8.5 scenario used in CMIP5 is most comparable to the SRES A2 scenario used in CMIP3 and both these model ensembles continue to be recommended for exploring future climate projections. A major update to NSW climate projections based on the CMIP6 model ensemble (NARCLiM 2.0) is under development which will allow for the exploration of longer time periods and two different emissions scenarios. For further information on the use and selection of climate models and projections, see the Adapt NSW website.

2 Regional Climate Change Explorer, CSIRO and Bureau of Meteorology, Climate Change in Australia website, http://www.climatechangeinaustralia.gov.au/, cited 23 August 2021. See also: https://www.climatechangeinaustralia.gov.au/en/changing-climate/national-climate-statement/

Climate projections

- **Warming average temperatures in all seasons, and more hot days**. By 2060-79, the region will be 2.5 to 3 degrees hotter on average than now and will experience more hot days (above 35 degrees), mainly in summer and spring. The greatest increase in maximum temperatures are projected away from the coast. There will also be a corresponding decline in cold nights and frosts in cold nights and frosts - somewhere in the vicinity of 30 an average of 35 fewer cold nights per year across the region by 2060-79, with less change in coastal regions.

  These temperature changes will potentially have a very significant effect on people's ability to cope with particularly hot weather periods, especially those groups who are most vulnerable to heat, including the elderly, young, people living with disability, and people in poorly insulated housing. More heat will also drive increased electricity usage in buildings that depend on air conditioning for cooling.

- **Decreases in winter rainfall with the potential for more time in drought, and an increase in the intensity of extreme rainfall events.** Modelling rainfall is challenging due to the complexities of the weather systems that generate rain. Projections for how rainfall may change vary between models from wetter to drier scenarios. In the South East and Tablelands, all models agree that spring rainfall will decrease in the near future and the far future. Most models agree that autumn rainfall will increase, with the largest increases around Bega and Eden, and that winter rainfall will decrease in the near future and the far future. Summer rainfall is projected to increase by 2070 across most of the region. Fewer east coast lows are projected, particularly during cooler months of the year, but sea level rise will increase the severity of impacts associated with those lows that do occur.

  These changes could affect ecosystems, bushfire risks, flood risks, and management decisions relating to water supply, since Eurobodalla's water comes from pumped storage and ability to pump depends on river flows.

- **Fire weather**. Fire weather is one of four factors that determine the risk of bushfire. Others include amount of fuel, dryness of fuel and ignition source which may also be affected by climate change but for which we do not have projected changes. In NSW, fire weather is quantified using the Forest Fire Danger Index (FFDI), which is based on observations of temperature, humidity and wind speed. As a result of climate change, the South East and Tablelands region is expected to experience an increase in average and severe fire weather in the future. At this stage, projections are for relatively small increases in severe fire weather - up to two more days every five years by 2030 - although these will occur during either prescribed burning periods (spring) or the peak fire risk season (summer). The CSIRO and BoM data suggests a longer fire season for the South East, and an increase in the number of days when we experience dangerous fire weather.

  Increased severe fire weather is a major threat to the region's biodiversity, as well as to our settlements. The 2019/20 bushfires also demonstrated clearly how such events impact on community health and wellbeing. Projections for more severe fire weather should inform our decisions about preventative burning regimes, our strategies for protecting biodiversity, and our plans to look after our most vulnerable people in the community and resilience of key infrastructure.

- **Sea level rise**. Sea level rise is not covered by the NSW OEH South East and Tablelands projections but is discussed in the *Sea Level Rise Science and Synthesis for NSW* (Glamore et al. 2015). The rate of sea level rise depends on rate of depletion of glacial and Arctic ice sheets, and thermal expansion of the ocean.[3] Eurobodalla Shire Council has adopted the *South Coast Regional Sea Level Rise Planning and Policy Response* and sea level rise projections based on the Intergovernmental Panel for Climate Change (IPCC) RCP 6.0 emissions scenario: 23cm sea level rise above 2014 levels by the year 2050 and 72cm by the year 2100.

  Sea level rise could affect infrastructure and our built environment, water supply and wastewater treatment systems, biodiversity and vulnerable ecosystems, and economic sectors like tourism. Associated with sea level rise are issues relating to increased storm surge and inundation in coastal areas particularly.

- **Warming marine environments, and more frequent, intense and long-lasting marine heatwaves.** Rising air temperatures are already increasing the temperature of our oceans and increasing acidity levels, as more carbon is absorbed by the ocean from the atmosphere. Oceans will continue to warm.

  Changes to marine temperature and acidity threaten our marine ecosystems and fisheries resources. As oceans warm, they also expand, which adds further to expected sea level rise and associated inundation risks.

Projection impacts

These projections are potentially conservative, meaning actual climate change could be even more significant than this. The IPCC's Sixth Assessment Report identifies major tipping points, or threshold changes, in the earth's climate which if triggered will rapidly intensify the rate and scale of change. Other scientific studies suggest that policy decisions made since these scenarios were designed mean these projections are less likely to occur[4].

We should therefore see the changes described above as one set of possible futures, and we need to have in place systems for continual review of the latest science. We also need the flexibility to change or ramp up our resilience measures rapidly if needed.

Globally, the window for avoiding dangerous levels of climate change is short, and action is required. Unless we cut carbon emissions and adapt our practices to prepare comprehensively for these impacts**,** they will result in physical risks to our settlements, physical and mental health risks for our community, further damage to and loss of our biodiversity and local ecosystems, and a wide range of direct and indirect economic costs for households and for the regional economy.

On natural disasters alone, a 2021 report for the Australian Business Roundtable for Disaster Resilience and Safer Communities estimates natural disasters will cost Australia $73 billion by 2060 even under a low greenhouse gas emissions scenario. This estimate has risen significantly since the last analysis in 2017, which estimated a cost of $39 billion by 2050 (Deloitte and Access Economics 2021). The same report flags that if nothing is done to tackle climate change, that cost figure will grow to $94 billion a year by 2060, and that natural disasters will cost the Australian economy at least $1.2 trillion in present value terms over the next 40 years.

3 For information on historical and future sea level rise, see 'Coasts and Sea Level Rise' (AdaptNSW): https://climatechange.environment.nsw.gov.au/Impacts-of-climate-change/Coasts-and-sea-level-rise

4 Scientific American E&E Climate Change https://www.scientificamerican.com/article/the-worst-climate-scenarios-may-no-longer-be-the-most-likely

Vulnerable groups and people

Protecting the most vulnerable within our community is paramount. Vulnerable people and groups can include people living with a disability, Aboriginal people, people with a health issue, very young or old, people living in poorer conditions.

Climate change poses a significant threat for vulnerable people and communities in various ways. Some examples may be: increased exposure to climate-related health impacts; ability to access medical care; poorer health outcomes during extreme events; 'invisibility' to decision-makers and planners; communication is not always designed or delivered in accessible formats; potentially more socially isolated; more physical, emotional or psychological stress.

Actions to assist vulnerable groups could include:

- ensure that there are available places people can go to get cool during heatwaves, and transportation to get people there and home again
- tailor communication and information products and services (ahead of and during extreme events) to ensure they properly target vulnerable groups, and are accessible
- provide specific risk warnings to/for vulnerable groups, eg. provide advance information about when the electricity grid may be at risk of being overwhelmed to facilitate advance planning for certain needs, and information about accessible shelters during extreme events
- ensure there are social networks in place for vulnerable individuals - including through building community connections - which can help people cope better with emergencies
- make more resources available within emergency planning and management specifically for supporting vulnerable groups
- plan for climate change on a more long-term scale, which can ease some of the burden when an emergency does happen
- involve people with disabilities in developing emergency plans
- document experiences, to learn and build wider awareness about the challenges faced by people with disability in circumstances that are relevant for climate change planning (eg. during and after the bushfires).

Legal responsibility and community expectation

The 2019-20 bushfires also changed community expectations about what government can and should be doing. Even if the legal responsibilities on different levels of government may not have changed, the community expects greater clarity on how different risks – particularly from extreme events – are being managed, and confidence that they are being managed properly. How governments manage climate change is now a critical question that communities are attendant to.

Related to this, community concern about climate change has also given rise to new legal risks for decision-makers, including for local governments. Some of the mechanisms that trigger legal risk in the case of not properly considering climate change are summarised in Table 1.1a.

Table 1.1a Examples of legal mechanisms to which Council and other decision-makers are exposed if failing to take proper account of climate change

Statutory duty to prevent environmental harm	A statutory adaptation of the common law duty of care concept requiring certain persons to eliminate the risk of harm to the environment arising from their activities.
Earth jurisprudence	A set of legal principles aimed at recasting law and governance to consider wellbeing of Earth and all its inhabitants. Its objective is to shift thinking "from a purely human-centered to an Earth-centered system of law and governance".
Public trust doctrine	A common law doctrine that applies as duty on the sovereign to act as trustee for present and future generations. It arises from a Roman Law concept that air, running water and the sea and its shores are things common to all people.
Community injury rule	A modernised form of the tort of public nuisance that seeks to compensate damages sustained by the community from an individual's actions. It aims to protect "public values from unreasonable and significant interference, primarily from localized risk-creating activities by private landowners or businesses".
Fiduciary duties	Fiduciary duties compel a person in a position of trust and responsibility to act in the best interests of those whom they serve. Recent application of this principle supports – even requires – decision-makers to consider long-term damage caused by unsustainable practices and decision-making.

1.2 CHANGING POLICY CONTEXT AND MARKET TRANSITIONS

Globally, action on climate change is ramping up, and quickly, as our knowledge about cause and effect solidifies and as the devastating effects of unstable and extreme weather events are seen all around the world. In NSW, a low-carbon transition is being driven by a combination of policy reforms and supportive measures from the NSW Government – to pivot towards stronger climate action in key greenhouse gas sectors like electricity, transport and waste – as well as changes in markets and particularly the falling costs of low-carbon technologies.

The NSW Government has committed to a net zero by 2050 strategy, and adopted a target of 50% reduction in emissions by 2030 compared with 2005 levels as part of its *Net Zero Plan Stage 1: 2020-2030* (NSW Government 2021).

While this will drive changes over the coming decade, recent years have already seen some significant changes in key sectors. The transition to cleaner, renewable energy sources has happened quickly in energy markets, and over a quarter of households in Eurobodalla now have rooftop solar PV.[5]

The transport sector is some way behind the electricity sector in terms of change, but change has nonetheless begun and is gathering pace. Many other countries have already set dates for phasing out the sale of new internal combustion engine (ICE) vehicles, some by as early as 2025. While there are no such signals in NSW, there are strong expectations that the market will drive a rapid and wide transition in the vehicle fleet over the coming decade as costs of cleaner vehicles come down. In 2021, the NSW Government adopted an EV Strategy[6] which aims to drive sales of EVs to more than 50% of new car sales by 2030-31, and introduced measures to help roll out electric vehicle charging infrastructure across the state to help facilitate this transition.

The finance and insurance sectors are also changing course. The work of the Taskforce for Climate-Related Financial Disclosures[7] highlights how financial investors, lenders and insurers are increasingly recognising, and factoring in, climate-related risks to their practices. This will, in turn, drive capital towards more sustainable businesses, and make it more difficult for organisations who are not addressing climate change to access finance or insurance products.

Insurance companies are already playing a role in driving action. In 2020, Eurobodalla Shire Council undertook a Climate Change Risk Assessment with its insurer (Statewide Mutual 2020). The assessment looked at how climate projections for the region might impact on Council operations and at the adequacy of current control measures. It identifies 37 separate risks (25 it classifies as 'high risk'), almost half of which are related to increased temperatures including more days of extreme heat.

All of these ongoing changes have implications for Eurobodalla. It is therefore important we not only keep up with these broader shifts, but that we also help to push these positive changes further along.

5 https://pv-map.apvi.org.au/historical#8/-35.822/150.227
6 https://www.environment.nsw.gov.au/topics/climate-change/net-zero-plan/electric-vehicle-strategy
7 https://www.fsb-tcfd.org/about/

1.3 MITIGATING GREENHOUSE GAS EMISSIONS AND ADAPTING TO CLIMATE IMPACTS

To strengthen our resilience to climate change, action is needed on two fronts:

MITIGATION

to reduce emissions of greenhouse gases that are contributing to a warming atmosphere - mitigation.

ADAPTATION

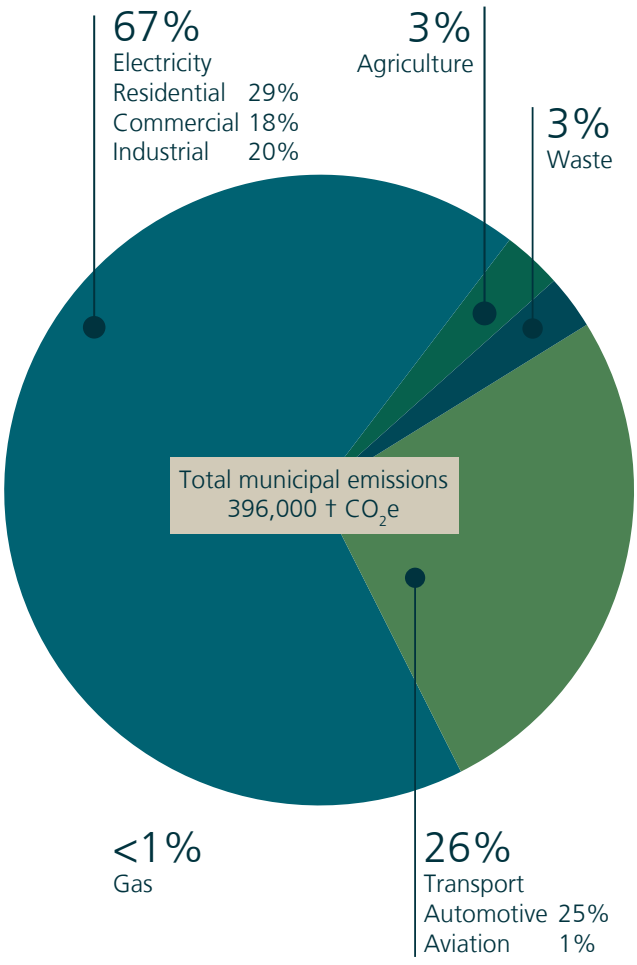
to adapt our settlements, economic activities and environmental conservation practices to better reflect expectations of how the impacts of climate change may be experienced in our region.

Tackling greenhouse gas emissions

The Eurobodalla community needs to be part of the transition to a low-carbon economy and society. Reducing GHG emissions not only minimises the risk of dangerous levels of climate change but will, increasingly, deliver economic benefits for households and the region as the costs of low-carbon choices comes down and the costs of high-carbon choices continues to rise.

Figure 1.3a shows an estimate of the GHG emissions profile for the Eurobodalla LGA for 2019, excluding emissions associated with land-use change. Electricity use and transport make up over 90% of the total, with the remainder coming from agriculture (predominantly livestock) and waste. This profile excludes GHG emissions from land-use change and forestry.

Figure 1.3a: 2019-20 Eurobodalla LGA greenhouse gas emissions profile (excluding land-use change)



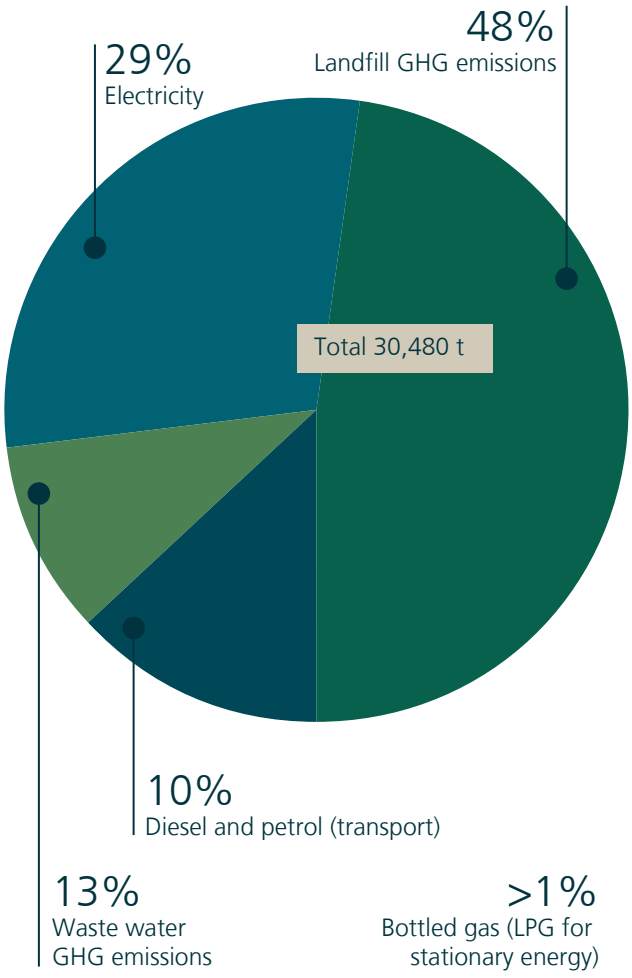
Source: Snapshot Climate[8]

Note: Percentages presented might not add up to 100% because of rounding

8 https://snapshotclimate.com.au/locality/australia/new-south-wales/eurobodalla/

Figure 1.3b shows a breakdown of Council's own emissions profile. The figure highlights just how significant waste management and wastewater treatment are to our total emissions. Not all local governments in NSW are responsible for the delivery of water and sewage services, or for collection and management of municipal waste, so other council areas across the state will have different emissions profiles.

Figure 1.3b Council's greenhouse gas emissions profile 2019/20



Source: Azility Energy Management Platform

Adapting to climate impacts

This Climate Action Plan adopts a 'resilience' approach to preparing for the impacts of climate change. In essence, this means the plan focuses on improving our capacity to cope with, and adapt to, the different features of a changing climate without suffering major disruption to our social, economic and environmental wellbeing.

What is adaptation?

Taking practical actions to manage risks from climate impacts, protect communities and strengthen the resilience of the economy. Adaptation can involve gradual transformation with many small steps over time, or major transformation with rapid change.[9]

Both coping and adapting are important components of resilience for people and for our natural ecosystems. The quality of our physical assets like homes and settlements, our basic health and access to good healthcare, our financial situation, the strength of our social networks, and the quality of our natural environment – these all influence our ability to cope and adapt.

Adaptation targets a wide swathe of activities and sectors. It implies changes to policies and regulations such as building codes or environmental protection legislation, investment in new or modified infrastructure, providing education and information that can help people better understand how climate change may affect them and what decisions and behaviours can improve their resilience, and adjusting business practices.

It also means reducing existing pressures on our natural environment such as from urban development, resource extraction, and pollution, improving community access to finance for measures to reduce climate risks, and strengthening social networks. Addressing financial hardship or other economic challenges experienced by households and businesses can also be effective strategies as a stronger financial situation improves the capacity of communities to cope and adapt.

9 http://www.environment.gov.au/climate-change/adaptation

What is resilience?

Resilience means that our community – and all parts of our community – have the capacity to cope with new conditions that may arise in the future as our climate changes, and to adapt if needed.

Resilience – for individuals and the community – comes from:

- the types of *physical assets* we have such as housing, water supply, roads and other infrastructure
- the health of the *natural environment* around us
- our *financial capacity*, linked more broadly to the health of our economy
- our *individual skills and capacities*, as well as our basic health and level of education
- our *social assets*, such as networks which provide the connectivity between people that we all draw on for support at different times, as well as our access to social services like education, health and welfare support.

Strengthening each of these areas provides the basis for community resilience.

Community resilience might be enhanced in many ways:

- improving community health
- protecting the natural environment in which people live and on which we depend for recreation, livelihoods and clean air and water
- increasing mobility options to provide connectivity and access to services for a wider range of our community, including youth and the elderly
- improving the standard and performance of new homes and ensuring our urban environments integrate sustainability concepts in their design
- securing our water supplies and reducing our water demand
- ensuring vulnerable members of the community can cope with extreme weather events
- strengthening the financial situation of households and businesses to ensure people have a buffer to be able to afford to take adaptation actions in future, as needed.

Many of these aspects of community resilience are addressed throughout the plan.

1.4 ROLES AND RESPONSIBILITIES

To achieve a climate resilient Eurobodalla, we all have roles to play.

Decisions made by *individuals* and *households* contribute to our resilience. Our energy use, where we get our electricity from (eg. rooftop solar PV and solar hot water, buying green power through electricity retailers), the transport options we choose, the homes we build, and the way we look after our local environment all have a significant impact.

Businesses too have an impact in all these areas. Businesses can also influence consumer behaviour, for instance by phasing out single-use plastics that will otherwise end up in landfill and generate methane emissions. Providers of critical goods and services, like supermarkets and petrol stations, need to ensure that they have systems in place to be able to continue operating during disruptions to energy or communications systems, such as were experienced during the 2019/20 bushfires.

Local community organisations bring together different stakeholders, access grant funding for innovative projects in the community, advocate for positive change to different levels of government, and share knowledge and information across the community. Organisations working for positive change at the local level are crucial to health, culture, social and economic development, and to implementing valuable initiatives across the shire – such as rolling out electric vehicle chargers or sustainability upgrades to local buildings.

The *finance sector* can play a powerful role by providing finance options to local businesses and households that can support the roll out of clean energy and energy efficiency improvements, for instance. Banks, pension funds and other large investors can also play a positive role by divesting from industries that are major contributors to climate change or funds that include companies that are high-carbon.

Rural landowners are important land managers and need to contribute too, by adopting agriculture and livestock practices that are low-carbon or that sequester carbon from the atmosphere, and by managing their lands to protect biodiversity and threatened species.

Aboriginal community organisations and land councils represent the original inhabitants and custodians of all land and water in the Eurobodalla, the Yuin people. They possess knowledge that can help our region to strengthen the resilience of our communities, and of our natural environment, to climate change.

Young people are important agents of change in the community. In June 2021, a group of Eurobodalla high school students discussed the impacts of climate change and what actions are needed to help build resilience, during a Youth Climate Resilience Forum organised by Council. As well as highlighting the roles of governments and businesses, the participants also identified themselves as being able to lead in the community, with calls for action and by providing positive examples of behavioural choices that reduce our own individual footprints.

Eurobodalla youth on climate change

To support preparation of this Plan, a Youth Climate Resilience Forum was held in July 2021. Students from Eurobodalla high schools identified different actions that could be taken to tackle climate change at the local level. These included:

- more sustainability-focused planning rules at local government level to guide housing and urban development design
- raising awareness about ways that individuals can change their behaviour to reduce their impacts
- tree planting to create shade and support biodiversity
- promotion of clean energy, including cleaner transport
- greater recycling to reduce waste generation; use of ‘cool burning’ as a more ecologically sensitive technique to manage fire risks
- ceasing the logging of native forest
- taking individual responsibility for everyday decisions by using less energy, buying fewer new clothes, and inspiring others to take positive action.

Local government role

Eurobodalla Council has an important role to play here, as it ensures reliable local service delivery and acts as a communication point between the community and NSW and Australian Governments.

Climate change will affect a wide range of Council's activities, and at the same time many of our work areas have the potential to contribute to building resilience. We share the broader objective of ensuring our community is safe, prosperous, and able to adapt to changing conditions, and at the same time we need to take account of projected climate risks in decisions about assets, infrastructure and the delivery of services. Council also needs to respond to the presence of legal duties to consider climate change, and to community expectations.

NSW Government role

The role of the NSW Government is crucial to the outcomes we will experience on the ground here in Eurobodalla, because many of the areas that require change are primarily a NSW Government responsibility.

The NSW Government sets building standards and the broader framework for development planning and approvals, financial incentives or barriers for new technologies like solar PV and electric vehicles, determines the scale of and rules for the logging of native forests, defines the direction of waste management, and is responsible for environment protection. It regulates coal mining and major industries. The NSW Government is also responsible for disaster management.

All of us, including Council, can advocate to the NSW Government for stronger, positive legislation and policies to ensure our energy, transport, waste, land-use, biodiversity, building and coastal management sectors are transitioning to be low carbon and climate resilient. Without strong leadership, we cannot achieve the goals of net zero GHG and climate resilience.

Australian Government role

The Australian Government too has important roles to play. It can provide funding and policy direction in areas like energy and transport. By providing clear, positive direction as well as funding, it can also give impetus to transition planning for communities that today may depend on carbon-intensive practices like coal mining – these communities may need support to diversify and re-skill as the economy transitions.

The Australian Government can also design tax regimes or use other financial instruments to avoid any negative impacts of the low-carbon transition on, for example, low-income households. It can redirect subsidies that today support industries like coal-fired power production, coal mining and native forest logging into industries that can provide new jobs and build momentum towards a more climate resilient future.

In 2022 the Australian Government and the NSW Government is funding a 'blueprint for a resilient South East NSW'. The Canberra Region Joint Organisation (CRJO), representing 10 councils surrounding the ACT, is working with the NSW DPE, Resilience NSW and Regions NSW to combine hazard and other data across the region and mapping to improve council and community decision processes. Regional projects are beneficial to multiple stakeholders and local government areas.

Climate change action is needed at all levels to reduce GHG emissions and to strengthen our resilience to cope with and adapt to impacts we can no longer avoid.

The following two pages outline in more detail how councils can help build climate resilience.

SPECIAL FEATURE

How councils can help build climate resilience

Local governments have broad responsibilities and are required to manage multiple, sometimes competing priorities within the legislative framework prescribed from both the NSW and Australian governments. Council can nonetheless influence climate change outcomes in various ways.

Integrating climate risks and GHG reductions into day-to-day operations and planning

Councils can influence resilience outcomes through actions relating to: water supply, planning, approvals regarding new buildings and new subdivisions, ecosystem protection programs, and strengthening the resilience of local infrastructure.

Investing in our community services programs

Council can use its community programs to strengthen social cohesion and ensure vulnerable people are part of wider networks in the community rather than isolated.

Many of Council's existing programs are already targeted at strengthening these aspects of our community, not for climate change specifically but because these same characteristics are what makes us resilient in a broader sense too. For example, some programs focus particularly on vulnerable communities such as older people, Aboriginal communities, and people living with disabilities.

Leading by example

Councils can also lead by example through its own positive actions relating to energy, transport, building design, and financial practices. They can support community decision-making through education and awareness campaigns, such as by working with landowners to tackle invasive species and protect habitat. Council also provides financial incentives, for example rebate programs for water-efficient appliances.

SPECIAL FEATURE

Empowering and engaging the community

The creation of community networks and engagement of the community in planning and action is a key area where Council can play a positive role. Across the community are key agents who can drive change to a more climate resilient Eurobodalla. An empowered community which can act to address climate change is built upon elements like:

- the capacity to identify and secure external resources, and to collaborate effectively
- a diversity of well-resourced and linked local community organisations
- education systems that encourage innovation and leadership.

Local governments can raise awareness and share knowledge about climate change and opportunities for action across the community, for example by sharing:

- the latest scientific projections about climate change, sharing expectations for how our region might experience change and fostering debate about what kinds of responses may be needed
- data on our GHG emissions over coming years so we can track progress together
- information about new technologies or programs, as well as funding opportunities, that may help people take positive actions
- examples of positive actions that are being undertaken in the community, which may inspire others or help to connect people with ongoing initiatives.

Different parts of our community have different interests and needs, so the way Council engages should be tailored accordingly.

Funding is required

There are growing expectations on local governments to address climate issues, but usually without additional funding. Inadequate funding is the most commonly cited challenge for local government when tackling climate change (Climate Council 2021).

"The provision of sufficient financial resources for local governments to act on climate risks is of vital importance for enabling timely and least-cost adaptation. Local governments face practical and statutory restrictions on the revenue they can raise to pay for their activities. The NSW Government must ensure local governments have adequate financial resources to address the threat of climate change. In addition, the Australian Government should provide specific purpose payments to the states to support local governments to adequately maintain and build climate resilient infrastructure" (Commonwealth Senate inquiry into current and future impacts of climate change, 2018, p196).

1.5 ACHIEVEMENTS SO FAR

In recent years, Council and the community have been taking action, particularly to reduce greenhouse gas emissions.

Council's *Emissions Reduction Plan 2017-21* included the targets:

- **Reduce Council greenhouse gas emissions from the 2005-06 baseline by 80% by 2030.** As an interim target, it committed to reduce total Council greenhouse gas emissions from the 2005-06 baseline by 25% by 2020.
- **Source 100% of Council's electricity from renewable energy by 2030.** As an interim target it committed to sourcing 25% of electricity used by Council facilities from renewable energy by 2020.

Council achieved the interim GHG emissions target ahead of time, early in 2018, achieving a 34% reduction compared to the 2005-2006 baseline.

Compared to the 2005-2006 baseline:

- total street lighting emissions are down 42%
- building emissions are down 47%
- landfill methane emissions are down an estimated 20%, compared to 50% in 2018-2019.*

*Emissions temporarily rose again for several years while the methane flaring system at Surf Beach landfill was offline following damage during the 2019-20 bushfires.

For 2020-21, Council greenhouse gas emissions were around 21% lower than 2005-06 levels. Flaring recommenced in December 2020 so a significant drop in emissions is expected to be visible in the 2021-22 data.

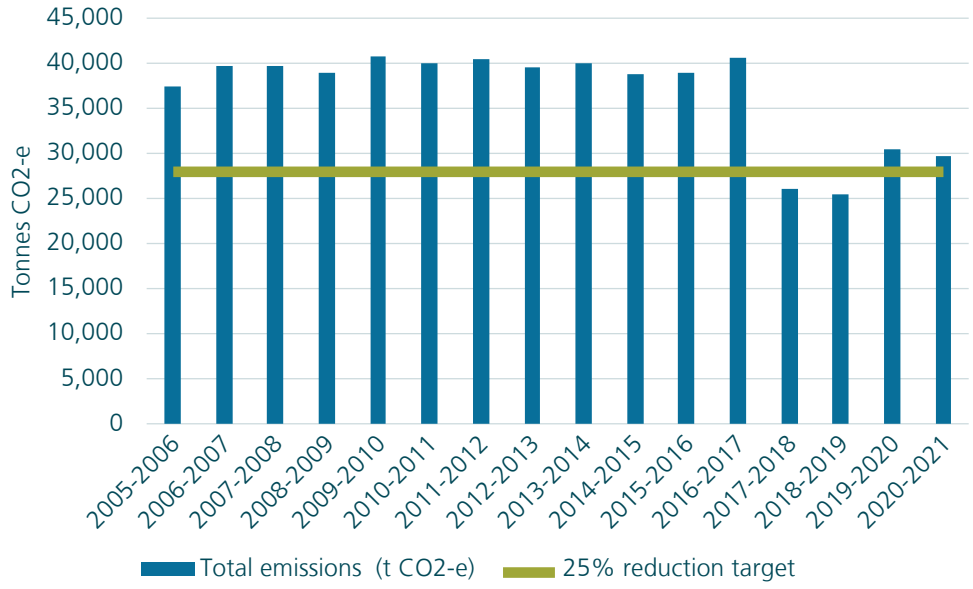
Major projects implemented to meet Council's 2017-21 targets:

- Installing and operating methane capture and flaring at the Surf Beach and Brou landfills
- With Essential Energy, replacing all streetlights with energy efficient LEDs
- Installing 750kW of rooftop solar PV on Council facilities such as pools, water and sewage treatment plants
- Education programs to engage residents and businesses in water, waste and energy saving practices
- Signing a ten-year power purchase agreement for renewable energy to cover the energy demand for our largest energy using sites, equivalent to around 80% of Council's total energy demand[10]

Figure 1.5a shows the impact of these measures on Council's greenhouse gas emissions over time.

10 In 2018, Council engaged analysts from '100% Renewables' to assess different options for meeting the target of 100% renewable energy. Their conclusion was that a power purchase agreement for the bulk of Council's energy demand was the best option. For more information about this assessment, see: https://100percentrenewables.com.au/eurobodalla-council-options-reach-100-renewable-energy-lower-cost-grid-electricity/

Figure 1.5a: Council's total greenhouse gas emissions over time compared with the interim target adopted by Emissions Reduction Plan 2017-21, ie. 25% reduction by 2020 compared with 2006 levels



Note: The increase in emissions during 2019-20 and 2020-21 was due to bushfire damage to the methane flaring at Surf Beach tip. Flaring recommenced in late 2020.

Much of what Council does today already integrates consideration of climate risks or contributes to building community resilience in the broader sense.

Council ensures ***integration across all areas of operation*** via a Sustainability Matrix Group. The group consists of representation from each division of Council with the aim of: integrating sustainability and climate change actions in Council plans, policies and operations; identifying, prioritising and progressing key sustainability responses and projects that require a collaborative approach; monitoring and reporting on the implementation of emission reduction progress and performance; providing advice and recommendations to the General Manager and Council on sustainability and climate change matters.

Council has been a member of the ***Cities for Power Partnership*** since 2017 - Australia's largest network of local councils leading the way to a thriving, zero emissions future. Council is also a partner with NSW Government, Canberra Regional Joint Organisation, neighbouring councils and organisations to assist with collaboration and ***joint initiatives*** and ***programs*** which support the Eurobodalla in climate change actions.

Council has also been implementing change following the 2019/20 bushfires to drive ***disaster recovery and resilience***. This includes rebuilding its own infrastructure with resilience in mind, for example concrete bridges replaced destroyed timber bridges, community facilities upgraded with emergency power backup. Advocating to agencies and government has been equally important and successful, resulting in upgrades to telecommunications and electricity resilience in the region. Better coordination and funding of emergency management has been another focus. Existing programs that help landowners tackle invasive species, provide guidance on planting of native vegetation, or manage our water supply and wastewater treatment systems all play an important role. Council's ***Bushfire Recovery Plan*** has more detail.

The ***Eurobodalla community***, too, has been proactive. Since 2016, there has been a strong upward trend in the number of solar PV installations across the LGA and in the electrical capacity of these systems (see Figure 4). By 2021, an estimated 26% of Eurobodalla households have rooftop solar PV, which is on par with the NSW state average. These more than 6,000 systems provide roughly 30,000 kW of capacity, are collectively reducing greenhouse gas emissions by an estimated 28,900 tonnes of CO_2e every year, and on average are delivering household energy cost savings of around $790 each year.[11]

Figure 1.5b Eurobodalla LGA solar PV installations 2001-2020

Eurobodalla (A) PV installations
Last update: 2021-06-30

Total solar installations
6,158

Domestic installations: 5,886
Commercial installations: 270
Power stations: 2
Estimated dwellings: 22,709
Estimated domestic capacity: 23,289kW
Estimated annual kWh generated: 1,311.25kWh
Estimated density: ~25.92%

Annual CO_2 offset
28,900 tonnes

All solar installations
Based on estimated annual output of 39.021MWh and 0.77 tonnes of CO_2 produced by the energy network per MWh.
Equivalent to over 8,000 cars taken off the road per year based on these calculations.

LGA benchmarking

Eurobodalla (A)	~25.92%
New South Wales	~25.8%
Bega Valley (A)	~32.96%
Queanbeyan-Palerang Regional (A)	~30.6%
Shoalhaven (C)	~26.75%

Average savings ~$790
For each household with PV
Estimated annual $

Source: Australian PV Institute (APVI) Solar Map accessed from pv-map.apvi.org.au on 05 October 2021

11 Source: Australian Photovoltaic Institute, installations by LGA, https://pv-map.apvi.org.au/historical#7/-35.862/150.688

2. Vision and objectives of the Climate Action Plan

Our overarching vision is for Eurobodalla to become a low-carbon and climate resilient region.

To achieve this, we need to:

1. **Reduce our GHG emissions** requires changes in energy use of Council, households and businesses, in development, planning and building construction, in transport, in waste management, and in land-use and forestry.
2. **Reduce the likelihood or severity of some specific climate risks** on people, ecosystems, businesses, and infrastructure.
   For example, by planning for more heat waves, and for increased flood risks because of sea level rise and more intense storm events.
3. **Address some of the vulnerabilities within our community and our ecosystems** that affect our ability to cope with, or adapt to, climate change impacts. This requires strengthening the coping and adaptive capacities of individuals, households, and especially more vulnerable groups within the community, by addressing issues relating to health, financial wellbeing, education, and social connectivity. It also requires improving protection for our biodiversity and natural ecosystems.
4. **Integrate consideration of climate risks** into short, medium, and long-term decision-making – this relates to activities by Council and by others in the community, including the way we develop and grow our regional economy to become low-carbon and resilient to climate shocks.

2.1 OBJECTIVES OF THE PLAN

To translate the vision of a low-carbon, climate resilient Eurobodalla into reality, the Climate Action Plan emphasises the following objectives.

Continue the transition to cleaner energy supply, lower energy use and improve energy security during extreme events

Encourage and prepare for zero emission vehicles within the Council fleet and in the wider community, and provide accessibility and connectivity options

Improve the sustainability performance and climate resilience of subdivisions, houses, commercial and community buildings

Reduce the total volume of putrescible waste to landfill, reduce methane emissions, and prepare for new waste issues associated with other aspects of the low-carbon transition

Ensure secure and safe potable water supply and wastewater treatment

Expand areas being actively managed for biodiversity enhancement and protected under formal conservation arrangements, targeting vulnerable ecosystems, climate refugia and vegetation corridors

Reduce the carbon-intensity of agriculture and livestock production and strengthen their resilience to the impacts of climate change

Improve awareness of climate risks and market opportunities among businesses and provide support to address barriers to investing in sustainable practices

Manage the increased risk of natural hazards such as flooding, bushfire, heat waves on assets, infrastructure and settlements

Improve Council's adaptability and responsiveness to changing climatic conditions and changing responsibilities relating to tackling climate change

2.2 ROLE IN RELATION TO OTHER COUNCIL PLANS AND OPERATIONS

To deliver on these objectives, the Climate Action Plan sets out the actions Council will take to further reduce its greenhouse gas emissions (GHG) and the actions we will take to adapt to the likely impacts of climate change. It also describes actions by Council that are intended to support the community with reducing emissions and adapting to climate change.

At its core, the Climate Action Plan is a commitment to integrate consideration of climate change and opportunities to reduce GHG emissions right across Council's day-to-day operational activities, and in its plans and strategies.

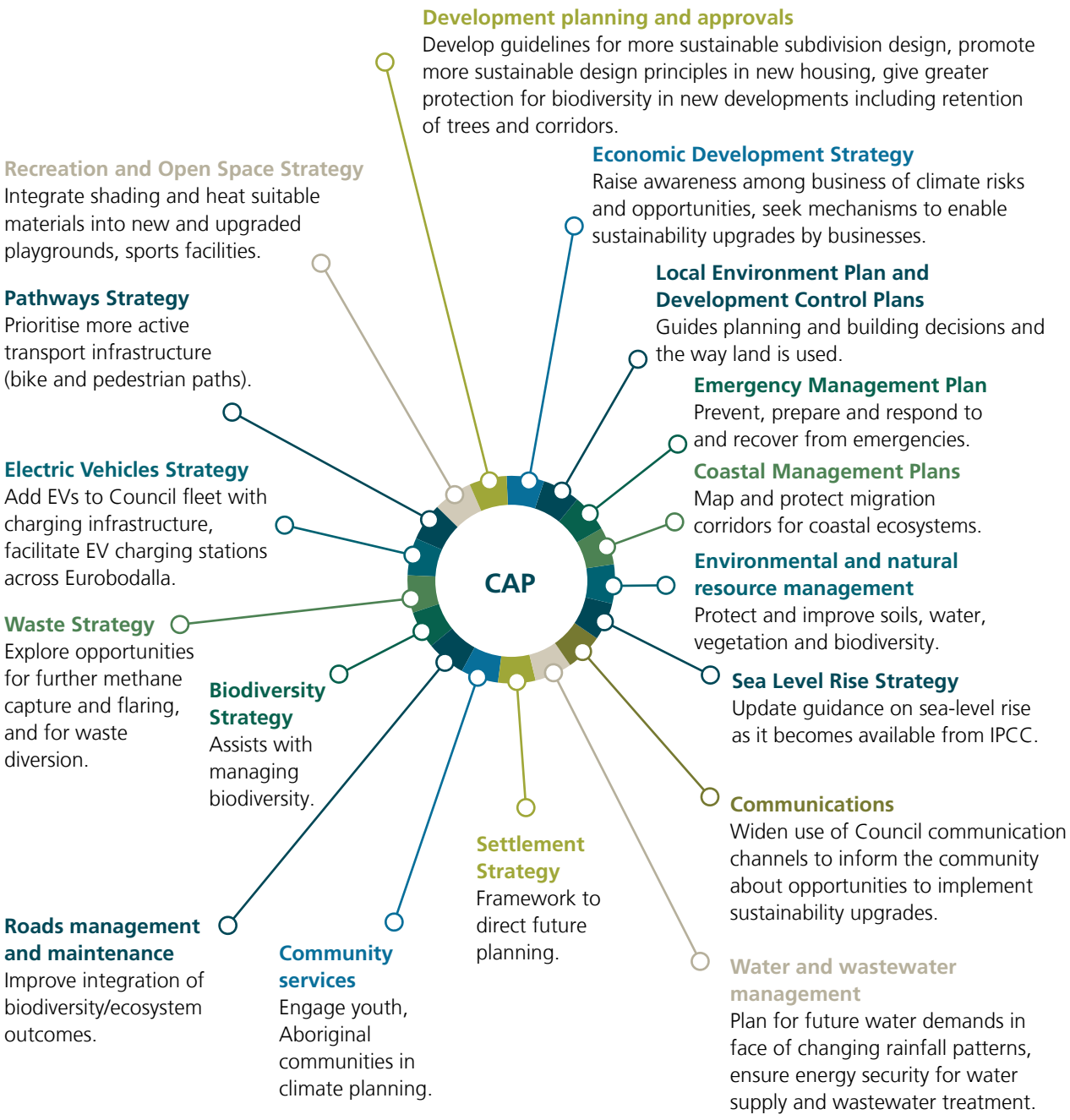
The plan's overarching objectives are closely aligned with the Community Strategic Plan and with other plans and programs adopted by Council – but it also provides direction to these other plans and programs, on how they need to be adjusted over time to properly account for climate risks and the responsibilities and expectations on Council to manage these risks.

Figure 2.2a clarifies the relationship between the Climate Action Plan and other plans and operational areas of Council, including the expectations for how climate resilience will be integrated into these other areas. In many cases, the details of some of these changes need to be fleshed out as specific sectoral plans or procedures are developed or updated. The Climate Action Plan therefore clarifies the expected outcomes of integrating climate change, and in some cases highlights specific actions that are needed.

The Climate Change Risk Assessment undertaken by Council in 2020 (Statewide Mutual 2020)[12] highlighted the need for action across a wide range of areas where Council works or can have influence to address risks. Subsequent consultation within Council and with different parts of our community have refined these and elaborated further actions that can help us to strengthen the climate resilience of Eurobodalla.

12 The Climate Change Risk Assessment (2020)

Figure 2.2a Relationship of the Climate Action Plan to other Council plans and operational programs



2.3 SETTING TARGETS FOR 2030 AND BEYOND

As a region, we need to at least keep pace with the rates of change adopted or projected by the NSW and Australian governments.

Reducing greenhouse gas (GHG) impacts

The Australian Government announced in 2021 a target of net zero GHG emissions by 2050.

The NSW Government has a fuller suite of targets and programs that provide reference points for Eurobodalla:

- *On greenhouse gas emission levels,* the NSW Government has adopted the target of **reducing GHG emissions by at least 50% by 2030 compared with 2005 levels, and achieving net zero by 2050**.[13] Key to achieving these targets are increased renewable energy and energy efficiency, cleaner transport, more sustainable housing and urban development, reduced waste disposal along with methane capture at landfills, reversal of land clearing and forest loss, and actions to tackle emissions from industry and from agriculture and livestock production.
- *On electricity,* the *NSW Electricity Strategy*[14] does not include specific targets for penetration of renewable energy in the grid but emphasises major new investment in clean energy. A continued expansion of renewable energy generation including rooftop solar PV is implied by the state's GHG targets, since electricity is a key source of GHGs and reducing emissions means phasing out fossil fuels from our electricity mix as quickly as possible. We need to encourage and prepare for more renewables over the coming decade.
- *On transport*, the NSW Government projects that by 2030 more than 50% of new cars sold in NSW will be electric vehicles (EVs) and has the ambition that by 2035 most new cars will be EVs.[15] The government has also committed to transition the state's 8,000 buses to electric by 2030. In terms of government fleets, in 2019 the NSW Government adopted the target of 10% of new vehicle turnover in state fleets from 2021 to be EVs.[16] In 2021 this target was raised, so that the government is now targeting half its fleet to be electric by 2025 with the remaining 50% over the following five years – in other words, to be fully electric by 2030.[17] For Eurobodalla Council's vehicle fleet, we need to encourage and prepare for higher penetration of zero emission vehicles over the coming decade and also assist the wider community to switch to EVs. This includes ensuring adequate supporting infrastructure such as charging stations are available.
- *On waste,* in 2021 the NSW Government introduced the *Waste and Sustainable Materials Strategy 2041*.[18] The strategy includes numerous targets, including: reduce total waste generated by 10% per person by 2030; achieve an 80% average recovery rate from all waste streams by 2030; significantly increase the use of recycled content by governments and industry; phase out problematic and unnecessary plastics by 2025; halve the amount of organic waste sent to landfill by 2030; reduce litter by 60% by 2030 and plastics litter by 30% by 2025; and triple the plastics recycling rate by 2030. It mandates the source separation of food and garden organics for households and selected businesses. Council already has a range of waste separation and diversion measures in place, and these may need to expand over time to meet the new state targets. Addressing methane emissions from landfill also remains a critical strategy for reducing GHG emissions. Council has already installed some methane capture and flaring capacity at its landfill sites, and these should expand over time to keep pace with landfill expansion.

There are several important GHG source sectors where the NSW Government has not clarified targets to guide the type or scale of change needed over the coming decade. This includes land clearing, improvements in energy performance of buildings and of the urban environment, industry, and agriculture and livestock emissions. Nonetheless, action will be needed across these sectors on the NSW Government's pathway to net zero emissions by 2050.

13 https://www.environment.nsw.gov.au/topics/climate-change/net-zero-plan
14 https://www.energy.nsw.gov.au/government-and-regulation/electricity-strategy
15 https://evcentral.com.au/nsw-government-car-fleet-to-be-100-percent-electric-by-2030/
16 See NSW Electric and Hybrid Vehicle Plan 2019: https://future.transport.nsw.gov.au/sites/default/files/media/documents/2019/Future%20Transport%20NSW%20Electric%20%26%20Hybrid%20vehicle%20plan.pdf
17 https://evcentral.com.au/nsw-government-car-fleet-to-be-100-percent-electric-by-2030/
18 https://www.dpie.nsw.gov.au/our-work/environment-energy-and-science/waste-and-sustainable-materials-strategy

How councils can help build climate resilience

The Climate Action Plan identifies targets that Eurobodalla Council will aim to achieve and report against annually.

For Council operations:

- Reduce emissions from the 2005-06 baseline by 80% by 2030
- Net zero emissions by 2040
- Sourcing 100% of Council's electricity demand from renewable energy by 2030

Council will also work to support achievement by the wider community of a level of ambition at least equivalent to the targets adopted by the NSW Government:

- Net zero emissions by 2050 for Eurobodalla
- 50% reduction in emissions by 2030 for Eurobodalla

To achieve these targets, 58 different actions have been proposed - 40 actions for Council and 18 actions to support the community and business. See the Action List at page 34.

3. Developing actions for Eurobodalla

3.1 PRINCIPLES USED TO IDENTIFY ACTIONS

How we respond to climate change may sometimes have short-term costs – even if, over time, these are less than the costs of not responding – and may affect certain groups more than others, just as climate change affects some groups more than others. It may also require decisions to be taken in the face of uncertainty, since we do not know precisely how environmental conditions or markets (the costs of high-carbon and low-carbon lifestyles) will change over the coming decades.

Therefore, several key principles have guided the preparation of this plan, and the way problems and solutions are identified and prioritised:

- *Equity*: The costs and benefits of acting on climate change – and of not acting – are unequally distributed in the community. We should emphasise measures that reduce inequality and support the most vulnerable. We should also avoid measures that create substantial private benefits through publicly incurred costs.
- *Synergies between mitigation and adaptation*: Some measures help to reduce GHG emissions and at the same time build our resilience to climate impacts. We should emphasise measures that deliver on both objectives.
- *Avoid maladaptation*: The way we respond should not inadvertently make things worse. We should avoid responses that increase GHG emissions, increase the burden on particularly vulnerable groups (for example by redistributing risks or vulnerability to people with a lower capacity to adapt) or ecosystems, or reduce the incentive to adapt.
- *Openness*: Empowerment and trust are important ingredients in building community resilience. We should deliberately create and nurture a culture of ongoing engagement and inclusivity between Council and the community, and across the community, since this relationship itself builds social resilience.
- *Science-based approaches:* Our response should draw on the best available knowledge about climate change, and about changing technologies and markets, to inform decisions on the way forward.
- *Managing uncertainty*: While we draw on science, there inevitably remains uncertainty in the precise nature and scale of future climatic changes at the scale of our region. We therefore must make decisions in the face of uncertainty. We should foster the capacity of Council and the community to respond flexibly over time, and to be able to ramp up action or change course if needed.
- *Council leading by example:* Governments everywhere can play an important role through their actions through: design, operation, procurement, investment, and communication actions. It should use these to showcase new technologies and approaches, and socialise the community to new norms of behaviour. Council should also be an advocate for positive changes where it does not have the power to directly take decisions. Council should take action that demonstrates leadership, and in doing so supports the broader community on the journey towards climate resilience.
- *Cost effectiveness*: Changing our infrastructure, our patterns of development, our ways of doing things, requires investment. The important element is that there should be clear benefits associated with this investment, even if these mature mainly over the longer-term. Measures should be assessed for the costs of action and compared with the costs of inaction and should be assessed over the whole life of the asset/decision, not just up-front costs. The distribution of costs and benefits should also be assessed, in line with the equity principle. However, sometimes costs or benefits may be difficult to quantify accurately – not being able to estimate fully the costs or benefits should not be a barrier to action.

Additional principles have been used to assign immediate priority to some of the actions, and these are described at 3.4.

3.2 COMMUNITY CONSULTATION AND ENGAGEMENT

Extensive community input has assisted development of the Climate Action Plan. We anticipate this will translate into community support for implementation of the actions and reflects the high number and quality of submissions received in response to the public exhibition of the draft plan.

A range of internal and external stakeholders and strategies have been engaged in the development of the draft Climate Action Plan over two years. These have included:

- internal review with the Council's Sustainability Matrix Group (a cross-Council staff working group)
- internal assessment of Climate Change Risk for Council by Statewide Mutual
- formation of the external Climate Change Working Group (eight submissions to the draft plan were received from participants in this group)
- presentations to three Council advisory committees
- youth forum workshop
- online webinars
- information on Council's website, along with media releases and other promotions on Council's platforms.

The draft Climate Action Plan was on public exhibition from 9 March 2022 for 28 days. The opportunity for the community to provide feedback was promoted through:

- media release: 9 March 2022 distributed to all local and regional media and published on Council's website in news section
- Council Noticeboard in the local newspapers
- Council News: article in March 2022 edition (email newsletter to ~3,000 subscribers)
- Facebook posts: 11 March 2022 and 1 April 2022, reached 10,924 users, 178 link clicks
- Instagram posts
- Council's website: homepage slider inviting submissions, linking to public exhibition page
- Councillor Catch Up: Moruya, Wednesday 6 April 2022
- emails sent to:
  - all members of the working group
  - high schools
  - chambers of commerce
  - contacts across the organisation.

A diverse range of people provided submissions to the Climate Action Plan and 15 groups made submissions on behalf of:

1. The Climate Factory
2. Biomedical Honey Search
3. Carroll College Rosellas
4. The Southcoast Health and Sustainability Alliance (SHASA)
5. 350 Eurobodalla
6. Broulee Mossy Point Dunecare
7. Broulee Mossy Point Community Association
8. Broulee Developments
9. Ke Loha Constructions Pty Ltd
10. Eurobodalla Landcare Network
11. South Durras Landcare
12. Nature Coast Marine Group Inc
13. Tilba Environment Landcarers
14. SAGE NSW Inc
15. A Better Eurobodalla (ABE).

1. General comments received about the plan

- of the 47 submissions received 44 were supportive of the plan and provided constructive feedback
- three submissions were sceptical of the science of climate change and critical of Council actions on this issue
- there were 11 submissions complimentary of the plan and Council actions to date and in developing the new plan
- there was united support for implementing actions that can deliver cost savings to Council
- most of the suggestions made in submissions are covered by the existing Plan actions
- requests to consider potential for more inclusion on local food production and food security
- requests to be more ambitious and more specific actions and to develop key performance indicators.

2. Methodology

All 47 submissions were provided in full to the Councillors and reviewed by Council's project team. Submissions were comprehensive and varied.

1. all submissions were read and suggestions/ recommendations identified within each submission
2. more than 400 suggestions were identified
3. suggestions/recommendations were linked to the ten sectors in the Climate Action Plan
4. suggestions in each sector were amalgamated where there was an alignment and commonality of the suggestion
5. suggestions were considered and a response to each amalgamated suggestion and how this suggestion was considered has been provided.

Table 3.2.1 shows the sector, the total number of suggestions, summary of suggestions and the changes made to the plan. Where no changes are noted, this means suggestions were already covered in the Actions, or suggestions are covered by other levels of government or legislation and some may have been unworkable.

Table 3.2.1 Overview of community feedback

Sector	Total number of suggestions	Summary of suggestions	Changes to the actions (details at 3.)
Electricity supply and use	14	4	No changes, covered in the actions
Integrated transport	21	6	Change Action 2.3: to short-term and ongoing timeframe Others covered in the actions and by other levels of government
Built environment	98	13	No changes, covered in actions and legislation. Additional resources will be required to fully implement actions.
Waste	21	5	No changes, covered in the actions
Water supply and wastewater treatment	13	4	No changes, covered in the actions and other levels of government
Ecosystems and biodiversity	48	15	Change Action 6.8: timeframe changed from medium to short-term and ongoing Change Action 6.8: added: work with Aboriginal groups to undertake and advocate further cultural burning Change Action 6.8: added: symbol for natural hazards Change Action 6.5: added: the marine environment
Agriculture and livestock	34	12	New Action 7.3: added: advocate and support local food production and aquaculture
Regional economy	10	5	No changes, covered in the actions
Natural hazards	30	15	Change Action 9.2: timeframe changed from medium-term to short-term and ongoing
Adaptive, responsive Council	129	23	New Action: 10.9: added: support education programs associated with energy, waste, water, and climate resilience
General comments	16	3	Comments noted. Compliments on the plan
TOTALS	**434**	**105**	

3. Amendments to the plan resulting from community feedback

1. Changed Action 2.3 timeframe: further promote active, inclusive transport, by implementation and review of 'Council's Pathways Strategy 2017' from medium-term (3-5 years) timeframe to short-term (1-2 years) for review and ongoing for implementation
2. Changed Action 6.8, timeframe and add symbol. Current action is to undertake and advocate further cultural burning and other fire techniques to manage natural areas in collaboration with other stakeholders where appropriate, in three areas to:
    - 2.1 changed action: by adding; to work with Aboriginal groups. Action reads work with Aboriginal groups to undertake and advocate further cultural burning and other fire techniques to manage natural areas in collaboration with stakeholders where appropriate
    - 2.2 changed the timeframe from medium-term (3-5 years) to short-term (1-2 years)
    - 2.3 added the natural hazard symbol
3. Changed Action 6.5: by adding the marine environment. Current action is continue to support Landcare and natural resource management programs (inclusive of invasive species) on private and public tenure and change to:
    - continue to support the marine environment, Landcare and natural resource management programs (inclusive of invasive species) on private and public tenure
4. Added new Action 7.3: advocate and support local food production and aquaculture
5. Changed Action 9.2 timeframe: continue to update flood studies and floodplain risk management studies as required and consider developing a Flood Management Code across Eurobodalla (to apply consistent flood controls and advice). Change the timeframe from medium-term (3-5 years) to short-term (1-2 years) and ongoing
6. Added new Action 10.9: support education programs associated with energy, waste, water, and climate resilience.

4. Where to now

The majority of submissions supported the plan, but many wanted to see more ambition from Council and greater commitment to specific actions. Although only eight changes were made to Actions, the feedback has been taken on board and staff will continue to use the community's input in the development of specific projects relating to the Actions. A Climate Advisory Group will be established with broad expertise and representatives from industry, community and academia that will help guide delivery of the CAP by sharing technical knowledge and providing input into project development.

Section 5 provides further commentary around what Council heard from the feedback and our response.

5. What we heard from the community

Built Environment

We heard clearly that Council needs to improve the sustainability standards for houses, get tougher controls on subdivision design and that people want more shade trees, particularly in public spaces. You also said we could get better at avoiding and minimising impacts before allowing them to occur with offsetting.

This would be Council's approach too, but we must work within the constraints of legislation in this space. There is so much legislation, and it is sometimes conflicting eg biodiversity vs bushfire. Council advocating for better standards, streamlined legislation and more education from other levels of government to help improve our built environment.

"Recommended learning from the work of the Council Alliance for Sustainable Built Environment (CASBE) in Victoria - CASBE has resources we should review and incorporate into our framework for future subdivision in our Shire."

Feedback to the draft CAP, March 2022

Response: Council is committed to improvements in the design of residential and commercial buildings, and the urban form (new subdivisions) that integrate sustainability and climate resilience (Action 3.3). However, we are bound by NSW and Australian legislation that guides the Development Control Plans. Council will review the Development Control Plans and as part of the process will be in touch with CASBE to see how they've done it and what we can consider and utilise from their model.

Ecosystems and Biodiversity

We heard that many people want Council to protect natural resources through reduced land clearing and with better protection for threatened ecosystems and biodiversity.

While land clearing is permissible based on NSW Government legislation and obviously required for development, Council wants to make sure we allow appropriate clearing and avoid it where possible. We are developing a Biodiversity Strategy that will help us more strategically protect the most valuable natural areas and threatened species of the Eurobodalla. Council also continues to deliver natural resources and Landcare programs that have helped many landholders over the last decade to enhance biodiversity on their properties and on public lands.

"Current developments on threatened ecosystems, such as Bangalay Sand Forest, cause a net loss of biodiversity in the Shire. Future developments should be on low biodiversity land or land that has already been cleared."

Feedback to the draft CAP, March 2022

Native logging, which is managed by the NSW Government, continues to be a hot topic in the community and views are varied. Council conducted workshops with industry, community and scientists conducted in May and June 2022 for Councillors.

Agriculture and livestock

"There are many opportunities for sustainable clean green food production in the Eurobodalla. The Eurobodalla could regain its place as a producer of a diverse range of fruits and vegetables and other foods stuff. This will enhance regional food security, diversify employment opportunities and strengthen community resilience."

Feedback to the draft CAP, March 2022

One area you said we overlooked is the food production industry. You wanted to see more support for local food production. Council agrees, so we've added a new action to advocate and support local food production and aquaculture. We will work with the community to see what you need us to do in this space and we'll continue to support local grower groups.

Adaptive, responsive Council

This sector had the most suggestions. You want better accountability, key performance indicators and regular updates from Council on how the delivery of the Climate Action Plan is going. We are going to provide annual reporting and will work on improving the plan with annual reviews. To do this, we want to utilise the huge resource of knowledge in our community and will work with the Climate Advisory Group to come up with more suitable reporting methods.

"I would like to applaud the work and complex thought that has gone into preparation of the plan, and thank Council for what has been done so far in relation to climate change. I am very supportive of the principles that underlie the plan and consider that as a whole the document makes for an excellent framework to minimise Council's climate footprint and to work with the wider community to achieve serious action on climate change mitigation, adaptation and resilience."

Feedback to the draft CAP, March 2022

3.3 OBJECTIVES MEET ACTIONS

Section 4 Actions List presents the range of measures that Council has identified as important steps to building climate resilience in Eurobodalla, by mitigating GHG emissions and adapting to climate impacts. It also shows how each action contributes to one or more of the objectives of the Climate Action Plan.

Effort is needed across most areas of Council's activities. In some cases, this is already well underway and should continue, while in other areas new actions will be initiated. More detail on the measures for each sector is described in the annexes (A1 to A10), also referenced against each action in the table.

The full list of measures in the actions table and the annexes is considerable but not exhaustive. It is difficult to see a decade ahead and identify all the actions that make sense, especially towards the end of the decade. This is because the climate continues to change, our knowledge about climate change expands, and the policy context and technology markets will also keep changing. Therefore, while implementing these initial measures, Council will need to monitor ongoing changes and identify further actions that can be taken to strengthen the climate resilience of Eurobodalla. This need for a flexible, adaptive approach is described in annex A10.

Actions will be driven through Council's Integrated, Planning and Reporting process, specifically the four-year Delivery Program and the annual Operational Plan. External grant funding will be sought to assist in the delivery of these actions.

3.4 IMMEDIATE PRIORITIES

While all these measures make important contributions to building resilience, some are particularly critical and need emphasis. These are outlined in Table 3.3a. Highest priority is placed on those measures which:

1. *Address a situation where the status quo is resulting in sub-optimal/poor climate resilience outcomes and where the outcomes are locked-in over a long timeframe, meaning they cannot easily be reversed.* In several instances, continuation of the status quo will undermine resilience and in a way that cannot be recovered without enormous cost and a long time. Action is needed now to avoid locking in sub-optimal/poor outcomes, and to instead set in train stronger climate resilience outcomes.
2. *Require a long lead time between initial investment and the desired resilience outcome.* Action is needed now to ensure the benefits are achieved in a timely manner.
3. *Target the needs of the most vulnerable people or species.* The impacts experienced because of climate change – and the capacity to take action to reduce GHG emissions or adapt – differs across the community. Extra emphasis is needed on actions that build resilience for the most vulnerable, including the elderly, people living with disability, Aboriginal communities and youth.
4. *Achieve high impacts re GHG emissions or resilience.* Emphasis is on the scale of impact, including over time, and actions that deliver large reductions in GHG emissions and/or make a major difference to community or ecological resilience.

Table 3.4a Immediate priorities for action

Criteria	Priority areas and key Council actions	Relevant annexes
Addressing decisions which have long-term consequences for resilience	**Housing design and construction** Promote better performance of new houses and commercial buildings against key sustainability and resilience indicators, especially for heat/thermal comfort and energy demand.	A3
	Urban form/residential subdivision design More sustainable, resilient design of residential subdivisions, integrating various resilience outcomes: • better performance for heat/thermal comfort and energy demand of dwellings • stronger integration of biodiversity objectives, including bio-corridors that connect habitat • permeable design that incorporates pedestrian and bike pathways to improve mobility and encourage active transport.	A3
	Natural ecosystems and biodiversity Expand the areas actively managed for biodiversity enhancement and protection of areas managed for conservation on public and private lands, including measures targeting vulnerable ecosystems, climate refugia and vegetation corridors.	A6
Measures where there is a long lead time between investment and desired resilience outcome	**Public shade trees** In some places the planting of shade trees is a desired strategy for managing heat, including in public places such as town streets and children's playgrounds. Trees take time to grow so need to be planted soon to deliver benefits in 2030 and beyond. Council will identify appropriate sites and develop planting programs.	A3
Measures that target the needs of the most vulnerable	**Reducing heat stress** Reduce the impacts of heat - higher average temperatures and more extended heatwaves - in public spaces, private dwellings, and include a particular focus on groups that are particularly vulnerable to heat stress.	A1, A3
High impact on GHG emissions or climate resilience	**Reducing high impact GHG emitters** While beyond Council's control, Council may choose to encourage the NSW Government to transition out of industries and activities that have a significant impact on GHG emissions, such as coal mining and native vegetation clearing.	A6
	Upscale renewable energy Implement programs, and develop support materials, to promote Council and community uptake of renewable energy such as rooftop solar and household battery systems.	A1
	Waste methane flaring Expand capture and flaring of waste methane at Council landfills, as existing landfill cells are closed and new cells opened.	A4
	In addition, **building and subdivision design and stronger protection for biodiversity** (listed above) are also high impact measures.	A3, A6

Several other criteria are also helpful in focusing our attention on actions that may be less urgent but for which there is nonetheless a strong logic to begin now (see Table 3.4b). Specifically, this relates to actions that:

- *Promote no regrets measures.* These provide immediate economic savings and/or socially positive outcomes, regardless of how climate change pans out.
- *Help us to manage major socio-economic or technological transitions* that are happening regardless of what Council does, and which are driven in part by climate responses.

Table 3.4b No regrets measures and actions that help manage transitions

Criteria	Priority areas and Council actions	Relevant annexes
No regrets measures	Promote renewable energy uptake and other sustainability upgrades by households and businesses, which deliver cost savings within relatively short payback times.	A1, A8
	Facilitate greater community engagement with climate resilience planning and actions.	A10
Managing transitions	Policies and operations are well prepared for transitions expected in:	
	Electricity – Planning for the opportunities for, and impacts of, increased solar uptake as NSW continues towards greater renewable energy and net zero GHG emissions by 2050.	A1
	Transport – Planning for the impacts and opportunities associated with transition of the NSW vehicle fleet to EVs, including NSW Government expectation of 100% new NSW Government vehicles to be EVs by 2030.	A2
	Waste – Planning for the opportunities for, and impacts of, changes in waste requirements (see recent Waste and Sustainable Materials Strategy 2041 and the NSW Plastics Action Plan[19], phasing out single-use plastics and mandating separate collection of food waste).	A4
	Urban development – Planning for the impacts of urban growth in Eurobodalla, particularly new housing.	A3

19 https://www.dpie.nsw.gov.au/our-work/environment-energy-and-science/waste-and-sustainable-materials-strategy

SPECIAL FEATURE

Managing the impacts of heat in the community

One of the clearest projections we have about how climate change will play out is more hot days and higher average air temperatures. Modelling by the NSW Government concludes that in the near future (2020-29) much of NSW will experience heatwaves more often and that last longer, and this trend will continue into the far future (2060-79). Heatwaves will also become hotter, with more days above 40°C across most of NSW (Office of Environment and Heritage, 2015)

In the Climate Change Risk Assessment undertaken by Council with its insurer Statewide Mutual in 2020, 18 of the 37 identified impacts on Council operations (and 12 of the 25 categorised as high risk) are related to rising temperature. The assessment identifies that without changes to Council operations and planning, rising average temperatures present a high risk to ecosystem health and biodiversity, water supply and demand, use of open space reserves and recreation assets, and water quality (higher incidence of water-borne diseases).

The projections suggest Eurobodalla will experience additional hot days (above 35°C) and the Climate Change Risk Assessment identifies numerous high risks as a result, including health impacts (heat stroke), workplace safety for Council staff and contractors, negative impacts on aquaculture and agricultural production, ecosystem health, and increases in peak water demand.

Human health risks

Heat stress is a significant health risk in the community. Extreme weather events such as heatwaves, along with changing variability of rainfall, are among the significant sources of direct human health risks associated with climate change. More frequent and severe heat waves are linked directly with higher risk of injury, disease and death, and over the past century heatwaves have killed more people than any other natural hazard in Australia (Commonwealth of Australia 2015).

In addition, heat will drive secondary effects like expanding the range of mosquito-borne diseases, and promoting bacterial growth which can lead to issues like higher rates of food poisoning (Bowles 2015). Extreme weather including heatwaves can also affect food and water security, and place greater strain on the public health system and aged-care homes, as well as other service providers (Commonwealth of Australia 2015).

Such impacts tend to disproportionately burden the most socioeconomically disadvantaged groups in our community (Bowles 2015), particularly the elderly, children, certain types of workers, and people who already suffer from chronic disease. Certain households are also at greater risk, such as low income homeowners who cannot afford to retrofit their existing house or purchase more energy efficient or thermally comfortable housing, renters who are unable to afford or influence retrofit decisions by their landlords, and residents in public housing (Commonwealth of Australia 2018).

Events like bushfires, often associated with extreme heat, also have a major impact on mental health and well-being: "Beyond the death toll, bushfires traumatise far more people than they physically injure, including those who lose their homes or are forced to put down burned livestock." (Bowles 2015).

Energy and service delivery costs

Increased hot days will not only affect health, but also energy costs. There are estimates that – in a study of Sydney's eastern suburbs – energy requirements for cooling will increase by 70% by 2030 compared with 2020, and 300% by 2070 (NSW Audit Office 2021).

More heat may also affect Council assets and service delivery, including: asset management considerations such as "repair and maintenance of road infrastructure (which may fail depending on the thermal performance of construction materials); power outages that impact on workforce productivity and availability of public facilities; infrastructure that is not designed to cope with extreme heat, including road and bridge surfaces, IT transmission stations, sewerage and water pumping stations, community buildings that rely on passive cooling that becomes inadequate during extreme heat events; Council-owned or supported food businesses, or health services (eg. immunisation services); additional maintenance required of 'cool' spaces due to increased patronage such as swimming pool filtration systems, etc; and staff absenteeism due to carer responsibilities or inability to travel to work – particularly in peri-urban areas where bushfire response responsibilities may take precedence." (OEH 2016).

Heat outcomes are affected by:

- the design of buildings, since people are most often indoors during heatwaves (most deaths occur in homes during heatwaves, and this risk is magnified now in Australia by the growing dependence of our housing stock on mechanical air-conditioning rather than passive cooling to reduce the impact of heat stress (Commonwealth of Australia 2018)
- the affordability of cooling options for individual households
- the design of public spaces such as town centres, streetscapes, recreation facilities and parks, including the types of materials and surfaces used and the availability of shading
- the availability and accessibility of places of refuge during heatwaves, particularly for the members of the community who are most vulnerable to the impacts of heat
- people's individual health. NSW Health identifies the most vulnerable to heat stress as including people who are: over the age of 75, infants and young children, overweight or obese, pregnant or breastfeeding, not very mobile, not drinking enough water, living by themselves or homeless, without social support, working in a hot environment (for example labourers, gardeners, fire fighters), or exercising vigorously in the heat.

Why managing heat is a key issue for local government

The community's exposure to, and ability to cope with, heat may be influenced by a range of local government decisions. Local councils:

- develop and implement policies that guide urban development, informed by NSW Government legislation
- design and manage public space, including streetscapes, children's playgrounds, and recreational facilities
- run programs that connect with some of the most vulnerable people in our community, including through health promotion and other community services
- have responsibilities for some environmental management and conduct programs that aim to protect biodiversity and natural ecosystems.

Other issues arising from heatwaves are the responsibility of the NSW Government to prepare for and manage, from an emergency services perspective and from a health services and health infrastructure perspective.

Strategies for managing the impacts of rising heat in the community

Key strategies to manage the impacts of more heat in the community involve:

- natural and/or artificial shading in public spaces
- heat-tolerant building and subdivision design
- the availability of accessible community refuges
- energy efficiency retrofits particularly for low-income households.

The NSW Government's guide for local governments on Minimising the impacts of extreme heat (OEH 2016) outlines various urban design and land-use planning strategies that can be employed to minimise the impacts of more heat. A key strategy is the creation of urban green cover, utilising cool roofs, more shading of public spaces, and open green spaces within urban developments. Work routines may also need to be adjusted, such as by introducing more flexible work times and providing more shaded work spaces.

The Sustainable Subdivisions Framework (CASBE 2019b) highlights the benefits of strategies including: introducing irrigated and vegetated landscapes into subdivisions, which can provide places with cooler microclimates that offer relief from hot conditions; providing shelter for pedestrian and cyclist movement; providing shading of roads and carparks; and the use of materials that have a higher solar reflective index (SRI) for buildings and for public shade structures, which will lower heat absorption.

Vulnerable groups may be supported to better cope with heat through actions such as: targeted lifestyle-related programs that focus on reducing chronic disease: an accessible system for public health warnings; programs to raise awareness of coping strategies, such as NSW Health's 'Beat the Heat' brochures (NSW Health 2013); making adequately provisioned public facilities available as temporary refuges and ensuring vulnerable groups are able to access these refuges (bearing in mind some may not have private transport); and improving the standard of private dwellings so that they stay cooler during hot weather. The latter is particularly important for low-income households where residents may live in lower quality houses and may not afford air conditioning.

Urban planning

The NSW Government sets the framework for planning in NSW, including at a regional and local level. Councils are required to adhere to this overarching framework.

For individual dwellings, heat performance standards are set by the NSW Government through its BASIX requirements – which are presently inadequate for properly managing the risks of acute heat (see annex A3 - Building design and urban development).

At the local level, Eurobodalla Council's Local Strategic Planning Statement includes natural hazards as Priority 4, however this presently includes no mention of heat-related risks/hazards.

Playgrounds and recreational facilities, and walking and cycling paths

Council currently manages around 30 playgrounds across the Eurobodalla. Options for improving shading include planting trees, positioning in the vicinity of existing shade structures, and/or construction of artificial shading such as shade sails. The addition of playground shade sails adds at least 20% to total playground cost, both upfront and in ongoing maintenance.

Eurobodalla Council's Recreation and Open Space Strategy 2018 (ROSS) does not mention heat specifically but recognises the importance of shade and access to water at public spaces and sports fields, and identifies shade and access to drinking water as key design considerations in all forms of open space.

The ROSS Strategy:

- highlights that shaded seats at rest places along pathways are particularly important to the elderly community
- flags the need for more shade at parks, particularly over children's play areas, as a key issue raised by the community during consultation
- notes that local sports clubs raised the need for shade/seating/water as the number one issue requiring attention at existing sports facilities
- includes in its 'embellishment standards' that shade structures and water taps/bubblers should be incorporated into all open space types, while "shade trees clustered near activity node" should be incorporated into most open space types. The Strategy adopts the goal that "natural and artificial shade should be mandatory at all outdoor sports venues". For Mogo village, the Strategy identifies that "shade, water bubblers and plantings would also complement the (main) street"
- states that shading, water bubblers and seating will be considered for new and/or upgrades to footpaths and shared paths, skate parks, and some playgrounds.

The importance of shading on the main pathways used is also recognised in Council's Pathways Strategy 2017, which commits to providing bubblers and water filling stations at strategic locations along high-use recreational routes. There are now 19 permanent water refill stations installed across the Eurobodalla and each station has a wheelchair accessible bubbler, taps to fill water bottles and drink bowls for pets.

Several recent playground upgrades have incorporated improvements to shading and water availability. Shade sails and undercover picnic tables are installed at Jack Buckley Park in Tomakin. The upgrade at Mogo playground and the new playground at Long Beach both incorporate tree plantings that are designed to provide future shading.

Future playground upgrades and renewals should consider shade options, as well as material choices for playground structures and ground surface to minimise heat impacts.

A shade audit of playgrounds and other key recreational assets will identify options and develop cost estimates. All upgrades and renewals will be planned and designed in accordance with the NSW Government's 'Everyone Can Play' guidelines (NSW Government 2019).

Urban centres

Shading along main pedestrian thoroughfares and streets has been shown to provide a substantial difference in ground level heat (Schwaab et al. 2021; Ossola, Staas, and Leishman 2020; Kaluarachichi, Tjoelker, and Pfautsch 2020).

Significant street trees need to be planned so as not to interfere with important hard infrastructure such as footpaths and underground services. This means there are costs associated with planting but also with ongoing maintenance. Overall, however, the economic benefits of well-designed and managed trees can significantly outweigh these costs. Many find urban centres with trees more aesthetically pleasing and, combined with their benefits for reducing urban heat for residents and visitors, this creates more liveable, attractive urban centres – in turn, make our towns and villages more desirable places to visit, linger, spend money, and even live. Reduced heat stress also lowers the local health costs of heat waves. Any costs associated with maintenance of shading or shade vegetation need to be assessed alongside social, environmental and economic benefits.

The promotion of walkable shady streets and plazas, and increased access to quality green, open and public space, is one of the NSW Premier's priorities.[20]

20 https://www.nsw.gov.au/premiers-priorities/greener-public-spaces

Community refuges

Some people live in housing that is poorly adapted to cope with extended heat, creating high vulnerability to potential heat stress. This vulnerability is highest among the elderly, very young, and in crowded and/or low-income housing.

For many there are no options that improve coping capacity during heatwaves. In this context, well-designed and/or air-conditioned public facilities such as libraries or halls might be suitable to be used as places of refuge that can help people cope with heat. To function as a suitable place of refuge, public buildings need to be well cooled and also to have independent power capacity - noting that the electricity grid is vulnerable during periods of high heat - and to have appropriate toilets and other facilities that cater for the particular groups who are most in need.

These refuges also need to be accessible because some of our most vulnerable community members may not have private transport. Additionally, periods of high heat may not correspond with traditional opening hours of facilities like libraries. Therefore, to provide community refuges there needs to be planning and design so that well located and well serviced facilities are identified and works undertaken to prepare these if needed.

Since the 2019/20 bushfires, Council has undertaken work to install independent power capabilities at numerous venues that were used as evacuation centres.

There have also been progressive community-led initiatives in Eurobodalla to establish facilities that can be used as local refuges by the community during disaster events and heatwaves.

Actions that improve community resilience to heat

To improve the heat tolerance of buildings and the design of subdivisions:

- encourage improvements in the design of residential and commercial buildings, and new subdivisions - annex 3
- Investigate the potential to partner with other organisations and governments to implement energy efficiency retrofit or upgrade programs - annex 1.

To reduce heat impacts in public spaces:

- design and implement a program of plantings and/or artificial shading of our most visited urban streetscapes and carparks - annex 3
- playground upgrades and renewals should consider shade options as well as material choices for structures and ground surface to minimise heat impacts - annex 3
- to ensure places of refuge during heatwaves and other disaster events, with off-grid power for cooling, and transport options for vulnerable people - annex 9

To manage heat stress impacts on biodiversity:

- protections for our natural ecosystems, wildlife corridors and incentives to support conservation - annex 6.

To ensure energy security during heatwaves and associated extreme events like bushfires:

- ensuring critical water supply infrastructure has the capacity to continue operating in times of power outage - annex 5.

4. Action List

To achieve our targets (p25), we have established an action list of 58 different actions. There are 40 actions for Council to implement and 18 actions to support the community and business.

The Action List comprises:

C Actions for Council

Actions for Council to support community

1 Objectives each action supports

Annex for supporting information

Timeframe:

- short-term (1-2 years)
- ●● medium-term (3-5 years)
- ●●● long-term (5+ years)
- ▸ ongoing

Electricity supply and use

Primary objective: Continue the transition to cleaner energy supply, lower energy use and improve energy security during extreme events

Council actions

1.1 Seek Power Purchase Agreement / renewable energy supply for remaining 20% of Council energy usage.
● ▶

1.2 Continue to lower energy usage where feasible through solar, lighting upgrades, maintenance works and other opportunities to improve energy efficiency.
▶

1.3 Investigate potential for batteries to be integrated with solar assets.
● ▶

Council actions to support community and business

1.4 Develop and share community tools and initiatives to assist with informed choices about renewable energy options.
▶

1.5 Advocate to the NSW Government for financing mechanisms and funding to undertake sustainability upgrades.
● ▶

1.6 Advocate to the NSW Government to improve the energy efficiency of social housing and to support low-income households and vulnerable communities.
● ▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Integrated transport

Primary objective: Encourage and prepare for zero emission vehicles within the Council fleet and in the wider community, and provide accessibility and connectivity options

Council actions

2.1 Develop an Electric Vehicle (EV) Strategy including charging infrastructure requirements, operational changes and transition plan.
●

2.2 Implement the EV Strategy: transition to an EV fleet and implement charging infrastructure and changes needed in work practices.
●●●

2.3 Further promote active, inclusive transport, by implementation and review of *Council's Pathways Strategy 2017*.
● ▶

2.4 Continue to implement the Eurobodalla Road Safety Plan, Transport Asset Management Plan and Northern Area Transport Network Plan, and develop the Southern Area Transport Network Plan to provide integrated transport outcomes, inclusive of assisting vulnerable groups.
●●

Council actions to support community and business

2.5 Advocate to NSW and Australian governments for further support for EVs, including financial incentives to lower upfront costs, provisions of charging infrastructure and mechanisms for charging in homes, and to help connect the Eurobodalla community with new opportunities that do emerge.
● ▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Built environment

Primary objective: Improve the sustainability performance and climate resilience of subdivisions, houses, commercial and community buildings

Council actions

3.1 Advocate to the NSW Government to upgrade existing sustainability requirements for new buildings and significant upgrades (i.e. to strengthen existing BASIX standards and to introduce a measure for extreme heat scenarios).
● ▶

3.2 Advocate to the Australian Government and national bodies to improve the *National Construction Code* (i.e. raise energy efficiency standards and integrating new standards related to acute heat risks).
● ▶

3.3 Facilitate improvements in the design of residential and commercial buildings, and the urban form (new subdivisions) that integrate sustainability and climate resilience.
▶

3.4 Lead by example to showcase better building design and construction when undertaking works on facilities and new buildings (i.e. incorporating performance standards for key sustainability criteria, use of sustainable materials and piloting new ideas where feasible).
▶

3.5 Seek bio-certification of priority land release areas (as identified in the ESC *Settlement Strategy* and any future updates).
●● ▶

3.6 Design and implementation of programs for plantings and/or artificial shading of strategic urban streetscapes, Council carparks and playgrounds.
● ▶

Council actions to support community and business

3.7 Build awareness and capacity about sustainable design (energy performance), particularly among developers, home-owners, and builders, for instance by: forums, design guides, workshops and specialist advice services.
▶

3.8 Advocate to the NSW and Australian Governments to support older housing stocks to improve energy efficiency, climate resilience and sustainability.
● ▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Waste

Primary objective: Reduce the total volume of putrescible waste to landfill, reduce methane emissions, and prepare for new waste issues associated with other aspects of the low-carbon transition

Council actions

4.1 Investigate opportunities for further methane capture and flaring at landfills.
●

4.2 Review the *Eurobodalla Waste Strategy* (with consideration of climate change and the targets in the NSW *Waste and Sustainable Materials Strategy 2041*).
●

4.3 Continue to advocate to NSW and Australian Governments for the integration of climate change and GHG issues into regional waste strategies.
▶

Council actions to support community and business

4.4 Continue to implement waste diversion programs that reduce the volume of waste going to landfill.
▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Water supply and wastewater treatment

Primary objective: Ensure secure and safe potable water supply and wastewater treatment

Council actions

5.1 Increase water security through construction and utilisation of the southern water supply storage.
● ●●

5.2 Reduce water demand by seeking opportunities to reduce potable water use and increase recycled water usage.
▶

5.3 Continue programs to identify and resolve stormwater infiltration into the sewerage systems.
▶

5.4 Continue to improve energy security for key water and wastewater assets.
▶

Council actions to support community and business

5.5 Continue to conduct water efficiency programs.
▶

5.6 Advocate to the NSW Government on opportunities and the ability to safely reuse grey and waste water particularly in drought periods.
●

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Ecosystems and biodiversity

Primary objective: Expand areas being actively managed for biodiversity enhancement and protected under formal conservation arrangements, targeting vulnerable ecosystems, climate refugia and vegetation corridors

Council actions

6.1 Develop a Eurobodalla Biodiversity Strategy identifying high conservation areas and wildlife connectivity on public and private lands, and mechanisms to protect biodiversity.
●

6.2 Implement programs that support the *Eurobodalla Biodiversity Strategy.*
●● ●●●

6.3 Advocate and seek long-term protection of inter-tidal ecosystems to permit landward migration through the NSW Coastal Management Programs.
▶

6.4 Continue to improve the understanding and integration of biodiversity objectives within Council operations.
●

Council actions to support community and business

6.5 Continue to support the marine environment, Landcare and natural resource management programs (inclusive of invasive species) on private and public tenure.
▶

6.6 Advocate to NSW and Australian Governments to protect key sites (such as voluntary acquisition schemes or other mechanisms like biodiversity or carbon offsets, and consideration of reducing commercial logging of native forests).
● ▶

6.7 Advocate to the NSW Government for the expansion of National Parks and the Reserve system.
▶

6.8 Work with Aboriginal groups to undertake and advocate further cultural burning and other fire techniques to manage natural areas in collaboration with stakeholders where appropriate.
● ▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Agriculture and livestock

Primary objective: Reduce the carbon-intensity of agriculture and livestock production and strengthen their resilience to the impacts of climate change

Council actions

7.1 Assist landowners to minimise the impacts of invasive species (weeds and animals) in accord with the *Biosecurity Act 2015*.
▶

Council actions to support community and business

7.2 Collaborate with the NSW Government agency, South East Local Land Services (LLS) to raise awareness and promote practices for low-carbon livestock and agricultural production, and to carbon and biodiversity offset markets.
▶

7.3 Advocate and support local food production and aquaculture.
▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Regional economy

Primary objective: Improve awareness of climate risks and market opportunities among businesses and provide support to address barriers to investing in sustainable practices

Council actions

8.1 Integrate climate resilience into future updates of the *Economic Development Strategy* and related plans such as the *Destination Action Plan.*
●●

Council actions to support community and business

8.2 Assist the business sector with the provision of information on climate change and opportunities.
▶

8.3 Advocate to NSW Government for support to assist in addressing barriers to enable further investment in sustainability upgrades for business.
●

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Natural hazards

Primary objective: Manage the increased risk of natural hazards such as flooding, bushfire, heat waves on assets, infrastructure and settlements

Council actions

9.1 Finalise and implement the Eurobodalla Coastal Management Programs (CMP) – the *Open Coast CMP and Estuaries CMP.*

● ▶

9.2 Continue to update flood studies and floodplain risk management studies as required, and consider developing a *Flood Management Code* across Eurobodalla (to apply consistent flood controls and advice).

● ▶

9.3 Update the Intermittently Open and Closed Lakes and Lagoons (ICOLLs) Management Policy (which guides the opening waterways to prevent flooding), to revise trigger levels and include additional ICOLLS as needed.

●●

9.4 Review and update policies and activities where guidance from the IPCC on sea level rise changes or legislative changes require Council to do so.

▶

9.5 Facilitate the update of the Eurobodalla Local Emergency Management Plan 2019.

●

Council actions to support community and business

9.6 Advocate to the NSW and Australian Governments for ongoing support to improve disaster preparedness and resilience, including: emergency management capabilities; evacuation centres and refuge facilities; resilient infrastructure including telecommunications, energy systems and roads; and ensuring local providers of crucial goods and services are able to continue operating during disaster events.

● ▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

Adaptive, responsive Council

Primary objective: Improve Council's adaptability and responsiveness to changing climatic conditions and changing responsibilities relating to tackling climate change

Council actions

10.1 Annual reporting of the progress of the Climate Action Plan and review and update as required.
▶

10.2 Integration of climate change responses into Council plans, programmes, reports as they are developed/updated.
▶

10.3 Consider the impacts of climate change on Council operations and activities.
▶

10.4 Consider further divestment of Council's investment portfolio to fossil free funds.
●

10.5 Advocate to the NSW Government to create clear pathways and opportunities for greater divestment of fossil fuels by local councils.
●

10.6 Review and update (as needed) Council's *Safe Work Method Statements*, and *Work Activity Brief* procedures, to eliminate or reduce exposure to climate change-related risks (e.g. excessive heat).
● ▶

10.7 Continue Council's internal Sustainability Matrix Group to ensure collaboration and engagement in climate change actions and opportunities across all divisions of Council.
● ▶

10.8 Facilitate a *Climate Change Advisory Group* comprising external, technical expertise that can assist Council and community implement the Climate Action Plan, including by accessing external funding opportunities to reduce emissions or climate risks.
● ▶

10.9 Support education programs associated with energy, waste, water, and climate resilience.
▶

TIMEFRAME:
● short-term (1-2 years) ●● medium-term (3-5 years) ●●● long-term (5+ years) ▶ ongoing

5. Annexes: Actions by sector/theme

Electricity supply and energy demand

Primary objective: Continue the transition to cleaner energy supply, lower energy use and improve energy security during extreme events
Actions: Refer page 42

Electricity is the largest source of greenhouse (GHG) emissions in NSW. Energy demand affects security, costs and GHG emissions. Energy efficiency and energy savings programs are therefore important parts of the strategy to tackle climate change. Electricity is also a crucial resource from a resilience perspective, energy security, and independence for critical infrastructure in particular is important to avoid extended periods of power loss when the grid goes down.

Clean energy

The energy market is changing quickly. Fossil fuels are being replaced by renewable energy as costs come down. The market for rooftop solar PV is expanding very quickly and providing opportunities for households to not only reduce carbon emissions but also accrue financial savings in the medium to long-term.

Eurobodalla has around 28 MW of installed rooftop solar PV capacity.[21] Around 6.7 MW was installed in 2020 alone[22] and there is a continuing trend towards more uptake by households and businesses. Council itself has installed 750 kW of solar PV on public facilities and assets.

Passive solar design of buildings and solar PV with batteries can boost community resilience. There is often an economic case – not only for households but for the LGA – for promoting wider uptake of solar. Energy savings to Eurobodalla residents may keep money in the LGA, which then flows through to other businesses, as opposed to energy payments, which flow out of the shire.

Energy efficiency for low-income households

While energy efficiency is good for the climate and also saves money, not everyone can easily take action to improve energy efficiency. Low-income housing and tenanted properties tend to have lower rates of home insulation and are more likely to own inefficient appliances (ACOSS 2013). Low-income households face various barriers to investing in energy efficiency, including limited access to the funds needed to invest in high value energy efficiency upgrades and/or split incentives, which mean landlords do not invest in improving the energy efficiency of rental properties (ACOSS 2013).

Poor energy efficiency of homes, in turn, reduces their thermal comfort during extreme heat events. From an equity perspective, it is important to ensure low-income households can benefit from the cost savings associated with better energy efficiency, and at the same time can be part of positive climate action and be able to live in more climate resilient homes.

Governments can play an important role here by homeowners, and tenants have good information for making decisions, and by developing programs that encourage and enable the retrofitting of existing dwellings.

Other possible actions to address the barriers mentioned above include the introduction of minimum energy efficiency standards for rental properties, landlord tax incentives for energy efficiency measures, and funding programs that enable retrofits of the worst performing social housing (ACOSS 2013). An example of the latter is the Victorian Healthy Homes Program which provides free home energy upgrades for people living with complex healthcare needs and on low incomes.[23]

Energy security

Energy security during extreme events is a critical issue. During the 2019/20 bushfires, for example, most of Eurobodalla was left without power for extended periods, which affected not only households but also the providers of crucial goods and services like food and fuel. It also affected Council's water supply system. Increasing the energy independence of key assets and service providers will make Eurobodalla more resilient to future system shocks.

21 https://pv-map.apvi.org.au/historical#8/-35.822/150.227
22 http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations#Postcode-data-files
23 https://www.sustainability.vic.gov.au/victorian-healthy-homes-program

Integrated transport

Primary objective: Encourage and prepare for zero emission vehicles within the Council fleet and in the wider community, and provide accessibility and connectivity options
Actions: Refer page 43

Integrated transport considers more active transport through land-use planning and infrastructure for pedestrians and bike riders, as well as the traditional vehicular traffic.

Road transport accounts for almost 40% of non-land use related GHG emissions in Eurobodalla[24]. Transport is Council's third largest source of emissions (after waste and electricity use for water and sewer). Road transport is also a source of local air pollution and environmental noise, as well as financial costs for households and businesses.

Electric vehicles

Electric vehicles (EVs) – comprising battery EVs, hydrogen fuel cell EVs and plug-in hybrids – are high performance, cheaper to run and quieter on the road than conventional internal combustion engine (ICE) vehicles, and do not emit tailpipe air pollution or greenhouse gas emissions. A shift to EVs will "dramatically improve health outcomes for communities, particularly pregnant women and babies, people with chronic illnesses, and the elderly, through reduced toxic exhaust emissions".[25]

The Australian car market has begun to see greater uptake of EVs, with year-on-year increases in sales as a percentage of new vehicles, although total sales in 2020 were still less than 1% of the light vehicles market (compared with 11% in the UK, 74% in Norway and a global average of 4.2%). There will be some 58 EV models available in the Australian market by 2022, 14 of which are priced under $65,000. The rollout of public charging stations across Australia is also increasing year-on-year.[26]

The NSW Government's NSW Electric Vehicle Strategy launched in 2021[27] sets out a clear expectation for transition of the NSW vehicle fleet to electric vehicles over the coming decade. It also details some immediate financial and technical support for this transition, to reduce purchase costs (including financial support for greater integration of EVs in government and business fleets) and for rolling out charging infrastructure. The new Strategy aims to increase EV sales in NSW to 52% of all new vehicles by 2030–31 and describes an ambition that by 2035 most new cars will be EVs.

In terms of government fleets, in 2019 the NSW Government adopted the target of 10% of new vehicle turnover in NSW Government agency fleets to be EVs by 2021.[28] In 2021 this target was raised, so that the government is now targeting half its fleet to be electric by 2026 with the remaining 50% over the following five years – in other words, to have a fully electric passenger fleet by 2030.[29] Commitment has also been made to transition the NSW Government's 8,000 buses to electric by 2030. An EV Fast Charging Master Plan was released in September 2021 which identifies the current network and an indicative future network of public EV fast chargers (50kW and above) across NSW.[30]

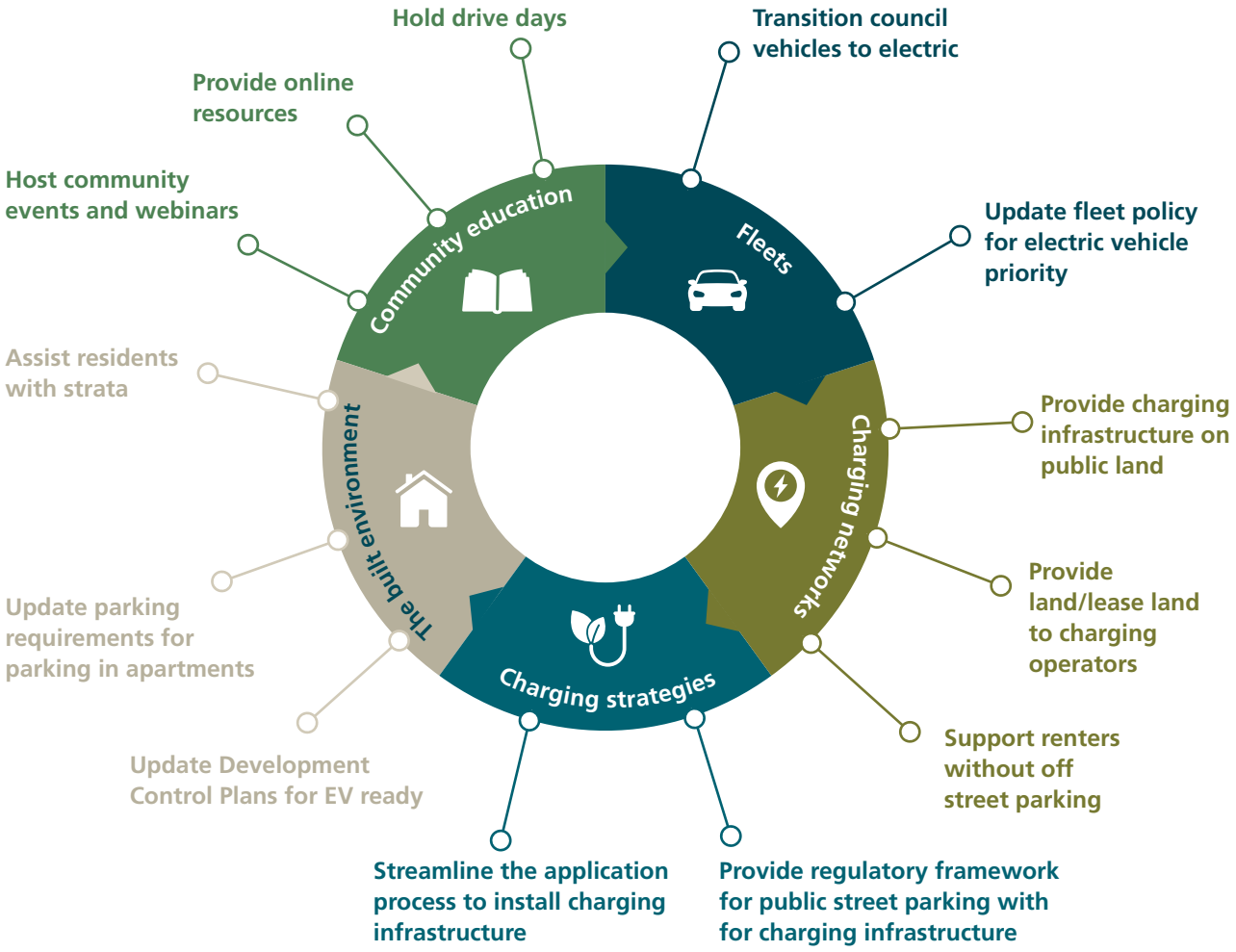
Many of the broader policy settings to encourage the EV transition are the responsibility of the NSW Government, which has now acted with clear signals and financial support.

Local government does have important roles to play, and the areas where local governments might act to support the EV transition are indicated in Figure A2.1.

24 https://snapshotclimate.com.au/locality/australia/new-south-wales/eurobodalla/
25 https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-electric-vehicle-strategy-210225.pdf
26 https://electricvehiclecouncil.com.au/wp-content/uploads/2021/08/EVC-State-of-EVs-2021.pdf
27 https://www.environment.nsw.gov.au/topics/climate-change/net-zero-plan/electric-vehicle-strategy
28 See NSW Electric and Hybrid Vehicle Plan 2019: https://future.transport.nsw.gov.au/sites/default/files/media/documents/2019/Future%20Transport%20NSW%20Electric%20%26%20Hybrid%20vehicle%20plan.pdf
29 https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Climate-change/nsw-electric-vehicle-strategy-210225.pdf
30 https://www.energysaver.nsw.gov.au/reducing-emissions-nsw/electric-vehicles/electric-vehicle-fast-charging-master-plan

Integrated transport cont'd

Figure A2.1 Opportunities for local government to support the EV transition



Source: Electric Vehicle Council, State of EVs 2021

Integrated transport cont'd

In February 2022, Eurobodalla Council's vehicle fleet of around 200 light vehicles, 75 trucks and 30 plant vehicles included one plug-in hybrid electric car, 16 hybrid cars and 2 hybrid trucks. It will be important for Council to at least maintain pace with the NSW transition, in terms of introducing EVs into Council fleet, and ensuring we have the supporting infrastructure and operational practices in place to make this work. Taking this leadership role will also demonstrate and promote EVs to the wider community.

Council is presently a member of the EV Council of Australia's Charge Together Fleets program which is a platform for sharing information about opportunities to integrate EVs into fleets.[31]

Active transport

Promoting a wide range of mobility options, beyond private vehicles, is another important issue from a climate resilience perspective. Particularly the young and the elderly may have limited mobility options and will benefit from policies or programs that expand pedestrian and bike paths, as well as public transport. Well-designed active transport infrastructure like shared pathways shaded from summer heat can also encourage mode switching for shorter journeys, thus reducing local traffic and GHG emissions. It creates more connected communities, which also contributes to our social resilience.

The Local Strategic Planning Statement (LSPS) already includes an intention to encourage mode shifting from private vehicles to more active transport, and flags the development of an Integrated Transport Plan for Eurobodalla. Council's Pathways Strategy 2017 identifies the importance of expanding access to shared paths for bikes and pedestrians. There is an opportunity to further integrate corridors for active transport modes in the design of new urban development areas, and doing so will create a lasting benefit for the community in terms of promoting and diversifying mobility.

31 https://electricvehiclecouncil.com.au/fleets/

Built environment

Primary objective: Improve the sustainability performance and climate resilience of subdivisions, houses, commercial and community buildings
Actions: Refer page 44

Decisions on building design and land development for residential and commercial subdivision will have impacts for more than fifty years[32] in the case of individual houses, and hundreds of years in the case of subdivision. These decisions have probably the longest lifetime in the community of any decisions taken by local government and by individuals in the community. It is therefore critical that we ensure the decisions taken today set us up to reduce energy related GHG emissions and to strengthen our ability to cope with a hotter climate.

A3.1 Building design

The report *Senate Inquiry into Impacts of Climate Change on Housing* (Commonwealth of Australia 2018) highlights various pathways through which built infrastructure may be affected by climate change, including flooding and inundation, increased bushfire frequency and intensity, and heat.

Acute heat is a crucial issue in the face of climate change. "In Australia, heat events have killed more people than any other natural hazard experienced over the past 200 years." (Commonwealth of Australia 2018). People are most often indoors during heatwave periods, hence health outcomes are significantly influenced by the design of buildings, particularly with respect to their performance under acute heat conditions. Building design affects energy use (and hence whole-of-life energy costs) for heating and cooling, and affects thermal comfort levels for residents during temperature extremes.

The Centre for Sustainable Infrastructure at Swinburne University of Technology notes an increasing dependence on air-conditioning to reduce the impact of heat stress[33], and this can overload the power grid and create power outages – which happened during 2009 and 2014 heatwaves in Melbourne and Adelaide – at which point the occupants of houses that depend on air-conditioning to cope with heat are significantly more vulnerable than those in houses which do not depend on air-conditioning. They argue that buildings need to be designed to be thermally comfortable without air-conditioning during a heatwave.

Those most at risk from heat stress include the elderly, disabled and the young. Additionally, some households are particularly vulnerable to heat stress because they are more likely to live in housing with poor insulation for heating and cooling such as low-income, renters and residents in public housing (Commonwealth of Australia 2018).

The Commonwealth Inquiry's report notes plainly that, based on evidence received, **"Australian buildings are generally not well suited to the existing climate, let alone a future further affected by climate change"**. Heat stress in existing housing stock is flagged as a particular concern. In its submission to the Inquiry, the National Climate Change Adaptation Research Facility (NCCARF) notes "In many parts of Australia, housing is poorly adapted to the current climate, and this is particularly the case for many modern developments, where lack of insulation and passive design elements mean that auxiliary heating or cooling, which accounts for about 40% (or much more in some climates) of energy use in the average Australian home, are the only way to maintain a comfortable environment for much of the year."

Once a house is built, there are only limited ways of improving performance, so decisions made at the initial design and construction stage have a long impact. The National Climate Change Adaptation Research Facility (NCCARF) identifies that financial capacity and cost constraints, knowledge and understanding of risks, insurance issues and/or government restrictions will affect whether some private house owners take action to respond to climate-related risks through building alterations or at initial design stage. The Commonwealth Inquiry notes that the uptake of voluntary schemes intended to improve housing standards, such as the Green Building Council Australia's Green Star Rating Scheme, is not occurring as rapidly as is required.

32 "On average, the generally expected and acceptable lifespan of a home should last at least 60 years" (Source: https://propertyregistry.com.au/how-long-will-a-new-house-last/)

33 By March 2014, 74% of dwellings in Australia had coolers, up from 59% in 2005.

Built environment cont'd

The Commonwealth Inquiry highlights that governments need to play a central role by ensuring land-use planning policies that guide better development outcomes in the face of climate change risks are adopted and implemented.

Inadequacy of current standards

The standard of buildings in Eurobodalla today is highly diverse. Many homes have been built in the past with relatively poor consideration of passive heating/cooling principles or thermal comfort, and even the majority of houses being built today may fare poorly from a climate resilience perspective.

New builds are required to be designed and constructed to meet minimum performance standards for water and energy use and average thermal comfort. These are prescribed by the NSW Government's BASIX tool[34]. However, studies indicate that most building designs which today pass the BASIX standards will fail those same standards under projected climate change scenarios for our region (WSP 2021). There are estimates that Australia's performance standards in the National Construction Code are around 40% less efficient than equivalent standards in other developed countries in similar climate zones.[35] Australian standards have not been improved for over a decade.

A survey of some councils as part of the Future Proofing Residential Development to Climate Change project (WSP 2021), identified the following deficiencies in current standards and tools used for modelling thermal performance of buildings:

- BASIX standards are outdated and not stringent enough – today's BASIX-compliant buildings fail under projections of our future climate.
- Climate data used in models like the *Nationwide House Energy Rating Scheme* (NatHERS) – which are used to model the thermal performance of buildings in order to meet BASIX standards – is not representative of current, let alone future, climate (Commonwealth of Australia 2018). NatHERS uses historical data from 1990 to 2004, while the 10 hottest years on record have all occurred since 2004 and thus are not accounted for in the current tool (WSP 2021).
- The thermal performance metric in BASIX, and the National Construction Code (six-star minimum standard for NatHERS), balances winter and summer conditions (ie. use an average performance measure over the year) but does not look at performance in acute heat conditions. Climate change will drive supercharged summers and fading winters, so metrics that address extreme heat are needed (Commonwealth of Australia 2018).
- NatHERS is driving greater reliance in modern homes on mechanical cooling to cope with heat, which is in fact creating new homes with lower intrinsic heat resistance than older homes. Increasing people's dependence on air conditioning becomes hazardous without AC during heatwaves, as can happen during grid failure. Unless it is modified, the current NatHERS can in fact adversely impact on human health during heatwaves (Commonwealth of Australia 2018; Hatvani-Kovacs et al. 2018).
- There is a lack of industry support or compliance to ensure that buildings are being built and construction certified to the performance levels implied by the design specifications that pass BASIX.

Various other reasons may contribute to buildings performing poorly from a sustainable design perspective:

- Lack of awareness among designers or their clients about the costs and benefits of sustainable buildings.
- A 'business as usual' approach where no consideration of future impacts is undertaken.
- Lack of economic assessment or costing models using whole-of-life costs, when assessing the merits of housing design proposals.

34 In NSW, there are minimum standards relating to energy use, water use and thermal comfort in place for new buildings and major renovations (greater than $50,000), prescribed by the NSW government's Building Sustainability Index (BASIX). BASIX standards are currently under review as part of the new Design and Place SEPP.

35 National Construction Code webinar, 29 September 2021. https://www.youtube.com/watch?v=4X1Ps5X_P2A

Built environment cont'd

- Different incentives between developers/home builders and future occupants (Environment Australia 2013; Bird and Hernández 2012; MacAskill et al. 2021). This occurs for example where houses are designed by initial owners who do not intend to live in the house longer-term, but rather to either rent or on-sell the house once it is constructed – an increasing trend. The initial owner has a financial incentive to keep construction costs as low as possible, and no interest in long-term or whole-of-life costs. Hence, the incentives for land developers and builders do not align with long-term energy savings, or liveability of buildings, and a set of climate-related risks may be passed on to future residents. These range from energy inefficiency (which correlates often with comfort and liveability of housing as well as operational costs) to, in extreme cases, potential un-inhabitability or un-insurability. This may create financial costs and climate-related risks to future homeowners/residents, and indirectly to Council and the community too, since higher energy and water demands create flow-on costs for the provision of local infrastructure to meet demands.
- At present, there are no requirements for a building designer to be certified as such or to demonstrate relevant formal training. A NSW *Design Practitioners Bill* was anticipated in 2021, but is understood will only be relevant for class 2 (sole occupancy) buildings.

Many respondents to the Commonwealth Inquiry argued the need for stronger and/or additional minimum building requirements to ensure inhabitants of the NSW housing stock are resilient to the impacts of climate change and especially to heat. "Better use and integration of building codes with other mechanisms could allow for significant reduction in heatwave risks, and support adaptation to a changing climate." (March et al. 2021).

Elements of the solution space are relatively well mapped out. Building design to reduce heat stress can be achieved by looking at "orientation, shading, provision of appropriately sized eaves, light colours, reflective roofing, inclusion of a cool refuge, (and) complimentary landscaping." (Commonwealth 2018, Submission 28); however, none of these are formalised in the National Construction Code (NCC). The NCC presently does not address heatwaves, or the role of structures in reducing heatwave health risks (March et al. 2021). The integration of heat stress resistance into the NCC/NatHERS is needed (Hatvani-Kovacs et al. 2018). Further, occupancy certificates required for single residential properties should confirm that the energy rating prepared at the start of the project has actually been achieved once the build is completed (Commonwealth of Australia 2018).

A draft proposal by the Australian Building Codes Board will ask NSW and Territory ministers to consider improvements to the energy performance standards for new buildings in the NCC, which would be included in an updated Code in 2022. As of October 2021, the draft proposal is to raise the thermal performance requirements from 6 stars to 7 stars. It also suggests introducing an overall energy budget for heating, cooling, lighting and hot water, which will be met by new buildings via design features to reduce demand, as well as efficient appliances and/or renewable energy. A further change proposes that new apartments and commercial buildings must be able to be retrofitted for renewable energy and EV charging. A stronger NCC will drive energy cost savings for households (estimated up to $900/yr per household on average), and lower network energy costs (ASBEC 2018). From an equity perspective, changing the Code ensures everyone benefits from improved quality of buildings. Recent research on the costs and benefits of the proposed changes (increasing to 7 stars for thermal performance and a strong energy budget) concludes the up-front costs will be repaid on average over 6-8 years, households will be saving money from day one (comparing energy savings per month with any increased mortgage repayment costs to cover additional up-front construction costs) and the proposed changes will deliver a net present value of between $9,500 to $13,500 (over 20 years with 2% discount rate) (Renew 2021). In other words, these changes make strong economic sense for household and for the local economy.

The thermal performance of existing buildings is also a critical issue, though this is more difficult to address than for new buildings. A key strategy is retrofitting low efficiency dwellings so that internal temperatures are kept within safe ranges during extreme heat events. Actions relating to this are discussed in annex 1 - Electricity supply and energy demand.

Built environment cont'd

A3.2 Subdivision design

Many of the challenges described for buildings are mirrored in the issue of subdivision design, and decisions on subdivision development have even longer lifetimes than those for buildings. It is crucial that the impacts of climate change over the entire life of a new subdivision are integrated into its design and approval. The sustainability and resilience of our communities, and our natural ecosystems, will be directly influenced by initial subdivision design.

"Well-designed built environments make sound economic sense. They contribute to our health and wellbeing and to successful and thriving places. They respond to the needs and aspirations of people and communities; are made up of attractive buildings and spaces we visit often and feel comfortable in; include quality open spaces, facilities and streets we can easily access and relax in; support good growth and productivity; enhance our comfort through green infrastructure; provide a diversity and mix of neighbourhoods; increase our ability to walk and cycle to local services; and adopt sustainable and resilient practices to minimise our impact on the environment and sustain it for future generations." (NSW DPIE 2021).

Various guidance exists on the issues that need to be addressed (see for example OEH 2016; Norman, Newman, and Steffen 2021).

In Victoria, the Council Alliance for a Sustainable Built Environment in partnership with sixteen local governments has developed the Sustainable Subdivisions Framework (CASBE 2019a). The framework "seeks to mitigate the impacts of a fundamentally changing climate to create subdivisions that can adapt to the changing climate… (it) has been developed with a focus on environmental sustainability outcomes, which have social and economic benefits, for example the way green infrastructure can provide improved amenity or recreation value." It integrates guidance on seven categories that together create more sustainable subdivisions: site layout and liveability; streets and public realm; energy; ecology; integrated water management; urban heat; circular economy (materials and waste).

As an example, the framework's energy conservation objectives include the provision of lots with areas and dimensions that ensure dwellings can be sited for best solar access, and ensuring streetlights and other public infrastructure requiring energy supply (pumps etc.) are of the highest efficiency standard available, and integrate smart technology where appropriate. Renewable energy objectives include orienting lots to encourage roof lines capable of supporting solar PV, maximising the provision of renewable energy to the subdivision, and promotion of battery storage uptake at either the subdivision or lot scale. Lot orientation is an important factor.

In NSW, some councils (e.g. Snowy Monaro) incorporate provisions regarding subdivision design in their Local Environmental Plan or Development Control Plans, which offer models for other councils to consider.

A3.3 Council's role and current standards in addressing buildings and subdivisions

Much of the urban planning space is regulated by NSW Government and councils must abide by NSW legislation. The Environment Planning and Assessment Act 1979 sets out the objectives and the framework for decision-making associated with the built environment across NSW.

Council's own planning instruments, developed within the broader NSW framework, are also important. Councils play an important role in setting the local development character and quality, through local planning instruments (Local Strategic Planning Statement, Local Environment Plan, Development Control Plans, Codes), as well as through interactions with developers and builders.

Clearer emphasis on climate resilient urban design at the NSW Government level, as well as guidance on sustainable subdivision design at the local level, could improve the long-term future and resilience of the region.

Built environment cont'd

NSW Government review of SEPP

The NSW Department of Planning and Environment (DPE) drafted a new *Design and Place State Environmental Planning Policy* (SEPP) in 2021[36] with intention to repeal and replace the existing two SEPPs, No 65 – *Design Quality of Residential Apartment Development* and *SEPP (Building Sustainability Index: BASIX) 2004*.

Several new design guides were also developed: Urban Design Guide, Apartment Design Guide, and revisions to the Building Sustainability Index (BASIX). The SEPP was to cover all scales of the development planning process "from precincts, significant developments, and buildings to infrastructure and public space." BASIX itself was to be incorporated into the new SEPP.

Eurobodalla Council provided a submission to the Draft Design and Place SEPP 2021 during the exhibition period indicating support for the improvements proposed. However, recommending it is not ambitious enough or reflective of the importance of housing design and construction in the ability of our community to be resilient to the impacts of climate change, in the medium to long-term.

Following consultation with industry and stakeholder groups, the NSW Government determined it would not introduce the State Environmental Planning Policy 2021 for Design and Place.

The NSW Audit Office notes that the NSW Planning Department's 2018 Guide to Preparing Local Environmental Plans (LEPs) for councils does not mention climate change, and their review of 143 council LEPs (in March 2020) found that all make a reference to climate change but only in relation to flood planning (NSW Audit Office 2021).

Local context

In Eurobodalla, development proposals need to be prepared with reference to standards in the Eurobodalla Local Environmental Plan 2012 (LEP), which defines the zoning for each site and sets out standards, including building heights and minimum lot sizes. The LEP includes sustainability-related clauses, for example relating to shading/solar access, sustainable design, and the BASIX standards for water, energy, and thermal performance. These are not prioritised in approval decisions but rather are all considerations, and it is common for there to be competing objectives or requirements.[37]

Eurobodalla's Development Control Plans presently include little guidance or requirements on the design of subdivisions – the only provisions relate to lot sizes. There may be scope to introduce requirements for new subdivisions that can improve the quality of our built environment for the long-term future.

There are health, economic, environmental and equity reasons to improve practices around building design and construction. High energy use results in GHG emissions, but also economic losses for Eurobodalla (ie. money leaving Eurobodalla every year that may otherwise be spent locally and stimulate the local economy). It also increases costs for Council associated with energy distribution. Further, building design and construction will also greatly affect resilience outcomes under a changing climate.

Now is an important time to make change

Many houses across Eurobodalla are decades old and may come up for renovation or replacement in the coming decade. Eurobodalla is also anticipating significant growth in new housing stock. How these developments proceed, and how they incorporate sustainability principles, will have long-lasting consequences for future residents of the Eurobodalla.

36 https://pp.planningportal.nsw.gov.au/design-SEPP-2021

37 For example, a new home builder wanting to orient a house or windows towards the north for sustainability/resilience reasons may be constrained by requirements that specify walls/windows must face the street to preserve a particular version of the streetscape.

Waste

Primary objective: Reduce total volume of putrescible waste to landfill, reduce methane emissions, and prepare for new waste issues associated with other aspects of low-carbon transition. Actions: Refer page 45

Landfill disposal of waste is a significant source of GHG emissions via methane produced as waste degrades in the landfill[38]. Reducing waste and avoiding landfill disposal is a critical strategy for reducing methane emissions, while reducing costs to Council and the community associated with waste management.

The NSW Government's new Waste and Sustainable Materials Strategy 2041[39] details commitment to playing their part in making the transition to a circular economy over the next 20 years, and includes the following targets:

- reduce total waste generated by 10% per person by 2030
- have an 80% average recovery rate from all waste streams by 2030
- significantly increase the use of recycled content by governments and industry
- phase out problematic and unnecessary plastics by 2025
- halve the amount of organic waste sent to landfill by 2030
- reduce litter by 60% by 2030 and plastics litter by 30% by 2025
- triple the plastics recycling rate by 2030.

Achieving these targets at a local government level will contribute to reducing the contribution of waste towards climate change. Council already has a range of programs.

Methane generated from landfills as waste degrades is a potent source of GHG emissions. It is also the largest source of emissions attributed to Council's own operations. It is not possible to avoid methane production, however, capture and destruction of the methane – for instance by flaring or to use for electricity generation – significantly reduces the impacts on climate change by converting methane into carbon dioxide, which has a lower warming potential.

As of 1 July 2021, 3.45 million and 2.24 million cubic metres of landfill gas have been flared at the Surf Beach and Brou landfills respectively, representing carbon abatement of approximately 48,000 tonnes of CO^2 equivalent. As the landfill cells expand over time, and as new cells are commissioned, there is the potential to expand the methane capture network.

Since 2017, Council has operated methane capture and flaring at both of its landfills at Surf Beach (near Batemans Bay) and Brou (north of Narooma), and these systems are delivering significant GHG savings.

Eurobodalla's emissions temporarily rose again for several years while the methane flaring system at Surf Beach landfill was offline following damage during the 2019/20 bushfires – refer 1.5.

38 Around 3% of Eurobodalla emissions at the community level (https://snapshotclimate.com.au/locality/australia/new-south-wales/eurobodalla/) but a considerably larger share of Council's own GHG emissions.

39 https://www.dpie.nsw.gov.au/our-work/environment-energy-and-science/waste-and-sustainable-materials-strategy

Waste cont'd

Council earns carbon credits from its methane flaring activities, which can help to at least partially offset the costs of installing and maintaining the systems. Over the last few years Council has successfully delivered 16,000 Australian Carbon Credit Units[40] (ACCUs) to the Clean Energy Regulator with an approximate value of $175,000.[41]

Investigations have been conducted into whether there are opportunities for Council to produce electricity using the captured gas or associated flare heat, however volumes are proving to be inconsistent and insufficient for current technologies. However, as technologies continue to evolve Council will investigate opportunities to factor this into future development at the sites.

Emerging waste issues

As new technologies are introduced and taken up in the community, Council is presented with new waste management challenges. Already today, the recycling/ disposal of old PV solar panels is an emerging challenge, and in future there will be more issues associated with batteries as these increase in number for household PV systems and in electric vehicles.

Textile waste is also now a significant issue. Much of today's clothing is 'fast fashion' - products designed with very short lives which then end up in landfill. Even of the clothes that are today being recycled in our community, around one-third of the textiles that go to local op shops end up in our landfills.

The NSW Government has mandated the separation of organic waste from landfill by 2030. Council has commenced investigations into the feasibility of various options to manage organic waste including at a regional level.

Through education programs delivered by Council, businesses are encouraged to lower their individual food waste and to utilise small scale composters. Residents are encouraged to reduce their waste and look at methods that turn their own waste into a valuable resource – such as composting, worm farming or chook feeding.

Council has investigated the use of Food Organics and Garden Organics (FOGO) which is collected in some local government areas in NSW. To date it is not viable for the Eurobodalla due to constraints including: limited land availability at waste facilities; lack of adequate infrastructure; collection of the organics; costs and contamination issues. Council will continue to review and investigate options to minimise waste into landfill.

40 Each ACCU represents one tonne of carbon dioxide equivalent (tCO 2-e) stored or avoided by a project.

41 The $175k is gross, of which Council earns 60% via our ERF Project Agreement (the other 40% of the funds accrues to the contracted aggregator managing our agreement).

Water supply and wastewater treatment

Primary objective: Ensure secure and safe potable water supply and wastewater treatment
Actions: Refer page 46

Water supply and wastewater systems are both a source of GHG emissions, particularly through direct energy use, and are at risk from climate change. The main climate change risks are changing water availability, and over time increasing inundation risks for low-lying assets (eg. pump stations) as a result of sea level rise. Ensuring resilience of water supply and wastewater systems during extreme events, which can result from electricity grid failure, is also an important issue to manage.

Energy demand

Water supply and wastewater treatment represents Council's largest energy use. Demand is, in turn, driven by the volume of water and wastewater processed, as well as the geography of demand patterns across the Eurobodalla (in terms of distance between supply and demand). Water demand by households, businesses, agricultural producers and Council facilities translates directly to energy use, since energy is needed to pump and treat the water. Demand is also significantly increased during peak tourism times approximately threefold. Reducing community water use through behaviour change (eg. via restrictions, or household harvesting using rainwater tanks) and efficiency improvements (eg. irrigation, appliances) translates to energy savings and emission reductions, and also improves the security of supply.

Leaks in the pipe network can allow infiltration of surface and groundwater into our wastewater system and thereby increase energy for pumping and treatment, as well as increase the potential for untreated overflows during heavy rainfall events, which has health and ecosystem impacts.

Impacts of climate change on water supply

Changing rainfall patterns need to be considered in planning for future water supply to ensure there is capacity available to meet expected demand. This relates both to the availability of water storage as well as operational aspects associated with pumped storage facilities, which includes Deep Creek Dam as well as the forthcoming Southern Water Supply Storage. The new storage facility is being designed to meet predicted needs for approximately 40 years, after which its design will accommodate the ability to raise the dam wall further. Water will be pumped from Tuross River during times of higher flow.

Council does 'secure yield' modelling to plan how much water can go into the water supply system, based on source availability and current system infrastructure constraints (eg. sizes of pumps etc). Secure yield studies were undertaken in 2003, 2014, and 2020, and the 2020 results showed lower predicted yields than the earlier studies. This is because the 2020 calculations include data from the most recent severe drought. The results suggest that the impacts of climate change on water availability are non-linear and are already being experienced. When modelling climate change, secure yields trend down over time. In other words, water availability is declining, and measures to address this need to be brought forward in time compared to a scenario without climate change.

Ensuring a secure water supply can also be achieved by reducing water demand. One area where Council has opportunities to address its own water demand is in irrigation of parks and recreational facilities. A consultant's report prepared in 2020/21 for Council identifies a range of options available to cut water use, and hence water costs, at Council playing fields. Among the measures highlighted by the report is improving soil composition (more water-retentive soils reduce irrigation needs), which could be implemented during reconstruction of fields by the addition of higher levels of organic matter. The report recommends irrigation assessments, regular maintenance, operational changes to irrigation regimes, as well as ensuring that any future irrigation installations are professionally designed and installed with a strong focus on water efficiency. Importantly, these changes can potentially save significant money for Council in terms of reduced water costs, at the same time as delivering improved water security for the shire as a whole.

On broader community water demand, Council offers various Household Water Savings Programs, such as rebate programs for water-efficient appliances, to encourage the community to purchase appliances with

Water supply and wastewater treatment cont'd

lower water demands. Community education remains a focus, including water-saving tips with each water bill, and school-based programs.

Other implications of changing rainfall patterns

Another impact of changing rainfall may be a decrease in water quality over time, arising from changes in catchment runoff rates/behaviour. This then needs to be addressed at the treatment stage, which is an additional cost to Council.

A further issue relating to changing rainfall patterns is in collection and treatment of wastewater. Council's sewage treatment plants (STPs) have to deal with sewage flows as well as infiltration of groundwater into subsurface pipes.[42] Infiltration makes up a high portion of the total volumes treated, and spikes after storm events. Intense rainfall leads to more infiltration and hence higher flow volumes at STPs, which translates to higher energy costs as well as higher risks of sewage overflows/bypass. Climate projections for this region suggest declining rainfall in Winter and Spring, with potential increased rainfall in Summer and Autumn. Projections also suggest more intense rainfall bursts.

Council has an ongoing leak/infiltration detection program using CCTV to identify the condition of assets. The program surveys around 5% of the total network each year, and Council re-lines about 1% of the network each year – that is, around 20% of the length surveyed is shown to require re-lining.

Sea level rise and inundation risks

Sewage pump stations are at greatest risk of inundation since these are part of a gravity-fed network and typically at low elevation. Rising sea levels pose a risk of inundation particularly for coastal stations. Where inundation occurs, it results in electrical systems being destroyed and causes the stations to go offline, during which time sewage bypasses into the environment.

As pump stations are refurbished as part of Council's ongoing Maintenance And Asset Renewal Programs – roughly every 25 years – Council considers flood studies and climate risks in decisions on the design of upgrades, incorporating climate modelling as well as any observed changes in hydrological flows.

Energy and water security

From a resilience perspective, ensuring energy security for water supply and wastewater treatment is crucial. Increasing risks from bushfires, heatwaves and flooding events (arising from more intense periods of rainfall as well as rising sea levels) could all interrupt the electricity grid that powers our water and wastewater systems.

During the 2019/20 bushfires, Eurobodalla experienced extended periods of power outages affecting our water and wastewater networks. All 135 or so pump stations went down for at least 36 hours during the bushfires, which meant sewage overflows. The Northern Water Treatment Plant, Deep Creek Dam and Batemans Bay Sewage Treatment Plant had no power for lengthy periods. Bringing the networks back online relied in places on some of Council's operational staff being able to establish temporary power supply solutions with generators, on occasion at personal risk from the fires.

The STPs will be upgraded over the next five years, during which Council will install permanent standby generation at each. This has maintenance and fuel implications that need to be carefully managed. Generators need to be hardwired into assets, which can already be complicated, and is made trickier when the assets have some connection to solar PV systems. All plants have solar installations.

Council is also planning to install permanent, independent power generation capacity at major pump stations, beginning with those closest to the treatment plant if the sites allow it.

42 Sewage systems in Eurobodalla are gravity-fed, rather than pressurised. This means water leaks into the pipes rather than out. The pipe network runs deeper and deeper to a point where it is most economical to then pump it back up higher and begin the gravity feed downward again.

Ecosystems and biodiversity

Primary objective: Expand areas being actively managed for biodiversity enhancement and protected under formal conservation arrangements, targeting vulnerable ecosystems, climate refugia and vegetation corridors
Actions: Refer page 47

Biodiversity and the Eurobodalla's iconic natural ecosystems are under increasing threat. Within the Eurobodalla LGA, there are some 116 flora species, 124 fauna species and 16 ecological communities that are categorised as threatened.[43] There are numerous drivers of this degradation and loss, including[44]:

- land clearing for new development
- consolidation of urban settlements, which introduces roads, reduces vegetation cover, and creates human-wildlife conflict scenarios
- Native vegetation clearing
- introduction and spread of invasive species – pests, weeds, diseases and pathogens – which impact native species
- water extraction and changes to river flows
- bushfire protection approaches that intensely burn landscapes and/or downgrade the importance of native vegetation protection when pursuing other objectives like asset protection.

Against this background of ongoing loss, climate change will worsen the picture for biodiversity and our natural environment. It makes the survival of species already classified as threatened or vulnerable even more perilous. Climate change will magnify existing vulnerabilities, through heat stress, changes to environmental conditions and consequent effects on ecosystem balance. For instance, it will:

- increase the potential for extreme events like bushfires that can be catastrophic for fauna and flora (NSW lost 5.4 million hectares of bushland and grassland during the 2019/20 bushfires, large swathes of it in the Eurobodalla region where 80% of the landscape burned)
- increase the prevalence of invasive species
- threaten important coastal ecosystems with inundation and erosion
- degrade marine ecosystems through ocean warming and acidification.

The way people respond to climate threats, including bushfire risks, will also create new risks for our biodiversity. For example, excessive vegetation clearing for fire protection zones may interrupt important movement corridors for native fauna.

Biodiversity and ecosystems in development planning

Like many regional areas across Australia, Eurobodalla is experiencing growth and increasing demand for new housing. There is an opportunity to ensure new development avoids important habitat and wildlife corridors and integrates biodiversity measures into major developments.

Local government plays a key role in the conservation and management of biodiversity in NSW. The regulatory framework that must be considered for the assessment and approvals for development and clearing activities that impact on biodiversity is primarily through the interaction between the NSW Environmental Planning and Assessment Act 1979 and NSW Biodiversity Conservation Act 2016. The increasing challenge for local government is the complex interactions between competing planning priorities, such as: biodiversity, planning for bushfire, and engineering and building standards and guidelines.

Protection for threatened species and biodiversity are described in the Eurobodalla Local Strategic Planning Statement (LSPS) and Eurobodalla Local Environment Plan 2012 (LEP). However, new development does not consistently integrate measures to link important habitat and ecosystem connectivity. Clearer guidance for development via policies, development controls and codes would assist in navigating the complexities of competing development priorities to improve the long-term future and resilience of the region's biodiversity, and provide space for wildlife to adapt to the impacts of climate change.

43 Data from the NSW Government's BioNet Atlas: https://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx
44 https://www.soe.epa.nsw.gov.au/all-themes/biodiversity/threatened-species#main-threats-to-biodiversity-and-threatened-species-pressures

Ecosystems and biodiversity cont'd

Native forest logging

Eurobodalla Shire is 342,000 hectares in size. The large area of bushland in the Eurobodalla is important to the landscape and biodiversity of our region. National parks make up 140,000 hectares and State forests account for 106,000 hectares. Of the State forests, 75,000 hectares (70% of the State forests) are available for timber production.

On average, around 1,100 hectares or 1% of the State forests are harvested for timber and regrown each year. These harvesting operations produce a range of timber products for industry in the Nowra, Batemans Bay, Narooma and Eden communities - 46% of these are saw logs, which go into things like flooring, decking and wharf timbers, and the remaining 54% are residue products generated from the same operations, and being used for pulpwood and firewood.The State forests also support a range of recreation and tourism activities[45].

There is much debate about native forest logging in the Eurobodalla, and across NSW and Australia, with divergent views. Much of the debate is associated with the native forest logging vs pine plantations. Whilst Council does not control forestry practices, it remains an advocate for its communities and recognises the differing views related to forestry practices.

The IPCC has found the "*Sustainable Forest Management Strategy aimed at maintaining or increasing forest carbon stocks, whilst producing an annual sustained yield of timber, fibre or energy from the forest, will generate the largest sustained mitigation benefit*" (IPCC, 2019).

In the Eurobodalla, there are a range of recreational activities and facilities located in State forests to the benefit of tourism and the local community. The Forestry Corporation also has Aboriginal partnership programs in the region.

Conversely, there are also views from some members of the community that native forest logging should cease due to the perceived negative impacts on biodiversity, greenhouse gas emission and fire risks.

It is estimated stopping native forest harvesting in the NSW Southern Forestry Region – around a quarter of which (26%) is in Eurobodalla – would deliver GHG abatement of around 0.95 million tonnes (Mt) carbon dioxide equivalents (CO^2-e) per year, compared with the business-as-usual case over the period 2022-2041 (with a gradual declining in emissions savings over time)(Frontier Economics and Macintosh 2021).

In contrast, comprehensive research by a team of national forest carbon experts that included DPI Forest Science and the CSIRO, concluded that ceasing native forestry in the south coast region of NSW would be detrimental in terms of carbon outcomes and have a substantial negative impact on the economy in the region[46].

Job numbers in this area declined by 27% in the decade from 2006 to 2016, and most of those remaining would likely have options available for new recruitment (Frontier Economics and Macintosh 2021).

Native forest logging is controlled by the NSW Government. Several other Australian states have already announced a phase-out of native forest logging: Western Australia will end native forest logging in 20243, while Victoria has promised a phase-out by 20304. Both have announced transition support for affected workers.

45 Forestry Corporation of NSW

46 (https://www.fwpa.com.au/images/resources/Amended_Final_report_C_native_forests_PNC285-1112.pdf). Carbon stocks and flows in native forests and harvested wood products in SE Australia Forest & Wood Products in Australia January 2019

Ecosystems and biodiversity cont'd

Estuarine water quality impacts from increased flood risks

The draft Estuaries Coastal Management Plan (CMP) highlights several risks to water quality and erosion because of climatic changes, and identifies some actions needed to mitigate or further investigate those for each estuary. This will remain an important issue for estuary management programs into the future.

Bushfire protection approaches

Current practices can be particularly damaging where fire protection approaches remove vegetation corridors (eg. adjacent to roads) or occur in areas of threatened or unique ecosystems and prioritise vegetation removal over ecosystem integrity. Development in NSW must comply with the NSW Planning for Bushfire Protection Guide, and there are complex interactions in how the NSW planning system, biodiversity conservation and bushfire planning regulations conflict. This can produce perverse outcomes for biodiversity.

Offsets

Carbon and/or biodiversity offsets may be a mechanism that incentivises local private landholders and Council to restore and protect important ecosystems, as part of the wider effort to expand areas under conservation. Accessing offset schemes can be challenging for local landowners and may involve high transaction costs. Council may be able to work together or facilitate NSW Government agencies to work with landowners and other stakeholders to help lower these costs and connect private landowners with opportunities to access offset finance that drives local conservation. Bio-certification of priority land release areas has been included as an Action in A3 - Built environment.

In future, there may also be new opportunities associated with 'blue carbon' under the *Marine Estate Management Act* 2014. This may include payment for retaining areas that will support wetland or mangrove migration (climate refugia), and may incentivise new local businesses in innovative blue carbon approaches such as growing kelp as a form of carbon sequestration.

Agriculture and livestock

Primary objective: Reduce the carbon-intensity of agriculture and livestock production and strengthen the resilience to the impacts of climate change
Actions: Refer page 48

Climate change is relevant to our agriculture sector in a number of ways. Agriculture and livestock are a significant source of GHG emissions, while farming and livestock production is vulnerable to many of the impacts of climate change. Private landowners can also play an important role in helping to protect biodiversity and ecosystems that may be under increased threat as a result of climate change.

Agriculture also has the potential to sequester carbon from the atmosphere through better land management practices such as growing more grass and trees on farms, reducing soil disturbance, and better fertilizer management.

Methane emissions from livestock

In NSW, 70% of GHG emissions from agriculture are methane produced by ruminants such as cows and sheep as they digest their food.[47] In Eurobodalla, methane emissions from agriculture and livestock is estimated at roughly 6% of the region's total GHG emissions.[48] Eurobodalla is home to a number of dairy farms but otherwise limited beef production and limited sheep.

From 2012-15, Meat and Livestock Australia ran a National Livestock Methane Program of research into options for tackling livestock emissions. The potential solutions identified are feeding technologies (ie. alternative food or supplements that produces less methane when digested) and livestock that is genetically bred to be low-methane.[49] A second phase of work is in development, which will focus more on the adoption and commercialisation stages of technology development.

Primary industry is a key sectoral focus for support under the NSW Government's Net Zero 2050 Stage 1 Strategy, so future grant funds may be available to explore GHG reduction opportunities with our agricultural and livestock producers.

Climate impacts

According to NSW Local Land Services, drought is already a key issue in our region and harms the welfare of farmers. Changing rainfall patterns may further impact stock water supplies, particularly as availability of stock water is already a key issue along the coast. In addition, climate change will increase the potential for invasive species as well as fire and extreme heat which threaten livestock, as seen tragically in the 2019/20 bushfires.

Council already works with private landholders to tackle invasive species. Under the NSW Biosecurity Act 2015, Council is the local control authority in relation to declared invasive species. We undertake inspections across many hundreds of properties every year (routinely 800+) to search for new and emerging biosecurity threats. While this is a compliance function, it is also a service for landholders as Council experts may walk over their property with the landowner and get a better understanding of their operation, identify weeds and provide advice on how to control specific weeds in the context of their operation. A significant element of this activity is providing extension services such as holistic weed management as part of whole farm planning. Council seeks grant funding opportunities to help farmers control weeds.

47 https://climatechange.environment.nsw.gov.au/about-climate-change-in-nsw/nsw-emissions
48 https://snapshotclimate.com.au/locality/australia/new-south-wales/eurobodalla/
49 https://www.mla.com.au/research-and-development/Environment-sustainability/national-livestock-methane-program/

Agriculture and livestock cont'd

Conservation of important ecosystems

The imperative of conserving and protecting threatened or otherwise important ecosystems is even greater in the face of climate change. Conservation on private lands can substantially contribute to overall ecosystem outcomes across the Eurobodalla.

With the advent of carbon and biodiversity offset schemes, these are mechanisms through which landowners might be financially incentivised to undertake more conservation work. However, offset markets can be difficult to access at present for small farms interested in conserving carbon through improved landscape management.

NSW Local Land Services plays an important role in this space and works closely with landholders across Eurobodalla, including in areas such as:

- encouraging better water use and efficiency on farms
- promoting income diversification, both through mixed enterprise and accessing carbon and biodiversity offset markets and land stewardship opportunities
- assisting with farm planning, including issues such as disaster refuge lots (drought feed lots), maintenance of ground cover, alternate pasture species that are more resilient to weather extremes (eg. deep rooted perennials), and promoting alternate protein sources for livestock
- promoting shade and shelter, which assists with biodiversity outcomes as well, with a particular focus on pollinator species
- encouraging rehydration of the landscape, primarily through soil health and through ground cover management and earthworks to protect hanging swamps, and to slow water down and keep water in the landscape
- promoting protection of vulnerable ecosystems such as hanging swamps, riparian systems and coastal wetlands and saltmarsh
- working with industry bodies to implement sustainability frameworks, eg. Beef Sustainability Framework and Dairy Australia Climate Change Strategy
- working with other NSW Government programs under the Net Zero Plan, including Primary Industries Productivity Abatement Program as well as other decarbonisation programs.

Regional economy

Primary objective: Improve awareness of climate risks and market opportunities among businesses and provide support to address barriers to investing in sustainable practice
Actions: Refer page 49

Although Council does not determine the nature of Eurobodalla's local economy through its programs and policies, it does have an influence on its longer-term character. Council can assist residents develop a culture which, over time, identifies and develops new ways to create individual wealth aligned with supporting a more climate resilient society.

The main economic sectors outlined in Council's Economic Development Plan – agriculture and livestock, health, tourism, and services – are all potentially exposed to climate risks, and businesses in these sectors should understand and prepare for a changing climate. Businesses can also play a positive role in making our region more climate resilient by pursuing energy savings, reducing waste and investing in other sustainability outcomes.

Small and medium enterprises can sometimes lack capacity to undertake sustainability upgrades. Even where there may be cost-effective opportunities to improve energy efficiency, install renewable energy, or reduce water demand, these can be out of reach simply because smaller businesses may not be able to access finance to pay for the changes upfront. New models for financing could be useful to enable businesses to undertake sustainability improvements.

Beyond the shopfront, businesses are also part of their locality, usually urban environments across Eurobodalla. In this sense, efforts to improve the liveability of our urban environments can boost our local economy. Planting street trees for shading, for instance, make our business districts more bearable during hot weather and mean heatwaves, and are less likely to stop people from consumer activities. Businesses themselves can contribute directly to this sustainability, such as by installing electric vehicle charging stations that will attract customers to the business itself and contribute to the region's wider transition to cleaner transport.

The vibrancy of our regional economy will also depend on the financial health and resilience of individuals and households that live here. Encouraging more households to install rooftop solar, for instance, can not only reduce GHG emissions but should also lower energy costs for households. These financial savings represent money that stays in the community, rather than it being paid out to energy companies based elsewhere. In other words, there can be flow-on local economic benefits from household sustainability initiatives.

Natural hazards

Primary objective: Manage the increased risk of natural hazards such as flooding, bushfire, heat waves on assets, infrastructure or settlements
Actions: Refer page 50

Sea level rise and flood risks

The risk of flooding and inundation of properties, infrastructure and ecosystems - particularly in coastal and estuarine areas - will increase over time as a result of sea level rise and changing rainfall patterns.

This risk is not exclusively due to a static increase in sea level and expected tidal ranges, but also due to a higher frequency of severe and extreme weather events which can drive short-term but significant inundation of low-lying areas, such as Narooma flat and the Batemans Bay CBD.

Council has development controls in place for at-risk and flood-affected areas, and can plan appropriate mitigation strategies identified through coastal and flood studies to assess and reduce the risks and impacts associated with flooding. Development controls are guided by coastal and flood studies wherever possible, and should be updated following the completion of relevant technical studies to ensure controls remain appropriate and consistent with best available information.

Council is legally required to consider sea level rise when making policy, planning and development decisions. In February 2015, Council adopted an Interim Coastal Hazard Adaptation Code. The interim Code will be replaced following completion of a Coastal Management Program, which is currently being drafted.

The interim Code provides information to the community about potential exposure to coastal hazards today and under a range of planning period, and considers the impact of future exposure to sea level rise.

In 2014 Council adopted the South Coast Regional Sea Level Rise Planning and Policy Response to guide how sea level rise will be considered by our strategic plans and development assessment processes. This Policy adopts projections for sea level rise based on the Intergovernmental Panel for Climate Change (IPCC) RCP 6.0 emissions scenario, specifically:

- 23cm sea level rise by the year 2050, and
- 72cm sea level rise by the year 2100.

These projections are relative to 2014 levels as a benchmark.

Disaster planning and management

The NSW Government is primarily responsible for disaster risk reduction and emergency management in the case of disaster events. A strategic overview is outlined in the NSW State Emergency Management Plan (EMPLAN), and various sub-plans describe how different agents should coordinate in response to specific hazards in NSW (OEH 2016).

Local government can often be called upon during and following disasters to provide support measures and manage the impacts in the community (Climate Council 2021).

Analysis suggests in NSW 97% of disaster-related funding is being spent post-disaster, even though funding spent pre-disaster to reduce risks is overwhelmingly more effective (Climate Council 2021).

Since the 2019/20 bushfires, Council has been working and advocating to make Eurobodalla's energy supplies, road network and communications infrastructure more resilient to future disaster events. Council has been:

- advocating to telecommunications providers and the NSW Government for upgrades to improve the resilience of critical telecommunication infrastructure
- advocating to Essential Energy for a dual power feed into Eurobodalla, as well as for replacing timber power poles with composite poles at important locations in the grid
- addressing the risks of potential road failures in rural areas, including by replacing some timber bridges with more resilient concrete structures
- encouraging other local providers of essential goods and services – such as supermarkets, service stations and local aged care providers – to strengthen the security of their energy supply and communications by investing in permanent onsite generators (or wiring facilities to accept generator power) and satellite phones, and upgrade building protection systems if needed.

Natural hazards cont'd

Council has also been advancing our local emergency response capacity. Several of the facilities used during the 2019/20 bushfires as evacuation centres (Narooma Leisure Centre, Moruya Basketball Stadium, Hanging Rock Function Centre, Batemans Bay Basketball Stadium) are now wired to receive a generator and Council will continue to seek funding for permanent generators at important sites.

Council is also seeking funding for a purpose-built Emergency Operations Centre (co-located with NSW Emergency Services) as part of establishing a regional emergency services precinct in Moruya.

Council has been managing a Eurobodalla Bushfire Recovery Support Service[50], which to date has provided case management to over 800 individuals and families affected by the 2019/20 bushfires.

50 https://www.esc.nsw.gov.au/community/bushfire-recovery/eurobodalla-bushfire-recovery-support-service

Adaptive, responsive Council

Primary objective: Improve Council's adaptability and responsiveness to changing climatic conditions and severe weather events
Actions: Refer page 51

Responding to climate change has many implications for Council. In addition to those described in other sections of this Plan, several are important to mention.

Managing financial costs and opportunities

Climate change will result in new costs and new financial opportunities for Council. For example:

- There may be costs involved in taking positive action to reduce emissions or adapt to climate impacts, and some of these may not have a direct economic payback - capture and flaring of methane from our waste facilities, for example.
- Council is exposed to costs arising from damages and loss during extreme weather events, which are projected to become more frequent. A 2021 report for the Australian Business Roundtable for Disaster Resilience and Safer Communities estimates natural disasters will cost Australia $73 billion by 2060, even under a low greenhouse gas emissions scenario (and this estimate has risen significantly since the last analysis in 2017, which estimated a cost of $39 billion by 2050 (Deloitte and Access Economics 2021).
- Climate change may result in decisions by others that pose risks to councils. Examples include rising insurance premiums as well as increased climate-related litigation risks." *Councils are potentially exposed to liability if they fail to take into account the likely effects of climate change when exercising a wide range of statutory responsibilities including across land-use planning, development approvals, management of public infrastructure (such as drains and roads), management of public lands (such as foreshores and parks), management of community facilities (eg. libraries and sporting facilities), public health, water and sewerage services (in some states), and emergency planning (Baker and McKenzie 2011).*
- "*Councils are also exposed to potential liability if they fail to disclose information about climate change risks, or if they share incorrect information. Climate change-related litigation affecting councils is likely to arise under either administrative law or tort law.*" (Climate Council 2021).
- There are costs associated with inaction too. or instance higher fuel costs before the vehicle fleet shifts to EVs. This is especially so, now that in some areas, the low-carbon option is cheaper than the status quo – in the cases of renewable energy, and energy efficiency, for example.
- Falling costs associated with renewable energy, and anticipated declining costs in the EV market, can deliver net cost savings where positive action is taken by Council.

Facing the likelihood of higher costs, and funding to implement what Council wants to do on climate resilience is limited. Revenues tend to be low compared with the costs of service provision for regional councils like Eurobodalla, which covers a large area but has a relatively low permanent population compared with smaller, denser local government areas. Intermittently, grant funding is made available on a competitive basis by the NSW and Australian governments for certain types of projects, however this funding is "piecemeal, ad-hoc and is not always addressed to regionally or locally determined priorities." (CVGA 2019). Further, this funding is not long-term, flexible or agile, and generally does not support cross-council projects that might address regional problems or opportunities. Smaller and less well-resourced councils may be disadvantaged in competitive grant rounds as they have fewer professional staff to prepare grant applications and implement funded programs." (Productivity Commission 2012) (Climate Council 2021).

Adaptive, responsive council cont'd

Leadership through divestment from fossil fuels

Council is expected to provide leadership, including in financial management, and has some $135 million in finances invested. If these funds are connected to high-carbon sectors or companies, they are responsible for prolonging GHG emissions and slowing down change. On the other hand, if they are divested from high-carbon sectors or companies, they contribute to the wider societal transition away from fossil fuels and greenhouse gas emissions.

As of July 2021, around 35% of Council's investment portfolio is divested from fossil-free funds/institutions. There are limitations imposed by NSW Treasury which presently make it difficult to entirely divest. Limitations relate to rules governing councils' eligibility to borrow from the NSW Government. So, action is needed not only by councils but also by the NSW Treasury to clear a path forward for councils wanting to divest. It requires work by the NSW Government and major financial institutions in collaboration with local councils to ensure the right investment vehicles are available for local governments to fully divest without risking their potential to borrow from Treasury Corporation (TCorp).

When reporting on financial performance of investments to Council on financial status, there would be benefits in disaggregating the results for the divested portion of funds compared with the non-divested portion. Over time, this will provide a clear view of the financial impacts (if any) of divestment. It will also allow the community to become more familiar with fossil fuel-free investing, and to build confidence in the positive financial outcomes likely over the medium to long-term.

Integration of climate change into Council's strategies and plans

Some of Council's strategic plans and programs already integrate consideration of climate change, whereas others do not. Over time, as plans are upgraded they will explicitly consider how climate change may affect the objectives or implementation of the plan, as well as how the plan might be used to help address our climate resilience objectives.

Furthermore, long-term plans will need to remain flexible and able to ratchet up ambition over time, as new conditions, risks, and opportunities arise.

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