



CITY OF BALLARAT

Ballarat Net Zero Emissions Plan





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The City of Ballarat acknowledges the Traditional Owners of the land we live and work on, the Wadawurrung and Dja Dja Wurrung People, and recognises their continuing connection to the land and waterways.

We pay our respects to their Elders past, present and emerging and extend this to all Aboriginal and Torres Strait Islander People.

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A message from the Mayor of Ballarat



The City of Ballarat is proud to present the *Ballarat Net Zero Emissions Plan* for transition to a carbon neutral municipality.

This plan outlines an aspirational community-wide target of reaching net zero emissions by 2030 and the actions required in order to achieve this target.

The health of our natural environment is vital in supporting our community's health and wellbeing, with climate change described by the World Health Organisation as the greatest threat to global health in the 21st century.

In 2018, Council acknowledged the climate emergency and the need for urgent action by all levels of government, including local councils.

In 2019, Council adopted the *Carbon Neutrality and 100% Renewables Action Plan* to achieve carbon neutrality within our organisation by 2025. Since then, we have made significant progress in reducing the organisation's emissions, including using 100 per cent renewable electricity in 2022, implementing LED streetlighting and methane recovery at the landfill.

The City of Ballarat is in a unique position to lead and enable our municipality to embrace carbon neutrality. This *Ballarat Net Zero Emissions Plan* aligns with Goal 1 in the *City of Ballarat Council Plan 2021–2025* to create 'an environmentally sustainable future'.

This plan was developed on the back of extensive research and a series of stakeholder consultation workshops with industry and the business sector, environmental groups and the community.

While we facilitated its development, the plan is designed to be a roadmap for collaborative action and outlines how we will partner with our community, businesses, community leaders and other levels of government to be more sustainable.

To achieve a target of net zero emissions by 2030 is no mean feat. However, putting in place the foundations necessary to work towards this target is a crucial step to addressing one of the most pressing issues of our time.

Our aspiration is to become a net zero emissions city and municipality. I hope you will work with us to ensure we achieve net zero emissions by 2030.

A handwritten signature in black ink, appearing to read 'Daniel Moloney'. The signature is fluid and cursive, written over a light grey horizontal line.

Cr Daniel Moloney
Mayor, City of Ballarat



Executive Summary

The Ballarat community is ready to do the work required to build a safe and sustainable community for current and future generations. This document outlines commitments of the Ballarat community to deliver net zero emissions by 2030.

Emissions in Ballarat were estimated to total 1.5 million tonnes in 2020. To reach net zero emissions by 2030 requires a bold and challenging approach. The stakeholders involved in the development of this plan recognise the urgency to act and supported Council's resolution for an aspirational target of net zero emissions by 2030. It reflects a recognition of what is required to address the climate emergency.

The City of Ballarat will support this aspirational community target through implementing and reporting on the actions in this plan such as partnering with others, including advocating to other levels of government for much stronger climate action and investment in our region.

Achieving the ambitious target of net zero emissions by 2030 will require substantial action by the Victorian and Australian Government beyond currently planned actions and targets, as well as from the Ballarat community.

This plan identifies key areas of action for the Ballarat community to transition to net zero emissions by 2030.

> These actions are categorised in the following five outcomes:

- 1 Net Zero Business**
- 2 Net Zero Homes**
- 3 Net Zero New Developments**
- 4 Net Zero Transport**
- 5 Net Zero Waste**

Context

> Global, National and State Action

In Australia, we are already experiencing the impacts of climate change, with the increased frequency and intensity of extreme weather events including higher temperatures, longer heat waves, more extreme droughts, fire season, floods and rising sea levels.

In the Central Western region of Victoria, the impacts of climate change will adversely affect the region's biodiversity and ecology, agriculture, nature-based tourism sectors, energy supply, urban form and water supply. In addition to adapting to these environmental changes, it is critical that communities and governments of all types respond by reducing the future risk of catastrophic and irreversible climate change by reducing emissions.

At the United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015, the Federal Government signed an international agreement between 195 countries to keep any temperature rise 'well below 2°C', and to drive efforts to keep warming below 1.5°C higher than pre-industrial levels. This Paris Agreement, entered into force on 4 November 2016, explicitly recognises and engages local and subnational governments and their critical role in supporting the transformation, including setting goals and strategies aligned with science. Climate science tells us that warming beyond 1.5°C threshold is likely to have increasingly severe social, economic and environmental impacts, not least on a water scarce continent like Australia.

In line with the Paris Agreement commitment, the Federal Government is seeking to reduce emissions by 43 per cent below 2005 levels by 2030, and net zero by 2050. This is in line with Victorian state targets. These reduction targets are directly influenced by the concept of a Carbon Budget. This is the scientific underpinning behind climate action. The Intergovernmental Panel on Climate Change (IPCC) estimates that for at least a 66 per cent chance of staying below 2°C, total GHG emissions must be less than 1000 billion tCO₂-e (metric tons of carbon dioxide equivalent).

As a share of the global emissions budget, this implies a national budget of 10.1 billion CO₂-e for the period 2013 to 2050. This is about 17 years of emissions at current levels and can be met through a mix of domestic and international emissions reductions. More specifically, Ballarat's carbon budget is approximately 14.7 million tCO₂-e. Without considered climate action, this budget will be used up within 10 years. The actions in this plan seek to ensure that this budget is not used up prior to the implementation of long-term climate action activities.



> Ballarat Municipality

During the 21 November 2018 council meeting Council acknowledged the Climate Emergency and the need for urgent action by all levels of government, including local councils, to reduce carbon emissions.

The *City of Ballarat Carbon Neutrality and 100% Renewables Action Plan* was subsequently developed and adopted by Council in 2019. The Action Plan contains 61 actions to reduce the City of Ballarat's corporate greenhouse gas emissions while also providing community support to achieve carbon emission reductions.

On 24 March 2021, Council endorsed the following resolution:

Note the process of developing city-wide community zero emissions, including setting ambitious aspirational targets for whole of the city through the RSAB platform, and broader community engagement, with City of Ballarat as the lead author. This will help fulfil the action of 5.4a in the *Carbon Neutrality and 100% Renewables Action Plan*.

- Supports an 'in principle' aspirational community-wide target of zero emissions by 2030.

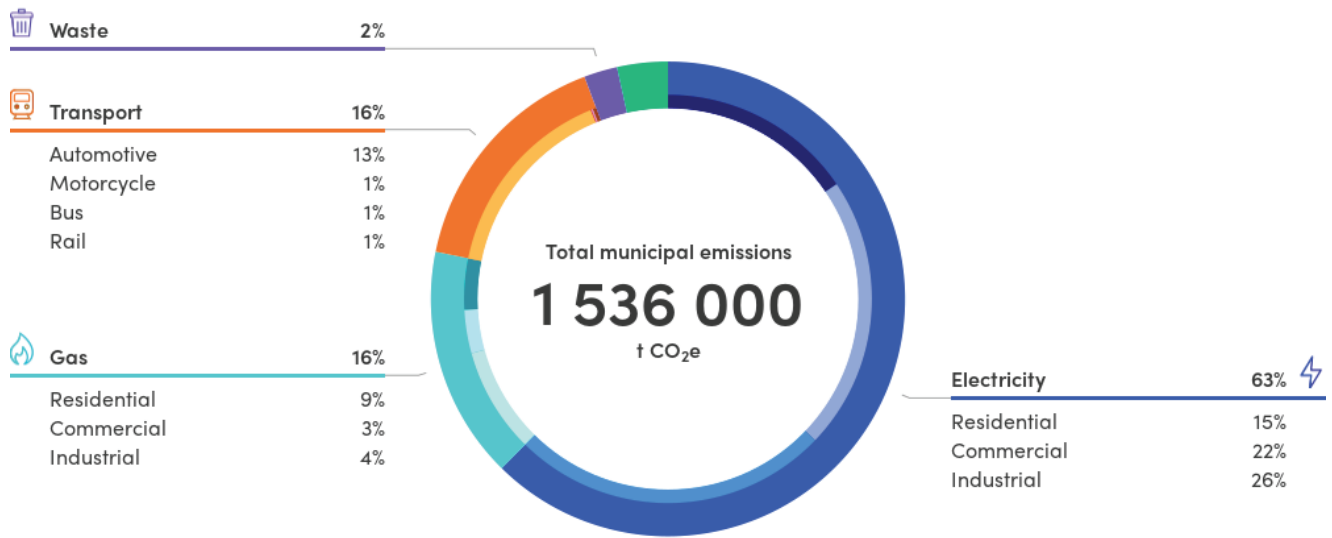
> Emissions in Ballarat

Emissions in the City of Ballarat were estimated to total 1.5 million tonnes in 2020.

These emissions were mostly associated with electricity (61 per cent), transport (17 per cent) and natural gas (16 per cent) use, and are reasonably evenly distributed between the residential, commercial and industrial sectors (see Figure 1).

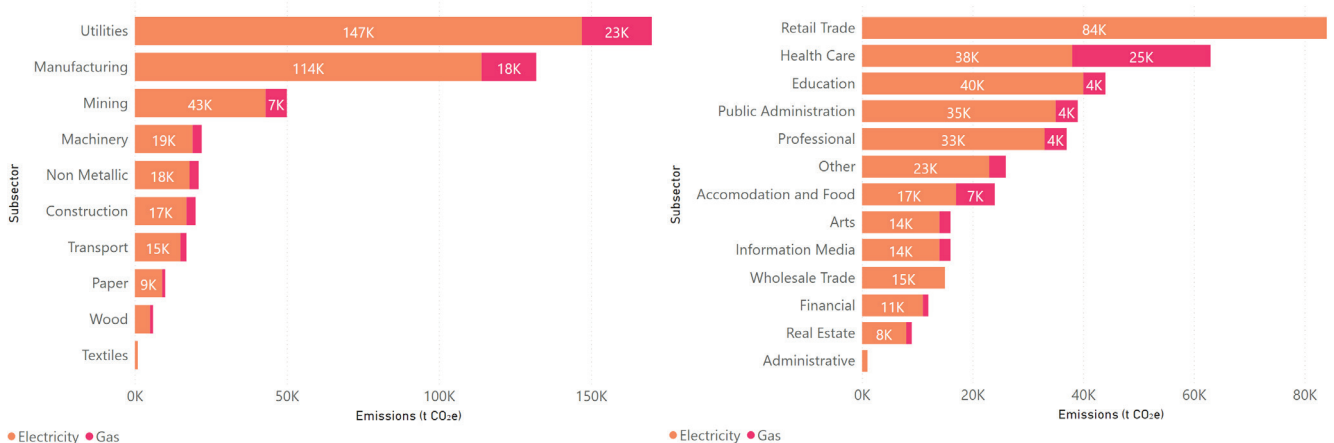
> **Figure 1: Ballarat 2019/2020 municipal emissions snapshot**

Source: snapshotclimate.com.au/locality/australia/victoria/ballarat



Commercial and industrial electricity and gas emissions contribute over half of the total emissions in Ballarat (54 per cent). A summary of the main emission sources for each of these sectors are shown in Figure 2. The major sources of industrial emissions include utilities (37 per cent of industrial emissions) and manufacturing (29 per cent), followed by mining (11 per cent), machinery (5 per cent), non-metallic (5 per cent) and construction (4 per cent). For commercial emitters the main subsectors of emissions are retail trade (22 per cent of commercial emissions), health care (16 per cent), education (11 per cent), public administration and professional services (10 per cent each).

> **Figure 2: Emissions by Industrial (left) and Commercial (right) Subsectors (tCO₂-e)**



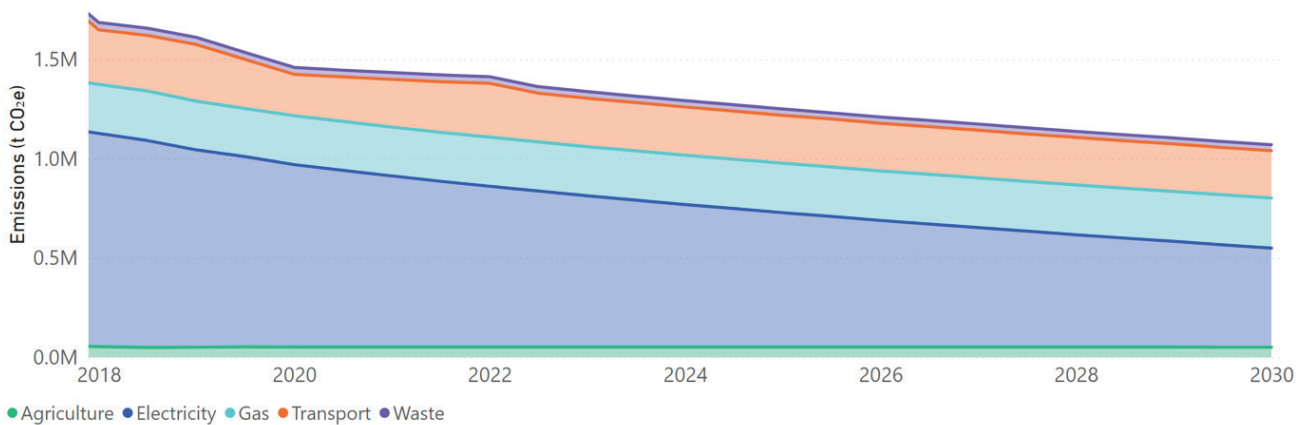
Significant work is being done across all sectors to reduce greenhouse gas emissions. A trajectory of expected emissions within the City of Ballarat has been estimated based on current State and national policy positions and is shown in Figure 3. This demonstrates that emissions are expected to reduce to around 1 to 1.1 million tonnes in 2030.

Local climate action, including commitments and actions to reduce emissions at household and organisational level are additional to this. The actions in this plan seek to strengthen the policy position of these

activities. They also present a complimentary portfolio of activities that can be spearheaded by the variety of community stakeholders in partnership with the City of Ballarat.

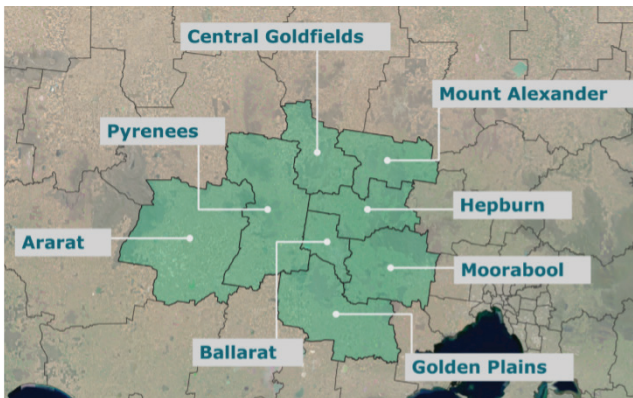
This reduction is substantially driven by decarbonisation of the electricity sector, while gas and transport emissions are expected to remain close to current emission levels. Increases in emissions driven by population growth are expected to be offset by household and commercial efficiency improvements.

> **Figure 3: Ballarat GHG emissions trajectory to 2030**



Ballarat is a regional city and when considering the emissions from the wider region (See Figure 3) including the municipalities of Ararat, Hepburn, Pyrenees, Central Goldfields, Moorabool and Golden Plains, current emissions increase to around 4.3 million tonnes.

> **Figure 4: Ballarat Region**



The regional emissions contribute around 4.5 per cent of total state emissions and are expected to decrease to 3.5–3.7 million emissions by 2030. The main additional contributor at the regional level is agriculture which contributes around 26 per cent of regional emissions.

Within the City of Ballarat there are a number of key emitters that both contribute significant amounts of emissions and are in many cases already planning to reduce emissions. These are outlined in further detail in Section 6 and include commercial and industrial entities (such as McCains, Mars Wrigley, Powercor, Grampians Health and others) as well as government organisations (such as City of Ballarat, Central Highlands Water, and others). By understanding these larger emitters and their already planned targets and actions, the region can prioritise supporting other stakeholders to reduce community emissions, while amplifying key positive stories and messages.

> Current Activities to Reduce Emissions

Throughout the Ballarat community there are a wide range of activities that are reducing emissions. A few examples of this are noted below, and throughout this document we have included break-out boxes to highlight particular work by different people and organisations.

This is really the tip of the iceberg and only provides a small slice of the extensive activity being carried out by a large number of households and businesses to tackle the climate challenge.

- Almost 10,000 solar electric systems have been installed in Ballarat leading to emissions savings of over 70,000 tonnes of CO2 equivalent (CO2-e) each year.³
- The City of Ballarat purchased 100 per cent renewable electricity for all their operations in 2022, reducing emissions by around 10,000 tonnes per year.
- Committee for Ballarat identified pathways to reduce industrial emissions in Ballarat and is in planning with various stakeholders to support local models to accelerate renewable energy projects.
- McCains has plans to purchase 100 per cent of its electricity from renewable sources by 2030.
- Mars Wrigley is purchasing 100 per cent of electricity from renewable sources (from 2021) and installing large scale solar systems at its Ballarat factory.
- Powercor has targets to reduce emissions by 30 per cent from 2019 levels by 2030.
- The Ballarat Tool Library is one of many community organisations tackling waste in Ballarat. The Tool Library provides access to tools for its members, reducing cost, waste and emissions from the manufacturer of new tools and disposal of old tools.
- BREAZE Social Solar Program provides tax deductible emissions offsets via the installation of local solar and batteries to community organisations and facilities⁴.

Source: ³<https://pv-map.apvi.org.au/historical#8/-37.366/144.283>
⁴<https://breaze.org.au/programs/soc-sol-link>

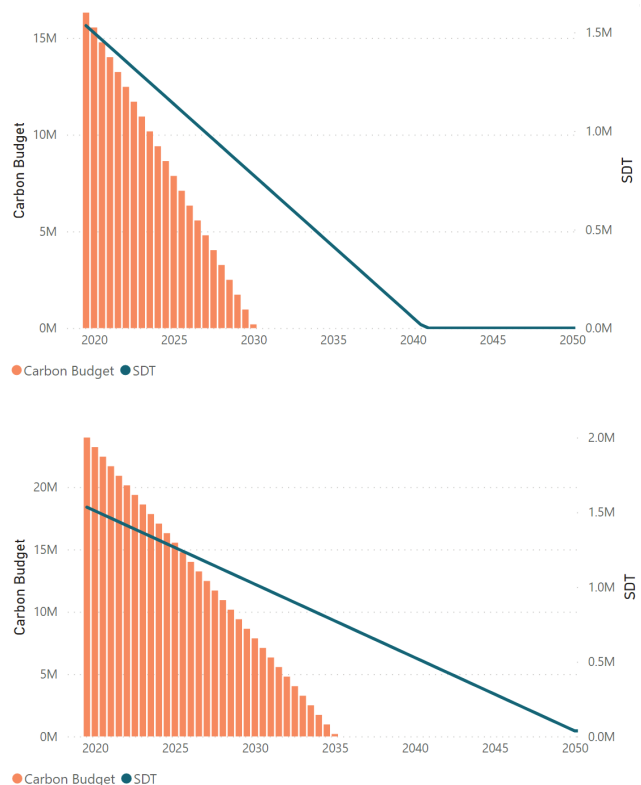
> Net Zero Emissions by 2030

The stakeholders involved in the development of this plan recognise the urgency to act and support Council’s resolution for an aspirational target of net zero emissions by 2030. It reflects a recognition of what is required to address the climate emergency.

The target broadly aligns with the Ballarat community’s contribution to limit the temperature increase to 1.5°C above pre-industrial levels under the Paris Agreement. The target is also in line with other Victorian councils’ net zero emissions municipal targets.

Analysis to identify the Science Derived Target (SDT) that is needed to meet the requirements of the Paris Agreement are shown in Figure 5 below. This indicates that achieving Net Zero Emissions by 2040 is consistent with the 1.5°C Scenario and by 2050 for 2°C, if a linear reduction trajectory occurred from 2020 onwards. In reality, linear reductions are rare so a more aggressive target means the risk of increased warming is reduced.

> Figure 5: Science Derived Target (SDT) Analysis for Ballarat Community to meet commitment to limit temperature rise under the Paris Climate Agreement



The City of Ballarat will support this aspirational community target through implementing and reporting on the actions in this plan such as partnering with others, including advocating to other levels of government for much stronger climate action and investment in our region.

Achieving the ambitious target of net zero emissions by 2030 will require substantial action by the State and Federal government beyond currently planned actions and targets, as well as from the Ballarat community.

> Development of the Net Zero Emissions Plan

The Net Zero Emissions Plan was developed in consultation with the Regional Sustainability Alliance Ballarat (RSAB) group and supported by the consultant Ironbark Sustainability. The plan outlines actions for Ballarat to take as it transitions to a net-zero economy by 2030. It does not rephrase existing areas of detailed planning, but instead considers these and builds upon them to target additional actions to deliver net zero emissions. Other plans and background reports of interest include:

- Grampians Net Zero Emissions Taskforce Roadmap
- Ballarat Integrated Transport Action Plan
- Ballarat Cycling Action Plan – Ballarat Cycling Action Plan
- Circular Ballarat Framework
- Resource Recovery and Waste Management Strategy
- Reducing Industrial Emissions in Ballarat
- Ballarat Bioenergy Technology Final Report
- Dja Dja Wurrung Renewable Energy Strategy.

As well as a detailed review of wider trends and action areas outside the municipality, this plan reflects the existing interests, skill sets and actions already underway by local businesses, community groups and residents.

This ‘Net’ Zero Emissions Plan was sponsored by the City of Ballarat and included extensive community engagement and involvement. As a document that seeks to ensure that the maximum number of emissions are reduced, the recommendations within it rely heavily on cross-sectoral collaboration and a clear and unified strategic direction.

Agreement on this direction was sought using several mechanisms and included:

- The publication and distribution of a background paper detailing a set of recommended program areas focused on community emissions reduction.
- A series of online workshops with stakeholder groups discussing the existing and planned developments in each identified action areas.
- A series of face-to-face workshops with consolidated stakeholder groups to discuss the barriers and opportunities associated with programs within the key theme action area.
- A City of Ballarat workshop that included Councillors and the Executive Leadership Team.

Together, these sessions encouraged the free exchange of ideas and provided strategic direction in the recommendation and framing of key action areas. Specifically, the workshops successfully provided a platform for engagement and input and assisted the project team in understanding community priorities and perspectives on climate action. These sessions also confirmed and celebrated the shared vision of a net zero future, and the alignment between community values and City of Ballarat priorities.

> Aligning with the Sustainable Development Goals

The City of Ballarat recognises the importance of the realisation of the Sustainable Development Goals adopted by the United Nations Member State in 2015. All stakeholders within the Ballarat community are invited to partner and contribute to achieving some of these goals.

7 AFFORDABLE AND CLEAN ENERGY



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



15 LIFE ON LAND



Pathways Towards Net Zero Emissions

The Net Zero Emissions Plan aims to enable a transition of Ballarat to a low carbon economy that empowers communities and builds a more sustainable and prosperous municipality. In moving towards a net zero emissions economy, Ballarat is well positioned to attract new investment and new industries with new opportunities for jobs and greater security of energy supply.

The plan seeks to inspire transformational change within the City of Ballarat and the community. It will also encourage households and businesses to act on emissions reduction. The City of Ballarat understands its role in helping facilitate actions can only be achieved in partnership with the community. This includes an ongoing conversation between the City of Ballarat and the community to understand how the community is identifying opportunities to thrive. As the level of government closest to the community, the City of Ballarat can galvanise and influence actions by different community stakeholders to reduce their emissions.

While the City of Ballarat has a critical role to play in reducing emissions within the municipality, it is important to acknowledge that the City of Ballarat cannot do this alone and is reliant on the State and Federal Government for support. Similarly, the City of Ballarat cannot implement the programs in this plan without community and stakeholder investment. Emissions reductions at this scale will require significant contributions from residents, businesses and industry as well as the State and Federal. It will also require broader societal and structural changes that are beyond the City of Ballarat's influence.

> The City of Ballarat's Role in Net Zero Emissions

The City of Ballarat is uniquely positioned to drive community emissions reductions, because of its leadership role within the region, local understanding and context, and its established community and stakeholder networks. The City of Ballarat already provides numerous support services to the community, ranging from planning and infrastructure to funding opportunities. If well directed, these services can be used to motivate and facilitate community action. The City of Ballarat can support the community by ensuring that all community members are included in the climate actions and empower everyone with the opportunities to contribute. This plan includes key action areas within the City of Ballarat's sphere of influence that can significantly reduce emissions in the region. The City

of Ballarat will also aim to influence action beyond its control through advocacy and leadership.

> The Community's Role in Net Zero Emissions

The community has a vital role in reducing emissions. While City of Ballarat is expected to lead and/or facilitate most actions outlined in this plan, the plan is designed to be implemented in partnership with the community. It is the Ballarat community including individuals, businesses, and community groups that will be driving change on the ground. The opportunities discussed in the plan have been designed to be inclusive, mutually beneficial, and scalable on both a community and individual level.

> State and Federal Governments' Role in Net Zero Emissions

The State and Federal Governments play an important role in supporting local governments and communities to deliver the actions necessary towards achieving net zero emissions. These include review or development of policy and legislation to allow appropriate climate action, and through grants and funding to support emissions reduction projects and activities. Ongoing engagement with local governments and multiple sectors and different stakeholders groups will be crucial for development of policies, appropriate planning of projects and services and for adequate resourcing to implement these.

> Net Zero Emissions Outcomes

Five core sectors have been identified to progress Ballarat to net zero emissions by 2030. Transition in these sectors involves change across all levels of government, industrial and commercial sectors, community and individuals. The actions for these sectors are categorised into five outcomes:

- 1 **Net Zero Business**
- 2 **Net Zero Homes**
- 3 **Net Zero New Developments**
- 4 **Net Zero Transport**
- 5 **Net Zero Waste**



Outcome 1: Net Zero Business

Commercial and retail businesses are key to the livelihood, prosperity, and liveability of the Ballarat region. They also occupy large tracts of land, use high volumes of energy, and rely on the import of goods and services from abroad to satisfy local needs. As some sectors continue to expand in the region due to substantial population growth, such as health care, social assistance and education, the energy consumed by businesses will continue to increase.

The Ballarat region displays a wide range of business types and industries spread across numerous sectors. Commercial and industrial emissions account for 54 per cent of emissions across Ballarat. Of these, a few large businesses account for a large percentage of these emissions including manufacturers McCains and Mars Wrigley, and electricity distributor Powercor (emissions are largely as a result of electricity distribution losses).

Each of these businesses has clear and public emission reduction targets for 2030 and is committed to playing their role in community wide emission reduction targets.

There are a number of key areas for action to support business to reduce emissions in Ballarat. Some actions are cross-sectoral and covered in other Outcomes including Net Zero Transport and Net Zero New Developments. The actions within this Outcome should be considered in conjunction with those recommendations.

There are good support networks across business in Ballarat and many areas that business can take action to reduce emissions. A core pillar of Committee for Ballarat's (C4B) Strategic Plan is liveability and a commitment to delivering a sustainable city that is carbon neutral and driven by 100 per cent renewable energy. Both C4B and the City of Ballarat have key roles in supporting business with C4B in the active stages of planning a cooperative approach to emissions reduction and energy security in Ballarat.

> 1.1: Aggregate Renewable Energy Investment and Purchase

The quickest way to decarbonise emissions for many businesses is to use their current electricity expenditure and redirect it to 100 per cent renewable electricity.

Initially the cooperative model can focus on aggregating business and procuring Power Purchase Agreements (PPAs) from renewable sources. This can be rapidly deployed and can be an ongoing part of the work, with annual procurement rounds.

Importantly for small organisations these projects are difficult to access. A regional cooperative model can help overcome such barriers by enabling group purchase at discounted rates. For business groupings a target of 20GWh/yr. of demand is expected to be a reasonable minimum viable volume of electricity to go to market and identifying larger users to anchor the work is sensible.

> 1.2: Plan and Implement Net Zero Emissions

Getting to net zero can be as simple as purchasing renewable electricity and offsetting the remaining emissions. However, there is complexity in calculating emissions and targeting ways to reduce emissions as well as increasing profit and competitiveness through energy savings.

Within Ballarat there are a number of key emitters that both contribute significant amounts of emissions and are in many cases already planning to reduce emissions. By understanding these larger emitters and their already planned targets and actions, the region can prioritise supporting other stakeholders to reduce community emissions, while amplifying key positive stories and messages.

> 1.3: Connect to Local Offsetting Programs

Access to locally sourced offsets to reduce emissions to zero are a valuable addition to achieving net zero emissions. There are several examples of small-scale local offsetting which could be the basis for more broad scale investment in local solutions to reduce emissions.



Case Study:

Local Emissions Offsetting

Social Solar by BREAZE uses donations and grants to supply solar panels and/or solar hot water or batteries, to not-for-profit community organisations in Ballarat. This results in more renewable energy in the region, reduced emissions and greater social justice.

Since 2016 BREAZE has contributed 67kW of Social Solar for properties of not-for-profits, particularly social housing. This has resulted in the cutting of energy costs for charities and low-income households.



Photo of BREAZE social solar. L-R: Local State MP Juliana Addisson (Wendouree) joined BREAZE volunteers, Mary Debrett and Peter Reid, Pinarc CEO Marianne Hubbard, and State member for Buninyong, Michaelia Settle. Image credit: BREAZE

Outcome 1: Net Zero Business

ROLE OF STAKEHOLDERS
Business and Industries
<ul style="list-style-type: none"> • Implement or participate in aggregated renewable energy purchase • Support uptake of collective and individual PPA agreements through knowledge sharing and promotion • Promote sharing of knowledge and experience from larger emitters to support commitment to net zero emissions by smaller emitters • Promote successful offset purchase and sale stories • Promote climate change leadership to customers and clients
City of Ballarat
<ul style="list-style-type: none"> • Promote the existing networks and facilitate sharing of experience • Support education to businesses around power purchase agreements • Provide support to smaller businesses to explore power purchase agreements opportunities • Support business to plan for and deliver net zero • Identify and promote local offsetting opportunities
Community
<ul style="list-style-type: none"> • Actively participate in discussions on local sustainability initiatives, technologies and program.



Outcome 2: Net Zero Homes

Residential gas and electricity use accounts for 23 per cent of total emissions in Ballarat. However, most of these emissions in 2030 will come from homes that are already built in 2020.

The Ballarat region has a proud history of supporting sustainable homes including hosting the first Sustainable Living Festival⁶ as well as the annual Sustainable House Day⁷. As a result, the local community is well informed about the benefits of efficient and comfortable homes.

Supporting existing homes to be more efficient can be facilitated through education and connection to established programs run both locally and at the state level or developing new programs.

Source: ⁶sflf.org.au, ⁷sustainablehouseday.com

> 2.1: Improve Energy Efficiency of Existing Homes

Energy efficiency is an important way to build resilience for homes in the face of increasing temperatures and energy prices. There are many State Government programs that provide rebates for appliance replacements. In Ballarat over 700 residents claimed rebates for solar or heat pump hot water systems in 2021, an increase of almost 80 per cent since 2018.

Amplification of positive stories and approaches is recommended to increase the expectation that people will make their homes safer, more comfortable, and efficient⁸ by improving energy efficiency

This should also address the key barriers of access to technical information and contacts for local tradespeople to assist in this transition.

Source: ⁸morelandzerocarbon.org.au/moreland-launches-new-electrify-everything-messaging-guide

> 2.2: Transition towards All-Electric Houses

According to the Victorian Gas Substitution Roadmap Consultation Paper (2021) Victoria accounts for 37 per cent of the East Coast gas market. The leading use of gas is space heating, and the second largest use of gas is industrial processes, mainly manufacturing. Victorian gas production is decreasing, and the Australian Energy Market Operator (AEMO) is forecasting the state's gas production will be unable to supply a 1 in 2 winter peak day by 2023⁹.

Source: ⁹energycouncil.com.au/analysis/is-degasification-plausible

Without change, gas use is expected to generate around the same emissions in 2030 as now in the region and as such is an important area of focus to support the transition to net zero emissions.

Modelling demonstrates that over a 10-year period, households are between \$9,000 and \$16,000 better off with an all-electric house with solar than an electric and gas house¹⁰. This modelling was before the current large increase in gas pricing since 2021.

To support local households to prepare for and benefit from the challenges afflicting the gas industry, the Ballarat community can be active in electrifying everything in their households including gas appliances, petrol tools and vehicles.

Advocacy at the various levels of government is needed in order to:

- Provide a comprehensive support program to householders to transition off gas, including incentives combined with well-resourced education campaigns.
- Ensure vulnerable people are not worse off and supported during the transition, remove incentives for fossil fuel concessions and rebates and replace them with the same for electric alternatives.
- Consider increasing rebates and subsidies during this transition period so that purchasing replacement appliances is possible.

Source: ¹⁰renew.org.au/research/all-electric-solar-homes-save-thousands-over-gas-report



Outcome 2: Net Zero Homes

ROLE OF STAKEHOLDERS
City of Ballarat
<ul style="list-style-type: none"> • Amplify positive messages, stories and information to support households to transition from gas • Support home builders to make informed decisions around gas infrastructure exclusion and electrification. • Support residents to electrify everything in their households, by providing information on products and local tradespeople who can help with replacing gas appliances • Advocate to State and Federal Governments
Households and Individuals
<ul style="list-style-type: none"> • Implement energy efficiency measures during home upgrades and ensure new homes have high sustainability standards • Consider electrification in major renovations and new home design, future-proofing homes against future gas installations
Community
<ul style="list-style-type: none"> • Promote success stories of completed sustainable home upgrades and new construction



Outcome 3: Net Zero New Developments

Almost 80 per cent of emissions in Ballarat come from business and residential use of energy. There are several opportunities to improve the sustainability of new developments.

Many development standards are governed by state and federal level organisations with local implementation of these requirements. The City of Ballarat has partnered with other Council's to update relevant planning schemes to include environmentally sustainable development (ESD) policies. This is a longer-term project and when policy is implemented the City of Ballarat's Planners will then be better positioned to ensure new developments limit emissions.

> 3.1: Advocate for Higher Environmentally Sustainable Design Standards

The Council Alliance for the Sustainable Built Environment (CASBE) exists to *"make a difference to the sustainability of our built environment, through the Victorian planning process"*.

The City of Ballarat is working closely with CASBE on two key advocacy projects relating to planning. The projects include:

1. Sustainable Subdivision Framework (SSF) Trial; and
2. Elevating Environmentally Sustainable Design (ESD) in the Planning Scheme (Elevating ESD)

A number of councils across Victoria including the City of Ballarat are conducting a voluntary trial of the Sustainable Subdivisions Framework. The framework can be used to integrate sustainability interventions in subdivision design in order to create fundamental conditions for a sustainable and resilient community. It is hoped that the seven categories underpinning the SSF, including ecology and urban heat, site layout and liveability and integrated water management, will ultimately form part of a future amendment to update the Ballarat Planning Scheme.

Separate, but related, the Elevating ESD project can be summarised as simply increasing the stringency of regulations for developers regarding ESD.

If implemented by the Planning Minister and subsequently included within the Ballarat Planning Scheme, the Elevating ESD project would give the City of Ballarat Planners the ability to require new developments to:

- Be net zero carbon emissions from operational energy use
- Be built to 7 stars NatHERS
- Require minimum solar PV provision
- Be capable of supporting electric vehicles (or be 'EV ready') through minimum charging outlets and cabling.

If introduced the City of Ballarat would then monitor its implementation for delivering energy and emissions outcomes via the Planning system. Comparisons could be made to local government best practice in sustainability in the planning system by collecting data from CASBE. This data includes officer time dedicated to the ESD in planning and in relation to City of Ballarat projects, and the theoretical impact of this work (in emissions, water and other metrics) from over 30 Victorian local governments.

> 3.2: Future-Proof New Developments

Developers have the ability to actively engage with builders and owners to develop precincts to future-proof new developments from future change in the energy supply. The design and development of new areas should follow the below key requirements to ensure they are compatible with this plan:

- Implement actions in Victoria's Gas Substitution Roadmap to support electrification
- Integrate net zero design standards within the construction
- Ensure the construction and development process eliminates waste to landfill
- Design includes resilience to extreme weather and climate-related events

These measures could be required via the planning assessment process. This however remains subject to a future planning scheme amendment introducing these measures.

Outcome 3: Net Zero New Developments

ROLE OF STAKEHOLDERS
<p>City of Ballarat</p> <ul style="list-style-type: none"> • Work closely with Council Alliance for the Sustainable Built Environment (CASBE) to further promote planning scheme amendments to introduce environmentally sustainable development (ESD) standards • Ensure the planning system and process are equipped to deliver best practice sustainability outcomes via continued advocacy at state level
<p>Developers</p> <ul style="list-style-type: none"> • Actively encourage zero emission developments in Ballarat • Integrate net zero design standards within building construction • Demonstrate ESD within display homes in new developments
<p>Community</p> <ul style="list-style-type: none"> • Advocate to Council, local Members of Parliament, State and Federal governments. • Show ongoing support for sustainable building upgrades, celebrating the need for mainstreaming these improvements • Advocate for building typologies and design that take into account current and future needs, subject to environmental conditions



Outcome 4: Net Zero Transport

Transport emissions account for 17 per cent of Ballarat's total emissions profile. The City of Ballarat already has a comprehensive Integrated Transport Plan in place, as well as a dedicated Cycling Action Plan that covers the areas of public and active transport. While these plans are critical to progress, this action area recognises the continued role for cars, trucks and other vehicles and the need to replace fossil fuel with renewable fuels.

Under a business-as-usual model, this emissions source is expected to be similar in size in 2030 as in 2022. Despite this, significant opportunities exist for reducing transport emissions in Ballarat through public and active transport, electric vehicle passenger and fleet vehicles, and transitioning heavy fleet to alternative fuels.

> 4.1: Increase Use of Public and Active Transport Modes

Discussions are already underway with operators of the bus network and the State Government for a potential hydrogen fuel cell bus trial in Ballarat. This would support the trial by Public Transport Victoria (PTV) in partnership with bus manufacturers in Geelong scheduled for 2023 and see a complete elimination of bus tailpipe emissions. In the longer term, an opportunity exists to use green hydrogen as a fuel source, suggesting public transport solutions in Ballarat could effectively be carbon neutral.

Recognising that encouraging users to adopt walking and cycling involves a supportive statutory planning and infrastructure landscape. The Ballarat Integrated Transport Plan identifies and plans for targeted ways to support active transport within the region. Organisations such as the YMCA managed ReCranked are assisting in the uptake of bike riding locally.

Opportunities exist to increase the use and promotion of active transport in schools as well as to provide access to bikes through share programs. There are many existing programs to share tools, toys and other resources active in Ballarat. By expanding the remit of this work, more people will use bikes for recreation and commuting.

> 4.2: Transition Passenger and Fleet Vehicles to Low/Zero Emission Options

In understanding that private motor vehicles will remain a dominant mode of transport in Australian cities, this action area focuses on a transition towards electric vehicles (EV) from internal combustion engine (ICE) vehicles. This also includes the uptake of shared vehicles to ensure that growth in the total number of vehicles slows or declines.

The State Government has a target of increasing EVs to 50 per cent of all new car sales by 2030. In 2020 less than 1 per cent of all new car sales in Australia were electric vehicles, while in 2021 this increased to 2 per cent.

Australia has a large second-hand car market which is partly enabled by the turnover of corporate fleet. The transition of fleets by large companies and governments to EVs will mean more affordable EVs are available. Supporting large fleet transitions will have a real impact on the availability of charging infrastructure and cars for the second-hand market.

State and Federal governments are largely focusing on large scale and long-distance charging. The City of Ballarat can play a significant role in localised charging for community destinations as well as charging facilities for those without off street parking available.

Transitioning transport and (some) heavy industrial gas users to renewable fuels remains a challenging issue. Ballarat is well positioned to lead Victoria in exploring the planning and building of infrastructure and systems to service zero emissions heavy fleet markets. A zero emissions fuels hub in Ballarat can co-locate research, the suppliers of zero emissions fuels and key demand from large industrial and transport users within the region.

By co-locating these diverse energy stakeholders Ballarat can be a regional centre that attracts advanced manufacturing and transport employers who are wanting to accelerate their own plans to decarbonise their fuel supplies. The hub can deliver fuel sources for applications that cannot be electrified and require reliable, quality fuel supplies from renewable sources like biomethane or renewable hydrogen.

From a technology perspective, biofuels and green hydrogen provide some key advantages to service the long-haul transport options. A detailed feasibility of the viability of both transport and industrial zero emission energy provision should be carried out in the short term to inform the investment priorities of State and Federal Governments in Ballarat.

> 4.3: Coordinate Transport Logistics

During the consultation process, significant transport logistics challenges were identified in Ballarat. This included examples such as product manufactured in Ballarat being sent to Melbourne before being rerouted back through Ballarat to further destinations. Investigation of these logistics challenges and coordinated support in ensuring an efficient freight system for Ballarat are expected to lead to improved emissions and cost outcomes for manufacturers in the region. The first step in this process would involve engaging with the State Government to confirm and better understand this problem.





Case Study:

Electric Vehicle Charging in Ballarat

Organisations within Ballarat have been leading the way in supporting the transition from combustion engine vehicles to electric through the installation of Electric Vehicle chargers. These include McCain Foods Australia, Central Highlands Water and Sovereign Hill.

Buninyong Sustainability successfully raised funds with the support of Bendigo Bank and the City of Ballarat to install a charging station in Buninyong. In addition, electric vehicles are a key focus of the 2022 Buninyong Smart Living and Building Expo.



EV charger in Buninyong

Outcome 4:

Net Zero Transport

ROLE OF STAKEHOLDERS
City of Ballarat
<ul style="list-style-type: none"> Advocate for increased investment into active transport by all levels of government and the private sector, that reduces the need to drive and provides more equitable and accessible transport options for the community
<ul style="list-style-type: none"> Focus on improving the design of community spaces and key activity areas to improve walkability, accessibility, safety and social inclusion – which all encourage active transport
<ul style="list-style-type: none"> Advocate to State Government to accelerate and prioritise zero emission buses in Ballarat
<ul style="list-style-type: none"> Support large fleets in Ballarat to plan transition away from fossil fuel vehicles
<ul style="list-style-type: none"> Connect the community organisations who share resources with the community to collaborate in providing expanded access to bikes and the skills to maintain and repair them
<ul style="list-style-type: none"> Coordinate city planning of electric vehicle charging
<ul style="list-style-type: none"> Advocate to State and Federal Government to support funding for electric vehicle chargers
<ul style="list-style-type: none"> Support the organic feedstock for the zero emissions fuels hub as well as regional planning processes
Business
<ul style="list-style-type: none"> Provide parking and charging for electric vehicles
<ul style="list-style-type: none"> Assess feasibility and advocate for funding for the zero emissions fuels hub
<ul style="list-style-type: none"> Collaborate to bring major players (Federation University, City of Ballarat and business) together to the zero emissions fuels hub site
<ul style="list-style-type: none"> Investigate challenges around freight logistics in partnership with the State Government
Community
<ul style="list-style-type: none"> Advocate for the introduction of zero emission community buses
<ul style="list-style-type: none"> Schools to embed travel policies and procedures
<ul style="list-style-type: none"> Advocate to and support large employers (including State and Federal Governments) for increased investment into active transport electric vehicle charging at key facilities



Outcome 5: Net Zero Waste

While only accounting for a small proportion of the municipality's emissions, reducing waste has many social, financial, and environmental benefits to the community.

The 3 per cent of emissions from waste is an area that is within the control of the region and can be readily reduced to zero with appropriate planning and investment. Of these emissions, around 19,000 tCO₂-e (metric tons of carbon dioxide equivalent) are from waste to landfill and a further 16,000 tCO₂-e from water management. Both the City of Ballarat and Central Highlands Water have plans to reach net zero emissions by 2025 and 2050 respectively.

> 5.1: Support Circular Economy Business

A wide variety of community stakeholders that support waste reduction dedicated significant time during the engagement for this plan. This included the Repair Café, Ballarat Tool Library, Ballarat Toy Library, Ballarat Permaculture Guild and the City of Ballarat.

A clear message from the community was a need to establish a precinct to house a number of circular economy organisations including a tip shop, repair café and resource recovery infrastructure. There is also potential for this precinct to include a renewable energy/zero emission fuels hub. The City of Ballarat will review and update the *Resource Recovery and Waste Management Strategy* in 2022-2023. This presents an opportunity to ensure there is synergy between its outcome and this plan.

> 5.2: Increase the Impact of Sharing Services

Ballarat is home to a large number of providers who support sharing. This has a direct impact on emissions and resource use generally. By increasing the skills and capacity of these organisations, this can increase the resilience, improve access to services, minimise waste and reduce costs and emissions for the Ballarat community. Increasing the sharing of products and services can reduce the number of items that need to be produced and consumed, such as vehicles, bicycles and tools.

> 5.3: Develop Low Emissions Infrastructure

The increased use of recycled materials in infrastructure projects represents a strong opportunity to showcase climate change leadership and significantly reduce emissions. The specification and procurement of locally sourced and recycled materials reduces emissions associated with their processing and from transporting the materials to site.

With an increase in demand for recycled materials, construction contractors and recyclers would have an incentive to become more familiar with, and supply products associated with, lower emissions infrastructure projects. There are three main ways to reduce emissions from infrastructure projects:

- Replace products with lower emissions products or processes
- Reduce the amount of material required (through design changes or through the use of materials that last longer and require less frequent replacement)
- Change the process itself (such as using electric vehicles or sourcing electricity from renewable energy).

The City of Ballarat is already connecting waste producers with demand through the ASPIRE program. The City of Ballarat should continue to lead this work and support residential and commercial developers to also understand and access low emission infrastructure opportunities.

This program would leverage existing local recycled material contractors that crush construction materials and asphalt for use in infrastructure projects. It could also involve innovative processes such as including asphalt made with recycled tyres and used toner cartridges or concrete reinforcement and aggregate made from recycled materials.

Engagement with residents could support these trials through feedback on the quality of the infrastructure and through the contribution of recyclable household products such as toner cartridges. This engagement would also build community awareness and support for the development of a circular economy.

Outcome 5: Net Zero Waste

ROLE OF STAKEHOLDERS
City of Ballarat
<ul style="list-style-type: none"> • Plan and implement zero emissions from waste to landfill • Garner support for a sharing culture in Ballarat • Support local share economy businesses • Explore innovative construction systems by adopting new processes • Advocate to the Federal and State Governments for funding and other support
Business
<ul style="list-style-type: none"> • Plan and implement zero emissions from water and wastewater treatment • Implement infrastructure projects that reduce or eliminate emissions
Community
<ul style="list-style-type: none"> • Assist City of Ballarat and share service providers to improve local infrastructure and amenity



Monitoring, Reporting and Review

In partnership with the community, the City of Ballarat will start implementing this plan in 2022-2023. While some actions in the plan are funded, additional resources will be required for others. The success of this plan will be contingent on the collaborative efforts by different stakeholders in the municipality as well as substantial actions by the State and Federal Governments. Some of these actions will be funded as part of future annual City of Ballarat budgets, while others will require partnership of different stakeholders to pursue public and private sector resourcing and funding.

A monitoring and evaluation framework will be developed for this plan. Through ongoing monitoring, the City of Ballarat will review the uptake and effectiveness of specific actions and redirect its course if necessary.

The City of Ballarat will report annually on the progress, key achievements, highlights and areas of improvement. These updates and lessons learnt will be shared with the community in the City of Ballarat's Annual Report.

The plan will be reviewed in 2025 and updated based on the success of programs while taking into account State and Federal Government policy, funding opportunities, technology accessibility and other collaborative opportunities. Relevant recommendations of the review will be integrated in the development of *Council Plan 2025-2029*.

The plan will expire in 2030, the year of the aspirational target of achieving net zero emissions for the municipality. The City of Ballarat will work with the community in the final evaluation and to determine post-2030 targets and actions.

Identified Action Opportunities

OUTCOME 1: NET ZERO BUSINESS				
Action	Roles	Primary Benefit	Co-benefits	Timeframe
1.1: Aggregate Renewable Energy Investment and Purchase				
a) Implement renewable energy projects and/or enter into power purchase agreement (PPA) for renewable energy, individually or collectively	Businesses deliver City of Ballarat support	Emissions reduction	Reduced energy costs	1-2 years
b) Facilitate knowledge sharing and education to support the uptake of PPAs by commercial and industrial organisations	Businesses deliver City of Ballarat support	Emissions reduction	Knowledge sharing, Network building	Ongoing
c) Support smaller businesses to explore PPA opportunities	Businesses deliver City of Ballarat support	Emissions reduction	Reduced energy costs, Knowledge sharing	2-3 years
1.2: Plan and Implement Net Zero Emissions				
a) Identify and engage with key emitters to support climate action planning and net zero emissions	Businesses deliver City of Ballarat support	Emissions reduction	Reduced energy costs, Knowledge sharing	2-3 years
b) Share knowledge and promote experiences to support net zero emissions by smaller emitters	Businesses deliver City of Ballarat support	Emissions reduction	Knowledge sharing, Network building, Business promotion	Ongoing
c) Promote financial support for energy upgrade measures	City of Ballarat advocate Businesses support	Emissions reduction	Reduced energy costs, Knowledge sharing	Ongoing
d) Perform audits of the major gas users in the municipality and identify opportunities for transition to alternative fuels or electrification	Businesses deliver City of Ballarat support	Emissions reduction	Reduced energy costs	1-2 years
1.3: Connect to Local Offsetting Programs				
a) Identify and promotion of local offsetting programs	City of Ballarat deliver Community groups support	Emissions reduction	Knowledge sharing, Network building, Business promotion	1-2 years
b) Support local businesses considering purchasing offsets to reduce their overall emissions footprint	City of Ballarat deliver Community groups support	Emissions reduction	Knowledge sharing, Network building, Business promotion	2-3 years
c) Promote successful offset purchase and sale stories	City of Ballarat deliver Community groups support	Emissions reduction	Knowledge sharing, Network building, Business promotion	Ongoing

OUTCOME 2: NET ZERO HOMES				
Action	Roles	Primary Benefit	Co-benefits	Timeframe
2.1: Improve Energy Efficiency of Existing Homes				
a) Promote support including financial resources for energy upgrades of homes, with a focus on vulnerable community groups and households	City of Ballarat deliver Community groups support	Climate finance	Reduced energy costs, Energy efficiency	Ongoing
b) Encourage landlords and/or tenants to implement energy upgrade measures on homes.	City of Ballarat deliver Businesses support	Emissions reduction	Energy efficiency, Reduced energy costs	Ongoing
c) Promote sustainable outcomes associated with building renovations or new building construction	City of Ballarat deliver Businesses support	Awareness raising	Energy efficiency, Reduced energy costs	Ongoing
2.2: Transition towards All-Electric Houses				
a) Promote to home builders on informed decisions around gas infrastructure exclusion and all-electric homes	City of Ballarat deliver Businesses support	Emissions reduction	Energy efficiency, Reduced energy costs	Ongoing
b) Pilot bulk buy programs for renewable energy and energy efficiency by households	Community groups deliver City of Ballarat support	Emissions reduction	Energy efficiency, Reduced energy costs	2-3 years
c) Continue to support, promote and expand the role of local community sustainability groups	Community groups deliver City of Ballarat support	Awareness raising	Leadership, Knowledge sharing	Ongoing
d) Promote success stories associated with all-electric houses	City of Ballarat deliver	Awareness raising	Energy efficiency, Reduced energy costs	Ongoing

OUTCOME 3: NET ZERO NEW DEVELOPMENT				
Action	Roles	Primary Benefit	Co-benefits	Timeframe
3.1: Advocate for Higher Environmentally Sustainable Design (ESD) Standards				
a) Continued support to Council Alliance for a Sustainable Built Environment (CASBE) on Environmentally Sustainable Design (ESD) related projects	City of Ballarat advocate	Emissions reduction	Leadership, Community resilience	Ongoing
b) Advocate to Federal and State Government agencies to elevate ESD requirements in new developments	City of Ballarat advocate	Emissions reduction	Leadership, Economic impacts, Community resilience	Ongoing
c) Advocate to Federal and State Government agencies to implement a consistent standard of ESD for planning applications	City of Ballarat advocate	Energy efficiency	Reduced energy costs, Reduced emissions	Ongoing
d) Increase the enforcement of National Construction Code (NCC) for new residential buildings and developments	City of Ballarat deliver	Energy efficiency	Reduced energy costs	Ongoing
e) Ensure appropriate resourcing for ESD compliance to educate developers around best practice building systems, and ensure new buildings are compliant with local and national standards.	City of Ballarat deliver	Energy efficiency	Reduced energy costs, Reduced emissions	Ongoing
f) Advocate to Federal and State Government agencies to implement higher ESD standards into the Ballarat Planning Scheme for residential and commercial developments	City of Ballarat advocate	Emissions reduction	Reduced energy costs, Environmental protection, Energy efficiency	Ongoing
3.2: Future-Proof New Developments				
a) Advocate for integration of ESD principles in the Local Government Infrastructure Design Manual	City of Ballarat advocate	Emissions reduction	Leadership, Community resilience	Ongoing
b) Promote the benefit of future-proofing and high energy rated buildings within the community	City of Ballarat advocate Community groups and businesses support	Emissions reduction	Leadership, Community resilience, Future-proofing sustainability outcomes	Ongoing
c) Integrate adequate shading and tree canopy cover in new development and precinct plans to enable active transport, including network of bike paths in vegetated areas	City of Ballarat deliver	Reduced urban heat	Community health and well-being, Resilient urban landscapes	1-2 years
d) Identify current and future energy needs in Ballarat to plan and implement large scale zero emissions energy infrastructure	City of Ballarat deliver	Emissions reduction	Leadership, Future proofing sustainability outcomes	1-2 years

OUTCOME 4: NET ZERO TRANSPORT				
Action	Roles	Primary Benefit	Co-benefits	Timeframe
4.1: Increase Use of Public and Active Transport Modes				
a) Advocate to the Federal and State Government for better electricity infrastructure and decarbonised public transport system	City of Ballarat advocate	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
b) Advocate for improved bus routes to be more effective and run more often	City of Ballarat advocate	Emissions reduction	Community health and wellbeing, Improved air quality	Ongoing
c) Provide low emission/active transport infrastructure (bike lanes, electric bike charging stations, etc)	City of Ballarat deliver Community groups support	Emissions reduction	Community health and wellbeing, Improved air quality	Ongoing
d) Advocate for increased investment into active transport by all levels of government and the private sector	City of Ballarat advocate Community groups and businesses support	Emissions reduction	Improved air quality, Reduced noise pollution, Improved mobility, Public health	Ongoing
e) Improve walkability, accessibility, safety and social inclusion into the design of community spaces and key activity areas	City of Ballarat deliver Community groups and businesses support	Emissions reduction	Improved air quality, Reduced noise pollution, Improved mobility, Public health	Ongoing
f) Promote low emissions transport option such as public transport, commuter cycling and car sharing	Community groups deliver City of Ballarat support	Emissions reduction	Improved air quality, Reduced noise pollution, Improved mobility, Public health	Ongoing
4.2: Transition Passenger and Fleet Vehicles to Low/Zero Emission Options				
a) Work with car share organisations to facilitate EV car-share vehicles to be rolled out in Ballarat or facilitate a locally run EV car share service	Businesses deliver City of Ballarat support	Emissions reduction	Leadership, Economic impact, Community resilience	1-2 years
b) Promote new and innovative transport solutions and infrastructure for City of Ballarat and other major fleet operators in Ballarat	City of Ballarat advocate Businesses support	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
c) Develop zero emissions fleet transition plan for the City of Ballarat and support other large fleet operators to do the same	City of Ballarat deliver Businesses support	Emissions reduction	Leadership, Economic impact, Community resilience	1-2 years
d) Advocate and promote incentives for zero emissions vehicles	City of Ballarat advocate Community groups support	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing

OUTCOME 4: NET ZERO TRANSPORT				
Action	Roles	Primary Benefit	Co-benefits	Timeframe
4.2: Transition Passenger and Fleet Vehicles to Low/Zero Emission Options				
e) Investigate the installation of EV and carshare infrastructure	City of Ballarat deliver Businesses and community groups support	Emissions reduction	Leadership, Improved mobility	1-2 years
f) Assess feasibility and advocate for zero emissions fuels hub in Ballarat in support of transitioning of transport users to renewable fuels	Businesses deliver City of Ballarat support	Emissions reduction	Leadership, Economic impact, Community resilience	2-3 years
4.3: Coordinate Transport Logistics				
a) Work with public and private stakeholders in identifying transport logistics challenges faced by business in Ballarat	Businesses deliver City of Ballarat support	Emissions reduction	Leadership, Economic impact, Community resilience	1-2 years
b) Advocate to the State Government for a coordinated and efficient freight system for Ballarat	Businesses advocate City of Ballarat support	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing

OUTCOME 5: NET ZERO WASTE				
Action	Roles	Primary Benefit	Co-benefits	Timeframe
5.1: Support Circular Economy Business				
a) Progress the development of a Circular Economy Precinct in Ballarat	City of Ballarat deliver	Emissions reduction	Emissions reductions, economic impact, community health and wellbeing	2-3 years
b) Promote engagement of community with the 'ASPIRE Program' and 'Circular Business Development Program'	City of Ballarat deliver	Emissions reduction	Circular economy, Economic impact, Community Resilience, Reduced waste to landfill	Ongoing
c) Assist businesses in preparing for upcoming State-level Container Deposit Scheme and the ban on single use plastics	Businesses deliver City of Ballarat support	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	Ongoing
d) Integrate net zero emissions in the review and update of the Resource Recovery and Waste Management Strategy	City of Ballarat deliver	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	1-2 years
e) Advocate to the Federal and State Government for funding and support to research, develop and trial biomass projects	Businesses advocate City of Ballarat support	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	Ongoing
f) Support large businesses and developers to understand the potential benefits of implementing biomass projects	Businesses deliver City of Ballarat support	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	Ongoing
g) Continue education campaign aimed at ensuring all businesses and residents in the region are familiar with the various waste streams	City of Ballarat deliver	Emissions reduction	Community health and well-being, Improved air quality	Ongoing
h) Encourage users of City of Ballarat-managed waste transfer stations on separation of various waste streams	City of Ballarat deliver	Emissions reduction	Circular economy	Ongoing
i) Investigate feasibility of installing methane reduction technologies at old landfill sites and sewage treatment plants	City of Ballarat deliver	Emissions reduction	Circular economy	2-3 years

OUTCOME 5: NET ZERO WASTE				
Action	Roles	Primary Benefit	Co-benefits	Timeframe
5.2: Increase the Impact of Sharing Services				
a) Gather support for a sharing culture in Ballarat by promoting its benefits to the community and potential investors	Community groups deliver City of Ballarat support	Circular economy	Public outreach, emissions reduction, Public outreach	Ongoing
b) Support local share economy businesses by providing infrastructure such as office spaces, storage facilities and transport infrastructure	Community groups deliver City of Ballarat support	Emissions reduction	Circular economy, Economic impact	Ongoing
c) Assist share services providers improve local infrastructure and amenity with local needs	Community groups deliver City of Ballarat support	Circular economy	Public amenity improvement	Ongoing
d) Facilitate materials transactions between private organisations through knowledge sharing and publicity	Businesses deliver City of Ballarat support	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
e) Continue to develop business cases that capitalise on the use of by-products for energy generation	Businesses deliver City of Ballarat support	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
5.3: Develop Low Emissions Infrastructure				
a) Apply new and innovative solutions to use waste products in operations, such as recycled content in building materials	Businesses deliver City of Ballarat support	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
b) Review infrastructure design guidelines to require all building materials for roads, paths, kerb and channel, and concrete to use high recycled content and/or low emissions materials	City of Ballarat deliver	Emissions reduction	Circular economy	Ongoing
c) Engage with residents on infrastructure projects including providing an opportunity for residents to provide feedback on and support feedstock contributions	City of Ballarat deliver	Emissions reduction	Circular economy, Leadership	Ongoing
d) Integrate circular economy principles into contractor specifications around processes and products used in City of Ballarat infrastructure projects	City of Ballarat deliver	Emissions reduction	Circular economy	1-2 years
e) Support local recyclers to investigate and finance facilities to process suitable construction waste for use on City of Ballarat projects	Businesses deliver City of Ballarat support	Emissions reduction	Circular economy	Ongoing



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- To receive this document in another format, phone 5320 5500, using the National Relay Service 13 36 77 if required.



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