



CITY OF BALLARAT

# Draft 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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## 2. Message from the Mayor of Ballarat



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

This draft 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 *Draft 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.

Please take the time to read and provide your feedback on this draft plan via the City of Ballarat's mySay website to have your say on how the City of Ballarat can support the municipality in reducing greenhouse emissions.



**Cr Daniel Moloney**  
**Mayor, City of Ballarat**





## 3. Introduction

**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**







## 4. Context



### > 4.1 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.

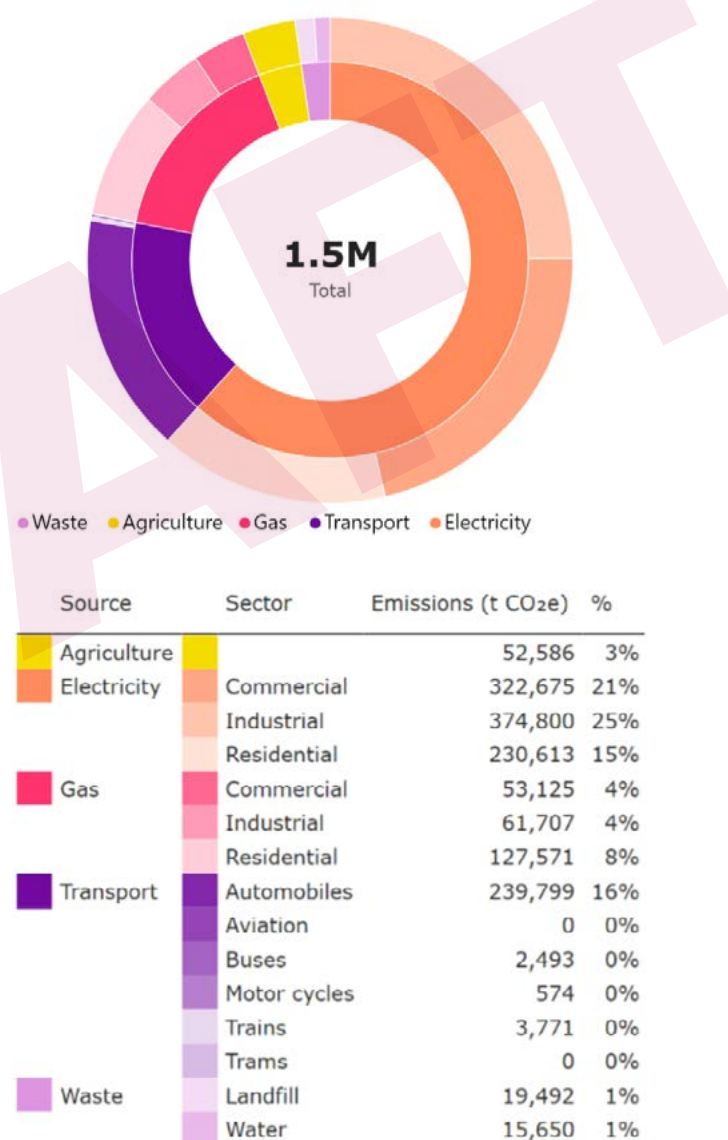
### > 4.2 Emissions in Ballarat

**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 2020 greenhouse gas emissions**

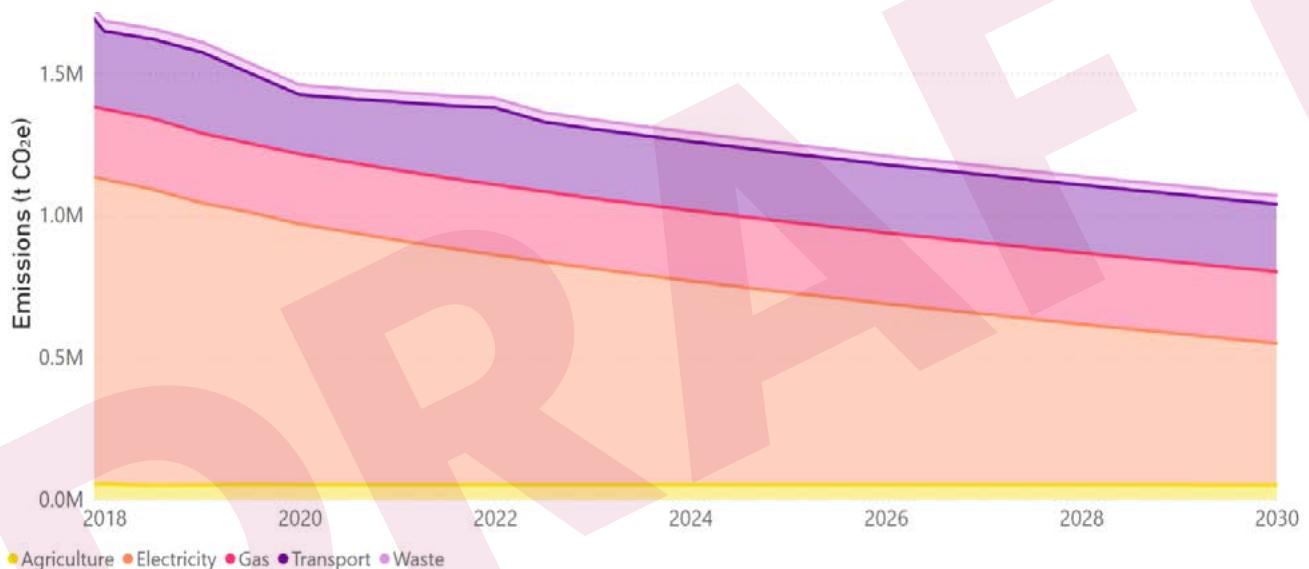
Source: [snapshotclimate.com.au/locality/australia/victoria/ballarat](https://snapshotclimate.com.au/locality/australia/victoria/ballarat)



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 Victorian and national policy positions and is shown in Figure 2. This demonstrates that emissions are expected to reduce to around 1 to 1.1 million tonnes in 2030.

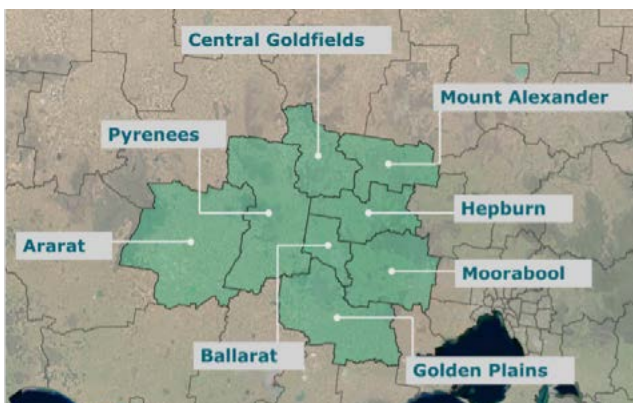
This reduction is substantially driven by decarbonisation of the electricity sector, whilst gas and transport emissions are expected to remain close to current emission levels. Increases in emissions driven by population growth, are expected to be offset by household and commercial efficiency improvements.

> **Figure 2: Ballarat greenhouse gas 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 3: Ballarat Region**



The regional emissions contribute around 4.5 per cent of total Victorian 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 who 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, 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, whilst amplifying key positive stories and messages.



### > 4.3 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 business to tackle the climate challenge.

- Almost 10,000<sup>3</sup> solar electric systems have been installed in Ballarat leading to emissions savings of over 70,000 tonnes of CO<sub>2</sub> equivalent (CO<sub>2</sub>-e) each year.
- 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 are currently 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 in 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 facilities<sup>4</sup>.

Source: <sup>3</sup><https://pv-map.apvi.org.au/historical#8/-37.366/144.283>

<sup>4</sup><https://breaze.org.au/programs/soc-sol-link>

### > 4.4 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.

Council 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.

### > 4.5 Development of the Net Zero Emissions Plan

The Net Zero Emissions Plan was developed with was developed in consultation with the Regional Sustainability Alliance Ballarat (RSAB) group and supported by the consultant Ironbark Sustainability. The Plan outlines actions for the 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 Zero Emissions Plan was sponsored by the City of Ballarat and included deep 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 areas.
- A Council 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 Council priorities.



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

While Council has a critical role to play in reducing emissions within the municipality, it is important to acknowledge that Council cannot do this alone and is reliant on Victorian and Australian Government for support. Similarly, Council 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, and the Victorian and Australian Governments. It will also require broader societal and structural changes that are beyond Council's influence.

### > 5.1 Council's Role in Net Zero Emissions

Council 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. Council 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. Council 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 Council's sphere of influence that can significantly reduce emissions in the region. Council will also aim to influence action beyond its control through advocacy and leadership.

### > 5.2 The Community's Role in Net Zero Emissions

The community has a vital role in reducing emissions. While Council 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.

### > 5.3 Victorian and Australian Governments' Role in Net Zero Emissions

The Victorian and Australian 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.

### > 5.4 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**





## 6. 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 and 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 (Zero Emissions Fuels Hub and Transport Logistics) 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 Council 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.

### > 6.1 Aggregate Renewable Energy 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.

### > 6.2 Support to 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 who 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, whilst amplifying key positive stories and messages.

Providing local assistance for business to get to net zero can include:

- Assistance in planning for net zero including understanding emissions, opportunities and funding sources.
- Connections to experienced contractors to deliver efficiency projects (including solar, Electric Vehicle charging and cost savings measures).
- Promotion of knowledge and experience from the larger emitters to support reporting and commitment to net zero emissions by smaller emitters such as small business and households.

### > 6.3 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:

### Ballarat Zero Emission Gas

**Gaia Envirotech, based in Ballarat West, is a national leader in converting waste products into biomethane.**

At McCains this has resulted in waste products being broken down in an anaerobic biogas digester to produce gas to offset the use of natural gas. This combined with an onsite solar farm will reduce energy by 39 per cent and carbon emissions by 27,000 tonnes CO2 equivalent each year<sup>5</sup>.

Innovative local solutions like this can be scaled up through regional coordination facilitated by the Zero Emissions Fuels Hub (See Section 4.3).

Source: <sup>5</sup><https://www.mccain.com/information-centre/news/mccain-foods-sustainability-commitment/>

### 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.

## Outcome 1:

ROLE OF STAKEHOLDERS	
<b>Council</b>	
<ul style="list-style-type: none"> <li>Promote the existing networks and facilitate sharing of experience</li> <li>Support business to plan for and deliver net zero</li> </ul>	
<b>Businesses and Industries</b>	
<ul style="list-style-type: none"> <li>Implement or participate in aggregated renewable energy purchase</li> <li>Promote climate change leadership to customers and clients</li> </ul>	
<b>Community</b>	
<ul style="list-style-type: none"> <li>Actively participate in discussions on local sustainability initiatives, technologies and program.</li> </ul>	







## 7. 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 Festival<sup>6</sup> as well as the annual Sustainable House Day<sup>7</sup>. 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 Victorian level or developing new programs.

Source: <sup>6</sup>[slf.org.au](http://slf.org.au), <sup>7</sup>[sustainablehouseday.com](http://sustainablehouseday.com)

### > 7.1 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 Victorian 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 efficient<sup>8</sup> 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: <sup>8</sup>[morelandzerocarbon.org.au/moreland-launches-new-electrify-everything-messaging-guide](http://morelandzerocarbon.org.au/moreland-launches-new-electrify-everything-messaging-guide)

### > 7.2 Residential Degasification

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 Victorian's gas production will be unable to supply a 1 in 2 winter peak day by 2023<sup>9</sup>.

Source: <sup>9</sup>[energycouncil.com.au/analysis/is-degasification-plausible](http://energycouncil.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 house<sup>10</sup>. 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: <sup>10</sup>[renew.org.au/research/all-electric-solar-homes-save-thousands-over-gas-report](http://renew.org.au/research/all-electric-solar-homes-save-thousands-over-gas-report)





## Case Study:

### 6 Star Workers Cottage

**In Johnson Street Ballarat a comprehensive renovation has turned this workers cottage into a 6-star energy rated home.<sup>11</sup>**

The passive heating and cooling elements include room orientation, north facing windows for sun, cooling cross breeze in the living area during summer, flexible shading on north side, thermal mass, double glazed windows, and door and window seals to limit undesirable air flow.

The site is now far more comfortable and ready to withstand hot summers within rising energy costs for years to come.

Source: <sup>11</sup>[sustainablehouseday.com/listing/johnson-st-ballarat-house](https://sustainablehouseday.com/listing/johnson-st-ballarat-house)

## Outcome 2:

ROLE OF STAKEHOLDERS	
<b>Council</b>	
<ul style="list-style-type: none"> <li>• Amplify positive messages, stories and information to support households to transition from gas</li> </ul>	
<ul style="list-style-type: none"> <li>• Support residents to electrify everything including by providing information on products and local tradespeople who can help with removing gas</li> </ul>	
<ul style="list-style-type: none"> <li>• Advocacy to the Victorian and Australian Government</li> </ul>	
<b>Community</b>	
<ul style="list-style-type: none"> <li>• Implement energy efficiency measures and remove gas within existing homes</li> </ul>	







## 8. Outcome 3:

# Net Zero New Developments

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

Many development standards are governed by Victorian and Australian level organisations with local implementation of these requirements. The City of Ballarat has a core role in planning application approvals and can work together with developers and residents to ensure zero emission new developments are implemented.

### > 8.1 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 can work closely with CASBE on two key advocacy projects relating to Planning. The projects include:

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

From October 2020, councils across Victoria including the City of Ballarat are conducting a voluntary trial of the Sustainable Subdivisions Framework. The framework seeks to provide statutory planners with a basis for measuring and achieving stronger sustainability outcomes in residential subdivisions, while also providing information on how sustainability interventions can be integrated in residential subdivisions. It identifies seven categories that can assist in creating sustainable subdivisions, including energy and circular economy.

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 Minister, the Elevating ESD project would require new developments to:

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

The City of Ballarat can monitor its implementation for delivering energy and emissions outcomes within 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 for Council projects, and the theoretical impact of this work (in emissions, water and other metrics) from over 30 Victorian local governments.

### > 8.2 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 these key requirements to ensure they are compatible with this Plan:

- Fully electrified (or zero emissions gas options, note this requires advocacy to the Victorian Government)
- Integrate net zero design standards within the construction
- Ensure the construction and development process eliminates waste to landfill
- Design includes resilience to hotter and drier conditions (including through extensive green space and vegetation)



## Outcome 3:

ROLE OF STAKEHOLDERS	
<b>Council</b>	
<ul style="list-style-type: none"> <li>Advocate to the Victorian Planning Minister to support the two key planning advocacy asks as outlined above (including removing the requirement for new gas connections for all residential developments)</li> </ul>	
<ul style="list-style-type: none"> <li>Ensure the planning process delivers best practice</li> </ul>	
<b>Developers</b>	
<ul style="list-style-type: none"> <li>Actively encourage zero emission developments in Ballarat</li> </ul>	
<ul style="list-style-type: none"> <li>Demonstrate ESD within display homes in new developments</li> </ul>	
<b>Community</b>	
<ul style="list-style-type: none"> <li>Advocate to Council, local MPs, Victorian and Australian Governments</li> </ul>	





## 9. Outcome 4: Net Zero Transport

Transport emissions account for 17 per cent of Ballarat's total emissions profile. Council 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.

### > 9.1 Decarbonizing the Public Transport Network

Discussions are already underway with operators of the bus network and the Victorian 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. Also refer to 4.3 Transitioning Heavy Fleet to Alternative Fuels.

### > 9.2 Increasing Use of Active Transport Modes

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.

### > 9.3 Electric Vehicle Passenger and Fleet Vehicles

In understanding that private motor vehicles will remain a dominant mode of transport in Australian cities, this action area focusses on a transition towards electric vehicles (Electric Vehicle) 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.

Figure 4: Australian Electric Vehicle Sales to August 2021



The Victorian Government has a target of increasing Electric Vehicles 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, whilst 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 Electric Vehicles will mean more affordable Electric Vehicles are available. Supporting large fleet transitions will have a real impact on the availability of charging infrastructure and cars for the second-hand market.

The Victorian and Australian Governments are largely focusing on large scale and long-distance charging. The City of Ballarat can lead local planning for localised charging for community destinations as well as charging facilities for those without off street parking available.

## > 9.4 Transitioning Heavy Fleet to Zero Emission Fuels

Ballarat is well positioned to lead Victoria in exploring the planning and building of infrastructure and systems to service zero emissions heavy fleet markets. The intermodal freight hub on the Ballarat to Ararat railway line, which is part of the Ballarat West Employment Zone (BWEZ), provides an obvious area to locate regional transport energy supply infrastructure.

From a technology perspective, biofuels and green hydrogen provide some key advantages to service these 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 the Victorian and Australian Government in Ballarat. Supporting the proposed Ballarat Zero Emissions Fuels Hub has consistently been raised as a regional opportunity to drive the transition of both large gas and fuels users to renewable sources.

## > 9.5 Facilitating Resources Opportunities Between Businesses

One business may need quality sources of renewable gas, another a system to create this, and a third too much organic waste. There are existing programs that can connect business to waste streams<sup>12</sup>, how Electric Vehicleer, a focus on using these resources for energy generation is an important connection to make. Within the broader Ballarat region more than 25 per cent of emissions come from agriculture and there are extensive agricultural waste products that could be accessed.

In addition, the City of Ballarat have a key role to play by being a cornerstone provider of organic feedstock for centralized renewable gas as well as supporting regional planning processes.

*Source: <sup>12</sup>For example, the ASPIRE Program being run through the City of Ballarat ([ballarat.vic.gov.au/business/circular-ballarat/aspire-online-platform](http://ballarat.vic.gov.au/business/circular-ballarat/aspire-online-platform))*

## > 9.6 Coordinating Business Transport Logistics

During the consultation process there was identification of significant transport logistics challenges 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 manufactures in the region. The first step in this process would involve engaging with the Victorian Government to confirm and understand this problem better.





## 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.

### **Flagship Project: Ballarat Zero Emissions Fuels Hub**

**Transitioning transport and (some) heavy industrial gas users to renewable fuels is (currently) a challenging issue. The Ballarat Zero Emissions Fuels Hub aims to deliver fuel sources for applications that cannot be electrified and require reliable, quality fuel supplies from renewable sources like biomethane or renewable hydrogen.**

The Ballarat West Employment Zone (BWEZ) already houses both industrial users, the airport, and Intermodal Freight Hub and will grow significantly over the coming 20 years.

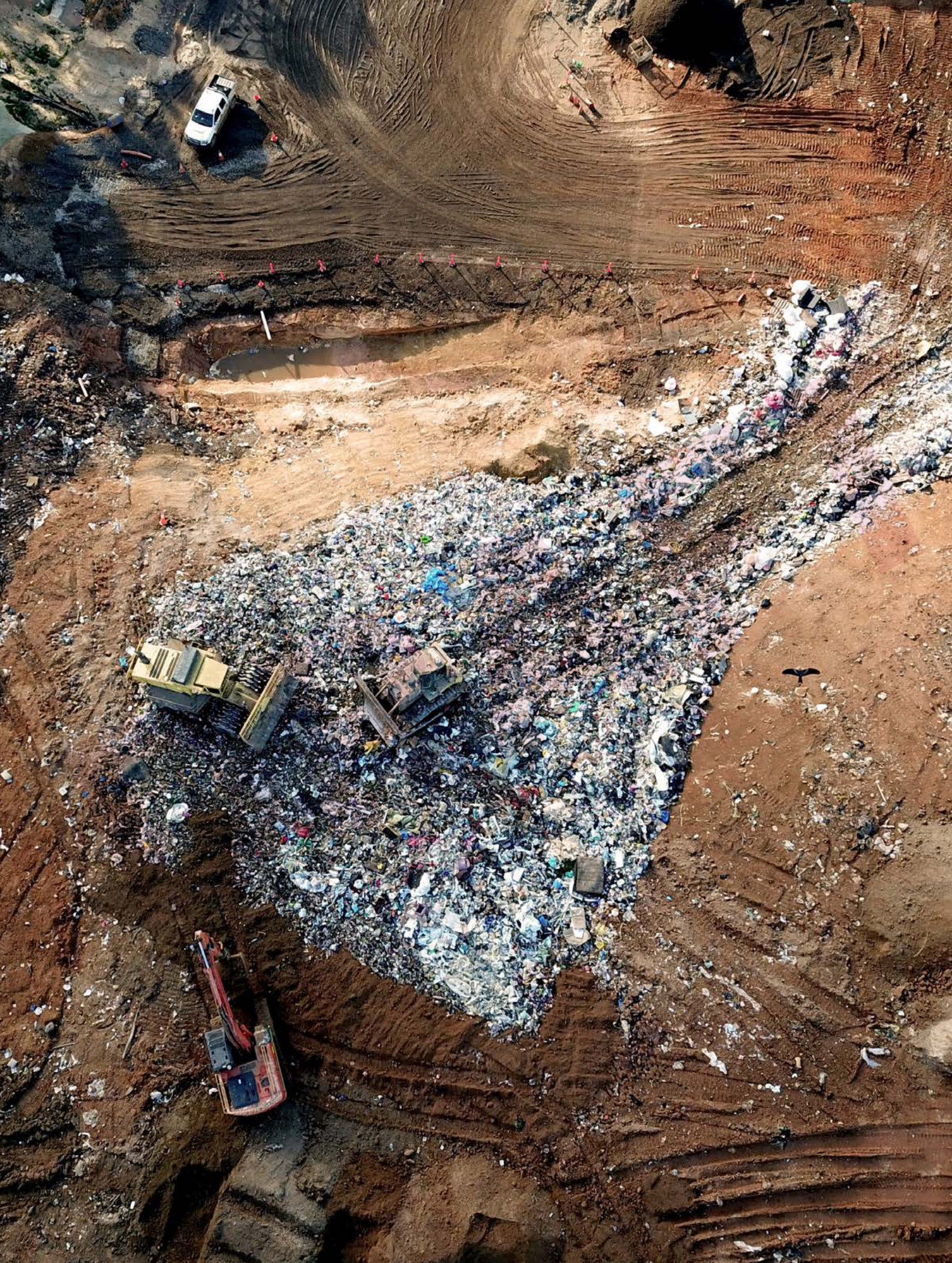
The Hub aims to collocate research, the suppliers of zero emissions fuels and key demand from large industrial and transport users within BWEZ. By collocating these diverse energy stakeholders Ballarat can be a regional centre that attracts advanced manufacturing and transport employers who are wanting to accelerate their own plans to decarbonise their fuel supplies.



## Outcome 4:

ROLE OF STAKEHOLDERS	
<b>Council</b>	
• Advocate to Victorian Government to accelerate and prioritise zero emission buses in Ballarat	
• Support large fleets in Ballarat to plan transition away from fossil fuel vehicles	
• Connect the community organisations who share resources with the community including YMCA Recrank, Tool Library, Toy Library and Repair Cafe to collaborate in providing expanded access to bikes and the skills to maintain and repair them	
• Coordinate city planning of Electric Vehicle charging	
• Ensure planning requirements for Electric Vehicle charging to be include in all new development applications	
• Provide priority parking and public charging for Electric Vehicle vehicles, that increases over time, at key community facilities	
• Advocate to Victorian and Australian government to support funding for Electric Vehicle chargers	
• Support organic feedstock for the Zero Emissions Fuels Hub as well as regional planning processes	
<b>Business</b>	
• Provide parking and charging for Electric Vehicle vehicles	
• Advocate for funding for the Zero Emissions Fuels Hub	
• Collaborate to bring major players (Federation University, City of Ballarat and business) together to the Zero Emissions Fuels Hub site	
• Further investigate challenges around freight logistics in partnership with the Victorian Government	
<b>Community</b>	
• Advocate for the introduction of zero emission community buses	
• Schools to embed travel policies and procedures	
• Advocate to and support large employers (including Victorian and Australian Governments) to provide priority Electric Vehicle parking and charging at key community facilities	







## 10. 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 tCO<sub>2</sub>-e are from waste to landfill and a further 16,000 tCO<sub>2</sub>-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.

Connection to a number of other key initiatives outlined in this Plan is important, in particular the Zero Emission Fuels Hub (Section 4.3).

### > 10.1 Co-locate Circular Economy Business

During the engagement for this Plan there was significant commitment of time by a wide variety of community stakeholders who support waste reduction including Repair Café, Ballarat Tool Library, Ballarat Toy Library, Ballarat Permaculture Guild and City of Ballarat.

A clear message from the community was a need to establish a collocated facility to house a number of circular economy organisations including a tip shop, Repair Café, and the Municipal Materials Recovery Facility (MRF). There is also potential to ensure this works in synergy with the plans for the Ballarat Zero Emissions Fuels Hub. Council will review and update the Resource Recovery and Waste Management Strategy in 2022/23 and this is a good opportunity to ensure there is synergy between its outcome and this Plan.

### > 10.2 Increase the Impact of Sharing Services

Ballarat has a large number of providers who support sharing in the City. 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. Areas where increasing the sharing of products and services can have an impact include vehicles, community wide bulk buys bikes.

This support can include supporting the groups by upskilling (marketing and recruitment processes), providing offices space and storage facilities, access to transport (including bikes/ebikes with safe, undercover parking and end of trip facilities), and resourcing of staff and projects or campaigns.

### > 10.3 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 of 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 (e.g. using electric vehicles, sourcing electricity from renewable energy)

The City of Ballarat is already connecting waste producers with demand through the ASPIRE<sup>13</sup> program. Council 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 trial innovative processes such as including asphalts 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.

Source: <sup>13</sup>[ballarat.vic.gov.au/business/circular-ballarat/aspire-online-platform](https://ballarat.vic.gov.au/business/circular-ballarat/aspire-online-platform)



## Outcome 5:

ROLE OF STAKEHOLDERS	
<b>Council</b>	
<ul style="list-style-type: none"> <li>Plan and implement zero emissions from and waste to landfill (City of Ballarat)</li> <li>Advocate to the Australian and Victorian Government for funding and other support</li> </ul>	
<b>Business</b>	
<ul style="list-style-type: none"> <li>Plan and implement zero emissions from water and wastewater treatment</li> <li>Implement infrastructure projects that reduce or eliminate emissions</li> </ul>	



## 11. Monitoring, Reporting and Review

**In partnership with the community, Council will start implementing the Plan in 2022–2023. Council will report annually on the key achievements, highlights and challenges for the implementation of programs. These updates and lessons learnt will be shared with the community in Councils' Annual Report.**

Several key indicators will be monitored to provide a valuable way of understanding and communicating progress towards implementing the Plan.

Examples of areas to track include:

- Electric vehicles (EV)
- Electric Vehicle charging (public and private)
- Solar PV
- Battery storage
- Offset programs

Through ongoing monitoring Council will review the uptake and effectiveness of specific actions and redirect course if necessary. This will ensure that resources are used effectively to achieve the best outcome.

The Plan will be reviewed in 2025 and updated based on the success of programs and taking into account Australian and Victorian Government policy, funding opportunities, technology accessibility and other collaborative opportunities. The Plan will expire in 2030, the year of the aspirational target of achieving net zero emissions for the municipality.



## 12. Identified Action Opportunities

NET ZERO BUSINESS			
Action	Primary Benefit	Co-benefits	Delivery
Encourage and facilitate best practice sustainable and zero emission industrial development, including ensuring relevant requirements in strategic planning processes.	Emissions reduction	Leadership, Economic impact	Ongoing
Introduce and promote financial support for energy efficiency such as Environmental Upgrade Agreements (EUAs) and grants.	Climate finance	Reduced energy costs, Energy efficiency	1–2 years
Implement and enforce higher ESD standards for commercial and industrial developments if approved by the planning minister (e.g. net zero emissions developments).	Emissions reduction	Reduced energy costs, Environmental protection, Energy efficiency	Ongoing
Establish grants to support positive ESD outcomes in commercial and industrial developments.	Emissions reduction	Reduced energy costs, Reduced emissions	2–3 years
Through partnerships, facilitate knowledge sharing and collaboration between commercial and industrial stakeholders (e.g. on topics such as group power purchase agreements, renewable energy).	Emissions reduction	Reduced energy costs, Knowledge sharing, Network building	Ongoing
Support locally sourced offsets to reduce emissions.	Emissions reduction	Network building, Knowledge sharing	Ongoing
Advocate for the participation of renewable energy and energy efficient bulk buy programs, such as MASH.	Emissions reduction	Reduced energy costs, supplementary income streams	Ongoing
Facilitate and support the uptake of PPAs to commercial and industrial organisations.	Emissions reduction	Reduced energy costs, Knowledge sharing, Network building	Ongoing
Perform audits, in collaboration with Committee for Ballarat, of the major gas users in the LGA. Audit would identify opportunities for decarbonisation and business cases for transition to alternative fuels or electrification.	Decarbonisation of Gas system	Planning, Leadership, Network building, Knowledge sharing	1–2 years
Identify current and future energy needs in Ballarat West. Use this to plan and implement large scale zero emission energy infrastructure.	Decarbonisation of Gas system and local renewable energy generation	Planning, Leadership, Network building, Knowledge sharing	2–3 years

NET ZERO HOMES			
Action	Primary Benefit	Co-benefits	Timeframe
Improve communication and engagement with residents on climate change impacts and solutions.	Awareness raising	Emissions reduction, Community resilience	Ongoing
Educate and promote existing energy efficiency and renewable energy service providers and programs to assist residents, students, renters and low socio-economic groups, to make their homes more energy efficient and heatproof.	Reduced heat impact	Community health and well-being, Reduced energy cost, Reduced emissions	Ongoing
Trial then roll out a local version of Hepburn Wind's Heat Pump Hot Water Bulk Buy.	Emissions reduction	Energy efficiency, Reduced energy costs	2–3 years
Create a vetted panel of renewable energy suppliers to streamline the installation process for landowners and tenants.	Emissions reduction	Energy efficiency, Reduced energy costs	1–2 years
Implement programs to encourage landlords to install energy efficiency and renewable energy where tenants share the benefits.	Emissions reduction	Energy efficiency, Reduced energy costs	2–3 years
Continue to support, promote and expand the role of local community renewable energy groups.	Awareness raising	Leadership, Knowledge sharing	Ongoing
Promote financial support for energy efficiency such as Environment Upgrade Finance and grants.	Climate finance	Reduced energy costs, Energy efficiency	2–3 years



NET ZERO NEW DEVELOPMENTS			
Action	Primary Benefit	Co-benefits	Timeframe
Advocate for greater climate action at Australian and Victorian levels including Environmental Sustainable Design (ESD) standards for new buildings.	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
Advocate for improved building specifications and higher minimum NatHERS star rating or Net Zero Buildings to the ABCB for new buildings.	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
Encourage and facilitate best practice sustainable and zero emission industrial and commercial development.	Emissions reduction	Leadership, Economic impact	2–3 years
Ensure new development and precinct plans include shaded areas to enable active transport, including network of bike paths in vegetated areas.	Reduced urban heat	Community health and well-being, Resilient urban landscapes	Ongoing
Work within existing planning process to ensure a consistent standard of Environmentally Sustainable Design (ESD) for building applications.	Energy efficiency	Reduced energy costs, Reduced emissions	Ongoing
Increase the enforcement of National Construction Code (NCC) and planning requirements for new residential buildings and developments.	Energy efficiency	Reduced energy costs	Ongoing
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.	Energy efficiency	Reduced energy costs, Reduced emissions	1–2 years
Implement and enforce higher ESD standards for residential and commercial developments if approved by the planning minister (e.g., net zero emissions developments).	Emissions reduction	Reduced energy costs, Environmental protection, Energy efficiency	Ongoing
Advocate for integration ESD principles in the Local Government Infrastructure Design Manual.	Energy efficiency	Reduced heat impacts, Reduced energy costs	Ongoing
Promote performance or high energy rated buildings and ESD standards within the community.	Energy efficiency	Reduced emissions, Energy efficiency	Ongoing
Investigate grants to support positive ESD outcomes in commercial developments.	Emissions reduction	Reduced energy costs, Reduced emissions	Ongoing

NET ZERO TRANSPORT			
Action	Primary Benefit	Co-benefits	Timeframe
Advocate for greater climate action at Australian and Victorian Government levels for better electricity infrastructure and decarbonised transport systems.	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
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.	Emissions reduction	Leadership, Economic impact, Community resilience	2–3 years
Show leadership through trialling new and innovative transport solutions and infrastructure for Council and other major fleet operators in Ballarat.	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
Develop a Zero Emissions fleet transition plan for the City of Ballarat. Support other large fleet operators to do the same.	Emissions reduction	Leadership, Economic impact, Community resilience	1–2 years
Promote low emission transport options such as car sharing, commuter cycling, and public transport.	Emissions reduction	Improved air quality, Reduced noise pollution, Improved mobility, Public health	Ongoing
Provide incentives for zero emissions vehicles including through direct incentives, preferential car parking locations, available charging facilities and education , training, promotion and signage.	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
Investigate the installation of electric vehicle and carshare infrastructure such as designated, accessible parking areas.	Emissions reduction	Leadership, Improved mobility	1–2 years
Provide low emission/active transport infrastructure (bike lanes/electric bike charging stations etc).	Emissions reduction	Community health and well-being, Improved air quality	2–3 years
Carry out planning and feasibility for large scale alternative energy transport fuels hub in Ballarat West.	Emissions reduction	Leadership, Economic impact, Community resilience	2–3 years



NET ZERO WASTE			
Action	Primary Benefit	Co-benefits	Timeframe
Promote engagement with the two existing Circular Ballarat initiatives.	Emissions reduction	Circular economy, Economic impact, Community Resilience	Ongoing
Assist businesses in preparing for upcoming Victorian Government -level Container Deposit Scheme and the ban on single use plastics.	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	1–2 years
Trial new and innovative solutions to use waste products in operations, such as recycled content in building materials.	Emissions reduction	Leadership, Economic impact, Community resilience	Ongoing
Trial and 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.	Emissions reduction	Circular economy	Ongoing
Engage with residents on infrastructure projects including providing an opportunity for residents to provide feedback and support trials through feedstock contributions.	Emissions reduction	Circular economy, Leadership	Ongoing
At the City of Ballarat, contractor specifications to be introduced around processes and products used in council infrastructure projects. Specification to be shared with other large infrastructure developers.	Emissions reduction	Circular economy	1–2 years
Support local recyclers investigate and finance facilities to process suitable construction waste for use on Council projects.	Emissions reduction	Circular economy	Ongoing
To consider waste to energy in the review and update of the Resource Recovery and Waste Management Strategy.	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	1–2 years
Advocate to the Australian and Victorian Government for funding and support to research, develop and trial biomass projects.	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	1–2 years
Support large businesses and developers understand the potential benefits of implementing biomass projects.	Emissions reduction	Circular economy, Economic impact, Reduced waste to landfill	2–3 years
Continue an education campaign aimed at ensuring all businesses and residents in the region are familiar with the various waste streams.	Emissions reduction	Community health and well-being, Improved air quality	Ongoing
Offer incentives to users of Council-managed waste transfer stations for disposing of separated waste.	Emissions reduction	Circular economy	Ongoing
Calculate the requirement and feasibility of installing methane reduction (can include energy generation) technologies at old landfill sites and sewage treatment plans.	Emissions reduction	Circular economy	2–3 years







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