

# Greenhouse Gas Emissions Reduction Plan

2024–2032

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## Acknowledgement of Country

East Gippsland Shire Council acknowledges the traditional custodians of this land, the Gunaikurnai, Monero and Bidawel people and their enduring relationship with Country. Council aspires to strengthen our partnerships and supports Aboriginal participation in management processes for land and natural resources. We recognise Australia’s rich cultural heritage and aim to encourage integrated decision making, now and in the future.

COVER: Solar panels on Council’s Pyke Street office, Bairnsdale; Croajingolong National Park.

THIS PAGE: Corringale Slips Foreshore Reserve, Marlo. BACK COVER: Sunrise over Omeo.

IMAGE CREDITS: A1 Solar, Anne Morley, East Gippsland Shire Council, EGMi, Freepik, Visit East Gippsland.

# Introduction

East Gippsland Shire Council (Council) is committed to investing in actions and strategies that reduce emissions and improve efficiencies. This Greenhouse Gas Emissions Reduction Plan (the Plan) outlines the steps Council will take to reduce its carbon footprint on the path to achieving net zero emissions by 2032.

The purpose of the Plan is to provide a clear roadmap for Council to build on its commitment to reducing emissions and achieving carbon neutrality by 2032. It focuses on Council's direct emission sources, detailing the reduction strategies and their associated costs.

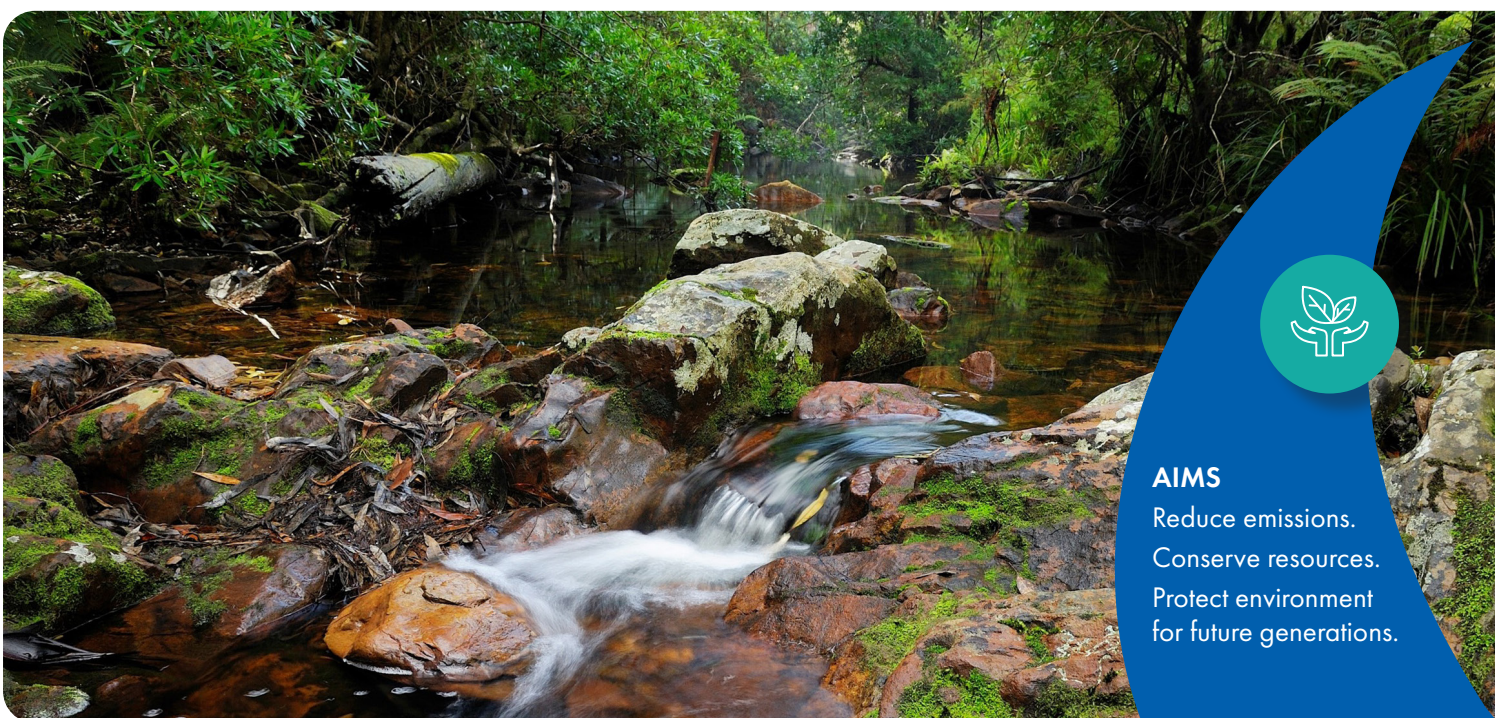
Council is dedicated to addressing climate change in accordance with key legislation, including the *Climate Change Act 2017* and the *Local Government Act 2020*, both of which require councils to promote sustainability and manage climate risks. Council has also pledged to the Victorian Government under the *Climate Change Act*, aligning with our goal of achieving net zero emissions by 2032. Through the actions outlined in this plan, Council aims to reduce emissions in support of state and national reduction targets.

The Plan is based on recognised emissions-accounting frameworks and financial modelling of proposed actions. By incorporating financial modelling, Council can forecast the costs and benefits of each emissions-reduction initiative. This ensures informed decision making that balances environmental impact with financial sustainability. By prioritising projects based on both economic and environmental outcomes, we are confident in our ability to achieve lasting improvements that benefit both the environment and the future of East Gippsland.

While this Plan outlines Council's path forward, it also serves as a call to action for the entire community. Together, we can reduce emissions, conserve resources, and protect the environment for future generations. This will be achieved through community engagement, raising awareness, providing tools for action, and fostering leadership and ownership.

Given the rapidly evolving nature of renewable technologies, Council will review this Plan every two years to ensure that its actions and priorities remain current and reflective of significant changes.

BELOW: Errinundra National Park.



**AIMS**  
Reduce emissions.  
Conserve resources.  
Protect environment  
for future generations.

# The need to reduce emissions

## Legislation

Responding to climate change is an important issue for local councils and their communities. East Gippsland Shire Council has duties in relation to climate change under various Victorian and Australian legislation, which include:

- *Climate Change Act 2017*
- *National Greenhouse and Energy Reporting Act 2007*
- *Local Government Act 2020*
- *Planning and Environment Act 1987.*

The *Local Government Act 2020* strengthened the mandate for councils to act on climate change. The role of a Council is to provide good governance for the benefit and wellbeing of their community, stating:

“Councils are required to promote the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks.”

Council has a duty of care to act in a way that enforces climate risk management by mitigating the impacts of climate change and adapting to changes in the natural environment.

## Climate change pledge

Council has committed to make a voluntary climate pledge to the *Victorian Government under the Climate Change Act 2017*, acknowledging the commitment and action of Council to act on climate change.

## Cost savings

Council’s emissions reductions can save costs by improving energy efficiency and reducing reliance on rising fossil fuel prices. Council has an opportunity to transition to renewable energy and invest in sustainable infrastructure, significantly lowering utility costs, with many projects offering a positive return on investment. To maximise savings, priority should be given to projects that deliver the highest returns in the shortest time, allowing for quick and effective impact.

## Emissions targets

A key driver to reduce emissions is legislative targets to reach net zero emissions. These targets include:

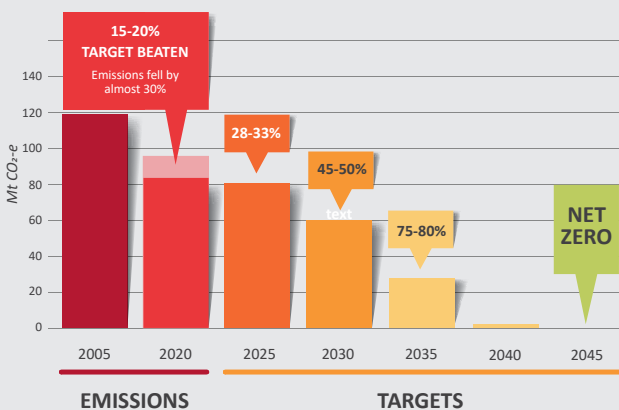
**Council’s target** – Council has set a target of achieving a corporate net zero emissions target for 2032.

**State target** – Victoria’s path to emissions reductions of between 28 to 33% below 2005 levels by 2025, and 75 to 80% by 2035 on the way to net zero emissions by 2045.

**National target** – Australia is tracking against its legislated emissions reduction targets of a 43% reduction on 2005 levels by 2030 and net zero by 2050.

These targets are influenced by international policy, where in order to keep global warming to no more than 1.5°C – as called for in the Paris Agreement – emissions need to be reduced by 45% by 2030 and reach net zero by 2050.

Figure 1: VICTORIA’S CLIMATE ACTION TARGETS



Source: Victoria 2035 Emissions Reduction Target (Victorian State Government 2023).

# Council's strategic framework

East Gippsland Shire Council has three key strategies themed around the triple bottom line principles of sustainable development:

- Environmental Sustainability Strategy 2022-2032 – 10-year horizon
- Economic Development Strategy – 10-year horizon
- Municipal Public Health and Wellbeing Plan – 4-year horizon

This plan has been developed to support achievement of the above strategies' objectives and goals and will directly impact targets set by the Environmental Sustainability Strategy. Establishment and delivery of this plan will also contribute to numerous actions outlined in the Environmental Sustainability Action Plan 2022-26.

## Working towards 'net zero' emissions

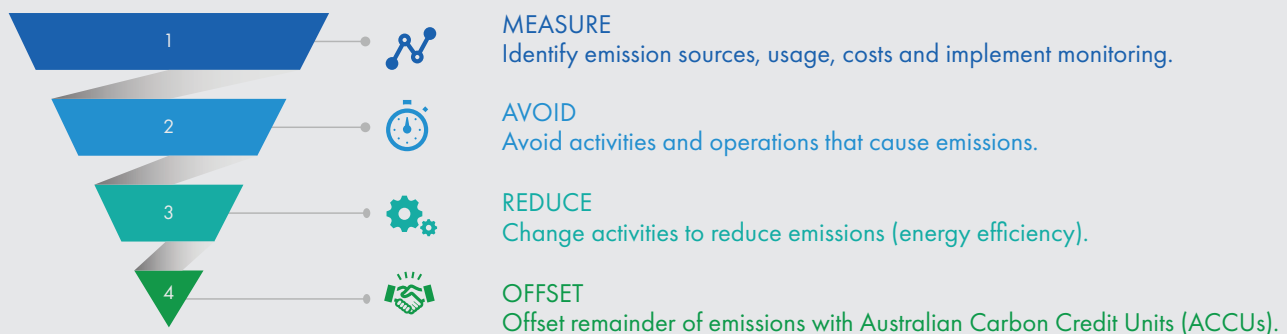
The term 'net zero' emissions refers to achieving an overall balance between greenhouse gas emissions released into, and greenhouse gas emissions removed from, the atmosphere.

Although total emissions are the key metric, actively reducing emissions released into the atmosphere lessens the need for subsequent removal. Therefore, a hierarchical approach to achieving net zero emissions is recommended.

## Environmental sustainability strategy targets

- Reduce greenhouse gas emissions from energy use (electricity and gas) by 100%
- Reduce volume of waste going to landfill
- Switch electricity used in Council operations to 100% renewable sources
- Reduce and report greenhouse gas emissions from landfill
- Reduce Council and community greenhouse gas emissions from light vehicle fleet transport by 50%
- Increase number of businesses participating in circular economy
- Ensure all service towns and prominent localities can access electric vehicle charging infrastructure
- Embed re-use of materials in all Council policies and practices and support re-use by businesses and broader community
- Set corporate net zero emissions target for 2032
- Ensure Council procurements comprise 10% recycled materials.

Figure 2: STEPS TO ACHIEVING NET ZERO EMISSIONS



# Embedding into Council operations

Council can embed emissions reduction projects into standard operations by integrating the adoption of renewable energy technologies in project design and procurement. By making sustainability a core part of decision making, emissions reduction becomes a continuous focus, delivering long-term environmental and financial benefits.

**Financial analysis** – Council is seeking the best and most cost-effective pathway to reduce emissions within the targeted timeframe. This will be achieved in a way that allows Council to reasonably budget for the required investment, and clearly understand the return on investment or residual costs that may be incurred. In addition, this work aims to provide a framework for the development of future business cases for Council.

To achieve this, Ironbark Sustainability was engaged to develop a financial modelling tool that replicates Council’s Greenhouse Gas Emissions Reduction Plan and provides insight into the business case and financial benefit of implementing the various initiatives outlined in this plan.

## Systems

Council uses climate and energy data solutions company Trellis Technologies to record and manage emissions across our assets and fleet. By using an integrated system Council can determine our highest emitting facilities and analyse options to reduce, and evaluate changes and savings following project delivery.

### Guiding principles for systems

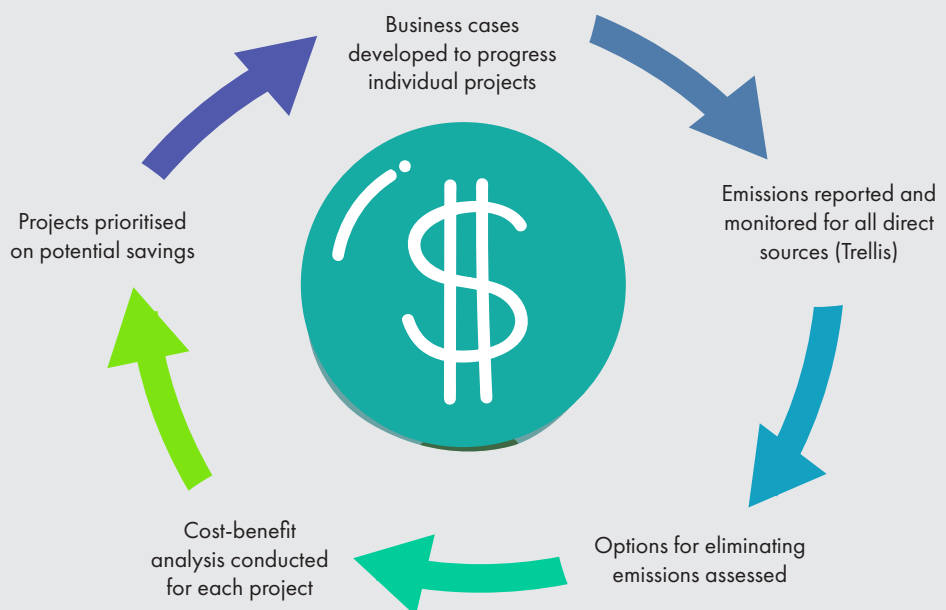
- Emissions are measurable and known
- Whole of organisation response – training and cultural change will be required
- Purchasing offsets are always our last option.

### Financial analysis

The financial modelling tool was developed to detail the financial projections of this action plan. The data in the tool is based on assumptions and is designed to provide an indication of costs and associated savings. The market around utility cost and zero emissions technology is evolving quickly, so future forecasting cost is difficult. The flexibility of the tool allows for scenario planning and cost analysis of delivering projects at different years or specifications of changeover.

**Figure 3:**  
**FINANCIAL ANALYSIS**

This model demonstrates how emissions reduction are to be embedded within Council’s planning.



## Planning and design

The planning phase of project management provides an opportunity to integrate emissions reduction actions from the outset. By incorporating emissions reductions early in the planning process, Council can ensure that future projects align with the Plan's targets and potential long-term cost savings.

### Guiding principles for planning

- All options are considered in our assessment
- Multiple options may exist to reduce emissions across a particular Greenhouse Gas (GHG) emissions source
- Emissions reduction and elimination is our first option
- Council is technology neutral in terms of options assessments
- Investment is justified by using the financial analysis tool and an associated credible business case, where return on investment and emissions reductions are greatest.

### Financial process

Prior to any project being approved, the investment will need to be justified by a credible business case, which includes a detailed return on investment where possible. Council will appropriately test the financial data in this plan before being used within a business case for project approval. The financial and emissions savings/impact will both be considered as part of the project approval process.

The financial model provides Council with a financial cost of carbon on projects and the associated cost of doing nothing. This has allowed Council to understand the total financial impact of this action plan and expected carbon credit units come 2032 to reach net zero.

The costings of projects have been included in the action plan below that detail the associated cost of actioning emission reduction projects.

RIGHT: Optimising Kerbside Organics Project.

## Project delivery

During the project design and delivery phase, Council will embed emissions reduction strategies by selecting energy efficient technologies and sustainable materials. By prioritising low- to zero-carbon solutions in design and construction, Council ensures that projects are more resilient, adaptable to climate change and will potentially reduce operational costs.

### Guiding principles for project design and delivery

- Existing/known technologies are to be adopted. We are not testing new conceptual/theoretical technology
- Design in renewable energy and design out fossil fuel
- Investment will be prioritised that will generate savings from operational costs across the whole of life of the investment (internal rate of return).



# Offsetting emissions and carbon credits

The generation of Australian Carbon Credits Units (ACCUs) provides a framework in which organisations are able to create and offset greenhouse gas emissions.

Opportunities for Council to generate ACCUs include the collection and flaring of landfill gas, undertaking native forest revegetation projects and other carbon sequestration opportunities, which may be pursued in partnership.

If consideration is to be given for the selling of Council's generated ACCUs, it will be necessary to demonstrate how potential revenue generated from the ACCUs is to be prioritised for reinvestment into further emissions reductions projects to contribute to achieving our net zero target in 2032.

When the Council decides to buy carbon offsets to reach net zero emissions, the first option will be to purchase

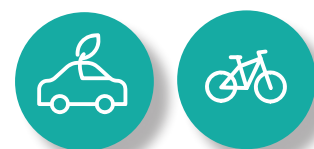
offsets support a variety of positive environmental, social, and economic outcomes. This includes offsets that help grow vegetation and improve biodiversity, with a preference for local options.

It is expected that by 2032 Council will be required to purchase carbon credits in order to achieve our net zero target. The estimated volume of potential ACCUs forecast for each of the key emission sources have been outlined by this report.

The cost associated with purchasing these credits will be dependent on the fluctuation of the cost of ACCUs in 2032.

The importance of taking action to reduce and avoid emissions is therefore essential to reducing the cost of purchasing ACCUs in the future.

## Supporting community to reduce greenhouse gas emissions



East Gippsland Shire Council can play an important role in influencing community participation in the climate response. While this reduction plan will primarily look at Council's emissions profile, Goal 3 from the Environmental Sustainability Strategy 2022-2032 addresses climate change mitigation for the community.

The strategy explains how Council will leverage opportunities for the community to adapt to climate change through new investment, industries and jobs along with improved health and wellbeing outcomes.

Council will work with the community to build a focus on building awareness, providing access to the tools to take action, encouraging people to take action, and community leadership and ownership.

LEFT: Bike lane on Macleod Street, Bairnsdale.

RIGHT: Councilor Arthur Allen officially opening an electric vehicle charging station in Bairnsdale.

# Challenges and opportunities

East Gippsland faces a number of key challenges, many of which are shared with other local governments.

## Key challenges

### Investment required to make changes

Certain Council assets already have fossil fuel-based utilities for heating, which would require a large investment to make the change to zero emissions.

### Available technology

Transitioning to zero emissions processes is constrained by current technological capabilities. For example, Council's Raymond Island Ferry and large plant equipment still rely on diesel fuel, as viable low-emission alternatives in these areas remain limited.

### Adopting new technologies

Council faces challenges in adopting new technologies for various reasons, including potential high initial costs, technology risks and uncertainties, and integration with existing infrastructure.

### Cultural change and attitudes towards new technologies

Council recognises that changing the culture around emissions reduction requires a considered approach, particularly when it involves shifting established practices. Supporting staff who may be hesitant to adopt new technologies is essential to ensure they are engaged, informed and included throughout the transition.

## Key opportunities

### Efficiency and cost savings

By removing emissions from our operations, Council can save costs and gain efficiencies. Adopting more efficient, renewable technologies and practices will allow Council to reduce its reliance on expensive fossil fuels.

### Reporting systems

High quality planning and reporting systems are in place. This strength can be leveraged to help embed climate action right through our planning, reporting and administration systems, helping all staff to play their best fit role in climate action.

### Strengthening adaptation

We have set a strong target and have already delivered major projects related to climate change mitigation. The same approach needs to be taken for climate change adaptation to deliver a holistic response to the climate emergency.

### Community involvement

We can leverage key partners, to deliver a strong campaign built around success stories and avenues for action.



# Highlights and benefits of emission reduction projects



**ACTION**  
Install electric vehicle charging stations in all major service towns.

## Using 100% renewable electricity through VECO

On 1 January 2022, East Gippsland Shire Council's electricity accounts switched to 100% renewable as part of the Victorian Energy Collaboration (VECO).

VECO is between 51 local councils and is the largest emissions-reduction project by local government in Australia. After the first 12 months, it reduced Council's corporate emissions by over 4,000 tonnes of carbon dioxide (CO<sup>2</sup>) equivalent emissions and will continue to deliver until 2030.

More than half of Victoria's local councils entered into an agreement with Red Energy, pooling their electricity accounts for a combined load of 240GWh a year. The electricity will be generated from new wind farms here in Victoria.



## LED streetlighting

Council has replaced 100% of high-energy residential streetlights with LED on existing major and minor road Council is responsible for. Over the life of this project Council has replaced approximately 4,231 standard and decorative, full cost and cost shared lights over two separate projects. The LED lights will save Council \$3,665,000 over 20 years.

TOP: Council's electric vehicle charging station in Nicholson Street, Bairnsdale.  
BOTTOM: LED streetlight at Federation Court, Bairnsdale (Eastwood).

Opposite  
TOP: Solar panels on Council's Pyke Street office, Bairnsdale.  
BOTTOM: Tesla Powerwall batteries at Lucknow Recreation Reserve.



## Solar and battery projects

Council has installed solar on 20 buildings (12 are owned by Council), saving approximately \$70,000 a year.

The largest systems are installed on the Bairnsdale Aquatic and Recreation Centre (99kW); Lakes Entrance Aquadome (45kW); and Paynesville Service Centre (40kW).

Battery storage is installed at the Omeo Service Centre (3 x 3.4kWh lithium batteries) and Lucknow Recreation Reserve (3 x 14kW Tesla 2.0 Powerwall batteries).

Table 1: COUNCIL MANAGED FACILITIES

Site	Panel size (kW)
Bairnsdale Aquatic & Recreation Centre	99.00
Lakes Entrance Aquadome	45.00
Paynesville Service Centre	40.00
Corporate Centre (Main St, Bairnsdale)	26.25
Omeo Service Centre	17.16
265 Main Street, Bairnsdale	15.12
Lakes Entrance Visitor Information Centre	15.00
Lakes Entrance Service Centre	14.52
Business Centre (Pyke St, Bairnsdale)	12.80
Forge Theatre, Bairnsdale	10.56
Orbost Service Centre	9.90
Bairnsdale Library	9.80
Mallacoota Service Centre	8.00

### EXTERNAL COMMITTEE OF MANAGEMENT FACILITIES

Site	Panel size (kW)
Lucknow Recreation Reserve	19.98
AJ Freeman Reserve, Paynesville	10.00
Bairnsdale City Oval	10.00
Community & Education Hub, Bairnsdale	7.00
Bairnsdale Squash & Table Tennis Centre	5.60
East Gippsland Historical Society, Bairnsdale	5.28
East Gippsland Art Gallery, Bairnsdale	5.20
Mallacoota Pavilion	4.96



## Landfill gas flares

Of all Council activities, landfill gas release is by far the largest source of greenhouse gas emissions due to the methane released from the decomposition of buried waste. Methane (CH<sub>4</sub>) is a greenhouse gas with a Global Warming Potential (GWP) of 28, meaning over a 100-year period, one tonne of methane traps 28 times more heat in the atmosphere than one tonne of carbon dioxide (CO<sub>2</sub>)

Council has two gas flares constructed, one at Bairnsdale and one at Lakes Entrance. Council has recently completed the registration of the Bairnsdale Landfill Gas Flare with the Australian Clean Energy Regulator and is progressing with a similar registration for the former Lakes Entrance Landfill.

BELOW: Methane gas flare at Bairnsdale Landfill.

Table 2: REDUCTIONS SAVED FROM INSTALLING A GAS FLARE

Site	Total tonnes of emissions (CO <sub>2</sub> -e)				Overall reduction *
	2020-21	2021-22	2022-23	2023-24	
<b>Bairnsdale</b> Flare operational from November 2022	10,230	10,527	7,516	7,223	3,007 tonnes 29%
<b>Lakes Entrance</b> Flare operational from June 2021 Landfill closed 2022	2,707	1,359	1,087	883	1,824 tonnes 67%

\* Reductions not solely attributed to the gas flare. Lakes Entrance stopped accepting landfill in 2021-22.



**ACTION**  
Reduce landfill gas emissions.

# Emission framework and reporting

This plan has been prepared utilising recognised greenhouse gas emissions frameworks. The Greenhouse Gas Protocol - Corporate Accounting and Reporting Standard (GHG Protocol) provide a standardised framework to ensure a consistent, transparent and credible carbon inventory for organisations.

The frameworks and standards within which the emissions (and removals) are identified, categorised, quantified and reported.

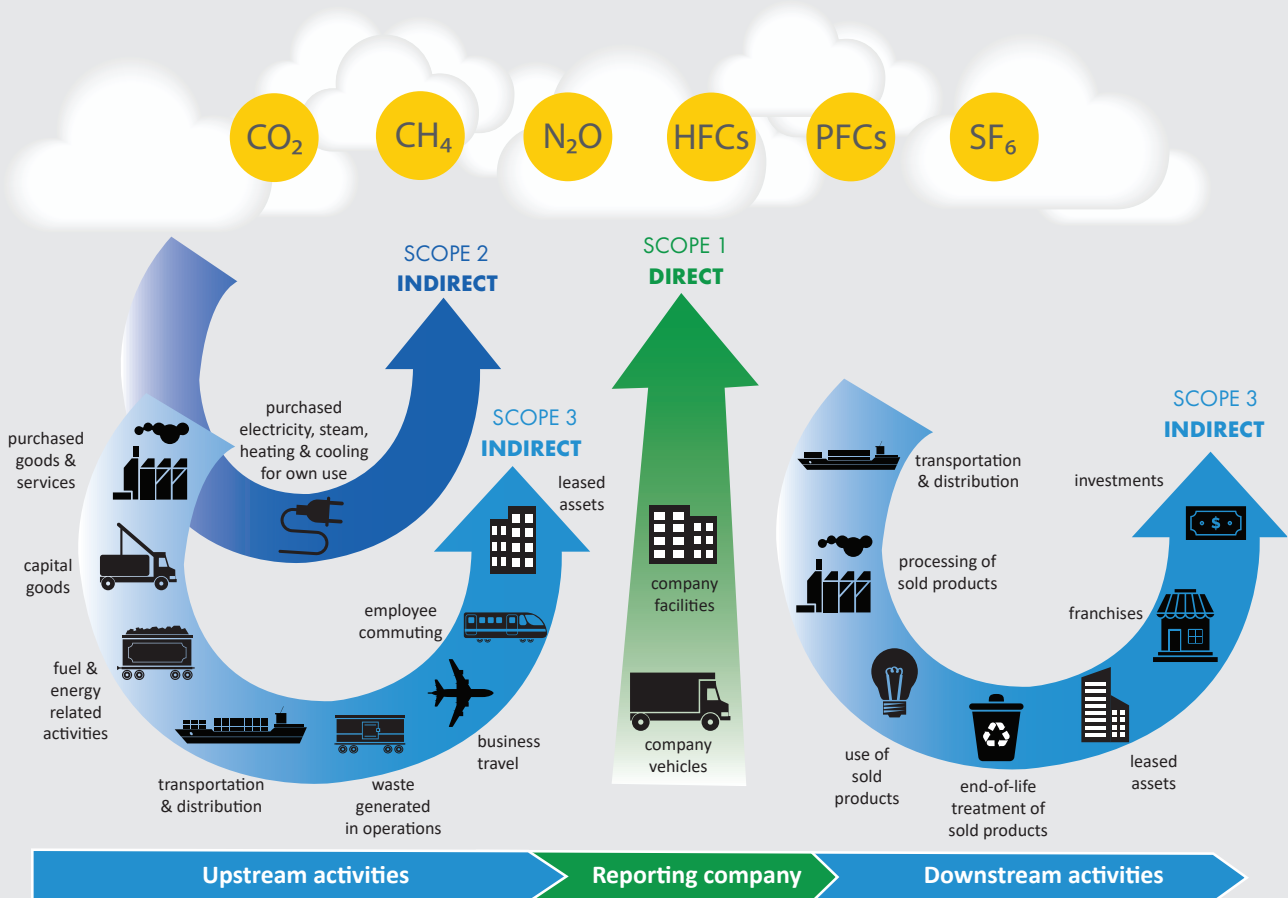
## Emission scope

**Scope 1:** All direct greenhouse gas emissions occurring from sources controlled or owned by Council, such as gas, fuel and landfill gas.

**Scope 2:** Indirect emissions generated via electricity consumption in Council-owned facilities and assets.

**Scope 3:** Indirect greenhouse gas emissions (other than Scope 2) generated in the wider economy, upstream and downstream, over which the organisation has no direct control.

Figure 4: GREENHOUSE GAS EMISSIONS CATEGORIES



Source: Greenhouse Gas Protocol, Corporate Value Chain (Scope 3) Accounting and Reporting Standard

\* CO<sub>2</sub> – Carbon Dioxide; CH<sub>4</sub> – Methane; N<sub>2</sub>O – Nitrous Oxide; HFCs – Hydrofluorocarbons, PFCs – Perfluorocarbons; SF<sub>6</sub> – Sulphur Hexafluoride.

# Emissions operational boundary

To accurately report on greenhouse gas emissions there needs to be a defined 'emissions boundary.' This boundary relates to the makeup of the organisation and the areas of they have direct control over. An emissions boundary transparently discloses where the line has been drawn for the activities that fall within an organisation's control and those that do not.

East Gippsland Shire Council's emissions boundary is based on national and international standards to ensure alignment with the *National Greenhouse and Energy Reporting Act 2007 (NGER Act)*, and the GHG Protocol's Corporate Accounting and Reporting Standard 2004.

Council has included its corporate emission sources in its organisational boundary, based on two key determining factors:

- Emissions would not have otherwise occurred if East Gippsland Shire Council as an organisation did not exist (i.e. operational control)
- Council has confidence that the emissions are able to be measured completely and accurately.

## Boundary overview

Council has calculated facility level greenhouse gas emissions based on financial control. However, each facility was also assessed for operational control to help understand Council's broader responsibilities.

This included:

- Council owned and operated facilities
- Facilities that Council owns that are leased to other organisations or Committees of Management
- Facilities that Council does not own but leases from external organisations.

Council exercises financial control when it pays the utility costs for a facility. It holds operational control when it can set operating, health and safety, and environmental policies for that facility.

## Council owned or leased facilities

Council has buildings where the entire building is leased out to a third party. Using the same operational control test and based on details contained in the lease agreements, Council does not have operational control of these sites, and therefore the emissions have not been included.

Facilities that are governed by a Committee of Management have also not been included in this list.

Table 3: EMISSIONS REPORTED

Emissions source	Scope Included	
Transport fuel (Includes unleaded petrol, Liquefied Petroleum Gas (LPG) and diesel use)	1	Yes
Diesel/petrol used for generators and power equipment	1	Yes
Natural and bottled gas	1	Yes
Fugitive emissions (refrigerants)	1	No
Methane released from landfill	1	Yes
Grid sourced electricity	2	Yes
Water usage	3	Yes
Fuel and energy production, generation and distribution	3	Yes
Other Scope 3 emission categories	3	No



# Exclusions

There is one exclusion from Council’s emissions inventory. An emission source within Council’s boundary that has been excluded from reporting can be due to one (or more) of the following:

- Emissions are likely to be negligible (relative to other emissions)
- Determining emissions will be very costly relative to their likely significance
- Insufficient data.



Table 4: SCOPE 1 AND 2 EXCLUSIONS

Emissions source	Scope	Gathering	Insufficient data
Refrigerants/fugitive emissions*	Yes	No	No
Justification for exclusions	Council does not have available data for fugitive emissions associated with the global warming potential of the gases used in cooling units. The expected level of emissions from this source is also negligible as the cooling units are very rarely re-gased.		

\* Fugitive emissions are synthetic gases from air conditioning/cooling units in Council-operated facilities and owned vehicles, which are direct Scope 1 emissions. Although the gas used is minor in volume, the global warming potential is significantly more potent than carbon dioxide.

## Scope 3 emissions

Under GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard reporting on Scope 3 emissions is optional. This plan does not include detailed reporting and actions associated with Scope 3 emissions, due to the complexity associated with gathering accurate inventory data and the ability to influence change.

The Scope 3 emissions that have been reported in this plan are those emissions associated with water usage and treatment, contractor fuel emissions (limited collection), fuel and energy generation, production and distribution.



# Council's greenhouse gas emissions profile

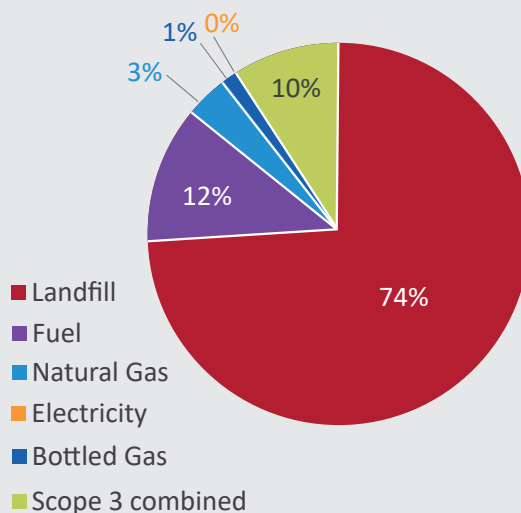
Table 5: HISTORICAL GREENHOUSE GAS EMISSIONS

	Tonnes of CO <sub>2</sub> -e				Tonnes of CO <sub>2</sub> -e		
	2021-22	2022-23	2023-24		2021-22	2022-23	2023-24
<b>Scope 1</b>				<b>Scope 3</b>			
Natural gas	347	477	451	Water use	166	148	175
Bottled gas	181	138	131	Contractor fuel use	no data	no data	654
Fuel	1,568	1,586	1,591	Electricity production and distribution	161	0.4	1
Landfill	13,772	10,603	10,009	Natural gas production and transport	26	35	35
<b>Scope 2</b>				Bottled gas production and transport	no data	9	43
Electricity	1,412	5	16	Fuel extraction, production and transport	386	371	392
<b>Total Scope 1 &amp; 2</b>				<b>Total Scope 3</b>	<b>739</b>	<b>563</b>	<b>1,300</b>
	<b>17,280</b>	<b>12,809</b>	<b>12,198</b>	<b>TOTAL ALL SCOPES</b>	<b>18,019</b>	<b>13,372</b>	<b>13,498</b>

Figure 5 provides a detailed overview of Council's emission sources, which includes fuel, gas, landfill gas, electricity and our indirect emissions sources as listed under Scope 3. By understanding where emissions are coming from, we can better target reduction strategies and work to implement effective solutions. This emissions profile will serve as the baseline for our Plan, guiding our efforts to achieve net zero while maintaining current service delivery expectations.



Figure 5: PROPORTION OF HISTORICAL GREENHOUSE GAS EMISSIONS FROM 2021-24



## Our targets and greenhouse gas emission reduction pathways

Figure 6, and in each emission source, shows the actual emissions up to 2023-24 year and projected emissions from enacting the actions from this plan. To project expected emissions there is assumptions based on the expectation that the actions listed are delivered as stated and that new zero emissions technology progresses.

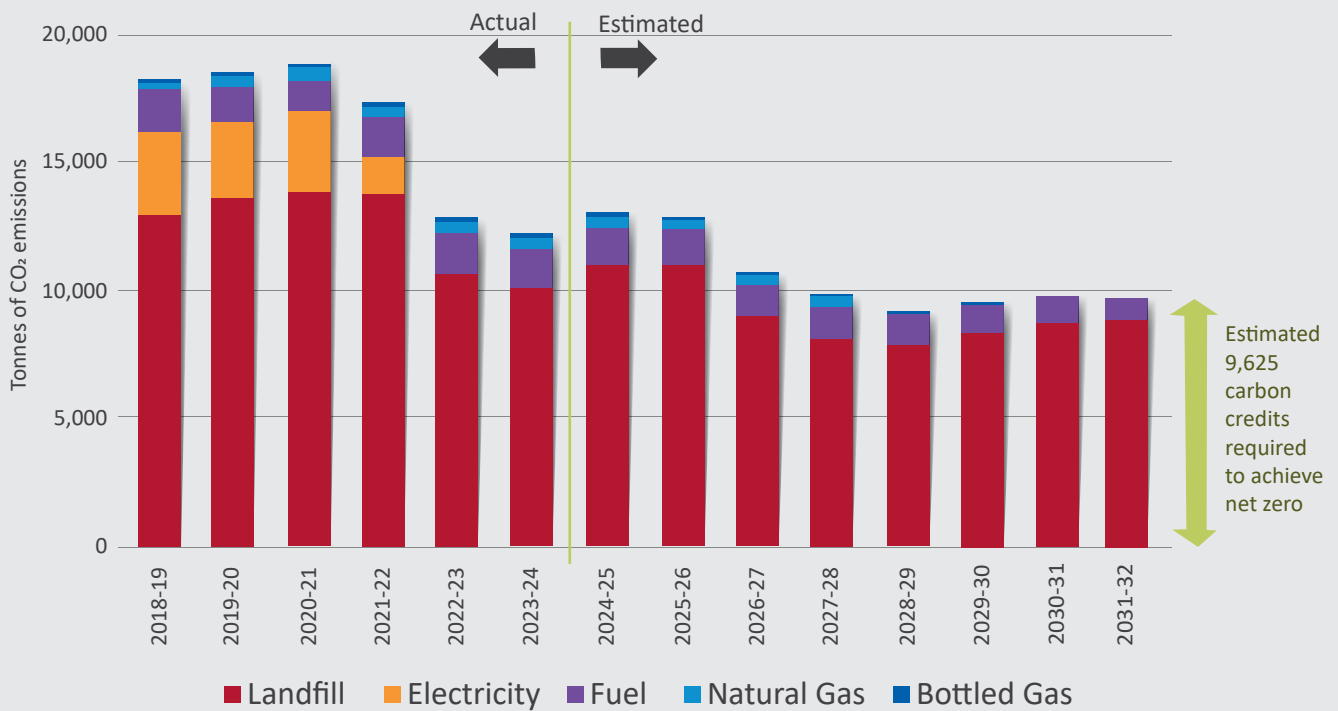
Figure 6 is a culmination of the emissions listed and demonstrates the large impact that landfill emissions have on our profile. The estimated section shows how Council seeks to reduce emissions over the years with actions identified in the Plan.

If Council implements the actions outlined in the Plan, it is expected to achieve net zero emissions by 2032, with offsets required to address residual emissions.

Approximately 91 percent of these remaining emissions will come from landfill gas –primarily from legacy emissions at closed sites and ongoing waste disposal at the Bairnsdale Landfill, which is the only active site.

To understand each of Council’s emissions sources and the pathway to reducing emissions each emissions source is broken into sections that identifies where the emissions are coming from, associated challenges, and a table of actions identified that will reduce the emissions, noting the emissions savings and estimated cost involved.

Figure 6: ACTUAL CO<sub>2</sub> EMISSIONS UP TO 2023-24



Source: Victoria 2035 Emissions Reduction Target (Victorian State Government 2023).

# Scope 1 – Fuel

Transport fuel emissions include all fuel used in Council operations and attributed 1,591 tonnes of carbon dioxide equivalent emissions in 2023-24, which are classified as Scope 1 emissions. There is a Scope 3 component of using fuel associated with the emissions to extract, produce and transport fuel for our purposes.

Council’s current vehicle fleet and equipment consists of:

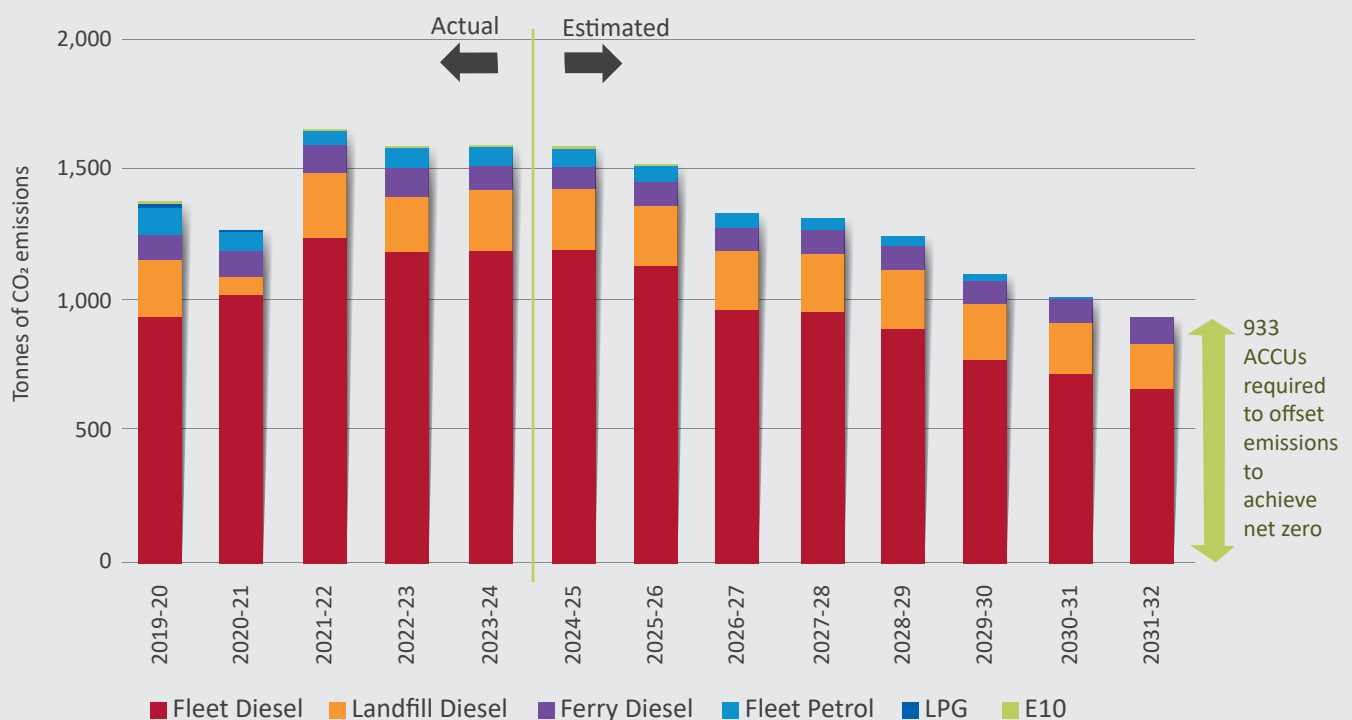
- 52 passenger vehicles (25 diesel, 27 unleaded petrol, 1 electric vehicle)
- 90 utility vehicles (diesel)
- 30 trucks (diesel)
- 20 ride-on lawnmowers (diesel)
- 24 heavy plant, equipment and stationary plant (diesel)
- 143 pieces of hand-held power equipment (unleaded petrol)
- 1 Raymond Island Ferry (diesel).

Fuel usage depends on several factors, including fuel and vehicle type (petrol, diesel, hybrid), vehicle efficiency, and vehicle age.

Council can reduce emissions by adopting existing technologies, such as passenger electric vehicles. It has also begun trialing advancements in ride-on lawn mower technology.

The challenges associated with reducing fuel emissions include the availability of known technology and suitable alternatives to transition too. There is also the cost associated with purchasing new assets, especially when replacing those that have existing life remaining. The infrastructure and capacity to recharge vehicles and tools will also need time to develop so the electrical connection to facilities is capable of handling the expected charging load.

Figure 7: FUEL – EMISSIONS REDUCTION PATHWAY BY TYPE TO 2032



In many instances, the relevant zero emissions technology is still in its infancy. Council expects that with market improvements, there will be greater opportunity to review and potentially roll out new technologies during the life of this action plan.

There is an expectation that Council will not be able to reach a net zero target for fuel by 2032.

The reasoning behind this assumption is that zero emission trucks, heavy vehicles and plant may not be viable for a minimum of five years. The viability takes into consideration the ability to meet driving range, load capacity, charging requirements and cost (both upfront purchase and resale). With limited time, Council would not be able to change over the entire fleet, as the capital cost would be too high and charging capacity would need to progress with the purchase of vehicles. The transition would then need to be staged with replacing with new technology as the current

asset reaches its scheduled change over date. This can be between five and 20 years depending on the asset.

Another expected shortfall is the Raymond Island Ferry. The estimated remaining life of the vessel is until 2037 before changeover is required. To transition the asset prior to its end of life could potentially incur a high cost to Council, which would need to be strategically considered at the time with the total upfront capital cost of the replacement project and the ongoing operational cost and emissions savings.

Council is expected to purchase ACCUs to offset fuel-related emissions and reach net zero by 2032, due to the anticipated shortfall in transitioning all fuel usage to renewable energy. Based on current estimates, approximately 933 tonnes of CO<sub>2</sub>-equivalent emissions will remain, with offset costs ranging from \$32,543 to \$60,982 depending on ACCU price fluctuations by 2032.

Table 6: FUEL – TRANSITIONING TO RENEWABLE ENERGY

Year	Petrol/ E10/LPG passenger	Diesel passenger	Diesel ute	Diesel mower	Diesel truck	Landfill/ Heavy plant	Ferry
2024-25	2	2		1			
2025-26	3	2		1			
2026-27	3	3		2			
2027-28	3	3	1	2	1		
2028-29	4	3	2	2	1		
2029-30	4	4	2	2	1	1	
2030-31	4	4	3	2	2	1	
2031-32	5	4	3	3	2	1	
<b>REMAINING</b>	<b>0</b>	<b>0</b>	<b>79</b>	<b>5</b>	<b>23</b>	<b>21</b>	<b>1</b>

Table 6 outlines an estimated approach to transitioning fuel to renewable energy. The exact transition will be determined by an Electric Vehicle (EV) Transition Plan, that is currently in development. There are numerous barriers associated with changing over so many vehicles and machinery, which restricts Council’s ability to changeover large numbers of vehicles each year, therefore leaving a shortfall by 2032.



Table 7: FUEL – ACTION PLAN FOR REDUCING EMISSIONS

Action	Potential emissions reduction by 2032* (tonnes)	Estimated costing		Target date
		Additional capital costs	Accumulated savings up to 2032	
Develop and enact a transition plan for Council’s passenger vehicle fleet to electric vehicles	191 (of 191)	\$63,173 (52 vehicles)	\$548,392	2031-32
Research opportunities to transition heavy vehicles to alternative zero emission fuel source	238 (of 952)	\$489,610 (18 vehicles)	\$196,078	2031-32
Research opportunities to transition large plant to alternative zero emission fuel source	43 (of 220)	\$75,375 (3 assets)	\$37,174	2031-32
Transition ride on mowers to electric or alternative fuel source mowers	91 (of 119)	\$466,680 (15 mowers)	\$186,867	2031-32
Transition small plants to electric or zero emissions models	13 (of 13)	\$86,976 (143 items)	\$40,688	2031-32
Research opportunities to transition Raymond Island Ferry to alternative zero emission fuel source	0 (of 96)	Unable to determine without viable solution	Unable to determine without viable solution	Not applicable
Review capacity to charge electric vehicles and small plant at all sites	Not applicable	Not costed	Not applicable	2024-25
<b>TOTAL COSTING FOR FUEL REDUCTIONS</b>	<b>576 (of 1,591)</b>	<b>\$1,743,814</b>	<b>\$1,009,199 accumulated</b>	

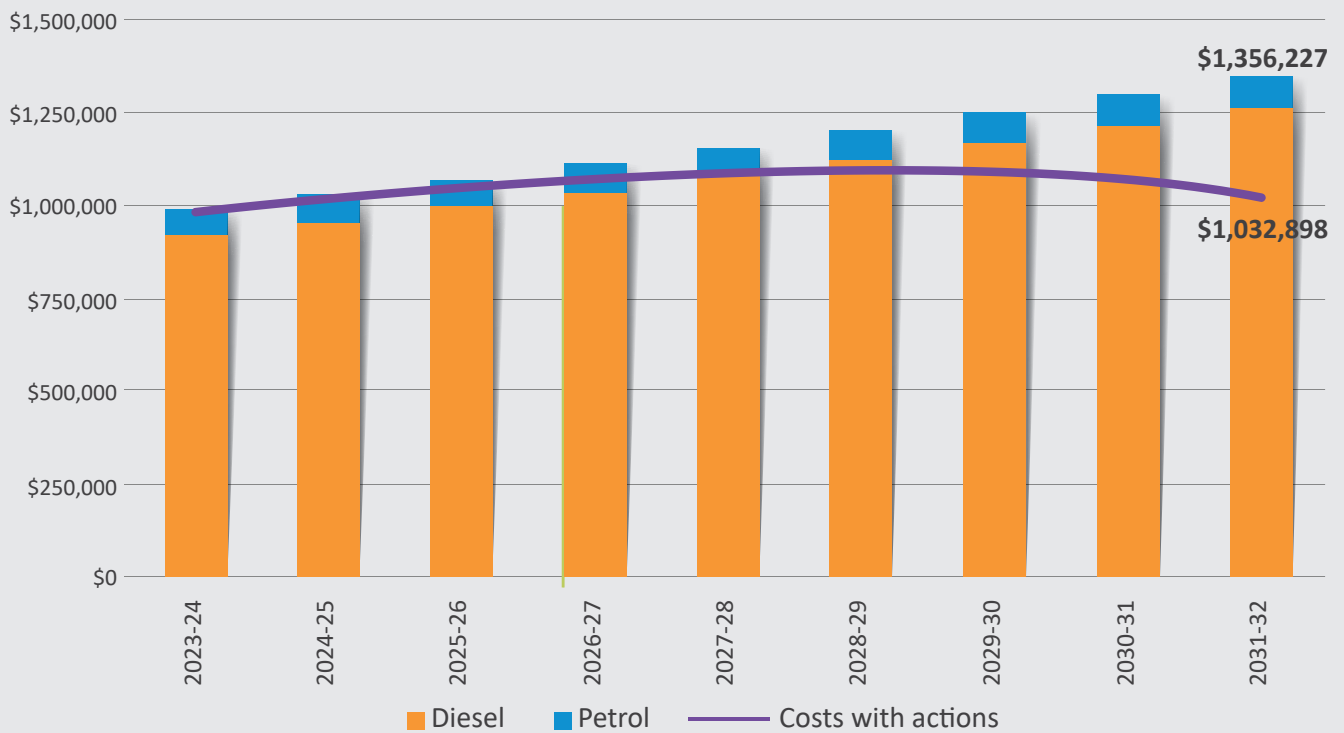
\* 2023-24 as baseline

The costs associated with transitioning vehicles will be determined by various factors, including some out of Council’s control. The EV Transition Plan will undertake an analysis of how Council can approach the transition and associated planning.

For understanding the costs of transition, Figure 8 shows cost of transitioning from Table 6.

Fuel increases are indexed by a 3% increase per litre of fuel. The actions saving line incorporates the reductions in cost of fuel needed and the increased cost of electricity.

Figure 8: FUEL – PREDICTED COST OF BUSINESS AS USUAL WITHOUT INTERVENTION



The costing detailed for fuel transition in this Plan are based on the cost of purchasing the vehicles, fuel costs, electricity cost to charge electric replacements. The costing does not include the following:

- Savings from servicing and maintenance
- Cost of charging infrastructure
- Resale value of vehicles
- Any changes to turnover period of vehicles.

These items will be provided in more detail in the EV Transition Plan.



# Scope 1 – Natural gas

Council is moving away from the use of natural gas in its facilities. This will be achieved through exploring alternatives such as geothermal energy, electric heating, solar energy, and other low-carbon technologies, and by doing so can significantly lower our costs and emissions. This approach not only aligns with achieving our targets but also ensures that the Council’s operations become more resilient, sustainable and energy efficient.

Sites that use natural gas:

- Bairnsdale Aquatic and Recreation Centre (BARC)
- Bairnsdale Library
- Paynesville Service Centre.

A barrier to progressing with the changeover away from gas will be capital investment cost associated with

transitioning these sites. There are complex heating systems associated with the assets and planning will need to be undertaken to ensure the changeover is viable.

## Emissions profile

Our estimated pathway shows changing over the sites that use natural gas to alternative energy in 2028-29. The action plan below uses costings for delivering the projects within that year.

Gas prices are expected to increase at a rapid rate in the near future. The actions that reduce the use of natural gas will require a substantive increase in electricity usage, causing the cost line to stagnate at a certain value after changes are final.

Table 8: NATURAL GAS – ACTION PLAN FOR REDUCING EMISSIONS

Action	Potential emissions reduction by 2032* (tonnes/year)	Estimated Costing		Target date
		Additional capital costs	Accumulated savings up to 2032	
Explore feasibility of using geothermal technology in West Bairnsdale	Not applicable	Not applicable	Not applicable	2024-25
Progress geothermal project in line with feasibility report	462.9	\$1,555,000	\$934,509	2028-29
Change gas heating systems to alternate energy sources, such as electric heat pumps	12.1	\$38,880	\$16,015	2028-29
Change gas hot water system to alternate energy at Paynesville Service Centre	11.2	\$10,000	\$24,775	2028-29
Continually review opportunities to reduce gas heating use (water and space heating) in community assets	Community assets emissions yet to be calculated	Not applicable	Not applicable	2031-32
<b>TOTAL COSTING FOR NATURAL GAS REDUCTIONS</b>	<b>486.2</b>	<b>\$1,603,000</b>	<b>\$975,299 accumulated</b>	

\* 2023-24 as baseline

Figure 9: NATURAL GAS – EMISSIONS REDUCTION PATHWAY BY ASSET TO 2032

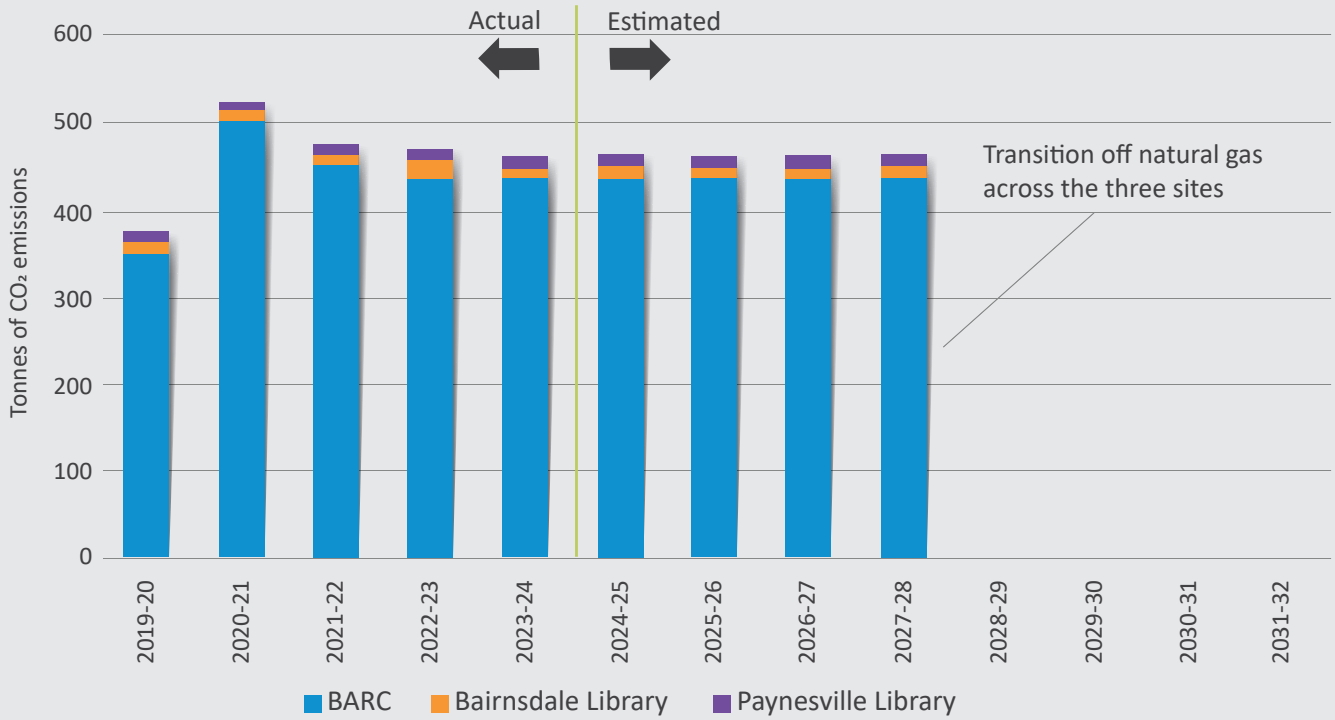
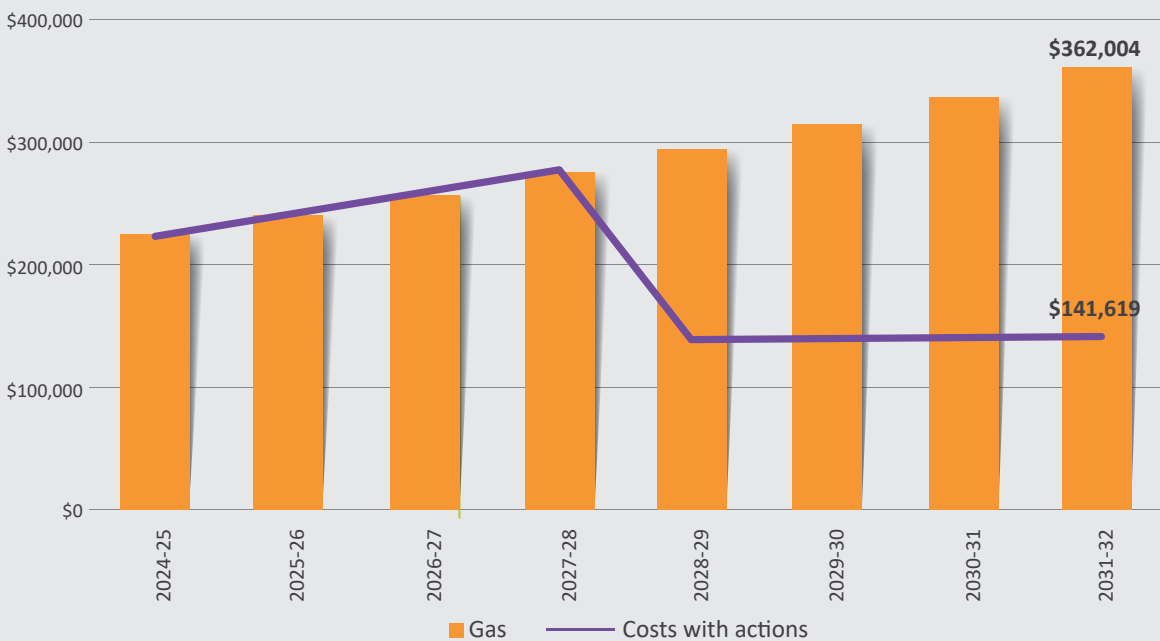


Figure 10: NATURAL GAS – PREDICTED COST OF BUSINESS AS USUAL WITHOUT INTERVENTION



# Scope 1 — Bottled gas

Council has set a clear goal to eliminate the use of bottled gas across all facilities. Bottled gas, primarily used for heating, hot water and a barbecue contributes to greenhouse gas emissions, both through the production and transportation processes. By transitioning to more sustainable energy alternatives, such as electric heat pumps and other renewable energy sources, Council aims to reduce its carbon footprint, lower operating costs, and set a positive example for the community.

The phased planning for reducing bottled gas will involve forward planning and the identification of viable, energy efficient alternatives to ensure a smooth transition and long term sustainability.

Like natural gas, one of the major barriers to achieving zero bottled gas emission is the capital investment involved in progressing works to change facilities to electric and zero emissions. There are also other issues associated with availability of alternatives at certain sites, due to limitations such as electric supply to support electric heat pumps.



Table 9: BOTTLED GAS – USAGE BY SITE

Site	Usage in 2023-24 (litres)	Gas bottle(s) size	Gas used for
Lakes Entrance Aquadome	49,036	2 x 7,500 L	Recreation centre heating
Mallacoota Foreshore Holiday Park	22,384	3 x 2,750 L 5,100 L 2,840 L 1,350 L 45 kg	Toilet blocks with hot water
Omeo Library and Depot	10,663	5,130 L	Building heating
Cann River Caravan Park	<2,750	2,750 L	Toilet block with hot water
Eagle Point Caravan Park	600	5,900 L 4 x 190 kg	Toilet block with hot water
Swifts Creek Caravan Park	995	2 x 190 kg	Toilet block with hot water
Metung Yacht Club	262	190 kg	Toilet block with hot water
Livingston Park, Omeo	337	210 kg	Toilet block with hot water
Fort King, Paynesville	<372	190 kg	Toilet block with hot water
Betka Beach, Mallacoota	<372	190 kg	Barbecue
Bairnsdale Outdoor Pool	<352	4 x 45 kg	Toilet block with hot water

Figure 11: BOTTLED GAS – EMISSIONS REDUCTION PATHWAY TO 2032

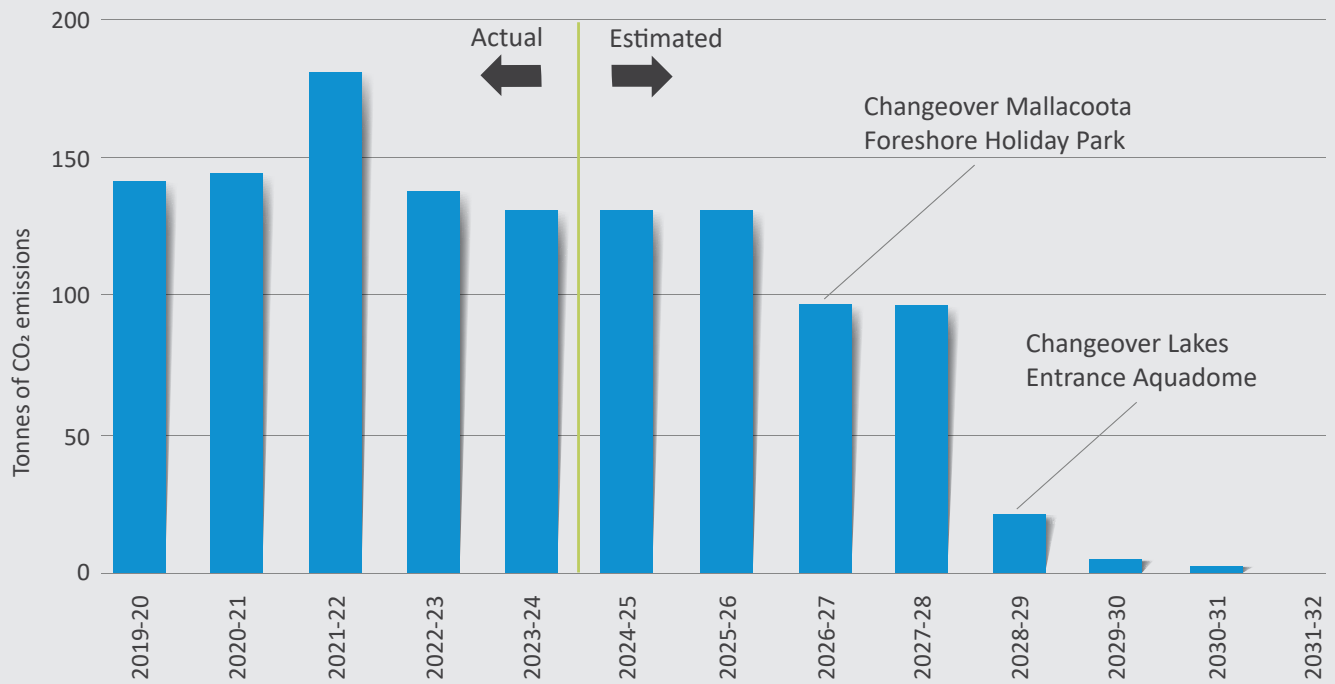


Figure 12: BOTTLED GAS USAGE BREAKDOWN BY SITE (% of total consumption)

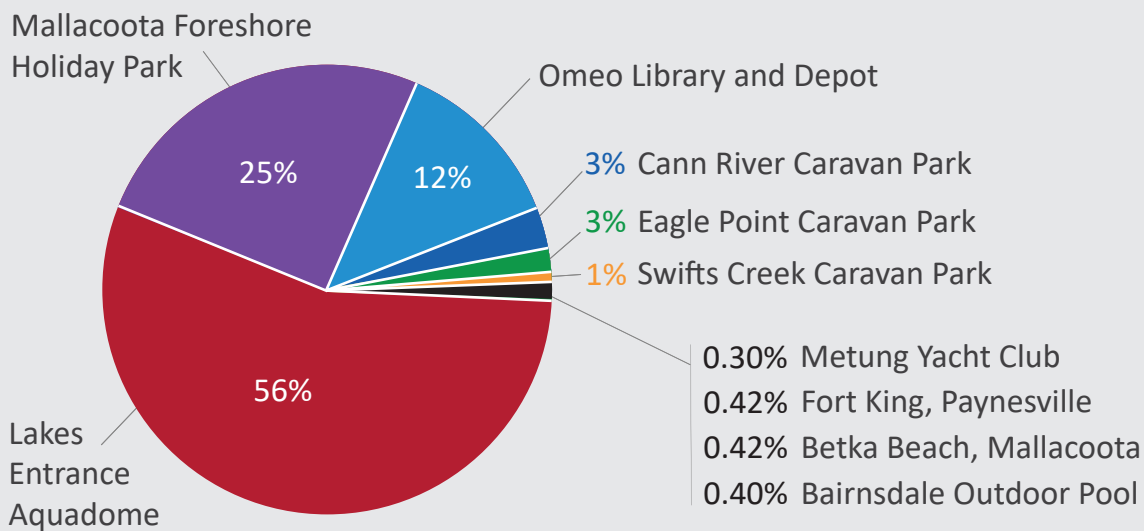


Table 10: BOTTLED GAS – ACTION PLAN FOR REDUCING EMISSIONS

Action	Potential emissions reduction by 2032* (tonnes/year)	Estimated Costing		Target date
		Additional capital costs	Accumulated savings up to 2032	
Lakes Aquadome – Replace gas water heating with electric heat pumps	76	\$750,000	\$239,216	2028-29
Omeo Service Centre – Replace gas heating with electric system	16	\$5,940	\$8,347	2028-29
Mallacoota Foreshore Holiday Park – Replace gas water heating system with electric	34	\$38,160	\$25,532	2027-28
Swifts Creek Caravan Park – Replace gas water heating system with electric	1	\$6,600	\$2,272	2029-30
Metung Yacht Club toilet block – Replace gas water heating system with electric	<1	\$6,600	\$855	2027-28
Livingstone Park, Omeo – Replace gas water heating system with electric	<1	\$6,720	\$1,061	2030-31
Fort King, Paynesville – Replace gas water heating system with electric	<1	\$6,240	\$1,666	2026-27
Bairnsdale Outdoor Pool – Replace gas water heating system with electric	<1	\$6,120	\$1,883	2025-26
Betka Beach, Mallacoota – Replace gas barbecue	<1	\$9,450	\$1,049	2029-30
<b>TOTAL COSTING FOR NATURAL GAS REDUCTIONS</b>	<b>131</b>	<b>\$835,830</b>	<b>\$281,881 accumulated</b>	

\* 2023-24 as baseline

The major savings in Figure 13 for bottled gas costs are expected to be in the reductions at the Lakes Entrance Aquadome and the Mallacoota Foreshore Holiday Park. The reductions in gas are counteracted by an increase in electricity, which is accounted for in each changeover. Some projects for changing over bottled gas have lower return on investment and not significant enough savings to demonstrate in Figure 13.

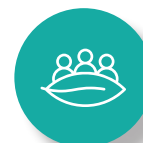
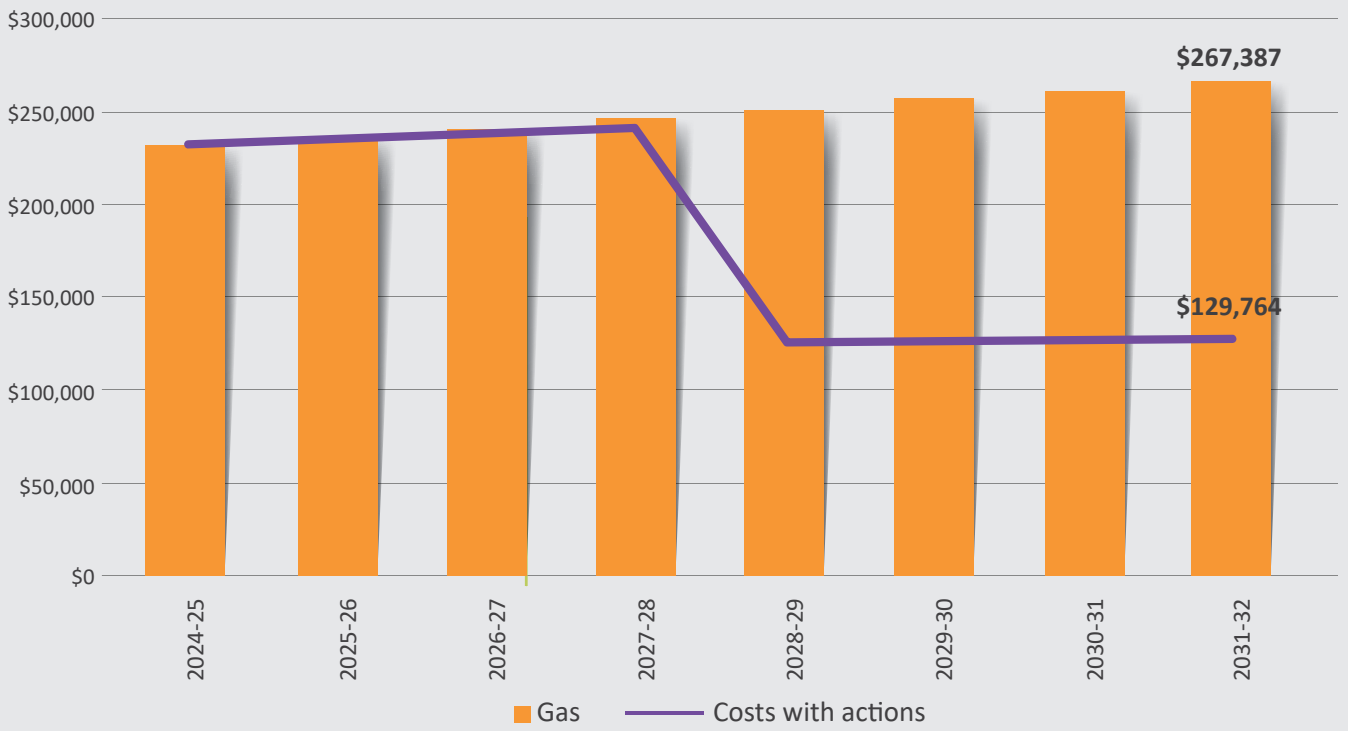


Figure 13: BOTTLED GAS – PREDICTED COST OF BUSINESS AS USUAL WITHOUT INTERVENTION



BELOW: Facilities at Lakes Aquadome.



# Scope 1 – Landfill gas

Waste decomposing in landfills produces and releases greenhouse gases, primarily as methane, into the atmosphere. As a greenhouse gas, methane is 28 times more potent than carbon dioxide, causing a greater impact on climate change.

Greenhouse gases continue to be released from closed landfill sites even after they are capped and represents the majority of all greenhouse gas emissions now and into the future. This is due to organic material placed in the landfill now will continue to produce emissions beyond the 2032 target. A significant amount of diesel fuel is also required to transport and manage waste across large and small communities.

Reducing landfill gas emissions however requires a whole of community response, as the food and organic waste disposed by the community, local business and

industry contribute to the generation of emissions. Many of the actions listed by this plan therefore include actions to introduce alternative methods for the disposal and repurposing of organic and food waste.

Modelling indicates that introducing a Food Organics and Green Organics (FOGO) service would result in approximately 1,500 tonnes of avoided carbon dioxide equivalent emissions per year.

The expansion of a compulsory FOGO service to households and local business would significantly increase avoided carbon emissions even further. Council is currently investing the necessary infrastructure to support these opportunities.

The more we can divert food and organic waste from landfill now, the fewer emissions that will be produced into the future.

## Emissions profile

Figure 14: LANDFILL GAS – EMISSIONS REDUCTION PATHWAY TO 2032

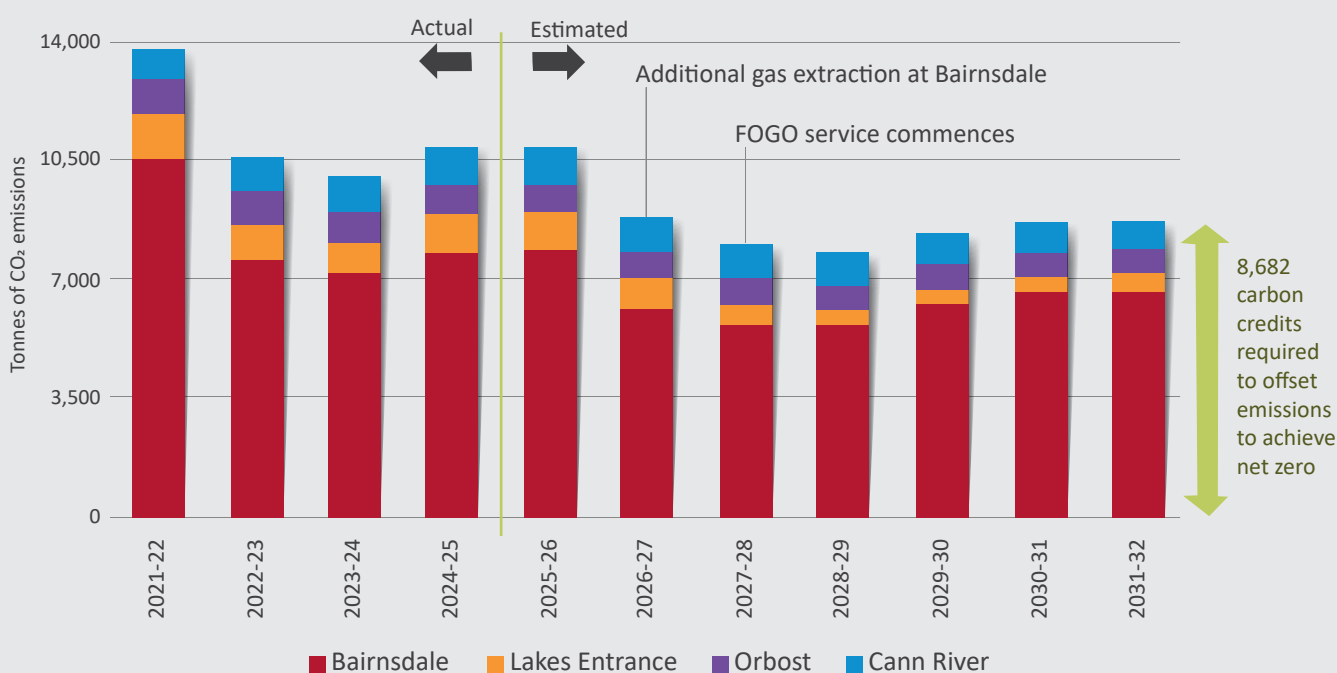


Table 11: LANDFILL GAS –ACTION PLAN FOR REDUCING EMISSIONS

Action	Potential emissions reduction by 2032 <sup>1</sup>	Estimated costing		Target date
		Additional capital costs	Accumulated savings up to 2032	
Reduce and and report landfill greenhouse gas emissions	Not applicable	Not applicable	Not applicable	2031-32
Construct FOGO facility at Bairnsdale Landfill	1500 t of CO <sub>2</sub> -e <sup>2</sup> per year	\$8,000,000 <sup>3</sup>	Not applicable	2026-27
Review delivery of FOGO collection and disposal services, including cost and benefits of opt-in or compulsory service delivery models	Linked to reductions stated in construction of FOGO facility	Completed with internal resourcing	Not applicable	2025-26
Audit commercial food waste volumes and explore alternative disposal and/or circular economy options with industry	Linked to reductions stated in construction of FOGO facility	Completed with internal resourcing	Not applicable	2025
Review waste fees and charges for disposal of organic material and packaged food waste to landfill	Linked to reductions stated in construction of FOGO facility	Not applicable	Not applicable	2025
Design and plan future landfill gas extraction systems to maximise capture in line with environmental monitoring requirements and emissions-reduction target	Variable year-on-year results. (7500 t of CO <sub>2</sub> -e saved in 2022-23)	\$500,000	Not applicable	Ongoing
Investigate biogas and waste to energy generation opportunities on Council and third-party facilities	To be determined	TBD	TBD	Ongoing
Implement actions to maximise generation of ACCUs <sup>4</sup> through expansion of landfill gas capture systems with potential to support future investment	To be determined	TBD	TBD	Ongoing
<b>TOTAL COSTING FOR LANDFILL REDUCTIONS</b>		<b>\$8,500,000<sup>5</sup></b>		

# Scope 2 – Electricity

With East Gippsland Shire Council’s electricity accounts switching to 100% renewable as part of the Victorian Energy Collaboration (VECO), the emissions from grid sourced electricity have reduced to 16 tonnes in 2023-24.

Council’s ability to convert 100% of sites is prevented by the ability to add certain unmetered sites to the agreement. This graph shows the drop with joining VECO and the removal of the equivalent of over 4,000 tonnes of carbon.

Although emissions have been all but removed from electricity sources through VECO, Council still has an opportunity to generate energy efficiencies and greater

resilience in our assets. Energy efficiency can include the use of solar and battery on facilities, LED lighting upgrades and changes to heating/cooling systems.

Along with lowering energy costs, solar and battery storage projects can boost resilience by providing reliable, local energy during grid disruptions. These systems ensure critical infrastructure stays powered during outages and reduce reliance on external suppliers.

There will be no cost associated with removing the remaining emissions from electricity, only Council time to investigate the opportunity to make the change.

Figure 15: ELECTRICITY – EMISSIONS REDUCTION PATHWAY TO 2032

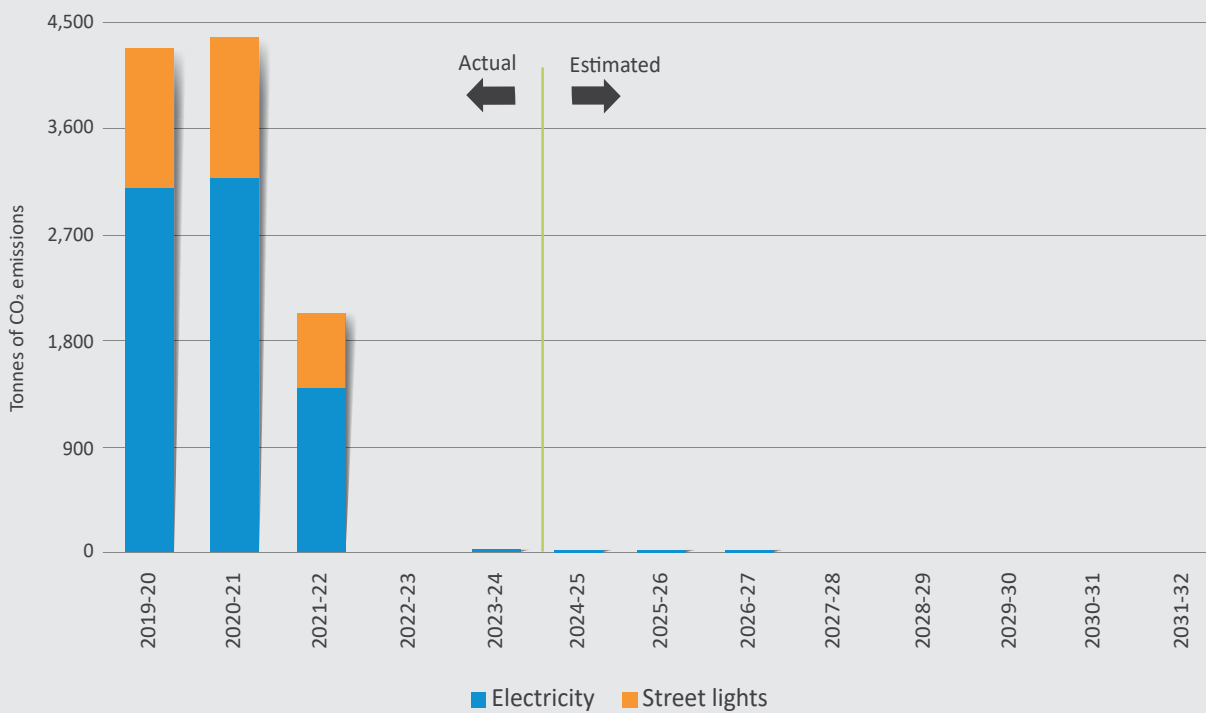


Table 12: ELECTRICITY – ACTION PLAN FOR REDUCING EMISSIONS

Action	Potential emissions reduction	Costings	Target date
Transfer remaining sites to VECO to utilise 100% renewable energy	Minimal	Not applicable	2025-26

# Additional organisational actions

The following actions are ones that Council can take to impact general emissions and impact new assets and services.

Table 13: ACTION PLAN TO REDUCE GENERAL EMISSIONS

Action	Target date
Incorporate Environmental Sustainable Design (ESD) principles when upgrading or developing new Council assets.	2031-32
Promote emission reduction planning more broadly into the organisation so that there is consideration to embedding the decision-making principles into service delivery.	Ongoing
Install more renewable energy on Council and community facilities – Solar PV, batteries and other renewable energy sources.	2031-32
Develop assessment template for the purchase of new vehicle or plant (heavy and small) that identifies the functionality required and if a zero emission option is suitable.	2025-26
Undertake audits to identify opportunities to reduce energy, water and waste across Council facilities.	2025-26
Increase energy and water efficiency on Council assets where possible.	Ongoing
Support Council’s contractors to reduce their emissions and achieve savings.	Ongoing
Increase use of recycled materials in Council’s infrastructure and maintenance program, with particular focus on roads and footpaths.	2031-32
Embed requirements for the utilisation of recycled materials in Council policies and practices and support reuse initiatives by businesses and broader community.	2025-26
Review use of refrigerants and gas – Transition to low-emission refrigerant gases or move to electric alternatives.	2027-28
Coordinate internal improvements made in reducing our waste production, energy consumption and water usage through the Green Team.	Ongoing
Explore utilisation of offsets to improve biodiversity and vegetation cover.	Ongoing



# Scope 3 — Emissions and future actions

Even though Scope 3 emissions have been excluded from this plan, the table opposite provides information as to what level of data is currently available for each category and future actions needed to develop a reportable Scope 3 emission inventory. Council will continue to work towards reducing Scope 3 emissions with suppliers and partners as we progress collaborative effort to reduce emissions.

TOP: Solar panels being installed at Bairnsdale Aquatic and Recreation Centre.

BOTTOM: Native flowers at Cape Conran Coastal Park.

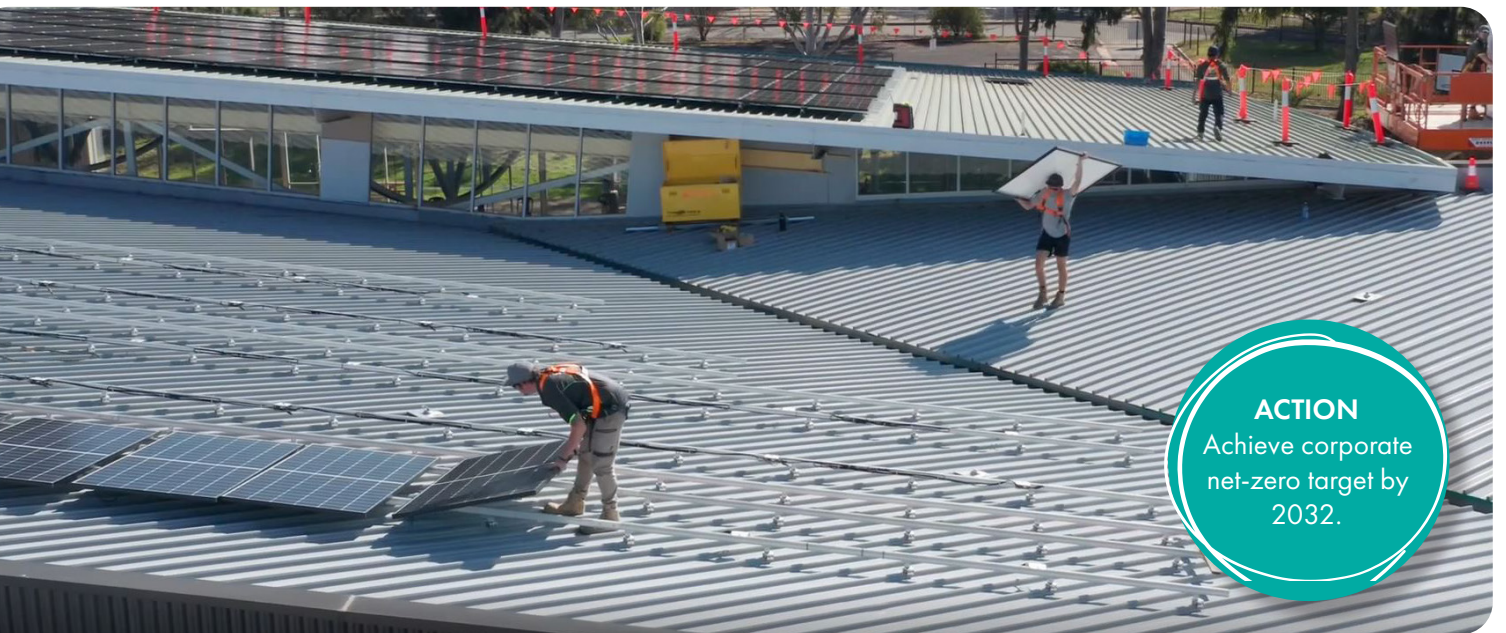


Table 14: ADDITIONAL INFORMATION – COUNCIL-RELEVANT SCOPE 3 EMISSIONS

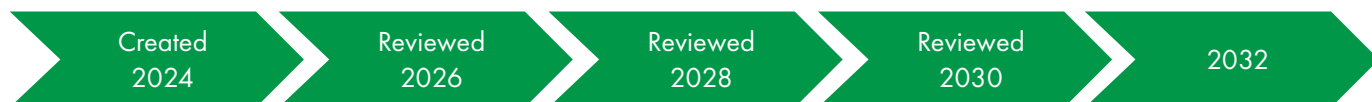
Emission category	GHG protocol description	Relevance to Council	Currently available date	Future action
Purchased goods and services	Extraction, production and transportation of goods and services purchased or acquired by Council	Purchasing of general goods, water use and contractors	Financial data available for a portion of this category, with the exception of detailed contractor data	Develop profiles of Council’s contractors to track their emissions
Capital goods	Extraction, production and transportation of capital goods purchased or acquired by Council	Purchasing of capital goods, ICT equipment, vehicles, plant, machinery	Financial data available for capital purchases	None, already gathering data for future reporting
Fuel and energy-related activities (not included) in Scope 1 or 2	Extraction, production and transportation of fuels and energy purchased or acquired by Council, not already accounted for in Scope 1 or 2	Emissions associated in generating fuel and energy	Electricity, gas and fuel usage	None, already reporting
Upstream transportation and distribution	Transportation and distribution services purchased by Council	Using courier, transport and freight services	Financial data available for postage, couriers and freight	None, already gathering data for future reporting
Business travel	Transportation of employees for business related activities during reporting year (in vehicles not owned or operated by Council)	Staff using public transport and flights	Financial data available for business travel in a single line item but not broken into an item	Review ability to break down train, taxi, bus and flights when staff use transport
Employee commuting	Transportation of employees between their homes and worksites (in vehicles not owned by Council)	Distance travelling to work	No data currently available	Gather data each year through Trellis to develop a staff profile
Downstream leased assets	Operation of assets owned by Council (lessor) and leased to other entities, not included in Scope 1 and Scope 2 – reported by lessor	Committees of Management, community buildings	Electricity, gas and water usage reports	Collate data sources where possible to develop profile of community run buildings

# Implementation, monitoring and reporting

Reaching the target for net zero emissions involves a collective effort from a large number of services across Council. While different areas may have different responsibilities, a central point of coordination to facilitate and support action would ensure the best outcomes. Council will also need to measure the impact of works it undertakes to reduce emissions from its operations on an annual basis, through internal processes, and through its utility monitoring software. Council will also continue to report on works and their impacts through the Environmental Sustainability Annual Report and Environment Connect quarterly newsletter.

Council will review this plan every two years to reflect the evolving complexities of climate change and greenhouse gas emissions reporting. Regular updates will ensure that the information and listed actions remain current with technological and legislative developments.

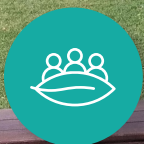
Monitoring and reporting on work undertaken to meet the net zero emissions target, alongside changes in available technology and development of climate action programs, will inform reviews of this plan.



BELOW: Monitoring at Metung Water Park.

Opposite

TOP: Pilot programs in Bairnsdale, High Country and Far East Gippsland are helping Council and farmers reduce silage wrap entering landfill.  
 MIDDLE: Community can borrow the Council's home energy audit kit.  
 BOTTOM: Council's first full electric vehicle is available for staff trips.



**ACTION**  
 Embed reuse of materials in Council policies and procedures.

**ACTION**  
 Ensure Council purchases include 10% recycled materials.



**ACTION**  
 Increase business participation in circular economy.



**ACTION**  
 Halve emissions from light vehicle fleet transport.



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Fax: (03) 5153 9576  
Contact Centre: (03)

 @EastGippyShire  
 @EastGippyShire  
 @EastGippyTV

### In person

Bairnsdale – 273 Main Street  
Lakes Entrance – 18 Mechanics Street  
Mallacoota – 70 Maurice Avenue  
Omeo – 179 Day Avenue  
Orbost – 1 Ruskin Street  
Paynesville – 55 The Esplanade

### Outreach Centres

Bendoc Outreach Centre – 18 Dowling Street  
Buchan Resource Centre – 6 Centre Road  
Cann River Community Centre – Princes Highway

