7.4.2 PROGRESS REPORT 2023-24 ZERO NET CARBON ACTION PLAN

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RECOMMENDATION

That Council

1. **Notes the third Progress Report on the Zero Net Carbon Action Plan (ZNCAP, endorsed August 2020). This report provides a status of the key actions delivered as at June 2024.**
2. **Receives a final progress report on the ZNCAP by December 2025, outlining achievement of becoming carbon neutral.**

INTRODUCTION

Council has a commitment to be carbon neutral by 2025 and is guided by the Zero Net Carbon Action Plan (ZNCAP, endorsed by Council in August 2020) which is overseen by the Sustainable Monash team (Attachment 1). This commitment has been linked to key Council strategies and plans. This report provides the status of delivery of the Action Plan, including the Progress Report 23-24 (Attachment 2).

COUNCIL PLAN STRATEGIC OBJECTIVES

Sustainable City
Proactively address climate change and implement initiatives to achieve Zero Net Carbon in Council operations and take action to reduce Monash community emissions.

BACKGROUND

The ZNCAP covers a comprehensive range of actions to reduce corporate greenhouse gas (GHG) emissions and support the reduction of community GHG emissions.

Summary of the key actions to reduce corporate GHG emissions include:

1. Sourcing 100% renewable electricity through the Local Government Power Purchase Agreement, the Victorian Energy Collaboration (VECO).
2. Upgrading major public lighting to LEDs.
3. Improving the energy efficiency of our major buildings.
4. Energy efficiency and roof top solar installation for key community facilities.
5. Fleet optimisation to reduce fuel use and the transition to electric vehicles.
6. Sustainable procurement to reduce GHG emissions and increase recycled content.
7. Environmentally Sustainable Design (ESD) for Council buildings and infrastructure.

To determine the Zero Net Carbon target, Council's corporate GHG emissions baseline was calculated to be 20,503 tCO2e, which was the annual GHG emissions for 2018-19. Nearly 90% of corporate GHG emissions were sourced from 1) electricity, 2) gas, 3) transport fuel, 4) concrete

and 5) asphalt, and the priority actions focused on reducing corporate GHG emissions from these sources.

DISCUSSION

Since the adoption of the ZNCAP, actions addressing GHG emission reduction have been undertaken and annual tracking of emissions since the 2018-19 baseline year continues.

Our GHG emissions reduction for 2023-24 was 60% (from the 2018-19 baseline) which is an overall reduction from 20,503 tCO2e to 8,136 tCO2e. Importantly, COVID-19 restrictions skewed trends between 2019 and 2022, however since restrictions have lifted there is now a steady reduction in GHG emissions.

Table 1: Annual Carbon Inventory Status

YEAR	GHG Emissions	
	tCO2e	% Reduction
2018-19 (baseline)	20,503	N/A
2019-2020	18,869	8
2020-2021	12,689	38
2021-2022	4,537	78
2022-2023	9,325	55
2023-2024	8,136	60

Since August 2020, the first and most significant action to have a positive impact on reducing corporate GHG emissions was the commitment by Council to purchase 100% renewable electricity for all corporate buildings from 1 July 2021. Monash is now one of 51 Councils in the Victorian Energy Collaboration (VECO) partnership. This means electricity is no longer a significant source of corporate GHG emissions for Council, and continuing electrification of buildings is incentivised.

With the introduction of 100% renewable electricity, the top five sources of GHG emissions (86%) in Council for 2023-24 were:

29% Concrete

20% Natural Gas

19% Fleet fuel

11% Employee commute

7% Asphalt

Gas emissions in 2023-24 were 44% less than the 2018-19 baseline, with 1,579 tCO2e in 2023-24, reduced from 2,844 tCO2e in 2018-19. Reductions were attributable to energy efficiency measures and the ongoing transition away from gas appliances in new buildings, including replacing

inefficient gas boilers with efficient heat pump units at Monash Aquatic and Recreation Centre. As the transition accelerates this emission source will continue to decrease.

Similarly, Council prioritises purchasing fully electric vehicles (EVs) and plug in hybrid electric vehicles (PHEVs) for Council fleet where suitable, in line with current vehicle policy. As of 30 June 2024, there were 35 hybrids in Council's fleet, 3 PHEVs, and 15 EVs. Council has 21 electric vehicle charging stations across several work sites to facilitate accessible charging options as the fleet transitions to electric options.

Other activities addressing the key actions underway include:

- 740kW of small and large scale solar on Council and community use buildings
- Two thirds of main roads public lighting now changed over to highly efficient LEDs
- Feedback into Council's Procurement Policy to encourage energy efficiency, GHG emission reduction, circular economy, and increase use of recycled content materials
- Ongoing support of Business Energy Savers and Solar Savers programs in Monash
- Resourcing behaviour change strategies and supporting the community to embrace the bin frequency change
- Planting two micro forests (micro forest at Wellington Reserve, Mulgrave, and Tiny Forest in partnership with Earthwatch at Fraser Street Reserve, Glen Waverley)

Climate mitigation and adaptation work relating to Council and community assets and services will continue to be undertaken, and more investigation will take place in 2024-25 to set Council up to strengthen climate resilience across the municipality.

FINANCIAL IMPLICATIONS

The overall investment in the ZNCAP was estimated to be $10.46 million (excl. GST) to deliver on the nominated actions and meet the Zero Net Target by 2025 for Council's corporate GHG emissions. There was also a separate investment nominated for dedicated staff costs of $200-220,000 per annum to manage delivery of key infrastructure projects and ongoing community and business education and projects under ZNCAP.

Project expenditure up to 30 June 2024 was approximately $7,162,000 excl. GST plus dedicated staff costs.

This represents 68% of original project cost estimates provided in the ZNCAP of August 2020.

Over $1.9 million was accessed in grants, since the start of the plan, to support this investment. We will continue to seek further grants to support delivery of actions for Council and the community as they arise.

In terms of savings to date, Monash transferred to the VECO contract in July 2021, which is sourcing 100% renewable electricity at a costs per kwh expected to be at or better than business as usual (BAU). Since starting the VECO contract, Council has reduced their electricity costs by over $1.7 million compared to the baseline costs (electricity and usage charges) and despite increase usage of key facilities.

A saving of $473,500 was made in the year 2023-24 under the VECO contract, compared with electricity expenditure in 2018-19.

POLICY IMPLICATIONS

Progressing mitigation actions which reduce corporate GHG emissions has policy implications across several policies. It is a key priority in addressing Strategic Risk (#7) in the Corporate Risk management plan, associated with managing emerging impacts on environmental issues.

The ZNCAP provided guidance to address this risk and also aligns with Priority 3 of the Environmental Sustainability Strategy 2016-2026. In particular the following action: *3.1.1 To develop and implement a Climate Change Action Plan which recognises a whole of Council approach to mitigation, adaptation, risk management, innovation and alternative energy sources.*

The ZNCAP also aligns with the following strategic documents:

- The Monash 2040 Community Vision
- Council Plan 2021-2025
- Procurement Policy
- Asset Plan
- Urban Biodiversity Strategy
- Monash Urban Landscape and Vegetation Canopy Strategy
- Street Tree Strategy
- Open Space Strategy
- Monash Integrated Transport Strategy

Providing support to the Monash community and local businesses under the ZNCAP actions also helps to reduce energy costs and GHG emissions across the municipality and builds resilience in a changing climate. This in turn supports the delivery of the Monash Health and Wellbeing Plan.

CONSULTATION

Community consultation was not required.

SOCIAL IMPLICATIONS

Climate change is already having negative effects on human health and society. These include physical and emotional impacts associated with extreme weather events, warmer temperatures contributing to worsening air pollution and restricting community access to natural spaces, spread of infectious diseases, and increased risks to food and water security.

Council has a responsibility to ensure the resilience, health, and wellbeing of the community, and while the focus of the ZNCAP is to reach zero net corporate emissions by 2025, it acknowledges Council's role in leading by example for the community to reduce GHG emission and the impacts of climate change.

HUMAN RIGHTS CONSIDERATIONS

There are no human rights implications to this report.

GENDER IMPACT ASSESSMENT

A GIA was not completed because this policy/program/service is not a new initiative and at the time of adoption a GIA was not a requirement.

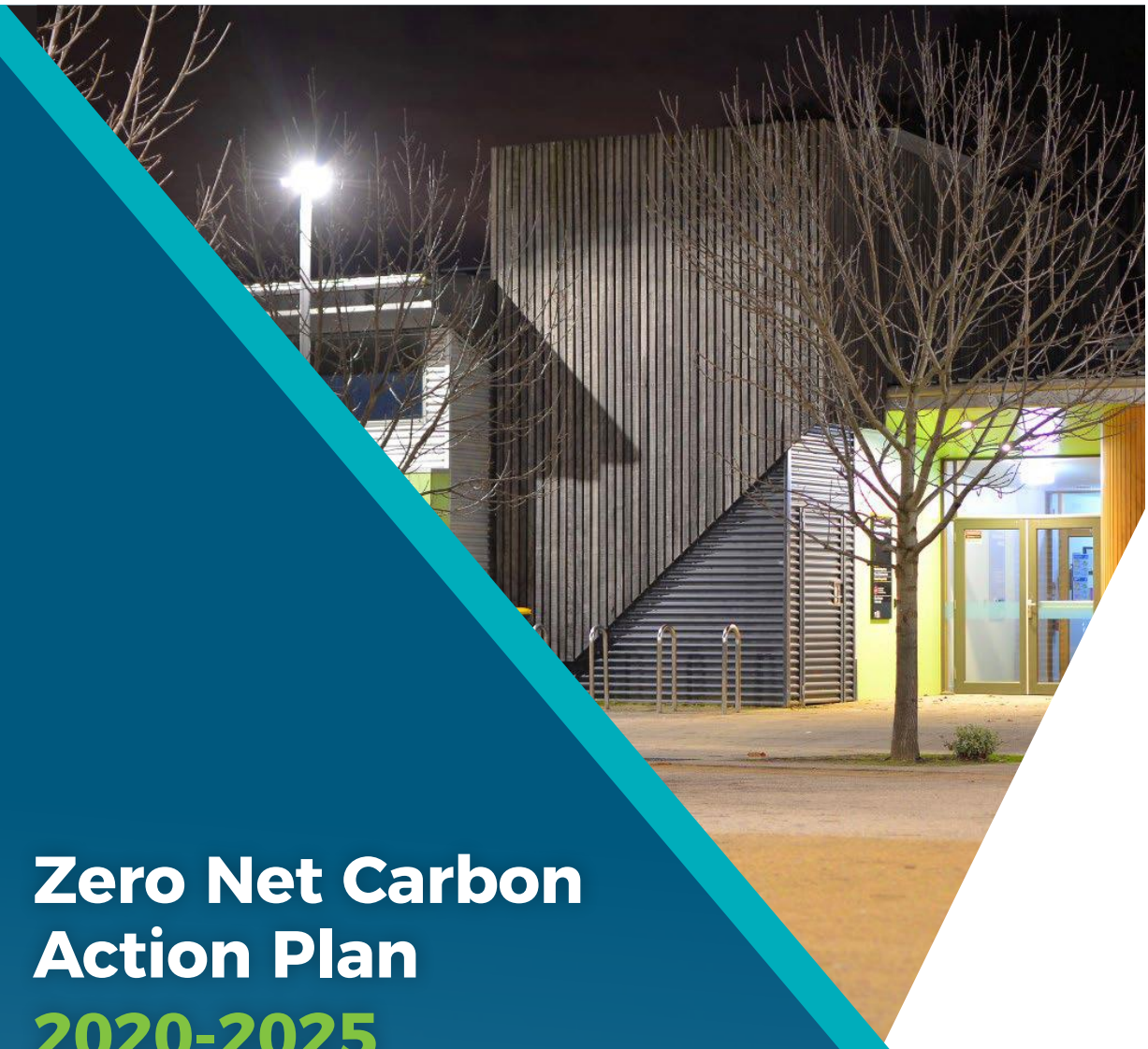
CONCLUSION

The ZNCAP provides a comprehensive approach for Council to become carbon neutral in its operations by 2025 and provide leadership to Monash businesses and our community to reduce GHG emissions, reduce waste and protect the environment across the whole municipality.

Benefits from the completed and ongoing actions are being realised, with the next goal being to achieve carbon neutrality this year. Should the necessary elements for achieving carbon neutrality be unavailable at this time, an offset procurement approach is currently under investigation to ensure the Council meets its net zero commitment. If offsets are required, we will strive to source them within the municipality, with the associated costs to be covered by the sale of Victorian Energy Efficiency Certificates (VEECS) earned through the transition from halogen to LED streetlights.

ATTACHMENT LIST

1. Zero Net Carbon Action Plan Final [**7.4.2.1** - 46 pages]
2. Zero Net Carbon Action Plan Progress Report 23-24 [**7.4.2.2** - 32 pages]



Zero Net Carbon Action Plan 2020-2025

CITY OF MONASH

Contents

Foreword by Mayor Stuart James

At the February 2020 meeting, our Council committed to a number of actions in response to climate change.

A substantial amount of work over a number of years has gone into determining the best way forward for Monash to achieve carbon neutrality, to get our modelling right and to commit to strategies that will make a difference. Our view was always that it was not about just speaking words on climate change, but about investing in real actions and strategies that will reduce emissions.

Some of these actions include:

- Participating in the Local Government Power Purchase Agreement for up to 100% renewable energy for all electricity use
- Major roads street lighting changeover to LED lights
- Major infrastructure upgrades of high energy usage sites, including our aquatic centres, to reduce energy use
- Investment in solar panels at key sites
- Expanding the use of electric and hybrid vehicles in Council's fleet
- Increase the use of recycled content materials in council projects
- The purchase of carbon offsets, when required, from businesses located within the City of Monash, wherever possible
- A commitment to protecting and enhancing our green spaces and tree canopy
- The introduction of food waste in the green bin household recycling.

Our team at Monash has undertaken significant work to help us set ambitious targets that are also achievable. The modelling indicated that 2028 was the optimum time to target carbon neutrality, but Council has decided to adopt a target of 2025.

I want to acknowledge the outstanding work of our teams and the support of our community to reduce their carbon emissions and address climate change together.

Acknowledgement

This work has been developed thanks to the research and reporting completed by IronBark Sustainability and CarbonetiX on behalf of the City of Monash. The Environmental Advisory Committee has also provided invaluable guidance and support in the development of target and this action plan.

CITY OF MONASH

Zero Net Carbon Action Plan

In Summary

The goal of the Zero Net Carbon Action Plan is to provide a pathway for Council to become carbon neutral by 2025. Council's total baseline net GHG emissions for **2018-19** was **20,503 tCO2e,** including:

SCOPE 1
GHG emissions from gas and fleet

SCOPE 2
GHG emissions from electricity

SCOPE 3
GHG emissions from public lighting, waste, concrete, asphalt and travel

The top five sources of GHG emissions are:

Electricity	Natural Gas	Asphalt and Concrete use	Fleet Vehicles	Employee Commute
59.5%	15%	8.2%	7.2%	6.9%

Key actions to reduce or avoid GHG emissions in the Zero Net Carbon Action Plan include:

1

Sourcing 100% renewable electricity

- Council to purchase electricity from 100% renewable sources from July 2021.

2

Street Lighting Changeover to LED

- Council will replace main road street lighting with LED lights
- Consider smart lighting opportunities as part of the major road lighting upgrade to LED
- Negotiate with United Energy to change residential street lights to LED in the next five years.

3

Improving energy efficiency of our largest major buildings

- Set up an Energy Performance Contracts with priority energy conservation measures to reduce electricity, gas and water use and provide guaranteed savings to improve operation of Council's major buildings.

4 Energy efficiency and roof top solar for key community facilities

- Install solar on buildings which provide the best GHG emission reduction and return on investment
- Identify opportunities to reduce utility costs in community buildings through energy audits and implement efficiency activities such as LED lighting change over, insulation, and education.

5 Fleet optimisation to reduce fuel use and transition to electric

- Upgrade light fleet initially with hybrids and gradually introduce EVs in current replacement cycle (until 2026). Install at least 1 charging point per EV subject to available load on site, or consider locating offsite. Accelerate electrification as EV prices decrease post-2026
- Purchase heavy diesel vehicles with the latest Euro standard, and upgrade to hybrid/electric or more sustainable alternative fuels such as hydrogen and biodiesel as options become available
- To improve fuel economy, introduce driver training, install GPS tracking for route optimisation, and implement fleet booking system with utilisation data to increase staff carpooling
- Develop a staff green travel plan to encourage sustainable transport and commuting options
- Investigate opportunities to establish solar car parks to charge electric vehicle.

6 Sustainable Procurement

- Strengthen sustainable procurement and tender processes to preference the use of sustainable products, technologies and services, and minimising GHG emissions, including the impact of the supply chain
- Review of internal project development and procurement stages, and implement guidelines to increase the opportunity to use recycled content, carbon neutral and sustainable materials
- Source recycled content and carbon neutral paper, preferably from ethical sources, and move away from physical documents to reduce paper use. Extend approach to external printing
- Increase the use of recycled content and lower GHG emission asphalt and concrete by 2022, updating local government design standards/specifications, and undertake training
- Specify energy efficiency and GHG emission reduction standards to establish transparency on the purchase of energy equipment, particularly in major projects.

7 Environmental Sustainable Design for Council buildings and infrastructure

- Finalise and implement an Environmental Sustainable Design Policy for Buildings and Infrastructure
- Establish monitoring program to track the application of the policy to achieve minimum ESD requirements, reduce GHG emissions and lower building running costs. This may include the use of building benchmark tools such as NABERS or BESS.

To achieve carbon neutrality, where GHG emissions cannot be avoided, Council will:

Achieve Carbon Neutrality through Offsets

In consideration of the wider community expectations, Monash City Council's preference is to source offsets from local sources where possible. This may include:

- Sourcing offsets locally from Monash businesses

or where it can provide a high social-economic benefit for our local community

- Maximising solar on Council and community buildings
- Utilising public or private roof space or land for solar through a share cost arrangement
- Investigate how to create offsets through tree planting and the creation of an Urban Forest

The balance of carbon offsets required will be sources from Australian and International accredited suppliers to achieve our Zero Net Carbon commitment. Publicly disclose how we have achieved and are maintaining our carbon neutral commitment from 2025.


ZE

In addition to meeting our Zero Net Carbon commitments, Monash Council will take on the role of:

A Leading in the Reduction of Municipal-wide GHG Emissions

- Review and expand on current programs to increase opportunities to further reduce Municipal GHG emissions, energy and costs, through advocacy and delivery
- Investigate establishment of a Zero Net Emission Foundation to facilitate community action
- Promote energy audits and environment upgrades for businesses and homes
- Investigate establishment of 100% renewable public electric vehicle charging stations
- Partnering on Zero Net Precincts and research collaborations with Monash University
- Establish business resilience programs to promote energy efficiency, and GHG emissions reduction actions
- Develop a climate adaptation strategy to minimise the impacts of a changing climate
- Update the Environmental Sustainable Development policy (Monash Planning Scheme), to address GHG emission reductions.

B Reducing waste generation and diverting waste from landfill (zero waste)

- Council will require contractors to separate corporate waste data from community waste, including waste generated by leased sites such as childcare centres and scout halls
- Deliver on the targets of the Monash Waste Management Strategy and implement measures to improve waste monitoring and reporting, and moving to zero waste in landfill
- Provide incentives such as grants, workshops and guidance to help the community and businesses to minimise waste, reuse materials and practice sustainable procurement
- Develop business case for a Circular Economy shop to divert suitable items from landfill, sell recycled content and low emission products, and facilitate repair of goods
- Investigate the opportunity to create a local solar farm at the Clayton Landfill or similar suitable site.

C Urban Carbon Forest – creating a tree canopy to provide local storage of carbon, improve community amenity and benefit biodiversity

Create an Urban Carbon Forest in Monash (30% coverage) through the following activities:

- Increased canopy cover revegetation works on Council land to provide social and environmental benefit to the community, improving air quality and reducing summer air temperatures
- Strengthen planning scheme controls to increase planting, retention and protection of trees on private and public land
- Consider stronger penalties for tree removal, support for tree bonds and development contributions, to fund vegetation maintenance and resource tree removal investigations
- Investigate the development of a Nature Trust to secure and expand land available for vegetation, including understory and biodiversity
- Encourage business, residents and schools to grow native plants on their own land
- Undertake investigation to understand if suitable carbon offsets can be created through our tree planting program in Monash
- Tree education to building awareness of their value to the community amenity and biodiversity
- Consider partnering with Universities to identify urban heat island reduction opportunities.

Council will report annually on its corporate GHG emissions, progress to achieving carbon neutrality, through the above actions. Council will utilise innovative investment options and appoint dedicated staff (1.8FTE) to fast track our approach to being Zero Net Carbon by 2025.

Background

In February 2020, Council committed to a target of zero net corporate greenhouse gas emissions by 2025, with the focus toward on-ground action using a proactive and cost effective methodology. This commitment was based on detailed independent modelling by CarbonetiX, which determined the annual corporate Greenhouse Gas (GHG) emissions generated for Council, and identified actions required for Council to achieve carbon neutrality by 2025 and minimise our impact on the environment.[1]

Research was also completed by IronBark Sustainability to establish a science-based target (or carbon budget) for Council and for the community to reach at least a 30% reduction by 2030.[2] Science-based targets considers GHG emissions reduction measures required to keep global temperature increase below 2°C compared to pre-industrial temperatures which is consistent with Intergovernmental Panel on Climate Change target under the Paris Agreement.[3]

Australia is one of 185 nations to have ratified the Paris Agreement and the *Victorian Climate Change Act 2017* framework has been established to fulfil the Paris Agreement's objectives. Victoria's has set a net zero emissions target for the State by 2050 and also passed Victorian Renewable Energy Target of 50% by 2030. Council's *A Healthy and Resilient Monash: Integrated Plan 2017-2021,* is also aligned with the *Victorian Climate Change Act 2017,* as per government expectations, and considers community adaptation to address public health risks associated with climate change.

Taking action to mitigate and address impacts of climate change, and improve energy efficiency in Council addresses the key objectives of Climate change priorities of Council's *Environmental Sustainability Strategy 2016-26.*

In addition to the corporate GHG emission target, the following objectives were proposed:

- Leadership and support to the Monash community and businesses to reduce energy costs and GHG emissions across the municipality and be resilient in a changing climate
- Sustainable procurement to increase the use of recycled content materials to reduce embodied energy, reduce waste to landfill and deliver on Monash's *Waste Management Strategy*
- Focus on retaining trees and increasing tree planting to store carbon, improve community amenity, and support biodiversity, which also aligns with the vision of the *Urban Biodiversity Strategy, Monash Urban Landscape and Vegetation Canopy Strategy, Street Tree Strategy, and the Open Space Strategy.*

References: 1. CarbonetiX, Trajectory to Carbon Neutrality for Council's Corporate Emissions – Carbon modelling internal report, 2020. **2.** Ironbark Sustainability, Emissions Profiles and Reduction Targets – Final report – internal report, 2018. **3.** Paris Agreement, December 2015, available at https://unfccc.int/sites/default/files/english_paris_agreement.pdf **4.** CarbonetiX, Further Emission Reduction Strategies for Monash City Council- internal report, 2020.

Corporate GHG Emissions Baseline

In accordance with the National Carbon Offset Standard (NCOS) for Organisations and National Greenhouse and Energy Reporting Scheme (NGERS) standard for carbon accounting, Council needs to account for all GHG Scope 1, 2 and 3 emissions to be carbon neutral. This includes emissions that Council generates directly, indirectly and up and down our supply chain as part of our operation control. Operational control is defined as any property or asset where Council has the authority to develop operating, environmental, or health and safety policies.

TOTAL

The total 2018-19 corporate net emissions including all Scope 1, 2 and 3 emissions (see Figure 1) which Council has influence over was:

20,503 tCO2e

SCOPE 1

GHG emissions are generated as a direct result of activities in Council owned facilities and assets – includes Gas, Fuel for Fleet and refrigerants.

4,427 tCO2e (21.6%)

SCOPE 2

GHG emissions – indirect emissions generated via consumption of energy in Council-owned facilities and assets (mainly Electricity).

7,872 tCO2e (38.4%)

SCOPE 3

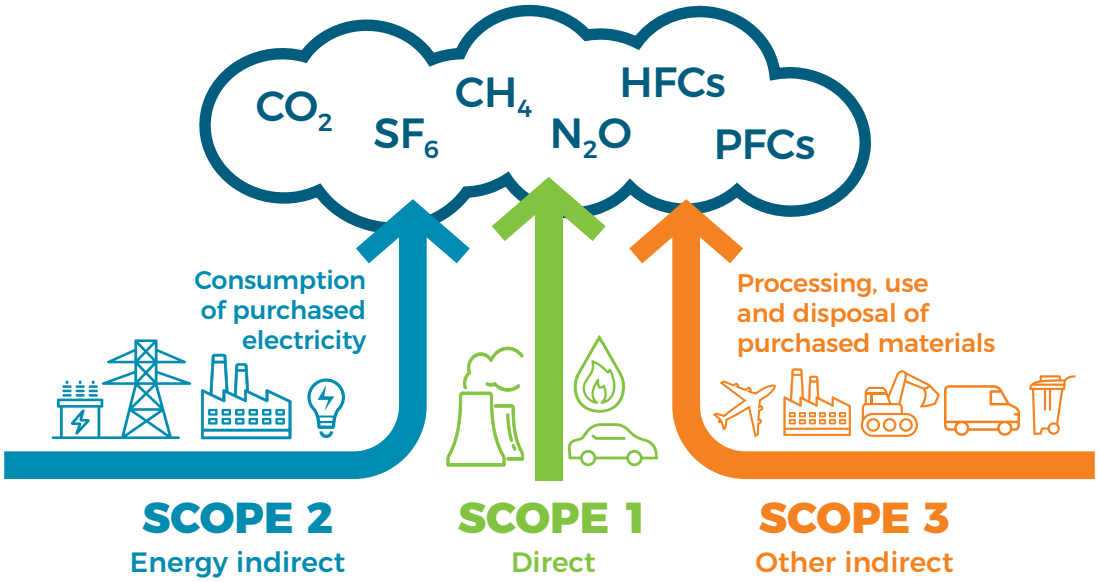
GHG emissions are indirect emissions generated both up and down the supply chain of an organisation – including public lighting, transmission losses, leased assets, waste, paper use, asphalt, concrete and travel.

8,204 tCO2e (40%)

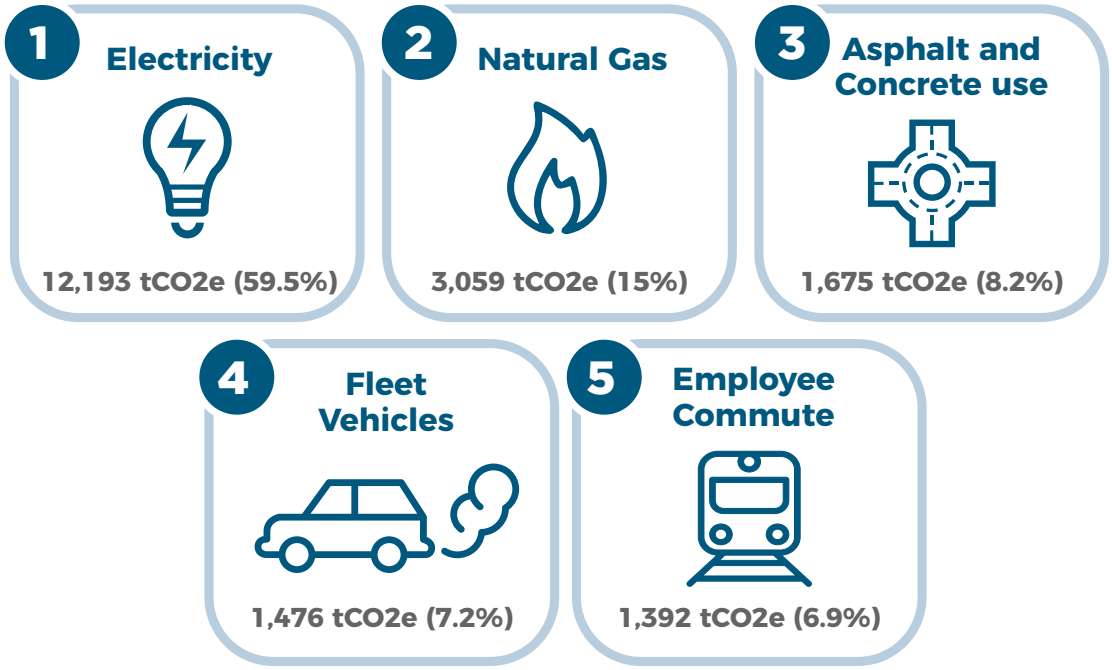
Note that there is a diversity of sources of Greenhouse Gas Emissions generated but to make it easy to quantify, they are interpreted as a unit of tonne of Carbon Dioxide (CO^2) equivalent.

Sources of GHG in Council

Figure 1: Source of Scope 1, 2 and 3 GHG emissions



Based on the inventory (Table 1) the **top five sources** of GHG emissions (tCo2e) are:



A source of GHG emissions is material (and needs to be included) if it accounts for over 1% of the total organisational emissions. Any sources under 1% are able to be excluded, but the combination of excluded emissions cannot exceed 5%. All emissions within the measurement boundary have been included assuming the emissions are material.

Table 1: Summary of 2018/19 GHG emission inventory

Scope	Category	Source	Emissions (tCO_2e)	Percentage of Scope
SCOPE 1	Transport Fuel Combustion	Fleet Vehicles	1,404	32%
	Stationary Fuel Combustion	Natural Gas	2,844	64%
	Fugitive Emissions	Refrigerants	179	4%
	Scope 1 Total		4,427	
SCOPE 2	Grid-Sourced Electricity	Electricity	7,872	100%
	Scope 2 Total		7,872	
SCOPE 3	Grid-Sourced Electricity	Public Lighting	3,612	44%
	Grid-Sourced Electricity	Leased Assets	148	2%
	Grid-Sourced Electricity	Transmission Losses	561	7%
	Natural Gas	Transmission Losses	215	3%
	Fugitive Emissions	Waste	428	5%
	Materials	Asphalt and Concrete	1,675	20%
	Materials	Paper	87	1%
	Transport Fuel Combustion	Employee Commute	1,392	17%
	Fleet Vehicles	Transmission Losses	72	1%
	Transport Fuel Combustion	Business Travel	14	0.1%
	Scope 3 Total		8,204	
TOTAL			20,503	

Note that both the large market and public lighting contracts include 20% Green Power, so this amount has been removed from the electricity totals to show the net value. The gross value of emissions from large markets and public lighting is 14,359 tCO_2e without Green Power.

Current Achievements

This Action plan will help to fast-track our approach to achieving zero net carbon by 2025, and is builds on the delivery of these current programs for Council and community.

1. **Food Organics** in the Green Bin service began in July 2020 will provide up to 50% reduction in GHG emissions by diverting food waste from landfill, and in to composting.

2. Participating in collaborative tender for advanced waste processing to divert community waste from landfill by 2025 leading to **zero emissions waste.**

3. Participating in a collaborative tender with 47 other Councils to source **100% renewable electricity** for all our sites.

4. Six building owners in Monash have taken up **Environmental Upgrade Finance,** and have collectively invested over $2 million and installed nearly 1500kW of solar and other efficiency measures to reduce costs and GHG emissions.

5. **Integrating divestment in fossil fuels** into Council's investment policy, sending a message to financial institutions to seek alternative investments and maintain credit rating.

6 **Solar Savers service** offered to residents, including low income households, providing online and phone support, a preapproved supplier, access to a low interest loan, and support to access the state government Solar Homes rebates to install solar and save costs.

7. Since 2016, the **Monash Planning Scheme** has included an ESD policy for private development, with 3 or more units.

8. Sustainability Hub at Wellington Road Community Centre and workshops to demonstrate, educate and empower the community to take their own **climate change actions.**

9. Participating in the **Greenhouse Alliances'** 'How well are we adapting' project to track and improve our ability to adapt in a changing climate for the benefit of our residents and businesses.

10. Partnering with Monash University on **Zero Net emission** and **Zero Net Precincts** ARC Linkage project to collaborate on GHG emission reduction across the municipality.

11. Our new **waste collection contract** successfully negotiated and will offset all the GHG emissions from their truck fleet by 200% for the next 8 years. Their GHG emissions to the amount of 200%, meaning there will be no fuel consumption emission concerns for waste contractors from the commencement of the new contract for the next eight years.

12. Delivery of the actions under the **Monash Integrated Transport Strategy** *2017* which includes the more bicycle and rail infrastructure, green travel and flexible working.

Eastern Alliance for Greenhouse Action

The Eastern Alliance for Greenhouse Action (EAGA) is a collaboration of eight Councils in Melbourne's east including Monash, working together on regional programs to reduce greenhouse gas emissions, support renewables and facilitate adaptation. With economies of scale, the alliance leads joint successful initiatives on behalf of members typically beyond the reach of individual Councils. Collaboration with stakeholders and partners is crucial to the success of our current activities and well help fast track our goal to be carbon neutral.

Photo by Antonia Donna Woolrich
Chadstone Food Forest

Victoria's has set a net zero emissions target for the State by 2050 and also passed the Victorian Renewable Energy Target of 50% by 2030

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

In Detail

To be Carbon Neutral at 2025, modelling showed that Council needs to focus on the following key actions which avoid or reduce emissions, including:

1 Sourcing 100% renewable electricity

Utility services such as electricity require significant investment, therefore local governments will often utilise collaborative tendering to achieve the best value contract. On behalf of 47 Councils, the City of Darebin and Victorian Greenhouse Alliances collaborated to undertake research and business case development to create the **Local Government Power Purchase Agreement** (LGPPA) with the goal to procure 100% renewable electricity sourced from wind or solar farms in Victoria through a retailer. The LGPPA business case modelling showed that a PPA would result in equal or lower annual costs compared to business as usual.

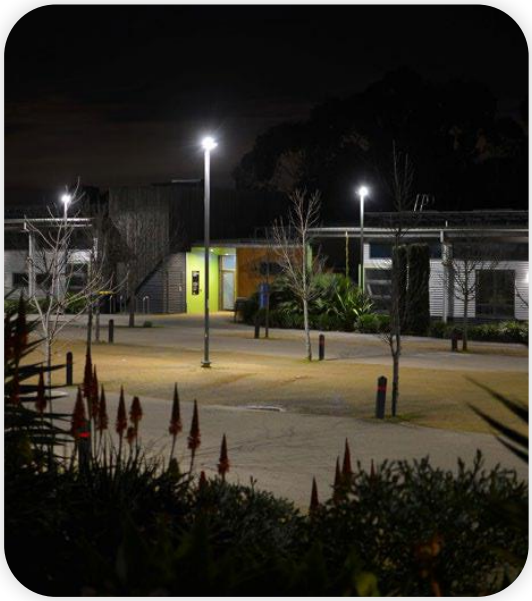
In July 2020, Council agreed to participate in the LGPPA and committed 90-100% of its corporate electricity load to this tender process. This includes 100% of large market sites, 100% of public lighting and up to 90-100% of small market sites (depending on availability of meter data). The LGPPA tender process will be finalised before the end of 2020.

The LGPPA will provide 100% renewable energy through the purchasing of Large-scale Generation Certificates (LGCs) and can effectively reduce our net corporate **GHG emissions up to 60% from July 2021.** This will fast track our journey to zero net emissions by 2025, and provide a quick win with minimal cost differential to current services over the next 10 years.

Council will undertake regular audits to ensure all Council sites and electricity accounts are covered by the LGPPA agreement, and that new electricity accounts are correctly setup within the LGPPA agreement. As energy efficiency projects are delivered there may also be capacity to invite our tenants to join us in the LGPPA to share benefit and bring them along on our carbon neutral journey.

ACTION

Council to purchase electricity from 100% renewable sources from July 2021.



2

Street Lighting Changeover to LED

Major Roads

Public lighting generates **17.6%** of all the GHG emissions in Council. Sourcing 100% renewable electricity through the LGPPA will offset these emissions, it is still important to avoid these emissions and overall energy costs through improvement of technology such as changeover to LED.

Major road street lights are a shared responsibility and are co-funded with the Department of Transport (DoT – formerly VicRoads). The VicRoads Sustainability and Climate Change Strategy 2015-2020 initiative 3.2 Reduce Energy Consumption states that "VicRoads will also seek to partner with local Councils to replace all cost shared lighting to further reduce energy consumption." The initiation and duration of this project is dependent on suitable cost sharing agreement with DoT.

A panel of suitable lighting suppliers has been set up by the Municipal Association of Victoria on behalf of Victorian Councils. This project will also require a significant investment, so Councils are partnering to negotiate options with DoT and United Energy, with the support of MAV, Greenhouse Alliances and Ironbark Sustainability.

The next step for Council is to upgrade major category street lighting (2500 lights) on main roads to low energy LED technology, which will lead to significant reductions in energy use and carbon emissions for Council. Other benefits include improving community safety and have a long life cycle. Old lighting and fittings will be disposed of responsibly.

ACTION

Council will replace main road street lighting with LED lights.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

2 Street Lighting Changeover to LED (cont'd)

Smart Lighting

Smart lighting will be trialled in Oakleigh utilising the occupancy and temperature sensing features for data collection. Smart lighting technology enables Council to adjust lighting to account for changing lighting levels and traffic flows, and monitor performance which can reduce maintenance requirements, and provide both environmental and financial benefits for Council, though is unquantifiable at this point. Council will be able to quantify these savings as the technology matures, and by capturing data.

The LED Major Road Lighting Replacement initiative may also support the implementation of smart lighting as new and/or upgraded lights will be connected to Council's Smart Lighting network.

ACTION

Consider smart lighting opportunities as part of the major road lighting upgrade to LED.

LED Residential Street Lighting Replacement

In 2014-15, Council changed over all residential street lights (up to 8000 lights) to T5 energy efficient lighting. The changeover reduced GHG emissions by 37% and electricity costs by 39% for Council. LEDs were not suitable at the time of installation for residential lights.

Currently, there are plans to install LED lights in newly developed areas and United Energy has an agreement with Council to replace existing residential lights with LED at each light's end of life.

However, upgrading residential street lighting with low energy LED technology will be considered to help accelerate Council towards carbon neutrality. This will result in a significant and direct reduction in greenhouse gas emissions and lower electrical usage and demand as lighting is the greatest contributor of electrical usage and carbon emissions for Council.

ACTION

Negotiate with United Energy to change residential street lights to LED in the next five years.

3 Improving energy efficiency of our largest major buildings

Energy Performance Contract

Our seven largest corporate buildings utilise over 50% of the total electricity, and a significant quantity of gas and water. This includes the following sites: Monash Aquatic and Recreation Centre, Clayton Community Centre, Oakleigh Recreation Centre, Civic Centre Building, Monash Operations Centre, Glen Waverley Library and Monash Gallery of Art.

A detailed facility study was completed in 2018-2019 for each site to identify Energy Conservation Measures (ECMs) to improve their energy efficiency, amenity and performance. An investment of $6.5 million can avoid 2583 tCO_2e of GHG emissions and provide a return on investment of 11.6% per annum. This initiative is scheduled to run for 2-3 years, but the sooner the ECMs are implemented the sooner Council can benefit from the savings.

Upgrading our heating and cooling systems (HVAC) and improving building controls (Building Management Systems or BMS), were identified as key Energy Conservation Measures (ECMs) in the detailed facility study. Many of these have also already been identified in Council renewal and upgrade programs, due to aging equipment.

Rather than the traditional replacement of "like for like" under our renewal program, the preferred approach to implementing the ECM opportunities is through an Energy Performance Contract (EPC).

An EPC guarantees GHG emission reduction, cost and energy savings, which are verified and quantified by Certified Measurement & Verification Professionals (CMVP). EPCs can also support improved energy efficiency by upgrading aging facilities, installation of solar panels, gas usage reduction and improvement of buildings amenity for the benefit of our tenants and community.

Renewal or upgrade projects require significant investment and it is important to do it right. An EPC provides a good business approach to implementing energy efficiency, insulation, access to natural lighting, roof top solar and LED installations, by reducing GHG emissions locally and reducing overall running costs. Even when sourcing 100% renewable electricity.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

3 Improving energy efficiency of our largest major buildings (cont'd)

Reducing gas use by electrifying gas appliances

Natural gas was, until very recently, an inexpensive and efficient source of energy, with lower GHG emissions than electricity sourced from black coal. Gas usage is the second highest source of GHG emissions for Council after electricity. With the implementation of the LG PPA providing Council with 100% renewable electricity, there is an excellent opportunity for Council to convert gas heating systems and appliances to electric equipment. Removing or even upgrading gas intensive equipment at Council's facilities would drastically reduce its scope 1 and 3 gas emissions. ECMs will be selected so they assist us to reduce gas use through the electrification of appliances and equipment. This may also include installing industrial electric heat pumps to replace gas boilers for water and space heating.

Facility Water Efficiency

Emissions generated by water retailers are presently being offset by Melbourne Water. Lowering electricity and gas consumption used in water heating and pumping will also reduce water usage and indirectly reduce GHG emission from water use.

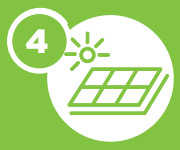
Council has also completed a Water Feasibility Study to obtain a picture of how to optimise their water usage. Council may achieve additional GHG (and water) reductions by moving to more efficient mixer type model showers and taps and less water intensive equipment where applicable.

Phasing out refrigerants

Australia has a commitment to phase out hydrofluorocarbons (HCFCs) as part of its commitment under the Montreal Protocol on Substances that Deplete the Ozone Layer. Under the Montreal Protocol, no new systems will be able to use R22 by 2020, and by 2030 existing systems will only be able to use R22 which has been reclaimed. Council is currently in the process of replacing R22 systems with R32 systems to meet its requirements under the Montreal Protocol, and to reducing fugitive emissions. R32 has a much lower global warming potential than R22, however it requires Council to upgrade to new equipment. Council has the option to replace R22 refrigerants in current equipment or upgrade to new equipment to tackle this issue. This could also be achieved under the EPC as HVAC equipment is upgraded.

ACTION

Set up an Energy Performance Contracts with priority energy conservation measures to reduce electricity, gas and water use and provide guaranteed savings to improve operation of Council's major buildings.



Energy efficiency and roof top solar for key community facilities

Solar for community buildings

Monash has around 300 community buildings and sites. Utility costs may be paid by Council (181), shared with the tenant, or paid fully by the tenant, as per their lease or licence agreement for use of building. Regardless of responsibility of the utility bill, Council's corporate baseline emissions still includes all Council buildings.

Small scale solar installed in community buildings may not provide direct cost saving to Council but will reduce dependence on grid source electricity and it may benefit the tenant and the community by reducing their overheads.

With the support of EAGA, Council undertook a project called Scaling Up Solar. This project included a review of nine representative buildings, to understand suitability for solar installation, and investigating different funding options to support installation from direct investment, to power purchase agreements and behind the meter solar.

All selected sites chosen also need to be assessed to ensure there is suitable roof space, roof condition is suitable and determine if battery storage is feasible. Accessing billing data for those sites where the utilities are not paid by Council will need to be sources to understand energy requirements and prioritise suitable sites.

ACTION

Install solar on buildings which provide the best GHG emission reduction and return on investment.

Energy Efficiency Initiatives

In addition to installing solar, it also makes sense to achieve significant carbon reduction through ongoing energy efficiency projects for smaller facilities.

Reviewing billing data, and maybe energy audits need to be conducted for smaller sites to understand the energy profiles of these facilities, and identify cost and energy saving opportunities upon which a business case can be made. Energy audits should be conducted to the Standard AS/NZS 3958:2014.

Energy efficiency activities may include installation of LED lighting and sensors, insulation, draft proofing, and update of appliances. Some actions can be inexpensive to implement and can provide a quick return on investment. It is also important to provide education, guidelines and training to facility managers and tenants on how to maximise their savings through energy conservation and energy efficiency.

ACTION

Identify opportunities to reduce utility costs in community buildings through energy audits and implement efficiency activities such as LED lighting change over, insulation, and education.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

5 Fleet optimisation to reduce fuel use and transition to electric

Fleet optimisation

The corporate fleet owns and maintains 156 light vehicle class cars, renewed every seven years and equating to approximately 23 new vehicles per year. There are currently four electric (EV) and nine hybrid vehicles in the fleet, with the balance being internal combustion engine (ICE) vehicles. Council intends to gradually replace all light fleet ICE vehicles initially with hybrids followed by Electric Vehicles (EVs), to achieve complete electrification by 2035, and the installation of additional EV charging stations as the number of EVs increases within Council's fleet.

The Green Vehicle Guide (Australian Government) state that compared with ICE vehicles, hybrid vehicles can produce 50% less fuel emissions, and EVs produce 35% less fuel emissions. EVs lifecycle emissions are still 20% better than ICE vehicles when sourcing non-renewable fuel. However, the overall emissions could be reduced to zero for EVs once the LGPPA is in place and when charged at Council facilities with 100% renewable energy.

Council's transition to hybrids and EVs is part of an internal policy to completely electrify the light fleet by 2035. At present, the high capital costs of purchasing EVs over standard ICE vehicles as well cost to installing charging stations, leads to an infeasible business case for Council to completely electrify their light fleet by 2025, as this will require several million dollars of annual investments. However, Council has a plan to upgrade their fleet to hybrid vehicles first (plus 1-2 electric vehicles per year) which will significantly reduce Council's fleet emissions with much lower added costs. As prices for EVs become more competitive, the number purchased per year can increase. To encourage uptake of EVs in the Council fleet, charging stations may be located offsite on eligible staff personal property.

Fleet optimisation to reduce fuel use and transition to electric (cont'd)

Council's fleet also includes various commercial heavy vehicles (such as vehicles over 4.5 tonnes and specialised equipment). Heavy diesel vehicles generally have better fuel economy and efficiency compared with petrol vehicles, and hybrid or electric equivalents are still in relatively early stages of development. Modern diesel vehicles are equipped with diesel particulate filters (DPF) in their exhaust systems to remove particulate matters to further treat exhaust gases and remove harmful pollutants, such as NOx (oxides of nitrogen). Council regularly maintains all vehicles to manufacturer's specifications and DPFs are regularly refreshed. All diesel vehicles purchased are selected to conform to the latest European emission standards (Euro 6 as of January 2020), and Council is actively seeking to replace the diesel fleet as hybrid/electric options become available to the market.

Lastly, where electric options are not available for heavy fleet, research will be undertaken to consider alternative fuels such as hydrogen sourced from renewable sources or biodiesel options.

ACTION

Upgrade light fleet initially with hybrids and gradually introduce EVs in current replacement cycle (until 2026). Install at least one charging point per EV subject to available load on site, or consider locating offsite. Accelerate electrification as EV prices decrease post-2026.

ACTION

Purchase heavy diesel vehicles with the latest Euro standard, and upgrade to hybrid/electric or more sustainable alternative fuels such as hydrogen and biodiesel, as options become available.

Efficient driving behaviour and technology

Council's fleet use could be further optimised through driver training, fleet-wide GPS tracking, and an improved fleet booking system. Driver education can assist staff to understand how they might drive to reduce fuel use. Council has already implemented GPS tracking to monitor its waste fleet, and this could be further expanded fleet-wide to optimise fleet operations. Updating the fleet booking system with detailed utilisation data can help to increase staff car-pooling and reduce number of vehicles required. These programs and platforms are projected to be introduced through a five-year period, beginning in 2020.

ACTION

To improve fuel economy, introduce driver training, install GPS tracking for route optimisation, and implement fleet booking system with utilisation data to increase staff carpooling.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

5 Fleet optimisation to reduce fuel use and transition to electric (cont'd)

Improving commuter and business travel emissions

Staff travel to and from the workplace is the fifth highest source of GHG emissions in Council. A staff travel survey conducted in late 2019 (n=300) showed that 92% of staff drive to work. However there is also a strong interest from staff in options to improve more sustainable travel such as flexible working, MYKI club (discounted/salary sacrifice public transport), e-bikes, end of bike trip facilities, and carpooling opportunities.

Some of the sustainable travel options may not be suitable at this time, but others such as walking or bike riding could be promoted as both a sustainability and wellbeing activity. Staff could be incentivised to walk or cycle to work by hosting raffles and awarding prizes to staff who consistently choose alternative commuting options.

Working from home can reduce staff commuting. Due to COVID in 2020, many staff have been able to pivot to working from home without loss of productivity. However this is not suitable for all roles, and does require technology support. In comparison, there were not significant GHG emissions generated through business travel (taxis and domestic/international flights) taken by Council workers for business purposes.

ACTION

Develop a staff green travel plan to encourage sustainable transport and commuting options.

Solar car park

Solar car parks are gaining momentum as Councils and businesses, like the Nillumbik Shire Council and Yarra Valley Water, introduce them to shade cars and also power electric car charging stations for corporate and community use with 100% renewable electricity. Other benefits include offsetting additional power load requirements of charging stations linked to the grid. The carparks may be installed in a Council car park or adjacent to one of Council's major buildings.

ACTION

Investigate opportunities to establish solar car parks to charge electric vehicles.

6 Sustainable Procurement

Council has been tracking its environmental spend for more than 10 years and is currently spending about 4-7% on sustainable products but there is definitely room for improvement and stronger environmental spend will assist in reducing our overall environmental impact. The sustainability of the procurement supply chain also need to be considered.

Asphalt and concrete have been identified as the third highest source of GHG emissions after electricity and gas. Paper use is also identified as a key source of GHG emissions for Council. Planning and research can ensure that a sustainable procurement decision is implemented and GHG emissions sources are minimised. This is also true for the procurement of electricity as per action 1. Reducing waste through planning also supports procurement processes which are more sustainable.

Recycled content products generally have a lower GHG emissions over virgin materials, but choice of product will determine the level of reduction. Where a suitable recycled content product is not available, preference should be given to certified Carbon Neutral products.

ACTION

Strengthen sustainable procurement and tender processes to preference the use of sustainable products, technologies and services, and minimising GHG emissions, including the impact of the supply chain.

ACTION

Review of internal project development and procurement stages, and implement guidelines to increase the opportunity to use recycled content, carbon neutral and sustainable materials.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

6 Sustainable Procurement (cont'd)

Reducing paper use and carbon neutral paper

In mid-2019, 50 new multifunction printers were installed, providing a secure follow-me print system which reduced paper waste by requiring staff to log in to retrieve documents, thus avoiding mistake or forgotten printouts. In six months, Council avoided printing 9,000 sheets of paper – saving trees, energy and over $1,200. Print default is double sided, black and white.

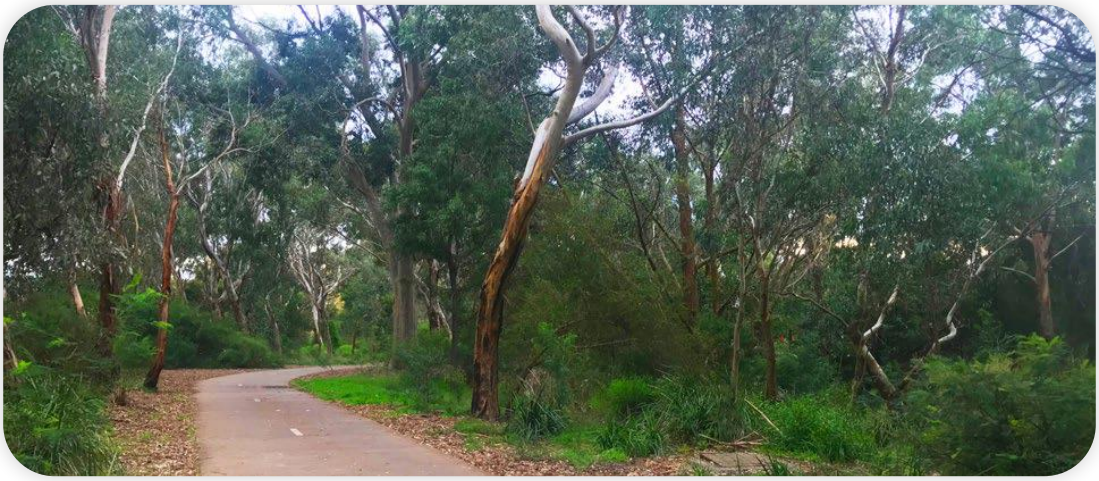
Monash is moving staff from desktops and paper forms, to laptops and tablets, online forms and one drive/cloud-based server which help to avoid the use of paper. Our planners now complete digital planning approvals, which further reduces the need to print documents.

All office paper (A4 and A3) purchased within Council is now 100% recycled content and carbon neutral. Council's Digital Strategy and Asset Management Strategy (Confirm) support the move towards a paperless office. Purchasing paper from ethical sources should also be considered, where the paper or supplier is FSC certified or does not source paper from native forests.

The next step is to consider that all externally printed documents are using carbon neutral paper, and/or on 100% recycled content paper. This requirement should be included in any new contracts for printing contractors where possible, or seek to offset resulting GHG emissions. Staff awareness education may be required to support this.

ACTION

Source recycled content and carbon neutral paper, preferably from ethical sources, and move away from physical documents to reduce paper use. Extend approach to external printing.



6 Sustainable Procurement (cont'd)

Recycled Content in Asphalt and Concrete

Council currently spends up to $5million on road infrastructure. The production of asphalt and concrete create significant emissions but there are alternative products available with a lower emissions profile, often also have recycled content, and perform as good or better than virgin products. The challenge is that products can perform differently, and may even outperform virgin source products. However current specification for roads, are designed for virgin material and it is difficult to meet the requirements for recycled content products. The industry is also not appropriately skilled to use these alternative materials. In October 2019, Monash completed a successful trial using asphalt containing significant recycled content.

Council is considering the use of geopolymer concrete for use in roads and footpaths. Geopolymer concrete includes fly ash, a by-product of coal fired energy production, which replaces lime and reduces the GHG emissions intensity of the concrete mix.

Recycled materials which can be included in road base can include rubber, slag, plastic film, toner, and glass sand. In addition to reducing GHG emissions, use of recycled content materials also reduced this waste going to landfill and helps to create a circular economy. Training is key to supporting the use of these lower GHG emission products, both internally and for our contractors.

ACTION

Increase the use of recycled content and lower GHG emission asphalt and concrete by 2022, updating local government design standards/specifications, and undertake training.

Energy Equipment Procurement Policy

Monash's current procurement policy has guidelines for Council to consider sustainability in its processes, but could be further developed by setting specific energy efficiency/GHG emission objectives and standards that can be applied to a range of standard equipment and material purchases.

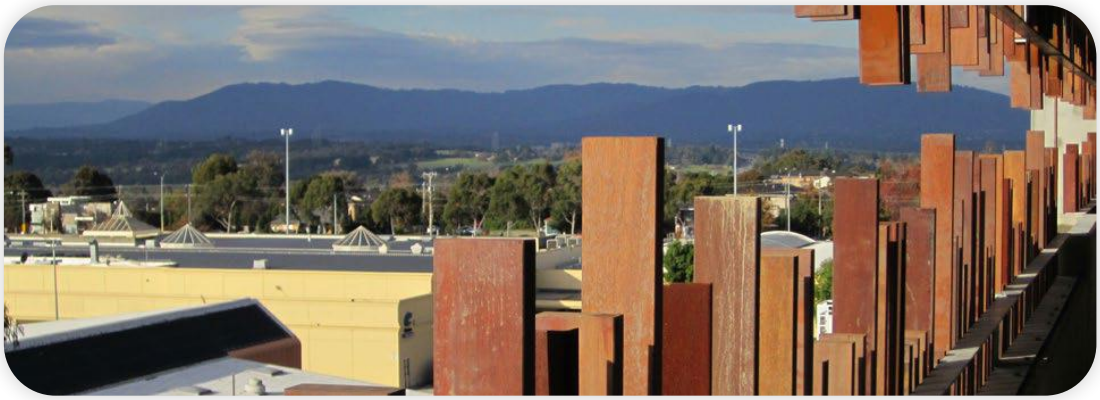
An updated energy equipment policy should address both consumer level appliances as well as other commercial and industrial equipment utilised by Council.

ACTION

Specify energy efficiency and GHG emission reduction standards to establish transparency on the purchase of energy equipment, particularly in major projects.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

7 Environmental Sustainable Design (ESD) for Council buildings and infrastructure



Monash Council has been working with Council members of Eastern Alliance for Greenhouse Action (EAGA) to facilitate the development of improved ESD policy template and guidelines, and to integrate environmental sustainable design standards into Council buildings and infrastructure. These standards can be linked to existing energy rating tools, such as Built Environment Sustainability Score Card (BESS) and NABERS assessments, which provides comprehensive guides on creating sustainable buildings. It will ensure all new builds are constructed with consideration given to all aspects of sustainability.

Incorporating ESD into building standards policy will allow for optimum GHG emissions reductions measures to be considered and costed at the earliest planning stages rather than being added in later. A well designed building will also result in reduced running costs which will be a benefit for our community tenants in the long term. The Policy will assist in further reducing our GHG emission generation in future buildings and infrastructure. Consideration of WSUD features and best practice management of existing and new vegetation will be included to enhance sustainability of building or infrastructure.

This policy will also support our selection of materials and construction choices for infrastructure projects including roads and paving, supporting the use of recycled content, to reduce their impact during its lifecycle. To finalise the policy, it will be trialled in real time through a number of new projects and be used to prepare tender specifications. Staff training or guidelines in sustainable building and the use of sustainable material will form part of the implementation of the ESD policy.

ACTION

Finalise and Implement the Environmental Sustainable Design Policy for Buildings and Infrastructure.

ACTION

Establish monitoring program to track the application of the policy to achieve minimum ESD requirements, reduce GHG emissions and lower building running costs. This may include the use of building benchmark tools such as NABERS or BESS.

Achieving Carbon Neutrality through Offsets

To achieve carbon neutrality, Council will need to source carbon offsets where emissions cannot be avoided. It is Council's preference to source carbon offsets or credits from local businesses or those that provide a high social-economic benefit, where possible.

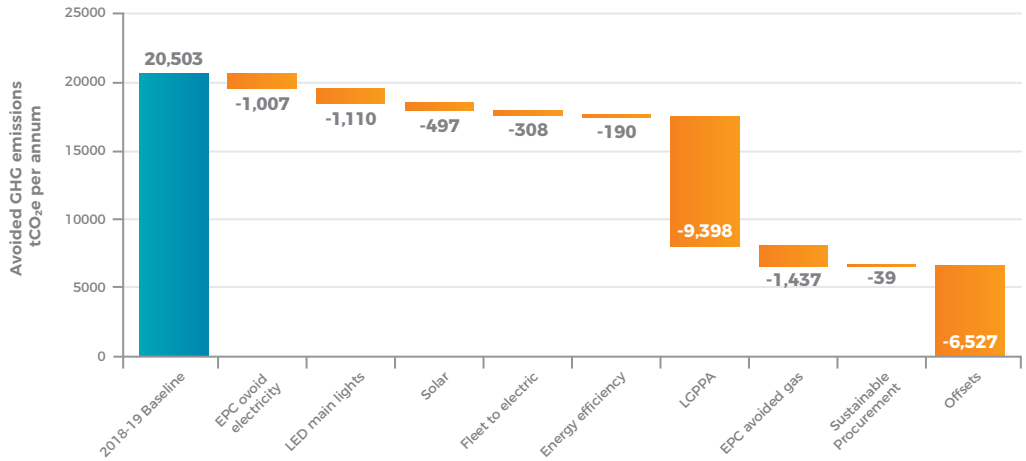
The National Carbon Offset Standard (NCOS) provides a standard for Australian organisations who want to voluntarily become carbon neutral and also allow them to certify their carbon neutral claim under the NCOS Carbon Neutral Program. The certification comes with an official logo, and can add credibility of the claim through independent verification of Council's carbon management work.

City of Melbourne, City of Sydney, City of Yarra and Moreland City Council are the only four Australian Councils who have become certified under the standard. Council will need to consider the opportunities, resources and costs of becoming certified in the lead up to 2025.

Scope 1 and 2 GHG emissions may be able to be reduced significantly through the emissions reduction initiatives set out in this action plan (by over 70%). Scope 3 GHG emissions are not directly within Council's control, and are more difficult to avoid. So there may still be residual GHG emissions that may need to be offset through carbon credits to achieve Zero Net Carbon by 2025. Therefore, carbon offsets may be required to supplement the implementation of carbon reduction initiatives and reach Zero Net Carbon by 2025.

Carbon offsets are generated from activities that prevent, reduce or remove current GHG emissions from the atmosphere, and are used to compensate for emissions occurring elsewhere. These may include tree planting which reduce or remove greenhouse gases being released into the atmosphere and would not have occurred without the offset program.

Getting to Carbon Neutral by 2025



Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

Achieving Carbon Neutrality through Offsets (cont'd)

CarbonetiX modelling estimated that Council would need to purchase $87,300-$103,500 in offsets per annum from a certified financial provider after 2025 (at approximately $14 per tCO2e). Carbon offsets costs will be highest in the target year and gradually decrease as more efficiencies opportunities are realised from the other actions.

Carbon offsets can be purchased from either local or international organisations – costs can vary from $6.50 per tonne of GHG emissions offset (International source) to $22 per tonne from an Australian company (as per January 2020). The best approach may be to use a combination of local and international offsets to save costs, with combined offsets costing approximately $14 per tonne.

ACTION

In consideration of the wider community expectations, Monash City Council's preference is to source offsets from local sources where possible. This may include:

- **Sourcing offsets locally from Monash businesses**

or where it can provide a high social-economic benefit for our local community

- **Maximising solar on Council and community buildings**
- **Utilising public or private roof space or land for solar through a share cost arrangement**
- **Investigate how to create offsets through tree planting and the creation of an Urban Forest.**

The balance of carbon offsets required will be sourced from Australian and International accredited suppliers to achieve our Zero Net Carbon commitment.

ACTION

Publicly disclose how we have achieved and are maintaining our carbon neutral commitment from 2025.

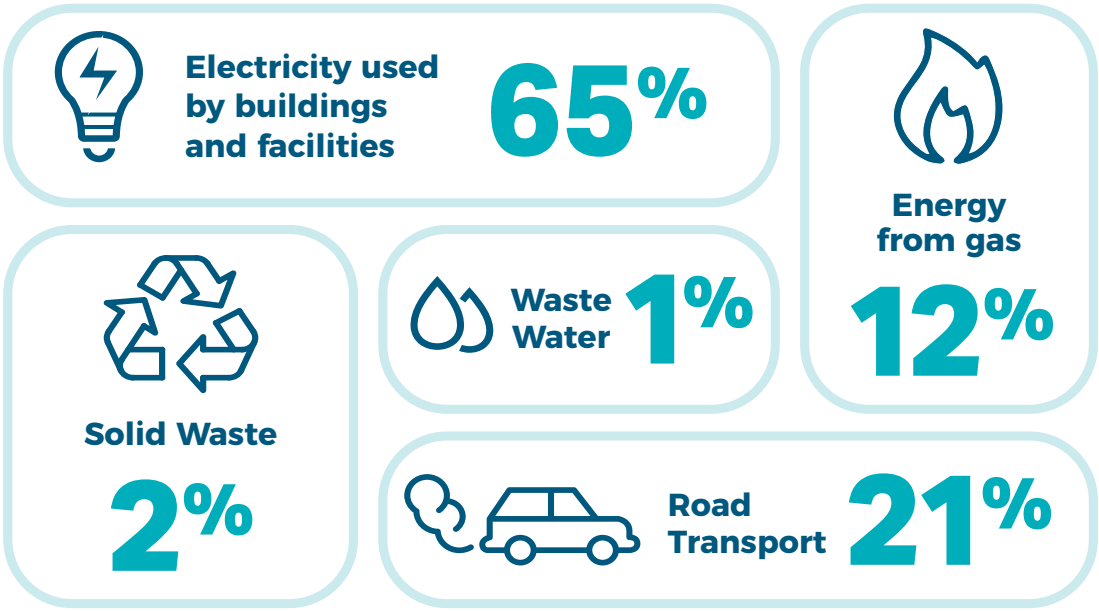
Photos by Antonia Donna Woolrich,
Scotchmans Creek Trail, Oakleigh

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

A Leading in the Reduction of Municipal-wide GHG Emissions

While the focus of this plan is to reach corporate net zero GHG emissions by 2025, Council also has a responsibility to deliver programs for community and business to reduce energy, costs and GHG emissions for the whole municipality.

In 2018/19, the Community GHG emissions generated in Monash (by residents and businesses) were determined by Iron Bark Sustainability to be 2,903,000 tCO2-e, and include:



Monash is ranked sixth highest in Greater Melbourne for Community GHG Emissions, due to being the highest employer outside of the CBD and a significant location for industry and corporate head offices. Council corporate emissions contribute less than 1% of the total, and highlights the need to also facilitate GHG emissions reduction activities in the municipality, through our services and programs such as environmental upgrade agreements and solar savers.

The Community or Municipal carbon budget has been set at 57,380ktCO2e, which require a 38% reduction in Municipal GHG emissions by 2030, and aligns with the State and Federal targets. Actions proposed will seek to reduce emissions by 2% per year to meet the 38% reduction by 2030.

Expanding on our current programs like Solar Savers, workshops and learning from other leading Councils and State Government directives, will help us to partner with our community to reduce GHG emissions for the whole of Monash.

ACTION

Review and expand on current programs to increase opportunities to further reduce Municipal GHG emissions, energy and costs, through advocacy and delivery.

Leading in the Reduction of Municipal-wide GHG Emissions (cont'd)

The establishment of a **Zero Net Emissions Foundation** (based on the Yarra Energy Foundation – Yarra Project Zero model) could be one way to accelerate meaningful emissions reduction action and change across the municipality. Support may include climate change think tank and green business networks, energy consultation and energy assessments, advice to community members, awareness of state and federal government programs, encouraging Zero Net Emission Pledges, and facilitating bulk buy energy efficiency products.

Information and services would need to be able to support economically disadvantaged groups and be accessible to all demographics.

ACTION

Investigate establishment of a Zero Net Emission Foundation to facilitate community action.

In partnership with Sustainable Australia Fund and Better Building Finance, **Environmental Upgrade Finance (or agreement/EUA)** is available to building owners to install solar and other energy and water efficiency measures. Uptake has been good, but could be further activated through promotional activities to encourage more businesses and building owners to access. With the update of the Local Government Act 2020, the EUA process has been simplified and Councils are now able to EUAs to residential home owners through their rates.

ACTION

Promote energy audits and environment upgrades for businesses and homes.

Transport is a major source of community GHG emissions. The provision of c**harging stations for electric vehicles** are being considered to encourage uptake and can provide emergency charging for residents and visitors in key areas across the municipality. These can either be sourced using 100% renewable energy via Council contract or solar charged, to provide zero emissions fuel sources. The Victorian Alliances are currently leading the Charging the Regions project to identify the most suitable options for public electric vehicle charging stations. This could be supported by update green travel maps to make it easier to choose more sustainable transport options.

ACTION

Investigate establishment of 100% renewable public electric vehicle charging stations.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

A Leading in the Reduction of Municipal-wide GHG Emissions (cont'd)

Monash University has committed to be carbon neutral by 2030 and has already undertaken a range of measures including the establishment of an on-site Microgrid. Monash University is one of the biggest energy users within the Monash municipality and are looking to reduce their emissions through energy efficiency upgrades, electrification of all gas equipment, and through the installation of solar PV. They are also running several research programs aimed at addressing future challenges – growth, transport, current building stock, social environmental and economic risks.

As a significant energy user, a partnership with Monash University may assist to fast track municipal-wide GHG emission reduction initiatives. Monash University has established several innovative research programs, including ClimateWorks Australia, the Monash Energy Institute, and the Monash Sustainable Development Institute, to conduct research and develop solutions to a wide range of energy and sustainability problems. Partnering with such an innovative organisation could provide Monash City Council with access to state-of-the-art technologies and resources to aid in Council's emissions reduction programs. Monash Council has nominated to be an advisory member to the proposed Australian Research Corporation (ARC) Linkage Project for **Net Zero Precinct Transitions,** in partnership with Monash University.

ACTION

Partnering on Zero Net Precincts and research collaborations with Monash University.

Reducing costs is a priority for businesses, and improved energy efficiency is a key way to achieve cost savings and reduce GHG emissions. EAGA Councils current developing a business resilience program assist local businesses to improve energy efficiency and source renewable energy, while reducing their operating costs. Activities in the business resilience program may include solar bulk buys, LED lighting retrofits, providing guidance and templates, access Environmental Upgrade Finance and brokering Power Purchase Agreements.

Monash University created its Microgrid to reduce dependence on the electricity grid and better control on how energy is used on site. In a similar way, Monash building owners use their roof space to install solar equipment to supply energy for their own use, and sell their excess energy generation to the grid or other businesses. This may be desirable in locations where the energy network is constrained, such as Clayton, Mount Waverley and Mulgrave. Microgrid or solar sharing program would also allow businesses to support one another to reduce their GHG emissions. Installation could be supported through the environmental upgrade finance.

ACTION

Establish business resilience programs to promote energy efficiency, and GHG emissions reduction actions.

Leading in the Reduction of Municipal-wide GHG Emissions (cont'd)

Our priority is to reduce GHG emissions and minimise the impacts of climate change through mitigation actions described in this action plan such as energy efficiency, solar and offsets. However Council may still need to consider how we may need to adapt our buildings and infrastructure in Monash to adapt to changes in climate. Monash Council is currently involved in the development of the How Well Are We Adapting tool to collate climate and resilience data. This will inform an education program and develop approaches on how we can adapt to minimise impact of a changing climate. Council will seek to align adaptation approaches with our zero net emission approach, including the development of an urban forest which can help reduce heat island effects.

ACTION

Develop a climate adaptation strategy to minimise the impacts of a changing climate.

Since 2016, there has been an Environmental Sustainable Development policy in place as part of the Monash Planning Scheme. It applies to all developments of 3 or more units. Through our membership with the Council Alliance for Sustainable Built Environment (CASBE), Council has access to the Built Environment Sustainability Scorecard to help our planners assess planning applications. More education may be required to support planners and developers in meeting the policy requirements, particularly to reduce energy use and GHG emissions. CASBE and the City of Moreland are looking to further enhance the policy to further address GHG emission reduction.

ACTION

Update the Environmental Sustainable Development policy (Monash Planning Scheme), to address GHG emission reductions.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

Reducing waste generation and diverting waste from landfill (zero waste)

As part of the commitment to be Carbon Neutral by 2025, Council is also committed to reinforcing best practice recycling and waste management. Waste to landfill is an increasingly important aspect of an organisation's scope 3 emissions, and a significant amount of fossil fuel is currently used to transport and manage waste. Currently only GHG emissions from corporate waste are included in Council's inventory.

ACTION

Council will require contractors to separate corporate waste data from community waste, including waste generated by leased sites such as childcare centres and scout halls.

One of Council's key roles is to provide waste collection services for the community. Fortunately our new collection contract stipulates that they will offset their transport GHG emissions by 200%, meaning there will be no fuel consumption emission concerns for waste contractors from the commencement of the new contract for the next eight years. However there are still emissions relating to material that ends up in landfill, so Council needs to take action to minimise on behalf of the municipality.

Over 30% of all recycling collected from Victorian households is exported. In 2018, China imposed strict contamination thresholds on its import of recycled materials, which caused widespread disruptions to global recycling markets as there are limited end markets and a lack recycling processors here in Victoria. So for Monash, the net cost is $1.5 million per annum as now Council must pay for the materials to be recycled and no longer receive a rebate for the recyclables.

In February 2020, the State Government released the Recycling Victoria Policy which aims to:

- establish a new Waste Authority in 2021 to oversee the Waste and Recycling Act
- declare waste management as an essential service
- increase the landfill levy (from $60 to $125.30 per tonne per year by 2022/23)
- introduce a container deposit scheme (CDS) 2022/23
- support appropriate waste to energy industry
- require mandatory recycling separation by commercial sites, and
- introduce a 4th bin for glass (by 2027) and a food waste recycling service.

Recycling Victoria has four main goals:

- **Design to last, repair and recycle –** Reduce business waste through innovation, design and circular approach to materials use, increasing recycled content and life cycle impacts
- **Use products to create more value –** Help people make smart purchasing decisions and extend the life of products and support the reuse and repair economy
- **Recycle more resources –** improve separation of kerbside recyclable materials and markets for recovered materials; boost investment in recycling infrastructure; embed the waste hierarchy in material management; development of appropriate waste to energy facilities
- **Protect communities and the environment** from high-risk and hazardous wastes.

Reducing waste generation and diverting waste from landfill (zero waste) (cont'd)

The Monash **Waste Management Strategy 2017-2027** provides a good framework to help deliver on these waste objectives and support our Zero net carbon goal, including:

- Food waste recycling from July 2020, will divert up to 40% waste to composting
- Increase waste diversion from landfill to 60% and 75% by 2022 and 2027 respectively
- Reduce waste generated by Council operations
- Investigate environmental responsible alternate waste treatment such as waste to energy
- Advocating for a container deposit scheme (CDS) to reduce litter and improve collections.

Declaring waste service as an essential service is a positive initiative for our community. Delivery of waste management services provides an important service to provide the amenity and hygiene services to the community, and one we have been able to maintain through the current pandemic. Continued collection and processing of recyclables helps to meet Council commitment to reducing waste to landfill and avoiding GHG emissions.

Monash Council in partnership with 15 other SE Councils and the Metro Waste and Resource Recovery Group (MWRRG) is part of a collective procurement to introduce Advanced Waste Processing. It is planned that this will be in place by 2025, and will support Council's 75% diversion of waste from landfill target by 2027.

Waste contributes 2% toward the total Municipality GHG emissions due to the large manufacturing sector in Monash. Actions to divert waste from landfill and improve recycling and reuse, will also reduce greenhouse gas emissions for Council and the community.

Monash is one of Victoria's leading metropolitan Councils, particularly regarding successful waste management and recycling initiatives such as Paintback, Mobile Muster and Planet Ark toner cartridge recycling and our transfer station is one of the most popular in metropolitan Melbourne. Council is keen to advocate for a circular economy which aims to reduce waste to landfill through resource efficiency, re-using and recycling resources as much as possible. The implementation of food waste in the green bin service has the potential to reduce residential waste to landfill by 50%, and significantly reduce resulting GHG emissions for the municipality.

ACTION

Deliver on the targets of Monash's Waste Management Strategy and implement measures to improve waste monitoring and reporting, and moving to zero waste in landfill.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

Reducing waste generation and diverting waste from landfill (zero waste) (cont'd)

Monash could consider funding innovative recycling projects which are community led, to encourage new technologies and processes to reduce waste generation and reuse recycled products. This may involve providing grants or support for schools, resident groups (including multi-unit developments), community groups, small businesses and not-for profit organisations. There are also opportunities to promote the purchase of recycled content and low GHG emission products.

ACTION

Provide incentives such as grants, workshops and guidance to help the community and businesses to minimise waste, reuse materials and practice sustainable procurement.

A Circular Economy Shop or a 'Tip Shop' could be set up near the transfer station to rescue suitable items such as furniture and bikes for resale rather than ending up in landfill. This Shop could also sell recycled content and low GHG emission products and information and even provide a space to facilitate repair of goods, subject to funding and suitable partnerships. Partnerships may include charities or community groups to manage the shop and assess and clean up rescued items for sale on site or in Op Shops. This would need to have a clear operating procedures to minimise risk to Council and community.

ACTION

Develop business case for a Circular Economy shop to divert suitable items from landfill, sell recycled content and low emission products, and facilitate repair of goods.

B Reducing waste generation and diverting waste from landfill (zero waste) (cont'd)

Monash is a joint venture partner in the Clayton Landfill which has recently been closed. Consideration has been given to utilise this site as a solar farm but more investigation is required.

ACTION

Investigate the opportunity to create a local solar farm at the Clayton Landfill or similar suitable site.

Zero Net Carbon Action Plan – Getting to Zero Net Emissions in Council

Urban Carbon Forest – creating a tree canopy to provide local storage of carbon, improve community amenity and support biodiversity

In 2018, Monash adopted the *Monash Urban Landscape and Canopy Vegetation Strategy,* which set a goal to increase percentage tree canopy cover from 19% to 30% by 2040. The *Monash Open Space Strategy, Biodiversity Strategy,* and *Street Tree Strategy,* as well as the Green Shoots program are also focused on increasing vegetation within Monash, in public and private land, to improve biodiversity and improve community amenity. Local vegetation canopy can also provide opportunities for increased local carbon storage or sequestration.

Creation of an urban forest (30% optimal canopy coverage) can mitigate the impacts of increased average temperatures and reduce the urban heat-island effect created by the built environment absorbing, trapping and, in some cases, directly emitting heat. These impacts can be mitigated by creating an urban forest of trees, vegetation and wetlands on public and private land, lining transport corridors, and even on roofs, facades and walls.

Greening the city by increasing the tree canopy can provide cooling benefits and increase the community's resilience to extreme heat events, reduce building energy requirements for air conditioning and can even extend the life of road infrastructure.

A key approach to increasing our vegetation across Monash is through the Green Shoots and Gardens for Wildlife programs, which educate residents on the importance of retaining trees and establishing habitat in their private gardens to support local biodiversity. Workshops, booklets, demonstrations on planting and maintenance, and the provision of free native seedlings, all support these program.

Urban Carbon Forest – creating a tree canopy to provide local storage of carbon, improve community amenity and support biodiversity (cont'd)

While it is technically possible to gain offset credits for revegetation, we are not aware of other local metropolitan Councils currently undertaking this the process and further investigation is needed to address eligibility requirements, and partnerships required to implement. To obtain offsets, Council would be required to surrender Australian Carbon Credit Units (ACCUs) under the Federal Government Emissions Reduction Fund (ERF). Where trees are planted to generate offsets, they would need to be protected and retained for a long time.

Even if urban forests cannot be used to generate carbon offsets, trees and vegetation still enhance the local environment with the benefits listed about and need to be protected. Stronger vegetation protection overlays may need to be incorporated in the *Monash Planning Scheme* to retain established trees on private and public land. Where trees need to be removed, they are mulched and reused in our reserves and gardens, avoiding emissions by being diverted for landfill, however uncertain if this can be counted as carbon offsets.

ACTION

Create an Urban Carbon Forest in Monash (30% coverage) through the following activities:

- **Increased canopy cover revegetation works on Council land to provide social and environmental benefit to the community, improving air quality and reducing summer air temperatures**
- **Strengthen planning scheme controls to increase planting, retention and protection of trees on private and public land**
- **Consider stronger penalties for tree removal, support for tree bonds and development contributions to fund vegetation maintenance and resource tree removal investigations**
- **Investigate the development of a Nature Trust to secure and expand land available for vegetation, including understory and biodiversity**
- **Encourage business, residents and schools to grow native plants on their own land**
- **Undertake investigation to understand if suitable carbon offsets can be created through our tree planting program in Monash**
- **Tree education to building awareness of their value to the community amenity and biodiversity**
- **Consider partnering with Universities to identify urban heat island reduction opportunities.**

Investment in Zero Net Carbon

Carbon modelling showed that a $9.7 million investment in key action over the next five years (less than $2 million per year) could enable Council to significantly reduce our GHG emissions and improve our key facilities and amenities by 2025, and provide a cost saving in **$6.4 million** during this time. So the net cost to Council to be carbon neutral at 2025 could be about **$3.3 million,** which includes the purchase of offsets. The modelling also showed that delivery of the key initiatives outlined in this plan would be cost neutral by 2028, and provide a total net saving of **$16.5 million by 2040.**

Investment in these key actions may be sourced from business as usual activities including electricity tendering and renewal or refurbishment of end of life infrastructure with more energy efficient solutions.

Where upfront investment may still be challenging, there are alternative funding opportunities available, such as low interest loans or energy service agreements to fast track the large scale energy efficiency and solar installations projects. The Energy Performance projects identified can collectively provide 11.6% per annum return on investment, making it very attractive. However, to achieve Zero Net Emissions by 2025, major energy efficiency projects need to commence as soon as possible to maximise the savings for Council.

The actions can be funded upfront, through a loan or through an Energy service approach (ESA). Under an energy service agreement approach, Council would pay management fee for the energy services provided rather than the paying for the equipment. Under the agreement, the savings are guaranteed and the Council is not responsible for the equipment maintenance during the agreement. If the savings are more than set in the contract, Council only pays for 25% of total additional saving. **ESA upgrades will remain off the balance sheet,** so the monthly payments can be funded from your operational budgets, right where the savings are being made, and ESA can be structured to be cash flow positive and provide savings to Council immediately.

ACTION

Source upfront funding through loans or service agreements early on to fast track projects.

This cost savings resulting from major energy efficiency activities and improvements in utility management could be put aside in a Revolving Sustainability Fund, to allow the savings to be invested in to implement smaller scale projects, such as solar on community buildings.

ACTION

Set up a revolving sustainability fund as a budget line item to reinvest savings from major energy efficiency projects.

Beyond the infrastructure projects, most of the other activities required dedicated staff time and 1.8 additional staff resources would be needed to facilitate emission reduction projects and deliver many aspects of the action plan:

- Technical expertise to project manage the infrastructure upgrades, and educate staff so they understand the impact of climate change and how they can help become carbon neutral
- Community engagement, behaviour change and education for residents and businesses to reduce of municipal emissions.

ACTION

Appoint 1.8 FTE staff to support the delivery of the Zero Net Action Plan and fast track Council's approach to being carbon neutral by 2025.

Reporting and Monitoring process

An annual report for Council will be prepared on the progress to achieving Zero Net Carbon by 2025, an inventory of our annual GHG emission generation, and provide transparency on how it will be maintained it beyond this target. The Environment Protection Authority's (EPA) carbon management principles can guide Council's carbon management and reduction program.

The annual report will document project implementation, financial investment, energy savings and GHG emission reduction, and may need to address social environmental and economic risks and impact of changes in growth, transport, and current building stock.

Other key approaches to support the completion of the annual report include:

- Use of building rating tools (NABERS and BESS) to measure ongoing performance of buildings, or set internal benchmarks to measure and verify a building's energy performance. The latter may be useful for buildings with less standardised energy consumption footprints
- Developing Building Energy Management Plan and training to facilitate adoption of Sustainable Building Policy and enable facility managers to undertake ongoing monitoring and optimisation of energy consumption at Council facilities (may be supported through Confirm)
- Utility management portal such as CarbonMetrix
- Installation of sub-metering to better understand utility use, particular for multi-tenanted sites
- Utilising Certified Measurement & Verification Professionals (CMVPs) under the Energy Performance Contract, to have confidence in assessing building energy performance
- Consider public disclosure of carbon neutrality after 2025.

Council will seek to report annually and communicate the results of the progress to achieving carbon neutrality for Council, as well as highlight the outcomes of the community based activities, waste reductions actions, and urban forest implementation.

Relevant Reports and Strategies

- Environmental Sustainability Strategy 2021-2026
- Monash Integrated Transport Strategy 2017
- Monash Urban Biodiversity Strategy 2018
- Monash Urban Landscape and Vegetation Canopy Strategy 2018
- Street Tree Strategy 2016
- Open Space Strategy 2018
- Waste Management Strategy 2017
- Digital Strategy 2019
- Healthy and Resilient Monash (the Integrated Health and Wellbeing Plan) 2017-2021
- CarbonetiX, Trajectory to Carbon Neutrality for Council's Corporate Emissions – Carbon modelling internal report, 2020
- CarbonetiX, Further Emission Reduction Strategies for Monash City Council – internal report, 2020
- Ironbark Sustainability, Emissions Profiles and Reduction Targets – Final report – internal report, 2018
- Living Melbourne Framework (the Resilient Melbourne Urban Forest Strategy) 2019
- Victorian Government Climate Change Act 2017
- National Carbon Offset Standard (NCOS) for Organisations and National Greenhouse and Energy Reporting Scheme (NGERS)
- Paris Agreement, December 2015, available at https://unfccc.int/sites/default/files/english_paris_agreement.pdf
- Recycling Victoria Policy Act 2020

Budget to Achieve Zero net Carbon by 2025

Upfront investment decisions are required but actions that will result in financial and environmental savings (August 2020).

No.	Summary of quantifiable investment to get to Zero Net carbon by 2025	Overall costs until 2025 (5.5 years)	Net Cost (less CEC and avoided cost)
1	100% Renewable Electricity for 90-100% of electricity (LGPPA)	$25,000	NIL
2	Changeover of major street lights to LED	$1,600,000	$1,600,000
3	Energy Performance Contract – including 700kW of Solar, energy efficiency lighting, HVAC upgrades and energy efficiency measures in our highest energy intensive facilities (also avoids 25,927 GJ gas)	$6,476,443	$4,279,386
4	a) Roof top solar for key community facilities	$520,000	$520,000
	b) Energy efficiency- audits, insulation, small scale lighting	$400,000	$400,000
5	Fleet optimisation to reduce fuel use and transition to electric	$1,200,000	$1,200,000
6	Sustainable Procurement – Transition to recycled content and carbon neutral purchasing including asphalt, concrete and paper (internal and external printing)	$160,000	$160,000
7	Environmental Sustainable Design for buildings and infrastructure including implementation	Staff time	
	Investment in Carbon Offset which provide a high social-economic benefit, sourced from local businesses or alternatives	$100,000	$100,000
	Subtotal Investment	$10,456,443	$8,259,386
	Net cost (less estimated savings of following actions – 2,4,5,6) up to	**$4,939,386**	
	Other costs – Staff time resourcing (1.8 FTE) to manage delivery of on ground projects and facilitate community and business education plus supporting materials		$900,000

2020-21	2021-22	2022-23	2023-24	2024-25	Avoided GHG emissions CO_2e per annum	Annual Cost savings (on completion)	Payback (years)
					12,193	–	<1
$400,000	$800,000	$400,000			1,100	$300,000	5.34
$855,877	$855,877	$855,877	$855,877	$855,877	1,007 avoided electricity 1,437 avoided gas	$496,686	8.61
$30,000	$40,000	$150,000	$150,000	$150,000	497	$87,000	5.98
$20,000	$60,000	$110,000	$110,000	$100,000	190	$86,000	4.65
$240,000	$240,000	$240,000	$240,000	$240,000	308	$120,000	10
$20,000	$40,000	$40,000	$40,000	$20,000	39	$40,000	4
				$100,000	6,527	NA	NA
$1,565,877	$2,035,877	$1,795,877	$1,395,877	$1,465,877	20,503	$1,129,686	7.31
$100,000	$200,000	$200,000	$200,000	$200,000			

CITY OF MONASH

Monash Civic Centre

293 Springvale Road,
Glen Waverley, 3150

Oakleigh Service Centre

3 Atherton Road
Oakleigh, 3166

9518 3555
National Relay Service
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1800 555 660

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Language Assist

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ADW-MC-229_8/2020

Zero Net Carbon Action Plan 2023/24

Progress Report

CITY OF MONASH

Contents

Acronyms

CAHC	Clayton Aquatic and Health Club (at Clayton Community Centre)
CASBE	Council Alliance for a Sustainable Built Environment
DEECA	Victorian Government Department of Energy, Environment and Climate Action
EAGA	Eastern Alliance for Greenhouse Action
ESD	Environmentally Sustainable Design
EV	Electric vehicle
GHG	Greenhouse gas
GSEM	Greater South East Melbourne
kW	Kilowatts
MARC	Monash Aquatic and Recreation Centre
MOC	Monash Operations Centre
MW	Megawatts
ORC	Oakleigh Recreation Centre
PHEV	Plug-in hybrid electric vehicle
Scope 1	Direct generation greenhouse gas emissions such as use of gas and fuel
Scope 2	Indirect generation greenhouse gas emissions such as purchase of electricity
Scope 3	Indirect generation of greenhouse gas emissions as a result of purchasing items or services, waste, and any resultant generation losses during scope 1 and 2.
SECCCA	South East Councils Climate Change Alliance
SRL	Suburban Rail Loop
tCO_2e	Tonnes of carbon dioxide equivalent (unit of measurement for greenhouse gas emissions)
VECO	Victorian Energy Collaboration

CITY OF MONASH

Summary

This report captures the third (2023/24) year of implementation of the Zero Net Carbon Action Plan (ZNCAP), detailing progress towards achieving our target of net zero emissions in Council operations by 2025.

Corporate emissions are currently

60% LESS

than the 2018/19 baseline.

A saving of

$473,500

was made in the year 2023/24 under the VECO contract, compared with electricity expenditure in 2018/19.

The transition to energy-efficient main roads public lighting, will result in ongoing cost savings of approximately

$195,000 PER ANNUM

To date, 810 mercury vapour standard and decorative street lights have been replaced with energy efficient LEDs, and 2,140 unmetered light locations have been upgraded with new brackets and LEDs.

The replacement of gas boilers with energy efficient electric heat pumps and a 220kw solar installation at the MARC has resulted in a

23% COST REDUCTION & 47% ENERGY REDUCTION

compared to 2022/23.

A community consultation process on

EXTREME HEAT

was conducted from January to March 2024. Results of this consultation process will be used to inform the development of a Climate Resilience Plan.

Significant advancements have been made to reduce greenhouse gas (GHG) emissions in the community sector, with the expansion of the Solar Savers program, Energy Savers program for business, and planting a second micro forest in Glen Waverley to combat the urban heat island effect and support local biodiversity.

Introduction

This progress report provides an update on the delivery of actions under the Zero Net Carbon Action Plan for the 2023/24 financial year. The deliverables are overseen by the Sustainable Monash team and delivered in collaboration with internal stakeholders across Council and external stakeholders, such as the Greenhouse Alliances and Monash University.

Background

In February 2020, Monash Council set a target of zero net corporate GHG emissions by 2025, and in August 2020, the Zero Net Carbon Action Plan was endorsed by Council, providing a clear pathway to reach the 2025 net zero goal. Funding was first allocated to major energy efficiency projects in July 2021.

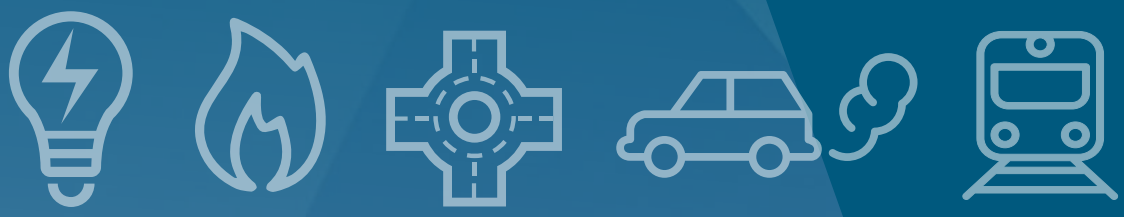
The Zero Net Carbon Action Plan and commitment to reducing GHG emissions and becoming net zero in our operations by 2025 has been integrated into the 2021-2025 Council Plan and is addressed under Strategic Risk (#7) in the Corporate Risk Management Plan, which covers the management of emerging environmental challenges.

The development of the Zero Net Carbon Action Plan was underpinned by research and comprehensive independent modelling conducted by CarbonetiX and Ironbark Sustainability. This research determined the annual baseline for corporate GHG emissions generated by Council was 20,503 tCO_2e in 2018/19 and guided the selection of suitable actions to minimise Council's environmental impact, provide positive return on investment, and achieve carbon neutrality by 2025.

Monash Council recognises the significance of both mitigation and adaptation approaches and to improving resilience of our assets so that essential services and public spaces remain accessible during extreme weather events, while preserving Monash's garden city identity in a changing climate.

While the primary focus of the Zero Net Carbon Action Plan is to reduce GHG emissions within Council's operations, it also includes key actions related to municipal GHG emissions and sets an example for the community by demonstrating leadership in this critical environmental crisis and challenge.

Monash Council's commitment to be net zero has been publicly committed to the Victorian Government to support the statewide target of net zero by 2045.

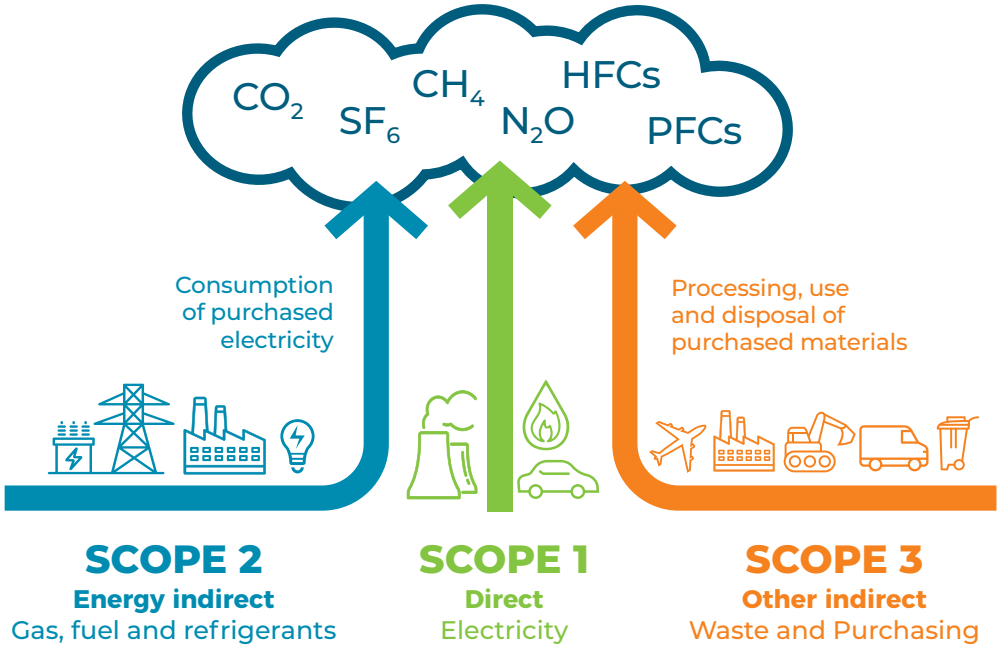


Corporate GHG emissions baseline

Corporate emissions relate to GHG emissions generated by Council activities and not the wider community. Monash Council set their baseline year in 2018/19 and the GHG emissions for this year was 20,503 tCO_2e.

This GHG emissions baseline is the starting point from which Council will measure the reduction in scope 1, 2 and 3 emissions and achievement of net zero status.

Figure 1: Scope 1, 2 and 3 emissions



Council's GHG emissions reduction actions were prioritised based on these 2018/19 findings (Figure 2 below).

Our top five sources of corporate GHG emissions in 2018/19 were:

1. **Electricity** — 12,193 tCO_2e (59.5%)
2. **Natural Gas** — 3,059 tCO_2e (15%)
3. **Asphalt and Concrete use** — 1,675 tCO_2e (8.2%)
4. **Fleet Vehicles** — 1,476 tCO_2e (7.2%)
5. **Employee Commute** — 1,392 tCO_2e (6.9%)

Figure 2: Top five sources of corporate greenhouse gas emissions in 2018/19

Progress towards net zero

To track our progress to zero net GHG emissions, an annual inventory of our GHG emissions has been undertaken. Our five-year progress from the baseline set in 2018/19 has been tracked below.

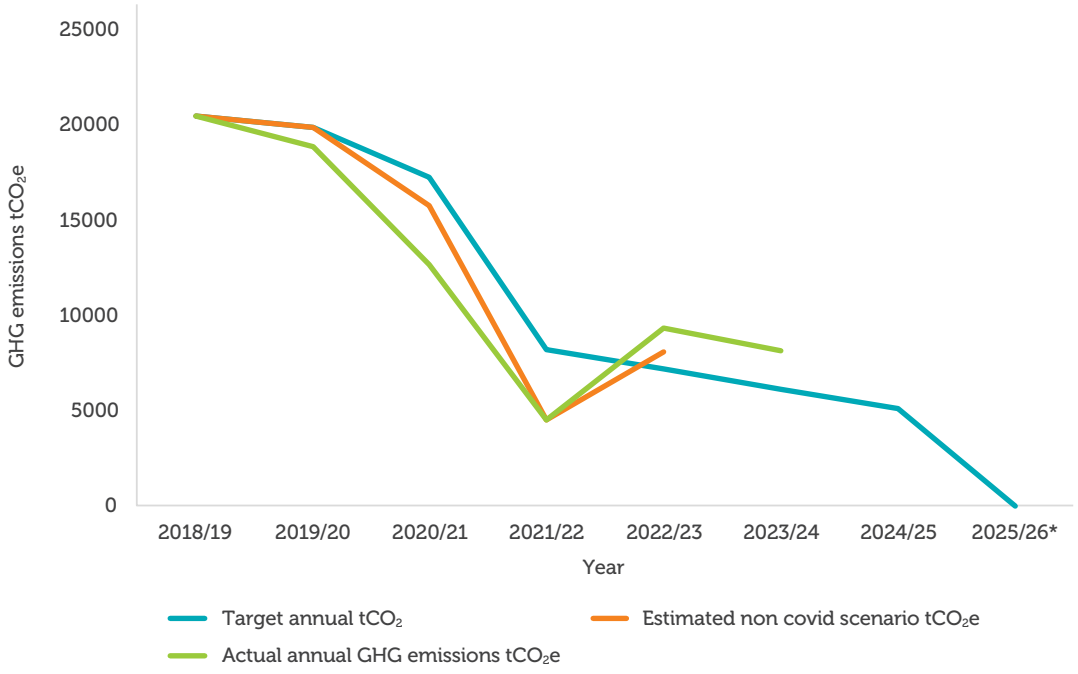
Table 1: Annual Carbon Inventory Status

Year	GHG Emissions	
	tCO_2e	% Reduction
2018/19 (baseline)	20,503	N/A
2019/20	18,869	8
2020/21	12,689	38
2021/22	4,537	78
2022/23	9,325	55
2023/24	8,136	60

Our GHG emissions reduction for 2023/24 was 60 per cent (from the 2018/19 baseline) which is an overall reduction from 20,503 tCO_2e to 8,136 tCO_2e. While the overall trend in corporate GHG emissions is reducing, this was an increase from the 2021/22 result (Figure 3).

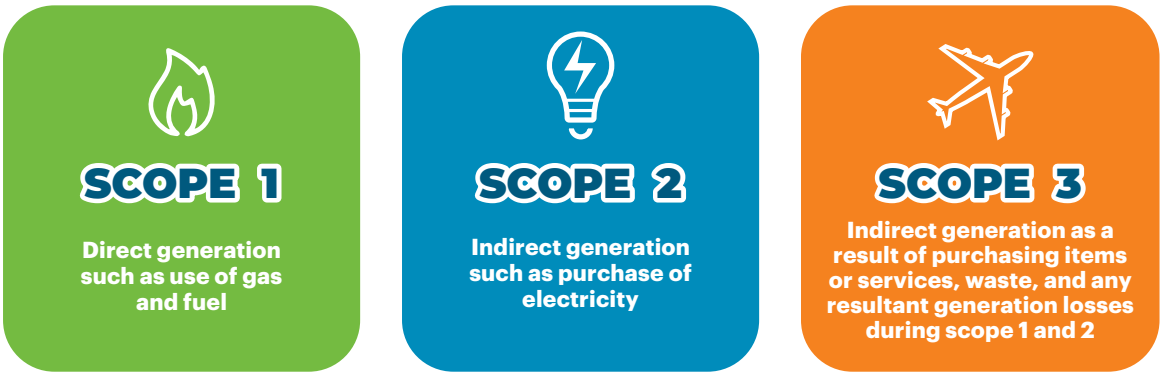
Victorian State Government mandated restrictions to manage the coronavirus pandemic (COVID-19) reduced the overall electricity, fuel, and gas use across Council, and led to a considerable decrease in GHG emissions during 2019/20, 2020/21 and 2021/22.

Figure 3: Tracking annual Council GHG emissions



Overview of Council's GHG emissions inventory by scope

The scope of GHG emissions refers to where responsibility lies for generation.



Refer to Table 2 for the breakdown in GHG emissions for 2023/24.

In 2023/24:

Scope 1 emissions contributed

36% OF GHG EMISSIONS (2,941)

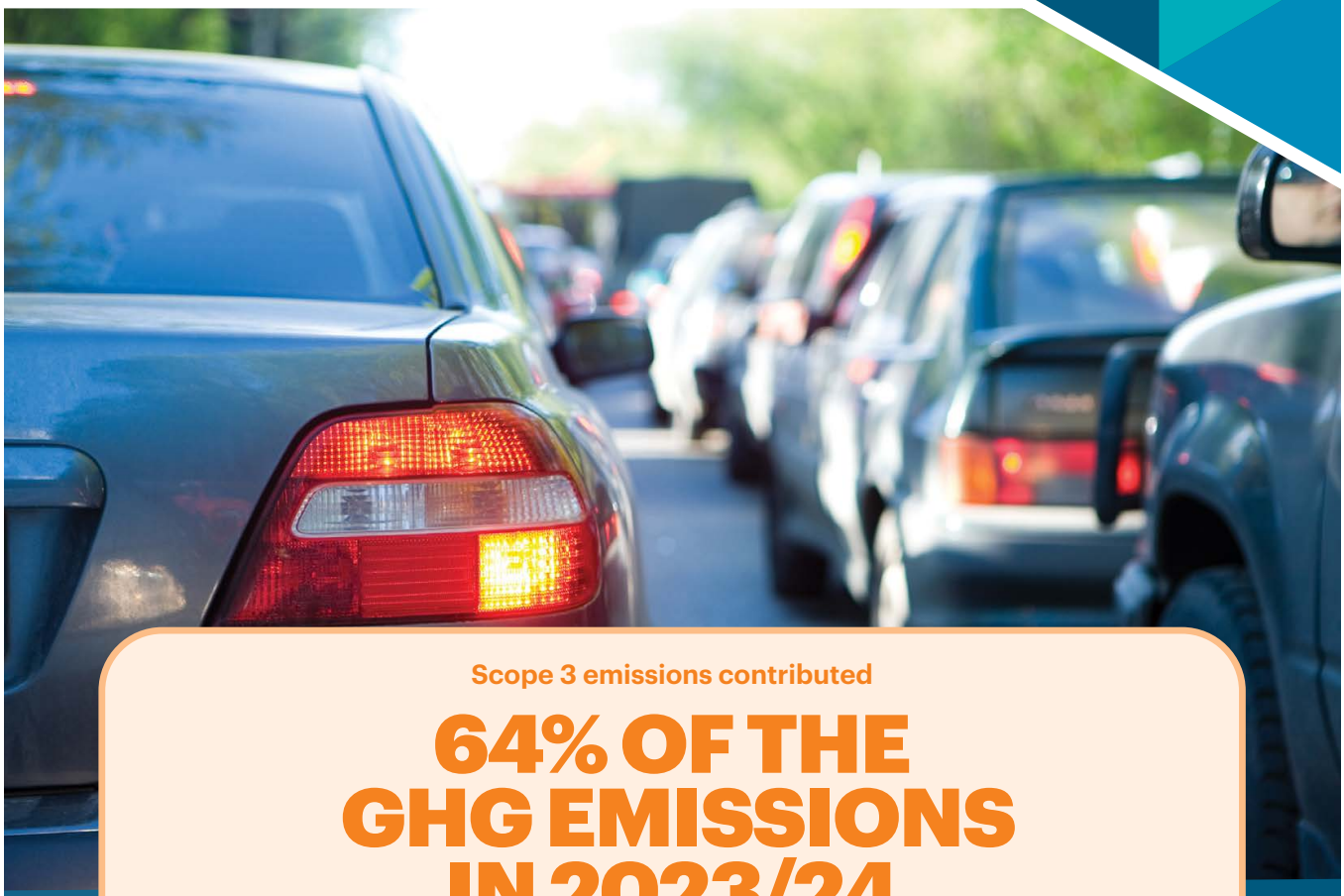
There has been a substantial decline in gas use and emissions (table 2 and 3). Gas emissions in 2023/24 were 44 per cent less than in 2018/19, with 1,579 tCO_2e and 2,844 tCO_2e, respectively. Reductions were attributable to efficiency measures and the ongoing transition away from gas appliances in new buildings. Transport fuel emissions in 2023/24 (1,192 tCO_2e) were **15 per cent lower** than baseline fuel emissions in 2018/19 (2,844 tCO_2e).

Scope 2 emissions are now insignificant since Monash Council committed to

100% RENEWABLE ELECTRICITY

supplied to all corporate operations under the VECO – Victorian Energy Collaboration contract. VECO is still providing significant reductions in GHG emissions overall for Council, despite an increase in electricity use due to increased electrification.

Monash still has a small number of public lighting sites that are unmetered, with estimated usage, and because they are unmetered these sites cannot be transferred to VECO. The small number of sites have an insignificant impact on overall carbon emission calculations (less than 1 per cent of all corporate emissions).



Scope 3 emissions contributed

64% OF THE GHG EMISSIONS IN 2023/24

Scope 3 emissions reduced by 36 per cent between 2023/24 (5,277 tCO_2e) and 2018/19 (8,204 tCO_2e), largely due to public lighting accounts included in the VECO contract.

Some Scope 3 sources saw increases related to:

- **Business travel** (personal vehicle, flights and taxis) and fuel. These increases contributed a very small amount to the GHG emissions. They are still an area for improvement. The increasing electrification of our fleet is already in progress. It is noted that carbon neutral flights were not purchased.
- **Capital works** – Concrete and asphalt usage has increased overall, due to major projects. There was some use of recycled content asphalt this year, and further work is being done to investigate the viability of incorporating lower emission materials which will assist to reduce GHG emissions.

The original accounting for asphalt and concrete emissions in the Zero Net Carbon Action Plan mainly focussed on roads and footpaths as this is part of our annual program. New community buildings were not necessarily accounted for in previous reports which may have also contributed to the large increase in Scope 3 GHG emissions.

- **There was also an increase in water use** as Council returns closer to normal operations. Note that water supply was not part of the original baseline total but is an important contributor.

Overview of Council's GHG emissions inventory by scope

Table 2: Breakdown in GHG emissions 2023/24

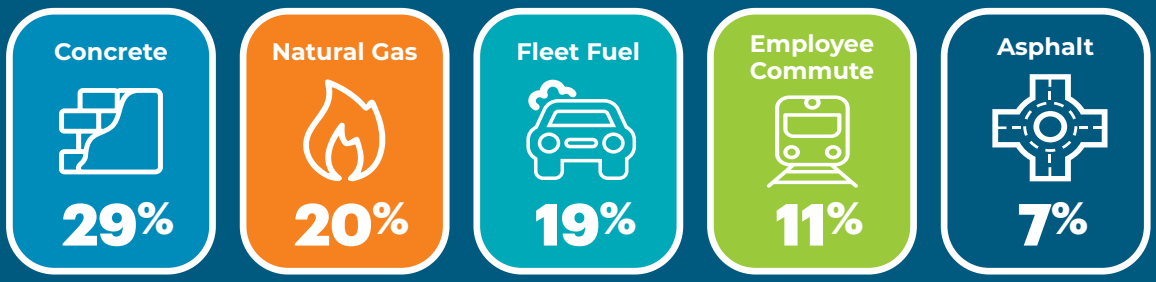
Emissions Source Category	Units	2023/24 Usage	2023/24 Emissions (tCO_2e)	GHG Emissions (%)
Scope 1 – Direct Emissions				
Natural Gas	MJ	30,644,413.40	1,579.10	19%
Transport Fuels for Fleet	Litres	452,814.74	1,192.23	15%
Refrigerants	kg	76.5	169.44	2%
Total Scope 1			**2,940.77**	**36%**
Scope 2 – Indirect Emissions				
Electricity	kWh	12,364,384.37	0.00	0%
Total Scope 2			**0.00**	
Scope 3 – Indirect Emission, Voluntary, Supply Chain				
Public Lighting	kWh	18,676.35	16.05	0%
Electricity Transmission losses	kWh	NA	0.00	0%
Natural Gas Transmission Losses	MJ	NA	122.58	1%
Transport Fuels losses (Fleet)	Litres	NA	294.82	4%
Business Travel (Flights)	km	42,945.00	9.65	0%
Business Travel (Taxi)	km	2,866.70	0.55	0%
Business Travel (Personal vehicle) NEW	km	234,665.90	82.31	1%
Paper Use	reams	12,026.55	61.32	1%
Water Supply (NEW)	kL	256,429.46	530.3	6%
Corporate Waste (Waste to landfill)	t	NA	348	4%
Construction Materials (Asphalt, reconophalt)	t	10,734.00	560.31	7%
Construction Materials (Concrete)	M3	6,524.00	2,334.42	29%
Employee Commute – (Public transport)	km	88,259.30	11.57	0%
Employee Commute – (Private transport)	km	4,291,166	905.01	11%
Total Scope 3			**5,277**	**64%**
Total Scope 1, 2 Emissions			**2,941**	**36%**
Total Scope 1, 2 and 3 Emissions			**8,218**	
Abatements Emissions reduced through exported/ surplus renewable energy	kWh	96,449	82	
TOTAL NET EMISSIONS			**8,136**	

Table 3: Breakdown in GHG emissions 2018-2024

Emissions Source Category	2023/24 Emissions (tCO_2e)	2022/23 Emissions (tCO_2e)	2021/22 Emissions (tCO_2e)	2020/21 Emissions (tCO_2e)	2018/19 Baseline Emissions (tCO_2e)
Scope 1 – Direct Emissions					
Natural Gas	1,579.10	2,427.23	1,321	685	2,844
Transport Fuels for Fleet	1,192.23	1,190.77	1,002	1,202	1,404
Refrigerants	169.44	151.47	221	15	179
Total Scope 1	**2,940.77**	**3,769.47**	**2,640**	**1,901.90**	**4,427**
Scope 2 – Indirect Emissions					
Electricity	0.00	0.00	NIL	4,432.30	7,872
Total Scope 2	**0.00**	**0**		**4,432.30**	**7,872**
Scope 3 – Indirect Emission, Voluntary, Supply Chain					
Public Lighting Note: from 2022/23 we have included an estimate for a small number of unmetered lighting sites.	16.05	14.23	NIL	3,215	3,612
Electricity Transmission Losses	0.00	0.00	NIL	487	709
Natural Gas Transmission Losses	122.58	188.41	110	53	215
Transport Fuels losses (Fleet)	294.82	294.28	57	62	NA
Business Travel (Flights)	9.65	7.34	34	1	14
Business Travel (Taxi)	0.55	0.46	0.5	0.096	NA
Business Travel (Personal vehicle) (Introduced 2021/22)	82.31	0.40	103	NA	NA
Paper Use	61.32	39.90	120		87
Water Supply (Introduced 2020/21)	530.3	593.61	91	68	NA
Corporate Waste (Waste to landfill)	348	348.00	317	317	428
Construction Materials (Asphalt, reconophalt)	560.31	1,015.16	344	1,322	1,675
Construction Materials (Concrete)	2,334.42	2,378.79			
Employee Commute – (Public transport)	11.57	11.23	8	8	8
Employee Commute – (Private transport)	905.01	929.29	725	823	1,392
Total Scope 3	**5,277**	**5,621**	**1,910.1**	**6,355.20**	**8,204**
Total Scope 1, 2 Emissions	**2,941**	**3,769**	**2,640**	**6,334**	**12,229**
Total Scope 1, 2 and 3 Emissions	**8,218**	**9,390**	**4,549.8**	**12,689.40**	**20,503**
Abatements Emissions reduced through exported/ surplus renewable energy	82	65	13	NA	NA
TOTAL NET EMISSIONS	**8,136**	**9,325**	**4,537**	**12,689**	**20,503**

Overview of GHG emissions inventory by source

A breakdown of GHG emissions by source can be found in Figure 4 below. The top five sources of GHG emissions (86 per cent) in Council operations for 2023/24 were:



Employee commute is an estimate based on a travel survey conducted in early 2023. Employee commute can be reduced through an increase in electric vehicle use (including bike), as well as increased use of public transport. Incentives such as novated leasing for electric vehicles, salary sacrificing for electric bikes and other levers will all be explored when developing a staff green travel plan in financial year 2025/26.

To address concrete and natural gas emissions it is imperative that Council reduce the use of high carbon materials and fuel sources through electrification and choosing more sustainable alternatives.

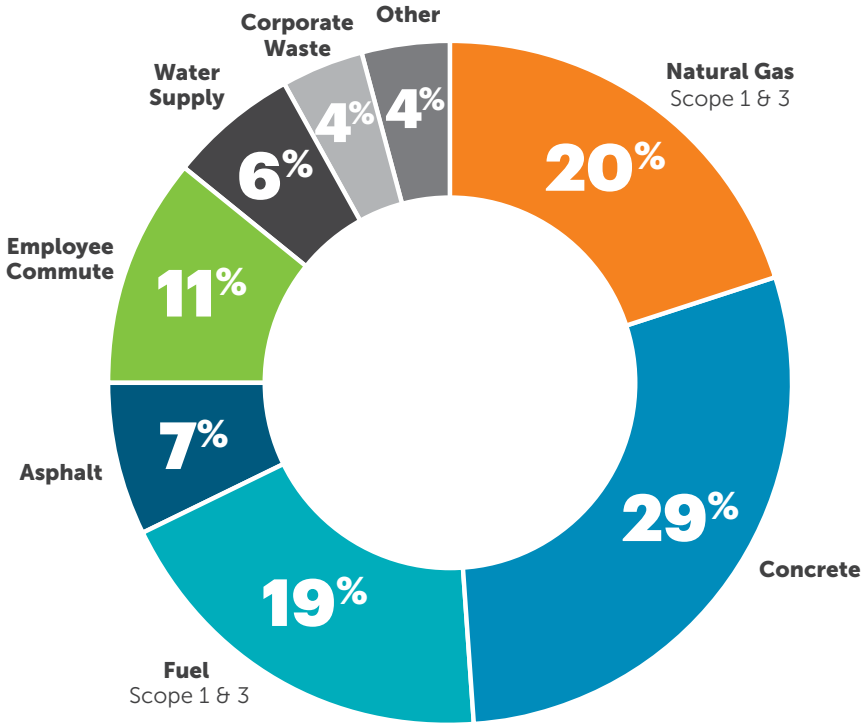


Figure 4: Source of corporate GHG emissions in 2023/24

The Environment Protection Authority's (EPA) carbon management principles were applied to guide Council's carbon management and reduction program and the emissions are tracked and monitored through a dedicated utility management and GHG emissions portal.

Progress on key actions to reach zero net carbon

The following provides an update on investment, next steps, and an overview on actions in the Zero Net Carbon Action Plan detailing progress and achievements to date in achieving a reduction in Council's corporate GHG emissions.

INVESTMENT IN ZERO NET CARBON

Source upfront funding through loans, grants, or service agreements early on to fast-track projects.

Set up a revolving sustainability fund as a budget line item to reinvest savings from major energy efficiency projects.

The overall investment in the ZNCAP was estimated to be

$10.46 MILLION (EXCL. GST)

to deliver on the nominated actions and meet the zero net target by 2025 for corporate (Council only) GHG emissions. There was also a separate investment nominated for dedicated staff costs of $200-$220,000 per annum to manage delivery of key infrastructure projects and ongoing community and business education and projects under ZNCAP.

Project expenditure up to 30 June 2024 was approximately

$7,162,00 (EXCL. GST)

plus dedicated staff costs.

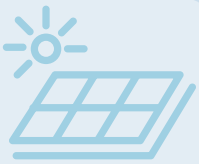
This represents

68% OF ORIGINAL PROJECT COST ESTIMATES

provided in the ZNCAP of August 2020.

OVER $1.9 MILLION was accessed in grants

since the start of the plan, to support this investment. We will continue to seek further grants to support delivery of actions for Council and the community as they arise.



Monash Council also collaborates with the Eastern Alliance for Greenhouse Action (EAGA), member Councils and other Greenhouse Alliances to deliver on GHG emissions across Council and the community.

In 2022/23, Council also received $35,000 from other EAGA Councils

to support the delivery of the Business Energy Saver program and a commitment to continue funding in 2023/24.

Progress on a revolving sustainability fund has not yet been undertaken.

Next steps

For 2024/25 financial year and beyond, the priorities for delivery in the Zero Net Carbon Action Plan will be completion of committed projects, building on current work, and monitoring, including:

- Completion of energy efficiency projects (Clayton Community Centre).
- Preparation for achieving net zero by December 2025 through offset approaches and reinvestment opportunities.
- Complete an independent climate change risk assessment to inform the development of the Climate Resilience Plan in 2025/26.
- Preparation to undertake a staff green travel plan.
- Increase the use of trees and vegetation to cool our community buildings naturally and minimise tree loss.
- Solar panel installation on Council facilities. The project will see solar panels added to community centres that are large users of energy.
- Carbon neutral fuel selected for the annual hard waste collection.
- Increase the use of lower emission materials in concrete and asphalt in roads and buildings or alternative approaches to reduce or offset use of these materials.
- Gas appliance conversions to electric in Council buildings.
- LED lighting and switch board replacement program.
- Complete an internal audit of climate change adaptation to improve actions for staff awareness of climate change, the need to reduce GHG emissions, and consider actions to address climate impacts on their service area.
- Strengthen procurement and capital project delivery to maximise GHG emission reduction through implementation of the Monash Environmentally Sustainable Design (ESD) Policy.
- Investigate the opportunity for energy storage through community batteries.
- Ongoing community and business engagement to enable municipal emission reduction.
- Build partnerships across the region to support regional GHG emissions reduction and climate resilience through GSEM, Monash University Zero Net Precincts CRC team and student projects, business groups and community groups.
- Build a case for inviting community groups which use our Council buildings to participate in VECO to reduce their costs and reduce community GHG emissions. Participating clubs will still pay for their own electricity usage but at a significant discount and be able to source 100 per cent renewable energy.

These actions will be funded through current investment and possible grant funds where available.

Action items

Action Items		Status Update	Comment
1. Sourcing 100 per cent renewable electricity			
1.1	**Council to purchase electricity from 100 per cent renewable sources from July 2021.**	Completed	In 2023/24 Monash Council sourced 100 per cent renewable electricity through the Victorian Energy Collaboration (VECO) for corporate buildings and lighting (over 180 sites) for the third year in a row. The contract, with Red Energy, sources electricity from two wind farms based in western Victoria (Mortlake and Horsham). This nine-year fixed price contract, until 2030 purchases electricity at, or better than, business as usual pricing. In 2023/24 electricity cost savings are estimated at $436,500 from the baseline year despite a 13 per cent increase in usage from that year.

Action Items		Status Update	Comment
2. Street lighting changeover to LED			
2.1	**Council will replace main road street lighting with LED lights.**	Completed	810 mercury vapour standard and decorative street lights have been replaced with energy efficient LEDs, and a total of 2,140 unmetered light locations have been upgraded with new brackets and LEDs. Around 98 per cent of the old lights taken down during the project have been recycled into various products. Council funded (full cost) lights completed – noting there are handful of locations that are not completed due to complexities – these will get upgraded by United Energy as and when the assets fail. Outcomes of Stage 1 and Stage 2 standard lights replacement works only (includes mercury vapour replacements): • Cumulative net savings (20 yrs): $3.9m • Cumulative GHG savings (20 yrs, tCO_2e): 1,046 (assumes Greenpower) • Annual electricity savings (kWh): 747,355 • Payback period: 6.6 years Note: Above numbers only include replacement of inefficient lights to LED works. New LED installations have not been calculated. Savings and payback period does not include the VEECs income generated through the Stage 1 and 2 project.
2.2	**Consider smart lighting opportunities as part of the major road lighting upgrade to LED.**	Reconsidered	Due to budget constraints and project priorities, smart lighting opportunities were deferred on this project.
2.3	**Negotiate with United Energy to change residential street lights to LED in the next five years.**	Unresolved	Mercury vapour and compact fluorescent lamps completed. Approx. 7,700 T5s remaining to be upgraded when discussions with United Energy are appropriate.

Action Items		Status Update	Comment
3. Improving energy efficiency of our largest major buildings			
3.1	**Set up energy performance contracts with priority energy conservation measures to reduce electricity, gas and water use and provide guaranteed savings to improve operation of Council's major buildings.**	80 per cent complete	Energy performance contracts were initiated in October 2021 to avoid GHG emissions and improve performance of our highest energy intensive buildings. Works completed: Monash Aquatic and Recreation Centre • Four heat pumps and boiler upgrade for pool heating • 220kW solar system • Chilled water interconnect • Building management system upgrade and plant optimisation Clayton Community Centre • 200kW solar system Monash Operations Centre • 90kW solar system Monash Civic Centre • 80kW solar system Program 80 per cent complete. Due to circumstances outside of Council's control, the program is suspended while Council is investigating new implementation methods.

Action Items		Status Update	Comment
4. Energy efficiency and rooftop solar for community facilities			
4.1	**Install solar on buildings which provide the best GHG emission reduction and return on investment.**	Ongoing	Monash Men's Shed (9.6kW), Scammel Reserve Pavillion (32kW) and Prince Hwy Reserve Pavillion (21kW) all had solar installed with a Sustainability Victoria grant. A new program has been established for 2024/25, with solar PV installations planned at various Council buildings.
4.2	**Identify opportunities to reduce utility costs in community buildings through energy audits and implement efficiency activities such as LED lighting change over, insulation and education.**	Ongoing	Eight Council community used facilities received lighting upgrades to convert lighting to LED. Six sport fields were converted to LED as part of the sports field lighting upgrade program.

Action items

Action Items		Status Update	Comment
5. Fleet optimisation to reduce fuel use and transition to electric			
5.1	**Upgrade light fleet initially with hybrids and gradually introduce EVs in current replacement cycle (until 2026). Install at least one charging point per EV subject to available load on site or consider locating offsite. Accelerate electrification as EV prices decrease post-2026.**	Ongoing	Council is prioritising purchasing EVs and PHEV where suitable, in line with current vehicle policy. As of 30 June 2024, there were 35 Hybrids in Council's fleet and 3 PHEVs and 15 EVs. The current goal for moving to a carbon neutral fleet is by 2030. Council has 21 electric vehicle charging stations, two at the Monash Recycling and Waste Centre, five at Fleet Services (Monash Operations Centre) and eight at Civic Centre Precinct, three at Mount Waverley, two in Glen Waverley and one at Eastern Innovation Business Centre. Using a $37,500 DELWP grant Council was able to install a 60kW charger providing and a dual 22kW charger for Council fleet use.
5.2	**Purchase heavy diesel vehicles with the latest Euro standard, and upgrade to hybrid/electric or more sustainable alternative fuels such as hydrogen and biodiesel as options become available.**	Investigations ongoing	There is currently no fit for purpose trucks suitable for Council activities, but with improvements in technology this will continue to be investigated. Council has an electric greens mower at Mount Waverley and Oakleigh golf courses, and there are over 40 battery powered small plant and equipment items, such as battery blowers, and chain saws.
5.3	**To improve fuel economy, introduce driver training, install GPS tracking for route optimisation, and implement fleet booking system with utilisation data to increase staff carpooling.**	Commenced	Council is exploring and evaluating the ways to develop and utilise these actions.
5.4	**Develop a staff green travel plan to encourage sustainable transport and commuting options.**	Commenced	A staff travel survey was undertaken in 2023, with a follow up survey to be completed in 2025, that will inform a staff green travel plan. Resources for cycling to work are promoted to staff.
5.5	**Investigate opportunities to establish solar car parks to charge electric vehicles.**	Ongoing	Council installed 90KW of solar panels at the Monash Operations Centre, energy that can then be utilised to power electric vehicles charging on site.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Charge Up
MONASH
1 Plug into the charging station
• Ensure cable is firmly connected
2 Plug into your EV
• Ensure cable is firmly connected
3 Scan the QR code and follow the instructions
4 Finish Charging
• Unlock EV
• Remove cable from EV
• Remove cable from charger
• If cable is stuck in car, find the manual release button on the vehicle
CITY OF
MONASH

Action items

Action Items		Status Update	Comment
6. Sustainable Procurement			
6.1	**Strengthen sustainable procurement and tender processes to preference the use of sustainable products, technologies and services, and minimising GHG emissions, including the impact of the supply chain.**	Ongoing	Council's kerbside contract has a 200 per cent carbon offset procurement requirement for fuel used by kerbside collection trucks. The returnable schedules (tender document template) on Council's internal intranet has been updated, strengthened sustainability questions for use in tender processes. The Sustainable Monash department has been added as a mandatory stakeholder for contracts over the value of $1 million to ensure that sustainability is embedded in large contracts.
6.2	**Review of internal project development and procurement stages, and implement guidelines to increase the opportunity to use recycled content, carbon neutral and sustainable materials.**	Commenced	The Circular Economy Leadership program (receiving $92,114 over two years from Sustainability Victoria) program was delivered by Monash Council on behalf of 13 Councils to build staff capacity in sustainable and circular procurement.
6.3	**Source recycled content and carbon neutral paper, preferably from ethical sources, and move away from physical documents to reduce paper use. Extend approach to external printing.**	In progress	Due to the closure of Australian paper mill the paper stock Council uses is recycled and forest certified paper but is no longer carbon neutral certified. In 2023/24, 23 per cent of all paper (including external printing) used by Council was carbon neutral.
6.4	**Increase the use of recycled content and lower GHG emission asphalt and concrete by 2022, updating local government design standards / specifications, and undertake training.**	Commenced	Trialled the use of recycled content products in capital works (road and footpath projects) under a grant project from Sustainability Victoria Sustainable Infrastructure Fund in 2022/23. Based on this, all asphalt projects now contain 10 per cent recycled content. Recently, Council has been trialling porous paving in locations including Kingsway, Glen Waverley. The Monash engineering standards are currently under review with the aim to increase the use of lower emission and circular materials. Sustainable Monash ran a staff professional development session with National Transport Research Organisation on specifications and case studies (recycled content in infrastructure) to increase knowledge and confident in the use of recycled content infrastructure.
6.5	**Specify energy efficiency and GHG emissions reduction standards to establish transparency on the purchase of energy equipment, particularly in major projects.**	Not commenced	Product lists that consider energy efficiency and other maintenance considerations will be developed in 2024/25.

Action Items		Status Update	Comment
7. Environmentally Sustainable Design for Council Buildings			
7.1	**Finalise and implement an Environmentally Sustainable Design policy for buildings and infrastructure.**	Completed	The Environmentally Sustainable Design (ESD) Policy for Council buildings and infrastructure was adopted in January 2022. Mulgrave Reserve pavilion and Wellington Community Hub projects are trialling the ESD policy, and several projects in design stage will incorporate the policy.
7.2	**Establish monitoring program to track the application of the policy to achieve minimum ESD requirements, reduce GHG emissions and lower building running costs. This may include the use of building benchmark tools such as NABERS or BESS.**	Not commenced	Work with Facility Maintenance to establish parameters for monitoring buildings through upgraded BMS portal will take place in 2024-2026. Additionally, Council's utility management portal tracks GHG and utility costs which can provide initial insight into building performance.

Action Items		Status Update	Comment
8. Leading in the reduction of municipal-wide GHG emissions			
8.1	**Review and expand upon current programs to increase opportunities to further reduce municipal GHG emissions, energy and costs, through advocacy and delivery.**	Ongoing	Advocacy and promotion of the zero net carbon concept occurs through actively collaborating with Monash University Zero Net Emissions Precinct Collaborative Research Centre (CRC), Eastern Alliance for Greenhouse Action (EAGA), Suburban Rail Loop (SRL) Precinct Planning, Circular Economy Special Interest Group and Circular Economy Council Network, the Council Alliance for a Sustainable Built Environment (CASBE), Victorian Climate Resilience Councils (VCRC) program, Department of Energy, Environment and Carbon Action (DEECA), and the Greater South East Melbourne (GSEM), South East Melbourne Manufacturing Alliance (SEMA) and South East Councils Climate Change Alliance (SECCCA) Net Zero Road Map Implementation Plan Working Group. Council continues ongoing community education on solar and renewable energy, energy efficiency, and sustainable homes through workshops, educational events and loan energy efficiency audit kits in libraries.
8.2	**Investigate establishment of a Zero Net Emissions Foundation to facilitate community action.**	Not commenced	Investigation will commence in 2024/25. Council continues to support the Business Energy Savers and Solar Savers programs to provide advice to residents and businesses and facilitate reduction in municipal GHG emissions.

Action items

Action Items		Status Update	Comment
8. Leading in the reduction of municipal-wide GHG emissions (continued)			
8.3	**Promote energy audits and environment upgrades for businesses and homes.**	Ongoing	Achieved through participating in Business Energy Savers, Solar Savers (both through our partnership with EAGA) and delivery of Environmental Upgrade Finance (EUAs). Seven businesses accessed the Environmental Upgrade Finance before the program finished.
8.4	**Investigate establishment of 100 per cent renewable public electric vehicle charging stations.**	Completed	Investigation is completed and Council is currently in the process of leasing land to enable the charging industry to establish rapid charging. Additionally, installed four free public electric vehicle (EV) charging bays to encourage the transition to zero-emission transport – at the Mount Waverley Library and Community Centre, at Youth Services near Euneva Car Park and near the Glen Waverley Library on Kingsway. Public charging provides 100 per cent renewable electricity under the VECO contract, and they have been very popular with 3,658 charges in the first six months and an average of 20 sessions per day.
8.5	**Partnering on Zero Net Precincts and research collaborations with Monash University.**	Ongoing	Collaboration continues with Monash University Zero Net Emissions Precinct Collaborative Research Centre (CRC), engaging with industry and community on promoting zero net carbon concept, and hosting and advising PhD students.
8.6	**Establish business resilience programs to promote energy efficiency, and GHG emissions reduction actions.**	Ongoing	Monash Council hosted the Business Energy Saver program on behalf of EAGA Councils (until June 2024, when it transferred to Knox City Council), engaging around 4,000 businesses in the eastern region to understand savings through energy efficiency and solar. In 2023/24 the program engaged 1,373 businesses, including 153 Monash businesses.
8.7	**Develop a climate adaptation strategy to minimise the impacts of a changing climate.**	Commenced	From January to March 2024, Council consulted with the community about extreme heat. Results of the extreme heat consultation, along with a climate change risk assessment (due to be completed in 2024/25), will be used to inform the development of the Climate Resilience Plan in 2025/26.
8.8	**Update the Environmentally Sustainable Development Policy (Monash Planning Scheme), to address GHG emission reductions.**	Completed	This is addressed through solar and energy efficiency in the Environmentally Sustainable Development Policy, added to the Monash Planning Scheme 23 May 2024.

Action Items		Status Update	Comment
9. Reducing waste generation and diverting waste from landfill (zero waste)			
9.1	**Council will require contractors to separate corporate waste data from community waste, including waste generated by leased sites such as childcare centres and scout halls.**	Not commenced	Lease agreements do not stipulate that tenants are required to have their own bins or to separate corporate waste data from community waste. Some tenants use Council bins, and some have private services. Occupancy agreements require Council tenants to comply with provided Environmental Sustainability Guidelines, which includes a requirement to recycle materials and separate food waste for composting, and to use reasonable efforts to minimise energy use, carbon emissions, water use, low impact cleaning and resource consumption, and to provide consumption data annually to Council.
9.2	**Deliver on the targets of the Monash Waste Management Strategy and implement measures to improve waste monitoring and reporting, and moving to zero waste in landfill.**	Ongoing	The Monash Waste Management Strategy (2017-2027) is currently being evaluated as part of the development of a new Circular Economy Strategy. Key achievements to reduce waste to landfill include: • Introduction of kerbside food organics and green organics (FOGO) collection. • Changed kerbside frequency of landfill (to fortnightly) and FOGO (to weekly). • Resourcing behaviour change strategies and supporting the community to embrace the bin frequency change through consultation, education through information pop up stalls throughout the municipality, recycling and food waste feedback officers, recycling educators and community group visits. • Diverting waste from landfill through showing leadership in being the first Council to sign up for soft plastic recycling after the collapse of Redcycle, polystyrene recycling, vape recycling, collecting all types of light globes, participating in Paintback, mobile phone recycling, golf ball recycling and Detox Your Home. • Signing the waste to energy contract, for further reducing waste to landfill in the future. Tonnage to landfill in 2017/18 was 36,574 and in 2023/24 landfill tonnage was 23,545. At the same time the estimated resident population of Monash grew by 7,800 people (2017-2023).
9.3	**Provide incentives such as grants, workshops and guidance to help the community and businesses to minimise waste, reuse materials and practice sustainable procurement.**	Ongoing	Community incentives included: • Four Repair Cafes attracting 116 participants. • The Best Practice Reuseable Nappy Program held three workshops in 2023, with 57 participants also receiving sample reusable nappy packs, and 23 Monash residents attended sessions at other Councils. • Community information stalls were held at Monash University Orientation Week, Monash Family Fun Day, Lunar New Year Festival and Clayton Festival, with upcycling crafts for children. • Two zero waste themed workshops, presented both in-person and online workshops, where ideas were provided. • Eight webinars provided guidance on recycling, • Recycling educators made over 60 school visits, with around 4,000 participants.

Action items

Action Items		Status Update	Comment
9. Reducing waste generation and diverting waste from landfill (zero waste) (continued)			
9.4	**Develop business case for a circular economy shop to divert suitable items from landfill, sell recycled content and low emissions products, and facilitate repair of goods.**	Not commenced	A circular economy shop will be considered under the Recycling Centre Action Plan, which is in the early stages of being developed as part of Circular Economy Strategy.
9.5	**Investigate the opportunity to create a local solar farm at the Clayton Landfill or similar suitable site.**	Not commenced	Discussions with other Council's considering similar approaches will be organised in 2024/25.

Action Items		Status Update	Comment
10. Urban carbon forest – creating a tree canopy to provide local storage of carbon, improve community amenity and benefit biodiversity			
10.1	**Increased canopy cover revegetation works on Council land to provide social and environmental benefit to the community, improving air quality and reducing summer air temperatures.**	Ongoing	Activities included: • Planting two micro forests (micro forest at Wellington Reserve, Mulgrave and Tiny Forest in partnership with Earthwatch at Fraser Street Reserve, Glen Waverley). • Canopy and land use mapping underway to inform the ongoing tree planting program. • Community planting events saw 20,000 plants and trees planted including 9,550 on National Tree Day by the 268 registered volunteers.
10.2	**Strengthen planning scheme controls to increase planting, retention and protection of trees on private and public land.**	Ongoing	Our Trees Need Protecting advocacy campaign was developed and will be implemented throughout 2024/25 to encourage residents to email or send postcards to the minister for planning scheme amendment application asking for greater tree protection with the minister for planning since 2021. Advocacy continues throughout the Suburban Rail Loop precinct planning, detailed design and works.
10.3	**Consider stronger penalties for tree removal, support for tree bonds and development contributions, to fund vegetation maintenance and resource tree removal investigations.**	Ongoing	Stronger penalties were explored with Council's Statutory Planning, Strategic Planning, and Community Laws teams about the possibility of a new local law protecting trees, with the outcome to continue with the application to strengthen tree protection through the planning scheme with the minister. Simultaneously, actions to encourage tree retention were undertaken through community education including through creation of flyers and booklets and events. Further exploration on the support for tree bonds will be undertaken in 2024/25.

Action Items		Status Update	Comment
10. Urban carbon forest – creating a tree canopy to provide local storage of carbon, improve community amenity and benefit biodiversity (continued)			
10.4	**Investigate the development of a Nature Trust to secure and expand land available for vegetation, including understory and biodiversity.**	Ongoing	Council resolved on 30 April 2024 to update the Public Open Space Contribution Allocation and Expenditure plan to include strategic land acquisitions for future open space reserves.
10.5	**Encourage business, residents and schools to grow native plants on their own land.**	Ongoing	Council delivers two programs providing seedlings vouchers and education to support the Monash community to grown plants on their own land, Gardens For Wildlife and the Nature Strip Planting Project. Gardens for Wildlife has 10 Garden Guide volunteers, who visit new sign-ups to the program to offer expert advice. In 2023/24, there were 89 new residential member sign ups, 17 schools and five corporate groups. There were 70 residential member sign ups, 19 schools and two corporate businesses. Under the Nature Strip Planting Project, residents who obtain a permit also receive a garden store voucher and 21 households applied for permits in 2023/24.
10.6	**Undertake investigation to understand if suitable carbon offsets can be created through our tree planting program in Monash.**	Reconsidered	A feasibility report indicates that Monash does not have enough land area to participate in a carbon credit scheme. Sensors have been purchased for a trial measuring the growth of a tree canopy. Work is ongoing to investigate how much carbon is being stored in a sample of Council trees.
10.7	**Tree education to building awareness of their value to the community amenity and biodiversity.**	Ongoing	Tree education is incorporated into the Green Shoots program, Gardens for Wildlife, Nature Strip Planting, school visits, community workshops and Sustainability E-News articles.
10.8	**Consider partnering with universities to identify urban heat island reduction opportunities.**	Ongoing	Monash University students completed a research project to investigate the loss of street tree canopy and its effects, and identified tree canopy planting locations, and recommended projects to increase canopy to reduce urban heat island effects. Raised through the Zero Net Carbon Precincts CRC Partnership.

Action items

Action Items	Status Update	Comment
Achieve carbon neutrality through offsets		
In consideration of the wider community expectations, Monash Council's preference is to source offsets from local sources where possible. This may include: • **Sourcing offsets locally from Monash businesses or where it can provide a high social-economic benefit for our local community** • **Maximising solar on council and community buildings** • **Utilising public or private roof space or land for solar through a share cost arrangement** • **Investigate how to create offsets through tree planting and the creation of an Urban Forest** **The balance of carbon offsets required will be sourced from Australian and international accredited suppliers to achieve our zero net carbon commitment. Publicly disclose how we have achieved and are maintaining our carbon neutral commitment from 2025.**	Under investigation	Initially steps to exploring locally sourced offsets commenced and this requires further investigation. As per 3.1 and 4.1, solar is being rolled out on Council owned buildings and will continue. Electricity for Council owned buildings that are leased out are managed and paid for by the community tenants. Eastern Innovation has joined VECO and exploration of getting more sites onto VECO continues. As per Action 10.6, Monash does not have enough land to create tree planting offsets within the municipality. Council aims to procure carbon offsets which are eligible under the Australian Government's Climate Active carbon neutral certification program and assess the suitability of the certification program against Monash's broader goals. Carbon inventory reporting and offset disclosures will occur for the 2024/25 financial year.

Monash Civic Centre

293 Springvale Road,
Glen Waverley
8.30am–5pm

Oakleigh Service Centre

3 Atherton Road, Oakleigh
8.30am–5pm

National Relay Service

for the hearing and speech impaired)

1800 555 660

Contact us

9518 3555

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