

Actions for zero net emissions

2020-2023 plan for a carbon neutral Banyule Council by 2028

We work for an organisation that makes a difference

Acknowledgements

Banyule City Council acknowledges the Wurundjeri Woi-wurrung people as traditional custodians of the land on which we work and pay respect to all Aboriginal and Torres Strait Elders, past, present and emerging. We acknowledge their unique relationship with the land, waterways and sea and recognise our shared responsibility to care for Country by solving the climate crisis together.

This plan represents a communal effort in rising to this challenge. Thank you to all Councillors; Cr. Wayne Phillips, Cr. Peter Castaldo, Cr. Rick Garotti, Cr. Tom Melican, Cr. Alison Champion, Cr. Mark Di Pasquale and Cr. Craig Langdon. Thank you to staff and our community for your input and commitment to the plan, as well as those who provided thoughts that appear as quotes in this plan. And thank you to councils near and far who have embarked on their own climate action journeys - we have been inspired by your actions and have come further on our journey thanks to your collaborations with us.

Preface

As Mayor and CEO of Banyule City Council, we wholeheartedly endorse this plan for a carbon neutral Council by 2028. The actions outlined here give us the opportunity to create a sustainable, liveable Banyule and a more resilient, better functioning Council.

Everyone in Council has a part to play in realising this vision. We encourage you to become familiar with the plan and to take action daily in your activities that serve our community.

We would especially like to thank our community for driving the plan's development and we look forward to your ongoing involvement. We will keep you informed of our progress and welcome your questions and suggestions.



Cr Wayne Phillips
Mayor Banyule City Council



Geoff Glynn
(Acting) CEO Banyule City Council

“This Plan reflects the importance Banyule City Council places on acting urgently to address climate change, so future generations can rely on a safe and stable climate. This plan will see Council take responsibility for its own footprint and reduce emissions to net zero utilising renewable technology. It’s a welcome step forward and is championed by our engaged community who want to see real local action.”

- Councillor Peter Castaldo

“Investing today in a carbon neutral Banyule will ensure we maximise the financial opportunities realised through action, whilst reducing our risk and vulnerability to future climate change.”

- Councillor Rick Garotti

“I encourage everyone to show leadership qualities, regardless of their position, age, gender or line of work, by being responsible for the ambitious actions outlined here. That’s true leadership. I hear leaders through the words they speak, and I see leaders through the actions they take.”

- Councillor Alison Champion

“Along with the continued leadership outlined in this plan, we also aim to develop partnerships with stakeholders across the municipality to support emissions reduction community wide. We’ll be working with business, industry and schools to ensure we can achieve our ambitious goals.”

- Council Craig Langdon

“This plan sets out a road map for us to reduce our own emissions and demonstrate leadership. We’ll continue to work with the community to ensure we secure a clean, healthy and green municipality for future generations.”

- Councillor Mark Di Pasquale

“Through this critical work we can create a leading example of what action looks like for the local government sector and our own community. This is a great opportunity.”

- Councillor Wayne Phillips

“We need immediate and massive reductions in our greenhouse gas output. We shouldn't see this as just a cost, but as an opportunity to make major changes that will protect our planets and deliver huge costs saving into the future.”

- Councillor Tom Melican



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Executive summary

Banyule Council recognise that we are in a state of climate emergency which requires urgent action by all levels of government, including local councils. We are proud to join a global climate emergency movement and will continue to act to ensure a safe and sustainable world for future generations. This means assuming a leadership position by reducing the impact and emissions arising from our own activities and services.

This plan puts into practice our recognition of the emergency context and a commitment to making a positive difference in Banyule and beyond. It sets out the actions Banyule Council staff will take over the next four years, to reduce emissions and mitigate the impact of climate change. Collectively, these will place us on a pathway to carbon neutrality by 2028.

We recognise that reaching our carbon neutrality target is both a cultural and technical task. *Everyone* in Council plays a part. We are taking a collaborative approach, working across our departments, as well as closely with our community and other Councils in the region.

Banyule is on the right track. We have come far already, having taken strong action to reduce our energy use and emissions. Over the next four years, we will focus on the following nine priority actions:

1. **Climate action culture** - support staff to undertake climate action within their own roles. Continue to foster a culture of open-mindedness, innovation and collaboration.
2. **Zero net emissions buildings** - reduce energy use by upgrading insulation, air conditioning, lighting and appliances and installing solar hot water
3. **Green fleet** – work towards replacing all light and heavy fleet with electric vehicles or other zero emission vehicles by 2028.
4. **Low carbon lighting** - upgrade open space lighting and street lights to energy efficient LEDs.
5. **Electric leisure centres** - upgrade pool pumps and filtration systems with more efficient systems, investigate and trial pool blankets at all pools, as well as the replacement of gas fired boilers with heat pumps.
6. **Maximise renewable energy** - pursue opportunities for renewable energy generation, such as solar or wind. Utilise alternative procurement of renewables through power purchasing agreements.
7. **Develop actions for new priority areas** - identify actions to reduce emissions from new areas of waste, business travel, paper and water use.
8. **Green suppliers** - support our suppliers to reduce emissions from the goods and services they provide to Council.
9. **Monitoring, evaluation, reporting and improvement (MERI)** - develop a MERI framework to assist staff and community to identify how we are tracking towards our target and support continual improvement.

It's a bold and exciting plan. We invite you to take part.

OUR PLAN IN A NUTSHELL

- **Why:** to play our part in solving the climate crisis
- **What:** reduce emissions arising from Council operations
- **How:** through a culture of innovation, collaboration and support

- **When:** 2020-2023 actions that position Council for zero emissions by 2028
- **Who:** Everyone in Council, helped by our collaborators in the Banyule community and other councils.

The need for climate action

Pollution from burning fossil fuels such as coal, gas, petrol and diesel, clearing of trees for development and increasing urbanisation is causing our global climate to change, well above and beyond natural cycles.

Climate change is already impacting people's health and safety, wildlife and our everyday assets. We have already seen the impact of these changes in a range of ways, from our ageing tree stock becoming stressed from longer dry periods, to the more frequent flash flooding of our creek and river banks, affecting the nesting routines of local fauna.

In Banyule, our climate continues to get warmer and drier. Over the next decade, we can continue to expect:

- more extreme weather with more heatwaves in summer,
- more intense downpours leading to flash flooding, yet less rainfall overall, and
- more severe bushfires in the wider region.

The more action we take now, the less pressure we put on the Earth's vital ecosystems. The United Nations has warned that we have just a decade, until 2030, to keep global temperature rise to a maximum of 1.5 degrees. Warming beyond this will significantly worsen the impacts on ecosystems, as well as the consequences arising from drought, floods, extreme heat and poverty for people everywhere.ⁱ

On the flip side, taking action creates opportunities to build a better Banyule and a better world. **That's the purpose of this plan.**

"I'm excited about Council's zero emission plan. I've got young children and I'd like to leave the world in a better place for them."

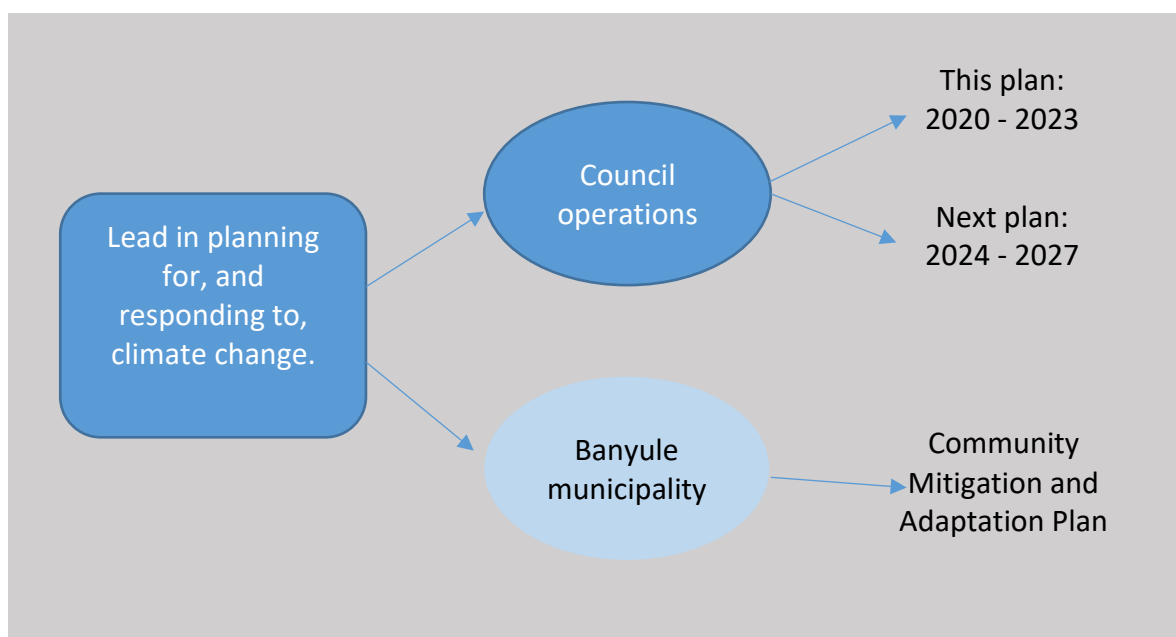
- James Comiskey, Network Systems Engineer



Plan purpose

Council is committing to taking strong action across the whole organisation to reach zero net emissions. We are much more likely to achieve this target if it is supported by actions that are SMART: Specific, Measureable, Agreed upon, Realistic and Time bound. This plan, with its priority actions for the next four years, has been established with this in mind.

The plan also responds to internal and external stakeholders' expectations – people now expect Council to demonstrate strong climate action. It represents the first part of our commitment to 'lead in planning for, and responding to, climate change', a key direction in the Council Plan 2017-21. In the next stage, we will work with our community to establish a partnership approach to reducing emissions across the municipality, with actions to be outlined in a separate, standalone plan.



Importantly, this plan provides a framework for:

- Understanding our current emissions profile and the tasks required now, to get us to our 2028 target. This allows us to take account of future trends and challenges, such as population growth and increased patronage of our Council facilities.
- Prioritising and planning for action that will achieve the greatest emission reductions.
- Holding conversations with staff across the Council on Banyule's leadership approach and what this means in practice for different work programs.
- Reporting on our progress within Council and to our community.

“Adopting this plan will create awareness of the actions required and bring attention to the environmental consequences of our decisions and actions. If there's a goal and a plan around it, it will get everyone talking and we will shift to making more environmentally conscious decisions. It provides a way for everyone to get involved, right across the organisation.”

- James Comiskey

The big picture: our context in Banyule

Through this plan, Banyule is contributing to local, state, national and global action to solve the climate crisis.

In 2015, the international Paris Climate Change Agreement introduced emission reduction targets to limit global temperature rise to below 2°C by 2050 and to pursue efforts to limit it to 1.5°C above pre-industrial levels.

Australia ratified the Paris Agreement in 2016, setting a national target to reduce emissions by 26-28% below 2005 levels by 2030. To help reach this target, the Federal Government set up several funds and plans that have improved energy efficiency and supported small and large scale renewable energy generation. As a result, around 23.5% of Australia's electricity generation in 2020 will be from renewable sources like solar, wind and water (hydroelectricity).

The Australian Government has also established two frameworks to standardise how emissions are measured and reported:

- the **National Greenhouse and Energy Reporting (NGER)** scheme, for reporting organisational greenhouse gas emissions, energy use and energy production.
- the **National Carbon Offset Standard (NCOS)**, which outlines how to measure, reduce, offset and report emissions and providing a framework for voluntary carbon neutral certification.

Both standards utilise the principles established by the international Greenhouse Gas (GHG) Protocol, which sets the requirements on standards to measure and manage emissions.

While Banyule is not required to report under these two schemes, the NCOS framework and GHG Protocol have been used to guide our approach to emissions reductions. This will ensure we align with best practice standards, whilst future proofing ourselves to any legislative changes that may mandate new reporting requirements for Councils.

At a state level, the Climate Change Act 2017 sets the long-term emissions reduction target for Victoria as net zero greenhouse gas emissions by 2050. Victoria's Climate Change Adaptation Plan (2017-2020) summarises the strategic priorities, measures and responses for adaptation in Victoria, to drive progress towards this target. In line with a number of other local governments, Banyule is taking steps to ensure it achieves zero net emissions well before this time.

As well as taking its own action, Banyule has joined eight other councils in Melbourne's north to form the Northern Alliance for Greenhouse Action (NAGA). NAGA councils are working together to support energy efficiency and renewable energy, with recent projects including a Local Energy Trading Scheme (LETS) feasibility study and a fleet assessment tool to reduce emissions from light vehicle fleets.

All councils, including Banyule, have taken steps to reduce emissions arising from their everyday operations. Common actions have included the installation of solar power, introduction of energy efficiency within buildings and conversion of street lighting to efficient LEDs. Some organisations, such as Moreland, City of Yarra and City of Melbourne have supported these actions with certification of their carbon neutral status.

Our carbon neutral target

The context

On 10 December, 2019, Council passed a notable Climate Action Resolution, following significant community consultation and a review of best practice climate action within the local government sector.

The resolution consisted of a number of significant components, including:

- The recognised **need for urgent action and leadership**
- Endorsement of an initial **\$5M Climate Action Package**
- **Request for identification of long term carbon abatement options** for Council operations; and
- Identified intention to **provide stronger support to the community**, including new (and more transparent) communication approach.

Following on from this resolution, Banyule joined a growing movement to declare a climate emergency in October 2019. In doing so, Banyule acknowledges that every level of government, as well as community and business has a responsibility to take urgent action to reduce emissions and mitigate the effects of climate change. The declaration importantly emphasises the strong commitment from the CEO and Directors at Banyule, supported by a whole of organisation approach.

The resolution and climate emergency declaration has significantly enhanced Council's climate action program, as evidenced by the ambitious scope of actions outlined within this plan. We are grateful to our engaged community who has helped shape this response.

Our target

The resolution established a carbon neutrality target by 2028, without the purchase of offsets.

Carbon neutrality (used interchangeably with zero net emissions), means that the net greenhouse gas emissions (GHG) arising from our operations are zero. This can be achieved by reducing energy consumption, improving energy efficiency and utilising renewable forms of energy.

Where emissions are unavoidable, an organisation will participate in projects that will remove the equivalent amount of emissions from the atmosphere, such as planting trees, renewable energy projects and energy efficiency projects. These are referred to as offsets.

Council has made the ambitious decision to not utilise carbon offsets for emissions which arise as a result of activities under our direct control (referred to as Scope 1 and 2). In other words, if we can control it, we will reduce emissions through those important steps of energy efficiency, energy reduction and renewable energy.

In cases where we don't have control of the activity – where someone else undertakes the action (Scope 3) – we will utilise offsets only as a last resort.

Why is this important? Well it means we will take all steps necessary to undertake meaningful action. We know where our emissions are coming from and we are committing to delivering close to a decade worth of significant action, ensuring our emissions are as low as possible, before any neutrality claims are pursued.

“I’m excited about our zero net emissions plan. It gives Council the opportunity to show the community that

climate action is happening and they can build on our efforts and lessons learnt.”

- Geoff Glynn



Our journey so far

We are on the right track.

To date, we have focussed on reducing our energy use and increasing our generation of solar as an alternative to fossil fuels.

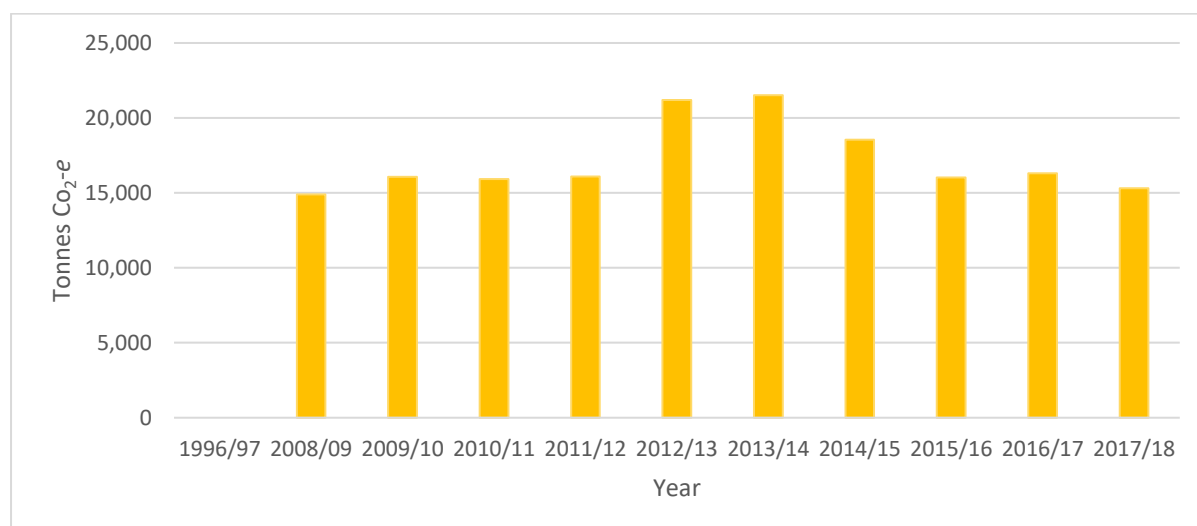


Figure 1 Council emissions from energy and fuel use (for simplicity, 1996/7 emissions to 2008 have been removed, as these were stable over this period).

Major actions that we have undertaken include:

- installing a cogeneration unit at WaterMarc that generates both electricity and heat for water and space heating;
- upgrading building and street lighting to more energy efficient alternatives;
- installing solar power at many of Council’s buildings, and solar hot water at a major sites, including Watermarc, Ivanhoe Aquatic Centre, Olympic Leisure Centre and the Centre Ivanhoe;
- replacing our diesel delivery vans with electric alternatives and installing charging stations at key Council sites;
- introducing planning policies to ensure that all new Council developments such as the Greensborough Council offices and Ivanhoe Community Learning Hub are energy efficient.

Each year we use less energy and generate more renewable energy. In just four years (2013/14 to 2017/18), we cut emissions from over 21,500 to 15,300 tonnes - showing that **when we have a clear plan where everyone plays a part, rapid change can happen.**

In taking these significant climate actions, we have also created attractive, comfortable spaces for staff to work and for the community to enjoy Council services.

Where we are now

Banyule's emission profile (Figure 2) is largely consistent with those of other local government authorities, with the majority of our emissions arising from electricity and gas consumption, as well as fuel used by fleet.

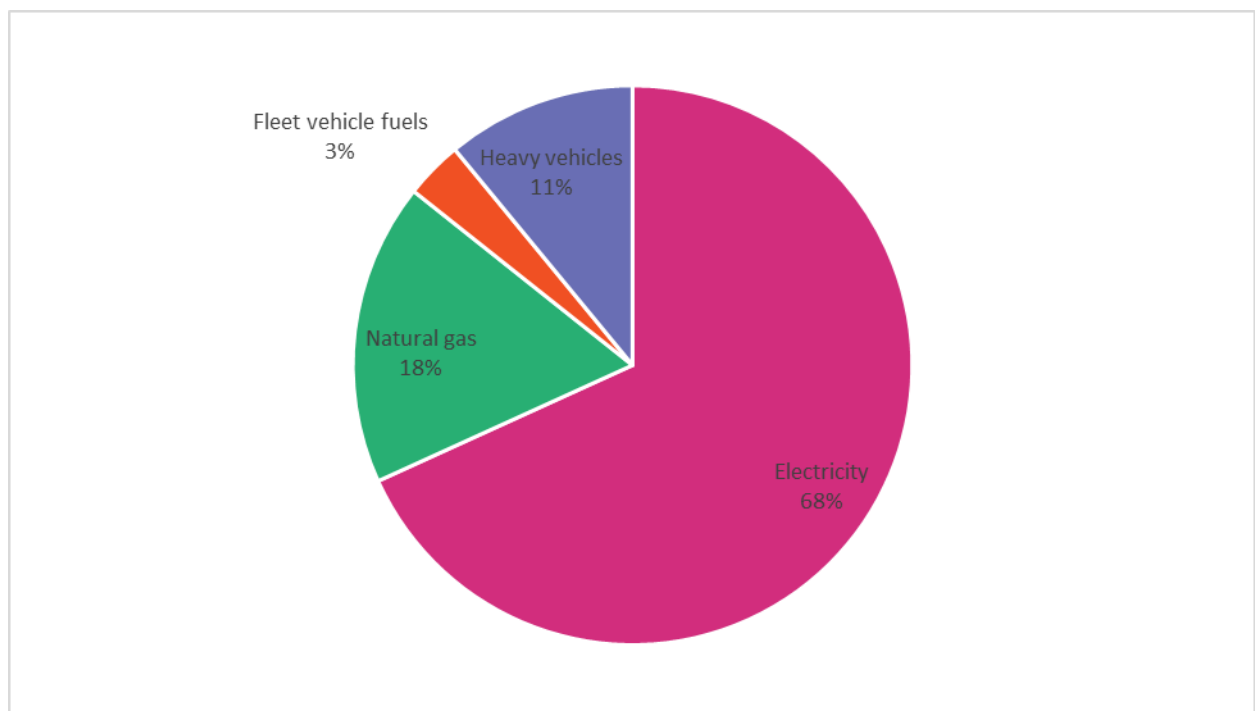


Figure 2 Banyule's Scope 1 and 2 Emissions Profile, 2017/18

When examining these emissions according to asset type (Figure 3), we can see that heating demands for pools within our leisure centres dominate a lot of this use, as does street lighting.

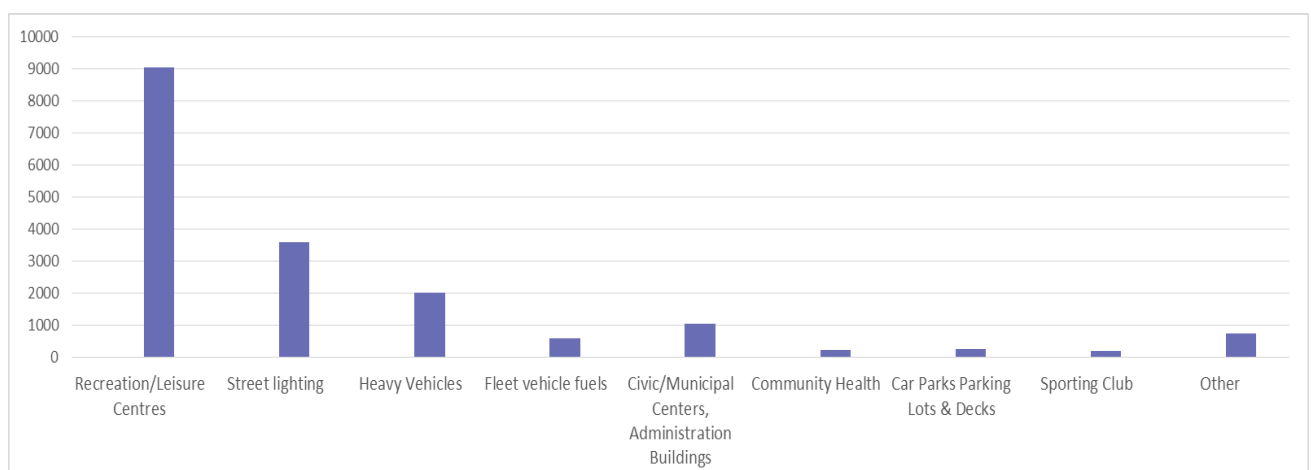


Figure 3 2017/18 scope 1 and 2 emissions by asset type (tonnes CO₂-e)

By understanding where Council's emissions are coming from, we are able to make informed decisions on how to prioritise our attention and future resources. This thinking has been reflected in the priority actions within this plan.

The National Carbon Offset Standard (NCOS) framework, requires consideration of additional emission sources that the Council has not previously calculated, referred to as Scope 3. These are emissions that occur outside of our 'control', but as a result of our activities. A common example is paper consumption. Whilst paper is manufactured by other organisations, by choosing to purchase paper Banyule has an indirect role in the emissions arising its production.

There are a large range of activities which fall into this category. The NCOS provides helpful guidance here, requiring emissions from sources that are deemed 'relevant' to the organisation to be captured, such as:

- water use
- paper consumption
- waste
- business travel and accommodation
- postage and freight
- IT services, and
- telecommunication services.

To determine the emission sources that are material to Banyule, we will:

- identify emissions from these activities using best available methods, and
- undertake a 'relevance test' as a priority.

Through this exercise, we will capture sources that:

- are large emission sources, relative to the rest of our emission sources
- are considered important for our key stakeholders, and / or
- we have the ability to influence the emission reduction.

We will include these emissions within our annual reports and consider them within our action plans.

Our approach to the plan

Reaching our zero net emissions target is both a cultural and technical task.

It takes a village

The actions outlined in this plan involve every part of Council. Absolutely *everyone* plays a part: our staff who manage fleet, those who maintain parks and others who engage with our community in libraries and leisure centres. Staff who procure a whole range of goods and services for our day-to-day activities.

Ultimately, our actions stem from Banyule's six core values, which call for:

- **Respect** and **Inclusion** by engaging our community and Council staff, both in developing this plan and on an ongoing basis. We need to understand and take heed of their needs and expectations.
- **Integrity** through transparently reporting on our progress in implementing the plan.
- **Responsibility** and **Initiative** in always looking for opportunities to do our work better and to learn from and share with other councils and businesses.

Leadership will fundamentally underpin these values, providing a foundation for significant and measured action. This means:

- We will get our own house in order first;
- We will take responsibility for using Council's assets and expertise wisely and generously. We will share our experiences with our community and other councils, and encourage and support them to play their part.

Technical approach

In identifying emission abatement actions, we investigated options for capturing our highest emitting activities first, to allow us to bring down our emissions as quick as possible.

The identification and selection of actions has been guided by the following best practice principles:

- the **energy hierarchy**: a way of prioritising actions to minimise both energy use and emissions as well as considering new infrastructure required, such as solar power (figure 4).
- **electrification**: replacing our gas use with electricity, to enable the use of green, renewable sources. Currently the electricity Council uses comes from the grid, powered by a mix of coal and renewables, as well as Council's own renewable (solar) power. Over time, the grid will be powered by more renewables and Council will also expand its own renewable power sources (through generation or procurement).
- **a staged approach** to our actions, to minimise inefficiencies and maximise the benefits of the increased renewable energy projected to be available in the future.
- as described above, it makes sense to electrify in later years when the grid supports more renewable energy, and instead prioritise other actions (such as energy efficiency in buildings to bring down our energy use), where the full benefits can be realised

now. This approach however will be balanced with the replacement program of our assets, to ensure we are not replacing near new or new assets.

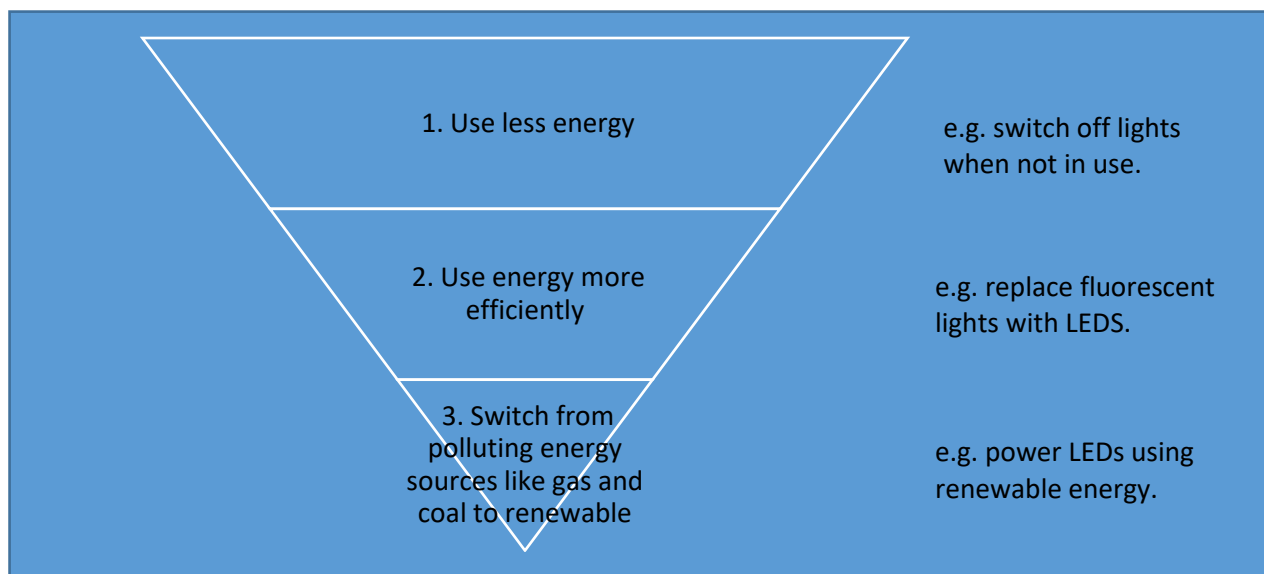


Figure 4 energy hierarchy

Bringing it all together

To build on our culture and develop an understanding of best practice actions that are technically feasible in Banyule, we followed a process outlined below.

Research		Long list of actions		Prioritise actions
Understand existing climate actions in Banyule policies and strategies.	→	Develop a long list of emission reduction actions based on those taking place in Banyule and other councils as well as options from best practice research.	→	Engage with staff and Councillors to develop prioritisation criteria.
Understand best practice from other councils.		Consider potential to reduce emissions, other benefits, costs.		Shortlist actions using criteria.

As part of this six month process, we engaged with staff and Councillors to develop a set of criteria for prioritising actions:

1. Impact on emissions + Demonstrating leadership (equal first priority)
2. Wider benefits to the Banyule community
3. Ongoing cost savings
4. Upfront cost
5. Council's ability to reduce emissions directly or by influencing others.

Considering these criteria has led Council to make a number of important decisions:

- **We will look to achieve zero net emissions, with a focus on energy reduction, efficiency and renewable energy generation.**

This reflects our commitment to take as much action as we can within our own operations and support the development of renewable energy in Banyule and nearby.

Offsets will only be utilised as a last option, for emission sources where we do not have operational control.

- **We are committed to aligning our carbon inventory to the relevant National Carbon Offset Standard (NCOS)**

As such, we will report on and consider all mandatory emissions - those from activities under our direct control such as electricity and gas consumption (Scope 1 and 2 emissions), as well as additional material sources that we have the ability to influence. At a minimum these will include business travel (flights and taxis), waste generation, paper use and water use (our Scope 3 emissions).

We will work with our suppliers of goods and services to develop an improved understanding of their emission sources and understand how we can support them to improve their own operations.

- **We will balance demonstrating best value for money, with the need to take risks.**

Council will always consider how to achieve the most cost efficient and best quality outcome from the services and products which we procure. In doing so we will consider the sustainable impacts of our purchases, including the environmental, economic and social impacts.

We will also begin to take calculated risks – particularly in circumstances where technology is still in its infancy. We need to be making bold decisions to achieve our target. We will learn from any mistakes and share the experience openly with others.

- **We will establish an appropriate funding model to ensure Council is strategically planning for its investment into future climate response actions.**

We will explore different funding models available to the Council, with the aim of improving certainty in, and availability of, funding for future environmental programs.



“We can’t sit back and wait for others to take the lead. We’ll have to take some risks to drive innovation, and maybe make some mistakes. The rewards are significant and the risks of not taking action too great”.

Scott Walker, Director City Development

Action plan 2020-2023

Over the next four years, 22 key actions will place us on a pathway to zero net emissions.

Collectively, these actions focus on reducing our energy use in the first instance, improving the way we use energy and increasing our use of clean, renewable energy. Through full implementation of these actions we can expect to see a 56% improvement in energy efficiency from today's standards.

In the following section we outline each action within the respective themes of:

1. Climate action culture
2. Zero net emissions buildings
3. Green fleet
4. Low carbon lighting
5. Electric leisure centres
6. Maximise renewable energy
7. Develop actions for new priority areas
8. Green suppliers
9. Monitoring, evaluation, reporting and improvement

A summary table in each of these areas identifies:

- when we will be undertaking the action
- whether funding has been already assigned in the current budget ('existing') or will require additional funding ('new')
- a high level indication of the cost of the action
 - \$ = \$0 - \$10k
 - \$\$ = >\$10k - \$100k
 - \$\$\$ = >\$100k

1. Climate action culture

Action	Description	Timeframe	Funding	Cost
1.1 Climate action culture	Identify best practice tools and techniques for embedding a culture of climate action within the Council.	Year 1	Existing	nil
1.2 Culture change program	Implement a cultural change program across the Council, embedding climate action as an all of staff responsibility. Support staff to undertake climate action within their own roles.	Ongoing	New	\$
1.3 Steering Committee	Establish a climate action steering committee to guide implementation of new climate action projects and increase collaboration between lead departments.	Ongoing	Existing	nil
1.4 Climate leadership	Foster collaboration, continuous improvement and innovation across the organisation.	Ongoing	Existing	\$

Meeting our carbon neutrality target is not going to be easy. We will all need to play a part - and ultimately change the way that we do our everyday tasks – so that climate action becomes our new norm.

An internal working group will engage with staff and other Councils to identify best practice tools and techniques that will help us develop this new culture. We will consider:

- how we are engaging all staff, to ensure a strong awareness of climate change and the need for action.
- the delivery of training to ensure that staff are well equipped to make decisions that align with the intent of this plan.
- how we champion climate leadership– both within council through the use of ‘champions’, as well as externally, by taking the initiative to collaborate more with other Councils and organisations.

Continuing to foster a positive culture of innovation and continuous improvement is a really important basis for all of our work, as is collaboration. A new Climate Action Steering Committee consisting of key Directors and Managers from across the organisation will support these outcomes, ensuring our programs are effectively delivered across departments whilst also championing action at an executive level.

“I want my colleagues to have an open mind and look for the opportunities to see how we can make a difference.

Look for innovative ways to achieve the plan outcomes, because business as usual will not do it for us. Look outside for examples of best practice, things we can improve on in our own operations, collaborate with our internal and external stakeholders who have expertise, and work together to fulfil the plan.”

- Geoff Glynn

2. Zero net emissions buildings

Action	Description	Timeframe	Funding	Cost
2.1 Building and improvement asset register	Utilise an asset register, in order to track all works to our buildings (i.e. upgrades, renovations).	Year 1	Existing	nil
2.2 Insulation and air conditioning upgrades	Install insulation, and upgrade heating and cooling systems in all council buildings to more efficient reverse cycle units.	Year 1-4	Existing and new	\$\$\$
2.3 Lighting	Replace all lights in Council buildings with LEDs.	Year 2 -4	Existing	\$\$\$
2.4 Refrigerators and appliances	Replace refrigerators and appliances in community facilities which deliver council services (Meals on Wheels, Maternal and Child health), with the most energy efficient alternatives.	Year 1-4	Existing and new	\$\$\$
2.5 Hot water	Replace gas and electric hot water boilers with solar alternatives or heat pumps.	Year 1-4	Existing and new	\$\$\$

Our building stock consists of a range of ages and conditions. This means there is plenty of scope for us to be smarter and more efficient in this space. Lighting, heating and appliance upgrades in particular will allow us to do this.

With insulation and air conditioning upgrades and LED lighting, our buildings will be **warm in winter and cool in summer** with light, bright workspaces - all while using less energy and creating less pollution.

Over the next four years, we will prioritise upgrading wall and ceiling insulation in all council buildings. Insulation, which reduces the flow of heat into or out of buildings, is one of the most effective and affordable measures to reduce energy use – presenting an easy ‘win’.

Windows are another source of unwanted heat gain in summer and significant heat loss in winter. In our existing buildings, we will replace single glazed windows with double glazed or low emissivity treatment films in a number of existing buildings. For all new builds and renovations, Council will continue to use double glazing and low-emission glass.

Together, our insulation and window glazing actions will halve the energy required to heat and cool our buildings.

Lighting typically accounts for up to half of electricity use in office buildings, which is why replacing existing halogen and fluorescent lights with efficient LED technology is another high priority. Other actions to achieve our zero net buildings target will require upgrading our air conditioning systems from gas-based heating and ageing electrical cooling systems to more efficient electrical reverse cycle units. We will also replace refrigerators and appliances with the most efficient alternatives available and install solar hot water systems or heat pumps to replace gas and electric boilers that provide hot water in our office kitchens and toilets.

These actions will all be rolled out in line with the asset replacement program of all buildings, to ensure introduced changes are fit for purpose and present best value for money.

Moving forward, we need to be better at utilising a single point of information on our assets, which documents all upgrade and maintenance works that are undertaken by different departments. This work will help us track what buildings need what works easily in the future, not to mention enable monitoring of the effectiveness of introduced measures. This will be supported by education and process changes, to ensure that staff update this register as part of a standing process.

3. Green Fleet

Action	Description	Timeframe	Funding	Cost
3.1 Light fleet, fuel efficiency	As a transition measure, pursue best available environmental option (i.e. hybrids / electric) for light vehicles.	Year 1 onwards	Existing	\$\$\$ (above BAU)
3.2 Light fleet, policy	Review and update Council's Fleet Policy to ensure alignment with Banyule's climate action approach.	Year 1 - 2	Existing	nil
3.3 Light and heavy fleet infrastructure	Investigate (and implement) future EV infrastructure requirements to enable fully electric light and heavy fleet by 2028.	Year 2 - 4	New	\$\$\$
3.4 Heavy fleet, technologies	Replace heavy fleet vehicles with best available environmental option.	Year 1-4	New	\$\$\$
3.5 Heavy fleet, technologies	Partner with other Councils and organisations to facilitate research and development projects, to support the introduction of new technologies in Australia.	Year 1 - 4	New	\$\$
3.6 Heavy fleet, electric / hybrid / other trucks	Investigate and pilot alternative heavy vehicles options, including electric, hybrid and other zero emission alternatives.	Year 4 onwards	New	\$\$\$

Fleet is an unsurprisingly large contributor of emissions for the Council. Our goal here is to **replace all fleet vehicles (light and heavy) with electric or other zero emission alternatives** by 2028, with charging for electric vehicles occurring through the use of clean, green power that is generated on site.

Light fleet is the term used to refer to vehicles used by staff for business travel and work purposes. Council's Fleet Policy requires that these are four cylinder vehicles only and sets mandatory emission standards for these vehicles. Updating this policy and shifting all light fleet vehicles to hybrids (only in the absence of market available electric vehicles) or electric vehicles will see a notable decline in transport emissions.

We will prioritise the roll out of EV charging infrastructure across our Council locations, to ensure we are ready for a complete fleet of electric vehicles (light and heavy) in the future.

Council's heavy fleet currently comprises over 200 items of major plant and vehicles. This includes our garbage and recycling trucks, as well as utes and large sedans that are used in our parks and reserves. Council will work towards replacing these vehicles with electric hybrid or other zero emission alternatives, in line with their replacement schedule.

In many instances, the relevant technology is still in its infancy. Recognising this, Banyule together with other Councils and organisations, will work with relevant manufacturers to play a leadership role and pilot new technologies.

We expect that with market improvements, there will be greater opportunity to roll out piloted technologies during the next action plan from 2024 onwards.

4. Low Carbon Lighting

Action	Description	Timeframe	Funding	Cost
4.1 Open space lighting, replacement	Upgrade all open space lights to efficient LEDs.	Year 2-4	New	\$\$\$
4.2 Street lighting, investigation	Undertake a business case investigation to determine the roll out of LED streetlights, taking into account any existing commitments by electricity distributors and future funding programs.	Year 1	Existing	\$
4.3 Street Lighting, replacement program	Upgrade street lights to efficient LEDs, in line with investigation outcomes.	Year 2 - 4	Existing	\$\$\$

Significant reduction in emissions can be achieved across our lighting stock with the roll out of efficient LED technology. These lighting alternatives typically use in the order of 50 - 60% less energyⁱⁱ, providing reduced costs and greenhouse gas emissions, as well as improvements in lighting quality.

In determining the best replacement program for Banyule's circumstances, a business case investigation will be undertaken. This will consider key variables that affect the viability of a LED roll out, such as the type of lamps within our stock, energy demand requirements, network charges and maintenance/replacement cycles. Importantly we will investigate funding opportunities, such as those provided under the Emissions Reduction Fund, in order to supplement Council's own investment in this space.

Lighting within our open spaces such as reserves and areas surrounding Council office buildings and community facilities will also receive upgrades to LEDs over the four year period.

Carpark lighting upgrade

In 2018, Banyule identified significant scope for improvement in the energy efficiency of car park lighting within Watermarc, Greensborough.

As a result more than 800 lights over four storeys were changed from T5 fluorescent tubes and metal halide globes to LED tubes and globes. It is anticipated that the changeover should see an annual reduction in electricity consumption of around 300,000kWh/a – equating to 325 tonnes CO₂-e/a or around 2% of Council's total GHG emissions.

With a payback period of 1.25 years, the project has also improved the lighting conditions across the site.

5. Electric Leisure Centres

Action	Description	Timeframe	Funding	Cost
5.1 Heat pumps	Investigate and pilot the use of heat pumps at a large aquatic site to determine future viability.	Year 2 - 4	New	\$\$\$
5.2 Pool pumps	Replace pool pumps and filtration systems with more efficient alternatives.	Year 2 - 4	Existing and new	\$\$\$
5.3 Pool blankets	Undertake a business case investigation of pool blankets to determine suitability for different sites. Install pool blankets at appropriate sites.	Year 2 for investigation	Existing	\$\$

Heating requirements at our leisure centres account for a notable amount of Banyule's emissions profile. Actions to reduce these emissions will focus on keeping our pools at a pleasant temperature and working well, while reducing energy use.

The first action is to replace the current natural gas fired boilers with heat pumps at all aquatic centres. Heat pumps are a relatively new alternative to gas boilers or solar water heaters, where buildings are overshadowed by neighbouring structures or trees, or where large heating demand exists. They work by transferring heat in the air to the water stored inside the pump through a heat exchange system. "Heat" is a relative term as heat pumps will still work in sub-zero conditions. This action enables us to phase out gas and phase in electricity powered by renewable energy.

The second action is to replace ageing pool pumps and filtration systems with more efficient systems. Over time with wear and tear, the efficiency of these systems naturally wanes, whilst comparatively the technology typically improves – enabling strong efficiencies to be realised upon upgrading.

We will examine opportunities to install appropriate blankets over all pools when not in use. These reduce energy use by minimising the amount of heat lost from pools to the air.

The introduction of these initiatives will be subject to detailed investigation and trials at relevant sites. Heat pumps and pool blankets can be markedly effective when introduced in fit-for-purpose contexts. However they are expensive and present additional challenges for staff by increasing everyday operational requirements. Council will work with all staff to determine what designs may be considered appropriate for our leisure centres and what the ongoing cost implications will be. We will step into this space with a trial – piloting new technology at suitable sites. This stepped approach will ensure we continue to meet our best value cost requirements, whilst exploring more of the 'newer' technologies.

6. Maximise Renewable Energy

Action	Description	Timeframe	Funding	Cost
6.1 Renewable energy, generation	Continue to install solar across Council owned and managed assets.	Year 1-4	Existing	\$\$\$
6.2 Storage, select sites	Investigate and install energy storage at suitable sites.	Year 1-3	Existing	\$\$\$
6.3 Trading, participation	Investigate alternative procurement options that support renewable energy, such as Local Energy Trading Systems (LETS) or Power purchasing agreements (PPAs).	Year 2-3	New	\$\$\$

Council will investigate opportunities for **solar or wind energy generation to meet our future energy demands.**

In our city environment, we need to get creative and look beyond rooftops to other underutilised spaces. For example solar car parks, where solar panels provide a roof over parked cars, provide multiple benefits. They generate electricity, keep parked cars much cooler in summer and provide shelter from rain. Banyule will investigate turning its existing parking areas into solar car parks at key locations across the municipality.

Alongside this, Council will continue to invest in the roll out of small scale solar power on our owned and managed buildings that are suited to solar. This is particularly important for our community occupied buildings, where the energy bills are often paid by not for profit organisations, such as sporting clubs or our senior citizen groups.

We also recognise the need to investigate and install energy storage to meet after hour energy use for sports grounds and leisure centres. Under this plan, Council will examine the energy consumption of our assets to determine where batteries are most suitable. Already, Council has installed its first trial battery storage system at the Simms Road, Greensborough sports pavilion, with our next project planned for Nets Stadium.

Finally, Council will investigate Local Energy Trading Systems (LETS) whereby excess renewable energy generated by one Council can be exported to its own buildings at other sites or to other councils. This would mean Banyule could use the excess solar power internally or buy (or sell) from (or to) NAGA members or other partner councils, thereby supporting the growth of renewable energy in the area.

Securing long term affordable Green power through PPAs

In August 2019 Council passed a resolution, endorsing participation in a second Power Purchasing Agreement (PPA), alongside 47 other Victoria Councils.

PPA's are an agreement between an independent power generator and a buyer for the sale of energy. PPA's are commonly used to procure large amounts of renewable energy from sources such as solar or wind. PPA's support the renewable energy sector and importantly provide a price guarantee for buyer by securing a fixed price for electricity over an extended period.

Banyule has elected to participate in the Victoria Greenhouse Alliance Local Government PPA (VGA LG PPA) for 95% of our electricity consumption over a nine year period. An additional 5% of our consumption will be sourced through a PPA with Procurement Australia.

Significantly this means 100% of Banyule's future electricity consumption will be sourced from renewable sources – a big step in the right direction.

7. Develop actions for new priority areas

Action	Description	Timeframe	Funding	Cost
7.1 Whole of Council action, support	Support implementation of strategic plans in the key areas of waste and water.	Year 1-4	Existing and new	-
7.2 Whole of Council action, new actions	Develop actions for new priority areas of: <ul style="list-style-type: none"> • waste, • business travel, • paper use, and • water use. 	Year 1-4	Existing and new	\$

Historically Council has focussed on activities under its direct control - reducing energy use and generating renewable energy to address these specific sources (Scope 1 and 2 emissions). Following Council's Climate Action Resolution, additional emission sources will now be captured within our inventory, as required by the NCOS framework. These sources will be reviewed for relevance, however will include at a minimum, emissions arising from:

- waste,
- business travel and accommodation,
- office paper,
- catering, and
- water use.

For some of these new priority areas our approach to taking action is already established within existing plans, such as within the areas of water and waste with the *Strategic Water Plan* and *Towards Zero Waste Management Plan* respectively. Here we will continue to implement these actions but also identify new actions that might strengthen our response from a climate action lens.

With regards to waste, for example, the focus is to implement the *Towards Zero Waste Management Plan*. The plan outlines actions for a community motivated by zero waste to landfill by 2030. This will require all levels of government, manufacturers, the recycling industry, businesses and the community to actively participate. Other initiatives include expanding our Waste Recovery Centre to accept more types of materials and investigation into the collection of food waste with the existing green waste collection. We can support these actions through this plan by:

- highlighting the links between waste and climate change,
- including education on waste reduction opportunities within our internally focused climate action program, and
- including and monitoring waste emissions within our carbon inventory.

In other new areas, such as catering and paper, our task will be to work out the best way to influence reductions in these areas. This will tie in closely to our priority action of developing a culture of climate action, in which staff understand how to contribute to taking everyday actions, including within these areas.

Our progress will be assisted where possible by SMART goals – such as to become paperless by 2024 – supported by policy, to enable tracking and oversight of our performance. We will review our internal policies and practices to identify consistency in our approach across the Council.

8. Green Suppliers

Action	Description	Timeframe	Funding	Cost
8.1 Procurement	Support suppliers to reduce emissions from Council's procured goods and services	Year 1-4	Existing	\$ - \$\$

We recognise that we have a unique ability to influence improved environmental performance of our contracted goods and services. Reducing emissions in this way is a new area of focus for Council and one that we are just beginning to investigate.

Potential actions to support suppliers to reduce their emissions may include such things as:

- Undertaking an education program with key suppliers, to provide guidance and coaching on how to establish a carbon inventory and identify emission reduction opportunities;
- Attributing additional weighting in our procurement assessments to contractors who can offer 'green' options;
- Encouraging and rewarding supplier transparency in relation to actions they are taking to reduce emissions.

9. Monitoring, Evaluation, Reporting and Improvement (MERI)

Action	Description	Timeframe	Funding	Cost
9.1 Establish framework	Develop MERI framework for the plan.	Year 1-4	Existing	-
9.2 Monitor, evaluate, report and improve	Monitor, evaluate progress. Identify areas for improvement. Report on progress through a performance report card to be presented on the anniversary of the climate action resolution (mid December of each year).	Year 1-4	Existing	-

A monitoring, evaluation, reporting and improvement (MERI) framework will provide the basis for us to understand how we are tracking against our ambitious zero net emissions target. Through a strong framework we will be able to identify:

- the effectiveness of carbon abatement actions
- opportunities for improvement or areas which need future attention.

We will develop a simple MERI framework for the plan, drawing on existing frameworks in Council.

Our MERI activities will need to fulfil the needs of Council and the community. This means:

- Internally within Council, we need to make sure we have data and processes that ensure we understand our performance.

In this vein we have recently introduced an energy data management system to monitor Council building energy consumption and generation across all Council owned buildings and assets. We now have better quality and more granular data, enhancing our ability to forecast emissions, set targets and track progress.

- Externally, that we will address interest from the community for improved transparency around energy performance and more generally, in progressing towards zero net emissions. This MERI will allow this to occur. We are committed to improving how and what we report on.

Refreshing our approach to reporting

Each year Council establishes a State of Environment (SOE) report. Traditionally this has focused on the Council's delivery of the Planet objectives, many of which are delivered by the Environment Team. Increasingly however, the delivery of environmental sustainability activities are being led from across Council's departments, in areas such as Sport & Leisure and Early Childhood Services. As a result we are expanding our reporting to capture important activities.

To ensure the Report remains relevant for our community, we have committed to improving how we tell the 'story' itself – utilising case studies and different media platforms to bring our journey to life.

Next steps: get involved!

We will implement this plan - monitor, evaluate, report and improve on it on an ongoing basis. Towards the end of this four year period we will develop our next action plan for 2024-2028, in consultation with staff, councillors and community.

Implementing our plan for zero emissions by 2028 is going to be a journey and we strive to bring everyone along. The plan is complemented by ongoing engagement with our staff and community. We encourage you to stay in touch and sign up for updates through our quarterly environment newsletter:

<https://www.banyule.vic.gov.au/Waste-environment/Environment-sustainability/More/Subscribe-to-Greenwrap>

You can also stay up to date on our work through our website here –

<https://www.banyule.vic.gov.au/Waste-environment/Environment-sustainability/Climate-action>

*“I don’t think any one individual can make the plan work - it’s got to be a **collective effort**.”*

- Geoff Glynn

Summary of actions

Action	Description	Timeframe	Funding	Cost	Lead department
1.1 Climate action culture	Identify best practice tools and techniques for embedding a culture of climate action within the Council.	Year 1	Existing	nil	Environment
1.2 Culture change program	Implement a cultural change program across the Council, embedding climate action as an all of staff responsibility. Support staff to undertake climate action within their own roles.	Ongoing	New	\$	Environment
1.3 Steering Committee	Establish a climate action steering committee to guide implementation of new climate action projects and increase collaboration between lead departments.	Ongoing	Existing	nil	Environment
1.4 Climate leadership	Foster collaboration, continuous improvement and innovation across the organisation.	Ongoing	Existing	\$	Environment
2.1 Building and improvement asset register	Utilise a building asset register, in order to track all works (i.e. upgrades, renovations) undertaken by site.	Year 1	Existing	nil	Delivery & Assets
2.2 Insulation and air conditioning upgrades	Install insulation, and upgrade heating and cooling systems in all council buildings to more efficient reverse cycle units.	Year 1-4	Existing and new	\$\$\$	Environment
2.3 Lighting	Replace all lights in Council buildings with LEDs.	Year 2 -4	Existing and new	\$\$\$	Environment
2.4 Refrigerators and appliances	Replace refrigerators and appliances in community facilities which deliver council services (Meals on Wheels, Maternal and Child health), with the most energy efficient alternatives.	Year 1-4	Existing and new	\$\$\$	Leisure & Recreation

Action	Description	Timeframe	Funding	Cost	Lead department
2.5 Hot water	Replace gas and electric hot water boilers with solar alternatives or heat pumps.	Year 1-4	Existing and new	\$\$\$	Leisure & Recreation
3.1 Light fleet, fuel efficiency	As a transition measure, pursue best available environmental option (i.e. hybrids / electric) for light vehicles.	Year 1 onwards	Existing	\$\$\$ (above BAU)	Fleet Management
3.2 Light fleet, policy	Review and update Council's Fleet Policy to ensure alignment with Banyule's climate action approach.	Year 1 - 2	Existing	nil	Delivery & Assets
3.3 Light and heavy fleet infrastructure	Investigate (and implement) future EV infrastructure requirements to enable fully electric light and heavy fleet by 2028.	Year 2 - 4	New	\$\$\$	Fleet Management
3.4 Heavy fleet, technologies	Replace heavy fleet vehicles with best available environmental option.	Year 1-4	New	\$\$\$	Fleet Management
3.5 Heavy fleet, technologies	Partner with other Councils and organisations to facilitate research and development projects, to support the introduction of new technologies in Australia.	Year 1 - 4	New	\$\$	Fleet Management
3.6 Heavy fleet, electric / hybrid / other trucks	Investigate and pilot alternative heavy vehicles options, including electric, hybrid and other zero emission alternatives.	Year 4 onwards	New	\$\$\$	Fleet Management
4.1 Open space lighting, replacement	Upgrade all open space lights to efficient LEDs.	Year 2-4	New	\$\$\$	Environment
4.2 Street lighting, investigation	Undertake a business case investigation to determine the roll out of LED streetlights, taking into account any existing commitments by electricity distributors and future funding programs.	Year 1	Existing	\$	Environment

Action	Description	Timeframe	Funding	Cost	Lead department
4.3 Street Lighting, replacement program	Upgrade street lights to efficient LEDs, in line with investigation outcomes.	Year 2 - 4	Existing	\$\$\$	Environment
5.1 Heat pumps	Investigate and pilot the use of heat pumps at a large aquatic site to determine future viability.	Year 2 - 4	New	\$\$\$	Environment
5.2 Pool pumps	Replace pool pumps and filtration systems with more efficient alternatives.	Year 2 - 4	Existing and new	\$\$\$	Leisure & Recreation
5.3 Pool blankets	Undertake a business case investigation of pool blankets to determine suitability for different sites. Install pool blankets at appropriate sites.	Year 2 for investigation	Existing	\$	Environment Leisure & Recreation
6.1 Renewable energy, generation	Continue to install small scale solar across Council owned and managed assets.	Year 1-4	Existing and new	\$\$\$	Environment
6.2 Storage, select sites	Investigate and install large scale energy storage at suitable sites.	Year 1-3	New	\$\$\$	Environment
6.3 Trading, participation	Investigate alternative procurement options that support renewable energy, such as Local Energy Trading Systems (LETS) or Power purchasing agreements (PPAs).	Year 2-3	New	\$\$\$	Environment
7.1 Whole of Council action, support	Support implementation of strategic plans in the key areas of waste and water.	Year 1-4	Existing and new	-	Respective department lead
7.2 Whole of Council action, new actions	Develop actions for new priority areas of: <ul style="list-style-type: none"> waste, business travel, paper use, and water use. 	Year 1-4	Existing and new	\$	Environment

Action	Description	Timeframe	Funding	Cost	Lead department
8.1 Procurement	Support suppliers to reduce emissions from Council's procured goods and services	Year 1-4	Existing	\$ - \$\$	Procurement
9.1 Establish framework	Develop MERI framework for the plan.	Year 1-4	Existing	\$	Environment
9.2 Monitor, evaluate, report and improve	<p>Monitor and evaluate progress. Identify areas for improvement.</p> <p>Report on progress through a performance report card to be presented on the anniversary of the climate action resolution (mid December of each year).</p>	Year 1-4	Existing	-	Environment

Glossary

Carbon neutral	See ‘zero net emissions’
Climate change	Changes to the Earth’s climate caused by human activity including burning fossil fuels and clearing vegetation. Impacts include a global temperature increase as well as local droughts, floods, extreme hot and cold spells, and more intense rainfall.
CO₂-e	Carbon Dioxide-equivalent. A measure used to compare emissions from greenhouse gases based upon their global warming potential, the amount they contribute to climate change.
Cogeneration	A system that generates both electricity and useable heat, for example for water and space heating. Cogeneration is a more efficient use of fuel because heat from electricity generation that would otherwise be wasted is put to use.
Electrify	To change energy sources from polluting fuels such as gas, diesel and petrol, to electricity which can be powered by renewable energy.
Energy efficient	An appliance or vehicle that is energy efficient generates ‘more output per input’: more light, heat, movement or other desired output, per input of energy.
Energy hierarchy	A way of prioritising actions to minimise both energy use and emissions as well as new infrastructure required to provide clean energy, such as solar power. It requires first using less energy, then using energy more efficiently, then switching from polluting energy sources like coal and gas to renewable energy.
Fossil fuels	Non-renewable fuels such as coal, gas and oil that have formed within the earth over millions of years. They create greenhouse gases when burnt.
Greenhouse gases	Carbon dioxide, methane, nitrous oxide and other gases that contribute to climate change.
LEDs	Light Emitting Diodes. Energy efficient lighting.
Local Energy Trading Scheme (LETS)	A scheme for trading electricity whereby excess renewable energy generated by one organisation can be exported to another.
MERI	Monitoring, evaluation, reporting and improvement of our plan.
National Carbon Offset Standard (NCOS)	A voluntary standard that outlines how to measure, reduce, offset and report emissions in Australia. It can be used by organisations to manage their greenhouse gas emissions and be certified carbon neutral (zero net emissions).

National Greenhouse and Energy Reporting (NGER) Scheme	A set of requirements for organisations to measure and report their greenhouse gas emissions, energy use and energy production in Australia.
Offsets, carbon offsets	Projects that compensate for emissions at one source by either investing in emissions avoidance elsewhere, such as through renewable energy generation, or removing carbon from the atmosphere through reforestation. With enough purchase of offsets, net emissions from the organisation's activities could be reduced to zero (zero net emissions).
Renewable energy	Energy generated by renewable sources such as the sun, wind and movement of water.
Scope 1 emissions	Emissions released as direct result of Council's activities, such as emissions from gas burnt in aquatic centre boilers and fuel burnt in fleet vehicles. The emissions are produced directly by Council's facilities or vehicles.
Scope 2 emissions	Indirect emissions from Council's use of energy, where the energy and emissions are produced offsite by another party. An example is electricity that Council buys from the grid.
Scope 3 emissions	Emissions that are generated in the wider economy to produce a range of goods and services that Council uses, as well as emissions from waste, business travel and water use.
Zero net emissions	Once an organisation has minimised emissions from its own facilities and activities, there will still be some unavoidable residual emissions, for example in producing goods and services used by the organisation. Net emissions are zero when the organisation buys carbon offsets or installs renewable energy that reduces emissions by the same amount as the residual. Another term that has the same meaning is 'carbon neutral'.

ⁱ UN Intergovernmental Panel on Climate Change (2018) Special Report: <https://www.ipcc.ch/sr15/>

ⁱⁱ Denvir, Patrick, "Should Council's upgrade to LED street lighting now?", Sept 2015, accessed online at <https://100percentrenewables.com.au/councils-upgrade-led-street-lighting-now/>