# Climate response plan 2021 - 2031

our city

**Knox City Council** 

# Introduction



Knox City Council recognises that we are in a state of climate emergency. As a community, we need to take action to reduce our impact on the environment and to prepare for the effects of a changing climate.

Many residents have begun to reduce their impact on the environment and Council has worked to reduce its emissions – but we will be much more effective if we work together.

Knox City Council is committed to managing our greenhouse gas emissions and response to climate change and have developed the Climate Response Plan 2021-2031. This plan sets out our targets and provides a roadmap with measurable actions on how this will be achieved in partnership with the Knox community.



# Understanding the effects of climate change



Climate change is one of the biggest threats to the future of our community and country. We are starting to see some of its effects and will continue to see an increase in warmer and drier conditions, which will have negative consequences for health, infrastructure, agriculture, water, and biodiversity. This is due to increased frequency and intensity of heatwaves and storms.

Atmospheric carbon dioxide concentrations have risen from around 280 parts per million at the start of the industrial revolution, to above 400 parts per million today. The increasing concentration of carbon dioxide, along with other greenhouse gases, is trapping heat in the Earth's atmosphere and warming the planet because of the enhanced greenhouse effect.

To date, the following key measures have been undertaken by Council to lower our emissions:

- Since 2016, Council has replaced 10,600 streetlights to LED to reduce energy use by more than 75%.
- Energy efficiency upgrades and Solar PV installations in Council buildings have reduced Council's emissions by 27% since 2015/16.
- Introduced three electric cars to Council's fleet in 2019, to reduce fuel emissions. In addition, two public electric car charging stations were installed in the Knox Civic Centre carpark.

- Provided sustainability programs for residents to lower community emissions. Programs include Australian Energy Foundation advice program, Solar Savers, Compost Community, National Tree Day, National Ride2Work Day, and National Walk Safely to School Day.
- Helped businesses become more sustainable by providing programs such as Environmental Upgrade Finance and access to the ASPIRE Circular Economy platform.

### About Knox Climate Response Plan

The Climate Response Plan sets out a pathway to a net zero emissions Knox City Council by 2030 and actions to help our community reach net zero emissions by 2040.

It outlines:

- how Knox will adapt and improve its resilience to the climate hazards that impact the city now and in future climate scenarios,
- the social, environmental, and economic benefits expected from implementing the Plan, and
- Council's governance, powers, and the partners who need to be engaged to accelerate the delivery of Knox's mitigation targets and resilience goals.

# **Net Zero Emissions**



Council's targets are aligned to the urgent global effort required to limit warming to below a 2°C increase (below pre-industrial levels). The latest science now shows that a 1.5°C increase is locked in and the work that we do in the next decade will have profound impacts on the future the Knox community will face.

#### A net zero Knox City Council means:

- Net zero greenhouse gas (GHG) emissions from fuel use in buildings.
- Net zero GHG emissions from use of grid-supplied energy.
- Wherever possible, net zero GHG emissions related to indirect emissions.



### A net zero Knox community

Reducing emissions is a shared responsibility between all levels of government, business and the community. Council's role as a community leader will support and help drive emissions reduction in our municipality. This Plan outlines the actions that Council will take to assist the community in reaching net zero emissions by 2040 and where Council can assist the community in choosing everyday actions that will help move towards a low emissions future.



# Knox community emissions profile



The 'Snapshot Community Climate Tool' has been developed by Ironbark Sustainability and Beyond Zero Emissions and provides a national database of community emissions for all local governments in Australia. This tool has been used to obtain data on Knox community emissions for 2019.

The industrial sector is the largest contributor to emissions in Knox, accounting for 50% of total emissions.





# Council's emission profile



Council's corporate carbon emissions are categorised as follows:

- Scope 1: Emissions from a facility or site under the direct control of the Council (examples include emissions from mains gas and fuel used in Council's Fleet).
- Scope 2: Indirect emissions created off-site for facilities under the direct control of the Council, from metered electricity purchased for Council's facilities.
- Scope 3: Emissions from off-site facilities or activities, not under operational control of Council (e.g., unmetered electricity such as streetlights, waste from Council operations, emissions from contractor vehicles and emissions from leased buildings).

### Our response to climate change

Climate change is a complex issue and requires a proactive and multifaceted approach from all levels of government including Council, the community, including residents, business and industry, and community groups to make real change. Mitigating the effects of climate change requires setting clear targets to direct efforts towards achieving these targets, monitoring and evaluating the effectiveness of programs, and placing accountability on government, Council, and our Knox community.







# **Guiding principles**



These guiding principles helped Council to develop actions to minimise climate impacts, build a resilient community, and protect the ecosystems that sustain us. These principles assisted Council to address the important social, economic, and environmental challenges and develop the solutions that are required to meet the climate challenge.

The actions included throughout the Climate Response Plan are intended to be:

- Ambitious: Set goals and implement actions that evolve towards an ambitious vision.
- Inclusive: Involve community, business, and other stakeholders in finding solutions.
- Fair: Seek solutions that equitably address the risks of climate change and share the costs and benefits of action across the community.
- Relevant: Deliver local benefits and support local development priorities.
- Actionable: Propose cost-effective actions that are realistic.
- Evidence-based: Reflect best practice scientific knowledge and local understanding.
- **Transparent and verifiable:** Set goals that can be measured, reported, and evaluated.



# **Community consultation**



An engagement process was developed to incorporate the ideas of the Knox community and respond to their priorities and aspirations about how we tackle climate change together. Between May and July 2021, Council conducted a range of face-to-face and online activities. Over 370 people provided feedback through pop-up events, a workshop, survey, or other online activity, providing a total of just over 3,000 comments and votes. One of the strongest results from the community consultation was for Council to adopt a more ambitious community net zero target. Based on this feedback, and the science that supports this ambition, the community target has been brought forward from the originally proposed 2050 to 2040.

Some of the other suggestions from the Knox community that have been incorporated into the Plan are:

- Providing community education programs on actions to reduce emissions.
- Making sustainable transport options more accessible and appealing, including enhancing cycle and walking paths, providing better links between transport mode, and advocating for more efficient public transport to the region.
- Reviewing key Council policies to ensure climate change impacts are considered during decision making.
- Updating the Council report template to introduce a new section titled 'Climate Change Considerations' so that all future Council reports are assessed against the Climate Response Plan and relevant mitigation and adaptation considerations.



# **Community advocacy**



The consultation period also identified a gap in acknowledging and shaping the role of other major stakeholders in mitigating emissions for the City of Knox. Council's efforts alone will not be sufficient to address the threat of climate change. It is imperative that changes occur at other levels of government, within the community, and by major business and industry, in order to reach a target of community net-zero emissions by 2040.

Significant reductions in emissions are anticipated as a result of the decarbonisation of the electricity grid and actions taken at the local level such as the installation of solar and the uptake of electric vehicles. Together, with the emissions savings resulting from Council interventions, emissions in Knox are anticipated to be reduced by almost half of what they would otherwise be, by 2030.

The remaining emissions remain a challenge in mitigating climate change and achieving a net zero emissions target. The State and Federal Government have key roles in regulating and influencing the energy sector, transport, and the economy, and as such, actions taken by them will influence the emissions trajectory within the City of Knox. Council has identified some key advocacy opportunities to help shape and advance these necessary actions and to lend our voice to the groundswell of organisations within Victoria and the nation calling for greater action on climate change.

Council already has close ties with some organisations working on climate change advocacy, such as the Eastern Alliance for Greenhouse

Action (EAGA) and the Council Alliance for a Sustainable Built Environment (CASBE). These partnerships will need to continue. Council has identified advocacy opportunities and estimated the potential emissions savings to the municipality by 2030 for a number of these. For example:

Advocacy initiative	Estimated emissions savings to Knox by 2030
Electric Vehicle Ready Built Environment	190,000 tCO <sup>2</sup> e
Increased Minimum NatHERS Standard	130,000 tCO <sup>2</sup> e
Net Zero NatHERS Standard	720,000 tCO <sup>2</sup> e
Net Zero Gas Districts & Renewable Transition	80,000 tCO <sup>2</sup> e
Mandatory Energy Efficiency Standards for Rental Properties	250,000 tCO <sup>2</sup> e

#### In addition, Council will:

- Join the Cities Power Partnership (a free initiative of The Climate Council, specifically designed to assist local government around Australia to transition to a net zero future); and
- Make a voluntary pledge to the State Government under the Climate Change Act 2017 to acknowledge the role that Knox City Council will play in reducing emissions.

### Protecting community health and resilience

Supporting the health and well-being of vulnerable members of the community is a strategic priority for Knox Council. This includes older people and people living with a disability. The potential impacts of climate change, specifically increased frequency of heatwaves and storms, may exacerbate existing health sensitivities, accommodation stress, and isolation.

#### We will support our community by:

- Undertaking upfront planning and defining responsibilities to better coordinate service providers involved in delivering assistance to older people during emergency events.
- Identifying areas where urban heat islands intersect with vulnerable populations. This includes identifying hotter and cooler routes that vulnerable populations (older adults retirement villages) may walk or ride mobility scooters.
- Undertaking a prioritisation process for investment in urban cooling measures.
- Delivering an annual campaign to help vulnerable populations prepare for heat health alert days.

- Developing community education programs in areas such as:
  - Climate sensitive planting.
  - Adapting to the impacts of climate change.
  - Minimising the risk of fire and impacts of smoke inhalation.
  - Retrofitting homes and buildings to ensure high performance.
  - Available subsidies and accessing renewable energy.



# **Our environment**



The municipality of Knox is bounded by the Dandenong Ranges National Park to the east, by Churchill National Park and Lysterfield National Park to the south, and by the Dandenong Creek Valley Parklands to the west, however, the natural environment within the municipality is extremely fragmented due to both residential and commercial development.

Council managed bushland reserves are an important part of the remaining network of natural habitat and provide important food and shelter for a wide variety of wildlife, including many bird species, bats, frogs, reptiles, and insects. There are over 40 threatened species within the municipality, and extreme weather events have the potential to lead to local extinctions.

Some of the impacts of climate events on biodiversity include:

- direct fauna casualties,
- habitat loss,
- reduced 'functional biodiversity' (ability for fauna to move for food, breeding and protection),
- reduced long-term survival and resilience of species, and
- new diseases.

Given the large degree of fragmentation, it is essential for us all to work collaboratively. This means Council, community groups, residents, state and national agencies working together to ensure:

- A consistent approach to the management of pest plants and animals, and
- Continuous improvement of the quality and connectedness of natural environments within the municipality.



# **Our environment**



### Adapt and preserve our natural environment

A key area of action is to protect and buffer the current areas of high biodiversity value from the effects of climate change, whilst also enhancing the natural environment.

The design of streetscapes including the planting of street trees, inclusion of water sensitive urban design assets, vegetation and grassed areas can help to reduce urban temperatures and provide biodiversity and habitat benefit.



#### We will protect our natural environment by:

- Developing and implementing the Knox Biodiversity Resilience Plan.
- Implementing the Living Melbourne Metropolitan Urban Forest Strategy, which includes setting canopy tree targets and a mechanism to regularly track progress towards these targets.
- Developing a holistic tree species selection model that incorporates climate change risk, urban heat island mitigation and habitat corridor connectivity for enhanced biodiversity outcomes.
- Advocating to power authorities for lower impact vegetation management near power lines to minimise damage to canopy trees.
- Reviewing and revising the Liveable Streets Plan and the Green Streets Policy to promote 'tree-friendly' streetscapes that promote healthy canopy tree growth and reduce the harmful effects of urban heat islands.
- Investigating incentives, enforcement and planning options that help retain tree canopy cover on private land as well as mechanisms that increase additional tree canopy cover.

# **Transportation**



On-road transport is a significant source of emissions in the City of Knox contributing 13% to the municipal profile. A mode shift towards alternative forms of transport is the most important part of reducing car travel and lowering emissions from transport.

### Expanding the electric vehicle charging network

Electric vehicles (EVs), even when charged through the electricity grid, are a lower emissions alternative than a petrol or diesel vehicle. To support our community transitioning to EVs, this initiative seeks to expand the network of rapid charge stations across Knox.

#### We will support sustainable transport by:

- Identifying and setting aside select parking spaces for Electric Vehicle (EV) charging points, and exploring delivery models including partnerships with EV charging service providers, or through requiring EV charging points in new developments in certain zones.
- Engaging with owners or potential owners of charging infrastructure and work together with the relevant stakeholders to facilitate discussions that result in the removal of identified barriers.





### Changing the future of transport

This program involves investigating a car sharing program in Knox. Introducing new modes of transport will increase travel convenience, provide more travel options for our community, and potentially reduce car-ownership in Knox. The community consultation process told us that our community has ideas on how we can enhance the attractiveness and safety of our footpaths and other active and public transport options.

#### We will support sustainable transport by:

- Undertaking a detailed sustainable transport survey in the community to better understand how our behaviour change programs could support or respond to community needs and desire for more active and public transport options.
- Investigating the feasibility of a policy that promotes car share programs. This policy can focus on provision of dedicated parking for car share vehicles and the positive impacts of car sharing. Council will need to coordinate with inner-east Councils prior to a Knox roll out.
- If applicable after the feasibility study, we will facilitate the establishment of practical and easily available car and bike share schemes which are mutually beneficial to the service providers and residents.

### **Expansion of Council's electric vehicle fleet**

Currently, transport fuels are responsible for nine percent of Knox City Council's corporate emissions, and this is expected to increase over time. Council's Sustainable Fleet Policy will establish a framework to guide Council staff when purchasing new vehicles and designing fleet infrastructure such as parking bays and recharging stations. This will ensure that Council's investments in fleet and fleet infrastructure are future proofed for the EV transition.

#### We will transition Council's fleet by:

- Reviewing Council's Fleet Policy to ensure that sustainable technologies are embedded.
- Providing staff driver training which includes sustainable/ efficient driving techniques and practices.
- Investigating and phasing in the use of electric cars for Council's Pool Fleet. All Council's passenger pool vehicles to be EVs by 2025 where viable.
- Installing EV charging stations to meet Council's operational needs as demand increases.
- Ensuring utility vehicles used for operational activities are modern with the latest fuel-efficient technologies.
- Investigating and implementing the use of Telematics as appropriate.
- Exploring and trialling heavy plant electric vehicles with a view to incorporate and convert heavy fleet when viable.
- Ensuring that small plant is regularly serviced and changed over to ensure that the most efficient equipment is used within Council.

# **Efficient buildings and infrastructure**



In the Knox municipality, 37% of emissions come from residential and commercial stationary energy, which largely refers to the use of electricity.

### Low emissions building through design

This program aims to address the energy efficiency of buildings as they are being designed and built. The outcome would be buildings that are well insulated, well oriented, more comfortable, and resilient to increasing temperature and designed for low-energy use.

#### We will achieve low emissions building design by:

- Working within approvals process for new buildings to establish a collective understanding of what constitutes acceptable Environmentally Sustainable Design (ESD) and encourage all new buildings to achieve net-zero energy or net-zero energy ready rating.
- Encouraging phasing in requirements for all existing commercial buildings to achieve net-zero energy or net-zero energy ready ratings.
- Working with developers to pioneer zero net emission buildings and zero-net emission housing.
- Investigating planning scheme and rates incentives for positive outcomes such as faster processing of planning permits that meet specific requirements, or discounted rates.
- Building on existing public reporting requirements to implement a communications program that will actively apply pressure to developers to raise the energy efficiency performance through greater public awareness of the emissions footprint of new buildings.
- Deploying resources to increase the enforcement of National Construction Code (NCC) and planning requirements.

### Increase energy efficiency in council buildings

Knox Council adopted an Energy Performance Contract (EPC) in 2019 to reduce energy use across larger Council facilities. With \$1.85 million invested into energy efficiency upgrades at Knox Leisureworks, Rowville Community Centre, Ferntree Community Arts Centre and Library, Knox Community Arts Centre, and Knox Regional Netball Centre, Council can expect to see emissions reduced by approximately 45% or 1,226 tCO2e. The energy efficiency upgrades include LED lighting, solar panels, building management systems and upgrades to cooling/heating systems.

Council will continue to implement energy efficiency upgrades at facilities consuming the highest energy with initiatives such as installing solar photovoltaics (PV), lighting upgrades and gap sealing.

#### We will increase energy efficiency in Council buildings by:

- Implementation of the Sustainable Design and Infrastructure Policy.
- Implementation of Knox City Council Energy Performance Contract.
- Undertaking energy efficiency opportunities for Council buildings.
- Installing solar PV across remaining viable sites.



### Change public lighting to LED

Knox Council has already undertaken a bulk changeover of around 10,600 residential lights to LED, reducing energy use by over 75% and resulting in significant savings to operating and maintenance costs and greenhouse gas emissions.

#### We will improve public lighting energy efficiency by:

- Replacing approximately 3,300 lights to LED on major roads and intersections.
- Powering streetlights with wind energy via a Power Purchasing Agreement.



### Sustainable roads

Council constructs and repairs many kilometres of road each year. This program will lower emissions by using sustainable materials for the construction and maintenance of roads and footpaths and changing construction processes.





### Adapt and protect our buildings

Ensuring the continued operation of council facilities, the quality and effectiveness of associated services and the safety of users is of paramount importance to Council. The increased frequency and intensity of extreme weather events, including floods, bushfires, and storms, may lead to increased maintenance or operational requirements and costs.

#### We will adapt our buildings by:

- Engaging with the facility operators (Council and third party) to establish safe operating levels for facilities that are at risk of being impacted by climate stressors.
- Incorporating climate variables and future climate risk into building condition assessments to ensure that climate stressors, such as storms, bushfires, floods, and heatwaves are considered.
- Developing site-specific strategies for water harvesting of open space including sporting facilities to improve resilience.
- Embedding future planning and design criteria that ensure critical facilities and emergency services are in accessible and resilient locations.
- Reviewing and updating climate hazard mapping to ensure that planning decisions account for areas of future and current risk.

### **Climate Resilient Infrastructure**

Our community relies on the continued provision of public infrastructure. The safety of the people who use this infrastructure is the highest priority of Council. Adapting to increased pressure on this infrastructure due to climate change, means that care needs to be taken now in preparing for future impacts.

#### We will increase the resilience of our infrastructure by:

- Seeking legal advice on the liability associated with climatic events that have the potential to impact users of Council infrastructure.
- Engaging with public sector service providers, such as water authorities, to signal the importance of being prepared for future climate risks, learn from their practices, identify potential points of intersection with Council services and areas where collaboration might be mutually beneficial.
- Developing detailed financial impact analysis studies to access future external capital to support risk mitigation works linked to climate change.
- Identifying infrastructure that may require long-term adaptation measures due to flood or fire risk, such as retreat or relocation.
- Commencing an internal education process so that Council officers understand the future financial and infrastructure costs of not implementing climate change adaptations.
- Undertaking a feasibility study of the avoided costs of futureproofing the stormwater system via the renewals process rather than large-scale stormwater upgrades.
- Including drainage upgrades in future Capital Works Program business cases of all relevant asset types, to deliver climate resilient infrastructure.

# Renewable energy



Council currently participates in the Solar Savers program, which supports residents of Knox to install rooftop solar by providing advice and streamlining decision making about products and services.

### Solar for rentals

In addition to current programs, Council will support and facilitate solar installation for rental properties, an untapped market. Rental properties in Knox make up approximately 16.9% of the housing tenure. This program is focused on facilitating a program that addresses split incentives for property owners and renters.

#### We will assist our community to access renewable energy by:

• Working with solar installation companies and real estate agents to devise schemes that provide financial mechanisms for property owners to install solar on rental properties.

### Switch to Renewable Energy

As over 80% of Council's emissions are from electricity use, Switching to Renewable Energy will be a major part of achieving the Net Zero Target.

#### We will pursue renewable energy options by:

 Investigating enterprise models and detailed business cases for the funding, construction, and operation of a solar farm.
If not feasible, Council will investigate other methods of rapidly getting to zero emissions for energy through measures such as Power Purchase Agreements.



# **Business and industry**

The industrial sector accounts for 50% of the total emissions in Knox. This sector is comprised of small to medium sized manufacturing businesses, with some larger businesses also present. The largest opportunities for deep emissions cuts in the Knox community will be from the Industrial and Commercial sectors.

### Transition to a zero carbon economy

Council will support businesses and industry to achieve emissions reductions through energy efficient technology, degasification, and renewable energy. This support will be delivered through working groups with businesses, key industry bodies, research organisations, and advocacy to State and Federal governments.

The Environmental Upgrade Finance mechanism is also available across Knox for eligible property owners to finance climate mitigation and adaptation measures at their properties.

#### A zero-carbon economy program will consist of 3 key areas:

- Transitioning towards more energy efficient technology: This includes simple changes, such as transitioning lighting at industrial sites away from high-pressure sodium and metal halide to LEDs, and more complex changes such as air compressor systems, refrigeration systems and other industrial equipment.
- Transitioning away from gas as an energy source: Replace gaspowered machinery with viable clean energy alternatives e.g. renewable electricity, electromagnetic technology, bioenergy, solar thermal, geothermal and hydrogen.

 Sourcing all electricity from renewable sources: Including onsite solar PV systems and purchased grid renewables. In Knox, numerous businesses operate out of large warehouses, many with an ideal amount of roof space that could be used for renewable energy capture.

#### We will assist the transition to a zero-carbon economy by:

- Implementing working groups to focus on a specific set of interventions including alternative technologies, Power Purchase Agreements (PPAs), energy efficiency and degasification.
- Delivering workshops on renewable energy Power Purchase Agreements (PPAs) for industrial organisations with large electricity demand.



# Implementation summary

Action Category	Estimated	Anticipated Timeframe	<b>?</b>			Delivery Responsibility	Key partners for success		
	(to 2031)						Federal Govt.	State Govt.	Knox Community
Corporate Mitigation									
10.1 Expansion of Electric Vehicle Fleet	\$0.80m	2021-27				Council			
10.2 Energy efficient Council Buildings	\$14.0m	2021-31				Council			
10.3 Public lighting changed to LED lights	\$1.7m	2021-22				Council		•	
10.4 Switch to Renewable Energy	Up to \$8.5m	2023-31				Council	•	•	
Community Mitigation Opportunities									
10.5 Low Emissions Buildings Through Design	\$1.3m	2022-26				Council	•	•	•
10.6 Transition to a zero-carbon economy	\$0.5m	2021-23				Council	•	•	•
10.7 Solar for Rentals	\$0.03m	2022-26				Council	•	•	•
10.8 Expanding the EV Charging Network	\$0.15m	2021-24				Council	•		
10.9 Changing the Future of Transport	\$0.25m	2022-25				Council		•	
10.10 Sustainable Roads and Infrastructure	\$0.01m	2023-26				Council			
10.11 Develop a community education program	\$0.3m	2021-31				Council			•
Adaptation Opportunities									
10.12 Protecting community health and resilience	\$0.05m	2021-31				Council		٠	•
10.13 Adapt and preserve our natural environment	\$0.65m	2021-31				Council	•	•	•
10.14 Adapt and protect our buildings	\$0.2m	2021-31				Council			
10.15 Climate Resilient Infrastructure	\$0.07m	2021-31				Council	•	•	•
Approx. value of existing resources	\$4.0m	2021-31				Council			
Approximate total	\$32.5m								

# Tracking our progress



The impact of the actions in this plan will be measured in terms of the reduction in emissions, the reduction in climate risk and the inclusive delivery of wider social, environmental, and economic benefits.

Tracking our progress and the indicators we use to determine if the action plan is effective will inform regular revisions of the Plan. To ensure that we are using the best data, innovations and responding to major changes in policy, the Climate Response Plan will be evaluated at regular intervals and in line with emissions inventory reporting updates, or as new information on climate risks becomes available. Similarly, the budgets required for individual actions in the Plan will be subject to the normal Council business case processes. Actions will be assessed and reported on under the Council and Community Plans and State of Knox reporting processes.

Monitoring, evaluation, review and learning (MERL) will be implemented to track our progress in achieving our targets, and measuring the effectiveness of programs. This analysis will allow Council to optimise programs and redirect the course if necessary. This not only allows Council to address risks associated with program failures, but it also provides confidence that resources are being used effectively to achieve the planned outcome. Without undertaking MERL activities, inefficiencies or misdirection may not be realised until the end of the program or project.







Knox City Council acknowledges the traditional custodians of the city of Knox, the Wurundjeri and Bunurong people of the Kulin Nation.

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