ALPINE SHIRE COUNCIL

CLIMATE ACTION PLAN 2021-2024

ALPINE
SHIRE COUNCIL

Photo: Kate Hanton

Acknowledgement of Traditional Custodians

Alpine Shire Council acknowledges the Dhudhuroa, Gunai-Kurnai, Taungurung, Waywurru and Yaitmathang as the First Peoples and Traditional Custodians of the Alpine Shire.

We pay our respect to their Elders, past, present and emerging.

The Alpine Shire Council recognises the ancient and on-going presence of its First Peoples, and acknowledges their unique and continuing connection to the lands, waters and culture of the Shire.

Executive Summary

The Alpine Shire Council (Council) recognises that the beauty and diversity of our region's natural environment is fundamental to the prosperity of the local community, making the region incredibly susceptible to the impacts of climate change. The predicted changing weather patterns pose a significant threat to the natural and built environment, economic prosperity and community health. Council is committed to taking immediate mitigation measures – actions that will minimise Council's Greenhouse Gas (GHG) emissions. Through this Climate Action Plan Council commits to reducing GHG emissions from Council's own operations to net zero by July 2023.

The baseline GHG emissions from Council operations is calculated at 2384 tonnes CO_2 equivalent (t CO_2-e) per year. During the development of this Climate Action Plan Council signed on to the Victorian Energy Collaboration renewable Power Purchase Agreement (VECO PPA) which will provide all of Council's electricity usage from 100% renewable energy, thus reducing Council corporate emissions by approximately 60% from the beginning of FY 2021-2022. Despite this Council is still pursuing electricity use reduction, such as on-site solar PV and LED streetlights, for the co-benefits of lower electricity bills, less reliance on the grid, freeing up renewable electricity supply for other users and demonstrating leadership to the community.

Without GHG emissions from electricity the vehicle fleet is a significant emitter; the long-term goal is to establish a zero emissions fleet as technology allows. Initially the car fleet will be upgraded as each vehicle becomes due for replacement, firstly with hybrid and the infrastructure for Electric Vehicles (EV), then an ongoing phase in of EVs. Other emissions reduction opportunities considered include capping closed landfill sites with biofilters and replacing small petrol equipment and gas users with electric alternatives. Residual emissions will be offset through purchasing of carbon credits to achieve net zero from July 2023. The major emissions reduction opportunities likely to be implemented on the pathway to net zero, and associated GHG reductions are outlined in Table 1 Summary of significant GHG emissions reduction activities to meet net zero by 2023.

Table 1 Summary of significant GHG emissions reduction activities to meet net zero by 2023

Opportunity	Timeframe	Emissions Reduction (annual)
VECO PPA	2021 ongoing	1422 tCO_2-e
Solar PV and Battery	2021 through 2024	330 tCO_2-e (0 after VECO PPA)
LED Streetlights	2022 through 2025	620 tCO_2-e (0 after VECO PPA)
EV car fleet	Likely 10 year phase in	65 tCO_2-e
Purchase offsets	July 2023 ongoing	897 tCO_2-e

This Climate Action Plan is the beginning of a longer-term strategy; the next step of which is to develop a Climate Adaptation and Resilience Plan to ensure Council assets, and the community, are climate ready by addressing the consequences and impacts of changing weather patterns. Beyond this Council will endeavour to lead municipal wide action through mitigation, adaptation and resilience initiatives.

The implementation of this Climate Action Plan and performance against the target will be monitored and reported annually. To ensure optimum environmental, cost and community benefit the target, pathway and investment strategy of the Climate Action Plan will be reviewed in 2024.

Photo: Carol Binder

A Message from our Councillors

It's our pleasure to present the Alpine Shire Council Climate Action Plan 2021 - 2024.

We are excited to present this plan, which outlines our passion and commitment to the stunning natural environment that we are lucky enough to call home.

Council recognises the need for climate change mitigation and is committed to actions that will reduce our carbon footprint.

The natural beauty of our region is integral to the prosperity of our community, and as the Alpine Shire's elected representatives we have a responsibility to do everything we can to protect that natural beauty and preserve it for our future generations.

The 2019/2020 bushfire season highlighted our vulnerability to extreme weather events, and the global COVID-19 pandemic has shifted the way we work, play, learn and live.

Living in these uncertain times, it is more important than ever that we set ambitious targets and approach climate action with determination, commitment and our sights set on a clean future.

It's essential that we are resilient to predicted climate change scenarios through emergency management and adaptation measures.

Through this Climate Action Plan, Council is accountable for the impact our operations have on global greenhouse gas emissions.

We are committed to the ambitious target of achieving net zero greenhouse gas emissions from Council operations by July 2023.

We have identified an environmentally, economically and socially responsible pathway to achieve this target, which is outlined in this document - we encourage you to take some time to read this plan and consider how you can make individual changes toward reducing your own emissions.

This document will be reviewed in three years to ensure we remain current with climate science, technology and community expectations.

Through our climate change mitigation actions we are leading by example - going forward we will work to help the community to reduce their own emissions.

We look forward to working with you, and paving the way for a clean future for the Alpine Shire.

Photo: Sophie Argiriou

Introduction

The impact of climate change is evident in observed global temperature trends as well as worsening extreme weather events. The Alpine Shire Council has experienced its vulnerability firsthand in the recent extreme bushfire season of 2019-2020 and the catastrophic and ongoing financial, social and environmental implications of such an event. Through this Climate Action Plan Council commits to taking action to mitigate climate change by setting a target of net zero GHG Emissions from Council's own operations by July 2023.

This Climate Action Plan addresses climate change mitigation – the GHG emission reduction actions that Council will implement on the pathway to achieving the net zero target. Beyond this the Climate Action Plan is part of an ongoing process to respond to and prepare for the evident and predicted changing weather patterns we face. Subsequent actions outside of the scope of this plan are development of a Climate Adaptation and Resilience Plan; and then ultimately to lead jurisdiction wide climate change mitigation and preparedness initiatives.


Photo: Diane Griffith

Climate Science

Observed Climate Changes

Climate change is having evident environmental, economic and social impacts across the globe. In Australia, the Bureau of Meteorology (BOM) and Commonwealth Scientific and Industrial Research Organisation (CSIRO) report *State of the Climate 2020* found that the climate has warmed by an average of 1.44°C since 1910. The report observes the following locally significant implications:

- More frequent extreme heat events
- Decline in April to October rainfall of 12%
- Heavy rainfall events have become more intense
- Decrease in streamflow
- Increase in extreme fire weather and length of the fire season
- Downward trend in maximum snow depth (BOM and CSIRO 2020, 4-17)

Climate Projections

Global warming level projections look at the change in local climates when the global mean surface temperature (GMST) is consistently at a particular temperature warmer than a pre-industrial climate (CSIRO and BOM 2020). The likely warming level ranges increase with Greenhouse Gas Concentration level ranges, see Figure 1. Climate science is an ongoing study that is regularly reviewed and updated in a collaborative process by experts globally.

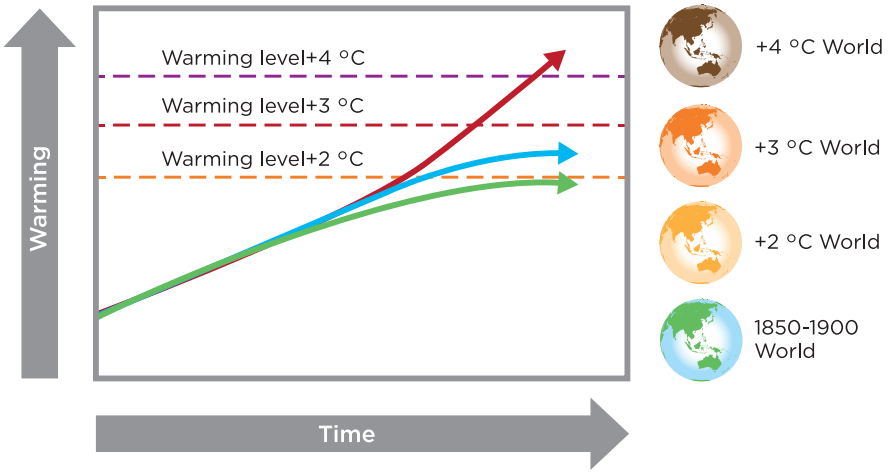


Figure 1 Climate Projection Methodology (source Climate Change in Australia, CSIRO and BOM 2020)

The CSIRO and BOM's regional key summary information of future projections for the Murray Region are:

- "Average temperatures will continue to increase in all seasons (very high confidence).
- More hot days and warm spells are projected with very high confidence. Fewer frosts are projected with high confidence.
- By late in the century, less rainfall is projected during the cool season, with high confidence. There is medium confidence that rainfall will remain unchanged in the warm season.
- Even though mean annual rainfall is projected to decline, heavy rainfall intensity is projected to increase, with high confidence.
- Mean sea level will continue to rise and height of extreme sea-level events will also increase (very high confidence).
- A harsher fire-weather climate in the future (high confidence).
- On annual and decadal basis, natural variability in the climate system can act to either mask or enhance any long-term human induced trend, particularly in the next 20 years and for rainfall."

Global Greenhouse Gases

According to the BOM and CSIRO report (2020, 18), the level of Greenhouse Gases in the atmosphere will determine the speed and magnitude of global mean surface warming. "By 2019 human activities had already emitted 70% of the cumulative emissions allowed to keep global temperatures below 2°C warming (since 1850)". The report also found that, globally, the rate of CO_2 accumulation in the atmosphere continues to rise with every passing decade (BOM and CSIRO 2020, 18). Significantly, in the last decade around 85% of global CO_2 emissions occurred from fossil fuels (BOM and CSIRO 2020, 21).

Intergovernmental Panel on Climate Change Report

The recent release of the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (IPCC 2021) paints a dire picture of where the global climate is headed; observing that global warming is happening faster than previously projected and significant and irreversible damage has already been done. While the precise impact of the findings of the IPCC report on local climate change projections are yet to be formalised, the message is clear, "unless there are immediate, rapid and large-scale reductions in greenhouse gas emissions, limiting warming to close to 1.5°C or even 2°C will be beyond reach" (IPCC 2021).

Key Drivers and Works to Date

Existing Policy Drivers

International, federal, state and regional policies and commitments have been set to mitigate the risk of climate change. The Council's Climate Action Plan supports commitments at all levels of government, including:

International Australia is committed to The Paris Agreement, a "legally binding international treaty on climate change. Its goal is to limit global warming to well below 2, preferably 1.5°C" by achieving a climate neutral world by 2050 (United Nations Climate Change 2021).

State The Victorian Climate Change Act 2017 sets a long-term GHG emissions reduction target for the state of net zero emissions by 2050.

Under the Victorian Local Government Act 2020, section 9(2)(c), "Councils are required to promote the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risks" (DELWP 2020a, 10).

Regional Climate Ready Victoria - Hume 2015 predicts how climate change will affect Victoria's north East (DELWP 2015).

Hume – Regional Climate Change Adaptation Strategy (draft) (DELWP 2021) seeks to outline a regionally relevant adaptation strategy.

Local The 2021 Alpine Shire Council Plan specifies the Council's commitment to net zero GHG emissions by July 2023.

Alpine Shire Council Associated Documents

Council plans and policies impacted by, or impacting, this document include:

- Council Plan
- Municipal Public Health and Wellbeing Plan
- Community Emergency Risk Assessment (CERA) (latest in development)
- Municipal Emergency Management Plan (MEMP) (latest in development)
- Economic Development Strategy
- Procurement Policy

Council Emissions Reduction Works and Process Improvements to Date

In recent years a number of emissions reduction projects have occurred, and procedures put in place, across various Council operations, including:

- Solar PV on a number of Council buildings
- Installation of double glazing in Bright Council Offices
- LED lighting across Council buildings and facilities
- Replacing inefficient appliances and Heating Ventilation and Air Conditioning (HVAC) with more efficient options
- Reducing vehicle fleet quantity, vehicle size and improve efficiency where practicable, purchasing heavy vehicles with the highest tier motor available within budget constraints
- 3 hybrid vehicles purchased last financial year to replace small vehicles due for trade-in
- Encouraging cycling through staff bicycles and ongoing bike path development
- Environmental evaluation criteria included in procurement policy and documents
- Reduced embodied carbon of infrastructure development and maintenance through:
    - in-situ stabilisation of existing roads and pavements in-lieu of complete replacement where possible
    - Recycled plastic aggregate trial in a section of rail trail development
    - Use of Polymer products in road construction and stabilisation works to increase longevity and decrease grading frequency
- Capping design is in progress for the closed landfill sites at Porepunkah and Myrtleford to reduce water infiltration that could lead to groundwater pollution and uncontrolled methane emissions. This capping design is considering biofiltration to passively reduce lifetime GHG emissions (EPA 2018, 17)
- Signed onto the VECO PPA, effective from 1st July 2021, which will ensure all of Council's electricity usage is from a 100% renewable, Victorian, source and so contributes zero GHG emissions

Mitigation | Reducing Our Emissions

Council's approach to climate change Mitigation will involve a continuous improvement process, as shown at Figure 2, that will be adaptive and responsive to changing needs. This process will ensure that the targets set, and means to achieve them, are environmentally, financially and socially sustainable both now and into the future – as technology, attitudes, carbon accounting practices and climate science evolve.

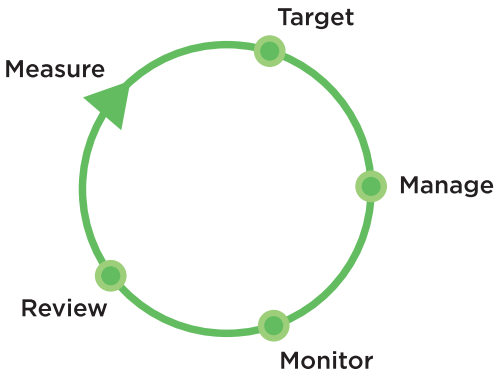


Figure 2 Council's Climate Change Mitigation Process

Measure

To ensure a feasible GHG emissions reduction strategy, the first step is to establish the baseline emissions; involving an inventory of the contributors to GHG emissions across Council operations.

Defining GHG Emissions Operational Boundaries

The Australian National Greenhouse and Energy Reporting (NGER) Scheme categorises direct and indirect emissions into Scope 1, 2 and 3. Definitions of these scopes, emissions relevant to Council operations for each and whether they are within the defined operational boundaries are outlined at Table 2.

Table 2 Direct and indirect emissions and operational boundaries

Scope	Definition	Council Operations and Services	In or Out?
1	Direct GHG Emissions – emissions from sources owned or controlled by the organisation. Including natural gas combustion, vehicle fuel and fugitive emissions. Mandatory reporting in NGER	Vehicle Fleet	In
		Facility Gas	In
		Closed Landfill Sites	In
2	Indirect GHG Emissions – emissions from the generation of electricity, steam, heating/ cooling which is purchased or imported by the organisation. Mandatory reporting in NGER	Buildings and Facilities Electricity	In
		Streetlights	In
3	Indirect GHG Emissions – emissions from other sources related to the activities of the organisation. Non-mandatory reporting in NGER	Corporate Waste	In
		Electricity for externally leased buildings	Out
		Municipal Waste collection and disposal	Out
		Embodied Carbon	Out

The items identified as 'out' are excluded in the immediate future for the following reasons:

- Electricity for externally leased buildings – at this stage the electricity accounts for Council owned buildings that are paid for by external organisations leasing the buildings are not included in Council's carbon accounting. This will be re-evaluated regularly as it is a significant opportunity for Council to assist reducing community GHG emissions.
- Municipal kerbside waste collection – emissions associated with current municipal waste are accounted for at the receiving landfill site. As Council doesn't operate any active landfill sites, the GHG emissions associated with current municipal waste are not included in Council's corporate emissions profile.
- Embodied carbon in infrastructure projects – lifecycle carbon of materials has not been assessed to date as to do this retrospectively is incredibly complex and resource intensive.

Note that inclusion of Scope 3 indirect emissions is currently not mandatory for reporting in the NGER. Going forward, as resources and technology allow, the measurement process may evolve to expand these operational boundaries and include more items.

Baseline GHG Emissions

Baseline GHG Emissions have been established by assessing available data from the last 3 financial years, summary shown at Table 1 and Figure 3. Energy use data was sourced from Council's energy bills and fuel card data, and emissions factors for each energy type were sourced from the National Greenhouse Account Factors for the relevant financial year (Department of Industry, Science, Energy and Resources 2018, 2019, 2020).

Table 3 Emissions from Council operations for 2018-2019, 2019-2020 and 2020-2021

	Emissions		
	2018-2019	**2019-2020**	**2020-2021**
	t CO_2-e	t CO_2-e	t CO_2-e
Streetlights	620	592	566
Buildings and Facilities Electricity	802	796	818
Vehicle Fleet	431	405	406
Facility Gas	13	10	6
Corporate Waste *	2	2	2
Closed Landfill **	516	516	516
TOTAL	**2384**	**2321**	**2314**

** Actual data has not been recorded for the quantity of waste generated from corporate operations. The emissions estimate is based on a calculation using standard Sustainability Victoria waste generation rates and an assumption of organics diverted to the Council worm farm. Notably this is insignificant proportionally to other emitters, so accuracy is not critical in this early stage of carbon accounting.*

*** Baseline GHG emissions from Council managed closed landfill sites were determined through onsite measurement in July 2021 to determine actual methane emissions. In reality the methane emitted will likely have been slightly greater in previous financial years as methane levels in historic landfills reduce over time. Going forward emissions reporting from these sites will be based on annual field measurements.*

For the pathway to net zero in this Climate Action Plan 2018-2019 is used as the baseline year as the 2019-2020 and 2020-2021 levels were likely lower than a standard year due to the extreme bushfire season and then COVID-19 limiting movement and activities in the region.

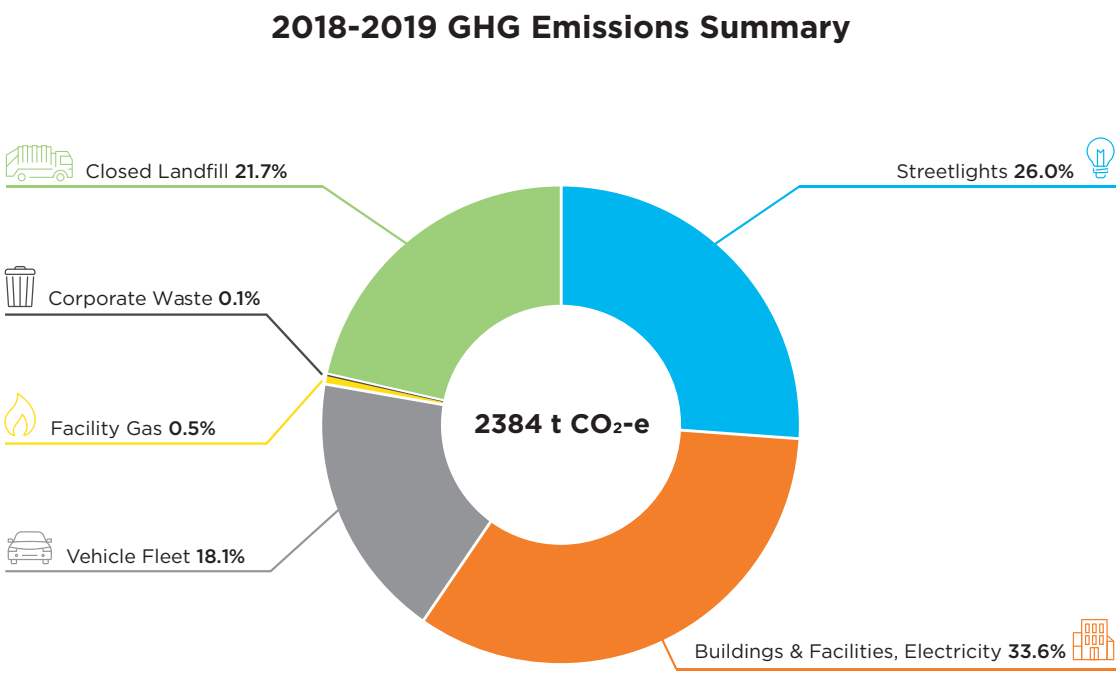


Figure 3 Council GHG Emitters by Percentage FY 2018-2019

Predicted Emissions post VECO PPA

Council has recently signed up to the VECO PPA; a 100% local renewable energy buyers group comprising 46 Victorian councils. The effect of this on Council's net GHG emissions is significant, rendering all corporate electricity emissions net zero, thus resulting in a 60% reduction in annual total GHG emissions. The predicted reduction in Council's GHG emissions in FY 2021-2022 due to the VECO PPA, compared to the Baseline GHG emissions for FY 2018-2019 are shown at Figure 4.

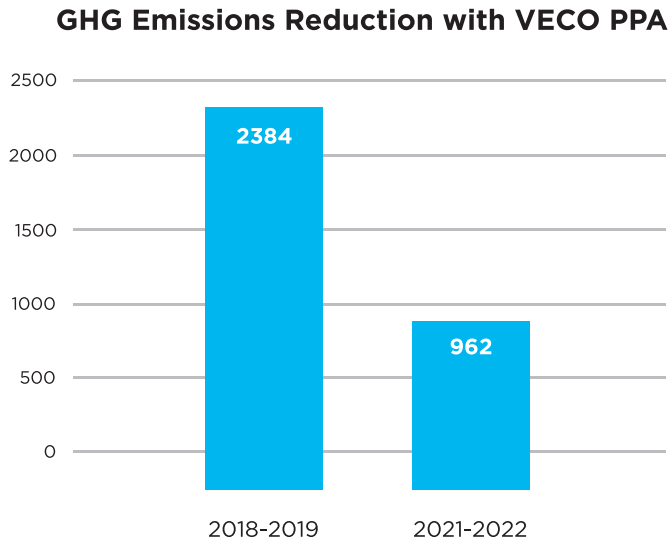


Figure 4 Council GHG Emissions 2018-2019 Baseline and predicted 2021-2022 post VECO PPA

Target

The Alpine Shire Council is committed to a net zero GHG emissions target by July 2023 for Council's own operations. This target will be achieved through a combination of purchased and onsite generated renewable energy, Electric Vehicles, energy efficiency improvements and purchasing carbon credits to offset residual emissions. The anticipated actions to achieve this target are outlined in the following sections. While the pathway to achieve this target and the associated investment strategy may differ from that identified here, the target is fixed.

Manage

The GHG emissions reduction hierarchy (Figure 5) is used to prioritise emissions reduction opportunities to achieve optimum long-term environmental, cost and social sustainability benefits.

When considering the priority of opportunities it is also prudent to consider any co-benefits. For example since signing the PPA the benefit of onsite renewable energy is not immediately obvious as all electricity is renewable; however, the co-benefits of free electricity providing financial payback, reduced reliance on grid electricity and leading the community by example all need to be considered.

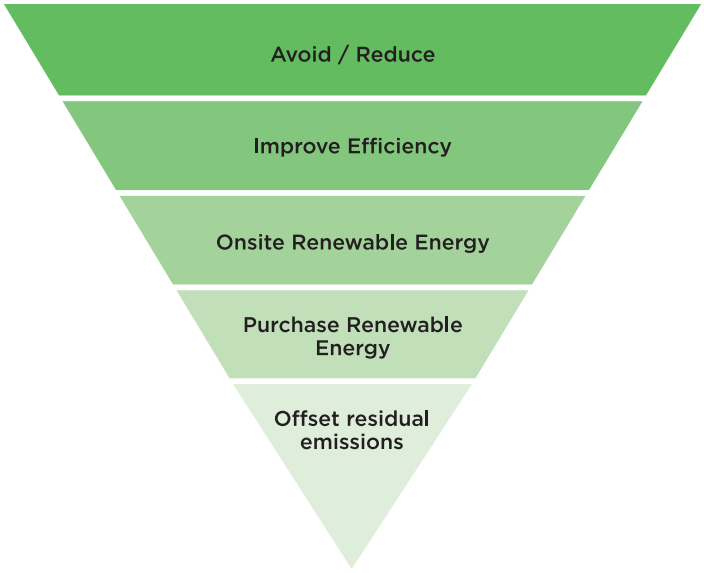


Figure 5 Emissions Reduction Hierarchy

1. Avoid / Reduce

The most efficient way to mitigate GHG emissions is to avoid, or reduce, the activity that leads to the emissions. There is significant opportunity to reduce GHG emissions through methane abatement at the Council managed closed landfill sites. Other reduction opportunities identified involve energy use avoidance and have a minimal impact on GHG emissions; however, they are relatively easy and inexpensive to achieve, and present a number of co-benefits.

Opportunity	Initiatives, co-benefits and actions
Closed landfill methane abatement	Implement capping of the Myrtleford and Porepunkah closed landfill sites as per the recommendations of the site rehabilitation plans. Explore opportunities to minimise GHG emissions from all Council managed closed landfill sites through passive biofiltration or active capture and combustion in conjunction with works required per EPA guidelines (EPA 2018) Co-benefits include groundwater protection and raising community awareness of the ongoing impacts of waste to landfill
Reduce building electricity use	Investigate feasibility in existing Council buildings of: • Automatic blackout of lights and non-essential equipment after work hours or when unoccupied • Daylight sensors for lights • Motion sensors for lights in back-of-house areas, meeting rooms and low occupancy buildings • Enhancement of HVAC controls Require that new and renovated Council buildings meet an ESD standard. Co-benefits include cost savings and reduced reliance on grid electricity.
Encourage active transport choices	Enhance use of cycling and walking for short trips to and between council facilities, including: • Access to showers • Bicycle storage • Awareness of safe off-road paths Co-benefits include employee health and fuel cost savings

2. Improve Efficiency

There is significant scope to reduce GHG emissions through energy efficiency improvements across the business.

The vehicle fleet is one of the biggest emitters; technology and cost allows car replacement with hybrids, and Electric Vehicles (EVs) in the near-term market with reasonable payback periods. Longer term technological advances will lead to additional light equipment, utes, heavy plant and machinery being suitable for replacement. Regular monitoring and review of available technologies, and associated costs, is required to revise the cost benefit as these markets expand within Australia.

While the recent VECO PPA has meant that all electricity produces zero GHG emissions, there are many associated benefits with minimising electricity usage:

- Lower energy bills,
- Minimise grid electricity usage preserving renewable energy for other users, and
- Provide leadership to the community.

The following measures have been assessed from a cost benefit perspective and will form part of the long-term pathway towards net zero emissions. The biggest impact actions that are easiest to implement are the highest priority.

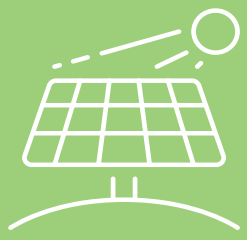
Opportunity	Streetlight Upgrade
Initiatives	Change out municipal streetlights to high efficiency LED: • Main roads • Residential roads • Investigate feasibility in Open Spaces
Benefits and Cost	Estimates of 50% reduction in electricity usage, estimated >$90,000 per year savings on electricity bills Significantly lower maintenance costs Would save up to 400 tCO_2-e annually if standard grid electricity were used (not PPA) Figures will be refined following a detailed case study by Ironbark Sustainability Approximately $1m for all lights across municipality, funded by various grants and capex starting in 2021-2022 budget, ongoing project over 3 financial years
Actions	Streetlight Replacement Project
Priority and Timeframe	High Project to begin 2021-2022, all complete by 2025

Opportunity	Fleet Upgrade
Initiatives	Routinely change out fleet, as technology and budget allows: • Change out of cars to minimum hybrid, phase in progressively to EV, with 1 EV and charging infrastructure as early as lead times allow, likely 2022-2023 FY, then likely 1 to 2 EV's per year with additional charging infrastructure as required • Procure electric small equipment; minimum 1 electric pole saw 2021-2022, keep consistent brand to share batteries • Longer term change out utes, trucks, plant and equipment to hybrid/electric/ zero emissions alternatives as cost benefit performance improves

Benefits and Cost	Phasing in EV's, and associated infrastructure, over the next 10 financial years, achieves a discounted payback of approximately 25 years based on current EV prices in Australia; however, prices will continue to decrease improving this payback. This also assumes all charging electricity purchased through VECO PPA, implementing on-site solar will further increase annual savings Commercial grade electric gardening equipment costs up to 3 times petrol equivalent; however, charging with solar reduces running costs substantially Electric large plant is cost prohibitive at this stage Co-benefit of providing leadership to the community through EV uptake
Actions	Assessment of best like for like cars including cost benefit analysis of specific models. Assessment of charging infrastructure requirements. Thorough forward planning of replacement schedule and relevant budgetary impacts, including projected price changes Development of a procedure to ensure appropriate charging of pool cars Investigate and develop procurement requirements for electric light equipment such as pole saws, chainsaws, brush-cutters, solar panels on trucks for charging Routine review of feasibility of replacing non-car fleet going forward
Priority and Timeframe	High Starting FY 2021-2022, ongoing

Opportunity	**Efficient New and Upgraded Buildings and Facilities**
Initiatives	Develop ESD standard for Council buildings and facilities, both new and renovations, to ensure best practice ESD, covering: • Building envelope • HVAC • Lighting • Appliances • HVAC and Lighting sensors and controls enhancement • On-site renewables/battery • Electric alternatives to gas
Benefits and Cost	Avoidance of gas, combined with VECO PPA, will ensure operation of new and upgraded buildings will be net zero GHG Improved efficiency of facilities will lower electricity bills and reduce grid reliance Co-benefit of improved resilience to changing climate
Actions	Develop ESD tool for Council Buildings; the existing process is to assess performance against the National Construction Code – enhance this further Embed this tool into Project Management Procedure Investigate existing gas users and options for replacement
Priority and Timeframe	Medium Develop ESD tool for Council Buildings in 2021-2022

3. Onsite Renewable Energy



On-site generated renewable energy ensures a reliable amount of zero emissions energy with the added benefit of not drawing on electricity from the grid, and providing climate change resilience if the batteries purchased include islandability.

Opportunity	On-site solar PV and battery
Initiatives	• Install solar PV and battery into Council owned and operated buildings • Install solar PV and battery into Council owned, community run buildings and facilities
Benefits and Cost	Proposed short term installations capex approx. $550,000 over 4 financial years Estimated annual savings of $65,000 after all installations complete
Actions	Renewable Energy Upgrade
Priority and Timeframe	High 2020-2021 and following 3 FY's for Council owned and operated buildings

4. Purchase Renewable Energy

The VECO PPA will ensure all residual electricity use is from a renewable source from 1 July 2021.

Opportunity	Initiatives	Timeframe and cost
VECO Renewable PPA	• Purchase 100% renewable power for residual electricity through VECO PPA • Audit to check all NMI's are included in PPA	2021-2022 Lower cost than previous rates
Renewable PPA for community organisations	• Investigate feasibility of adding Council owned, community run facilities into PPA • Educate community about renewable electricity providers	Medium priority Cost savings to community

Photo: Brendan Holland

5. Offset Residual Emissions

Carbon offset purchasing will negate the residual GHG emissions. The financial cost of this will be ongoing, and likely increase going forward, accordingly being the last resort for net emissions reduction. Council's long-term aim will be to continually re-assess and reduce these residual emissions as technology and cost allows. There will be an amount of offsets required for the foreseeable future where the emissions cannot be controlled or reduced within Council's resource constraints.

Opportunity	Initiatives	Timeframe and cost
Purchase Carbon Offsets	Purchase Offsets for all residual carbon emissions through: • Local carbon credit schemes • Australian carbon credit schemes • International, high impact, carbon offset schemes	July 2023 Ongoing annual volatile cost

6. Non Carbon-Accounted Best Practice Improvement Opportunities

Embodied carbon does not contribute to the baseline calculations used, and will not contribute to ongoing calculations towards the net zero target, due to the time required to determine this for each project and resource constraints within Council. Instead the Project Management Procedure will be updated to ensure future building and civil infrastructure construction and renewal projects minimise embodied carbon as far as reasonably practicable.

Opportunity	Initiatives
Civil works embodied carbon reduction	Reduce indirect emissions through Sustainable Supply Chains / Procurement Policy: • Minimise virgin materials, eg. Recycled crushed rock, recycled plastic and crumbed rubber in road/path surfaces • Recycled signs, guide posts and stormwater pipes • Develop contract with preferred supplier and consider partnering with other councils for economies of scale • Utilise green concrete where practical
Building and Facility works embodied carbon reduction	Reduce indirect emissions through Sustainable Supply Chains / Procurement Policy to strive for: • Environmental Product Declarations (EDP's) for all items • Efficient material selection
Street furniture	Sustainable materials in street furniture: • Consider recycled plastic and sustainably sourced timber for new and restored furniture per aesthetic requirements • Re-use steel frame structure for furniture restoration where practicable
Tender evaluation and contracting	Enhance sustainability of tendering and contracting procedure: • Work with local contractors to determine what is achievable within time, cost and resource constraints • Increase requirement of addressing sustainability in tender evaluation process • Clearer requirements in the contract Create a list of high embodied carbon materials that are used regularly and in large quantities; develop a single fixed term contract with a supplier of lower embodied carbon alternatives for each material. Consider partnering with other councils for economies of scale and to generate a bigger impact
Print Media embodied carbon reduction	Investigate requirement for carbon neutrality in print media and mail contracts through sustainable inks, recycled content paper and efficient equipment
Ongoing opportunity research	Regular review of industry technologies and suitability for Council project use

Implementation Delivery Investment Pathway

A representation of the pathway to net zero GHG emissions by July 2023 based on the proposed actions is outlined at Figure 6. The pathway identifies the progressive reduction in GHG emissions from the baseline financial year 2020-2021, as well as the Net Present Value, taking into account capex and annual savings for each initiative. The pathway assumes:

- Solar PV role out as per project plan over the next 3 financial years,
- Charging infrastructure installed for 1 EV assumed in 2022-2023,
- One trial pool car EV purchased in 2022-2023 once charging infrastructure complete, to replace a pool car due for trade-in,
- 4 fleet cars due for replacement in 2021-2022 upgraded to Hybrid equivalent,
- Streetlight upgrade beginning 2021-2022 concluding 2022-2023,
- 2 EVs per year from 2023-2024 until full car fleet is replaced with EV,
- 1 charger every second year until sufficient infrastructure is in place to support the full fleet, and
- Offset purchasing annually for residual emissions to achieve net zero from 1 July 2023.

Note that estimates are based on current EV prices in Australia, likely to decrease over time, and current carbon price per tonne, likely to increase over time. Costs and GHG emissions reductions associated with closed landfill methane abatement measures are not included in this pathway as the design and scoping is ongoing at the time of publishing this document. This pathway is not fixed but gives an indication of the likely investment strategy to achieve net zero by 2023.

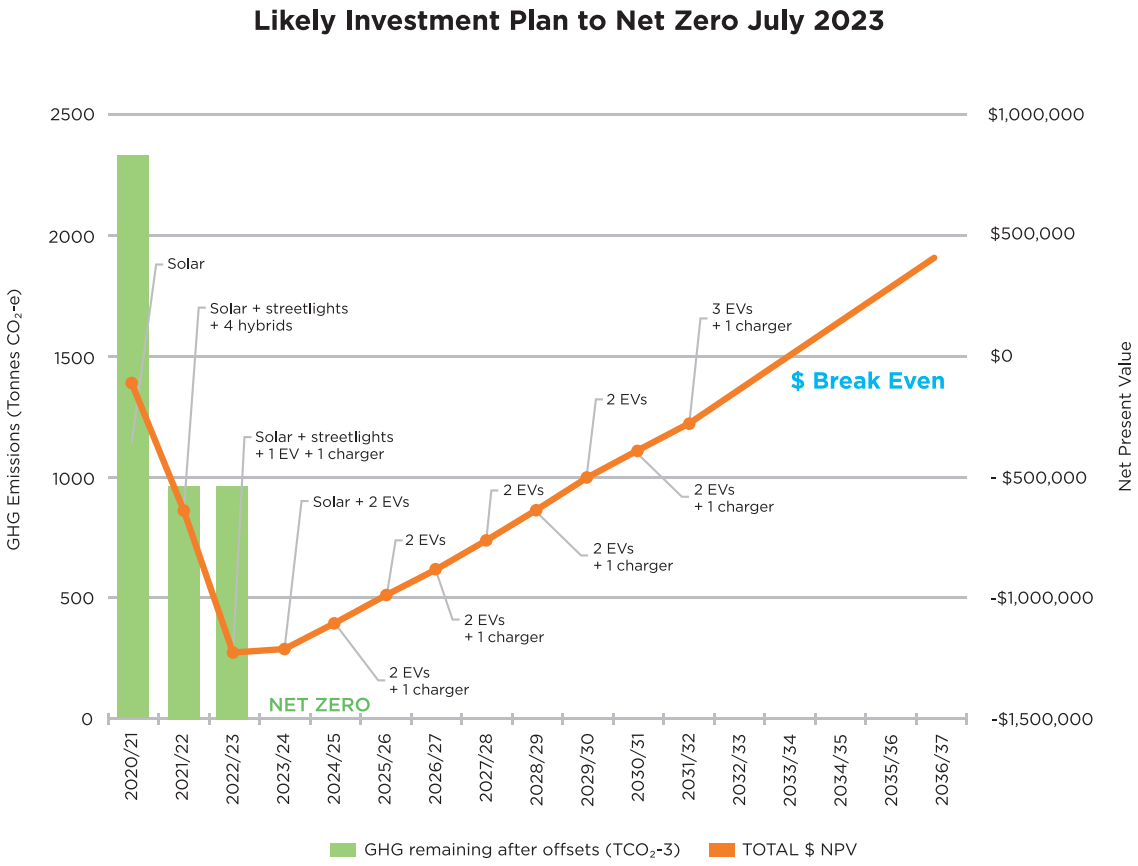


Figure 6 Planned pathway to net zero by July 2023

Photo: Brendan Holland

Monitor and Review

Monitoring Annual Emissions

Monitoring of the actual residual emissions for all activities will be conducted by reviewing fuel and energy bills, annual measurement of closed landfill methane emissions, as well as periodic monitoring of corporate waste. As a minimum the recorded emissions will be collated and published at the end of each financial year in the Council's Annual Report. This data will be used to determine the carbon offsets to be purchased each financial year to achieve net zero, as well as identifying big emitters to re-prioritise further reduction and efficiency improvements.

Emissions Reporting

Council is not currently targeting a certified net zero approach due to resource constraints; however, to ensure accountability to our target the annual GHG emissions will be published and visible to the public each year showing performance against previous financial years.

Review of Technology

To ensure currency of opportunities an annual assessment of the cost and feasibility of local alternative technologies will be conducted. This will ensure the long-term plan to reduce residual emissions is maintained, also likely leading to reduced long term operational costs through lower electricity bills and lower offset costs.

Climate Action Plan Review

The Climate Action Plan will be reviewed in its entirety, including the target, pathway and investment plan, in 2024. This will ensure that Council's climate actions remain relevant, effective and current across the environmental, financial and social pillars.

Municipal Wide Mitigation Measures

Planning and Amenity

This Climate Action Plan demonstrates Climate Leadership by Council; however, a further Climate Action need is to develop and implement emissions reduction strategies for the wider community. Council is committed to contributing to this through planning amendment activities, such as:

- The Alpine Shire Council's Land Development Strategy, currently in progress, which seeks to make the Macro Urban Form as sustainable as possible in future developments;
- Consideration of Environmentally Sustainable transport in the Land Development Strategy;
- Implementation of the Victorian Department of Land, Environment, Water and Planning's (DELWP) ESD in the Planning Scheme, which is currently in development (DELWP 2020b); to achieve this within resource constraints Council will likely enforce this once the new DELWP policy becomes standard practice;
- Investigate the feasibility of including micro-grids in Planning and Amenity policies, including the associated co-benefits such as bushfire resilience.

Other Initiatives

Additional initiatives to assist the community in reducing their GHG emission impact will include:

- Implementation of the State Government Recycling Victoria Policy, including kerbside Food Organics and Garden Organics (FOGO) collection to minimise GHG emissions from municipal organics going to landfill;
- Council will seek to improve community knowledge through initiatives and education activities covering, for example:
    - Canopy trees in gardens
    - ESD workshops and incentives
    - Waste minimisation
    - Kerbside FOGO Waste collection
    - Renewable energy programs
- Provide support to install on-site Solar PV infrastructure on community managed facilities;
- Develop a pathway to ensure the local tourism industry remains viable whilst protecting our natural environment;
- Sustainable transport: Further to the consideration of transport in the Land Development Strategy which addresses new developments, Council will look to improve walkability and sustainable transport networks across our towns.

Adaptation | Steps to a Climate Resilient Alpine Shire Council

While this Climate Action Plan addresses mitigation through minimising Council's corporate GHG emissions, the irreversible impacts of climate change evident in recent weather events and projected further extreme weather events need to be addressed as a matter of priority. A Climate Adaptation and Resilience Plan will be developed to address these threats of a changing climate to Council's assets, community townships and the municipality as a whole. This will involve a risk assessment to identify and assess the impacts and prioritise actions to manage these risks. The adaptation plan will consider the findings of the 3 yearly Community Emergency Risk Assessment (CERA), of which many risks identified are climate related and resilience to these risks is a key focus, as well as the Municipal Emergency Management Plan (MEMP).

Some areas of concern identified to date are outlined below. These will be expanded in the Climate Adaptation and Resilience Plan:

- Impact of extreme weather events on our Council assets' lifespan, as well as maintenance and renewal schedules;
- Safety and cost impact of extreme weather events on Council's aging tree population, particularly high storm events as older trees are more susceptible to losing limbs;
- The impact of extreme rain events on the catchment system;
- Water availability in townships during drought events; and
- Bushfire resilience, a study currently in progress will define the BAL 12.5 line.

Various measures to adapt and improve resilience are listed below. This is not conclusive and will be expanded further in the Climate Adaptation and Resilience Plan:

- Council has drafted a Tree Management Plan, covering a number of elements relevant to Climate Adaptation and Resilience such as:
    - The maintenance of aging trees – inherently more vulnerable to extreme weather events,
    - Tree selection and planting strategy to increase likelihood of survival through appropriate species selection, after planting care and diversity of age and species,
    - Conservation of avenues of trees within townships through a Tree Avenue Management and Replacement Plan,
    - Electric line clearance.
- Other climate adaptation relevant tree management issues to be considered:
    - Species selection suitable for a changing climate,
    - Improve resilience against rapid leaf fall and concurrent rain event causing drainage issues.
- Drought tolerance strategy:
    - Define 'greenness' of each open space so, in the event of a drought, not all parkland needs irrigating to be dark green year-round,
    - Increase drought tolerant garden beds over water intensive annuals,
    - Develop a Council water use baseline and plan.


Photo: Carol Binder

- Engage with Traditional Owners to learn traditional land and waterway management principles.
- Water Sensitive Urban Design (WSUD) improvements to protect our waterways:
    - Provide an appropriate conduit between planning and engineering to ascertain, and impose, appropriate WSUD requirements for various scales of development,
    - Develop a register to appropriately resource the maintenance of Stormwater Quality Improvement Devices on Council land,
    - Ensure compliance checks of required WSUD measures of private residences,
    - Develop WSUD tools for single dwelling permit applicant use,
    - Consider a requirement for permeable paving in civil infrastructure works projects.
- Ensure building solar PV and battery systems have adequate islandability:
    - The current solar PV, battery and generator systems for emergency use are only enough to power a small amount of essential equipment,
    - Look to expand these to enhance usefulness and broaden access in an emergency,
    - Assessment and potential expansion of the facilities covered by the Australian Government's Strengthen Telecommunications Against Natural Disasters (STAND) project to also include solar, battery and generator for emergency use.
- Imbed adaptation and resilience into the new ESD standards for any new Council Buildings and upgrades.
- Conduct a study of adaptation in relation to Council infrastructure types, eg how infrastructure would need to be modified to withstand more intense wind events.
- Investigate internal referrals of planning applications above a certain threshold to the sustainability team for ESD assessment and advice.
- Ensure consideration of climate change models in the re-zoning process of the land development strategy.

Photo: Hocking

Conclusion

The Alpine Shire Council has committed to an ambitious and proactive target of net zero GHG emissions by July 2023; the pathway to this target is both economically viable and community leading. Council will be accountable to the commitment by publishing calculated emissions performance at the conclusion of each financial year. Opportunities to enhance the cost benefit of the net zero performance will also be regularly reviewed to ensure Council keeps pace with improved technologies, updated carbon accounting practices, climate science and industry best practice.

Reference Documents

Clean Energy Regulator, Australian Government. 2021. National Greenhouse and Energy Reporting (website). *http://www.cleanenergyregulator.gov.au/NGER*

Climate Change Act 2017 (Victoria).
https://www.legislation.vic.gov.au/in-force/acts/climate-change-act-2017/006

CSIRO and BOM. 2020. Climate Change In Australia. Commonwealth of Australia.
https://www.climatechangeinaustralia.gov.au/

CSIRO (Commonwealth Scientific and Industrial Research Organisation) and BOM (Bureau of Meteorology). 2020. State of The Climate 2020. ISBN: 978-1-4863-1509-3. Commonwealth of Australia.
https://www.csiro.au/en/research/environmental-impacts/climate-change/State-of-the-Climate

DELWP (Department of Environment, Land, Water and Planning). 2015. Climate-Ready Victoria – Hume. State of Victoria. *https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0022/60745/Hume.pdf*

DELWP. 2020a. Local Government Climate Change Adaptation Roles and Responsibilities under Victorian Legislation – Guidance for local government decision makers. State of Victoria.
https://www.climatechange.vic.gov.au/__data/assets/pdf_file/0030/490476/Local-Government-Roles-and-Responsibilities-for-Adaptation-under-Victorian-Legislation_Guidance-Brief.pdf

DELWP. 2020b. Environmentally Sustainable Development of Buildings and Subdivisions – A Roadmap for Victoria's Planning System. State of Victoria.
https://www.planning.vic.gov.au/__data/assets/pdf_file/0025/491227/Environmentally-sustainable-development-of-buildings-and-subdivisions-A-roadmap-for-Victorias-Planning-System.pdf

DELWP. 2021. Hume – Regional Climate Change Adaptation Strategy (DRAFT). State of Victoria.
https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/5516/1846/1219/Hume_Regional-Climate-Change-Adaptation-Plan_DRAFT-FOR-CONSULTATION_150421.pdf

Department of Industry, Science, Energy and Resources. 2018. National Greenhouse Account Factors July 2018. Commonwealth of Australia.
https://www.industry.gov.au/data-and-publications/national-greenhouse-accounts-factors

Department of Industry, Science, Energy and Resources. 2019. National Greenhouse Account Factors July 2019. Commonwealth of Australia.
https://www.industry.gov.au/data-and-publications/national-greenhouse-accounts-factors

Department of Industry, Science, Energy and Resources. 2020. National Greenhouse Account Factors July 2020. Commonwealth of Australia.
https://www.industry.gov.au/data-and-publications/national-greenhouse-accounts-factors

EPA (Environment Protection Authority Victoria). 2018. Publication 1490.1 Closed Landfill Guidelines. State of Victoria. *https://www.epa.vic.gov.au/about-epa/publications/1490-1*

Intergovernmental Panel on Climate Change (IPCC). 2021. Sixth Assessment Report – Climate change widespread, rapid, and intensifying – IPCC. Geneva, Switzerland.
https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/

Local Government Act 2020 (Victoria).
https://www.legislation.vic.gov.au/as-made/acts/local-government-act-2020

United Nations Climate Change. 2021. "The Paris Agreement". UNFCCC (United Nations Framework Convention on Climate Change).
https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement

alpineshire.vic.gov.au