



Glenorchy City Council

Climate Change Mitigation Action Plan

A plan for reducing Council's greenhouse gas emissions

May 2024

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Definitions and abbreviations

Council: Glenorchy City Council

CO²: carbon dioxide

tCO₂-e: tonnes carbon dioxide equivalent, a standard unit to compare different greenhouse gases' global warming potential

FOGO: Food Organic and Garden Organic waste

Fossil fuel: hydrocarbon fuels, primarily coal, oil or natural gas, formed from the remains of ancient plants and animals

GHG: greenhouse gas

Mitigation: refers to actions to reduce greenhouse gas emissions

RCCI: Regional Climate Change Initiative

References

IPCC, 2023: *Summary for Policymakers. Climate Change 2023: Synthesis Report. Contribution of Working Groups I, II and III to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*

ACE CRC, 2010: *Climate Futures for Tasmania general climate impacts: the summary*

CSIRO, 2022: *State of the Climate 2022*

Tasmanian Government, 2023: *Climate Change Office Fact Sheet June 2023*

Tasmanian Government, 2023: *Tasmania's Climate Change Action Plan 2023-25*

RCCI, 2023: *Carbon and Energy Footprint – Glenorchy*

1.0 Background

1.1. Climate Change

The Intergovernmental Panel on Climate Change (IPCC) is the leading international organisation for the assessment of climate change. It is a scientific body managed by the United Nations and has 195 countries as members. Thousands of scientists from around the world contribute to the IPCC to review and assess the most recent scientific, technical and socio-economic information about climate change.

The IPCC released its sixth assessment report in March 2023 (AR6) which confirmed:

- *Human activities, principally through emissions of greenhouse gases, have unequivocally caused global warming, with global surface temperature reaching 1.1°C above 1850–1900 levels.*
- *Greenhouse gas emissions will lead to increasing global warming in the near-term, and it is likely this will reach 1.5°C between 2030 and 2035.*
- *Human-caused climate change is already affecting many weather and climate extremes in every region across the globe – with widespread loss and damage to both nature and people.*
- *The IPCC has very high confidence that the risks and adverse impacts from climate change will escalate with increasing global warming.*
- *To keep within the 1.5°C limit, emissions need to be reduced by at least 43 per cent by 2030 compared to 2019 levels, and at least 60 per cent by 2035.*

(IPCC, 2023: *Summary for Policy Makers*)

Increased temperatures are just one aspect of climate change. Global warming also causes changes to rainfall, wind, evaporation, cloudiness and other climate variables. These changes will not only become apparent in changes to average climate conditions but also in the frequency and intensity of extreme events such as heatwaves and flooding rains (ACE CRC 2010, *Climate Futures for Tasmania general climate impacts: the summary*).

1.2 Greenhouse Gases – Emissions

In order to maintain stable temperatures the incoming energy of the sun must be balanced by an equal amount of heat radiated back to space. Greenhouse gasses such as CO² act to increase the temperature of the Earth's surface, oceans and atmosphere by making it harder to radiate this heat back to space – this is called the greenhouse effect.

Since industrialisation, mostly due to the use of fossil fuels and changes in land use, the concentration of greenhouse gasses in the atmosphere have been rising and subsequently causing surface temperatures to increase. Because CO² persists in the atmosphere for hundreds of years, further warming is locked in.

Other long lived greenhouse gasses also contribute significantly to global warming, the most significant of which are methane and nitrous oxide which have a global warming potential of 83 times and 273 times that of CO² respectively (CSIRO 2022, *State of the Climate 2022*).

1.3 Mitigation Vs Adaptation

Taking action to reduce greenhouse gas emissions to limit the impacts of climate change is **mitigation**. Taking action to prepare for the impacts of climate change is **adaptation**.

This plan is focused on mitigation - a plan for reducing Council's greenhouse gas emissions. At the time of writing Council is also working on a Climate Change Adaptation Plan with the support of the Regional Climate Change Initiative.

1.4 Implications of Climate Change to Tasmania

The projected climate change implications for Tasmania include (Tasmanian Government 2023, *Climate Change Office Fact Sheet June 2023*):



Significant change in rainfall patterns



Increase in storms, creating coastal erosion



Rise in annual average temperatures



More hot days and heatwaves



Fewer frosts



Longer fire seasons, more days of high fire danger



Increased ocean acidification and water temperature



Rise in sea levels



Increased windspeed

1.5 Council Emissions

Glenorchy City Council (Council) recognises the importance of acting on climate change and understands that the primary measure Council can take in this regard is to actively reduce its own greenhouse gas emissions. As such in the Council's Annual Plan for 2023/24 Council committed: *To develop a climate change mitigation action plan for reducing Council's greenhouse gas emissions.* This document is that plan.

Council is a member of the Regional Climate Change Initiative (RCCI) which is a collaboration of the 12 southern Tasmanian Councils aimed at supporting and responding to the challenges of climate change. As part of this collaboration Council recently took part in a Carbon and Energy Footprint assessment of the Council, which assessed and detailed the Council's corporate greenhouse gas emissions over the previous three financial years 19/20, 20/21, and 21/22. Key findings of this Carbon and Energy Footprint assessment are provided below.

1.5.1 Greenhouse gas emissions

The greenhouse gas emissions from Glenorchy City Council's corporate operations totalled 11,210 tonnes carbon dioxide equivalent (tCO₂-e) in the 2021/22 financial year. Of this total almost 89% of emissions were from waste managed by the Council that was disposed of to landfill, which is a similar story for most Councils.

The next largest category of emissions was from fuel being used by vehicles and plant. The emissions generated from this source were 614 tCO₂-e in 2021/22 (5.5% of the total), with almost 90% from use of diesel and the rest from petrol.

Emissions from metered electricity amounted to 158 tCO₂-e, while an amount of 230 tCO₂-e was from electricity used by unmetered public streetlighting. Together these comprised about 2.5% of the emissions total.

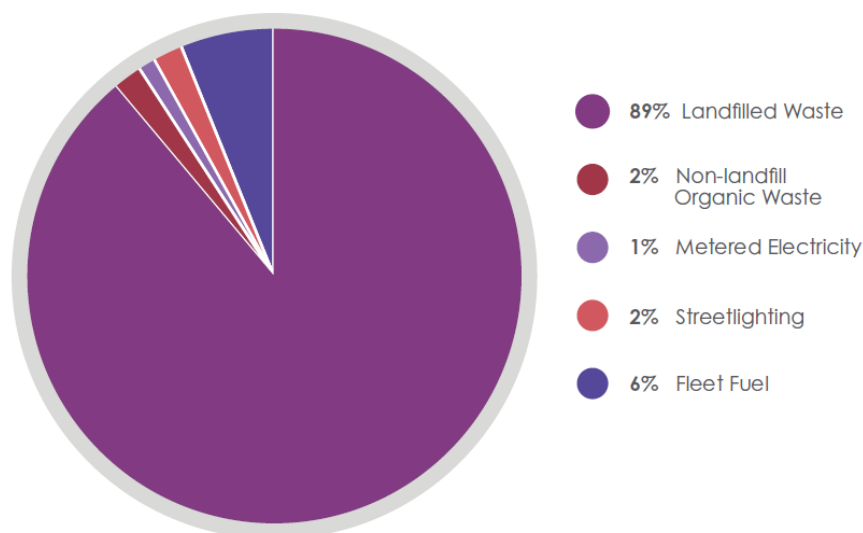


Figure 1. Greenhouse Gas Emissions by Category for 2021-22 (RCCI 2023, *Carbon and Energy Footprint – Glenorchy*)

Pleasingly **Council’s greenhouse gas emissions reduced by over 54% between the 2019/20 and 2021/22 years**, from 24,597 tCO₂-e to 11,210 tCO₂-e. This reduction was almost entirely attributable to Council’s successful introduction of a Food Organics and Garden Organics (FOGO) kerbside collection service. Noting that composting of FOGO waste generates 90% lower emissions than landfilling even when the landfill has gas collection.

Greenhouse gas emissions from fleet fuel use increased by about 5%, while that from other fuel use changed only slightly. The emissions related to metered electricity were almost 30% lower and this reduction is primarily due to the sale of the Derwent Entertainment Centre. Streetlighting related emissions rose by 4%, but this was due to the increase in Tasmania’s greenhouse gas coefficient for electricity as energy use dropped slightly over the period.

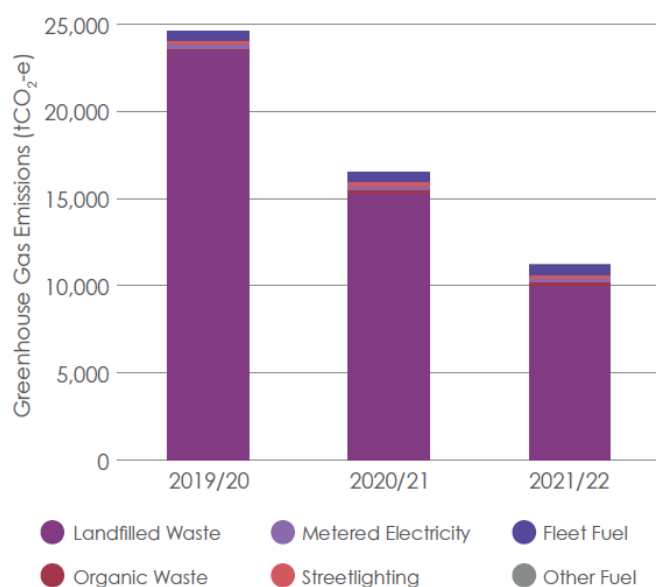


Figure 2. Annual Greenhouse Gas Emissions from 2019/20 to 2021/22 (RCCI 2023, *Carbon and Energy Footprint – Glenorchy*)

1.5.2 Energy use

The total net energy use in corporate operations was 17,919 gigajoules (GJ) in 2021/22. For comparison the typical energy usage of a household with a three-bedroom house and two cars is about 100 GJ, with annual use of about 30 GJ for electricity in the house and about 35 GJ per car.

The split up of energy use was almost evenly distributed between fuels and electricity. Fleet fuel use was the single biggest category with 8,783 GJ used representing 49% of the total energy consumption. Natural gas and LPG usage totalled 444 GJ, equivalent to 2.5% of total energy use.

Electricity used for unmetered public streetlighting totalled 5,175 GJ and metered electricity consumption was 3,562 GJ. The Council had three solar panel systems installed at its facilities as at June 2022. In the 2021/22 year total generation was 12,647 kWh (46 GJ) and of this 6,160 kWh (22 GJ) was fed in to the grid.

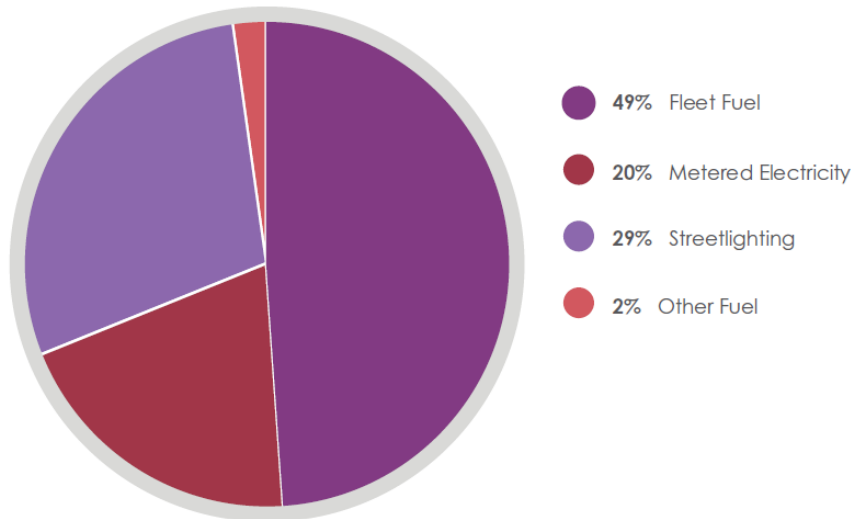


Figure 3. Energy Use by Category for 2021-22 (RCCI 2023, *Carbon and Energy Footprint – Glenorchy*)

Over the period 2019/20 to 2021/22 the overall energy use decreased by a little over 1,500 GJ per annum, or about 8% less use in 2021/22 than 2019/20. The main factor contributing to this drop was lower use of mains electricity, primarily due to the sale of the Derwent Entertainment Centre, which had electricity consumption of about 1,600 GJ in the 2019/20 year.

Fleet fuel energy use increased by about 5% over the period from 8,315 GJ to 8,738 GJ, but the amount used in 2019/20 may have been lower than usual due to COVID-related issues. The use of diesel increased by 4.6%, while petrol consumption rose by 9.8%.

Streetlighting energy use decreased slightly (2.5% drop from 2019/20 to 2021/22) despite there being an additional 44 streetlights, due to over 150 older technology lights having been replaced with lower energy-use LED lights. All of the Council-owned streetlights are now LEDs. Approximately 30% of the remaining streetlights in Glenorchy are owned by TasNetworks, some of these remain on older technology but are being replaced with LEDs by TasNetworks as they fail.

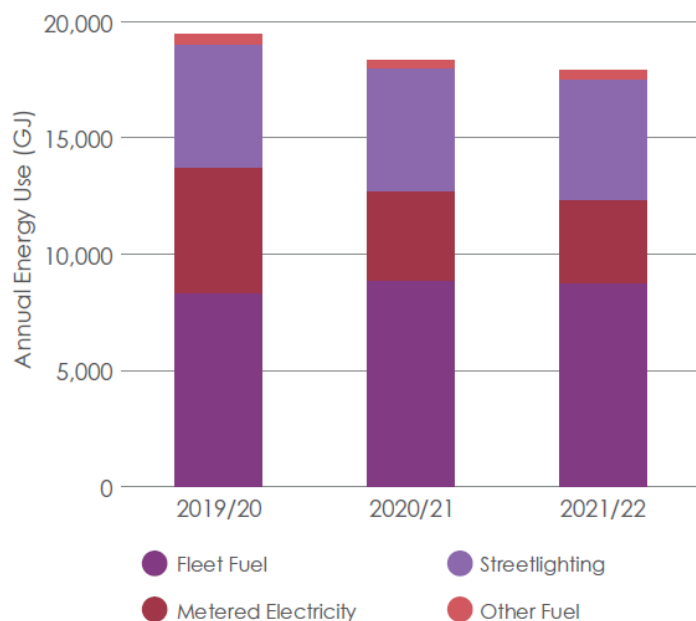


Figure 4. Annual Energy Use from 2019/20 to 2021/22 (RCCI 2023, *Carbon and Energy Footprint – Glenorchy*)

2.0 Action Plan

1. Waste Management				
Action #	Action	Milestone	Timeframe	Responsibility
1.1	Maintain FOGO as a kerbside service, that is opt-out by exception only	<ul style="list-style-type: none"> Percent of eligible properties on FOGO service. Tonnes of waste diverted from landfill from FOGO Service 	Ongoing	Waste Services
<p>Context: 89% of Council's GHG emissions are related to waste deposited in landfill, principally from the breakdown of organic material. Council's greenhouse gas emissions reduced by over 54% between the 2019/20 and 2021/22 years, with the reduction almost entirely attributable to Council's successful introduction of a Food Organics and Garden Organics (FOGO) kerbside collection service. Noting that composting of FOGO waste generates 90% lower emissions than landfilling even when the landfill has gas collection.</p> <p>Key to the high success of this service is that all eligible properties are placed on the service and can only be removed from the service by providing evidence of alternative composting arrangements or exceptional circumstances.</p>				
1.2	Support and promote education resources that assist the community in understanding what can be put in FOGO bins and the benefits	<ul style="list-style-type: none"> Reports of contamination in FOGO from collection or processing contractors 	Ongoing	Waste Services
<p>Context: Contamination of FOGO bins can result in the FOGO needing to be deposited in landfill. Education efforts are planned to be driven by the Southern Tasmania Regional Waste Authority (STRWA) on a regional or statewide basis through Rethink Waste.</p>				
1.3	Maximise gas collection/extraction at the Jackson Street landfill and ensure flaring is an option for gas that cannot be collected	<ul style="list-style-type: none"> Increased number of wells and flares installed Operator reports of gas extraction levels 	2025 Ongoing	Waste Services
<p>Context: Extraction of gas from landfill provides a revenue stream, but also prevents methane from migrating into the atmosphere and contributing to climate change. Flares are important to manage excess gas extraction spikes and maintenance down periods.</p>				

2. Fuel				
Action #	Action	Milestone	Timeframe	Responsibility
2.1	Transition the Council passenger fleet and plant/machinery away from combustion engine vehicles where practical/viable. Or where no viable alternatives, prioritise low emission/fuel use options.	<ul style="list-style-type: none"> • Increase percent of non-combustion engine vehicles. • Increase number of low emissions/fuel use vehicles. 	Ongoing	Fleet Management
Context: <i>Fuel use is a significant contributor to greenhouse gas emissions and accounts for approximately half of Councils annual energy usage. Whilst options for some fleet and plant vehicles are not yet viable, this situation is rapidly improving with lower servicing costs, power/fuel costs and changes to fringe benefits tax arrangements (for passenger vehicles) so that the overall life cycle costs of some electric vehicles may now be competitive with equivalent petrol or diesel vehicles.</i>				
2.2	Investigate potential incentives for staff to select electric vehicles when provided for in their employment contract	Review undertaken of private use vehicle allocation guideline/policy.	2025	Fleet Management
Context: <i>Council has provisions for some staff (e.g. Directors and Managers) to include private use vehicles in their employment contracts. Currently the arrangement is based around a deduction from their salary over a number of years that scales with the purchase price, whilst the ongoing fuel, insurance and servicing costs are paid directly by Council. As such there is a financial disincentive for a staff member to choose a car that has lower servicing costs and lower fuel/power costs if the purchase price is higher. Council however can potentially save on the lower servicing costs, lower fuel/power costs, and the recently introduced fringe benefits exemptions for electric passenger vehicles. Increased costs related to depreciation for electric vehicles (due to the higher capital cost) also need consideration in a life cycle cost analysis.</i>				
2.3	Support practices that minimise travel or fuel use, such as ride share, online meetings, WFH arrangements, bus/bicycle/scooter transport	Number of initiatives that minimise travel or fuel use	Ongoing	Corporate Services Fleet Management
Context: <i>Minimising travel and fuel use reduces GHG emissions.</i>				
2.4	Support the installation of electric vehicle chargers in Glenorchy	Number of electric vehicle chargers that are available to staff and the public in Glenorchy	Ongoing	Assets Engineering and Design
Context: <i>Electric vehicle charging infrastructure is needed to support the adoption of electric vehicles. Whilst chargers will likely need to be provided by the private sector moving forward due to Competitive Neutrality regulations, Council may still be able to encourage public charger stations through the provision of suitable sites, supporting grant applications, and other mechanisms.</i>				

2. Fuel cont..				
Action #	Action	Milestone	Timeframe	Responsibility
2.5	Support the provision of active transport infrastructure (e.g. walking and cycling paths).	<ul style="list-style-type: none"> Kms of walking and cycling paths developed and maintained. 	Ongoing	Infrastructure and Development
Context: <i>The provision of active transport infrastructure (walking and cycling paths) can help to reduce the use of passenger vehicles and the associated fuel and GHG emissions.</i>				
2.6	Advocate for improved public transport services including the northern suburbs transit corridor.	<ul style="list-style-type: none"> Advocacy undertaken 	Ongoing	Office of GM/Mayor
Context: <i>Public transport (e.g. buses, trains and ferries) can transport people much more efficiently (fuel) than private vehicles. Improved public transport services can help to reduce the use of private vehicles and the associated fuel and GHG emissions.</i>				

3. Electricity				
Action #	Action	Milestone	Timeframe	Responsibility
3.1	Install Solar Power systems on Council facilities that have high day time energy usage	<ul style="list-style-type: none"> Investigations on cost/benefits undertaken at keys sites Installation of solar power systems 	2025 Ongoing	Property Property
Context: <i>The viability of solar power systems is much greater where there is a high proportion of day time power usage. Key priority sites for Council to consider include the Council Chambers/Offices, the Council Depot, and childcare centres.</i>				
3.2	Implement energy efficient measures in all new Council buildings, as well as existing buildings as opportunities arise	Measures implemented	Ongoing	Property
Context: <i>Examples include LED lighting, timers and motion sensors, heat pumps, insulation, skylights, solar passive design.</i>				

4. Carbon Sinks				
Action #	Action	Milestone	Timeframe	Responsibility
4.1	Preserve and rehabilitate our natural areas, and encourage greater tree and vegetation cover	<ul style="list-style-type: none"> Number of care group (e.g. Landcare) supported activities Number of planting and rehabilitation projects 	Ongoing Ongoing	Natural Areas Natural Areas / Works
Context: Green cover such as nature reserves, remnant bushland, parks and gardens are important carbon sinks that absorb CO ² . Managing these areas well to protect them from weeds and erosion and/or actively rehabilitating or extending them supports this goal.				

5. Bushfire Management				
Action #	Action	Milestone	Timeframe	Responsibility
5.1	Develop and maintain Bushfire Risk Management capacity, including programs to decrease risk to both the built environment and natural areas	<ul style="list-style-type: none"> Reporting on Bushfire Management Strategy 	Ongoing	Bushfire Management
Context: Bushfire risk reduction encompasses a wide range of tools and activities geared towards minimising the impact of wildfires (including the significant emissions that result from high-intensity fire incidents/unplanned burns) and increasing the resilience of the community.				