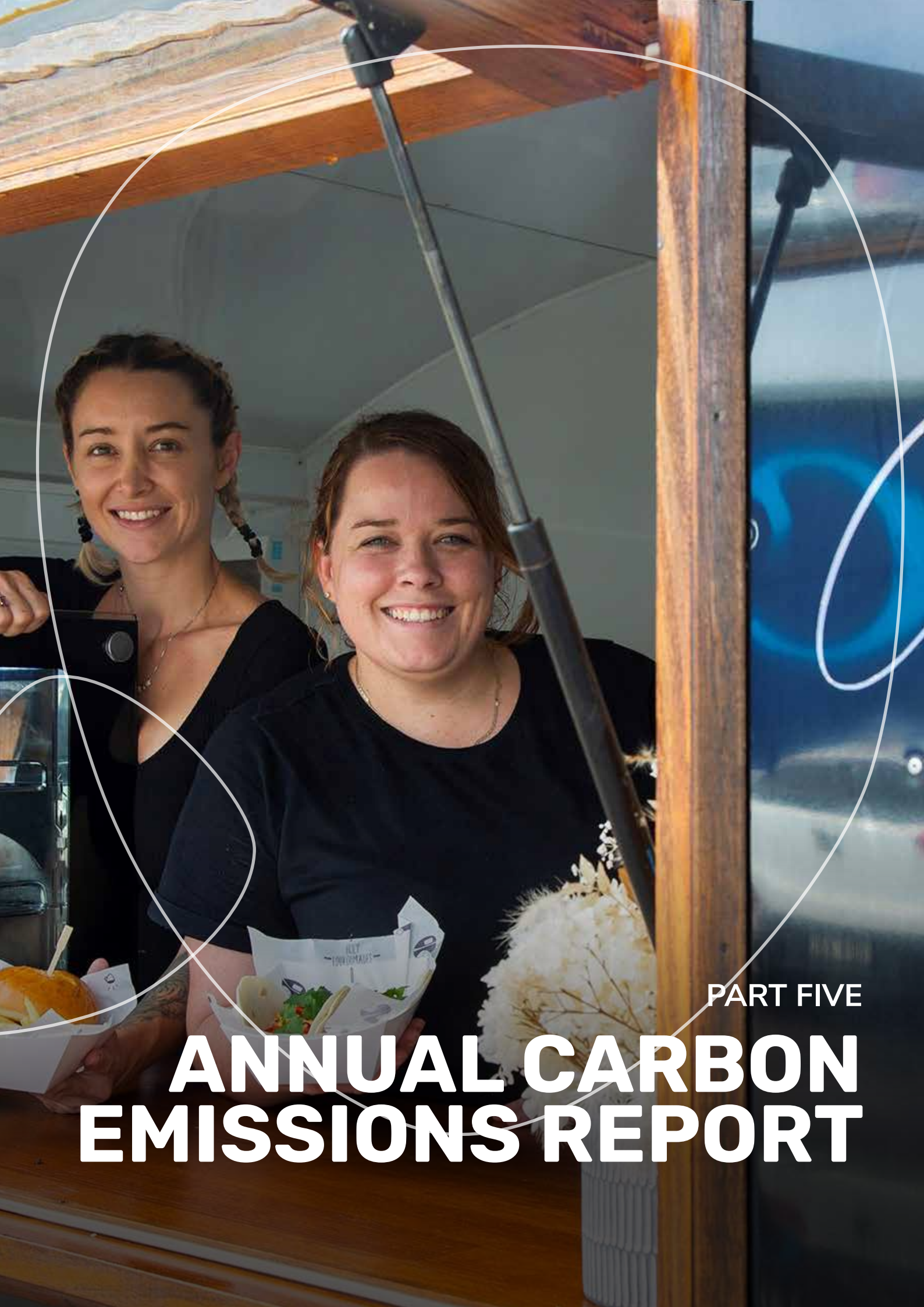


PART FIVE

ANNUAL CARBON EMISSIONS REPORT

Executive Summary

MidCoast Council adopted its Climate Change Strategy in June 2021 which includes targets to achieve net zero emissions by 2040 and 100% renewable energy by 2040.

Council has also recently adopted an updated Waste Management Strategy which includes a revised target to divert 70% of waste (including 50% organic waste) from landfill by 2030 in order to reach net zero emissions.

This report presents the carbon emissions that were generated from Council's operations during 2021-2022 and summarises the key initiatives that are currently being implemented by Council to lower its emissions.

Background

The MidCoast Council Climate Change Strategy (June 2021) analyses Council's carbon footprint and identifies the actions Council can undertake to reduce its greenhouse emissions and adapt its practices and infrastructure to become more resilient to the impacts of climate change. These actions include:

- investing in renewable energy
- buying clean energy
- becoming more energy efficient
- sequestering carbon and offsetting
- sustainable procurement
- transitioning to more sustainable transport options; and
- reducing our waste to landfill

In adopting the Strategy, Council committed to achieving **net zero emissions** from its operations (including electricity, fleet and waste) and **100% renewable energy** for its operations by **2040**.

Over 150 actions are proposed in the Strategy to meet these targets and Council will offset those emissions that can't be mitigated by purchasing renewable energy and investing in local carbon sequestration initiatives such as tree planting programs and the restoration of degraded coastal wetlands (Blue Carbon).

Specifically, the Strategy focuses Council's efforts on increasing the uptake of on-site solar photovoltaic (PV) systems and batteries (particularly for its water and sewer assets), energy efficiency and purchasing renewable energy in the short to medium term, to progressively increase its renewable energy supply as batteries and electric vehicles become more cost effective over time.

This report provides a summary of Council's resource consumption and associated carbon emissions during the 2021-22 financial year to show how we are tracking towards our net zero emissions target. It also provides a summary of the major initiatives undertaken by Council during this period to reduce its carbon footprint.

MidCoast Council Carbon Emissions

Council's 2018-19 Baseline Emissions

Inclusive of energy and waste, Council's greenhouse gas emissions were estimated to be 101,450 tonnes of carbon dioxide equivalent (tCO_2-e) in 2018-19, the base year selected for the development of the Climate Change Strategy.

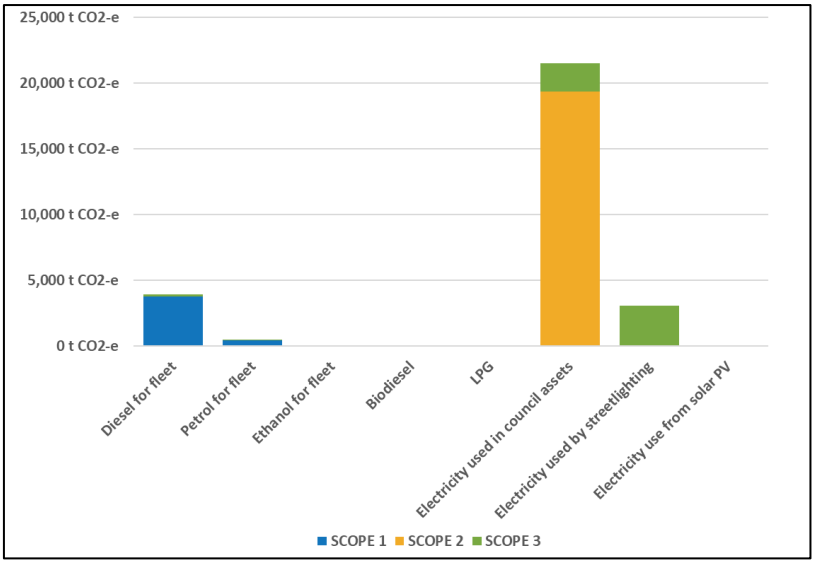
Carbon emissions are broken into Scopes 1, 2 and 3. Waste and fuel are in Scope 1, purchased electricity is in Scope 2, and Scope 3 contains indirect emissions from Scopes 1 and 2. Scope 3 emissions are those outside of Council's operational control and reporting responsibility under most circumstances.

As can be seen in the table below, 71.4% of these emissions were associated with landfill waste and the treatment of wastewater. These emissions occur when organic matter (eg food and garden waste) breaks down in landfills and wastewater treatment facilities emitting methane, which has a global warming potential 25 times greater than carbon dioxide. One tonne of organic waste in landfill emits 1.9 tonnes of CO2-equivalent emissions as it breaks down over 100 years (Department of the Environment and Energy 2018).

The remainder of emissions from Council's operations (28.6%) are created by the consumption of electricity and fuel to operate facilities and fleet that are used to administer Council, provide community services, and manage and maintain Council's roads, parks and public spaces.

	Emission source	Activity data	Units	Scope 1 t CO_2-e	Scope 2 t CO_2-e	Scope 3 t CO_2-e	Total	%
	Diesel for fleet	1,374	kL	3,739		191	3,929	3.9%
	Petrol for fleet	185	kL	428		23	451	0.4%
	Ethanol for fleet	1	kL	0.01		0	0.01	0.0%
	Biodiesel	3	kL	0.28		0	0.28	0.0%
	LPG	10	kL	16		1	17	0.0%
	Electricity used in council assets	23,896,597	kWh		19,356	2,151	21,507	21.2%
	Electricity used by streetlighting	3,431,681	kWh			3,089	3,089	3.0%
	Electricity use from solar PV	86,470	kWh				0	0.0%
	Waste water	9,052	t CO2-e	9,052			9,052	8.9%
	Landfill waste	52,912	t	63,494			63,494	62.5%
	TOTAL:			**76,730**	**19,356**	**5,454**	**101,540**	**100.0%**

Electricity use accounted for 85% of Council's **non-waste** energy-related emissions (see graph below) and was equivalent to 24,596 tonnes of carbon emissions.



Council's 2021-22 Carbon Emissions

Council currently subscribes to Azility's energy efficiency software platform to help monitor its water, electricity and fuel consumption, waste to landfill and the associated costs and carbon emissions.

Council's total carbon emissions for 2020-21 was 137,714 tCO2-e and are presented in the tables and graphs below. These emissions represent an increase of 9% since the previous year.

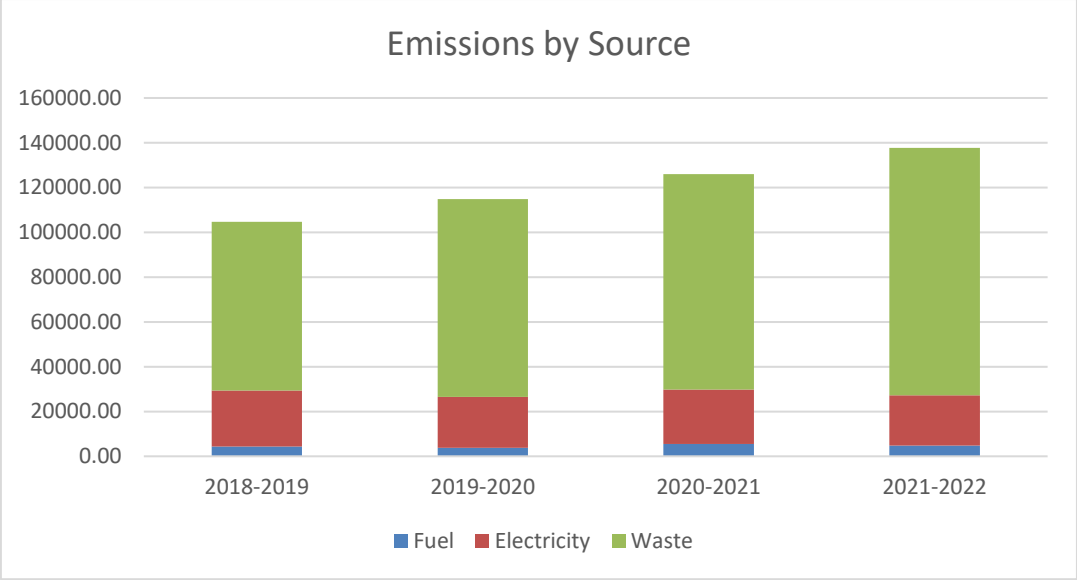
Council's annual carbon emissions since the baseline year of 2018-19 are also included below which show Council's overall emissions have increased by 31% over this time.

This is a direct result of an increase in waste to landfill following the bushfire and flood events that occurred between 2019 and 2022.

Waste is the biggest contributor to Council's carbon emissions footprint representing around 80% of Council's total emissions.

Source	2018-19	2019-20	2020-21	2021-22
Fuel	4,383	3,729	5,574	4,741
Electricity	25,037	22,737	24,224	22,503
Waste	75,228	88,326	96,258	110,469
Total	**104,649***	**114,792**	**126,058**	**137,714**

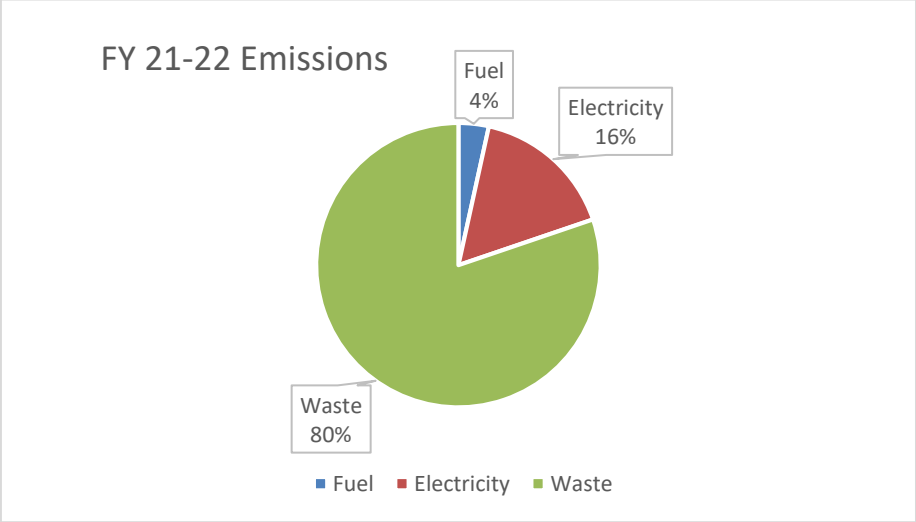
* Note: This figure has been updated since the baseline emissions profile was prepared to reflect revised waste data figures.



Financial Year Name	Emissions - All Scopes (t CO2-e)	Percentage Change since Previous Year	Base Year Emissions (t CO2-e)	Difference to Base Year (t CO2-e)	Percentage Change since Base Year
2018-2019	104,651	0.0%	104,651	0	0.0%
2019-2020	114,798	9.7%	104,651	10,148	9.7%
2020-2021	126,058	9.8%	104,651	21,407	20.5%
2021-2022	137,709	9.2%	104,651	33,059	31.6%

While Council's fuel use appears to be static, it is difficult to attribute any known causal factors due to the different data systems that were in place for the four previous entities. These systems have now been consolidated, which will provide more accurate fuel consumption data moving forward.

On a more positive note, Council's electricity use has decreased by 7% since the previous year and 10% since the baseline year. This is attributed to several factors including the LED streetlighting retrofit, the installation of solar power on Council's buildings, and the consolidation of Council's administration centres into a single building at Yalawanyi Ganya.



It is important to note that when comparing Council's emissions to other local Councils, that many (particularly in the metro areas) do not operate their own waste and wastewater treatment utilities – which are the major source of Council's emissions.

Initiatives

Council has been very active in making its operations more energy-efficient and installing renewable energy systems to reduce its carbon footprint including:

- Undertaking energy audits and developing energy management plans for Council's major facilities.
- Installing 360kW of solar panels on public buildings including the installation of a 160kW solar PV system at Yalawanyi Ganya (one of only 3 systems larger than 100kW in the LGA).
- Implementing various energy efficiency measures such as lighting retrofits, replacing electric hot water systems with heat pumps, air conditioning and humidifier upgrades and installing power factor correction to reduce power demand.
- Procurement of six hybrid passenger vehicles in Council's fleet and the installation of two electric vehicle charging stations at Yalawanyi Ganya.
- Undertaking an LED street lighting retrofit program in partnership with Essential Energy with 5,369 streetlights retrofitted to date.

Other emission reduction actions undertaken by the various areas of Council during 2021-22 are summarised below.

Governance

During 2021-22 Council continued its participation in the NSW Government's Sustainability Advantage and Sustainable Choice Programs and the Climate Council's Cities Power Partnership to gain access to resources and support to enable local government to take meaningful action on climate change.

A Climate Change Project Control Group (PCG) has been established within Council to better coordinate Council's response to climate change including the implementation of the Climate Change Strategy.

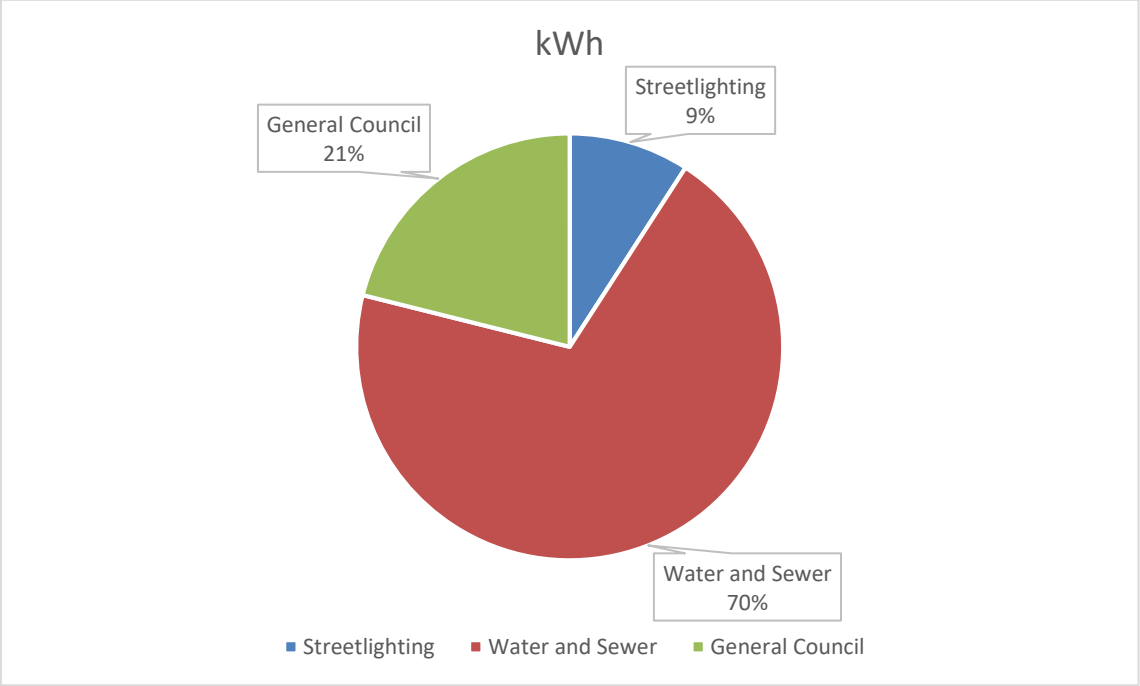
The PCG is an internal working group made up of key staff from across Council with responsibility for the reduction of carbon emissions associated with the management of waste, water and sewer, Council's fleet, assets and community facilities.

While there are many great sustainability initiatives being undertaken individually across the organisation, there has been no overarching framework or central coordination of these projects to enable Council to strategically plan and resource these activities and to better measure its progress towards net zero.

To assist in facilitating the above, Council is currently recruiting a Senior Climate Change and Sustainability Officer who will collaborate with staff from the various departments of Council to implement the Strategy and to track Council's climate and sustainability performance.

Electricity

Electricity consumption accounts for 85% of Council's energy related carbon footprint, and more than 75% of electricity is consumed by just 25 sites (including street lighting). Almost 70% of electricity is consumed by Council's water and sewer assets, 21% by all other sites and 9% by street lighting (see below).



Energy Efficiency

- Sporting fields – with the assistance of funding sourced by sporting groups, of the 26 sporting complexes, 24% of fields (12 out of 50) have now been upgraded to LED lights. Council will also actively apply for funding to upgrade the old spaceflood, broadlumes and britline fittings to the more energy efficient LEDs.

- Street lighting – we are currently in discussion with Essential Energy to undertake a second LED street lighting retrofit program in conjunction with the renewal of the maintenance contract. This involves the replacement of the eligible category V streetlights to LEDs over this coming year (works have already commenced on this program). This will see up to an additional 2,018 luminaires upgraded to LED technology. This will complement the category P LEDs changeover completed in a previous program (at that time alternate LEDs for cat V streetlights did not exist).

Solar Installations

The Climate Change Strategy identified opportunities for solar power at 34 of Council's sites. To date, Council has installed over 550kW of solar panels on several public assets and facilities with the following systems installed during 2021-22:

- 40kW at the Tuncurry Men's Shed.
- 79kW at the Taree Waste Management Centre.
- 72kW at the Tuncurry Recycled Water Treatment Plan.

Another 3 systems totalling 93kW are currently being installed at the Bulahdelah Water Treatment Plant, Tea Gardens Sewer Pump Station 13, and the Manning Point Sewer Treatment Plant.

Purchase of Renewable Energy

The single biggest opportunity to reduce electricity emissions is to purchase renewable energy and/or renewable energy offsets through Council's electricity procurement process. Unlike other abatement options, this does not require Council to physically implement change, only to stipulate that renewables be purchased to meet part or all its electricity needs. This approach has been taken by several councils in recent years and underpins most goals to reach carbon neutrality/net zero emissions.

Council has recently entered two new electricity contracts for its Small Sites (<100MWh) and Large Sites (>100MWh), which will both commence in January 2023 for a period of 10 and 3 years, respectively. While the electricity costs related to the Small Sites contract have decreased significantly generating substantial savings for Council, the costs relating to the Large Sites contract have increased greatly.

Small Sites are responsible for 26% of Council's electricity consumption with approximately half of these sites owned by Water Services. The Small Sites contract includes the purchase of 100% Green Power for all the water and sewer sites. While the General Fund sites have not been included in this arrangement at this time Council can opt in at any time. The Climate Change PCG are currently exploring the option of using the Year 1 savings related to the General Fund sites as seed funding for a Revolving Energy Fund.

With regards to the Large Sites contract, Council will consider the option of purchasing Green Power in Year 2. This is due to the significant increase in electricity costs over the last 12 months and the current volatility of the energy market.

Transport Assets is also considering the option of purchasing 100% Green Power in the renewal of its street lighting contract, which is going out to tender soon through Local Government Procurement.

Waste

The newly adopted Waste Management Strategy includes a target to divert 70% of waste (including 50% of organic waste) from landfill by 2030 in order to reach net zero emissions.

As shown in the table below, a 42% diversion rate was achieved in 2020-21 as waste diversion was impacted by multiple factors with the main contributors being COVID19 due to the increase in single use items used to mitigate disease migration, and the severe flooding that impacted the MidCoast in March of 2021 leading to a large amount of waste material being disposed due to contamination.

The diversion rate is calculated as the percentage of the total waste generated that is recovered, either through comingled recycling, garden organic recovery or other Council operations. A baseline diversion rate of 37.4% has been calculated from the three-year average.

Table 4 Summary of overall MCC collection, recycling and disposal data

Year	Waste generated (tpa)	Waste recycled (tpa)	Waste to landfill (tpa)	Diversion rate (%)
FY19	90,420	29,705	60,715	32.9%
FY20	94,848	35,416	59,432	37.3%
FY21	117,991	49,528	68,463	42.0%
Avg	**101,086**	**38,216**	**62,870**	**37.4%**

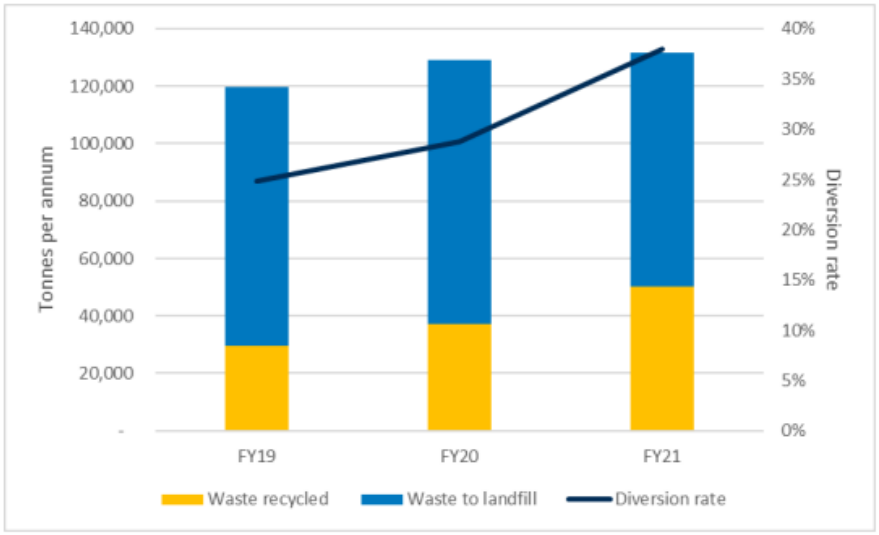


Figure 5 Changes in overall MCC tonnes and diversion rate over time

The total waste generated within the MCC region has steadily increased over the years, although a growing diversion rate means a greater proportion of this material is being returned to the economy as recycled products. This increase is evidence of the joint efforts being led by Council, business and the community to improve recycling practices in all sectors of society.

The NSW EPA 'Waste Less, Recycle More' initiative, funded from the Waste Levy, provides $119,000 annually for activities to increase waste diversion from landfill. Reimagine Waste is the over-arching program for activities designed to encourage and inspire change in attitudes and behaviour amongst MidCoast residents.

Currently one third of all household waste thrown away and sent to landfill is organic and compostable. Putrescible waste in landfill generates carbon emissions via the production of methane - the Scraps to Soil program aims to divert this food waste from the household red bin into compost. Future projects include a program to process Food Organic and Garden Organic (FOGO) waste, which aims to divert an estimated 40% of material from landfill commencing in 2025.

Waste Services has also implemented multiple operational improvements to increase waste diversion into the future. The new Waste Facilities and Operations Contract that was awarded to JR Richards and Sons in partnership with Resource Recovery Australia in March 2021 has been designed to deliver positive sustainable outcomes through increased

concentration on waste avoidance and resource recovery activities such as increased investment in tip shops, implementing new processes and procedures at transfer stations and installing new innovative equipment to better-manage waste streams.

Other initiatives currently underway to reduce emissions from Council's waste operations include:

- A trial to capture methane gas from the landfill utilising a $300k grant obtained through the NSW EPA's Bushfire Recovery Program. If the trial proves successful, Waste Services will install a permanent gas management system at the Taree Waste Management Centre, this would entail using the methane to generate electricity or a secondary option of flaring methane to turn it into carbon dioxide. Carbon dioxide (Co2) has 25 times less the global warming effect of methane gas.
- Tender for the Waste Collection contract (closes 6 September) includes an option to utilise electric vehicles to service the public waste bins. This could potentially see four (4) collection vehicles running off renewable energy within the MidCoast LGA (subject to tender prices).

Fleet

- A total of 8 hybrid electric vehicles (HEVs) and 1 Plug-in Hybrid Electric Vehicle (PHEV) are now in Council's leaseback fleet with another 2 HEVs on order. This indicates that some employees are choosing to support sustainable options without any other incentives as the current fee model means that employees pay a premium to make this choice. It should also be noted that the very long lead times (12-18 months) for the preferred HEV (Toyota RAV4) has resulted in some employees choosing standard leasebacks when those employees were otherwise receptive to making the move to a HEV. The Mayoral vehicle is also a HEV, which was purchased in 2019.
- EV charging infrastructure - agreement entered with Tesla to install a public EV charging facility on Council-owned property for Tesla models only.
- Investigation into Fuel Cell EV (hydrogen) and BEV (battery EV) options for Council's heavy fleet - at this stage there are no options or initiatives that are practically suitable.
- Successful application to the NSW Government EV Fleets Incentive program to subsidise the replacement of 3 ICE pool vehicles with EVs and supporting charging infrastructure at Yalawanyi Ganya. The EVs and chargers are expected to be operational by early 2023, primarily subject to lead times for the EVs.

Other major initiatives planned to be undertaken in 2022-23 to reduce Council's fuel emissions include:

- Review of the relevant Fleet and HR policies to encourage the selection of more sustainable leaseback vehicles by employees including possible incentivisation through a revised fee model.
- Monitor the proposed changes to legislation regarding FBT exemption for BEVs and PHEVs which could provide cost savings to Council through selection of these models.
- Continue to replace non-allocated ICE vehicles with HEVs where possible and consider PHEV and BEV options also.
- Access funding through the NSW Government EV Destination Charging Grants program to support installation of EV chargers at the Civic Precinct building and promote program to local businesses.

- Monitor opportunities for heavy fleet ICE vehicle replacements by BEV or FCEV vehicles including any government grants and evaluation vehicle opportunities.
- Assess options for replacement of other ICE plant items, eg mowers with electric options.

Climate Change Adaptation

While the focus of this report is on emissions reduction, it is also important to note the important work currently underway to manage Council's climate change risks and adapt its assets and operations to become more resilient to the unavoidable impacts of climate change. This includes managing the risks of climate change that impact the community such as those associated with natural disasters. Some of the adaptation projects undertaken in 2021-22 have included:

- Various bushfire recovery projects within Council's natural area reserves targeting the recovery of threatened species and communities including the Koala Safe Spaces project and the Manning River Helmeted Turtle Refuge Pools project.
- Community support programs for bushfire protection, preparedness and recovery.
- Water Resilience Program including the review of the Integrated Water Cycle Management Strategy.
- Urban Canopy Mapping to inform the implementation of the Greening Strategy.
- Floodplain risk management and coastal protection works.