Minute no. 372/2022

Central Coast Council

Emissions Reduction Plan 2022

December 2022

Contents

1 Vision

The Council has set a target to reduce greenhouse gas (GHG) emissions to net zero by 2040. The Council is committed to a consistent response to the potential impacts and opportunities that may eventuate from climate change.

2 Executive Summary

The establishment of a formal GHG emissions target with a committed goal of net zero for Council operations by 2040 as identified in the Central Coast Council Climate Change Strategy Action 3.3.2 (Interplan Action 2021-2022).

3 Objectives

The following objectives reflect the Council's response to reduce GHG emissions for Council's operation:

- Analyse the current emission level for Council's operation.
- Set targets to reduce emissions for Council's operation.

4 Scope

This report provides analysis on Scope 1 and 2 emissions from Council's operation and investigates possible options to reduce such emissions. The Scope 3 emissions are not analysed in this plan. In addition, this plan looks at municipal emission measures but does not take account of the community emission measures.

5 Related Legislation

- National Greenhouse and Energy reporting (NGER) Act
- Central Coast Council Climate Change Strategy 2019-2024
- Central Coast Strategic Plan 2014-2024

6 Background

Net zero emissions refers to a state where emissions of GHG in the atmosphere (including carbon equivalence) are counterbalanced by the removal of GHGs. This means reducing emissions as far as possible, then offsetting the remainder. Tackling the emissions level in our atmosphere by controlling the level of emissions created within our Council operations is one of the measures to mitigate climate change. CO_2 concentration level is one of the indicators of climate change and removal of GHG from our atmosphere is one of strong climate action.

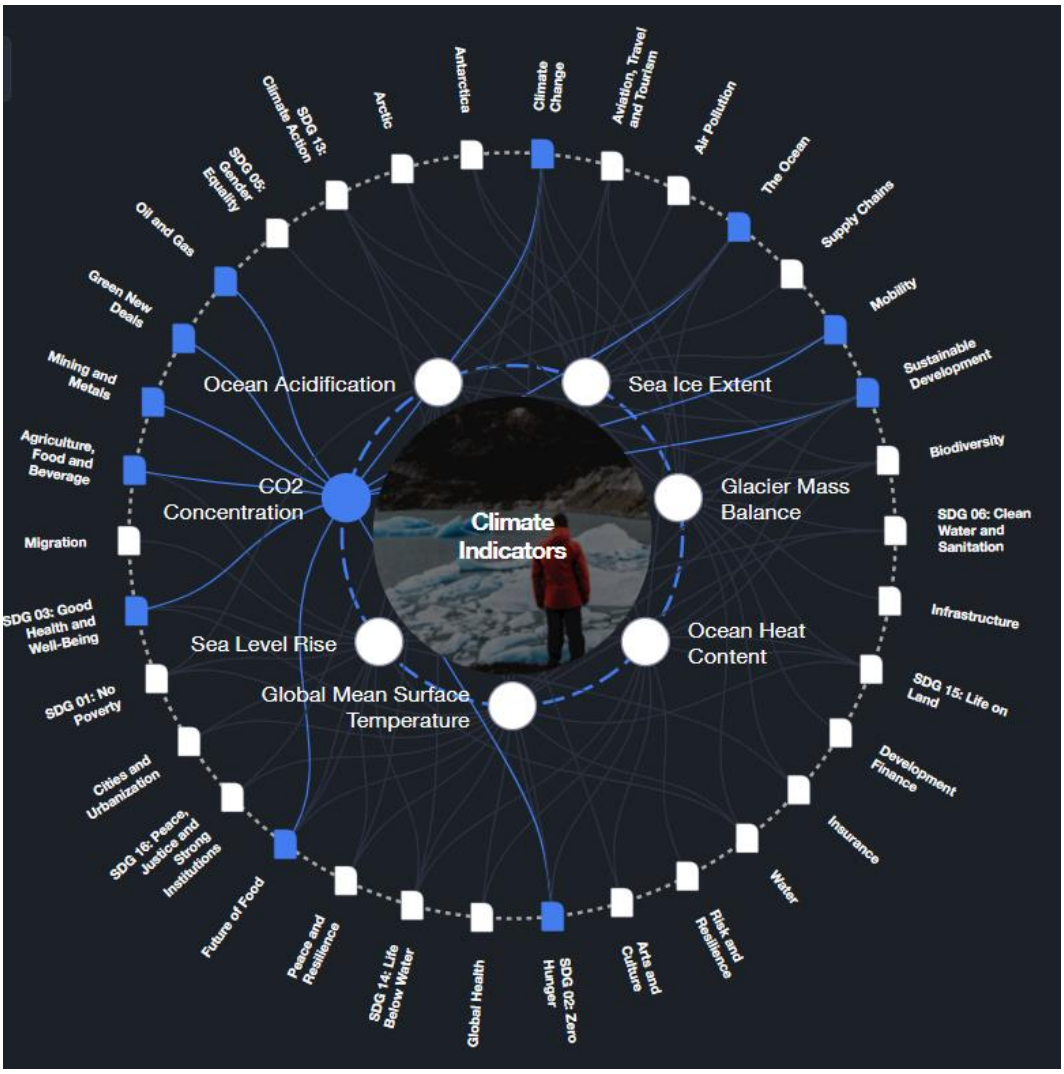


Figure 1: Climate Indicators and CO2 Concentration [6]

The CO_2 concentration is one of the climate indicators. This is directly related to emissions and consists of various topics influencing its level in the atmosphere as follows:

- Sustainable Development
- Mobility
- Climate change
- Oil and Gas
- Green New Deal
- Minerals and metals

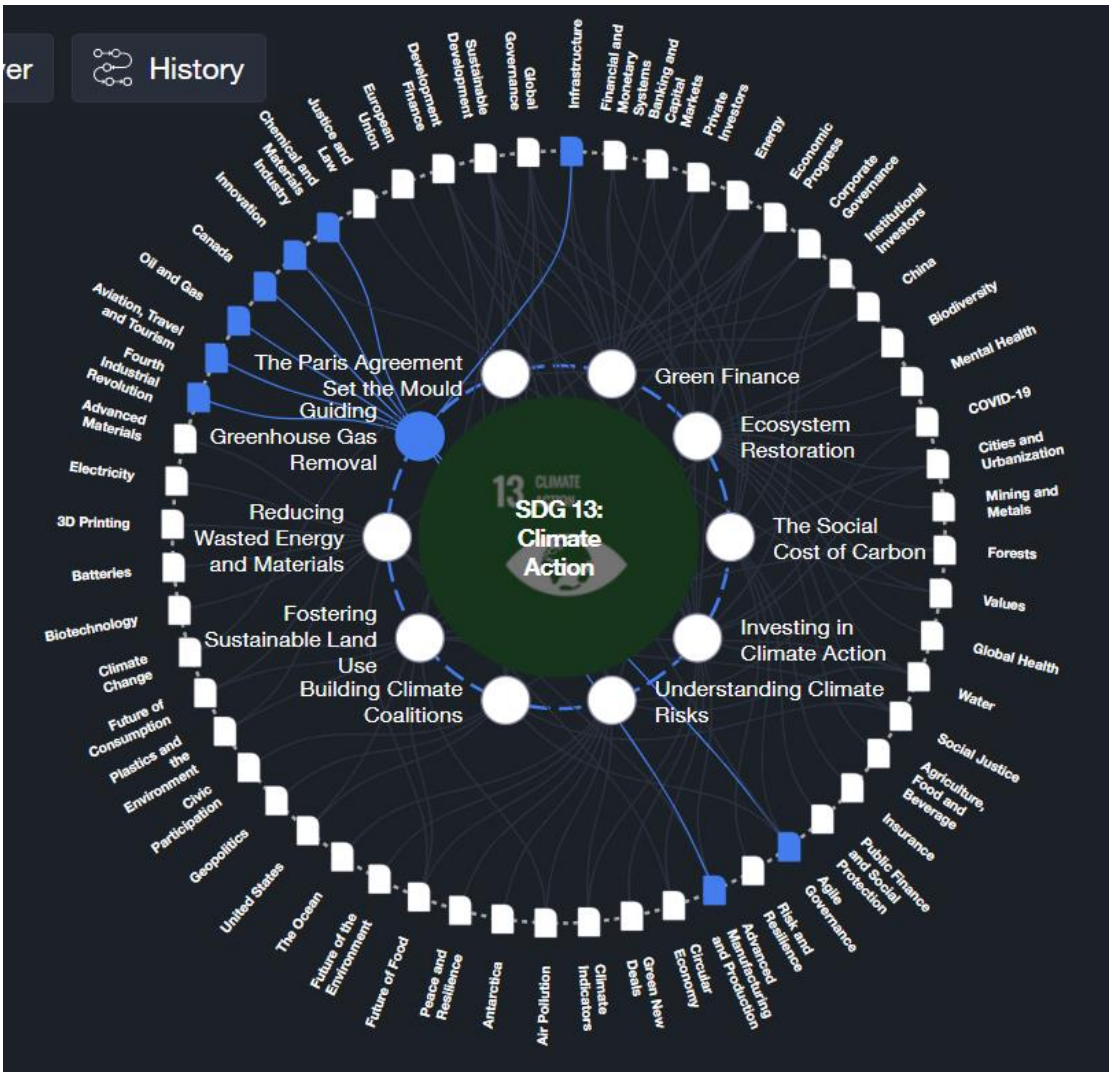


Figure 2: Climate Action and GHG Removal [6]

GHG emissions are measured as carbon dioxide equivalence (CO_2e). This means that the amount of a GHG that a business emits is measured as an equivalent amount of carbon dioxide which has a global warming potential of one.

1 tonne of carbon dioxide CO_2	= 1 tonne of CO_2e
1 tonne of methane CH_4	= 28 tonnes of CO_2e
1 tonne of nitrous oxide N_20	= 265 tonnes of CO_2e

The GHG emissions can be categorised into three types:

- Scope 1: Direct emissions generated by assets owned or operated by the company, e.g., fuel, waste.
- Scope 2: Indirect emissions are generated from the purchase of energy, e.g., electricity, heat, steam.
- Scope 3: Indirect emissions that arise from all other value chain activities – both upstream and downstream (including end user purchase).

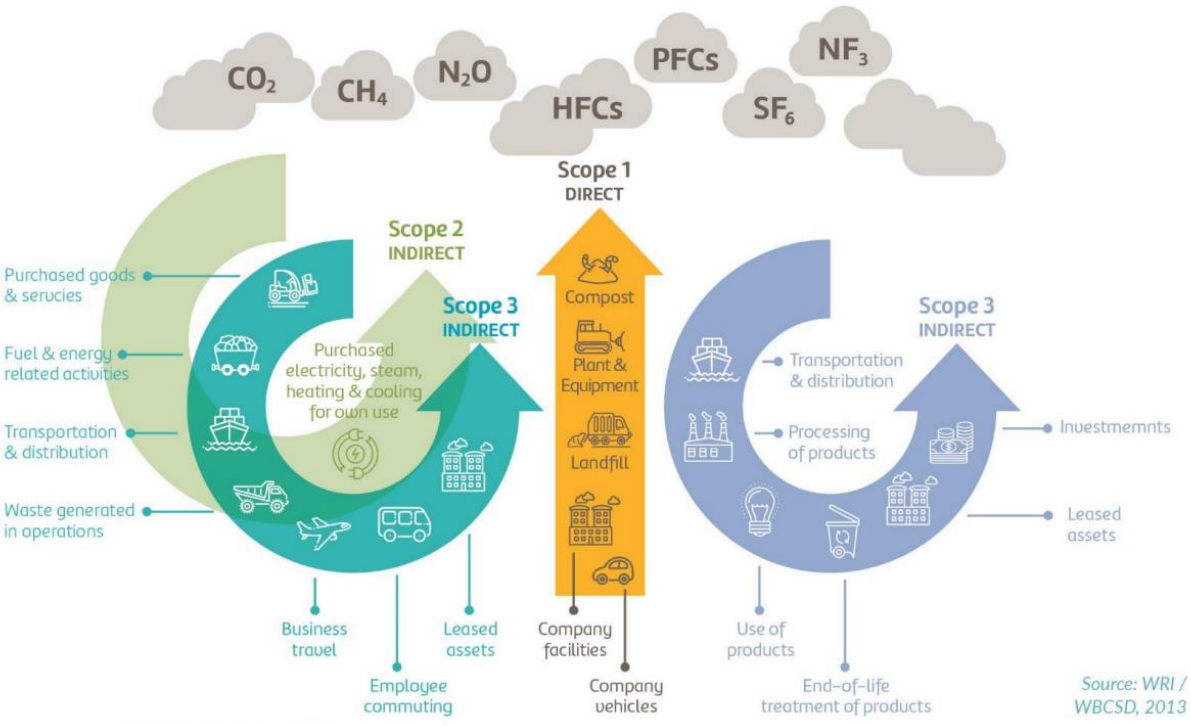


Figure 3: Types of Emission and their source

7 Council's Greenhouse Footprint

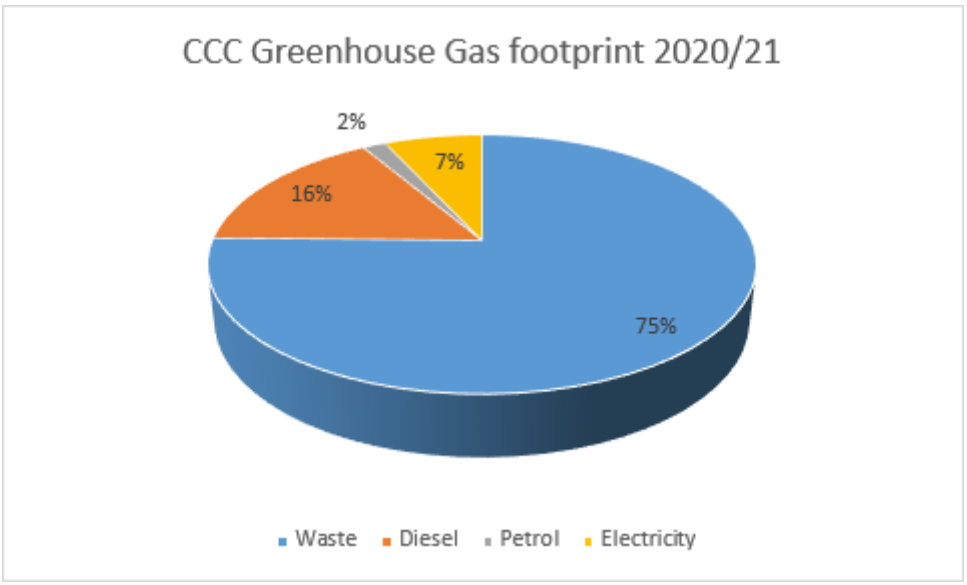


Figure 4: Scope 1 and Scope 2 emission levels of Central Coast Council in 2020/21

The Central Coast Council undertook analysis to develop the 2020-2021 greenhouse footprint for its Scope 1 and Scope 2 emissions. This aligns with the National Greenhouse and Energy Reporting (NGER) Measurement Determination. The total emissions from waste, diesel, petrol, and Council owned buildings is 3,241t $C0_2e$.

The majority of the Council's emissions footprint (77% or 2,440t $C0_2e$) is coming from waste from the Resource Recovery Centre landfill site (Appendix C: Council Waste Flowchart) in Ulverstone. This data does not consider FOGO and kerbside recycling.

Diesel (16% or 525t $C0_2e$) and petrol (2% or 53t $C0_2e$) emissions combine for 18% (575t $C0_2e$) of Council's fleet being the second largest contributor. Council owned buildings emission are the second lowest contributor of emission at 7% or 223t $C0_2e$.

The Council's current Energy and Emission Management System shows emissions based on the electricity consumption and fuel consumption. Figure 5 represents the total emission from Council operations in energy. The emissions from the last 6 financial years are presented in Appendix A: Emission from Fuel and Electricity.

The emissions from electricity and fuel consumption are expected to increase in coming years provided no strict actions are taken to mitigate such effects. This increase is due to population increase and higher demand, and is supported by the linear projections from past year's data (Appendix A).

The emissions from diesel consumption stands for the greatest energy use of 66%, followed by electricity consumption at 28% and petrol emissions at 7%. Vehicle fleet combined (diesel and petrol) is responsible for approximately 73% of the Council's emissions from energy usage.

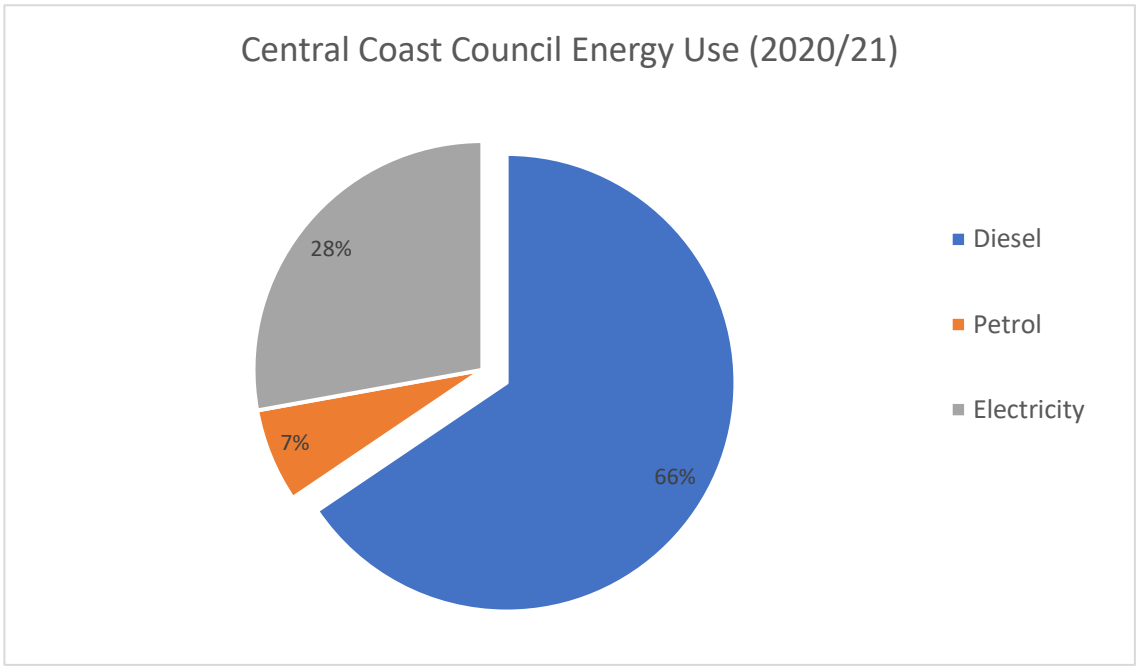


Figure 5: Energy Use in CCC 2020-2021

The Council's emissions are approximately 5% of the total emissions for the Central Coast area. Transportation contributes to the majority of municipal emissions followed by electricity consumption and agriculture.

Report time period

2019 July — 2020 June

Central Coast

2019/20 municipal emissions snapshot

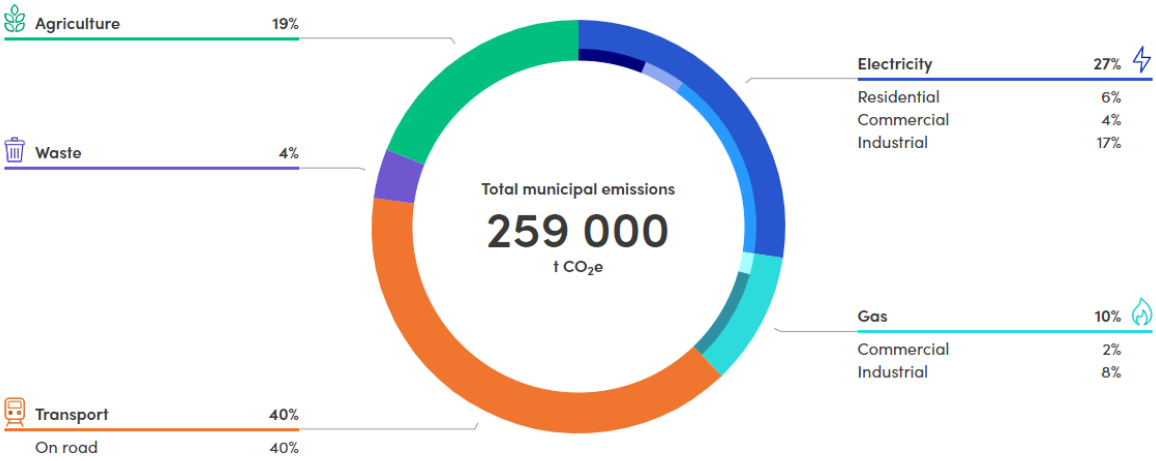


Figure 6: Central Coast Council Municipal Emission Snapshot [5]

{**Climate Zone 7: Cool temperate}

Source	Sector	Emissions (t CO_2e)
Electricity	Residential	16 000
	Commercial	10 000
	Industrial	45 000
Gas	Residential	0
	Commercial	5 000
	Industrial	22 000
Transport	On road	102 000
	Domestic air travel	0
Waste	Landfill	7 000
	Water	3 000
Agriculture		49 000
Land Use		2 000

Land Use data is not used in the chart nor the displayed total municipal emissions.

Characteristics	
Land area	933 km^2
Population	22 048
Gross regional product	$ 804 904 500
Climate zone	7

8 Why set a net zero target?

- Align targets with State Government and Federal Government programs.
- Supports the implementation of the Central Coast Council Climate Change Policy and Strategy.
- Makes Council's intent clear.
- Puts ‘positive pressure’ on Council.
- Requires continuous improvement.

There are many financial, environmental, and social benefits for councils and their communities by reducing emissions and transitioning towards net zero. These benefits include but are not limited to:

8.1 Financial benefits

- Installing or purchasing renewable energy can help councils manage energy costs and reduce GHG emissions.
- Many renewable energy projects generate cost savings over time in addition to reducing emissions.
- In some circumstances, excess solar energy can be fed back into the grid which can generate additional income for communities and shorten pay-back periods.

8.2 Environmental benefits

- Prepare our community to be more resilient to climate risks such as bushfires, storms, floods, and sea level rise.
- Enhance green infrastructure to protect our natural environment’s threatened flora and fauna species, landscapes, and waterways.
- Combat urban heating by increasing green cover in our area.
- Play our part to help limit global warming.

8.3 Social benefits

- Provide cleaner air, green spaces, and healthier environments for our community.
- Demonstrate that councils are responding to community expectations to act on emissions.
- Reduce transitional and liability risks within our Local Government Area (LGA).
- Join a growing network of climate leaders from across Tasmania and the world.

9 Past actions on emission reduction

9.1 Introduction of Food Organics Garden Organics (FOGO)

The introduction of FOGO to the Council's kerbside waste management service in October 2019 has greatly changed the field of waste emissions and has diverted roughly 40% of household waste from landfill. This 40% diversion of waste that previously went to landfill has reduced approximately 40% of emissions (approximately 2,267.74 tCO_2-e) generated from waste.

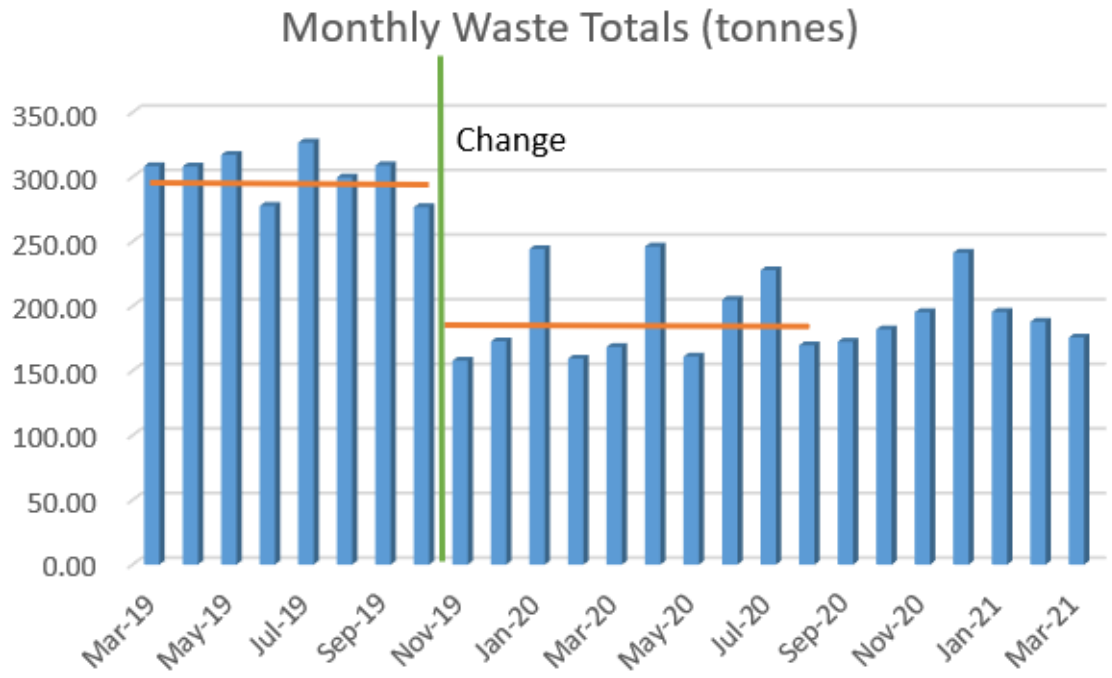


Figure 7: Waste Diversion after introduction of FOGO

9.2 Renewables focus

The top energy consuming Council operated buildings have provision of solar power in their roof and there is the addition of one more solar system in the financial year 2021-2022 at the Dial Regional Sports Complex. This is expected to generate 30KW of energy in the existing system.

The Council currently has for following solar systems in operation:

- Central Coast Council Administration Centre (25KW)
- Ulverstone Sports & Leisure Centre (25KW)

These existing solar panels have reduced emissions of approximately 130t CO_2e in total, which is equivalent to the emissions saved by 3,200 trees.

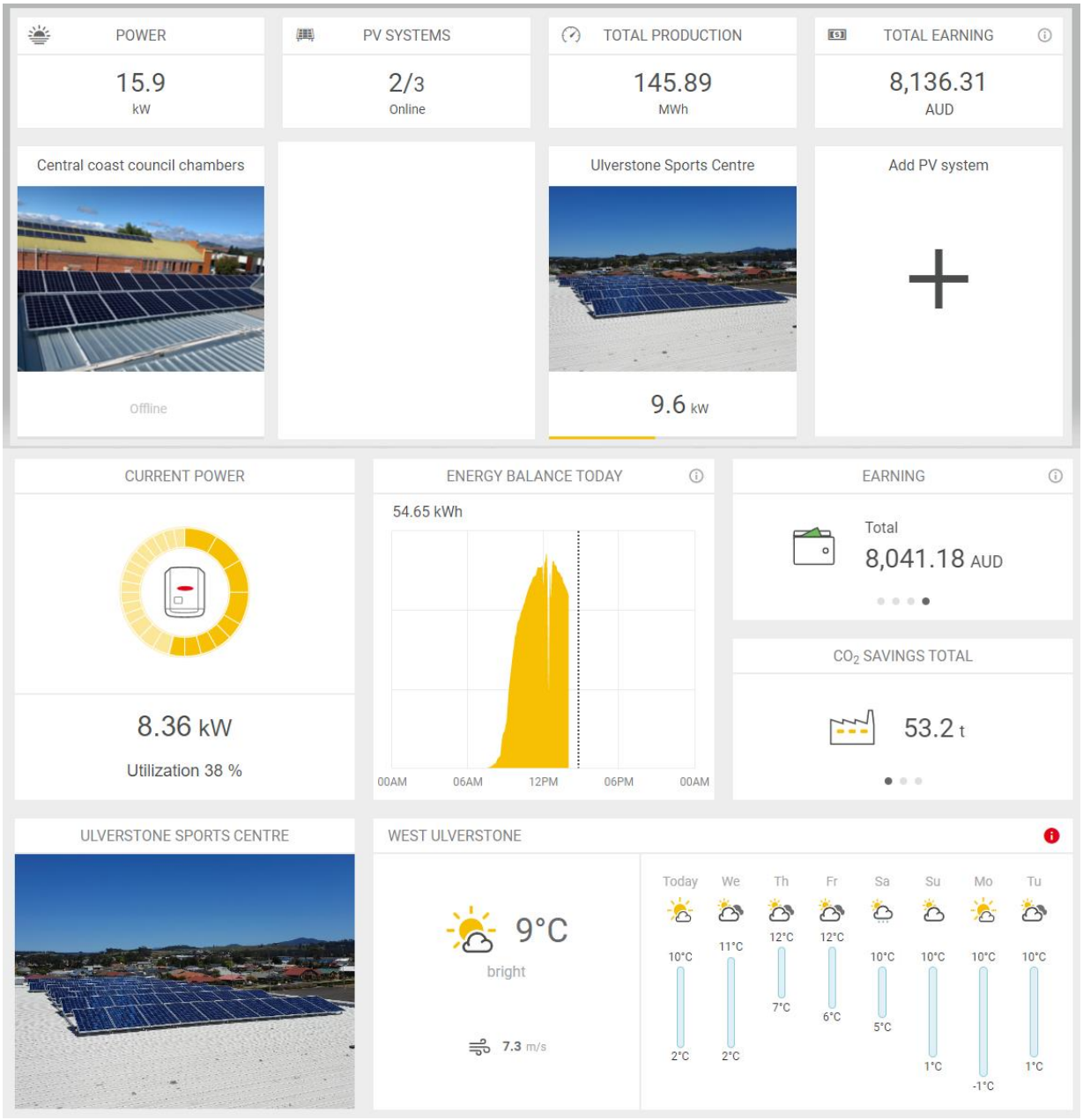


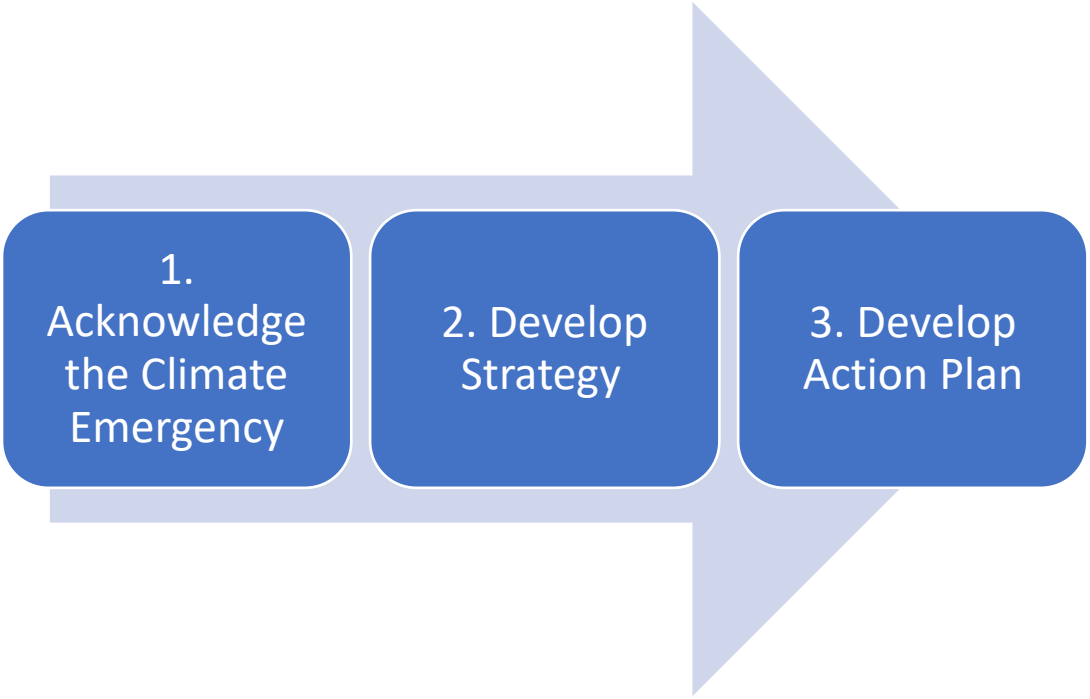
Figure 8: Existing Solar Systems in Council & Energy Dashboard of Ulverstone Sports & Leisure Centre (7 June 2022; 2:50pm)

9.3 Trialling electric fleet

The Council has promoted the use of hybrid cars for some time now, but the first electric car has been purchased by the Council for trialling as a float vehicle in May 2022. The Nissan Leaf has already completed over 1,200 kms and has received positive feedback from staff.

Figure 9: Council's first electric fleet
(Nissan Leaf: April 2022)

10 Plan of action



The standard framework for reducing the emission from Council are:

. Take stock – GHG footprint
. Set target/actions
. Design and implement projects
. Evaluate the success
. Track progress– annual inventory, reset targets

Cut 20% by 2026	Cut 40% by 2031	Cut 100% by 2040
•Increase FOGO Collection throughout the municipality	•Study alternative fuel options for council's heavy vehicles	•Liase with other organisations to improve alternative transportation (Sustainable)
•Support the existing Waste Management System	•Build a community battery to store excess energy from daytime solar	•Divert landfill for fossil fuel energy alternatives
•Target the biggest energy consumption buildings for solar system installation (Plan 1 per year)	•Continue active awareness through participation in school and community for waste management	•Maximize the use of council's power through renewables
•Support electric fleet by installation of electric charging station and acquisition of new electric vehicles	•Support electric vehicle as priority for council vehicle exchange program	•Maximize the use of sustainability based materials in all council's project (procurement policies)
•Support alternative transportation - Shared Pathway	•Replace all council operated lights to LED	•Improve the Country Waste Management System
•Staff training and awareness	•Implement plans and policies to support the targets	
•Provide local climate change science information at HIVE	• Increase carbon sinks by increasing tree canopy cover by 30%.	

Figure 10: Emission Reduction Plan

"The first steps are always the hardest."

Cutting emissions can be a confusing process, particularly identifying the best place to start. As a first step, it is important to build trust and then increase the momentum.

The process of cutting emissions is a continuous one. However, we can start to increase momentum with the following actions:

. Develop an Emission Plan
. Develop GHG inventory
. Plan small projects with bigger impact (quick win to please everyone)
. Media and public engagement for positive community support
. Plan for partnering with other organisations and cost sharing (grants)
. Resourcing (empower the community)
. Annual reporting (to maintain engagement)

Some of the recommended emissions reduction actions will be as follows:

10.1 Promote Solar Systems

Install Solar systems on Council's building (prioritise based on energy usage).

For instance: the solar system can be planned for HIVE which has been the top energy consuming site.

Figure 101: HIVE Solar system design draft (100 panel setup 36.5KW)

10.2 Waste Management

The Council has achieved a high level of diversion, through the practices implemented at the Lobster Creek Resource Recovery Centre (RRC) and the introduction of a kerbside food organics garden organics (FOGO) service.

Diversion from the kerbside stream achieved 67%. Opportunities still exist for further diversion, such as the food organics in the waste stream.

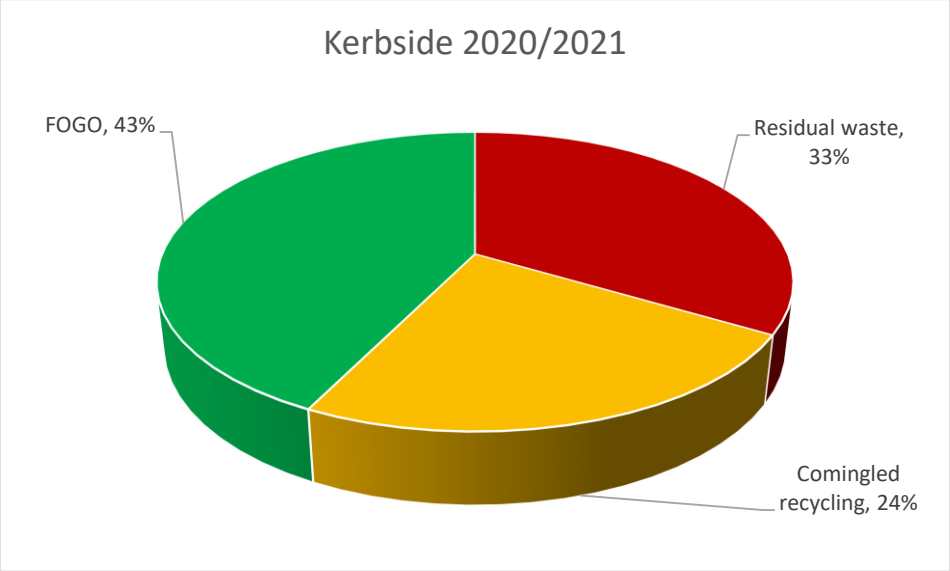


Figure 11:Kerbside 2020-2021 diversion breakdown

Overall, Council-wide diversion is achieving 47%. This includes all waste materials managed by Council, including kerbside, transfer stations and the inert landfill.

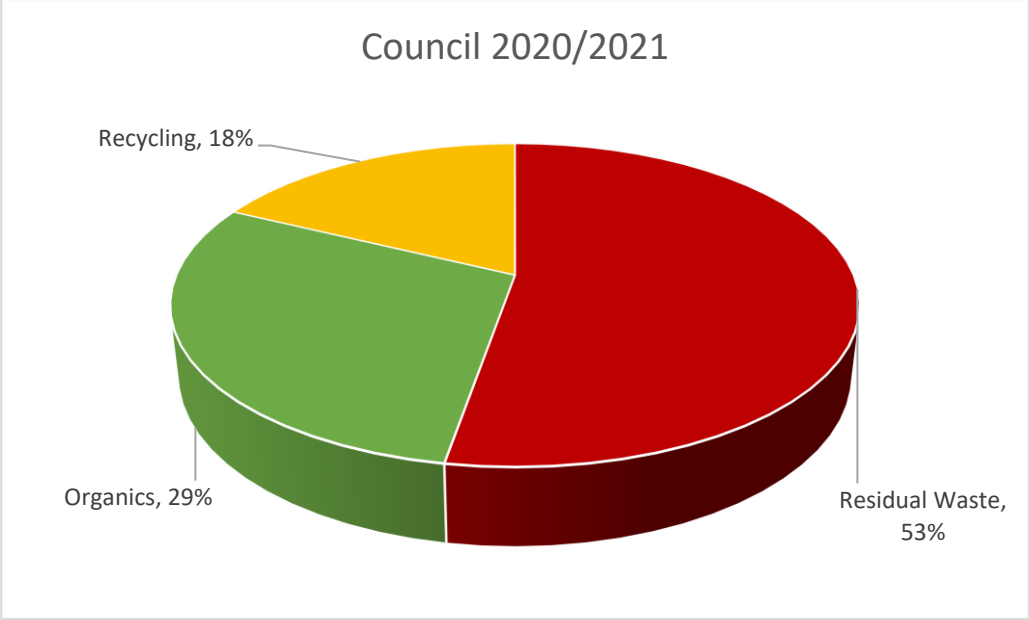


Figure 12:Council 2020-2021 diversion breakdown

Some of the targets set by the Waste Management Strategy 2021-2026 that is in parallel with the Emission Reduction Plan are as follows:

. Divert materials from landfill (Council-wide): 75% by 2025.

. Increase FOGO collection throughout the municipal area by 2025-2026.

10.3 Others

- Promote the electric vehicle and provide sufficient resources for such measures (support with business case including a comparison with conventional vehicle and payback period).
- Collaborate with local schools to create an awareness program which may include a sustainability program, climate change program, and waste management program.
- Use a GHG equivalence calculator to create awareness by people for each daily life action.
- Research and apply new and applied mitigation techniques in similar organisations.

11 Recommendations

The following recommendations are provided for the future revisions of this report:

- Develop an Emission Action Plan to align with emissions reduction in Council operations by 2040.
- Track Council's emissions using a systematic and consistent approach and include in Annual Report each year.

REFERENCES

1 Azility (Energy Management System) Azility - Central Coast Council (TAS)

2 Energy Detective (LGSHERLOCK) › Energy Detective Login - LG Sherlock (lgaq.asn.au)

3 Dulverton Waste management Data

4 Climate Change in Australia: Central Coast Council 2019 4.4.1.3 Climate Change Education Package for Elected Members - v2.pdf

5 Municipal Emission Snapshot Central Coast, TAS: Snapshot (snapshotclimate.com.au)

6 Climate Indicators: CO_2 Concentration, World Economic Forum Strategic Intelligence (weforum.org)

7 NGER Emissions and Energy Threshold Calculator 2020-2021 Calculators (cleanenergyregulator.gov.au)

8 NGER Solid Waste Emission Calculator Calculators (cleanenergyregulator.gov.au)

9 Greenhouse Gases Equivalencies Calculator - Calculations and References Greenhouse Gases Equivalencies Calculator - Calculations and References | US EPA

10 Standard Mitigation Goal Mitigation_Goal_Standard.pdf (ghgprotocol.org)

11 GHG Protocol: A Corporate Accounting and Reporting Standard ghg-protocol-revised.pdf (ghgprotocol.org)

12 The role of 'Material Efficiency, Recovery & Optimisation' in Local Government Climate Action; The role of 'Material Efficiency, Recovery & Optimisation' in Local Government Climate ActionAriana-Magini-Michael-Attard-City-of-Launceston.pdf

13 Electric Vehicle Transition Program Electric Vehicle Transition Program Jon-Doole-Kingborough-Council.pdf

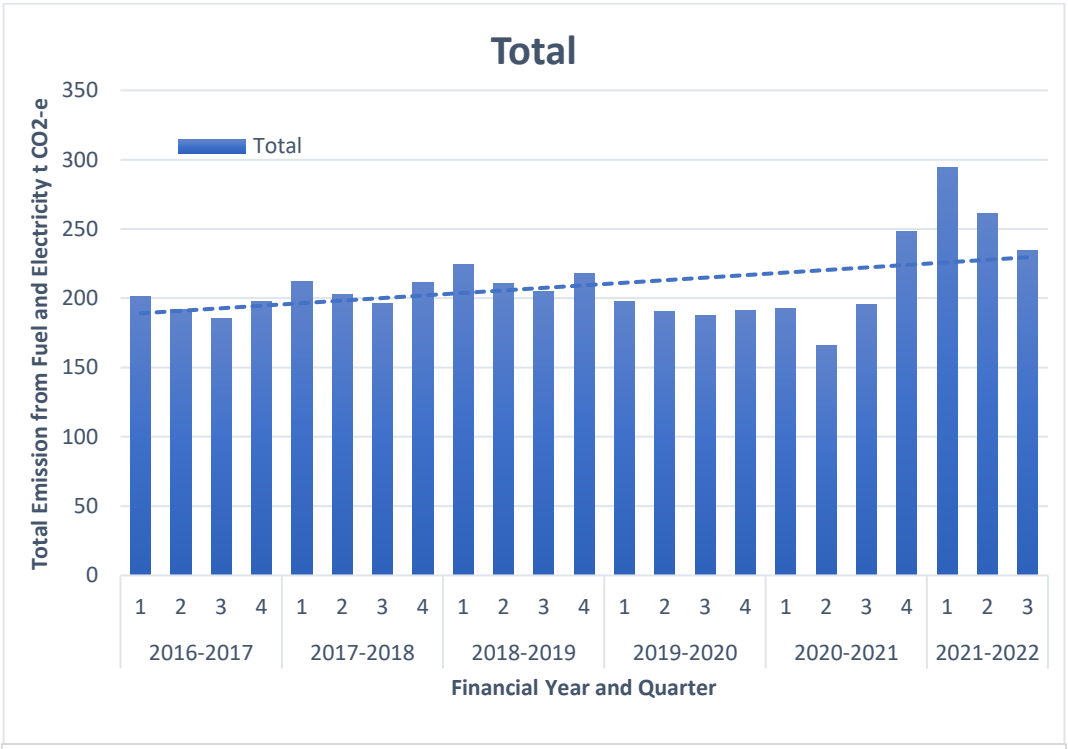
14 Council Emission Reduction Council Emission Reduction James-Dryburgh-Brighton-Council-Climate-.pdf

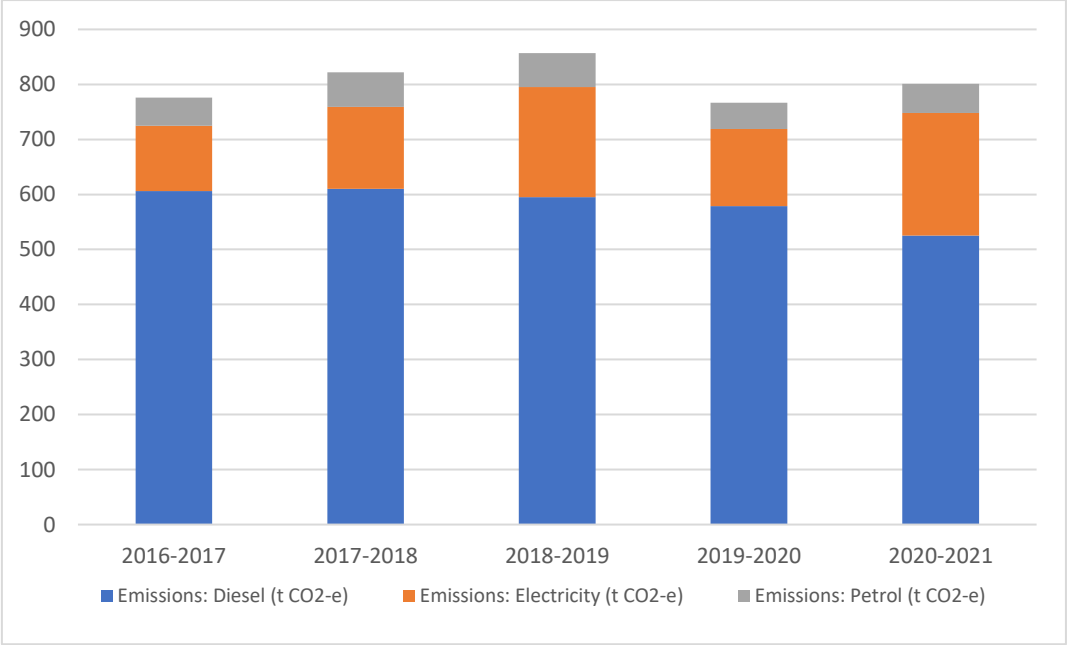
15 Climate Change Communication and Engagement IPCC, climate change communication & engagement Gretta-Pecl-University-of-Tasmania.pdf

16 Central Coast Council Waste Strategy 2021-2026

17 Reducing Emissions -Tasmanian Government Department of Premier and Cabinet (dpac.tas.gov.au)

APPENDIX A: EMISSION FROM FUEL AND ELECTRICITY





Financial Year	Emissions: Diesel (t CO_2-e)	Emissions: Electricity (t CO_2-e)	Emissions: Petrol (t CO_2-e)
2016-2017	606	119	51
2017-2018	610	149	63
2018-2019	595	200	62
2019-2020	579	140	48
2020-2021	525	223	53

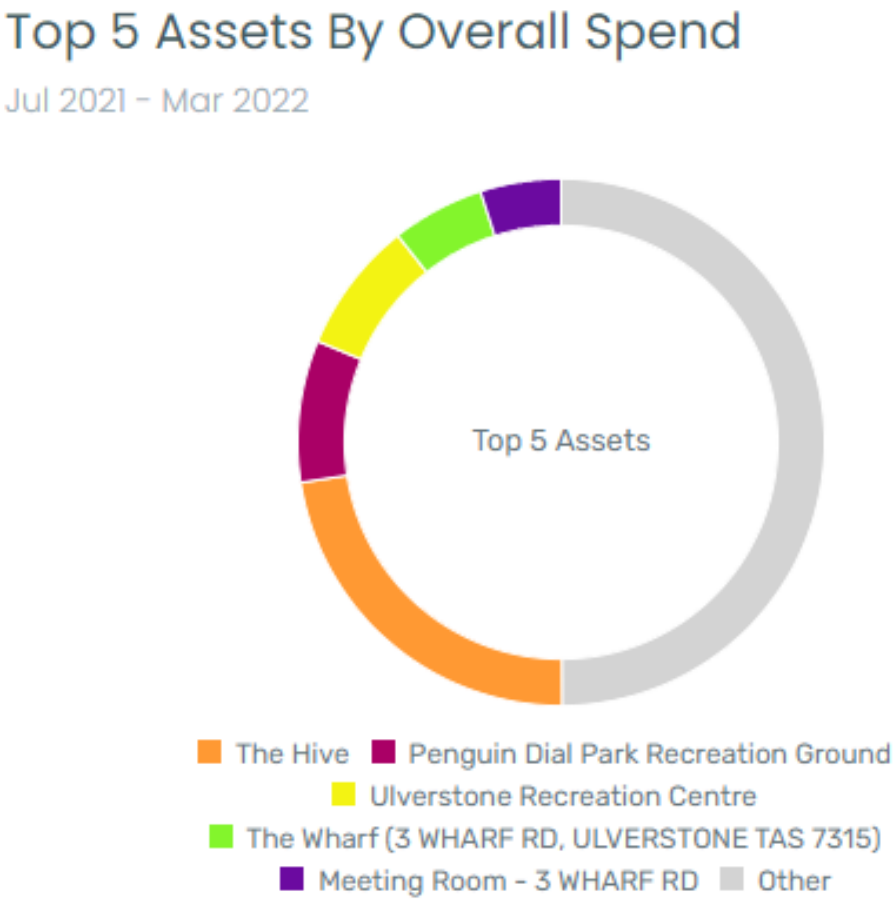
RRC Landfill Greenhouse Gas Emissions from Landfill

Assumes landfill opened 1 July 2005, FOGO introduced October 2019 giving 1,200 tonne reduction (40%). Recycling has never gone into landfill as it is contracted and goes to Dulverton.

Potential emissions value of 1.405 and k value 0.05 used as defaults

Year	Waste	Actual Emissions	Potential Future Emissions
2004/05	3,200	-	4,496
2005/06	3,200	225	4,496
2006/07	3,200	438	4,496
2007/08	3,200	641	4,496
2008/09	3,200	834	4,496
2009/10	3,200	1,017	4,496
2010/11	3,200	1,191	4,496
2011/12	3,200	1,356	4,496
2012/13	3,200	1,513	4,496
2013/14	3,200	1,662	4,496
2014/15	3,200	1,804	4,496
2015/16	3,200	1,939	4,496
2016/17	3,200	2,067	4,496
2017/18	3,200	2,188	4,496
2018/19	3,200	2,303	4,496
2019/20	2,100	2,413	2,951
2020/21	2,100	2,440	2,951
2021/22	2,100	2,465	2,951

Year	Stream	Usage	Unit	Total Emission	Percentage
2020-2021	Waste	2329.867	tonnes	2440	75%
	Diesel			525	7%
	Petrol			53	1%
	Electricity	1,315 ($206,999)	MWh	223	3%
Total				3241	


Top 5 Assets By Overall Spend
Jul 2021 - Mar 2022
Top 5 Assets
The Hive
Penguin Dial Park Recreation Ground
Ulverstone Recreation Centre
The Wharf (3 WHARF RD, ULVERSTONE TAS 7315)
Meeting Room - 3 WHARF RD
Other

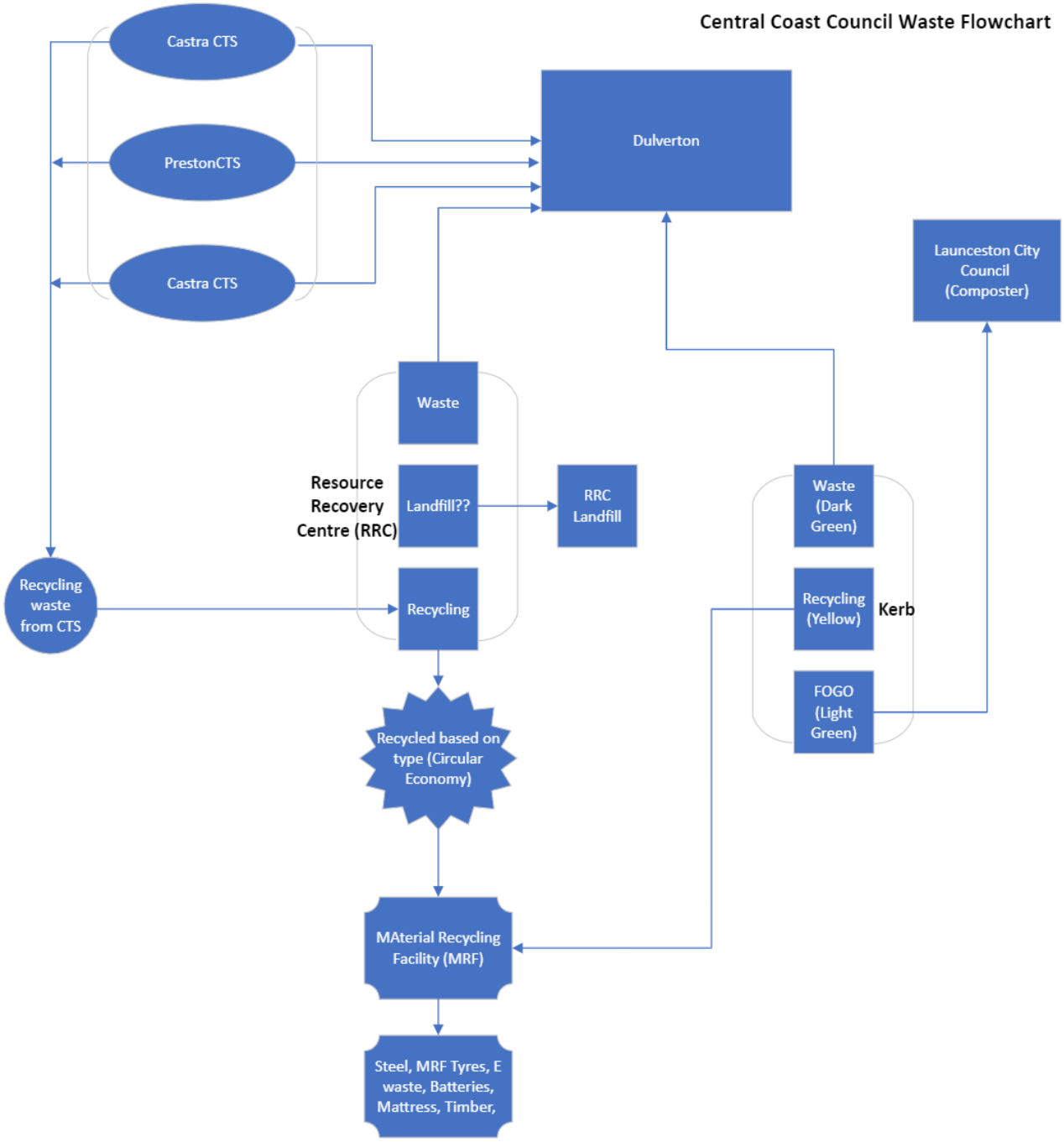
APPENDIX B: COUNCIL OWNED FLEET

Asset category	Items	Asset Replacement Value
Cars (100 series)	22	$712,000
Vans and Utilities (200 series)	23	$698,000
Trucks	18	$2,260,000
Sweeper	1	$325,000
Tractors/Mowers	11	$898,000
Backhoe's/ Excavators/ Rollers	10	$1,635,000
Various	37	$804,700
TOTAL	**122**	**$7,332,700.00**

FY 2020-2021

The Council owns two hybrid vehicles and one electric vehicle as of June 2022.

APPENDIX C: COUNCIL WASTE FLOWCHART



APPENDIX D: COMMUNITY WIDE ACTIONS BY COUNCIL

The following infographic illustrates the proportion of councils in 2021 taking simple community wide actions to reduce greenhouse gasses in their area.