Greenhouse Gas Audit Summary Report 2023/24

Executive Summary

In line with the City of Launceston's (CoL) commitment to reduce its operational greenhouse gas (GHG) emissions, CoL has undertaken its fourth annual emissions desktop audit. This audit is used to track changes in emissions, against the 2018/19 baseline completed by a third party. The annual desktop audit was completed and reviewed in-house.

Completing an annual emissions desktop audit, or carbon footprint, assists CoL in identifying potential risks and provides the ability to make informed decisions around management and identification of carbon risk reduction opportunities. The creation of an emissions inventory enables public reporting and participation in voluntary emissions and mandatory reporting schemes, and where applicable, participation in carbon markets. Emissions reporting also allows for recognition of CoL's actions in reducing the severity of climate change.

Based on available data, **CoL's total operational emissions for 2023/24 was 64,980 tCO_2e**. Scope 1 accounts for 96.8% of total emissions; this is largely attributed to Launceston Waste Centre landfill that CoL owns and operates. CoL's emissions inventory presented in Table 1.

The **Launceston Landfill was the largest contributor to emissions** due to the generation of landfill gas emissions, emitting 60,411 tCO_2e and representing 93% of Scope 1 and 2 emissions (capturing emissions associated with landfill gas, composting and electricity but excluding fuel use). The **Launceston Aquatic Centre (LAC) was the largest consumer of electricity**, and the second highest emitter of overall emissions, representing 1% of CoL's total carbon inventory. **QVMAG Royal Park was the highest consumer of gas** emitting 114 tCO_2e.

Overall, the 2023/24 emissions decreased by 32,624 tCO_2e (-33%) from the previous year (2022/23) while an increase of 5,085 tCO_2e (9%) was reported from the baseline year (2018/19). Landfill gas emissions decreased by 32,371 tCO_2e (-35%) from the previous year and increased by 7,457 tCO_2e (-14%) to that of the baseline year. If excluding landfill emissions, the total emissions from the remaining sources resulted in a decrease of 319 tCO_2e (-7%) compared to the previous year and a decrease of 2,372 tCO_2e (-36%) from the baseline year.

Table 1. *Breakdown of emission categories and their contributions to the overall emissions output of CoL for the 2024FY*

Emission Source	Activity Data	Units	Emissions	% of Total Emissions
Landfill gas	60,411	t	60,411	92.97%
Gas consumption	3,461	GJ	178	0.27%
Fuel consumption	600	kL	1,624	2.50%
Composting	12,873	t	592	0.91%
Scope 1 total			**62,806**	**96.65%**
Electricity consumption	9,773,851	kWh	1,173	1.81%
Scope 2 total			**1,173**	**1.81%**
Water	334,934	kL	224	0.06%
Business travel - air & taxi travel	92,118	p.km	22	0.35%
Business travel - accommodation	182	nights	6	0.15%
Office Paper	613	reams	4	0.03%
T&D losses - gas	88,057	m3	42	0.01%
T&D losses - electricity	9,693,216	kWh	97	0.01%
T&D losses - fuel consumption	23,105	GJ	397	0.61%
Employee Commuting	1,302,301	p.km	142	0.22%
Office Milk - production and transport	7416L; 87 kL	L, kL	65	0.10%
Scope 3 total			**936**	**1.54%**
Total Emissions			**64,980**	**100%**

At a scope level, Scope 1, 2 and 3 emissions sources reported a decrease compared to the previous year, while all Scopes reported an increase from the baseline year. Focusing on Scope 1 and 2 emissions, the overall decrease in emissions from the previous reporting year was largely attributed to the following:

- Decrease in landfill emissions - the increased capacity of landfill gas capture is now taking effect following the additional infrastructure installed onsite in 2022
- Decrease in compost facility emissions - there was a decrease in operational activities of the composting facility which directly translates to a decrease in emissions
- Decrease in gas consumption - since the initiation of council's efforts to transition off gas in the 2021/22FY, there has been a continuous decrease in gas consumption however it is unknown why further decreases have occurred this year
- Decrease in emissions associated with the purchase of electricity - observed an overall decrease of 19% from the previous reporting year which can largely be attributed to the change in factor, given actual energy consumption (kW/h) increased. Compared to the baseline, a 17% increase was observed, which can be largely attributed to the LAC's transition away from fossil fuel gas and sole dependence on electricity, and new data provisions by Aurora Energy for street lighting energy consumption.

The only emission source reported to have increased from the previous year was fuel use (+5%) with consumption increasing on an annual basis since the baseline year (excluding 2020/21 due to reduced service delivery through Covid). The annual increase is due to a growing service demand as a result of new development areas (requiring more services such as street sweeping and mowing) and the opening of the new landfill cell requiring additional heavy vehicle usage (e.g. compactors and trucks) and work areas located at a greater distance away from the heavy vehicle parking bay.

One new emission source was added to the reporting inventory - emissions associated with the purchase of office milk across several Council sites (Town Hall/Annex, Remount Road and UTAS Stadium). Emissions include those associated with milk production and distribution to Council sites. A total of 7,416 L of milk was purchased for the reporting year which equates to 65.3 tCO_2e.

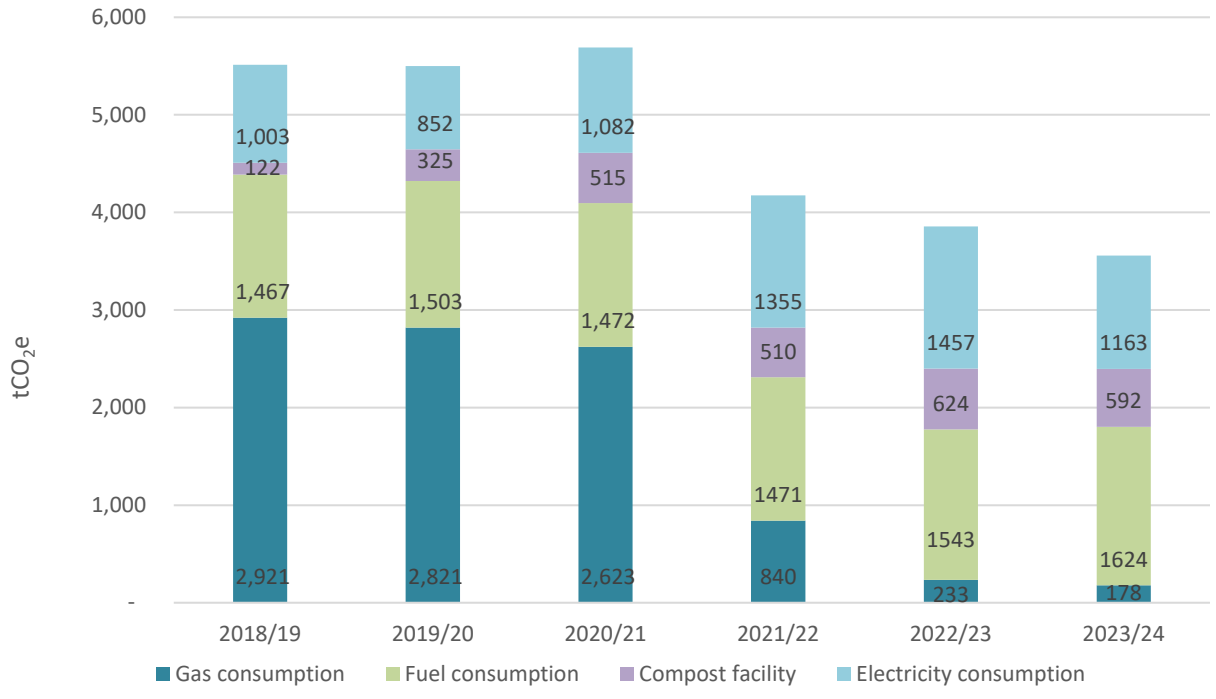

Figure 1. *Total emissions (tCO_2e) per year for each reporting year from 2018/19 to 2023/24, depicting the sum total in a bar graph of all Scope 1 and 2 emitters, excluding the Launceston landfill.*

For more than a decade, CoL has implemented emission reduction initiatives and minimised resource use across the large and diverse portfolio of services and assets. CoL has undertaken a series of emission reduction projects including landfill gas capture and electricity generation, food and garden organic (FOGO) landfill diversion and composting, transitioning buildings off gas, large scale LED lighting installations, building energy efficiency initiatives, the purchase of electric vehicles (EV) and fuel efficient vehicles, installation of EV charging stations, and the installation of rooftop solar photovoltaic (PV) panels and hot water systems across Council facilities.

The emission reduction initiatives implemented during 2023/24 and prior, is estimated to avoid 81,086 tCO_2e during the reporting year. Based on this year's emissions total of 64,915 tCO_2e, the abatement represents a minimum of 56% reduction in annual emissions.

A summary of key actions contained in the Action Plan likely to result in the largest emissions abatement are outlined below:

- Monitor the newly implemented gas capture infrastructure and efficiencies in the existing landfill gas extraction system
- Promote commercial FOGO services for organisations and other Councils generating large volumes of organic waste e.g. supermarkets, restaurants, hospitals, hotels, retirement homes, schools, Launceston airport
- Establish a construction and demolition recovery facility
- Continue to educate the community on avoiding waste at the source and recycling materials as a last resort
- Transition gas powered facilities to electrification
- Continue upgrading Council facilities to increase energy efficiencies e.g. efficient HVAC systems, adequate insulation and ventilation, window glazing, high efficiency LED lighting and de-lamping etc.
- Continue fuel efficiency improvements and the transition of vehicles, plant and equipment to electrification and battery power
- Invest in new technology in renewable energy powered plant and equipment, where feasible e.g. zero emission trucks, electric street sweepers, battery operated garden tools.

1. Introduction

1.1 Background

In line with the City of Launceston's (CoL) commitment to reduce its operational greenhouse gas (GHG) emissions, CoL has undertaken its fourth annual emissions desktop audit. This audit is used to track changes in emissions, against the 2018/19 baseline completed by a third party[1]. The annual desktop audit was completed and reviewed in-house.

Since its conception, there have been no changes to the organisational boundary, as defined in the 2018/19 baseline. The emissions inventory encompasses Scope 1, 2 & 3 emissions along with a review of materiality of emission sources, whilst documenting exclusions and other assumptions.

Completing an annual emissions desktop audit, or carbon footprint assessment, assists CoL in identifying potential risks and provides the ability to make informed decisions around management and identification of carbon risk reduction opportunities. The creation of an emissions inventory enables public reporting and participation in voluntary emissions and mandatory reporting schemes, and where applicable, participation in carbon markets. Emissions reporting also allows for recognition of CoL's actions in reducing climate change.

Carbon accounting is the process of identifying and measuring the amount of emissions/carbon, measured in tonnes carbon dioxide equivalents (tCO_2e), emitted by an entity.

1.2 Assumptions and Limitations

The 2023/24 emissions inventory is based on the same assumptions and limitations as the baseline year, the Greenhouse Gas Protocol as developed by the World Business Council for Sustainable Development (WBCSD) and World Resources Institute (WRI). The Scope 1 and 2 emission factors are taken from the National Greenhouse and Energy Reporting (NGER) Measurement Determination. Various resources were used to determine the Scope 3 emission factors (Table 1).

Table 1. *Resource (author and document title) used to determine the emission factor for each Scope 3 category reported on by CoL in the 2023/24 carbon footprint report.*

Category	Source	
	Author	***Document***
Paper; Business Travel	Environmental Protection Agency (EPA) Victoria	Greenhouse gas inventory and management plan 2020 to 2021
Hotel Accommodation	Department for Energy Security and Net Zero	Greenhouse gas reporting: conversion factors 2024
Employee Commuting	National Transport Commission	Carbon Dioxide Emissions Intensity for New Australian Light Vehicles 2022
Transport & Distribution (T&D) Electricity Losses; Liquid Fuels	Department of Climate Change, Energy, the Environment and Water	National Greenhouse Accounts (NGA) Factors: August 2023
Transport & Distribution (T&D) Gas Losses; Water	GHD	The baseline calculations produced for the 2018/19 financial year

1.3 Emissions Boundary Reporting Approach

The emissions inventory includes a variety of emissions sources that we have deemed “relevant” and “material” to the City’s operations. As per the baseline inventory, and common practice for councils, the 'operational control' approach was applied for this reporting year. Operational control is determined by who has authority at a facility on a day-to-day basis, which is demonstrated by the right to set environmental or health and safety

[1] GHD, 2020.

policies and procedures at a site. Under this approach, the organisation deemed to have operational control is responsible for reporting 100% of its emissions.

The reporting boundary for this inventory has been prepared by following the approach of the Australian Government's Climate Active Standard. The Climate Active program is the most commonly used approach for Australian organisations to certify their carbon neutral status, and it is based on the Greenhouse Gas Protocol and NGER Measurement Determination.

1.3.1 Relevance

The Climate Active Standard states emissions sources considered to be relevant, whether or not they fall within the reporting organisation's boundary, must be included in the emissions boundary (subject to materiality). The following emissions sources are deemed to be relevant to all organisations (Figure 1):

- All Scope 1 emissions - direct emissions.
- All Scope 2 emissions - emissions from the generation of electricity, heat, cooling and steam purchased by the organisation.
- Scope 3 emissions from electricity consumption and fuel use - indirect emissions from the extraction, production and transport of fuel burned at generation, and the indirect emissions attributable to the electricity and gas lost in delivery in the transmission and distribution network.
- Scope 3 emissions from business travel and accommodation, employee commuting, office paper, and water use.

Other Scope 3 emission sources, such as postage and freight, stationary, printing, cleaning services etc., must be assessed for materiality. If deemed immaterial they may be excluded from the inventory taking into account the materiality threshold (see Section 1.3.2).

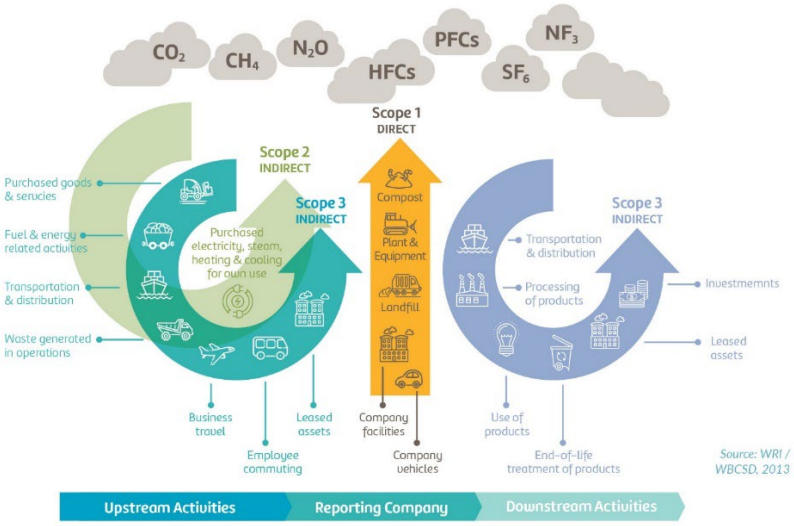

Figure 1. *Overview of Greenhous Gas Protocol scopes and emissions across Council's value chain*[2]

The Climate Active Standard determines that all Scope 1 and 2 emissions are relevant whereas, a Scope 3 emissions source is relevant when any two of the following conditions are met:

- The Scope 3 emissions from a particular source are likely to be significant relative to the organisation's Scope 1 and 2 emissions;

[2] Figure adapted from the WRI / WBCSD, 2013. GHG Protocol

- The Scope 3 emissions from a particular source contribute to the organisation's GHG risk exposure;
- The Scope 3 emissions from a particular source are deemed relevant by key stakeholders;
- The responsible entity has the potential to influence the reduction of Scope 3 emissions from a particular source; and
- The Scope 3 emissions are from outsourced activities that were previously undertaken within the organisation's boundary or from outsourced activities that are typically undertaken within the boundary for comparable organisations."[3]

Conversely, some Scope 3 emissions sources have been excluded, based on guidance from Section 2.3.1 of the National Carbon Offset Standard, exclusions are allowed on the basis that:

- Emissions are likely to be negligible (relative to other Scope 3 emissions);
- Determining emissions is not currently possible given available technology;
- Determining emissions will be very costly relative to their likely significance; and
- There is insufficient data for the specific source.

1.3.2 Materiality

Different standards stipulate different definitions and thresholds for materiality. An organisation can determine materiality themselves, but if reporting under a specific scheme then materiality is determined by the scheme's requirements and standards. Under Climate Active, an emissions source that constitutes 1% or more of the total carbon account is material. For an emissions inventory of CoL's size the materiality threshold is therefore approximately 649 tCO_2e per annum. If a relevant emissions source is estimated to be material, it must be included within the emissions boundary, unless justification can be provided to demonstrate that such quantification would not be technically feasible, practicable or cost effective relative to its significance.

Emissions sources that are relevant but estimated to constitute less than the materiality threshold towards the total carbon account can be excluded from the emissions boundary. Under Climate Active standards, when applying the 1% materiality threshold, the total amount of emissions to be excluded must not exceed 5% of the total carbon account. Responsible entities are encouraged to include, measure and report as many emissions sources as possible, regardless of an emissions source's materiality. Data for emissions sources that are deemed as immaterial may still be included in the emissions inventory.

[3] Climate Active, 2021. Climate Active Technical Guidance Manual, February 2021

1.3.3 Exclusions

Emission sources excluded from the 2023/24 inventory are presented below (Table 2).

Table 2. *Emissions excluded from the 2023/24 inventory.*

Emission	Scope	Justification for exclusion
Emissions for postage/ courier services and food/ beverage services	3	Data for these items is insufficient for accurate reporting purposes, and based on the information that is available, it is estimated with confidence that these items represent less than 1% of total emissions.
Upstream transportation & distribution	3	There was insufficient data to calculate emissions from this category for 2023/24. Purchased goods and services and capital goods can become a material source of emissions if the CoL undertakes capital works that require a significant amount of steel and cement. Based on GHD 2019 Emissions Report, capital projects of $10m and over use significant quantities of cement and steel which results in emissions. These emissions could exceed the materiality threshold and hence should be included in CoL's emissions inventory.
Freight	3	There was no data supplied in order to calculate the emissions associated with freight, however this needs to be investigated for future inventories.

1.3.4 New Emission Sources

One new emission source was added to the reporting inventory - emissions associated with the purchase of office milk across several Council sites (Town Hall/Annex, Remount Road and UTAS Stadium). Emissions include those associated with milk production and distribution to Council sites. A total of 7,416 L of milk was purchased for the reporting year which equates to 65.3 tCO_2e.

The addition of upstream transportation and distribution emission sources from other products procured by Council is being explored and the relevant data required for calculations.

1.3.5 Activity Data

All emissions data is based on activity data sourced by CoL's utility providers, Energy Detective (web based electricity monitoring program developed by LGAQ), the Launceston Waste Centre gate records, and purchase orders. Table 3 summarises the data source for all activity data.

Table 3. *Data sources attributed to their emission activity and its corresponding scope.*

Emission	Scope	Source
Landfill gas	1	CoL Launceston Waste Centre gate records
Gas consumption	1	Aurora, TasGas and TasGas Networks
Fuel consumption	1	CoL fuel purchase orders
Composting	1	CoL Launceston Waste Centre gate records
Electricity consumption	2	Aurora Energy
Water	3	TasWater
Business travel - air & taxi travel	3	RACQ Travel Agency purchase orders, CabCharge purchase orders
Business travel - accommodation	3	RACQ Travel Agency purchase orders
Office Paper	3	Winc purchase orders
T&D losses - gas	3	Aurora, TasGas and TasGas Networks
T&D losses - electricity	3	Aurora Energy
T&D losses - fuel	3	CoL fuel purchase orders
Employee commuting	3	Voluntary staff survey
Office Milk - production and transport	3	Ashgrove Cheese purchase orders

2. Emissions Inventory 2023/24

2.1 Overall Emissions

Based on available data, CoL's total operational emissions for 2023/24 was 64,980 tCO_2e.

Scope 1 accounts for 96.7% of total emissions; this is largely attributed to Launceston Waste Centre landfill that CoL owns and operates. The contribution of each scope for the 2024 financial year (FY) is depicted below in Figure 2 and CoL's emissions inventory presented in Table 4.

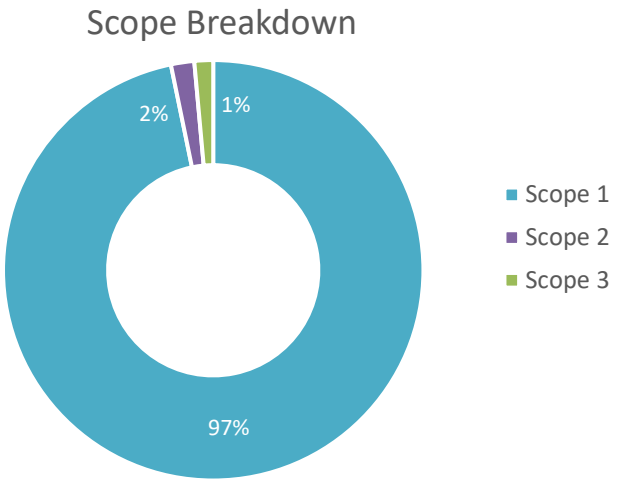

Figure 2. *CoL's emissions profile for 2024FY.*

Table 4. *Breakdown of emission categories and their contributions to the overall emissions output of CoL for the 2024FY*

Emission Source	Activity Data	Units	Emissions	% of Total Emissions
Landfill gas	60,411	t	60,411	92.97%
Gas consumption	3,461	GJ	178	0.27%
Fuel consumption	600	kL	1,624	2.50%
Composting	12,873	t	592	0.91%
Scope 1 total			**62,806**	**96.65%**
Electricity consumption	9,773,851	kWh	1,173	1.81%
Scope 2 total			**1,173**	**1.81%**
Water	334,934	kL	224	0.06%
Business travel - air & taxi travel	92,118	p.km	22	0.35%
Business travel - accommodation	182	nights	6	0.15%
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T&D losses - gas	88,057	m3	42	0.01%
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T&D losses - fuel consumption	23,105	GJ	397	0.61%
Employee Commuting	1,302,301	p.km	142	0.22%
Office Milk - production and transport	7416L; 87 kL	L, kL	65	0.10%
Scope 3 total			**936**	**1.54%**
Total Emissions			**64,980**	**100%**

As depicted above, landfill emissions account for 93% of Scope 1 emissions, and 97% of CoL's total emissions whereas Scope 2 and 3 emissions each account for 2%. It has been known since the conception of this report, that the landfill operations are the majority contributor towards CoL's emissions profile. As an organisation we have a sound understanding of the environmental impacts caused by landfill operations and the need to reduce these impacts. We are constantly investigating how to reduce the landfill's impacts, including gas flaring and

resource diversion. Given this knowledge and understanding that the landfill makes up such a substantial portion of CoL's total emissions, we have chosen to exclude it from the following figures to gain a better understanding of the influence of the remaining factors and establish a prioritised plan to reduce each of them.

The remaining four Scope 1 and 2 contributors (Council's fossil fuel gas consumption, fuel consumption, compost facility, and electricity consumption) are important for CoL to be aware of as they indicate areas in which we can improve and directly reduce emissions. These four contributors make up 6% of overall emissions, with fuel consumption as the highest and gas consumption as the lowest, for the 2024FY (Figure 3).

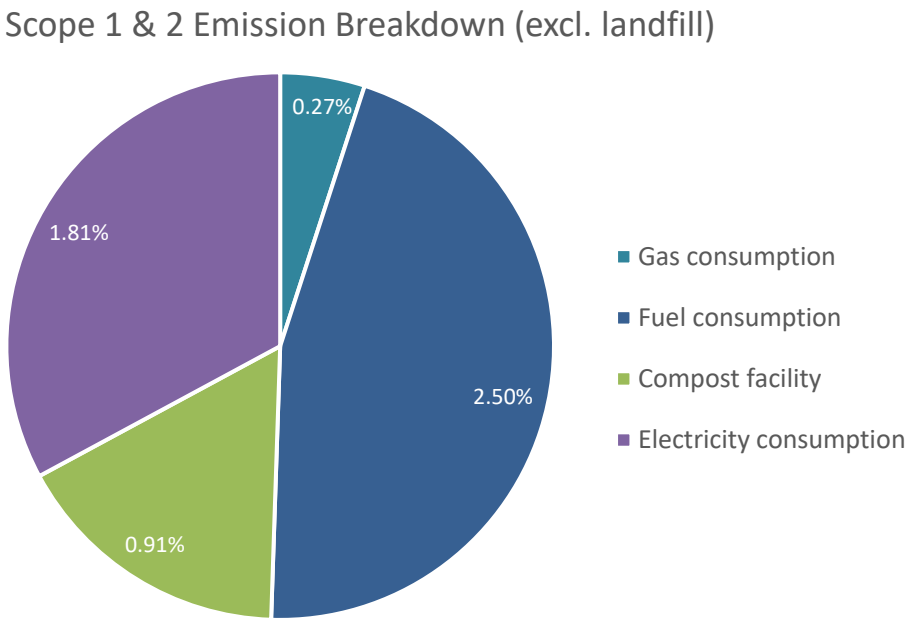

Figure 3. *The proportion of contributions for the remaining four Scope 1 and 2 emission factors for CoL.*

The eight Scope 3 emission sources made up a total of 1% of overall emissions for the 2024FY, of which the greatest contributor was T&D losses - fuel, and the lowest were business travel (accommodation) and office paper (Figure 4).

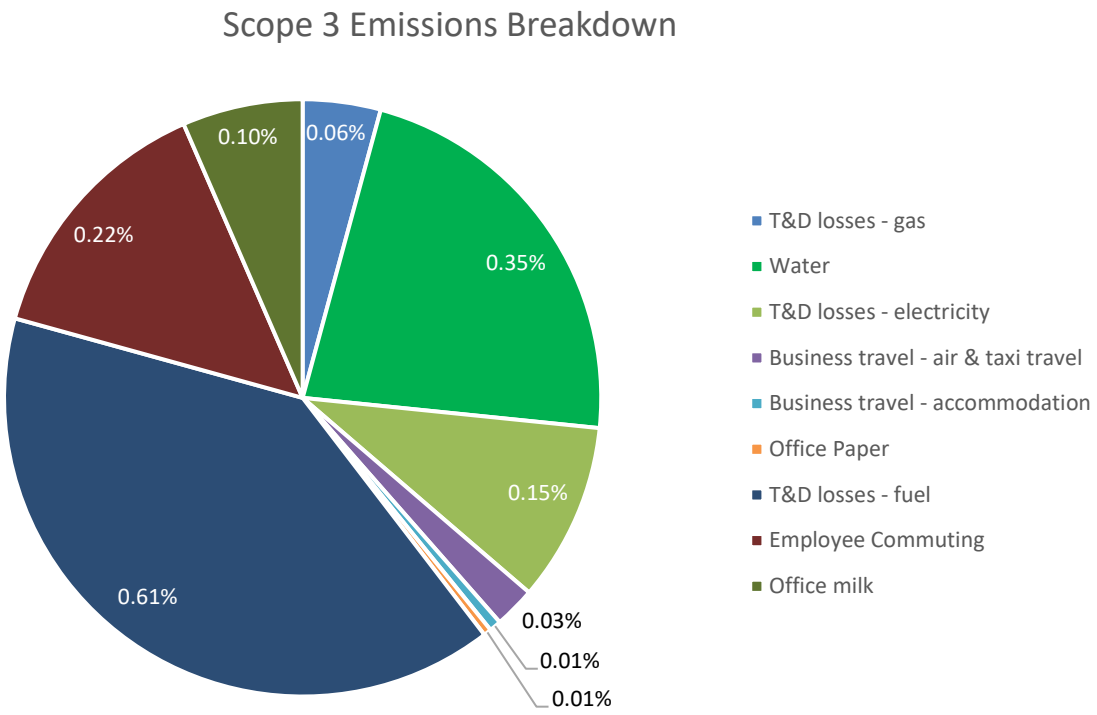

Figure 4. *Scope 3 emission sources and overall percentage contribution to CoL's GHG emissions for the 2024FY.*

Table 5 presents CoL's most emission intensive facilities. The Launceston Landfill was the largest contributor to emissions due to the generation of landfill gas emissions (60,411 tCO_2e) and composting emissions (592 tCO_2e), representing 95% of Scope 1 & 2 emissions. Of the many facilities that are owned and operated by CoL, the Launceston Aquatic Centre was the largest consumer of electricity, and the second highest emitter of overall emissions, representing 1% of CoL's total carbon inventory. QVMAG Royal Park was the highest consumer of gas emitting 114 tCO_2e.

Table 5. *Scope 1 and 2 emissions (tCO_2e) for Council's emission intensive assets and their proportional contribution.*

Facility	Scope 1 Emissions (tCO2e)	Scope 2 Emissions (tCO2e)	Total Emissions (tCO2e)	% of Scope 1 & 2 Emissions
Launceston Landfill	61,003	19	61,022	95.38%
Launceston Aquatic Centre	0	435	435	0.68%
QVMAG Royal Park	114	13	127	0.20%
York Park Stadium	5	73	78	0.16%
Carr Villa	60	3	63	0.10%
QVMAG Inveresk	0	19	19	0.03%
Town Hall	0	13	13	0.02%

2.2 NGERs Reporting

While CoL's emissions for the landfill is over the NGER reporting threshold of 25,000 tCO_2e, Council has been advised by the Clean Energy Regulator (CER) that CoL does not qualify as a constitutional corporation and therefore is not required to report under the NGER Scheme. Council will keep up to date with the CER's requirements to ensure this advice is applicable in future reporting years.

3. Comparison to Baseline Year

Overall, the 2023/24 emissions decreased by 32,624 tCO_2e (-33%) from the previous year (2022/23) while an increase of 5,085 tCO_2e (9%) was reported from the baseline year (2018/19).

Landfill gas emissions decreased by 32,371 tCO_2e (-35%) from the previous year and increased by 7,457 tCO_2e (-14%) to that of the baseline year. If excluding landfill emissions, the total emissions from the remaining sources resulted in a decrease of 319 tCO_2e (-7%) compared to the previous year and a decrease of 2,372 tCO_2e (-36%) from the baseline year. The decrease includes the addition of a new emission source for the current reporting period (purchase of office milk representing 65 tCO_2e or 0.1% of inventory).

At a scope level, Scope 1, 2 and 3 emissions sources reported a decrease compared to the previous year, while all Scopes reported an increase from the baseline year.

For Scope 1, the overall decrease in emissions from the previous reporting year was largely attributed to the following:

- Decrease in landfill emissions - the increased capacity of landfill gas capture following the increased gas capture infrastructure installed onsite in 2022 is being realised.
- Decrease in compost facility emissions - there was a decrease in operational activities of the composting facility which directly translates to a decrease in emissions.
- Decrease in gas consumption - since the initiation of council's efforts to transition off gas in the 2021/22FY, there has been a continuous decrease in gas consumption.

The only emissions source reported to have increased from the previous year was fuel use (+5%) with consumption increasing on an annual basis since the baseline year (excluding 2020/21 due to Covid). The annual increase is due to a growing service demand as a result of new development areas (requiring more services such as street sweeping and mowing) and the opening of the new landfill cell requiring additional heavy vehicle usage (e.g. compactors and trucks) and work areas located at a greater distance away from the heavy vehicle parking bay.

Electricity consumption under Scope 2 emissions, observed an overall decrease of 19% from the previous reporting year which can largely be attributed to the change in factor, given actual energy consumption (kW/h) increased. Compared to the baseline, a 16% increase was observed, which can be largely attributed to the LAC's transition away from fossil fuel gas and sole dependence on electricity, and new data provisions by Aurora Energy for street lighting energy consumption.

For Scope 3, the overall decrease in emissions can be attributed to:

- Decrease in emissions for Transmission and Distribution (T&D) losses for fossil fuel gas - this decrease aligns with the overall decrease observed in the Scope 1 fossil fuel gas consumption.
- Decrease in business travel emissions (air, taxi, and accommodation) - fewer and shorter trips were taken this financial year, and more specifically no international trips were taken. This is likely a result of less relevant conferences being held this year.
- Decrease in office paper related emissions - the introduction of electronic signatures within the organisation is a likely influencing factor in the observed decrease in related emissions, as well as the general transition away from printing documents as staff environmental awareness increases.
- Decrease in employee commuting emissions - continuing the new calculation technique, we have a better understanding of employee travel habits. However, the survey is not compulsory, and we have observed that most responses come from Town Hall employees who have more opportunities to engage in sustainable transport, compared to operational staff members who were underrepresented in the survey.

Contrastingly, some Scope 3 emission sources did experience an overall increase, in comparison to the 2022/23 reporting year. These are:

- Increase in water associated emissions - this change falls within the historic range meaning the change in values can be attributed to routine and seasonal variation.
- Increase in emissions from T&D losses for electricity - The increase in T&D losses reflects the increase in electricity consumption for the reporting period. However, the reason this change contrasts the Scope 2 category, electricity consumption, is due to the emission factor for purchase of electricity misaligning.
- Increase in emissions from T&D losses for fuel - the causes are a direct result of the increased activity and fleet size for fuel consumption in Scope 1.

By comparing the emissions from year to year, we can observe trends and identify areas for improvement, focusing on emission reduction approaches. A comparison between the six reporting years (2018/19 to 2023/24) is presented in Table 6 and Figures 5 to 9.

Table 6. *Annual emissions (tCO_2e) for each reporting year from 2018/19 to 2023/24, categorised by type and scope. As well as the observed change (%) for 2023/24 from 2022/23 and from the baseline year (2018/19), or when the emission source was first recorded.*

	2018/19 (Baseline)		2019/20		2020/21		2021/22		2022/23		2023/24		Change (%)	
Emission Source	*Emissions (tCO2e)*	*% of Total Emissions*	*Emissions (tCO2e)*	*% of Total Emissions*	*Emissions (tCO2e)*	*% of Total Emissions*	*Emissions (tCO2e)*	*% of Total Emissions*	*Emissions (tCO2e)*	*% of Total Emissions*	*Emissions (tCO2e)*	*% of Total Emissions*	*From 2022/23*	*From Baseline*
SCOPE 1														
Landfill gas	52,954	89.0%	58,638	90.1%	74,863	91.9%	73,879	93.3%	92,782	95.1%	60,411	93.1%	- 35%	14%
Gas consumption	2,921	4.9%	2,821	4.3%	2,623	3.2%	840	1.1%	233	0.2%	178	0.3%	- 24%	- 94%
Fuel consumption	1,467	2.5%	1,503	2.3%	1,472	1.8%	1,471	1.9%	1,543	1.6%	1,624	2.5%	5%	11%
Composting	122	0.2%	325	0.5%	515	0.6%	510	0.6%	624	0.6%	592	0.9%	- 5%	385%
Total	**57,464**	**96.5%**	**63,286**	**97.3%**	**79,473**	**97.6%**	**76,700**	**96.9%**	**95,182**	**97.5%**	**62,806**	**96.8%**	**- 34%**	**9%**
SCOPE 2														
Electricity consumption	1,003	1.7%	852	1.3%	1,082	1.3%	1,355	1.7%	1,457	1.5%	1,163	1.8%	- 19%	17%
Total	**1,003**	**1.7%**	**852**	**1.3%**	**1,082**	**1.3%**	**1,355**	**1.7%**	**1,457**	**1.5%**	**1,163**	**1.8%**	**- 19%**	**17%**
SCOPE 3														
Water	177	0.3%	154	0.2%	130	0.2%	233	0.3%	197	0.2%	224	0.4%	14%	27%
Business travel - air & taxi travel	63	0.1%	31	0.0%	13	0.0%	14	0.0%	64	0.1%	22	0.0%	- 65%	- 65%
Business travel - accommodation	26	0.0%	7	0.0%	4	0.0%	4	0.0%	10	0.0%	6	0.0%	- 37%	- 75%
Office Paper	57	0.1%	18	0.0%	14	0.0%	10	0.0%	7	0.0%	4	0.0%	- 42%	- 93%
T&D losses - gas	605	1.0%	584	0.9%	543	0.7%	199	0.3%	55	0.1%	42	0.1%	- 24%	- 93%
T&D losses - electricity	134	0.2%	57	0.1%	132	0.2%	80	0.1%	86	0.1%	97	0.2%	13%	- 28%
T&D losses - fuel	-	-	77	0.1%	75	0.1%	360	0.5%	378	0.4%	397	0.6%	5%	416%
Employee Commuting	-	-	-	-	-	-	223	0.3%	168	0.2%	142	0.2%	- 16%	- 36%
Office milk											65	0.1%	NA	NA
Total	**1,062**	**1.8%**	**928**	**1.4%**	**905**	**1.1%**	**1,124**	**1.4%**	**965**	**1.0%**	**936**	**1.4%**	**- 4%**	**- 40%**
TOTAL EMISSIONS	**59,352**		**65,066**		**81,460**		**79,179**		**97,604**		**64,980**		**- 33%**	**9%**

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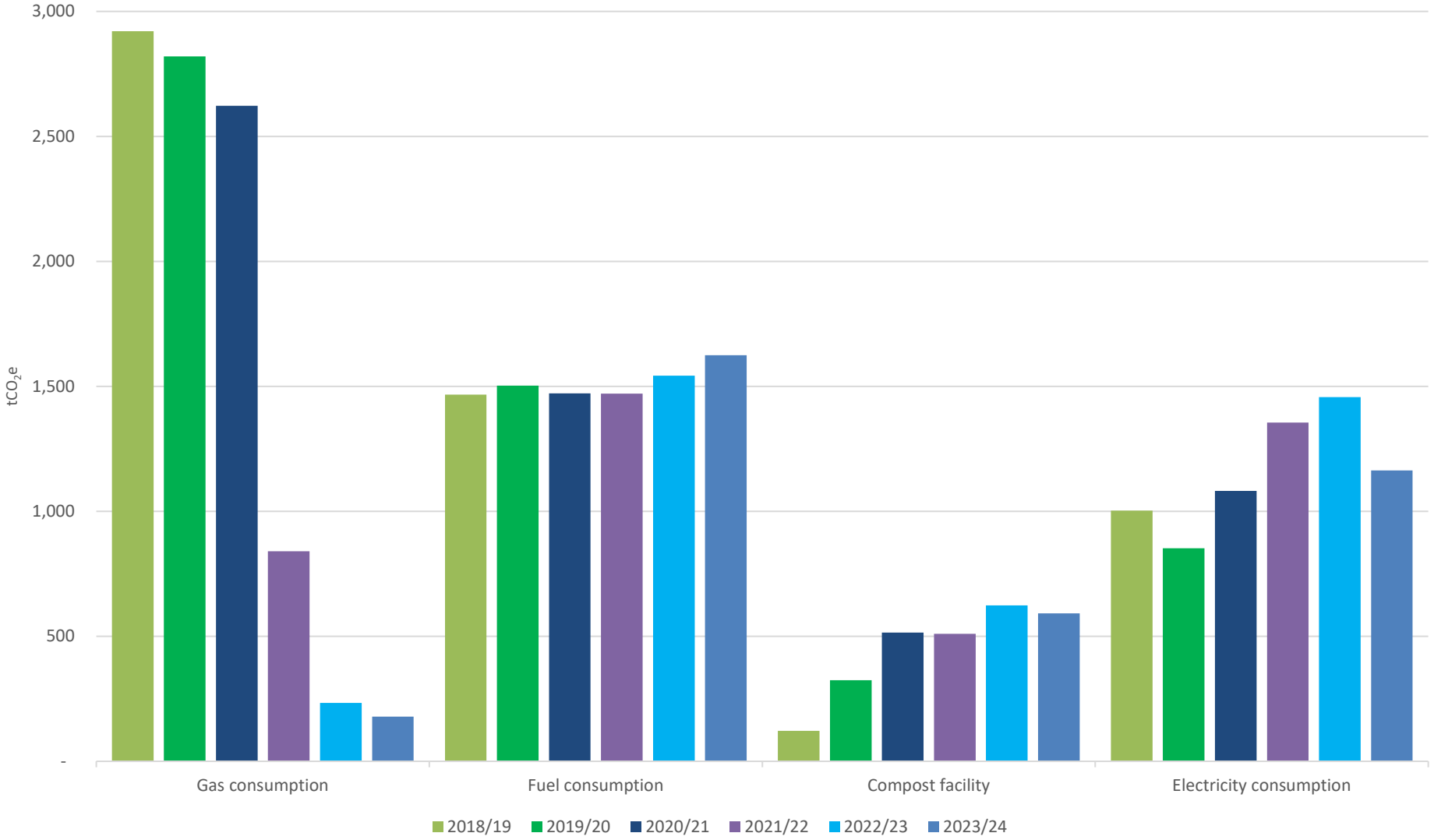

Figure 5. *Emissions (tCO_2e) for each Scope 1 and 2 emission category (excluding the landfill) over all six reporting years.*

City of LAUNCESTON

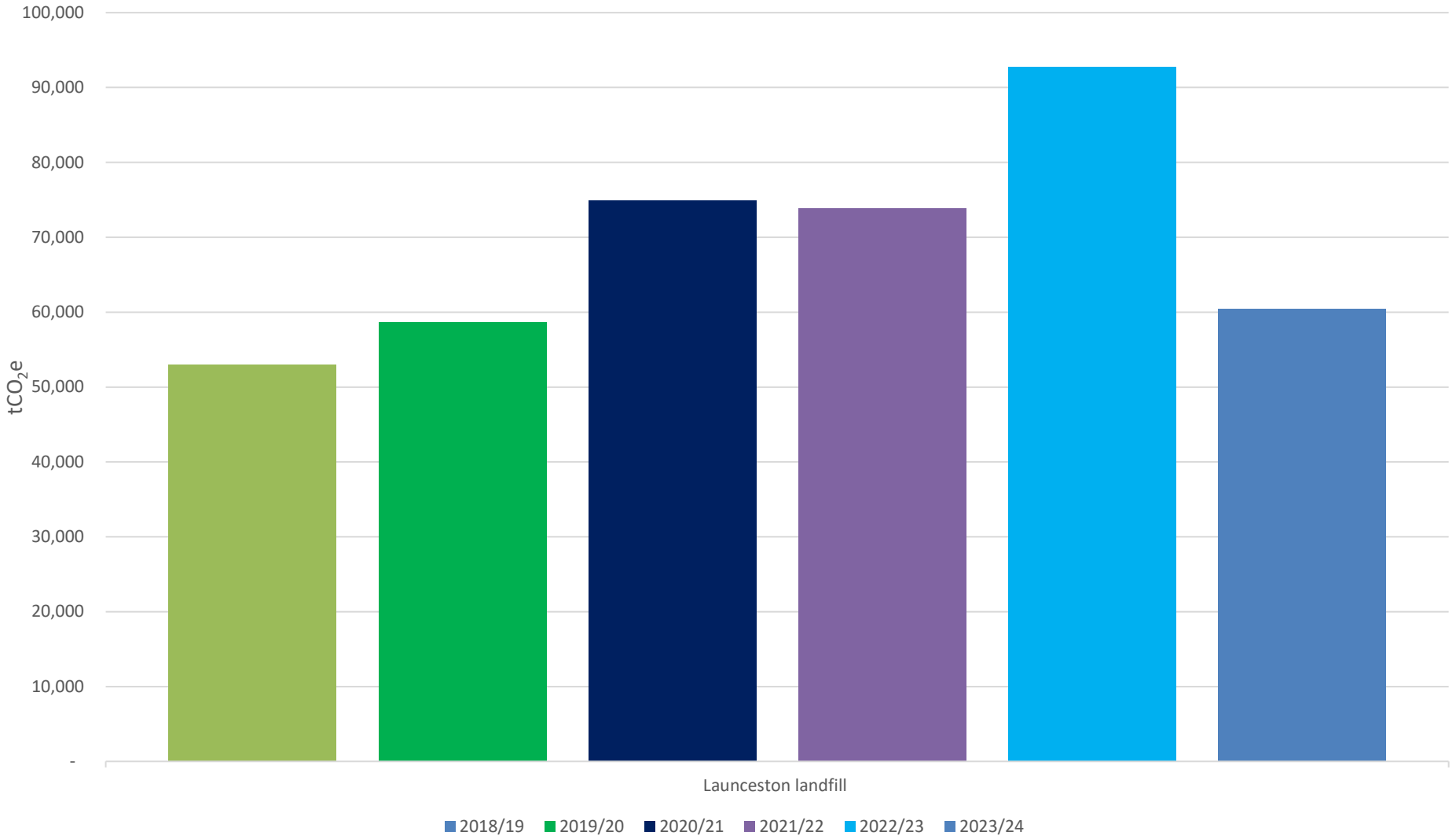

Figure 6. *Annual emissions (tCO_2e) for the Launceston Landfill (Scope 1) over each of the six reporting years.*

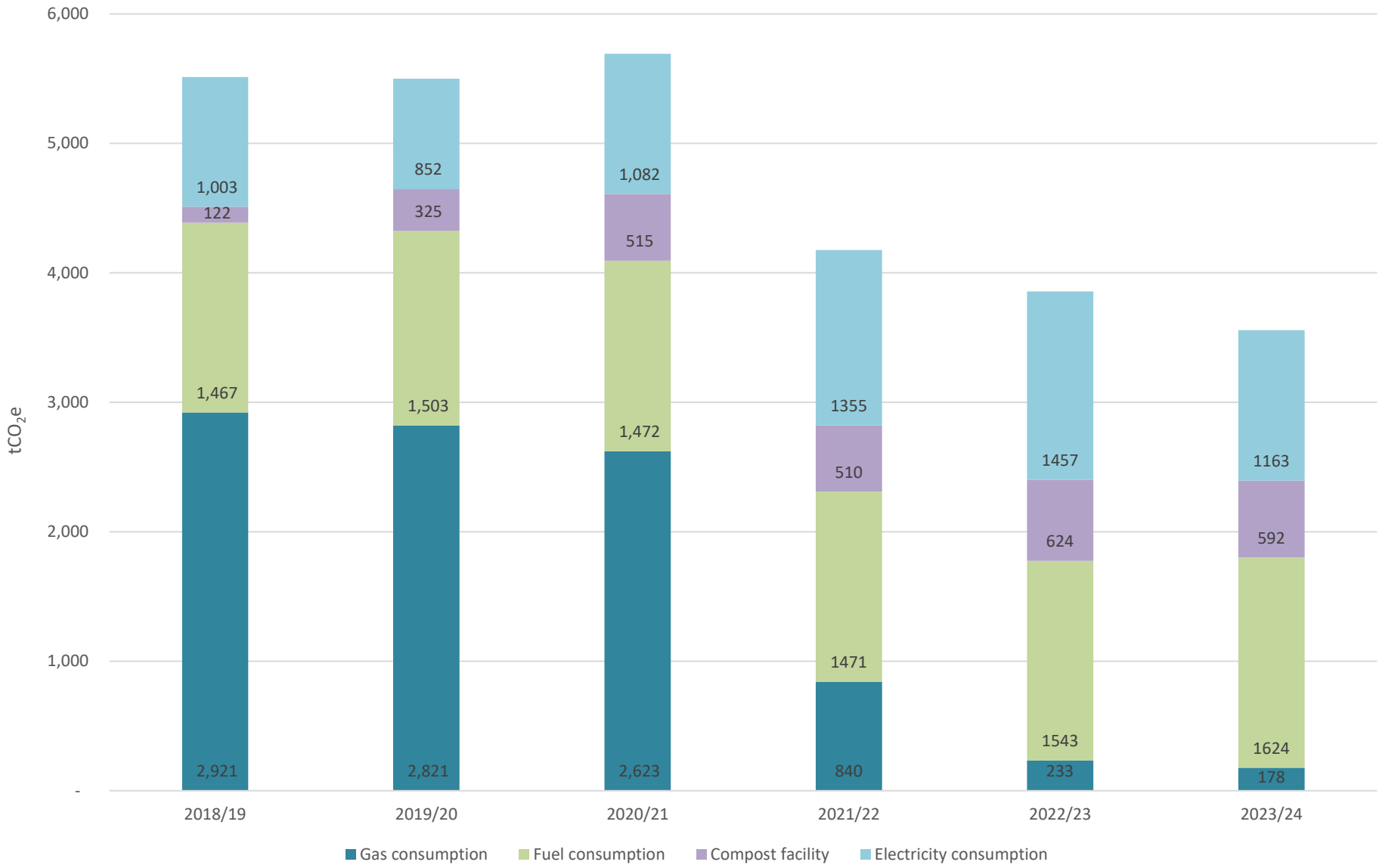

Figure 7. *Total emissions (tCO_2e) per year for each reporting year from 2018/19 to 2023/24, depicting the sum total in a bar graph of all Scope 1 and 2 emitters, excluding the Launceston landfill.*

City of LAUNCESTON

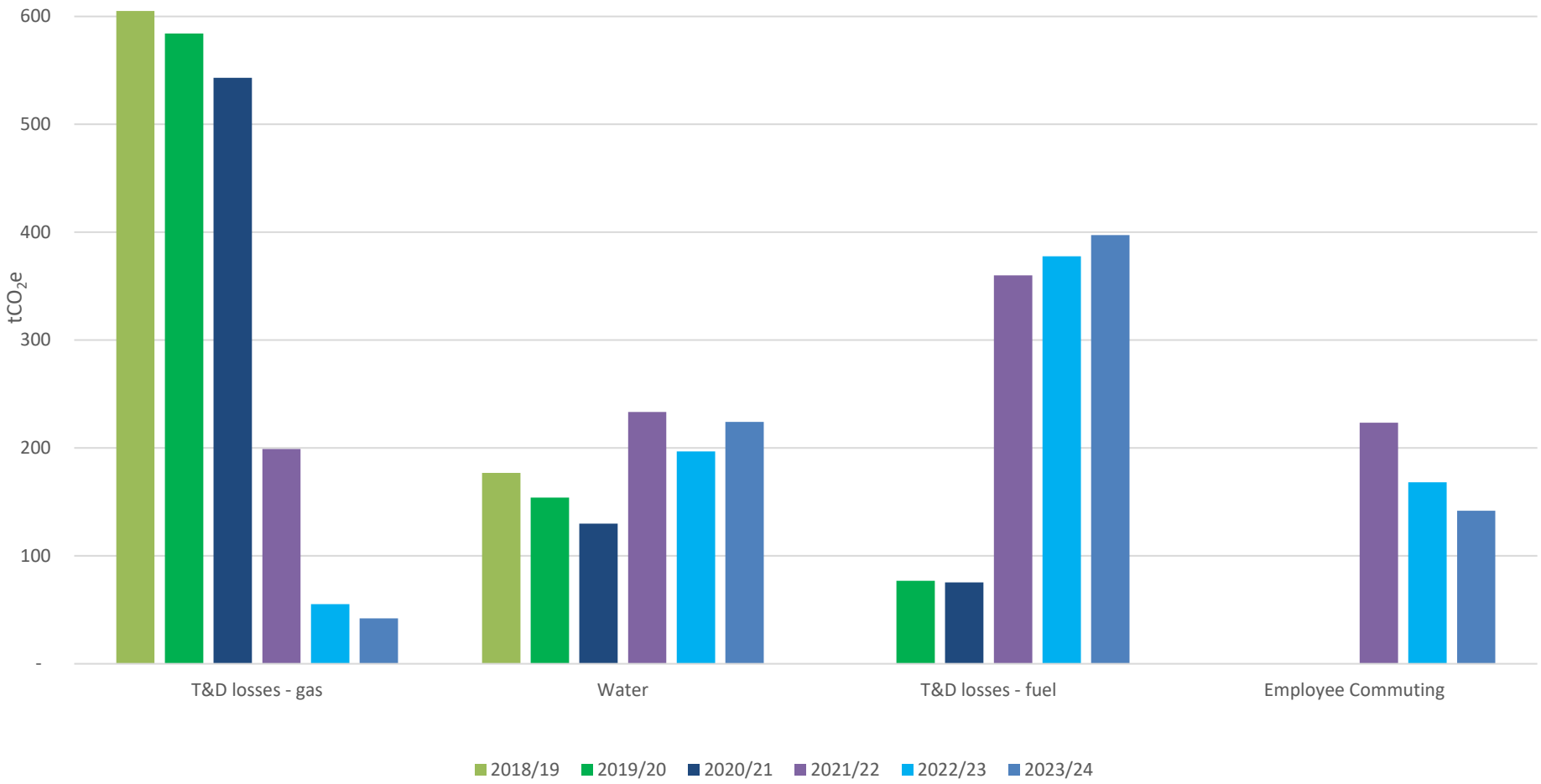

Figure 8. *Emissions (tCO_2e) for four of the Scope 3 emission categories over each of the six reporting years which they were included in the total emissions calculations.*

City of LAUNCESTON

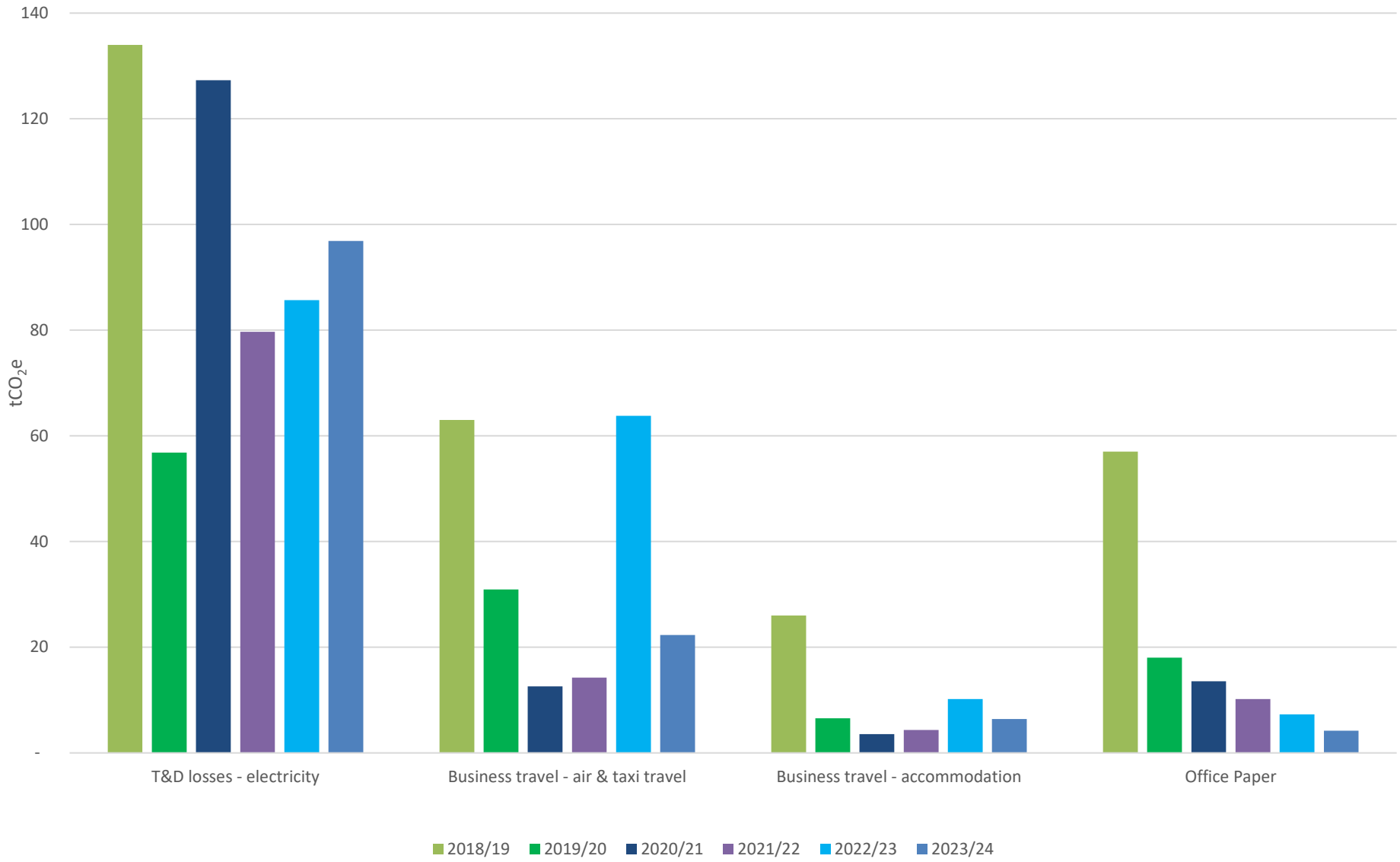

Figure 9. *Emissions (tCO_2e) for four of the Scope 3 emission categories for each of the six reporting years.*

City of LAUNCESTON

4. Emissions Abatement

For more than a decade, the City of Launceston has implemented emission reduction initiatives and minimised resource use across the large and diverse portfolio of services and assets. The City of Launceston has undertaken a series of emission reduction projects including landfill gas capture and electricity generation, food and garden organic (FOGO) landfill diversion and composting, transitioning buildings off gas, large scale LED lighting installations, building energy efficiency initiatives, the purchase of electric vehicles (EV) and fuel efficient vehicles, installation of EV charging stations, and the installation of rooftop solar photovoltaic (PV) panels and hot water systems across Council facilities.

Table 7 outlines the annual estimated emission abatements across Scope 1 and 2 emission sources. Electricity generated from rooftop solar PV systems was not measured during the 2024FY however an estimate is available based on the system capacity and annual export back to the grid. The City of Launceston is exploring avenues to measure electricity generation from solar systems.

The emission reduction initiatives implemented during 2023/24 and prior, is estimated to avoid **81,086** tCO_2e during the reporting year. Based on this year's emissions total of 64,980 tCO_2e, the abatement represents a minimum of 56% reduction in annual emissions.

Table 7. *Estimated emissions abatement for 2023/24*

Emission Source	Scope	Description of reduction measure	Annual Emission Reduction (tCO2e)
Scope 1 emissions			
Landfill gas	1	Since 2007, the landfill gas capture system was believed to annually abate over 60,000 tCO_2e. However, this year, there was an observed increase in the quantity of emissions abated. This increase is due to the increased efficiency of gas capture being observed in the 2023FY. It must be noted that despite these emissions being abated, LMS owns the carbon rights to these emissions and sells them as ACCU carbon credits in the Australian carbon market. Therefore, City of Launceston cannot claim these abated emissions towards its future carbon neutrality certification.	55,161.5
Fuel consumption	1	In 2018, a GPS-based guidance system was installed in the heavy waste compactor to allow drivers to easily identify which parts of a landfill cell require compaction. This initiative has resulted in the compactor using 20,000L less fuel annually.	54
	1	Addition of EVs to Council's fleet in 2019, 2020 and 2023. The emissions abated by the EVs are calculated as the emissions avoided from not consuming the equivalent fuel for the distance travelled, from the previous car that the EVs replaced.	1.3
Diversion of organic waste	1	Since 2018, the Launceston Waste Centre has diverted the region's food organic and garden organic (FOGO) waste from the kerbside collection and other Council's, and produces compost. The aerobic composting of organic waste reduces emissions while diverting nutrients from the site. Each tonne of organic waste disposed of as landfill and broken down by anaerobic processes releases approximately two tonnes CO_2e.	25,746

Scope 1 total			**80,962.8**
Scope 2 emissions			
Electricity consumption	2	The landfill gas capture system generates over 9,000 MWh of renewable electricity every year, enough to power over 1,000 homes 24/7 in the local community.	(1088) Abatement totals already captured in Solid Waste Calculator
	2	Rooftop solar PV panels installed on 14 Council facilities however actual electricity generation for each site is unavailable. However, estimates are provided based on the system capacity and a standard annual solar panel generation amount (1,443 kWh per kW). Based on this calculation, a total of 946,608 kWh was generated and 871,169 kWh used onsite resulting in 73,601 kWh exported back to the grid.	123
Scope 2 total			123
Total Emissions Abated			**81,0856**

5. Recommendations

Based on CoL's 2023/24 emissions inventory, the actions outlined in the Sustainability Action Plan (SAP) and Towards Zero Emissions Action Plan (TZEAP) must be delivered. The Action Plans set out how the City of Launceston will reduce emissions and play our role in helping to meet the Paris Agreement and avoid a global average temperature rise of 2°C by 2050.

A summary of key actions contained in the Action Plan likely to result in the largest emissions abatement are outlined below:

Measuring, reporting and tracking

1. Continue to undertake an annual desktop audit of operational emissions
2. Publicly report Council's annual emissions on the CoL website
3. Continue tracking emission reduction actions and provide publicly available updates on the progress of actions

Waste avoidance and recovery

4. Monitor the newly implemented gas capture infrastructure and efficiencies in the existing landfill gas extraction system
5. Promote commercial FOGO services for organisations and other Councils generating large volumes of organic waste e.g. supermarkets, restaurants, hospitals, hotels, retirement homes, schools, Launceston airport
6. Invest in expanding the composting facility to cater for increases in materials
7. Establish a construction and demolition recovery facility
8. Continue to educate the community on avoiding waste at the source and recycling materials as a last resort

Reduce energy use, increase efficiencies and transition to renewable energy sources

9. Transition gas powered facilities to electrification
10. Continue upgrading Council facilities to increase energy efficiencies e.g. efficient HVAC systems, adequate insulation and ventilation, window glazing, high efficiency LED lighting and de-lamping etc.
11. Continue fuel efficiency improvements and the transition of vehicles, plant and equipment to electrification and battery power
12. Investigate and roll out new technology in renewable energy powered plant and equipment, where feasible e.g. zero emission trucks, electric street sweepers, battery operated garden tools
13. Further understand the energy generated by existing solar PV systems.