Annual Corporate Emissions Profile and Progress Update

2023/24

BYRON SHIRE COUNCIL

Table of Contents

Overview

Summary

The Community Strategic Plan sets out our goal to “Support and empower the community to adapt to and mitigate the impact on climate change”. To achieve this goal, each year our Operational Plan (OP) contains activity 3.4.3.2 to “Prepare annual operational emissions inventory to inform ongoing emissions reduction actions and planning”. This report provides a detailed inventory of Council’s greenhouse gas (GHG) emissions from its operations in FY2023/24, including Scopes 1, 2 and 3. The consultancy firm Pangolin Associates assisted with preparation of Council’s emissions inventory for the last two financial years, FY23 and FY24.

The key points of analysis are:

- A Council resolution (res 25-108) acknowledged that it will not be possible to meet the target date for net zero and certify with Climate Active by 2025. New interim and long-term targets will be developed with the ISO IWA 42:2022 Net Zero Guidelines methodology.
- Overall, Council emissions increased by 11,790 tCO_2^e or 44%, compared to the previous year. This was largely due to an increase in the number of expenditure items from the general ledger included in the inventory, rather than an increase in actual activities. The only exception is the construction and maintenance activity, which did increase due to post-flood repair and construction.
- The increase in emissions in FY24 brings Council’s total emissions to 38,593 tCO_2^e, compared to FY23 emissions of 26,802 tCO_2^e.
- As of 1 January 2022, Council achieved its goal of sourcing 100% of its operational energy from renewable energy sources (five years ahead of the 2027 target). In 2023, large sites received certified renewable energy from the Collector Windfarm in Cullerin, NSW. Certified 100% GreenPower was purchased for small sites in 2023 and all sites from 2024.
- Electricity consumption increased 6.5%. This is largely due to sewerage treatment plants usage. Net emissions for this sector are zero due to Council’s renewable energy certificates and GreenPower contract.
- Streetlight electricity consumption decreased 38% due to a bulk LED light upgrade. Net emissions for this sector are zero due to Council’s renewable energy certificates and GreenPower contract.
- Transport emissions decreased 0.8% due to decrease in diesel and petrol. While E10 usage increased, this fuel type has lower emissions overall.
- Landfill fugitive emissions declined 50% in due to natural decomposition and updated calculations from previous years.
- Wastewater fugitive emissions increased 28%, due to a 5% increase in inflow.

Scope 3 emissions have been included in the emissions inventory since 2021. Changes in consultants and calculations methods for Scope 3 have contributed to fluctuations in total annual emissions in recent years. Scope 3 categories can be calculated by multiple different methods, with data varying in granularity and accessibility. This year all items within the general ledger were included as categories for Scope 3, causing the large increase in

emissions. This is a more accurate reflection of Council's emissions than previous years. Scope 3 emissions should remain steady in future years now that we have finalised the methodology, making year on year comparison meaningful.

Table 1 and Figure 1 shows the total actual and net emissions within Council's operational boundary. FY16 to FY20 included six identified scope 1 and 2 emission sources. FY21 & FY22 included scopes 1,2 and 3 (the complete boundary) calculated using Climate Active methodology by consultant 100% Renewables. Figure 2 shows FY23 and FY24 including the complete boundary as calculated by consultant Pangolin Associates, highlighting the impact of increased scope 3, while scope 1 has decreased and scope 2 is 100% renewable energy and net zero emissions.

Table 1 – Total actual and net emissions since FY16

Financial Year	Actual Emissions (tCO_2^e)	Net Emissions (Offset) (tCO_2^e)
2016	21,389	21,389
2017	20,701	20,701
2018	19,122	19,122
2019	18,325	15,700
2020	16,442	11,618
2021* (some scope 3 items)	19,810	14,998
2022* (some scope 3 items)	18,176	14,190
2023* (partial scope 3 expenditure)	30,086	26,802
2024* (all scope 3 expenditure)	41,987	38,593

*All identified scopes (1, 2 & 3) included from FY21

Figure 1 – Council's total greenhouse gas emissions since FY2015

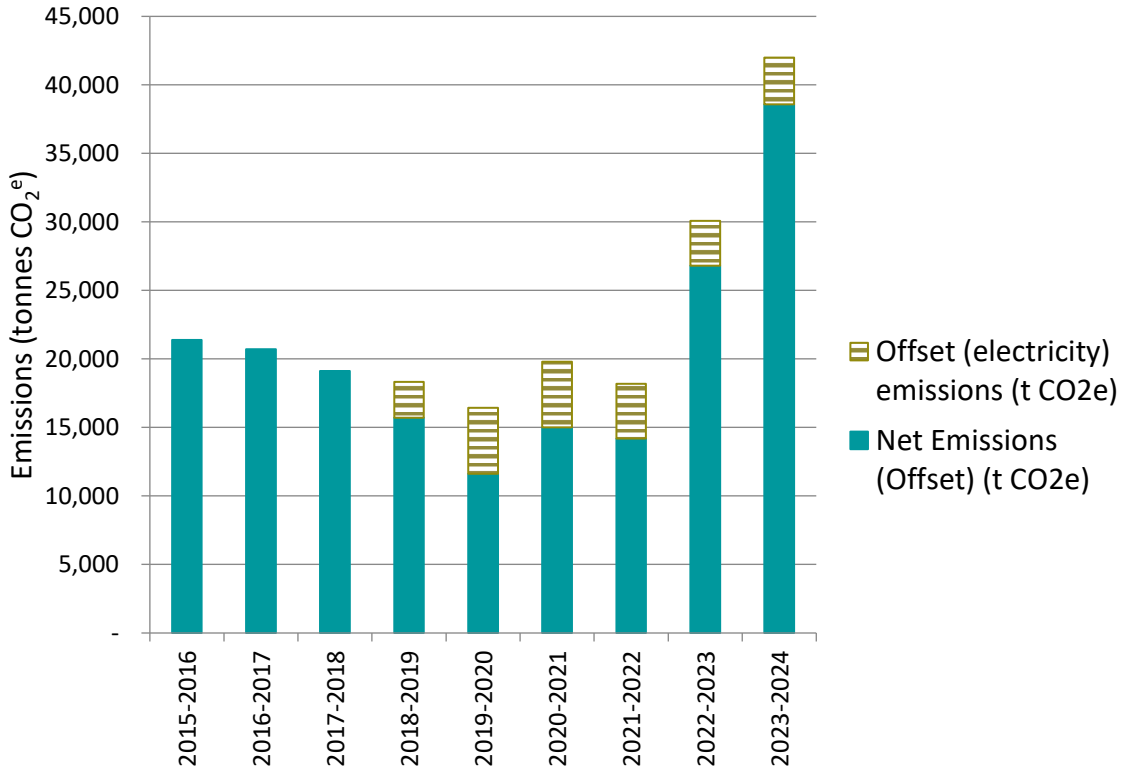
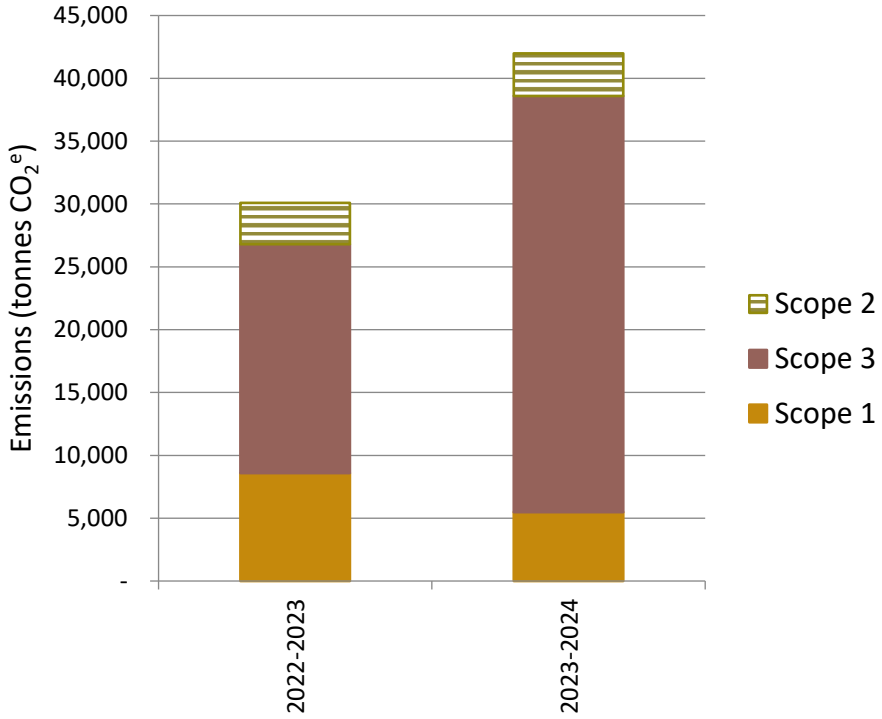


Figure 2 – Comparison of Council's emissions in scope 1,2,3 for FY23 and FY24. Scope 2 is positioned on top, as these emissions can be deducted to determine the total net emissions.



Background

Emissions calculation methodology

Council's emissions calculations have been undertaken by consultant Pangolin Associates in accordance with the industry best practice principles of:

- National Greenhouse and Energy Reporting (NGER) methodology.
- ISO 14064-1 and -3 Greenhouse Gases.
- Climate Active Carbon Neutral Standard (formerly NCOS (National Carbon Offset Standard)).
- Greenhouse Gas Protocol – a Corporate Accounting and Reporting Standard developed by the World Business Council for Sustainable Development (GHG Protocol).

This inventory measures greenhouse gases in carbon dioxide equivalence (CO_2^e) and includes all seven greenhouse gases covered by the United Nations Kyoto Protocol – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF_6), nitrogen trifluoride (NF_3), as well as hydrochlorofluorocarbons (HCFCs) covered by the Montreal Protocol (where applicable).

Council staff supplied the raw data, and Pangolin applied the above methodologies to produce the final emissions boundary result for FY24.

Scopes

To help differentiate between different emissions sources, emissions are classified into the following scopes according to the GHG Protocol – Corporate Standard:

- **Scope 1** emissions include all direct greenhouse gas emissions from sources that are within the Council's control boundary (e.g., fuel use, refrigerants, onsite electricity generation etc.).
- **Scope 2** emissions include the energy produced outside the Council's control boundary but used within the organisation (e.g., all grid electricity used in buildings, pumps etc.).
- **Scope 3** emissions are all indirect emissions (other than scope 2 emissions) that that occur because of the activities of the organisation, but from sources outside the Council's control boundary (e.g., embodied emissions in the manufacture of paper used at Council).

FY24 Emissions Boundary

Under the Federal Government Climate Active Standard, organisations must include scope 1 and 2 as well as relevant scope 3 emission sources in their boundary. Whilst Council does not formally submit to Climate Active, reports are still developed to this standard. The relevant emission categories, items/ services and scopes identified by Pangolin Associates and Council are listed in Table 2.

Table 2 – FY24 emissions boundary by category and scope

Category	Activity	Scope
Construction & Repair Services	Construction	3
Construction & Repair Services	Repair and maintenance	3
Waste	Waste Fugitive Emissions- Composting and Closed Landfill	1
Professional Services	Consulting services	3
Business Travel	Business travel uplift	3
Investments	Property services	3
Transport Fuels	Controlled Diesel	1 and 3
ICT Services	Telecommunications	3
Employees	Employee Commute - Car	3
Water & Wastewater	Wastewater Fugitive Emissions- Collection and treatment	1
Waste	Landfill	3
Products, Materials & Equipment	Asphalt	3
Investments	Collecting and credit reporting	3
Employees	Entertainment	3
Office Supplies & Services	Sundry Costs	3
Office Supplies & Services	Stationery	3
Professional Services	Insurance	3
ICT Services	Software	3
Water & Wastewater	Water	3
Products, Materials & Equipment	Concrete	3

Category	Activity	Scope
Transport Fuels	Controlled E10	1 and 3
Professional Services	Education	3
Office Supplies & Services	Cleaning	3
Transport Fuels	Controlled Petrol	1 and 3
Construction & Repair Services	Roads and bridges	3
Employees	Employment placement	3
Products, Materials & Equipment	Construction materials	3
ICT Services	Computer and technical services	3
Professional Services	Other professional services	3
Construction & Repair Services	Household electrical appliances repair and service	3
Stationary Fuels	Controlled LPG	1 and 3
Products, Materials & Equipment	Pesticides, insecticides and medicinal goods	3
Business Travel	Car hire	3
Construction & Repair Services	Vehicle repairs	3
Employees	Sport, recreation and racing services	3
Employees	Working From Home	3
ICT Equipment	Computer, Mobile Phones & Peripherals	3
Professional Services	Legal services	3
Synthetic Greenhouse Gases	Controlled Refrigerants	1
Office Supplies & Services	Paper	3
Advertising & Marketing Services	Advertising services	3
Employees	Employee Commute - Bus	3
Professional Services	Banking	3
Professional Services	Community services and religious organisations	3
Electricity	Controlled Electricity	2
Business Travel	Flights	3
Business Travel	Hotels	3
Employees	Employee Commute - Cycle	3
Employees	Employee Commute - Walk/Run	3
Employees	Employee commute	3
Office Supplies & Services	Office supplies & services	3
Products, Materials & Equipment	Asphalt (Boral)	3
Products, Materials & Equipment	Asphalt (RPQ)	3
Employees	Clothing	3
Food & Beverage	Food and beverage services	3
Office Supplies & Services	Furniture	3
Postage, Courier & Logistics	Road freight	3
Postage, Courier & Logistics	Postage	3
Postage, Courier & Logistics	Courier	3
Products, Materials & Equipment	Industrial machinery and equipment	3

Category	Activity	Scope
Products, Materials & Equipment	Motor vehicle parts	3
Products, Materials & Equipment	Concrete and cement	3
Professional Services	Engineering services	3
Waste	Organic waste	3
Waste	Recycling	3

Emissions categories

Stationary fuels/bottled gas (Scope 1)

Bottled gas is used at Council's holiday parks and childcare centre for cooking and hot water heating. The hot water heating is a boost system to solar at First Sun Holiday Park and was installed as an efficiency measure taken in 2016. Supplier Elgas has recently introduced an opt-in carbon neutral LPG plan that staff will ensure Council selects from FY24 onwards.

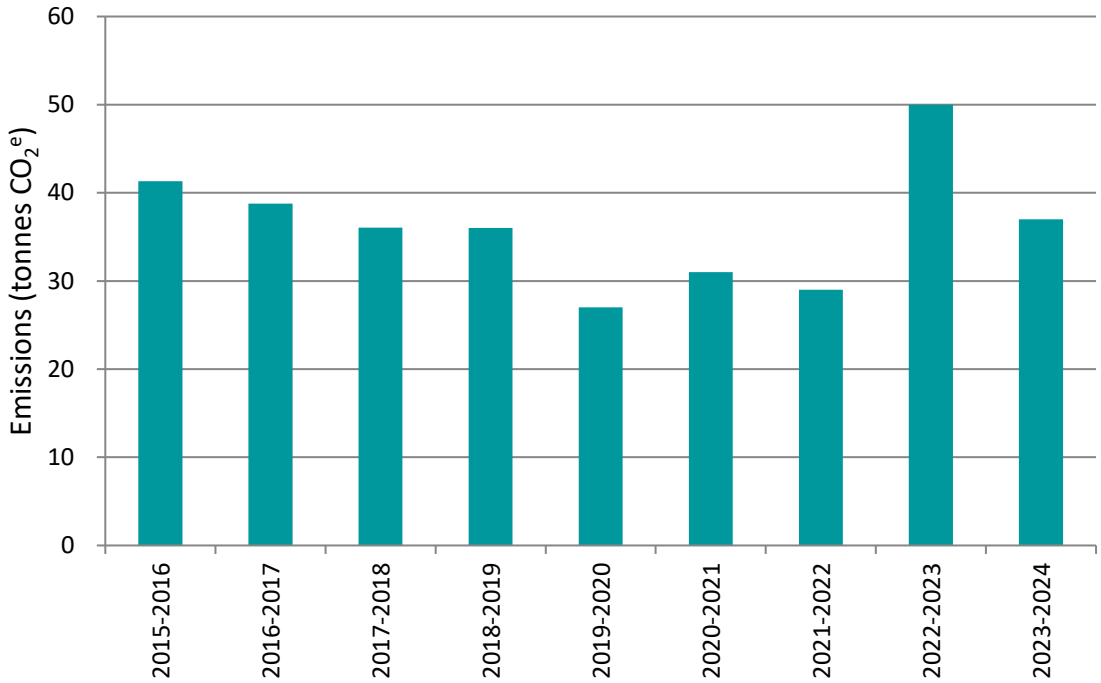
The minimal nature of emissions from bottled gas compared to other categories (0.1% of total emissions) does not warrant further action at this stage. It is recommended as assets come to their natural end of life either the most efficient appliance is chosen or transition to induction (electric) cooking is made.

Bottled gas usage decreased by 26% (6,307 L) compared to the previous year. There was a 26% (13 tCO_2^e) decrease in emissions due to the decreased usage. Note, a different calculation method was applied by consultant Pangolin Associates from FY23 onwards.

Table 3 – Bottled Gas Emissions since FY 2015/16

Financial Year	Emissions (tCO_2^e)	LPG (kL)	Cost ($)
2016	41	27	$17,913
2017	39	25	$14,931
2018	36	23	$12,342
2019	36	23	$14,972
2020	27	18	$10,235
2021	31	20	$14,032
2022	29	18	$21,476
2023	50	24	$31,203
2024	37	17	$27,945

Figure 3 – Bottled Gas Emissions since FY 2015/16



Transport fuels (Scope 1 and 3)

Emissions relating to the transport fuels category include all fuel used in the light passenger vehicles, heavy plant, and equipment as well as petrol operated tools (whipper snippers and generators etc.). Data is sourced from the Ampol Star card system for passenger vehicles (40% of total fuel use) and from purchases of bulk fuel delivered to the depot and landfill facilities (60% of total fuel use). Emissions from transport fuel account for 4.4% of Council's FY24 emissions.

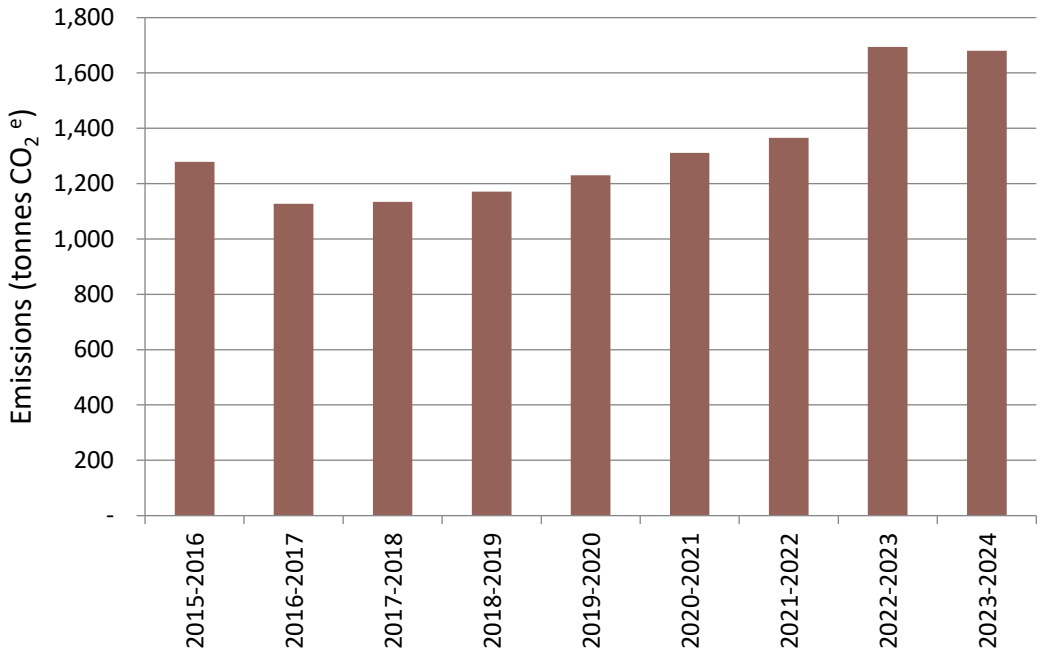
Council experienced a 0.5% (2.5KL) decrease in total fuel usage compared to the previous year. There was a slight 0.8% (13.7 tCO_2^e) decrease in emissions due to the decreased usage. Importantly, there was a 50% increase in E10 fuel which has a lower emissions factor than other fuels. There was also a 33% decrease in petrol usage. Diesel usage remained the same.

A current activity is included in the FY2024/25 Operational Plan, 5.3.2.3, "Investigate an Electric Vehicle transition plan for Council's vehicle fleet". A draft plan has been developed with consultant EVenergi and will identify key opportunities to reduce emissions within Council's fleet.

Table 4 – Fleet Emissions since FY 2015/16

Financial Year	Emissions (tCO_2^e)	Fuel (kL)	Cost ($)
2016	1,279	482	$482,922
2017	1,128	427	$438,480
2018	1,134	435	$523,606
2019	1,171	452	$633,308
2020	1,230	474	$613,329
2021	1,311	505	$715,819
2022	1,365	496	$721,370
2023	1,694	522	$814,056
2024	1,680	520	$780,750

Figure 4 – Fleet Emissions since FY 2015/16



Electricity (Scope 2)

Note that while there were zero emissions from electricity in FY24 due to Council's electricity (general and streetlighting) being offset by renewable energy certificates and 100% GreenPower, emissions are still calculated for this category in this section of the report so staff can monitor year-on-year trends.

General electricity

The general electricity sector consists of Council's buildings, facilities, pumping infrastructure and sports/public lighting. Data is captured and analysed through a third-party subscription with Azility. This year Council's electricity consumption increased by 6.5% (313 MWh) compared to the previous year. There was a slight increase in gross emissions of 3.5% (110 tCO_2^e) due to the increased consumption. Net emissions for electricity are zero due to Council's renewable energy certificates and GreenPower contract.

As of 1 January 2022, Council achieved the "100% renewables" part of Resolution 17-086 and fulfilled the overarching *Net Zero Emissions Action Plan for Council Operations 2025* Electricity objective to "transition to 100% renewable energy". This is five years ahead of the 2027 target. As of July 2025, Council will source certified renewable energy from a wind and solar farm located in NSW, under Council's Power Purchase Agreement (PPA).

Disproportionately to the increase in kWh consumption, cost increased by 32% ($408,901). The market price for electricity has increased in Australia in recent years and this was reflected in the pricing of the contract with Flow Power.

When calculating the emissions for Council's electricity, there are two points to consider:

1. The electricity purchased is 100% renewable, from a renewable source and the Large Generation Certificates (LGC's) associated with the generation of the electricity are surrendered to the Renewable Energy Certificate Registry (REC Registry) when the electricity is supplied to Council. This means that the electricity purchased is matched with certified renewable energy and therefore zero emissions. This is the most effective method to support the transition to clean energy in Australia.
2. The actual electricity in the grid in NSW only comprises of 37% renewable power for FY24, this is calculated by the Australian Energy Market Operator (AEMO). Therefore, although 100% renewable power is purchased and our electricity consumption is directly correlated to renewable energy generation, the actual electricity supplied to all users in accessing grid power remains 63% fossil fuel.

While Council may have achieved its renewable energy target, the most efficient, controllable and often best financial approach is to always avoid use of grid electricity in the first place or reduce current consumption. Current and future projects within the OP will continue to seek to minimise Council's carbon profile while maximising the realisation of co-benefits such as greater long-term cost control and lowering operational costs.

Table 5 shows Council's general electricity emissions since FY 2015/16. Figure 5 shows both the emissions generated from Council's energy use less the zero-emissions electricity indicated by the stripped fill columns. Figure 6 shows Council's electricity usage by asset type (kWh and percentage of total).

Table 5 – General Electricity Emissions (actual and offset) since FY2015/16

Financial Year	Emissions (tCO_2^e)	Net Emissions (Offset) (tCO_2^e)	Electricity (MWh)	Cost ($)
2016	4,755	4,755	5,661	$1,147,944
2017	4,791	4,791	5,772	$1,191,475
2018	4,674	4,674	5,700	$1,257,905
2019	4,554	2,250	5,623	$1,291,102
2020	4,208	14	5,195	$1,238,488
2021	4,235	0	5,360	$1,264,789
2022	3,986	0	5,046	$1,248,775
2023	3,284	0	4,830	$1,255,750
2024	3,394	0	5,143	$1,664,651

Figure 5 - General Electricity Emissions (actual and offset) since FY2015/16

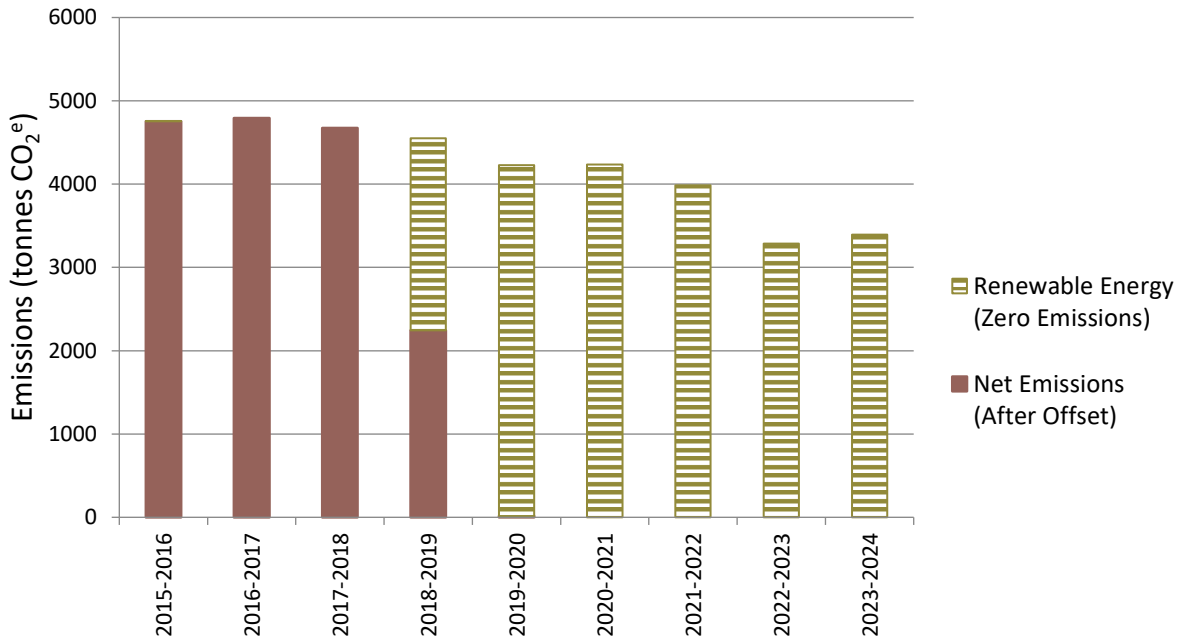
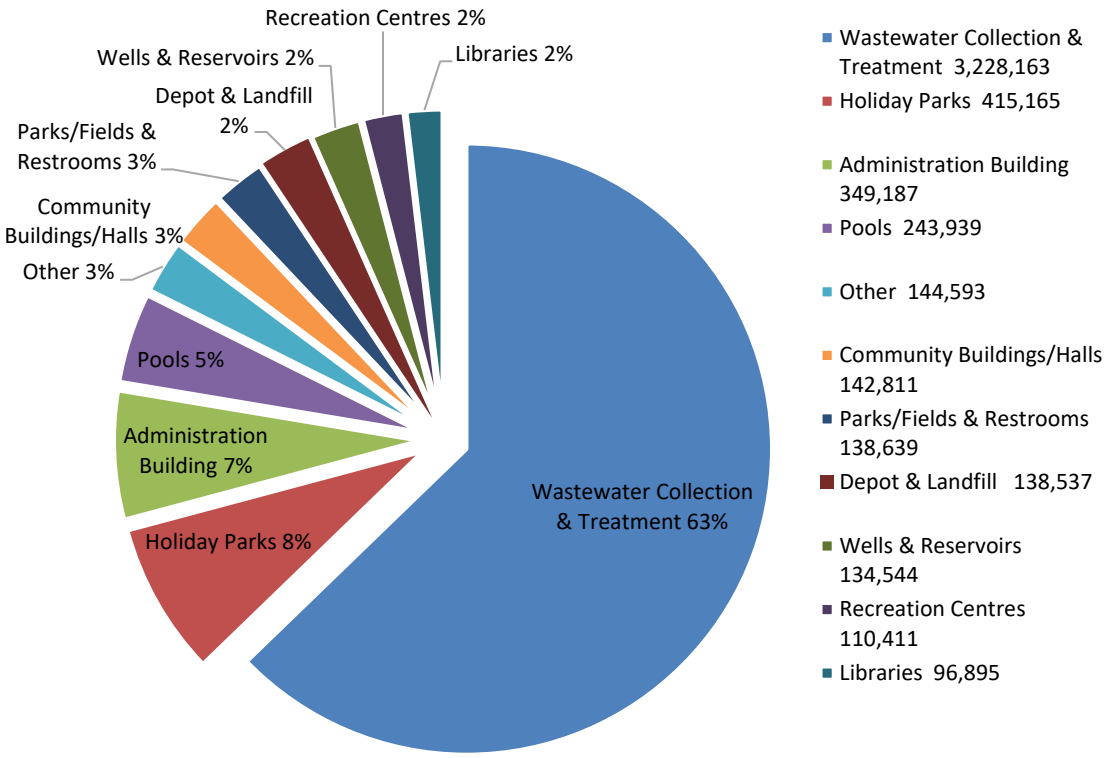


Figure 6 – FY24 Electricity Usage (kWh) by asset type



Of Council's assets, wastewater collection and treatment use the largest amount of electricity (63%). The Utilities Team implemented energy efficiency measures in 2023 and will continue to implement further upgrades where possible. In addition, Council's proposed bioenergy facility would produce enough electricity to run the Byron Bay Sewage Treatment Plant, with excess electricity sent back to the grid. Council's decision for "Go/No Go" on construction, links to Action A2 in the Action Plan (OP Activity 5.3.3.1).

The second largest electricity users are Council's Holiday Parks (8%). There was a 4.7% (18,754 kWh) increase in consumption in FY24. Staff are currently performing an energy and water audit in partnership with Rous County Council to determine efficiency measures and upgrades best suited to these sites. Implementing these recommendations will reduce consumption and therefore emissions at these sites.

The third largest electricity user is Council's Administration Building at Mullumbimby (7%). There was a 21% increase in consumption in FY24 due to the comparatively lower usage in FY23 as flood repairs caused the closure of the Council Chambers, a large user of energy. The 99KW solar PV structure installed in the carpark of the building in 2019 has reduced baseload electricity consumption by approximately 25% annually. Additional measures must be taken to further reduce kWh consumption for this high energy using asset.

Streetlight Electricity

Streetlight energy use reduced by 37% (229 MWh) due to the bulk LED upgrade undertaken by Essential Energy. A total of 1,904 lights have now been upgraded to LEDs, with 35 lights yet to be upgraded as of FY24.

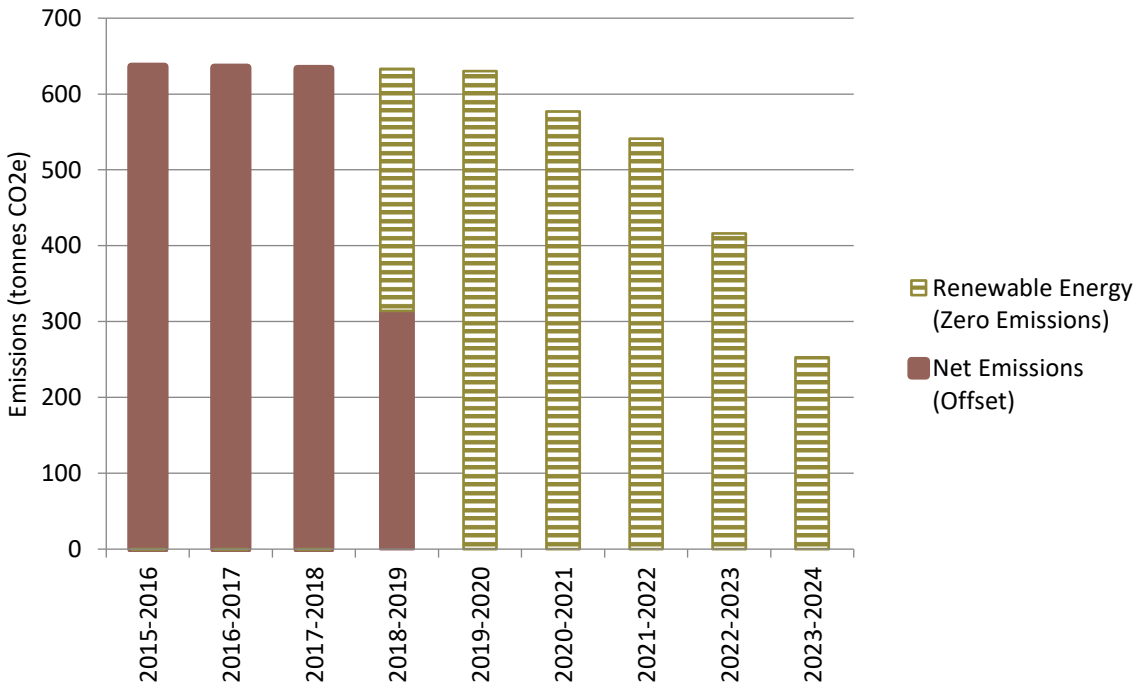
The reduction in consumption resulted in a 39% (163 tCO_2^e) decrease in emissions. The NSW emissions factor for grid purchased electricity was also lowered due to increased renewable energy in the NSW electricity network.

Net emissions for FY24 are zero due to the retailer contract with FlowPower being 100% GreenPower (sourced from renewable energy). This is shown by the striped fill columns in Figure 7.

Table 6 – Streetlight Electricity Emissions (actual and offset) since FY2015/16

Financial Year	Emissions (tCO_2^e)	Net Emissions (Offset) (tCO_2^e)	Electricity (MWh)	Cost ($)	Number of streetlights
2016	636	636	757	$314,425	1,890
2017	635	635	765	$336,809	1,897
2018	633	633	772	$315,504	1,922
2019	633	314	782	$355,420	1,941
2020	630	0	778	$307,320	1,973
2021	577	0	730	$308,146	2,009
2022	541	0	685	$326,188	2,013
2023	416	0	612	$391,461	2,036
2024	253	0	383	$311,840	1,939

Figure 7 – Streetlight Electricity Emissions (actual and offset) since FY2015/16



Solar Generation

Council has invested in photovoltaic (PV) generation since 2013 and has 592kW of PV installed in total, generating approximately 907 MWh per year. This generation equates to approximately 17% of Council's annual electricity usage in FY24. Council's solar PV generation is greater than its yearly streetlighting electricity consumption.

Table 7 – FY24 Solar Generation Council Assets

For Period from 1/7/2023-30/6/2024	Install Year	Size (kW)	MWh per year
Byron STP	2019	152	233
Brunswick Valley STP	2019	99	152
Mullumbimby Admin Building Carpark	2019	99	152
Byron Bay Library	2017	52	80
Byron STP (Old System)	2015	45	69
Bangalow STP	2019	51	78
Cavanbah Centre	2015	24	36
Resource Recovery Centre 2	2019	13	20
Sandhills Childcare Centre	2017	13	20
Mullumbimby Drill Hall	2016	8	12
Mullumbimby Neighbourhood Centre	2017	10	15
Durrumbul Hall	2012	8	12
Bangalow Heritage House	2012	7	11
Mullumbimby Civic Hall	2013	6	9
Brunswick Valley Community Centre	2010	5	8
TOTAL		592	907

Waste (Scope 1 and 3)

Waste Fugitive Emissions – Composting and Closed Landfill (Scope 1)

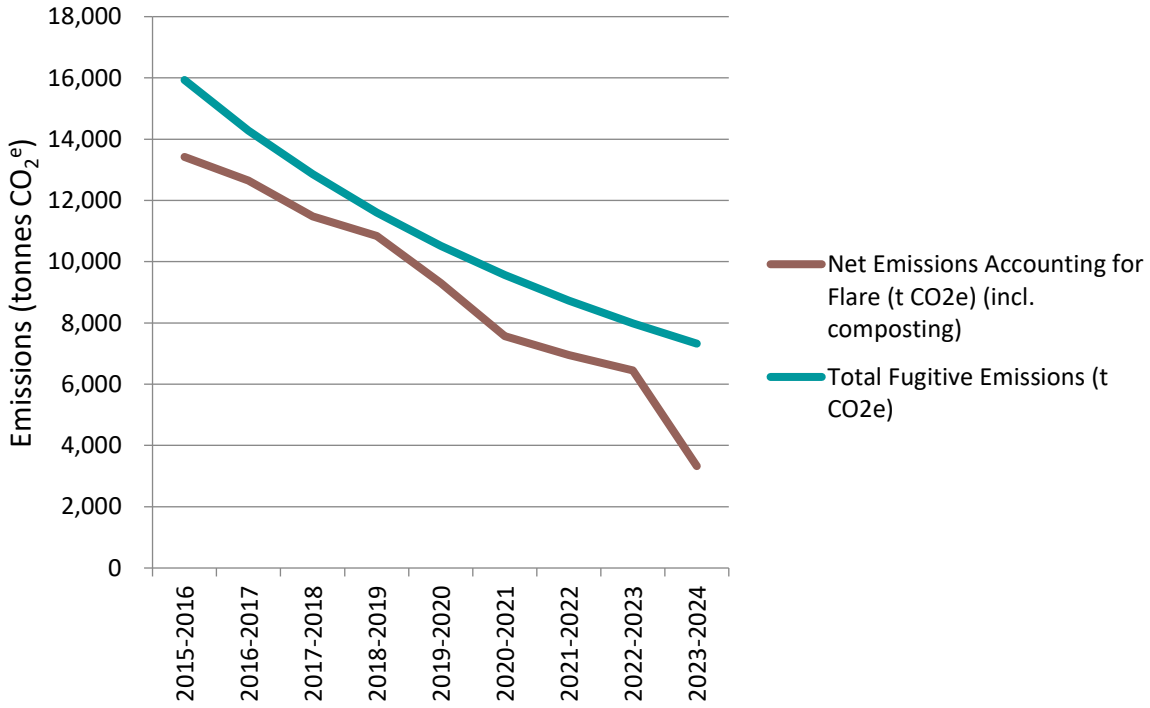
Byron Shire Council's closed landfill emits fugitive emissions from the legacy waste buried within and accounts for 9.6% of Council's FY24 emissions. The methane gas flare captures a portion of gas rising up and converts the methane to carbon dioxide thus reducing the global warming potential of the gas. The fugitive emissions will decline as the waste inside the landfill naturally decomposes. Please note, an error was identified by staff in calculations for previous reporting years, however despite this the fugitive emissions continue to decrease incrementally. Using the updated calculations, the natural decrease from FY23 – FY24 was 3,263 tCO_2^e or 47%.

The Resource Recovery Team continues to work on projects to improve the landfill site and reduce emissions, including a Leachate Management System Upgrade, Stormwater Plan and Capping of the Southern Landfill in 2025 (dry season).

Table 8 - Waste Sector (Landfill) Fugitive Emissions since FY 2015/16

Financial Year	Total Emissions (tCO_2^e)	Total Flare (tCO_2^e)	ACCU's Sold (tCO_2^e)	Composting (tCO_2^e)	Net Emissions* (tCO_2^e)
2016	15,931	5,241	2,729	0	13,419
2017	14,283	3,539	1,903	0	12,647
2018	12,852	3,097	1,723	0	11,478
2019	11,607	2,372	1,440	166	10,841
2020	10,519	2,382	1,025	140	9,302
2021	9,564	2,138	0	142	7,568
2022	8,724	1,938	0	164	6,950
2023	7,983	1,787	0	251	6,447
2024	7,325	4,272	0	274	3,208

Figure 8 - Waste Sector (Landfill) Fugitive Emissions since FY 2015/16



Landfill, organic waste and recycling (Scope 3)

Council contracts its waste collection service for general waste (landfill), recycling and food & garden organics to Solo Resource Recovery. These activities account for 1.2% of Council's FY24 emissions. There was a 4.9t increase in landfill waste from FY23 (372t) to

FY24 (377t), with emissions therefore increasing slightly to 490 tCO_2^e. There were no emissions from recycling or food & garden organics because the emissions factor for those activities is zero.

Solo transports landfill to a facility in Willowbank (QLD), recycling to a facility in Chinderah (NSW) and food & garden organics to a facility in Yatala (QLD). As part of its contract, Solo monitors the fuel use for the collection and transfer of Byron Shire waste and then offsets the associated emissions with international carbon credits (VCU's – Verified Carbon Units).

Water and Wastewater (Scope 1 and 3)

Wastewater Fugitive Emissions (Scope 1)

Fugitive wastewater emissions are created during the processing of wastewater at Council's four sewage treatment plants (STPs) and are greatly affected by rain events due to the potential for inflow and infiltration to the sewer system. This activity accounts for 2.3% of Council's FY23 emissions.

Wastewater fugitive emissions increased by 28% in FY24. Total annual flow increased by 196ML, or 28%. The increase in FY24 figures appear to return to trends prior to the stockpiling of biosolids from wet periods in FY23, which caused a decrease in emissions that year.

The Bangalow STP saw a slight decrease in emissions due to the repair of the flow meter on site, reducing emissions to previous norms, while the Byron, Ocean Shores and Brunswick Valley STPs saw an increase in emissions due to increased inflows and decreased sludge disposal in FY24.

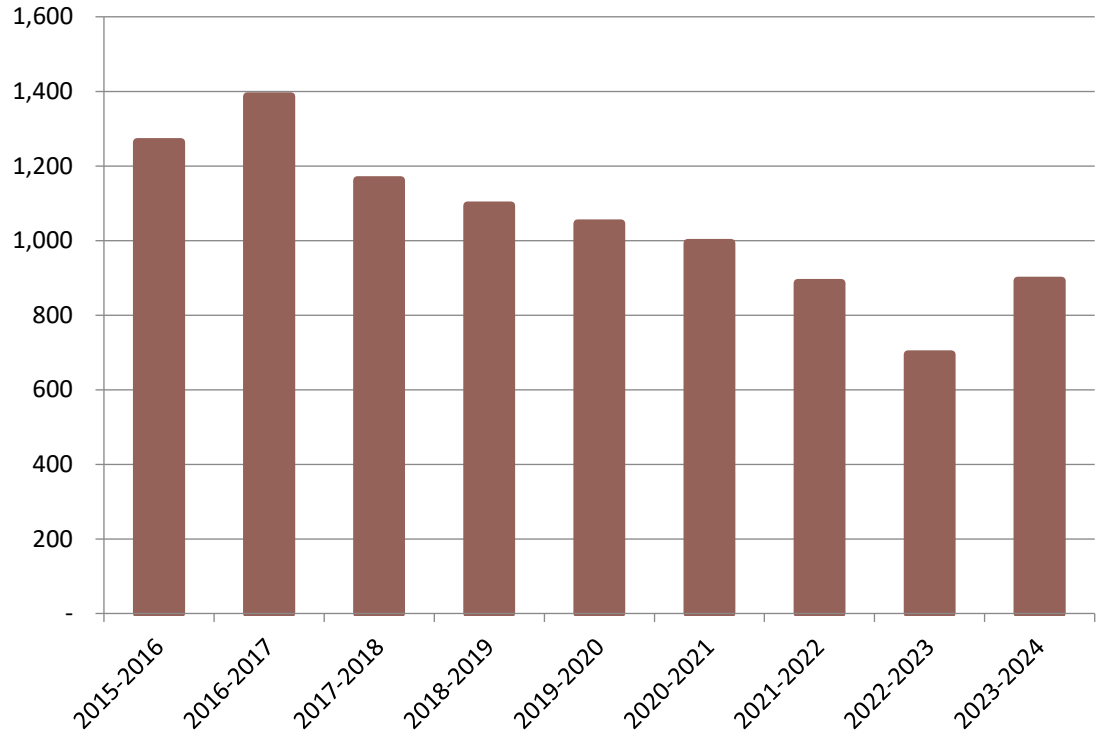
It should be noted that emissions will continue to fluctuate across years as the Shire experiences different conditions (drought and rain) and different operational aspects (like reduced or increased biosolids inventories and land application).

Whilst solar and energy efficiency projects at the sewage treatment plants continue to drive down electricity emissions, these projects have no effect on the scope 1 fugitive emissions. The major factors that can drive down fugitive emissions are water efficiency measures to reduce wastewater generation, minimising inflow and infiltration, and improving the effectiveness and efficiency of treatment operations. These projects link to Action C5 in the Action Plan, "improve water efficiency within the Shire and maximise use of recycled water and alternative water sources".

Table 9 - Wastewater Fugitive Emissions since FY 2015/16

Financial Year	Emissions (tCO_2^e)	Flow (ML)
2016	1,264	3,255
2017	1,387	3,542
2018	1,162	3,349
2019	1,094	3,327
2020	1,046	3,507
2021	994	4,112
2022	886	4,041
2023	695	3,340
2024	892	3,530

Figure 9 - Wastewater Fugitive Emissions since FY 2015/16



Water (Scope 3)

Council purchases water from Rous Country Council and supplies its own water from the Laverty Gap Weir. All associated emissions from the water supplied from the Laverty Gap Weir are accounted for under “wells & reservoirs” in the general electricity emissions category outlined earlier in this report.

The water supplied by Rous County Council has emissions related to its collection, transfer and treatment, mainly due to the electricity associated with it. In FY24, water usage

increased by 27ML or 38% from the previous year. Emissions increased by 50 tCO_2^e, or 38%. Table 10 outlines the emissions for water use on Council assets in each suburb for FY23 and FY24. Emissions from water account for 0.5% of Council's FY23 emissions.

Table 10 - Water supplied to Council areas FY23 & FY24

Suburb	FY23 (ML)	FY24 (ML)
Bangalow	2.4	4.8
Billinudgel	0.0	0.0
Brunswick Heads	6.6	10.1
Byron Bay	36.5	44.7
Mullumbimby	12.3	18.9
New Brighton	0.4	0.6
Ocean Shores	4.5	6.7
South Golden Beach	0.2	0.3
Suffolk Park	8.8	12.6
	71.7	**98.7**

Upstream and Downstream Purchased Emissions (Scope 3)

Scope 3 has been reported since FY21 with varying degrees of accuracy due to the complexity of information required. In FY24, consultants Pangolin Associates used all items on the general ledger for Scope 3 calculations. These items were categorised according to their "activity" and used to apply the relevant emissions factor in emissions calculations. This differs from previous years where only select items from the general ledger were including in Scope 3 calculations. The increase in expenditure items included this year resulted in a drastic increase in Council's Scope 3 emissions.

Financial data is readily available from Council's general ledger and provides a simple way to calculate emissions, however this method is far less accurate than activity-based data such as the unit value (tonnes, kilograms, etc.). As such, there is likely some margin of error when calculating emissions in this Scope. There is also some level of assumption in the data due to the inability of staff to drill down into expenditure data from all aspects of Council in fine enough detail.

It will be a long-term project for staff to continue to refine the data collection for Scope 3, such as including more accurate unit values rather than expenditure-based values. This is an area of difficulty for all organisations currently preparing emissions inventories, however software innovations are becoming more advanced and may alleviate this difficulty in the future.

Table 11 summarises Scope 3 categories included for FY24 with FY23 included for comparison.

Table 11 – Scope 3 Emissions included in FY24 Emissions Boundary (with FY23 for comparison purposes)

Category	Scope 3 Emissions FY2023 (tCO_2^e)	Scope 3 Emissions FY2024 (tCO_2^e)	Contribution to Total Emissions
Construction & Repair Services	11,209.6	21,863.0	56.7%
Professional Services	189.7	2,613.0	6.8%
Business Travel	-	1,866.8	4.8%
Investments	-	1,721.3	4.5%
Employees	1,003.0	1,344.5	3.5%
ICT Services	383.6	1,317.8	3.4%
Products, Materials & Equipment	4,360.9	698.4	1.8%
Office Supplies & Services	64.2	645.4	1.7%
ICT Equipment	-	17.0	0.0%
Advertising & Marketing Services	12.5	6.4	0.0%

Construction & Repair Services

This category includes:

- Construction
- Repair and Maintenance
- Roads and Bridges
- Household electrical appliances repair and maintenance
- Vehicle repairs

Construction and Repair Services contributes to over half of Council's total emissions (56.7%). This increase is due to continued construction works related to the 2022 floods, alongside Council's regular roadwork, maintenance and construction activities. Post-flood construction works will be an ongoing cost to Council for at least the next two financial years.

Staff are currently working actively in this space by opting for low carbon alternatives to construction materials such as asphalt, concrete, and steel, where possible, as well as providing upskilling opportunities in these areas so that staff are aware of the impact and alternatives. This will be an ongoing project as advances in technology are made more available and cost-effective.

Professional Services

This category includes:

- Consulting services
- Insurance
- Education
- Legal Services
- Banking
- Community Services
- Engineering Services

Professional Services are generally considered to be essential external services required by Council for its operations. It contributes 6.8% to total emissions for FY24. This figure will likely fluctuate each year depending on the needs of Council. Council is guided by its Business Ethics Statement and procurement process when selecting suppliers, which have environmental considerations embedded.

Business Travel

This category includes:

- Flights
- Car Hire
- Hotels

This category accounts for 4.8% of Council's emissions for FY24. Staff do not currently have accurate data for this category, due to there being various pathways for staff and Councillors to make bookings and therefore data is spread across various general ledger items. Consultants Pangolin Associates provide an estimate for this category based on the organisation type and employees. Staff are currently trialling a staff travel survey form which will ensure data is captured in a centralised process, making calculations in this category more accurate.

Investments

This category includes:

- Property Services
- Collecting and Credit Reporting

Investments makes up 4.5% of Council's FY24 emissions. Council should continue to monitor and align their investments to objectives within the Community Strategic Plan, such as *3. Nurtured Environment* and *4. Ethical Growth.*

Employees

This category includes:

- Employee Commute
- Entertainment
- Employment Placement
- Sport and Recreation
- Working From Home
- Clothing

Employees makes up 3.5% of Council's FY24 emissions. Data is collected through the general ledger, as well as a staff travel survey conducted every two years. Opportunities to reduce staff commute emissions, such as electric vehicle fleet, should be considered. A draft Electric Vehicle Fleet Transition Plan is currently underway.

ICT Services and Equipment

This category includes:

- Telecommunications
- Software
- Computer and Technical Services
- Computer, Mobile Phones and Peripherals

ICT Services and Equipment makes up 3.4% of Council's FY24 emissions. These services and equipment and essential to Council's core services, so whilst it may not be feasible to make major reductions in this category, staff should continue to be aware and monitor its impact in future, particularly with regard to AI technology.

Products, Materials and Equipment

This category includes:

- Construction Materials
- Pesticides, Insecticides, and Chemicals
- Industrial Machinery and Equipment
- Motor Vehicle Parts

Products, Materials, and Equipment makes up 1.8% of Council's FY24 emissions. Whilst this is a relatively small proportion of Council's emissions, staff can still have an impact by making sustainable procurement choices where available.

Office Supplies and Services

This category includes:

- Stationery
- Cleaning
- Paper
- Office Supplies and Services
- Furniture

Office Supplies and Services makes up 1.7% of Council's FY24 emissions. Whilst this is a relatively small proportion of Council's emissions, staff can still have an impact by making sustainable procurement choices where available.

Advertising and Marketing Services

This category includes advertising and marketing services. It makes up less than 1% of Council's FY24 emissions. No action is required however staff should continue to monitor for change.

Conclusions

Preparing the report for FY24 has highlighted several areas that could be addressed to improve the collection of data and the decision making around Council's emissions:

- FY24 is the fourth year that scope 3 emissions have been included. Different consultants and methodologies have been used in previous years, making year on year comparison difficult. In FY24 staff used the complete general ledger. The same methodology for FY25 will be used to maintain consistency.
- Expenditure-based calculations were used for several emissions categories. Activity-based calculations would be preferable. Staff will investigate sourcing activity data from key suppliers and aim to build itemised EOFY reports into contracts. For categories that will remain expenditure-based, custom financial reports or improvements / consistency in the categorisation of job numbers in the general ledger should improve the speed and accuracy of emissions calculations.
- The employee commute figures were based on a survey with a response rate of approximately 21%. Pangolin has indicated that a response rate of 30% would be ideal for accuracy. A new survey is due to be completed in FY25. Staff should aim for a minimum 30% response rate.
- A shadow carbon price could be investigated. When making decisions on materials, services, or infrastructure the carbon emission implications should be reviewed as part of the decision-making process.

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