

Wingecarribee Shire Council Greenhouse Gas Report 2021/22

This report covers greenhouse gas (GHG) emissions from Council operations for the financial year 2021/22. It has been prepared with reference to the GHG Protocol and the Australian Government's Climate Active Carbon Neutral Standard for Organisations. The greenhouse gases included are carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), nitrogen trifluoride (NF₃) and sulphur hexafluoride (SF₆) sources.

Emissions summary

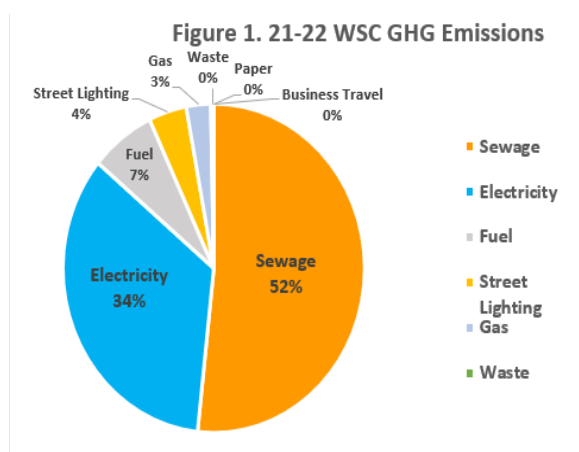
For the period 2021/22, Council's greenhouse gas emissions total was 28,068 tCO₂-e (tonnes of carbon dioxide equivalent). Electricity, wastewater treatment and fuel were the highest sources of greenhouse gas emissions as seen in Figure 1. Emissions attributable to providing water and sewer (electricity and fugitive emissions) account for 80 per cent of the total council emissions. Table 3 provides a detailed breakdown of sources.

| Table 1. 2021/22 Contribution (tCO ₂ -e) | |
|--|-------|
| Water and Sewer - electricity and fugitive emissions | 22264 |
| All other operations | 5804 |

Impacts to 2021/22 reporting

Several factors affected Council's 2021/22 emissions relative to previous years. Restrictions experienced due to the COVID-19 epidemic have eased and resulted in a slight increase in electricity use from facilities in 2021/22. A mild summer with below average temperatures has reduced the need for cooling of facilities which in turn has offset the increased operational usage.

For the second year in a row higher than average rainfall (~90 per cent increase on the last 20-year average at Moss Vale weather station) has resulted in higher electricity use and subsequent greenhouse gas emissions from sewer services. This is attributed mainly to pumps which have had to work significantly harder during multiple rainfall events. In addition, the high volumes of water through the sewage treatment plants have significantly increased the fugitive emissions based on the calculation method which works on a total volume through the plant.



Ultimately the magnitude of weather events in 2021/22 has seen electricity use remain high. Considering this, the total emissions may not reflect the overall trend and reductions being made in other areas.

While electricity consumption remains steady despite efficiency improvements being made, as the electricity grid becomes more powered by renewables the emissions attributed to electricity decrease. In 2021-22 electricity emissions are down by over 5% on the previous year as the grid further decarbonises despite usage remaining steady.

Emission reduction actions

Emissions have decreased thirteen per cent from the FY2015/16 baseline year for Council's emissions excluding wastewater emissions. The variability of wastewater emissions is largely due to yearly differences in rainfall conditions which makes identifying trends across years more difficult. Table 2 provides an overview of emission trends since the baseline year.

| Table 2. Greenhouse gas emissions compared to 2015/16 base year (tCO ₂ -e) | | | | |
|---|----------------------|---------------|---------------|---------------|
| Scope | Base year 2015/16 | 2019/20 | 2020/21 | 2021/22 |
| Council operations (excluding sewage treatment) | | | | |
| 1 | 2,810 | 2,624 | 2,629 | 2,446 |
| 2 | 9,039 | 8,556 | 8,992 | 8,641 |
| 3 | 3,485 | 2,422 | 2,474 | 2,463 |
| Sub Total | 15,334 | 13,602 | 14,095 | 13,551 |
| Sewage treatment fugitive emissions | | | | |
| 1 | 7,761 | 7,399 | 10,644 | 14,517 |
| Total | 23,095 | 21,001 | 24,740 | 28068 |

Scope 1 – direct combustion e.g. fuel, gas, waste, fugitive emissions

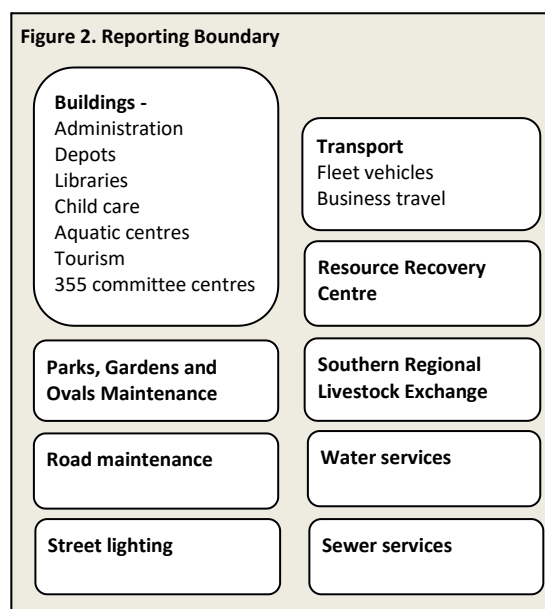
Scope 2 – grid electricity

Scope 3 - street lighting, upstream/downstream sources e.g. waste & paper

Council has been undertaking energy efficiency projects and switching to renewable energy since 2011. In 2021/22 the solar system at the Civic Centre was installed in November. This 99kW system will result in a significant increase in Council's renewable energy use, and subsequent further decrease in Council's GHG emissions. In December 2021 the spotlights at Moss Vale War Memorial Aquatic Centre were upgraded to LED which has made a sizeable impact on reducing electricity usage there.

Reporting Boundary

Council's organisational greenhouse gas boundary has been established in line with the international Greenhouse Gas Protocol standard, using an operational control test for business unit activities and facilities. Figure 2 shows the activities and assets within the organisational reporting boundary. Facilities owned by Council but wholly leased to third parties are not included. Community emissions, such as emissions from household waste in landfill, are beyond the scope of Council's reporting of greenhouse gas emissions from its operations.



Complete activity data for all the emission sources within the reporting boundary is not currently available. Data quality management plans are in place for priority sources identified. Sources will progressively be included based on their relevance, materiality, and measurability.

In 2022/23 a new method for calculating sewer fugitive emissions will be introduced for better accuracy and to remove the impact of flooding from the calculation method.

Sources not quantified

The following relevant sources have not been quantified as quantification is not currently technically feasible, practicable or cost effective relative to its significance:

- Catering and events
- Road making materials
- Fuel use from outsourced works
- Staff commuting to work in personal vehicles or public transport
- Outsourced printing other than rate notices.

The following relevant sources are estimated to not be material and are not quantified in line with the Climate Active Carbon Neutral Standard for Organisations:

- Refrigerants from heating and cooling
- Embodied emission of equipment
- Business taxis, rental vehicles, public transport and accommodation
- Freight and couriers

| Breakdown of sources | | |
|---|---------------------------|--------------------------|
| Table 3. 2021/22 Greenhouse gas sources | | |
| Source | Activity | tCO₂-e |
| Scope 1 | | |
| Fleet vehicles – diesel | 550 (KL) | 1483 |
| Fleet vehicles – petrol | 175 (KL) | 374 |
| Gas | 11390 (GJ) | 587 |
| Oils | 1030 (L) | 2.79 |
| Scope 2 | | |
| Electricity* | 10,938,178 (kWh) | 8641 |
| Scope 3 | | |
| Fleet vehicles – diesel | 550 (KL) | 76.4 |
| Fleet vehicles – petrol | 175 (KL) | 8.7 |
| Natural Gas | 11390 (GJ) | 149 |
| Electricity * | 10,938,178 (kWh) | 766 |
| Oils | 1030 (L) | 0.14 |
| Street lighting | 1,278,998 (kWh) | 1048.78 |
| Paper ^ | 3.5 (T) | 0.6 |
| Waste to landfill | 547 (T) | 86.1 |
| Business travel - flights | 2409 (km) | 0.28 |
| Sub total | | 13,551 |
| Wastewater treatment (Scope 1) | 10644 tCO ₂ -e | 14517 |
| Total | | 28,068 |
| *Includes 383,068kWh (equivalent to 337tCO ₂ -e avoided) from solar generation used on site. ^ 2.9 tonnes of paper were NCOS carbon neutral certified paper and treated as 0 emissions (equivalent to 3.8 tCO ₂ -e avoided). Differences in total is due to rounding. | | |