



# COUNCIL CARBON AND ENERGY FOOTPRINT INFORMATION SERIES

## GREENHOUSE GAS EMISSION REPORTING – SCOPE 1, 2 AND 3 EMISSIONS

The greenhouse gases that are reported under the Australian Government National Greenhouse Gas Emissions Reporting (NGER) Scheme include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and specified kinds of hydro fluorocarbons and perfluorocarbons such as in refrigeration equipment.

For local government there is typically three gases which make significant contributions to emissions, carbon dioxide, methane and nitrous oxide. Carbon dioxide is generated from the use of fuels such as diesel, petrol and LPG. The carbon dioxide resulting from breakdown of organic materials such as green waste is not considered to contribute to net emissions as the embodied carbon originated from the atmosphere. Most of the methane and nitrous oxide emissions are from waste disposal and treatment with smaller amounts produced in the combustion of fossil fuels. Leakage of refrigerant gases from heat pumps and refrigerators contribute to emissions, however typically the amount is negligible and difficult to measure.

The various gases have different global warming potential (GWP) values, related to their properties and how they trap heat in the atmosphere. Carbon dioxide is given the value of 1 and the potential of other gases assessed relative to carbon dioxide. Methane has a GWP of 28 ie over a period of 100 years has 28 times the impact of carbon dioxide. This is the reason that methane emissions from landfills are such a significant contributor to overall emissions.

The greenhouse gas emissions from an organisation are categorised into Scope 1, 2 and 3 emissions under the Australian national reporting scheme.

Scope 1 greenhouse emissions are those emissions released to the atmosphere as a direct result of an organisation's activities and operations. For most Tasmanian councils this will be liquid and gaseous fossil fuels, such as diesel, petrol, LPG and natural gas. For some councils there may be emissions related to treatment of solid waste for example if the council operates a composting facility.

Scope 2 greenhouse gas emissions are those released to the atmosphere from the indirect consumption of an energy commodity. In Tasmania this has meant electricity, but potentially could be for other forms of energy such as hydrogen.

Scope 3 emissions are defined as those resulting from the activities of an organisation, but are generated by sources not owned or controlled by that organisation. Some examples are extraction and production of purchased materials, such as crushed rock, asphalt and concrete, water used and wastewater generated by the organisation, transportation of purchased fuels, services provided by contractors, such as waste collection services, and where employees fly on a commercial airline or travel in a taxi.

Typically organisations reporting on their greenhouse gas emissions will determine and report on their Scope 1 and 2 emissions. Some organisations will report on significant Scope 3 emissions, with the threshold of significance being at least 5% of the total Scope 1 and 2 emissions.

Some businesses such as a factory producing one type of manufactured good may have a limited number of inputs and thus be able to calculate all of their Scope 3 emissions. Local governments however provide a very wide range of services and as a result procure hundreds of different goods and services to support their operations. It is not considered to be practical or feasible for councils to calculate all of their Scope 3 emissions. It is possible for councils to determine some of their larger Scope 3 emission activities such as emissions from waste disposal and fuel use by waste collection contractors. With appropriate research significant Scope 3 emissions from other significant goods and services, such as asphalt, concrete, water use and wastewater discharged could potentially be included.

The Council Carbon and Energy Footprint Information Series has been developed as part of the Southern Councils Climate Collaboration. The Collaboration is an initiative of the Southern Tasmanian Councils Authority climate program, the Regional Climate Change Initiative. It is supporting the 12 southern councils to build capacity and capability to develop climate responses, to reduce their carbon emissions, and respond to the challenges and opportunities of a changing climate.

The Collaboration uses a common and consistent approach to work with councils to find local solutions. The approaches and resources used in the Collaboration have been developed specifically to meet the role and functions of councils and enable actions to be scaled between councils or regionally resulting in greater efficiencies and avoid duplication and maladaptive responses. The Information Series outlines key concepts, and methods, used in the preparation of Council Carbon and Energy Footprints through the Collaboration.



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