



Southland District Council

Milestone One Report

(Updated January 2009)

Communities for Climate Protection - New Zealand Programme

Executive Summary

In September 2005, Southland District Council joined the Communities for Climate Protection[®] - New Zealand (CCP-NZ) Programme, a campaign to reduce greenhouse gas emissions. CCP[®]-NZ is a New Zealand Government initiative delivered by the International Council for Local Environmental Initiatives – Australia / New Zealand (ICLEI-A/NZ).

The first stage of the CCP-NZ Programme (Milestone 1) requires participating councils to conduct an analysis and forecast of greenhouse gas emissions from two areas: Corporate (referring to council activities) and the Community (the residential, commercial and industrial sectors of the council area). An intern was employed to assist with the task during the University holidays and the work was then checked and completed by the Corporate Planning department. Civic Assurance provided financial sponsorship of \$4,000 for the employment of the Intern.

This report details the results of Milestone 1. Key findings identified from the inventory process are:

- Corporate Base Year (2005) greenhouse gas emissions were 2,924 tonnes of carbon dioxide equivalents (CO₂e). In a business as usual scenario, where no action is taken, these emissions are expected to rise by 3% by 2010.
- Community Base Year (2001) greenhouse gas emissions were 605,447 tonnes CO₂e. In a business as usual scenario, where no action is taken, these emissions are expected to rise by 17% by 2010 due to population growth.
- Key sources of greenhouse gas emissions from council's operations include Buildings, and Water and Sewerage (treatment and pumping).
- Key sources of greenhouse gas emissions from the Community analysis include the Industrial and Transport sectors.

Communities for Climate Protection[®] - New Zealand: A New Zealand Government initiative delivered by ICLEI-A/NZ. This programme is part of ICLEI's international Cities for Climate Protection[®] Programme.

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Background

CCP-NZ is a New Zealand Government initiative delivered by the International Council for Local Environmental Initiatives – Australia/ New Zealand (ICLEI-A/NZ). This programme is part of ICLEI's International Cities for Climate Protection Campaign.

CCP-NZ encourages and supports councils to reduce their greenhouse gas emissions and develop actions to foster climate change action at a local level. There are almost 1000 Councils participating in the CCP Programme around the world, including 34 New Zealand Councils.

Southland District Council joined the CCP-NZ Programme in August 2005 and committed to completing the five milestones of the Programme. These are:

- *Milestone 1:* Conduct an inventory and forecast for Community and Corporate (council) greenhouse gas emissions.
- *Milestone 2:* Establish greenhouse gas emissions reduction goals.
- *Milestone 3:* Develop and adopt a local action plan.
- *Milestone 4:* Implement the local action plan and quantify the benefits of implementing actions.
- *Milestone 5:* Monitor and report on implementation of the local action plan and progress towards achieving the reduction goal.

The milestone framework enables council to strategically identify sources and levels of greenhouse gas emissions produced from within council's operations ('Corporate') and the community. Council has completed Milestone 1 and can now use the results to prioritise actions to reduce greenhouse gas emissions that are locally relevant.

Milestone 1: Analysis and Forecast of Greenhouse Gas Emissions Results

Note: All greenhouse gas emissions are equated into a common measure of carbon dioxide equivalents (CO₂e) in tonnes (t). CO₂e is a measure of *equivalent* carbon dioxide produced from each emissions source. For example, methane is 21 times more potent than carbon dioxide in terms of global warming potential. Therefore, 1 tonne of methane is calculated to be the equivalent of 21 tonnes of CO₂, and is expressed as 21 tCO₂e.

The Corporate Emissions Analysis

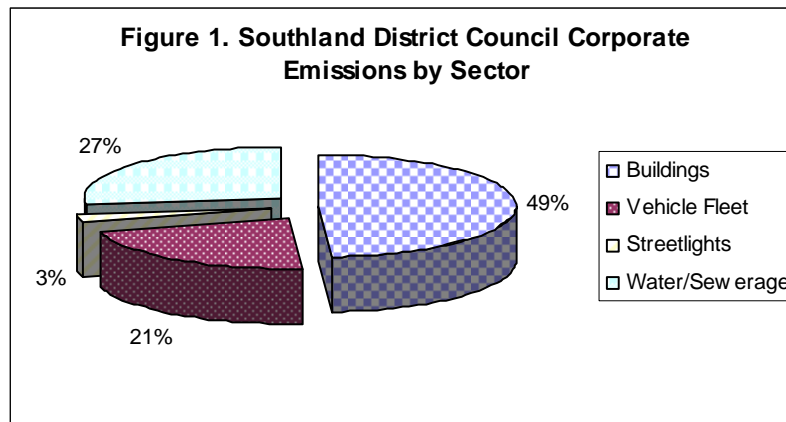
The base year selected by Southland District Council for the Corporate emissions inventory was 2005 (1 July 2005 – 30 June 2006). This base year was selected due to the availability of data necessary to complete the inventory.

The forecast year is 2010 (1 July 2010 – 30 June 2011). This is recommended by ICLEI-A/NZ and is the mid-point of the First Commitment Period of the Kyoto Protocol. The forecast calculations are based on a 'business as usual' scenario for council's operations and includes any new developments expected between the base year and the forecast year. Changes from the base year are explained in detail later in the report.

The Corporate emissions inventory is broken down into six main sectors:

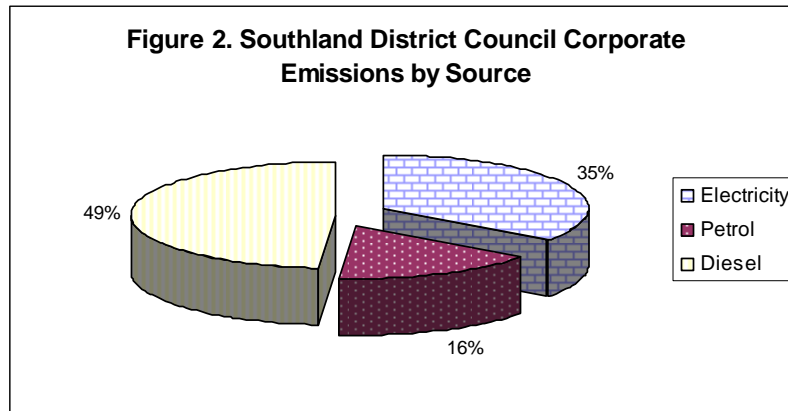
- Buildings – emissions resulting from the energy use (electricity and gas) of council owned and/or operated buildings. This sector also includes all buildings (i.e. residential properties) on Stewart Island (Because SIESA – the Stewart Island Electricity Supply Authority - is owned by Council therefore emissions from all of its power generation is to counted as corporate emissions).
- Streetlights – emissions resulting from the energy use of streetlights.
- Vehicle Fleet – emissions resulting from the energy use (petrol, diesel and LPG) of council-operated vehicles and machinery.
- Employee Commute – a non-compulsory sector which examines emissions resulting from the energy use (petrol, diesel and LPG) of Council employees travelling to and from the workplace in personal vehicles. Southland District Council did not research this sector but will include it in its action plan for Milestone 3.
- Water and Sewage – emissions resulting from the energy use (fuel and electricity) by the buildings and equipment used for pumping and treatment of water and sewage by facilities owned by council.
- Waste – emissions resulting from the breakdown of organic waste originating from corporate activities and operations (organic waste breaks down to produce methane). This sector was not included in the inventory as when collecting the data it was extremely hard to separate the waste of the buildings owned by Southland District Council and general house waste. However, Council will investigate how it can measure the amount of waste it produces and ways to reduce it in its action plan.

Figure 1. below shows the percentage of corporate emissions generated from each of these sectors during the inventory year of 1 July 2005 to 30 June 2006, excluding Employee Commute and Waste.



From the above graph it is clear that the Buildings and Water/Sewerage sectors were major sources of corporate emissions. Combined, the electricity for these sectors cost over \$1,240,400 in 2005.

Figure 2. shows the breakdown of corporate emissions by source.



The graph above clearly illustrates that diesel consumption is the primary source of corporate greenhouse gas emissions (Diesel is used to generate electricity on Stewart Island, to run some vehicles, and to heat several buildings). The annual cost associated with this supply of electricity is over \$535,700.

The Corporate Emissions Forecast

The following are some developments that have been taken into account in the forecast:

Buildings - In 2006/2007 the Southland District Council obtained a new storage building for the Winton Library and new area office in Te Anau. In 2008/2009 the toilets at Lions Park, Te Anau are programmed to be replaced. This may affect future electricity if the building is bigger and has more facilities. Council has also sold a taskforce depot in Riverton and ceased paying for electricity at the Riverton Sound Shell.

Note that in 2009 the Southland District Council is conducting an assessment of the buildings it owns; therefore new buildings may be built or sold which could affect the forecast.

Streetlights – In 2006/2007 new streetlights were installed in a Te Anau subdivision. Lights were also installed along the lakeside where a walkway has been constructed. The lights along the lakeside are 9 Watt LED bollards which are much more energy efficient than ordinary streetlights. These have been included in the forecast.

Water and Sewerage - A number of new water and sewerage scheme are planned for the future. The Wallacetown sewerage scheme was completed in 2006/2007 and is now in operation. Construction of the Tuatapere sewerage scheme was completed in 2007/2008. In Wyndham and Edendale construction of a combined water and sewerage scheme commenced in 2007/2008 with completion expected in 2010/2011. Construction on other schemes may also begin in a few years time however these are dependent on subsidy and community consultation and will not be operative until after the forecast year. These include sewerage schemes in Colac Bay and Waikaia and water schemes in Browns and Waikaia.

Figure 3. and Table 1. show the change in corporate emissions by sector for the base year compared to the forecast year.

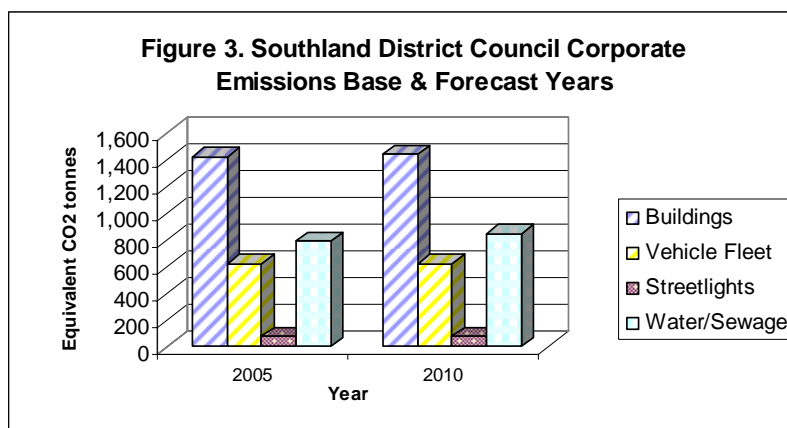


Table 1. Corporate Greenhouse Gas Emissions by Sector for Base year and Forecast year.

Sector	Year 2005 (Equivalent tCO2)	Year 2010 (Equivalent tCO2)	Percentage change from 2005 (%)
Buildings	1,428	1,449	1.5%
Streetlights	77	83	7.8%
Vehicle Fleet	626	626	0%
Waste	-	-	-
Water/sewerage	793	850	7.2%
TOTAL	2,924	3,008	2.9%

The graph and table illustrate that corporate emissions are expected to increase under a 'business as usual' scenario by 3% as a result of the changes in inventory detailed above. In 2006 the Southland District's population was 28,440 (Census 2006). This is expected to increase to 31,500 by 2016 as outlined in the Council's Long Term Council Community Plan. Despite this, corporate emissions are not expected to increase due to population growth at this stage.

The Community Emissions Analysis

The base year selected by the Southland District Council for the Community emissions inventory was 2001. The primary reason for selecting 2001 is attributable to most of the data being supplied for the Community analysis by ICLEI-A/NZ. ICLEI-A/NZ obtain the data primarily from sources such as Land Transport NZ, Statistics New Zealand and the Ministry for Economic Development who in turn base most of their research on information provided in the 2001 Census (information for the analysis is not yet available from the 2006 Census however this information is set to be released in 2008). The forecast year is again 2010.

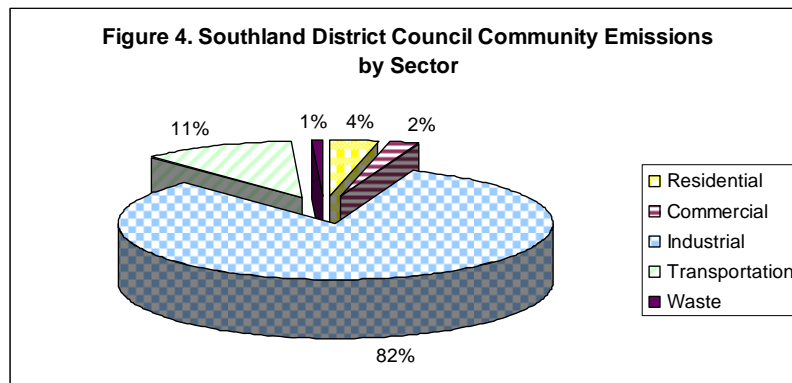
The Community analysis is divided into five sectors:

- Residential – emissions resulting from household energy use across the council district.
- Commercial – emissions resulting from commercial operations including government and institutional activity (schools, hospitals, etc.) as well as commercial and personal services (retail, finance, etc.)
- Industrial – emissions resulting from energy in local industry operations (agriculture, forestry, fishing, manufacturing, mining, construction, etc.)
- Transport – emissions resulting from energy use associated the movement of people and goods within the council district.
- Waste – emissions resulting from the breakdown of organic waste originating from the community.

The agricultural sector is not covered separately by the CCP-NZ programme at this stage as data is not currently accessible from the Ministry for the Environment. As this sector plays a predominant role in the Southland District it is hoped this data will become available in the future.

The amount of Southland District Waste going to landfill in 2005 was 6,079 tonnes. This includes Community and Corporate waste as data is not available to separate them out.

Figure 4. illustrates the percentage breakdown of Community greenhouse gas emissions from each sector.



The greatest emissions result from the Industrial sector, followed by Transport. 66% of the Community emissions were generated from electricity which translates to 400,800 tCO_{2e}.

Community Emissions Forecast

Forecast calculations are based on a 'business as usual' scenario allowing for population growth within the District and its associated effects. The population is expected to increase from 28,716 in 2001 to 30,439 in 2010. This is based on the forecast outlined in the Council's Long Term Council Community Plan (LTCCP) of the population reaching 31,500 by 2016.

Figure 5. and Table 2. show the change in community emissions by sector for the base year compared to the forecast year.

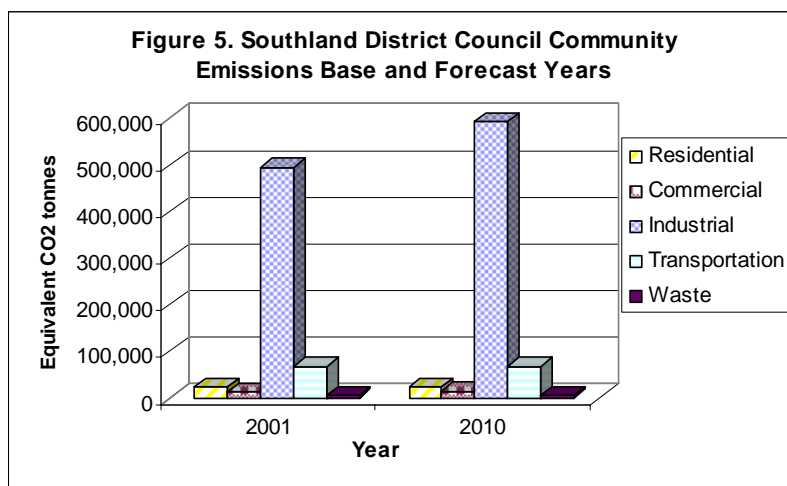


Table 2. Community Greenhouse Gas Emissions by Sector for Base year and Forecast year

Sector	Year 2001 (tCO ₂ e)	Year 2010 (tCO ₂ e)	%Change from 2001
Residential	22,655	24,504	8.2%
Commercial	12,578	14,654	16.5%
Industrial	496,403	594,924	16.6%
Transport	68,216	68,216	0%
Waste	5,595	5,930	6%
TOTAL	605,447	708,228	17.0%

Overall community emissions are expected to increase under a 'business as usual' scenario by 17%. The main areas of increasing greenhouse gas emissions are Industrial and Commercial. The overall increase can be attributed to the population growth in the District.

Next Steps

Council has now completed the requirements of Milestone 1 of the CCP-NZ Programme. The next step is to begin work on Milestone 2 which is developing goals for reducing greenhouse gas emissions. It is anticipated that work on Milestone 2 will be completed within the next 6 months. Milestone 3 then requires council to produce a local action plan for how it will work towards those goals.