

ALICE SPRINGS TOWN COUNCIL

**Local Action Plan to
Reduce Greenhouse Gas
Emissions in Alice Springs**

June 2006



Foreword

The Alice Springs Town Council acknowledges its responsibility towards sustainable development through its Strategic Plan for 2004 to 2009, and aligns itself with like-minded local governments throughout Australia and the world through ICLEI – Local Governments for Sustainability.

Since it became a member of the Cities for Climate Protection (CCP) Program of ICLEI-A/NZ in 1998, Council has steadily built up its understanding and commitment to action on this issue. It has been an enlightening process, continuing to open minds to the implications of our consumption patterns and the basic law of ecology that everything we do sooner or later impacts on everything else.

The evidences of rapidly changing climate patterns are all around us now, but there have also been many developments in technology which now enable us to opt for cleaner energy and operations. Reducing greenhouse gases is in fact a winning move for more reasons than one. Changing our ways of doing things not only helps to minimize the potential impacts of climate change but also earns us savings and reduces our reliance on costly and finite resources.

This local action plan has been completed through the work of staff, directors and consultants, and the guidance of CCP over the past many months. Council members/Aldermen have endorsed the report as a working document which will guide concrete actions and programs in the coming years.

The actions listed here are by no means final but will be used as a framework for Council's continued commitment to address the growing concern of climate change and global warming.

On behalf of all who have contributed to the preparation of this document, I proudly present the Local Action Plan to Reduce Greenhouse Gas Emissions in Alice Springs.

Fran Kilgariff
Mayor
June 2006

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Abbreviations

(See also Glossary of Terms, Appendix 6)

ABS	Australian Bureau of Statistics
ABARE	Australian Bureau of Agriculture Research Economics
AGO	Australian Greenhouse Office
ALEC	Arid Lands Environment Centre
ANZSIC	Australia and New Zealand Standard Industry Classification
ASTC	Alice Springs Town Council
CCP	Cities for Climate Protection
CO ₂	Carbon Dioxide
eCO ₂	Carbon Dioxide emissions
CFC's	Chlorofluorocarbons.
CRC	Cooperative Research Centre
CSAT	Centre for Sustainable Arid Towns
CSIRO	Commonwealth Scientific and Industrial Research Organisation
eCO ₂	Carbon dioxide equivalent
DBIRD	Department of Business, Industry and Resource Development
DKA	Desert Knowledge Australia
DNRETA	Department of Natural Resources Environment and the Arts
ESD	Ecologically Sustainable Development
GWP	Global Warming Potential.
ICLEI	International Council for Local Environmental Initiatives - Local Governments for Sustainability
LAP	Local action plan
LPG	Liquid Petroleum Gas
IPCC	Intergovernmental Panel on Climate Change.
CH ₄	Methane
mm	millimetres
Mt	Million tonnes
NGGI	National Greenhouse Gas Inventory.
NGRS	National Greenhouse Response Strategy
NGS	National Greenhouse Strategy
N ₂ O	Nitrous Oxide.
NT	Northern Territory
NPI	National Pollution Index
O ₂	Ozone
PW	PowerWater
REF	Revolving Energy Fund
SLS	Smart Living Showroom
UNFCCC	The United Nations Framework Convention on Climate Change

Executive Summary

Greenhouse gases are gases that trap heat within the earth's surface in much the same way as glass from a garden greenhouse keeps plants nice and warm. The *greenhouse effect*, as it is known, is a natural phenomenon, but human activities have drastically increased the amount of greenhouse gases in the atmosphere, warming up the planet at an unprecedented rate and causing climate change across the globe. The negative scenarios are dismal: more intense drought and typhoons, flooding from rising sea levels, large-scale losses in biodiversity and economic productivity.

All sectors at all levels have been called upon to do their share to minimize and mitigate these impacts. The Alice Springs Town Council is part of a worldwide network of efforts as a member of the Cities for Climate Protection (CCP) Program of ICLEI-Local Governments for Sustainability. In Australia and New Zealand the Program is funded by the Australian Greenhouse Office (AGO), part of the Department of the Environment and Heritage.

To date, Council has completed the first two of five Milestones set by the CCP. Milestone 1 involved an inventory of greenhouse gas emissions in the base year of 1996, as well as a forecast of expected emissions in 2010. This was completed in 2001. Milestone 2 involved the setting of reduction goals, which Council set as 20% of 1996 levels by 2010. This was completed in 2002.

Milestone 3, which this report represents, requires Council to come up with a Local Action Plan to reduce greenhouse gas emissions to the level of the reduction goal by 2010. The report puts together a number of Council's commitments to action, highlights of which include the following:

CORPORATE (Council's Operations)

- Energy efficiency and lighting retrofit programs for Council buildings
- Further improvements in energy efficiency of Council streetlights
- Research into energy-efficient technology and alternative fuel use in Council Vehicles.
- Reduction of water consumption in Council parks
- Waste reduction initiatives for Council's operations

COMMUNITY

- Investigate a range of initiatives to encourage energy efficiency in households commercial/ industrial establishments, including energy-efficiency seminars and workshops, a 'one-stop' shop to provide information and support, energy audits and cost-benefit assessments for high energy use businesses
- Promote alternatives to motor vehicle transport such as the cycleway network and bus service and investigate how the public bus service could be improved to encourage private vehicle users to take public transport
- Undertake a cost-effective assessment of landfill management options
-

Set up a special section in the Library for references on Climate Change, Greenhouse Gases and Energy Efficiency

Council will then work on the implementation of this Local Action Plan, which constitutes Milestone 4, and Monitoring and Reporting, which constitutes Milestone 5.

1 Background

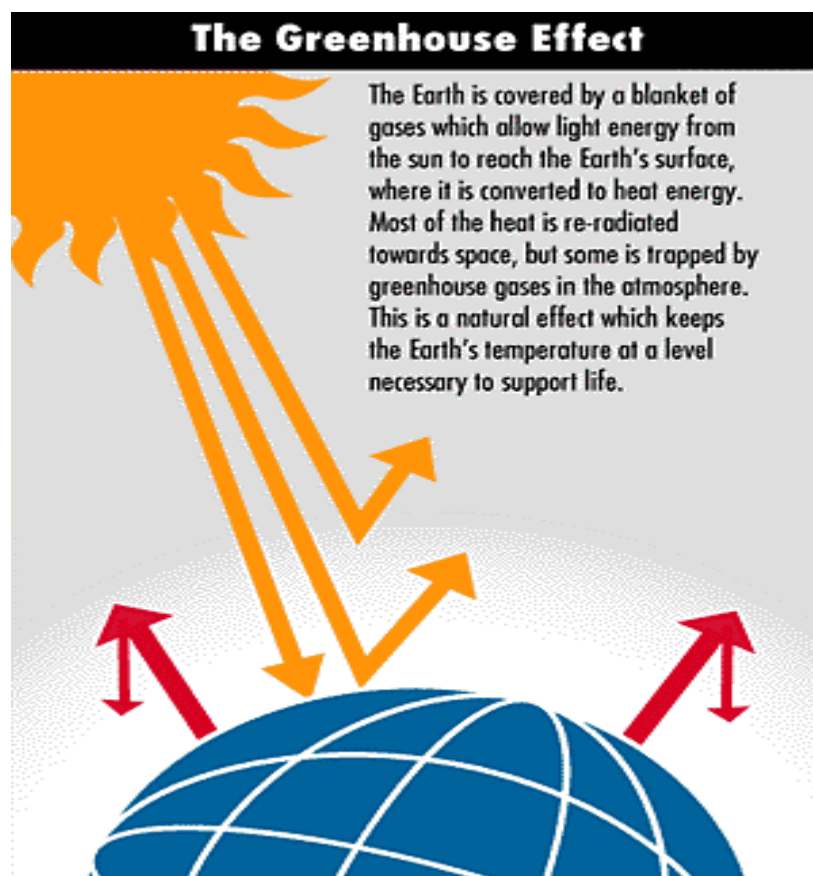
1.1 What are Greenhouse Gases?

Greenhouse gases are gases that trap heat within the earth's surface in much the same way as glass from a garden greenhouse allows light to enter and keeps plants nice and warm. Water vapour (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄), and ozone (O₃) are the primary greenhouse gases in the Earth's atmosphere.

1.2 What is the Greenhouse Effect?

The natural greenhouse effect is a phenomenon created by the heat energy radiated by the sun and greenhouse gases normally present in the atmosphere. Sunlight passes through the atmosphere, warming the Earth. In turn, the Earth radiates this energy back towards space. As it passes through the atmosphere, greenhouse gases absorb part of the heat, while the remainder escapes into space. This means that some of the sun's energy becomes trapped – making the lower part of the atmosphere, and Earth, warmer.ⁱ

Figure 1. The Greenhouse Effectⁱⁱ



The enhanced greenhouse effect results from an increase in the natural process of the greenhouse effect, brought about by human activities. This occurs because greenhouse gases such as carbon dioxide, methane, chlorofluorocarbons and nitrous oxide are being released into the atmosphere at a far greater rate than would occur through natural processes.ⁱⁱⁱ

Figure 2. The Enhanced Greenhouse Effect^{iv}



1.3 What is causing the increase in Greenhouse Gases?

The enhanced greenhouse effect is caused by both human activities and natural processes. There is general scientific agreement that human activities are causing changes in climatic patterns, but there is also still debate over the extent these changes differ from climatic patterns.

In the Northern Territory, the main source of greenhouse gas emissions is from the agriculture sector (64%), but this is principally as a result of burning in savannah areas. The production and use of electricity also contributes significantly (23%), followed by emissions in the transport sector (8%) from burning fossil fuels.^v

1.4 What are the potential impacts of the Enhanced Greenhouse Effect?

1.4.1 Global Effects^{vi}

Over the past century, global temperatures have increased by an average of 0.6°C and sea levels have risen 10 - 25 centimeters. It is very likely that the 1990s was the warmest decade, and 1998 the warmest year on record (1861–2000). Changes in temperature have not been the same everywhere, but have varied across regions.

There has also been a 5–10% increase in rainfall and precipitation in some areas, while the frequency and severity of drought has increased in other areas, such as parts of Asia and Africa. For more details of atmospheric and climatic changes in the past century see Appendix 1. The table below lists some of the most severe changes in the environment during the 20th century.

Table 1. 20th century changes in the Earth's atmosphere, climate, and biophysical system^{vii}

Indicator	Observed Changes
BIOLOGICAL AND PHYSICAL INDICATORS	
Global mean sea level	Increased by an average annual rate of 1 to 2 mm
Duration of ice cover of rivers and lakes	Decreased by about 2 weeks in mid-and high latitudes of the Northern Hemisphere
Arctic sea-ice extent and thickness	Thinned by 40% in recent decades and decreased by 10–15% since the 1950s in spring and summer.
Non-polar glaciers	Widespread retreat
Snow cover	Decreased in area by 10% since the 1960s
Permafrost	Thawed, warmed, and degraded in parts of the polar, sub-polar, and mountainous regions
El Niño events	Became more frequent, persistent, and intense during the last 20 to 30 years compared to the previous 100 years
Growing season	Lengthened by about 1 to 4 days per decade during the last 40 years in the Northern Hemisphere, especially at higher latitudes
Plant and animal ranges	Shifted towards the poles and up in elevation for plants, insects, birds, and fish.
Breeding, flowering, and migration	Earlier plant flowering, earlier bird arrival, earlier dates of breeding season, and earlier emergence of insects in the Northern Hemisphere
Coral reef bleaching	Increased frequency, especially during El Niño events.
ECONOMIC INDICATORS	
Weather-related economic losses	Global losses rose 10 times over the last 40 years.

Predictions of the possible effects of climate change for the next 100 years were most recently identified by the Third Assessment of the Intergovernmental Panel on Climate Change (IPCC). In general, the IPCC expects carbon dioxide concentrations, global surface temperatures, and sea level to increase under all scenarios during the 21st century.

Projections using a range of climate models have resulted in an increase in average global surface temperature of 1.4°C to 5.8°C over the period 1990 to 2100. This is about two to ten times larger than the observed warming over the 20th century, and the projected rate of warming is very likely to be without precedent during at least the last 10,000 years.

Table 2: Projected effects of Climate change in the 21st Century

Increased annual precipitation
Widespread glacial retreat
Global mean sea level to rise by 0.09m to 0.88m before 2100
Increased threats to human health, particularly in lower income populations, predominantly within tropical/subtropical countries
Increased risk of extinction of some vulnerable species
More water shortages in many water-scarce areas of the world
Negative changes in gross domestic product (GDP) for many developing countries
Populations on small islands and/or low-lying coastal areas will be affected by severe social and economic effects from sea-level rise and storm surges
Changes in frequency, intensity, and duration of extreme events, such as more hot days, heat waves, heavy precipitation events, and fewer cold days

Table 2 lists some of the major projected effects as a result of climate change in the 21st century. Climate change will have beneficial and adverse effects on both environment and society, but the larger the changes and rate of change in climate, the more the adverse effects will dominate.

Some of the projected changes in physical systems and in the natural sources and sinks of greenhouse gases could be irreversible, but at the moment there is not enough understanding of some of the underlying processes to be completely sure.

1.4.2 National Effects

The average surface temperature of Australia has increased by 0.7°C over the past century. This warming has been accompanied by a decrease in regional precipitation (or rainfall), particularly along the east and west coasts of Australia. The frequency of extremely warm days and nights has increased while that of extremely cool days and nights has decreased. These changes seem small but have already had widespread consequences for Australia.^{viii}

Future climatic conditions in Australia have been predicted by the CSIRO (Commonwealth Science and Innovation Research Organisation) using global climate model simulations. These predictions include the following:

- an increase in average annual temperature of 1-6°C by 2070 over most of Australia
- an increase in the average number of extreme hot days and decrease in the average number of extreme cold days
- a decrease in annual average rainfall in the south-west and in parts of the south-east and in Queensland
- an overall drying trend for Australia due to increased temperatures and evaporation and changes in rainfall
- an increase in maximum wind speed of tropical cyclones of 5-10% in some parts of the globe by 2100 and increase in precipitation rates by 20-30%.^{ix}

Unfortunately, even if all GHG emissions ceased today, the Earth would still be committed to an additional 'warming' of 0.2–1.0° C by 2100.^x

1.4.3 Territory and Local Effects^{xi}

The Northern Territory has become wetter. From 1900-2002, the Territory-average rainfall rose 14.2 mm per decade during November to April and 2.5 mm per decade during May to October. However, since 1950, Territory-average rainfall has risen 35.7 mm per decade during November to April and fallen 0.4 mm per decade in May to October. This was mainly due to extremely wet conditions in the mid-1970s and 1999-2000. Since 1910, the intensity of heavy daily rainfall events has risen 10%, (mainly due to increases after 1970 during March to August).

The Northern Territory is expected to warm 0.2°C to 2.2°C by 2030, and 0.8°C to 7.2°C by 2070 (relative to 1990 temperatures). Wet-season rainfall (Nov-Apr) and dry-season rainfall (May-Oct) are both expected to decrease by 2030. Alice Springs should expect drier conditions in the future, especially from July to October, and a small decline in rainfall during November and December suggesting a slight delay to the start of its wet-season.

Changes in average temperature will affect climate in extremes. The average warming of 0.8°C in Australia since 1950 has already been associated with an increase in hot days and hot nights and a decrease in cold days and cold nights. The continued growth in the intensity and frequency of hot days is likely to increase fire risk, energy demand for air-conditioning, and heat stress to humans, animals and crops. Transport infrastructure may be affected by more frequent buckling of railway lines and melting of road tar. The intensity of tropical cyclones is likely to continue to increase due to greenhouse warming, but changes in cyclone frequency are uncertain. The combination of sea level rise, stronger wind speeds and more intense rainfall may lead to more significant coastal impacts due to tropical cyclones.

1.5 The International Response to Climate Change^{xii}

1.5.1 The Intergovernmental Panel on Climate Change (IPCC)

The World Meteorological Organisation (WMO) and the United Nations Environment Program (UNEP) established the Intergovernmental Panel on Climate Change (IPCC) in 1988. The IPCC was tasked to assess the scientific, technical, social and economic impacts of human-induced climate change from published literature. The IPCC's most recent climate change assessment was completed in 2001 and was the third assessment so far undertaken.

1.5.2 The United Nations Framework Convention on Climate Change (UNFCCC)

The United Nations Framework Convention on Climate Change (UNFCCC) provides the basis for global action "to protect the climate system for present and future generations". It was negotiated between 1990 and 1992, and the UNFCCC was opened for signatures at the United Nations Conference on Environment and Development in Rio de Janeiro, Brazil in June 1992.

Australia ratified the Convention in December 1992 – one of the first countries to do so. The Convention entered into force in 1994 after a requisite 50 countries had ratified it. There are now 186 Parties to the UNFCCC – almost all of the members of the United Nations. Parties to the Convention have agreed to work towards achieving the Convention's ultimate aim of stabilising "greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system".

1.5.3 The Kyoto Protocol

The Kyoto Protocol is an international treaty based on the UNFCCC. It contains legally binding commitments. It was adopted in Kyoto, Japan in 1997 during the third session of the Conference of the Parties to the UNFCCC. Most countries in the Organisation for Economic Cooperation and Development, and countries with economies in transition agreed to reduce their human-made greenhouse gas emissions by at least 5% below 1990 levels in the commitment period 2008 to 2012.

Australia signed the Kyoto Protocol in 1997 but has not ratified it. By signing the Protocol, countries agree to continue with the treaty-making process, but without ratification, they do not consent to be bound by the Protocol. The rules for implementing the Protocol were developed following COP 3, with negotiation concluded at COP 7 in Marrakech, November 2001. The Australian government has decided not to ratify the Kyoto Protocol because it believes that while the Protocol has some positive elements, it does not provide a comprehensive or environmentally effective long-term response to climate change.

1.6 The Australian Response to Greenhouse^{xiii}

The Government is committed to Australia's internationally agreed target of limiting emissions to 108% of 1990 levels between 2008 and 2012. Australia is on track to meet this target, as a result of a number of policy responses by the Government, including:

- National Greenhouse Response Strategy (NGRS), endorsed in 1992
- 'Greenhouse 21C' a statement made in 1995 announcing additional greenhouse measures
- 'Safeguarding the Future: Australia's Response to Climate Change' a statement made by the Prime Minister in November 1997
- National Greenhouse Strategy (NGS), released in 1998
- Establishment of the Australian Greenhouse Office
- Progress reports to the Conference of Parties
- Involvement in the Asia Pacific Pact
- A domestic climate change program of around \$1.8 billion.
- National Climate Change Adaptation Programme, released in 2004

These responses include measures to reduce Australia's greenhouse gas emissions by encouraging low emissions technology, energy efficiency, renewable energy, and supporting local government communities and individual households to identify practical ways to reduce their emissions.

1.7 The Northern Territory Response^{xiv}

The Northern Territory government has recently released 'The Northern Territory Strategy for Greenhouse Action – 2006'. The Strategy contains a comprehensive range of actions to reduce greenhouse gas emissions in the Territory and respond to the impacts of climate change. The following objectives underwrite the Strategy:

1. Provide leadership to the community through Government leading by example.
2. Manage savannah burning, the single largest contributor to NT emissions.
3. Minimise emissions from agriculture and land use changes and encourage the enhancement of carbon sinks.
4. Improve management of transport and urban land use to reduce emissions.
5. Minimise emissions from the supply and use of electricity.
6. Minimise emissions from industry and waste.
7. Support efforts to increase our understanding of likely climate change and the actions needed to prepare for adaptation to the change in climate.

1.8 The Local Government Response

In early 1993, the local government association International Council for Local Environmental Initiatives (ICLEI) initiated the Cities for Climate Protection (CCP) Program in recognition that local governments directly influence and in some cases,

control, many of the activities that produce significant greenhouse gas emissions.

In Australia, the program is delivered by ICLEI – Local Governments for Sustainability in collaboration with the Department of Environment and Heritage through the Australian Greenhouse Office (AGO). The CCP Program continues to be recognised as the primary climate change program for local government in Australia, with strong partnerships between a range of local, state and national organisations.

On a worldwide basis there are nearly 700 councils participating in the CCP Campaign. In Australia, 214 councils covering over 80% of the population are participants, three of which are in the Northern Territory.

2 Alice Springs Town Council Involvement in CCP

The Alice Springs Town Council resolved to join the CCP Program in 1998, committing itself to address global warming and formulate a coordinated and strategic response to factors that contribute to greenhouse gas emissions in Alice Springs.

In joining the CCP Program, Council agreed to accomplish five milestones, outlined in Table 3 below. Each milestone has an internal corporate component and a community component. The corporate sector refers to Council’s properties and internal operations while the community sector refers to the residential, commercial and industrial components of the Alice Springs area.

Milestone 1 was completed with the assistance of Cactus NT, a consultancy group which finished the report in 2001. Milestone 2 was achieved when Council resolved to adopt an emissions reduction goal. Both Milestones were recognized by the CCP in November 2001.

Table 3. Alice Springs Town Council’s CCP Milestones

MILESTONE	ACTION	DATE
Political Declaration	Political commitment to join the Program	1998
Milestone 1	An inventory and forecast for Corporate and Community emissions.	Completed October 2001
Milestone 2	Establishment of an emissions reduction goal.	November 2001 (ASTC Council Decision GE 1814 ecd 307/01)
Milestone 3	Development and adoption of a Local Action Plan (LAP) towards achieving the reduction goal.	Draft LAP completed June 2006
Milestone 4	Implementation of the Local Action Plan	Expected date July 2006
Milestone 5	Monitoring and reporting on implementation of Local Action Plan	Expected Date June 2007 - 2009

Preparations for the Local Action Plan were revived in 2005 by contracting the Centre for Sustainable Arid Towns (CSAT) to prepare a draft Community Sector Strategy. This was finished in August 2005. In December 2005, in the absence of an Environment Officer, the Community Development Officer was appointed to initiate work on the Local Action Plan on a temporary capacity in coordination with the CCP.

Internal meetings were held with staff and directors to draw up actions and review Council's existing energy audits and reports. In April 2006 a Council staff Workshop was facilitated by CCP representatives to list down existing and proposed strategies for Corporate actions (see Appendix 2). Soon after this an Energy Efficiency Committee was created composed of key staff members, to work out further details.

Section 5 of this report contains the strategies generated from the above process for the corporate and community sectors. The general timetable for implementation, monitoring and reporting of the Local Action Plan is outlined in Section 5.3.

Upon completion of Milestone 5 leading Councils are eligible to join CCP Plus, a CCP initiative aimed at deepening, strengthening and accelerating greenhouse action.

3 Alice Springs Greenhouse Gas Emissions

In 2001, Council completed an inventory of its corporate and community emissions (Cactus NT, 2001). The base year selected by the Council was the financial year 1996-1997, due to the availability of data necessary for the completion of the inventory. The forecast year is 2010. This is also the year for which the Australian Government has set its own target under the Kyoto Protocol.

Emissions are quantified in tonnes of carbon dioxide equivalent (eCO₂). Carbon dioxide is the principal and most well-studied anthropogenic or human-made greenhouse gas; therefore it is useful as a reference when determining the potency of other emissions.

It is worth noting that the calculations of greenhouse gas emissions for the forecast year are estimates only, calculated using the data available during completion of the Milestone 1 Report and may change when Council implements and quantifies them at Milestone 4.

3.1 Corporate Greenhouse Gas Emissions

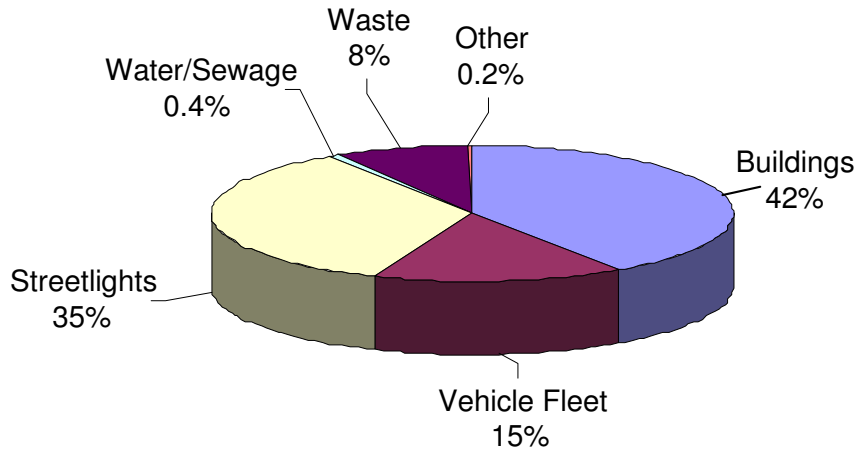
Corporate emissions generated from the inventory for the baseline year of 1996 were separated into six sectors.

- Buildings – emissions resulting from the energy use (electricity and gas) of Council buildings
- Streetlights – emissions resulting from the energy use (electricity) of streetlights
- Vehicle Fleet – emissions resulting from the energy use (unleaded petrol and diesel) of Council-operated vehicles and machinery
- Water Pumping – emissions resulting from the energy use (electricity) for water pumping on council-owned and managed reserves, parks and gardens
- Waste – emissions resulting from the breakdown of waste originating from corporate activities (organic waste breaks down to produce methane, which is a greenhouse gas)
- Others – activities not categorized under any of the above

In 1996, based on the Milestone 1 Report, the greatest contributor to greenhouse gases was the buildings sector (42%), followed by streetlights (35%) and vehicles (15%) (Figure 3). Emissions produced as a result of waste accounted for 8% of the total, with water, sewage and other sources accounting for the remaining 0.6%.

Figure 3.

**Corporate Greenhouse Gas Emissions
by Sector, 1996**



What are the sources of these emissions? Electricity represents the most substantial source of emissions within the Council’s operations (82%), with diesel fuel accounting for almost all of the remainder (15%). Within the building and streetlight sectors, almost all of the emissions can be attributed to electricity use, while within the vehicle fleet, energy use was entirely a result of diesel and unleaded fuel use.

Figure 4.

Sources of Corporate Greenhouse Gas Emissions, 1996

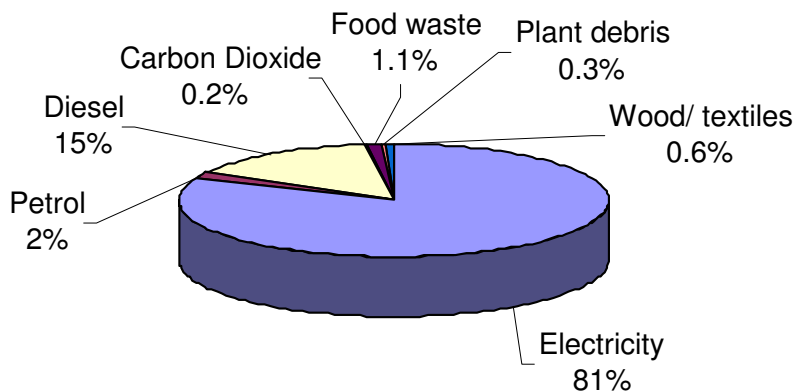


Table 4 compares the base and forecast emissions for the Council’s operations. In 1996, total corporate emissions were 2,510 eCO₂ tonnes. Corporate emissions are expected to increase under a ‘business-as-usual scenario’, that is, if nothing were to change. This is particularly for buildings, vehicle fleet and streetlights. In the forecast year (2010), streetlight operation is projected to be the highest corporate emissions sector, 1,675 eCO₂ tonnes (43%), with the building sector close behind with 1,503 eCO₂ tonnes (39%).

Table 4. Council base and forecast year emissions comparison^{xv}

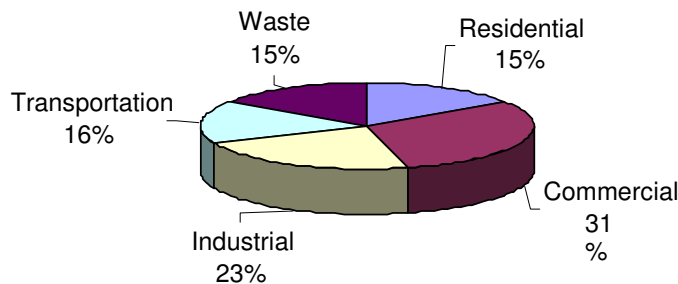
Sector	Base Year 1996 (eCO ₂ Tonnes)	Forecast Year 2010 (eCO ₂ Tonnes)
Buildings	1,017	1,503
Streetlights	876	1,675
Vehicle Fleet	388	438
Water	10	16
Waste	213	240
Other	5	6
TOTAL	2,510	3,878

3.2 Community Greenhouse Gas Emissions

Community emissions for the baseline year of 1996 were separated into five sectors – residential, commercial, industrial, transportation and waste. As shown in Figure 5, the greatest contribution to greenhouse gases comes from the commercial sector (31%), followed by the industrial sector (23%). The transportation, waste and residential sectors all share equal proportions of the remainder of emissions in Alice Springs.

Figure 5.

Community Greenhouse Gas Emissions by Sector, 1996



Within the commercial, industrial and residential sectors, the majority of emissions can be attributed to electricity use (75%). Within the transportation sector, energy use is largely due to petrol consumption (71%), with diesel (23%) and LPG (6%) representing the remainder. Waste emissions are as a result of paper products (44%), food waste (33%) and plant debris (23%).

The overall sources of emissions are shown in Figure 6. Electricity represents the most substantial source of emissions within the community sector (62%), with petrol (11%), diesel (8%) and paper products (7%) representing much of the remainder.

Figure 6.

Sources of Community Greenhouse Gas Emissions, 1996

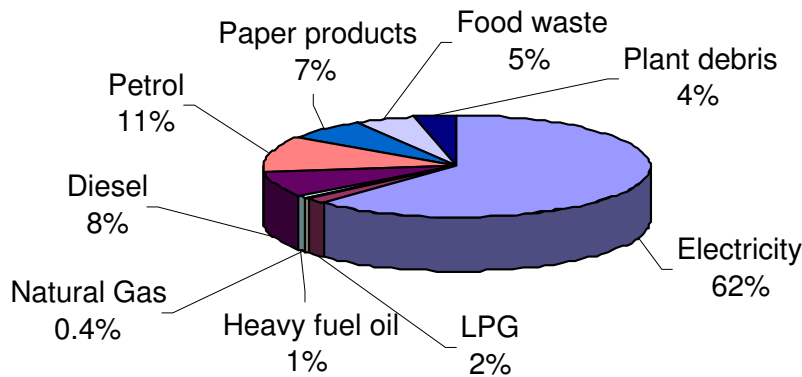


Table 5 compares the base and forecast emissions for the Alice Springs community. In 1996, total community emissions were 325,375 eCO₂ tonnes. Total emissions are expected to increase markedly under a 'business as usual scenario' particularly for the commercial, industrial and residential sectors.

Table 5: Community base and forecast year emissions comparison^{xvii}

Sector	Base Year 1996 (eCO ₂ Tonnes)	Forecast Year 2010 (eCO ₂ Tonnes)
Residential	49,642	62,635
Commercial	100,355	177,798
Industrial	73,671	87,445
Transportation	51,680	63,147
Waste	50,027	62,975
TOTAL	325,375	454,000

In the forecast year (2010), the commercial sector is expected to produce the highest emissions within the community sector, with 177,798 eCO₂ tonnes (39%). The industrial sector is close behind with 87,445 eCO₂ tonnes (19%). Within the industrial, commercial and residential sectors, electricity is the major source of emissions, while diesel use within the transportation and industrial sectors is a significant and growing secondary source of forecast emissions.

4 Greenhouse Gas Emissions Reduction Goal

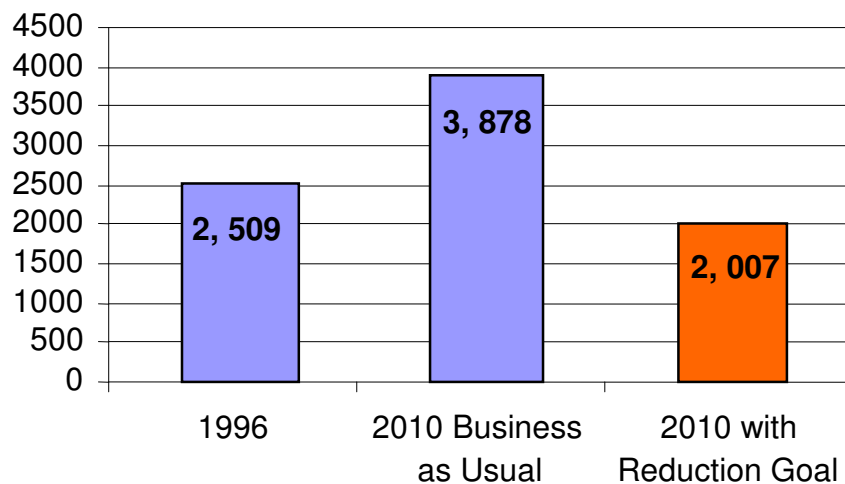
In 2001, the Council resolved to adopt a greenhouse gas emission reduction goal of **20% below 1996 emission levels by 2010**, for emissions from both corporate and community sources.

This goal was adopted to align with the goals of other progressive Councils throughout Australia. The resolution was proposed to Council and adopted in November 12, 2001.

Using the baseline and forecast emissions estimated in 2001, a 20% greenhouse gas emission reduction goal means that the Council hopes to reduce emissions in the corporate sector by 502 tonnes from the 1996 levels, to a target of 2,007 tonnes in 2010.

Figure 7: Council's Corporate Reduction Goal

Equivalent CO2 tonnes

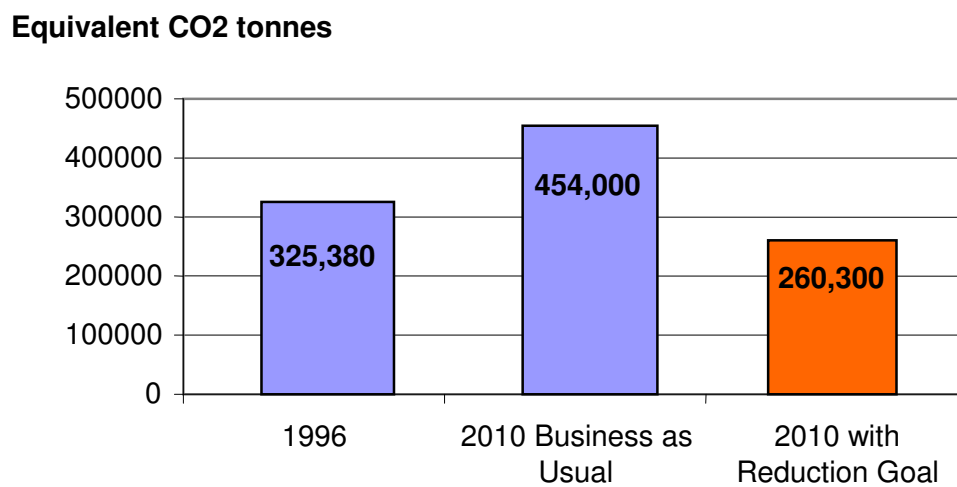


In the community sector, a 20% reduction goal means that Council hopes for a 65,080 tonne decrease in emissions on the 1996 levels. This represents a target of 260,300 tonnes.

Figures 7 and 8 illustrate these goals for the corporate and community sectors respectively.

While these goals serve as useful targets which Council will strive to work for, these figures remain flexible and not necessarily binding, given that they are based mainly on estimates and many variables have since changed and are likely to change further through time.

Figure 8.
Council's Community Reduction Goal



5 Greenhouse Gas Reduction Strategy

In order to achieve Milestone 3 in the CCP Program, Council is required to develop a greenhouse strategy outlining current and proposed actions that will assist Alice Springs to meet the 20% reduction goal from both corporate and community sources.

This section lists strategies that Council will undertake to reduce greenhouse gas emissions. These are not fixed and final, but are actions which build on Council's greenhouse work to date and add a range of new and innovative measures. These actions also complement Council's other initiatives towards building a sustainable future for Alice Springs.

The priority areas for action which have been identified are electricity consumption from buildings and streetlights in the Council's own operations and electricity consumption in the industrial and commercial sectors within the Alice Springs community.

The process of examining and implementing details of these strategies is discussed in Section 5.3. As an aid to implementation, Appendix 3 lists some examples of similar actions undertaken by other CCP Council along with the expected or actual costs and savings that resulted.

5.1 Corporate measures

5.1.1 Buildings

Council owns or manages buildings associated with the Library, Civic Centre, Administration, Council Depot, toilet blocks in the Todd Mall, as well as buildings in Rhonda Diano Park, Jim McConville Park and Traeger Park.

Building operations represented 42% of emissions (mostly attributed to electricity consumption) in the base year of 1996. To predict energy use for the forecast year of 2010, only planned building works (from 2001 plans) for the foreseeable future and the expected operational costs of the new buildings, wings and lighting were taken into account, but not the costs of construction.

However, these planned building works only included the construction of a new storage shed at the Civic Centre, not the resulting large scale renovations and extensions that have recently been completed. This upgrade of the Council offices and Civic Centre will need to be taken into account when undertaking Milestone 4 and 5 of the CCP Program.

Energy costs incurred by Council from the Araluen Arts Centre were considered in the original calculations for the base year but not in the forecast year because the Council no longer manages energy use at the Centre.

The building sector is expected to contribute 39% of emissions by the forecast year of 2010, with very high associated expenditure

5.1.1 a Existing measures

Civic Centre Upgrade

The Council has recently completed an upgrade of its Civic Centre and Council offices. The new building design maximises natural ventilation and lighting, has an energy efficient air conditioning system and also features automatic lighting.

As part of the upgrade, the Council committed to a building design with a 5 star Green Star Energy rating through the Green Building Council of Australia's environmental rating tool for commercial office buildings. This decision was made because the Council wanted to lead by example in using sustainable green energy saving features. The building is nearing completion to date and the Council is currently applying for a final evaluation of the 5 star rating, which is Australian Best Practice. The rating tool takes into account a range of criteria, including energy and water efficiency, indoor environmental quality and resource conservation. Only 8 buildings in Australia are currently rated 5 stars.

Energy Audits of Council's Civic Centre, Library and Depot

Audits of the Civic Centre, library and depot buildings were undertaken in October 2003 by external consultants (CSAT and Sustainable Focus, 2003a,b,c). These energy audits identified a number of proposed measures to reduce energy consumption in the buildings, and the recommendations form a number of the proposed measures for the depot (see below). Some of the actions suggested for the library have not yet been undertaken but will be incorporated into the renovations for the library building which are planned within the next 3 years. In addition, a number of the recommendations made as a result of the 2003 Energy Audit of the Civic Centre are no longer applicable as a result of the Civic Centre upgrade, but the energy efficiency concepts were very much incorporated into the design of the new Civic Centre building.

Green Purchasing

Council has a replacement policy for flat, LCD computer screens, when the older radon tube screens have reached the end of their life. Flat LCD screens use a third of the power of the older radon tubes. Council has shifted to the practice of purchasing recycled paper for its operations. Council also has a replacement policy to install more efficient compact fluorescent or halogen down lights wherever possible.

Energy Efficient Behaviour

Staff are encouraged to shut down all computers and lights at night. This has been also been aided by the installation of automatic lighting in the new Civic Centre building.

Retrofits

The air conditioner in the library was fitted in 2004 with a bio oxygen system. This system was installed to prevent the premature upgrade of the library air conditioner system.

5.1.1 b Future Actions

- Undertake further Energy Audits in Council buildings
- Investigate potentials of purchasing Greenpower (See Annex 7) to address the high proportion of council emissions that go to electricity.
- Undertake delamping where over lighting occurs
- Enable power management on computers in the current Library building
- Install lighting timers and undertake lighting retrofits wherever possible
- Install timers on air conditioners, hot water boilers and heaters throughout Council buildings
- Ensure “power save” is enabled on all office equipment and maintain policy of shut down after hours
- Pursue the implementation of the major recommendations from the 2003 Energy Audit in the renovations for the Library building
- Implement the following actions from the 2003 Depot Energy Audit
 - Install 365 day timer in main air conditioning unit
 - Implement a policy to ensure that the depot demountable reverse cycle air conditioner is only used when necessary
 - Install external shading and insulation
 - Delamp overlie areas in the depot
 - Remove energy inefficient soft drink vending machine

5.1.2 Public Lighting

Council has responsibility for operational energy costs associated with street lighting in Alice Springs, except highway streetlights. Power and Water NT actually owns the streetlights and is responsible for installation and maintenance. All public lighting is operated by Power and Water NT except for parks and ovals. All lighting in non-sport parks, such as Frank McEllister Park, is charged to the Council under streetlight invoices from Power and Water NT rather than by lot number. This prevents Council identifying energy consumption of streetlights on a per lot basis. Council also pays for lighting associated with monument lighting such as Anzac Hill, car parks, Todd Street mall lighting and sports oval lighting.

The number of streetlights identified by Power and Water NT in 2001 was 2,919. The different lamps associated with these lights are detailed in Table 6 below. This data was only presented at the completion of the Milestone 1 report, and represents a significant improvement on the mercury and incandescent streetlight globes that Power and Water NT gradually replaced in the few years prior to 2001.

Table 6. Number and types of streetlights in Alice Springs, October 2001

Type of lamp	Number of lights
70 Watt HP Sodium	2,158
150 Watt HP Sodium	452
250 Watt HP Sodium	305

400 Watt HP Sodium	4
TOTAL	2,919

In the base year, streetlight operation was the most expensive of all Council's operations and also contributed 35% to Council's corporate emissions.

Predicted energy use for the forecast year of 2010 was calculated using the following assumptions:

- That there will be no new major suburbs or subdivisions before the forecast year.
- That estimated total electricity consumption is expected to increase at the rate of population growth (i.e. 12.84%).
- That council no longer has responsibility for street lighting at Araluen Centre for Arts and Entertainment.

In the forecast year (2010), under a business-as-usual scenario, streetlight operation will be 43% of all corporate emissions. Based on the Milestone 1 Report, the primary reason for the increased emissions in the streetlight sector is due to proposed capital works, particularly lighting upgrades at Traeger Park that will increase energy consumption of that property by five times.

5.1.2 a Existing measures

- Gradual replacement of all mercury and incandescent streetlight globes by more efficient High Pressure Sodium globes.

5.1.2 b Future Action

- Council will work with Power and Water (the energy provider) to improve energy efficiency and ongoing costs of street lighting. This may include reducing the wattage on streetlights, investigating the cost of lighting in sports ovals and considering other alternatives such as solar powered street lighting in Council parks. Council shall particularly look into the purchase of Greenpower to maximize CO₂ savings. (See Annex 7).

5.1.3 Vehicle Fleet

Council owns 96 *vehicles* and trailers in its vehicle fleet. These vehicles are used for a range of purposes including travel by Councillors and staff, road work, landscaping, gardening, waste management, street sweeping and landfill operations.

Greenhouse gas emissions from the vehicle fleet in 1996 (the base year) were calculated to be 388 eCO₂ tonnes or 15% of the overall emissions from the corporate sector. Of these emissions, energy use was entirely as a result of diesel and unleaded fuel use.

Predicted energy use for the forecast year of 2010 was calculated using the following assumptions:

- Estimated total fuel use was expected to increase at the rate of population growth (12.84%).
- Council employees who used a Council car in 1996 will continue to be supplied with a vehicle in 2010.

However, the likely trend for increased fuel costs was not taken into account in these forecasts, but should be taken into account in future projections.

In 2010, emissions from the vehicle fleet were predicted to be 438 eCO₂ tonnes or 11% of total corporate emissions. This represents a 4% reduction in the contribution of the vehicle fleet to overall corporate emissions. However the Milestone 1 Report states that the method used for forecasting was not entirely accurate and that a more accurate process will need to be determined for total fuel use during later Milestones. To rectify this, the Council is proposing a database recording system for the Vehicle Fleet as part of this Local Action Plan, in line with recommendations from the Milestone 1 report.

5.1.3 a Existing measures

- Staff walk to meetings within the Alice Springs Central Business District
- Some staff undertake informal car pooling to get to work

5.1.3 b Future Actions

- Implement a database system that records vehicle categories against fuel type, fuel consumption and kilometres travelled. This was recommended in the Milestone 1 Report and more details of the suggested form of this database are contained in Appendix 4.
- Investigate fuel efficiency and possible conversion to more energy-efficient technology/ alternative fuels in Council vehicles.

Note: This shall include studies to shift to Opal fuel in line with Council's concern for the negative social impacts of petrol sniffing among disturbed youth in Alice Springs.

- Instigate a purchasing policy to buy vehicles which maximize fuel efficiency
- Install shade for parking to reduce air conditioner usage in Council vehicle fleet and staff vehicles
- More actively promote car sharing by initiating a car pool website
- More actively promote riding bicycles among staff by purchasing a few units and installing bike racks in council grounds

5.1.4 Water/ Sewage (in Council parks)

In 1996, provision of water to Council parks for irrigation contributed 10 eCO₂ tonnes, or 0.4% of total corporate emissions.

The Milestone 1 Report assumed that in the forecast year, no new subdivisions or associated parks would have been established by 2010 that would affect Council's irrigation costs. In addition no plans were known that involved the Council ceasing management over any existing parks. However, since 1996 the Council has installed electric BBQ's at Frank McEllister Park that will incur electricity costs and therefore these were included in the forecast. Predicted emissions with these assumptions for 2010 are 16 eCO₂ tonnes, or 0.4% of total emissions.

5.1.4 a Existing measures

- Since 1996, Council has reduced the number of pumps in Council managed parks
- Irrigation controls and timers are used in all Council-managed parks
- Parks are watered at appropriate times (evening and early mornings) to minimize evaporation

5.1.4 b Future Actions

- Monitor water usage in parks to aid management and reduction of water use
- Consider reducing park lawn areas to reduce water consumption
- Focus on and promote arid zone gardens and the use of native plants
- Explore options for using waterless toilets in some park ablution blocks

5.1.5 Waste

The Council owns the municipal landfill and undertakes substantial waste collection services. However, Council also contracts out some waste collection services, landfill management and weighbridge operation. In 1996, waste created by Council operations alone, was calculated to contribute 213 eCO₂ tonnes or 8% of the total emissions by the corporate sector. Haulage and disposal costs of waste from Council operations were very low in 1996 and by 2001 had been reduced to zero.

When undertaking forecasting for 2010, the amount of waste produced by Council operations was expected to increase at a rate equal to the population growth and therefore, staff growth, of 12.84%. This resulted in a forecast figure of 240 eCO₂ tonnes, or 6% of the total emissions for 2010.

5.1.5 a Existing measures

- Re-use of A4 paper by staff members where appropriate
- Re-use of paper for art sculptures has recently started in some Council-managed parks
- Donating used Council computers to community organizations through a Community Computers Grant Program
- Sale of old books and equipment no longer needed by the Library
- Introduction of an Electronic Document Manager (EDM) system to improve the paper-based file registry system throughout Council's operations

- Electronic management system for Council weighbridge which records quantities and types of waste entering the landfill. This information can also be separated into Council and community waste categories
- Separation of greenwaste at the tip for recycling into landscaping products

5.1.5 b Future Actions

- Actively promote the printing of documents on both sides of paper
- Actively promote the re-use of A4 paper within Council's operations where appropriate
- Adopt a cost-effective and local-first green purchasing policy
- Investigate the cost effectiveness of using recycled paper, consumables and furniture.

5.1.6 Other

5.1.6 a Existing measures

- An Energy Efficiency Committee has been established to investigate, monitor and implement energy efficiency measures and improve awareness within Council. More detail on this is given in Section 5.3.

5.1.6.b Future Actions

- Continue education of staff on the importance of energy efficiency through periodic in-house Seminars
- Inclusion of energy efficiency awareness in the HR induction process for all new staff
- Implement a database system that records electricity consumption against lot numbers, including costs and supply charges as recommended in the Milestone 1 Report. More details of the suggested form of this database are contained in Appendix 5.

5.2 Community measures

5.2.1 Residential

Figures from the 1996 Census indicated the population of Alice Springs as 27,100. The estimated population growth rate has been calculated to be 12.84%, giving a projected population for 2010 of 30,600. The residential sector contributed 15% or 49,462 eCO₂ tonnes to overall community emissions in 1996, mostly as a result of electricity use. Predicted emissions for 2010 were 62,635 eCO₂ tonnes or 14% of total community emissions. (Cactus NT, 2001)

5.2.1 a Existing measures

- Funding of information booklet on Greenhouse Friendly habits in Alice Springs, which has energy efficiency and water-wise information for distribution to community
- Previous support for Desert Knowledge Australia (DKA) COOLmob project. DKA COOLmob is a network of households in Alice Springs working together to improve household energy efficiency, reduce greenhouse gas emissions and save money. DKA Coolmob is an initiative of the Arid Lands Environment Centre and Desert Knowledge Australia and was started as part of the Australian Greenhouse Office Cool Communities program. It is now majority funded by the Northern Territory Government and has received Alice Springs Town Council support in the past through financial and in-kind contributions.

5.2.1 b Future Actions

- Continued support of Desert Knowledge Australia COOLmob project and other community initiatives that promote the improvement of household energy efficiency, reduce greenhouse gas emissions and save money.
- Investigate the costs for Council to set up an Alice Springs 'one-stop' shop to provide information and support to businesses and residents about energy and water efficiency and sustainable building design. (*Note: This will only occur if a 'one-stop' shop is not implemented as part of the Solar Cities Program. See Section 5.2.7.*)
- Investigate what is required to set up a Revolving Energy Fund to provide loans to residents and businesses. This fund could be used to overcome the barrier of high upfront costs for energy-saving household hardware (e.g. solar hot water, insulation, 5-star fridges), and could be undertaken as a community partnership scheme with a number of businesses and organisations as partners.
- Examine the costs and benefits of providing a rate reduction for the installation of evaporative air conditioners
- Examine the present Building Codes for residential and commercial establishments and consider lobbying the state government to modify current planning requirements so that they enhance building outcomes (e.g. mandatory 5-star rating for new homes, mandatory Desert Smart™ rating at point of sale, ESD guidelines for new subdivisions).

- Examine the options for continuing to support the Desert Knowledge Cooperative Research Centre to research new technologies and their application to arid zone housing
- Investigate methods to promote lower residential water consumption (indirect benefits)

5.2.2 Commercial

In 1996, there were 1,114 commercial establishments in Alice Springs, employing 12,176 people. Calculated figures for 2010 using the estimated growth rate of 12.84% predicted commercial establishments would number 1,257. Emissions in the Commercial sector in 1996 were 100,355 eCO₂ tonnes or 31% of total community emissions. The forecast emissions for 2010 are predicted to be 177,798 eCO₂ tonnes or 39%. The majority of these emissions are as a result of electricity use.

5.2.2 a Existing Measures

See Section 5.2.7 on the Solar Cities Bid

5.2.2 b Future Actions

- Investigate the implications of undertaking energy-efficiency workshops, commercial energy audits and cost-benefit assessments for high energy use businesses.
- Alice Springs 'one-stop' shop for residential and commercial sectors (see detail in the residential section above)
- Support the accreditation of local energy auditors to undertake commercial energy audits.
- Examine the present Building Codes for residential and commercial establishments and identify where Codes may be modified to promote more sustainable building design (see detail in residential section above)

5.2.3 Industrial

In 1996, there were 268 industrial establishments in Alice Springs, employing 1,530 people. Calculated figures for 2010 using the estimated growth rate of 12.84% predict industrial establishments will number 302. The 1996 emissions levels in the Industrial sector were estimated to be 73,671 eCO₂ tonnes or 23% of total emissions for the community sector. The predicted emissions for the forecast year (2010) were 87,445 eCO₂ tonnes, or 19%.

5.2.3 a Existing Measures

See Section 5.2.7 on the Solar Cities Bid

5.2.3 b Future Actions

- Energy-efficiency workshops, audits and cost-benefit assessments for high energy use businesses (see detail in commercial section above)

- Examine the possibility of undertaking Waterwise grounds irrigation courses for local schools to reduce water usage. This may include standardisation of irrigation controllers and centralisation of on-off settings.

5.2.4 Transportation

Greenhouse gas emissions in the transport sector are overall not predicted to increase markedly between 1996 and 2010 (51,680 eCO₂ tonnes to 63,147 eCO₂ tonnes or 10% to 10.4% of the total eCO₂). However, the Milestone 1 Report predicted that the consumption of diesel will rise significantly while petrol and LPG consumption will fall.^{xviii} In addition, it is expected that rising fuel prices may have an impact on overall fuel use in Alice Springs, as it becomes more expensive for residents to use their vehicles for transport.

5.2.4 a Existing measures

- Significant cycleway improvements throughout Alice Springs
- Council partly owns a public bus service which provides some public transport infrastructure for Alice Springs

5.2.4 b Future Actions

- Investigate how the public bus service can be improved to encourage private vehicle users to take public transport.
- Promote alternatives to motor vehicle transport such as the cycleway network and bus service
- Identify how best to encourage the use of small vehicles in Alice Springs including the use of the National Star rating scheme (for fuel efficiency).

5.2.5 Waste

The Council owns the municipal landfill and undertakes a range of waste collection services. However Council also contracts out some waste collection services, landfill management and weighbridge operation. In 1996, the average waste per household was approximately 10.7kg per week. The waste composition of household garbage was predominantly plant debris 19%, paper products 15%, food 30% and other non-organics 37%. The estimated volume and weight of waste transported to Alice Springs landfill in 1996 was 33,800 tonnes (minus the cover material). Therefore the emissions in 1996 were calculated to be 50,000 eCO₂ tonnes and emissions in 2010 are forecast to be around 63,000 eCO₂ tonnes. This corresponds to 15% and 13% of total community emissions.

5.2.5 a Existing measures

- Separation of greenwaste at the tip for recycling into landscaping products
- Safe and Tidy Towns conferences have been held between Tangentyere Council, Lhere Artepe Aboriginal Corporation and Council to discuss, among other things, the litter problem in some parts of town.

5.2.5.b Future Actions

- Encourage backyard home-based composting through workshops
- Encourage waste segregation and composting in food-based commercial establishments
- Undertake a least-cost assessment of landfill management options

5.2.6 Others

Future Actions

- Set up a special section in the Library for references on Climate Change, Greenhouse Gases and Energy Efficiency
- Organize energy efficiency seminars for the public and commercial/industrial sectors

5.2.7 Solar Cities Bid

The most substantial measure undertaken by the Council to date, which will impact significantly on the implementation of programs to reduce emissions in Alice Springs, is as lead proponent for the Alice Springs bid to the Federal Government's Solar Cities Program. At the end of 2005, Alice Springs joined 11 towns/suburbs which were accepted into the second round of the funding program. The second round bid was submitted to the Federal Government at the end of April 2006, and winners are expected to be announced in August 2006. The Program identified in the second round bid for Alice Springs included:

- The installation of several 'iconic sites around Alice Springs and a solar farm consisting of 20 concentrating dishes.
- Installation of photovoltaic solar power systems on residential roofs
- Installation of hundreds of smart meters on residential houses and businesses
- Creation of a 'one-stop' information outlet about energy efficiency for residents and business
- Provision of energy audits to residential homes and businesses
- Financing packages to make energy efficiency changes
- Cost reflective energy pricing using modified tariffs. This will be used mainly to shift daytime peaks and may include lower 'off peak' tariffs at night and time-of-use pricing.

If Alice Springs is successful in this bid, the above Program will impact substantially on community sector emissions.

5.3 Implementation Strategy

Council will implement the strategies outlined above primarily by mobilizing staff and existing resources to further study the details of these actions. Specifically, an Energy Efficiency Committee has been formed among staff, accountable to Council's Chief Executive Officer.

Committee Mandate. The main task of the Energy Efficiency Committee is strategic planning, review and actual implementation of the Council's energy efficiency programs as embodied in this Local Action Plan. This Committee will ensure that the long-term goal of reducing greenhouse gas emissions is maintained even where the measures identified in this report may change over time as technology, experience and awareness continue to expand.

Committee Composition. The Committee is composed of a Chairperson and several members or "Energy Champions." An "Energy Captain" has also been designated to be the spokesperson of the Committee for internal and external communications.

The Chairperson is currently Council's Works Manager, designated to provide overall direction and guidance to the Committee. In the coming financial year, Council will be opening a part-time staff position for an Environment Officer (under arrangements with LGANT). This Environment Officer will provide leadership and structure to the implementation of the Local Action Plan.

The current composition of the Committee's membership recognises the importance of cross-Council cooperation. This composition will be maintained to represent the three main departments of Council, specifically vital functions and specialisations within the Technical Services Department (Depot Works, Parks, Waste Management, etc.) the Finance Department (Information Technology, Customer Services, etc.) and the Corporate and Community Services (Library Services, Community Development, Sports and Recreation, etc.).

The members shall contribute to deliberations on actions to be taken, provide feedback on the feasibility and effectiveness of these actions, and continue to promote awareness and appreciation for climate and energy issues among Council staff and the Alice Springs Community. Committee decisions will be forwarded as recommendations to Executive Management.

Budget. Council has supported CCP-related work during the past year through a budget line allocated specifically for the Cities for Climate Protection Program (Budget Line 0468). This budget line will continue to be allocated for the next financial year, to be adjusted during quarterly reviews to reflect the ongoing costs to implement the actions in the LAP. A budget line now also exists to support the part-time Environment Officer.

General Timetable and Immediate Next Steps. In general , priority actions for the coming year will involve the development of specific projects, timelines and resource allocation plans for corporate and community strategies through staff input, meetings of the Energy Efficiency Committee, and community consultations.

Specifically, at the beginning of the coming financial year (July 2006) the Committee will set a plan to meet every two months, convened by the Environment Officer. The meeting agenda will be based primarily on the directions provided in this Local Action Plan. The Environment Officer will prepare quarterly updates to Executive Management.

For Corporate Greenhouse Measures, future actions listed in Section 5.1 above will be reviewed for feasibility, to identify specific persons or units responsible and to establish resource requirements. A monitoring scheme will also be established with the guidance of the CCP.

For Community Greenhouse Measures, the key approach to implementation will be consultation and partnership with other sectors of the community. Potential partners will be identified for each of the community strategies outlined in Section 5.2. A Community Consultation Workshop will be scheduled during the later half of 2006, with the aim of putting together a community partnership group to assist in overseeing implementation. Resource sharing and public participation will be critical to the success of the Community Greenhouse measures.

The general timeline for the completion of subsequent Milestones is presented in Section 2 (Table 3). It is expected that detailed planning and implementation will be conducted between July 2006 and June 2009. Table 7 below summarises the prioritization allotted to the potential measures listed in Sections 5.1 and 5.2 The following timelines have been loosely applied to each priority:

Priority 1 0-1 years	Priority 2 1-2 years	Priority 3 3-5 years
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Table 7. Proposed Priority Levels for Potential Greenhouse Measures

CORPORATE MEASURES	Priority Level
Buildings	
<ul style="list-style-type: none"> • Undertake further Energy Audits in Council buildings 	1
<ul style="list-style-type: none"> • Investigate potentials of purchasing Greenpower (See Annex 7) to address the high proportion of Council emissions that go to electricity. 	1
<ul style="list-style-type: none"> • Undertake de-lamping where over lighting occurs 	1

• Enable power management on computers in the current Library building	1
• Install lighting timers and undertake lighting retrofits wherever possible	1
• Install timers on air conditioners, hot water boilers and heaters throughout Council buildings	1
• Ensure “power save” is enabled on all office equipment and maintain policy of shut down after hours	1
• Pursue the implementation of the major recommendations from the 2003 Energy Audit in the renovations for the Library building	3
• Implement the following actions from the 2003 Depot Energy Audit	
• Install 365 day timer in main air conditioning unit	2
• Implement a policy to ensure that the depot demountable reverse cycle air conditioner is only used when necessary	1
• Install external shading and insulation	2
• Delamp overlit areas in the depot	1
• Remove energy inefficient soft drink vending machine	1
Public Lighting	
• Council will work with Power and Water (the energy provider) to improve energy efficiency and ongoing costs of street lighting.	1
Vehicle Fleet	
• Implement a database system that records vehicle categories against fuel type, fuel consumption and kilometres travelled.	1
• Investigate fuel efficiency and possible conversion to more energy-efficient technology/ alternative fuels in Council vehicles.	2
• Instigate a purchasing policy to buy vehicles which maximize fuel efficiency	2
• Install shade for parking to reduce air conditioner usage in Council vehicle fleet and staff vehicles	2
• More actively promote car sharing by initiating a car pool website	1
Water/Sewage (in Council Parks)	
• Monitor water usage in parks to aid management and reduction of water use	2
• Reduce park lawn areas to reduce water consumption	3
• Focus on and promote arid zone gardens and the use of native plants	1
• Explore options for using waterless toilets in some park ablution blocks	2

Waste	
<ul style="list-style-type: none"> Actively promote the printing of documents on both sides of paper 	1
<ul style="list-style-type: none"> Actively promote the re-use of A4 paper within Council's operations where appropriate 	1
<ul style="list-style-type: none"> Adopt a cost-effective and local-first green purchasing policy 	1
<ul style="list-style-type: none"> Investigate the cost effectiveness of using recycled paper, consumables and furniture. 	1
Others	
<ul style="list-style-type: none"> Continue education of staff on the importance of energy efficiency through periodic in-house Seminars 	1
<ul style="list-style-type: none"> Inclusion of energy efficiency awareness in the HR induction process for all new staff 	1
<ul style="list-style-type: none"> Implement a database system that records electricity consumption against lot numbers, including costs and supply charges as recommended in the Milestone 1 Report. 	2
COMMUNITY MEASURES	
Residential	
<ul style="list-style-type: none"> Continued support of community initiatives that promote the improvement of household energy efficiency, reduce greenhouse gas emissions and save money. 	1
<ul style="list-style-type: none"> Investigate the costs for Council to set up an Alice Springs 'one-stop' shop to provide information and support to businesses and residents about energy and water efficiency and sustainable building design. <i>(Note: This will only occur if a 'one-stop' shop is not implemented as part of the Solar Cities Program. See Section 5.2.7).</i> 	2
<ul style="list-style-type: none"> Investigate what is required to set up a Revolving Energy Fund to provide loans to residents and businesses. 	2
<ul style="list-style-type: none"> Examine the costs and benefits of providing a rate reduction for the installation of evaporative air conditioners 	2
<ul style="list-style-type: none"> Examine the present Building Codes for residential and commercial establishments and consider lobbying the state government to modify current planning requirements so that they enhance building outcomes 	2
<ul style="list-style-type: none"> Examine the options for continuing to support research for new technologies and their application to arid zone housing 	2
<ul style="list-style-type: none"> Investigate methods to promote lower residential water consumption (indirect benefits) 	2
Commercial	

<ul style="list-style-type: none"> Investigate the implications of undertaking energy-efficiency workshops, commercial energy audits and cost-benefit assessments for high energy use businesses. 	1
<ul style="list-style-type: none"> Alice Springs 'one-stop' shop for residential and commercial sectors (see detail in the residential section above) 	2
<ul style="list-style-type: none"> Support the accreditation of local energy auditors to undertake commercial energy audits. 	2
<ul style="list-style-type: none"> Examine the present Building Codes for residential and commercial establishments and identify where Codes may be modified to promote more sustainable building design (see detail in residential section above) 	2
Industrial	
<ul style="list-style-type: none"> Energy-efficiency workshops, audits and cost-benefit assessments for high energy use businesses (see detail in commercial section above) 	1
<ul style="list-style-type: none"> Examine the possibility of undertaking Waterwise grounds irrigation courses for local schools to reduce water usage. This may include standardisation of irrigation controllers and centralisation of on-off settings. 	2
Transportation	
<ul style="list-style-type: none"> Investigate how the public bus service can be improved to encourage private vehicle users to take public transport. 	1
<ul style="list-style-type: none"> Promote alternatives to motor vehicle transport such as the cycleway network and bus service 	1
<ul style="list-style-type: none"> Identify how best to encourage the use of small vehicles in Alice Springs including the use of the National Star rating scheme (for fuel efficiency). 	2
Waste	
<ul style="list-style-type: none"> Encourage backyard home-based composting through workshops 	1
<ul style="list-style-type: none"> Encourage waste segregation and composting in food-based commercial establishments 	1
<ul style="list-style-type: none"> Undertake a least-cost assessment of landfill management options 	3
Others	
<ul style="list-style-type: none"> Set up a special section in the Library for references on Climate Change, Greenhouse Gases and Energy Efficiency 	2
<ul style="list-style-type: none"> Organize energy efficiency seminars for the public and commercial/industrial sectors 	2
Solar Cities Bid	
	1

5.4 Council's Commitment to Reporting and Review

Council plans to implement greenhouse gas emissions monitoring every two years to provide landmarks on the progress of the achievements of its reduction goals. The corporate and community Measures will be jointly monitored by the Energy Efficiency Committee and the community partnership group, under the leadership of Council's Environment Officer and with guidance from the CCP.

A full report will be compiled biannually from the monitoring results. The report will include the progress of the measures undertaken, greenhouse gas reductions achieved to date, and the addition or removal of any strategies. Results from the monitoring reports will be formally presented as part of Milestone 5.

Recommendations from the annual monitoring reports will form an integral part of the selection of future reduction strategies. In addition, the policies to be recommended from the Local Action Plan will complement the Visions and Aims contained within the Alice Springs Town Council's Strategic Plan for 2004-2009, particularly:

Goal 3: To lead Australia in the management of its arid land natural resources.

Outcome 3.1 Increased awareness and knowledge of the environment.

Outcome 3.2 Efficient use of energy and water resources.

6 References

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- ⁱ Australian Academy of Science, *Enhanced greenhouse effect – a hot international topic*, <http://www.science.org.au/nova/016/016key.htm>, updated September 1997 (accessed online 5 April 2006).
- ⁱⁱ Supplied by the Australian Greenhouse Office
- ⁱⁱⁱ Australian Academy of Science, *Enhanced greenhouse effect – a hot international topic*, <http://www.science.org.au/nova/016/016key.htm>, updated September 1997 (accessed online, 5 April 2006).
- ^{iv} Supplied by the Australian Greenhouse Office
- ^v Australian Greenhouse Office, 2002, 'Greenhouse Gas Emissions – An Overview: State and Territory', Australian Government Department of Environment and Heritage, (viewed online 26 April 2006) <http://www.greenhouse.gov.au/inventory/stateinv/pubs/stateoverview.pdf>
- ^{vi} Intergovernmental Panel on Climate Change (IPCC), 2001, 'Climate Change 2001: Synthesis Report, Summary for Policymakers', Third Assessment, approved in detail at IPCC Plenary XVIII (Wembley, United Kingdom, 24-29 September 2001).
- ^{vii} This table provides examples of key observed changes and is not an exhaustive list. It includes both changes attributable to anthropogenic climate change and those that may be caused by natural variations or anthropogenic climate change.
- ^{viii} Preston BL and Jones RN, 2006, 'Climate Change Impacts on Australia and the Benefits of Early Action to Reduce Global Greenhouse Gas Emissions', A consultancy report for the Australian Business Roundtable on Climate Change, CSIRO, Canberra.
- ^{ix} Commonwealth of Australia, 2006, Australian Government, Department of Environment and Heritage, Australian Greenhouse Office, *Climate Change Impacts*, last modified 22 August 2005, accessed online 26 April 2006, <http://www.greenhouse.gov.au/impacts/overview.html>
- ^x Preston BL and Jones RN, 2006, 'Climate Change Impacts on Australia and the Benefits of Early Action to Reduce Global Greenhouse Gas Emissions', A consultancy report for the Australian Business Roundtable on Climate Change, CSIRO, Canberra.
- ^{xi} Hennessy, K., Page, C., McInnes, K., Walsh, K., Pittock, B., Bathols, J. and Suppiah, R., 2004, 'Climate Change in the Northern Territory, Consultancy report for the Northern Territory Department of Infrastructure, Planning and Environment, Climate Impact Group, CSIRO Atmospheric Research, and the School of Earth Sciences, Melbourne University.
- ^{xii} Sourced from the Australian Greenhouse Office website – www.greenhouse.gov.au
- ^{xiii} Sourced from the Australian Greenhouse Office website – www.greenhouse.gov.au
- ^{xiv} EPA NT and NT Government Department of Natural Resources, Environment and the Arts, 2006, *The Northern Territory Strategy for Greenhouse Action*, NT Government, Darwin.
- ^{xv} This data is that most recently available from the Milestone 1 data from the CCP Australia website
- ^{xvii} This data is that most recently available from the Milestone 1 data from the CCP Australia website
- ^{xviii} Road transport figures using the CCP default data were calculated by using population figures, vehicle types and average total vehicle kilometres travelled outside of a capital city. The growth from 1996 to 2010 has been estimated using a trendline analysis of ABS motor vehicle use data from 1995 to 1999.