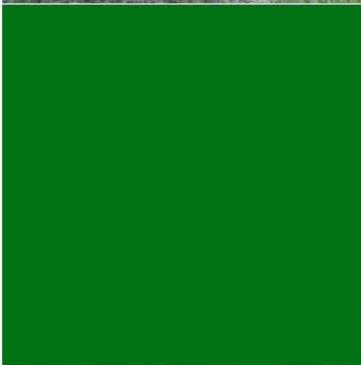




Energy Action Plan 2007-2012





MAYOR'S MESSAGE



The City of Wanneroo values our natural assets and is committed to protecting the best of our environment for current and future generations. We have recognised the threat of climate change and the importance of reducing greenhouse gas emissions, and became an active participant in the international Cities for Climate Protection (CCP™) program in April 2003.

In just over three years, the City of Wanneroo has achieved the five milestones of the CCP™ program. The preparation of the Energy Action Plan, adopted in May 2004 greatly supported and directed this effort.

The City of Wanneroo has recently agreed to join the Cities for Climate Protection Plus program to broaden, accelerate and strengthen our greenhouse gas emissions reduction program.

The City of Wanneroo is facing a major challenge with one of the highest growing populations in Australia. Working collaboratively with the community will be integral to minimising the impacts on our precious environment.

Great progress was made and many lessons were learnt since the City started implementing the Energy Action Plan. We are now equipped to start addressing more challenging corporate sectors and to deliver better programs to raise awareness of the greenhouse issues and promote the implementation of energy saving measures across the City.

As part of our participation to the CCP Plus program, but also to keep up-to-date with new technologies, the first major review of the Energy Action Plan was undertaken during 2007 in consultation with all our staff and the community. This inclusive process has seen energy efficiency become part of our Council's core business.

I would like to use this opportunity to reinforce the City of Wanneroo's commitment to reducing our per capita greenhouse gas emissions; from the City's operations by 25 per cent from 2002 levels, and in the wider community by 20 per cent from 1996 levels by 2012. I am confident that the implementation of this reviewed Energy Action Plan will assist us in meeting our greenhouse reduction targets and conserving our natural assets for our community to enjoy into the future.

John Kelly JP
Mayor



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1 EXECUTIVE SUMMARY

Climate change is widely recognised as one of the most serious and complex challenges facing our community. The weight of international scientific opinion is that climate change is occurring and is primarily caused by human activities – such as burning fossil fuels to generate energy – that release carbon dioxide, methane and other greenhouse gases into the atmosphere.

The International Panel on Climate Change (IPCC) recently released its 4th Assessment Report “Climate Change 2007” at the United Nations Environment Program (UNEP) World Conference in Paris confirming the evidence that climate change is accelerating due to human influences. The need to act, and act quickly is changing the way we think about generating energy, planning infrastructure and producing resources. Climate change has the potential to significantly affect the world's economy, society and environment.

Last year, the international Stern Review concluded that there is overwhelming evidence that climate change presents very serious global risks and demands an urgent global response. The Stern Review and many international and Australian studies have also determined that the benefits of strong, early action on climate change outweigh the costs.

Whilst climate change is a global issue that needs to be addressed at the national or even the international level, there is an important role to play for the City of Wanneroo and its local community. Preventing or limiting climate change, and adapting to a changed climate, presents many challenges for the ways in which we live and work.

The City of Wanneroo joined the Cities for Climate Protection (CCP™) program in 2003 to start reducing its greenhouse gas emissions. The City has committed to reducing per capita emissions from its own operations by 25 per cent from 2002 levels, and per capita community emissions by 20 per cent from 1996 levels by 2012. In 2004, the City released an ‘Energy Action Plan’ to coordinate its greenhouse action.

Fifty five actions were listed for implementation from 2004 to 2012, such as retrofitting community buildings to be more energy efficient, increasing recycling opportunities, converting part of Council's fleet to alternative fuels, working with the commercial and industrial sector to develop less energy intensive production processes, encouraging the use of alternative transport and providing information to residents to build more energy efficient houses.

Numerous actions have been implemented in the last three years, successfully reducing greenhouse gas emissions within the City and its community. It is timely to review the City's Energy Action Plan to take into consideration new technologies and actions and to further strive towards greenhouse gas reduction targets. Extensive consultation was undertaken in this review of the Energy Action Plan, involving staff from across the organisation and members of the local community.

The revised Energy Action Plan includes a range of new actions to be implemented from 2007 to 2012 in the corporate and community sectors. It is based on practical actions using a variety of approaches to reduce greenhouse gas emissions and offers a more effective, inclusive and long-term global response to climate change. This revised Energy Action Plan will take the City forward into its next phase of energy performance improvement.



The revised Energy Action Plan 2007-2012:

- Briefly presents the greenhouse issue and how the City of Wanneroo may be affected by climate change;
- Outlines the City's response to climate change;
- Presents the City's latest greenhouse emissions;
- Reports on progress achieved in the City's first Energy Action Plan 2004-2007;
- Summarises the review process and the consultation undertaken; and
- Finally proposes a series of actions to be implemented from 2007 to 2012 to further reduce greenhouse gas emissions.

This review is part of the City's participation in the CCP Plus™ program and will contribute to the achievement of the Planning and Review milestone.



2 SUMMARY OF EAP ACTIONS 2007-2012

This section is to be read in conjunction with the section 8 'EAP Actions 2007-2012 – Details' of the report.

CORPORATE ACTIONS						
SUB-SECTOR	NUMBER	ACTION	RESPONSIBLE SERVICE UNIT	START DATE	FINISH DATE	
GENERAL ACTIONS	1	Establish a process to capture the City's energy consumption data.	Contracts & Property	Nov-07	Jul-08	
	2	Report annually to Council on the City's energy and fuel consumption and waste production (as per the recycling audit).	Smart Growth	Aug-08	Ongoing	
	3	Investigate offsetting some of the City's greenhouse gas emissions by undertaking bushland conservation and/or revegetation projects.	Infrastructure Maintenance	Jan-09	Jun-09	
	4	Investigate potential impacts of climate change and adaptation strategies in the City of Wanneroo.	Smart Growth	Sep-08	Sep-09	
	5	Investigate feasibility of financially valuing greenhouse gas emissions savings as an internal pricing mechanism when considering energy efficiency costs and paybacks for City's projects.	Smart Growth	Oct-08	Apr-09	
	6	Investigate opportunities to support renewable energy production within the City.	Smart Growth	Dec-08	Jun-10	
STAFF EDUCATION	7	a	Develop a City of Wanneroo-branded education and training program for staff, covering energy efficiency, waste reduction/recycling and alternative transport, with support from Waste & Fleet services and IT services.	Smart Growth	Nov-07	Jun-08
		b	Implement the City of Wanneroo-branded education and training program for staff.	Smart Growth	Jun-08	Ongoing
	8	Incorporate an Energy Saving category into the City's Innovation Award Scheme.	Human Resources	Nov-07	Feb-08	
BUILDINGS	9	a	Prepare a Policy on the energy efficiency requirements of Council's building assets (new buildings and upgrades).	Smart Growth	Nov-07	Apr-08
		b	Ensure the objectives of the Policy on the energy efficiency requirements of Council's building assets are incorporated into all Council's building asset proposals through the CPEG Priority Matrix.	Governance and Corporate Performance	May-08	Ongoing
	10	Undertake an energy audit of all City's building assets.	Infrastructure Maintenance	Jul-08	Jun-09	
	11	Implement audit recommendations identified to have highest cost-benefit (including lighting, external building security lighting, timers, air-conditioning, electrical appliances, BMCS).	Infrastructure Maintenance	Jul-09	Jun-12	



CORPORATE ACTIONS (Continued)

SUB-SECTOR	NUMBER	ACTION	RESPONSIBLE SERVICE UNIT	START DATE	FINISH DATE	
	12	Investigate opportunities for the use of renewable energy technologies to provide power to the Civic Centre and a City's community centre or library.	Smart Growth	Nov-07	Apr-09	
	13	Provide recommendations for the supply of Green Power to the City's infrastructure assets.	Smart Growth	Nov-07	Feb-09	
	14	Purchase Energy Star compliant office equipment (computers, photocopiers, printers, scanners).	IT Services	Nov-07	Ongoing	
	15	Activate all energy reduction facilities (Energy Star) on existing and new office equipment.	IT Services	Nov-07	Ongoing	
	16	Establish processes to enable 100% recycling of the City's e-waste (toner and printer cartridges, computers, mobile phones, phones, faxes, printers).	IT Services	Nov-07	Jun-09	
LIGHTING	17	Install energy-efficient lighting in new City-controlled road, park and car park infrastructure.	Infrastructure Projects	Nov-07	Ongoing	
	18	Negotiate a revised StreetVision contract that incorporates energy performance.	Infrastructure Maintenance	Nov-07	Jun-12	
FLEET	19	Develop a process for monitoring the usage of different fuel types for the City's fleet.	Waste & Fleet Services	Nov-07	Mar-08	
	20	Evaluate and report on the performance (whole of life cycle costs) of the City's fleet, including alternative fuel and power generation vehicles currently trialled.	Waste & Fleet Services	Nov-07	Dec-08	
	21	Provide incentives to staff to use alternative transport (public transport, walking, cycling, car pooling).	Human Resources	Jan-08	Jun-08	
	22	Develop a business case to implement a Global Positioning System (GPS), an Engine Management System and Route Planning software to all waste collection vehicles to improve fleet routing and control.	Waste & Fleet Services	Nov-07	Jun-09	
WATER	23	Continue the installation of energy efficient motors for new bore pumps and for the replacement of old pumps and motors.	Infrastructure Maintenance	Nov-07	Jun-12	
WASTE	24	a	Undertake annually an internal recycling audit of the Civic Centre, the Ashby Operational Centre, the Business Grow Centre, Aquamation Aquatic Centre and all Council libraries and make recommendations for improvement.	Waste & Fleet Services	Jun-08	Ongoing
		b	Implement the recommendations of the Recycling Audit.	Waste & Fleet Services	Jan-09	Jun-12



COMMUNITY ACTIONS

SUB-SECTOR	NUMBER	ACTION	RESPONSIBLE SERVICE UNIT	START DATE	FINISH DATE	
COMMUNITY EDUCATION	25	a	Develop a Marketing and Communication Plan to raise community awareness of the impacts of climate change and how to become more energy efficient, with support from Marketing Services.	Smart Growth	Dec-07	Jun-08
		b	Implement the Climate Change & Energy Efficiency Marketing and Communication Plan.	Smart Growth	Jun-08	Ongoing
	26	Include the latest information on the City's website on how to save energy at home, how to design an energy-efficient home, alternative transport and waste reduction/recycling opportunities.	Smart Growth	Dec-07	Jun-08	
	27	Prepare a brochure providing information on sustainable living in Wanneroo to be distributed to all local residents.	Smart Growth	Jun-08	Dec-08	
	28	Implement the Living Smart Program.	Smart Growth	Dec-08	Dec-09	
	29	a	Investigate opportunities to provide subsidised or low cost Compact Fluorescent Lights (CFLs) to local residents.	Smart Growth	Nov-07	Mar-08
		b	Implement the CFLs distribution program.	Smart Growth	Apr-08	Feb-09
	30	Promote and support existing rebates and funding from State and Federal government agencies encouraging energy efficiency and renewable energies in the community.	Smart Growth	Jun-08	Jun-09	
RESIDENTIAL	31	Prepare a sustainable development policy to assist in determining planning development applications.	Smart Growth	Jun-08	Jun-09	
	32	Work in partnership with a developer to design and construct an energy efficient dwelling to showcase sustainable best practice.	Building & Health	Nov-07	Jun-09	
	33	Provide new landowners with information on how to design a sustainable house when the City is informed that property settlement has occurred.	Smart Growth	Jan-08	Ongoing	
	34	Investigate removing environmentally restrictive covenants on new residential developments, in partnership with the UDIA and other relevant stakeholders.	Smart Growth	Jan-09	Oct-09	
	35	Promote the HIA GreenSmart program to the local building industry.	Smart Growth	Sep-08	Mar-09	
ECONOMIC	36	Continue and expand the Eco-Business Assessment program, subject to funding/sponsorship opportunities.	Economic Development	Nov-07	Apr-10	
	37	Research and showcase local companies and organisations that provide sustainable products and services.	Economic Development	Nov-07	Ongoing	



COMMUNITY ACTIONS (Continued)

SUB-SECTOR	NUMBER	ACTION	RESPONSIBLE SERVICE UNIT	START DATE	FINISH DATE	
TRANSPORT	38	a	Prioritise the top five areas to extend the Travel Smart Household programme in the City of Wanneroo.	Infrastructure Planning	Jan-08	Mar-08
		b	Extend the implementation of the Travel Smart Household programme to five other City of Wanneroo's suburbs, subject to Council and DPI's approval and funding.	Infrastructure Planning	Mar-08	Jun-12
	39	Prepare a Transport Strategy, with a focus on sustainable transport.	Infrastructure Planning	Dec-07	Jun-09	
	40	a	Review the City of Wanneroo Local Area Bike Plan.	Infrastructure Planning	Nov-07	Oct-08
		b	Implement the City of Wanneroo Local Area Bike Plan.	Infrastructure Projects	Oct-08	Oct-11
	41	Work with schools and other relevant stakeholders to reduce car trips to and from school.	Infrastructure Planning	Jan-08	Jun-12	
	42	Investigate opportunities for a localised area transport scheme.	Infrastructure Planning	Apr-08	Oct-08	
WASTE	43	a	Develop an action plan to encourage recycling and waste minimisation efforts by residents, schools and businesses.	Waste & Fleet Services	Dec-08	Jun-09
		b	Implement the Community Recycling and Waste Minimisation Action Plan.	Waste & Fleet Services	Jul-09	Jun-12
	44	Participate in the construction of the Mindarie Resource Recovery facility to increase Council's recycling capacity.	Waste & Fleet Services	TBA, pending MRC's agenda		



3 CLIMATE CHANGE IN THE CITY OF WANNEROO

3.1 The Greenhouse Effect

Greenhouse gases, such as carbon dioxide, methane and nitrous oxide, trap heat from the sun in the atmosphere creating conditions that are suitable for life on Earth. Without heat-trapping greenhouse gases, average global surface temperature would be -18°C rather than the current average of 15°C . This natural phenomenon is called the greenhouse effect (see figure 1).

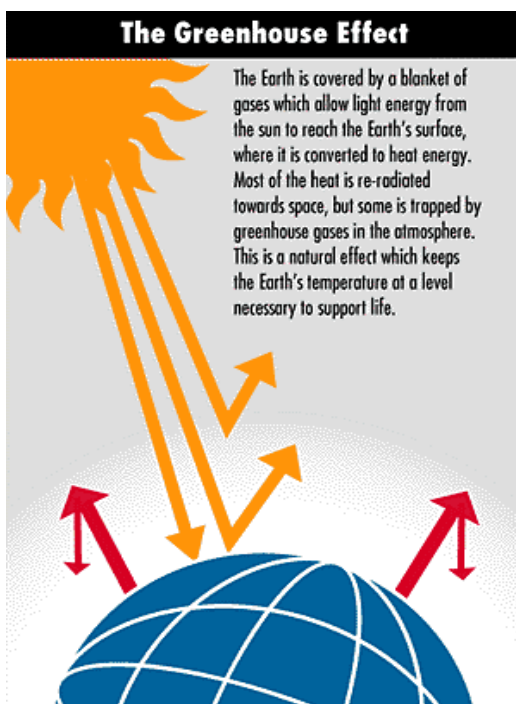


Figure 1: The Greenhouse Effect.
(Source: Australian Greenhouse Office).

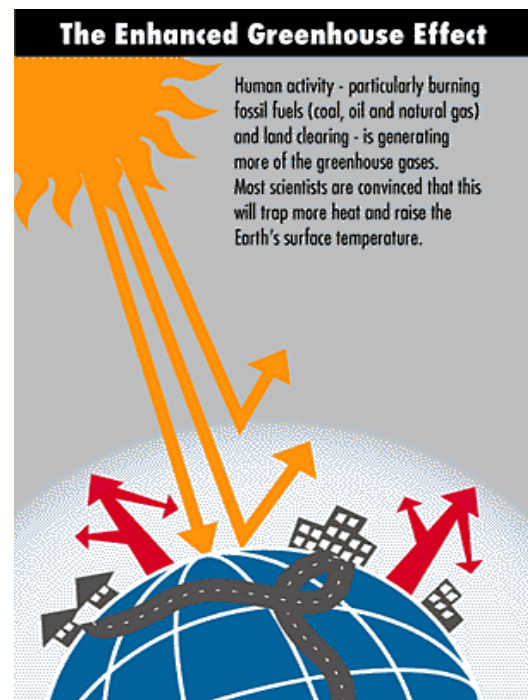


Figure 2: The Enhanced Greenhouse Effect.
(Source: Australian Greenhouse Office).

Concentrations of greenhouse gases in the atmosphere are rising at a faster rate than ever before and scientists agree that human actions such as burning fossil fuels (such as oil, coal and natural gas), agriculture and land clearing are causing these increases. This is called the enhanced greenhouse effect. It results in more heat being trapped in the atmosphere and contributes to a warming of the Earth's surface (see figure 2). This phenomenon is often referred to as 'Global Warming'. Rising temperatures leads to changes in climate patterns.

The greenhouse effect is a natural phenomenon, but the extra gases produced by human activity are making it stronger. We are now adding to these gases faster than oceans and plants can absorb them. Recent changes are unprecedented and far beyond what can be attributed to natural causes.



3.2 Climate change: current situation and predictions

While there is debate about scientific predictions, it is almost universally accepted that temperatures have been rising since the start of the industrial era (see figure 3) with the average global surface temperature rising by around 0.6°C

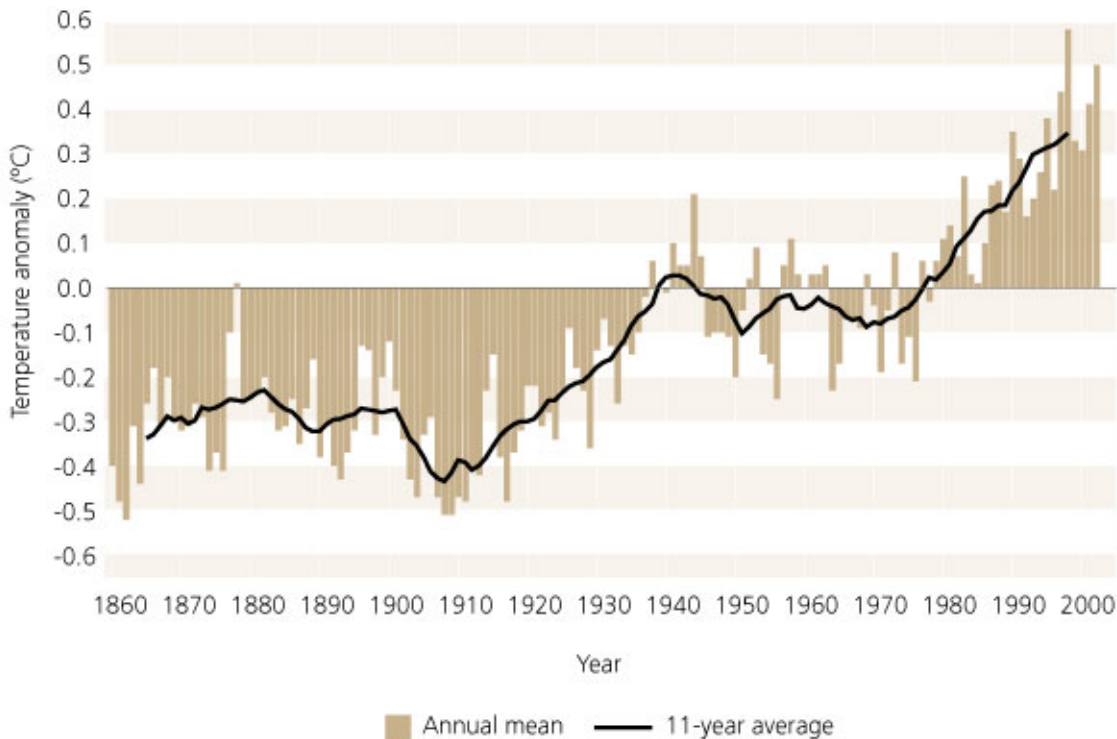


Figure 3: Global average land and sea-surface temperature anomalies, 1860 to present. (Source State of the Environment Report 2007, EPA)

The rate of global warming is projected to accelerate further. Climate modelling by the Australian Commonwealth Scientific and Research Organisation (CSIRO, 2001) indicates that average annual temperatures for WA are projected to increase 0.4-2.0°C by 2030 and 1.0-6.8°C by 2070.

Total annual rainfall in the South West has declined by 10% since the mid 1970s. Average annual rainfall in the South West may vary by -20% to 2% by 2030, and from -60% to 10% by 2070, relative to 1990 levels (CSIRO, 2001).

Global sea level rose 10-20 cm between 1897 and 2005, which is much greater than over the past 1000 years (Indian Ocean Climate Initiative, 2005). Tide records show that the sea level off Fremantle has increased roughly 15 cm in this period. Global sea levels rises of up to six meters have been predicted by various scientific sources. A global sea level rise of one meter in the next century is widely accepted as plausible.

Whereas there is an overhaul scientific and political agreement on the existence of climate change and the necessity to act, there are still a lot of uncertainties on the contributors to climate changes, the direction and effects of such changes and the appropriate adaptive responses.



3.3 Potential impacts for the City of Wanneroo

According to the WA Greenhouse Strategy, “Climate change is one of the greatest threats to Western Australia’s natural environment. Changes to the State’s climate could directly affect: agriculture, forestry, health, biodiversity, water resources, energy demand, tourism...”

Climate change has potentially devastating effects that are already being felt around the world. In Western Australia we are noticing a decline in rainfall and increasing numbers of hot days and severe weather activities. Small changes can have large effects on our environment, society and economy.

In particular, in the City of Wanneroo:

- Sea level rise will have a direct effect on those parts of the City’s coast, which are at risk of coastal erosion processes, particularly its sandy shoreline areas;
- Temperature and rainfall variation may have a significant impact on local ecosystems, particularly those that are directly dependent on groundwater, such as wetlands. Climate change will also impact on biodiversity as it will lead to alterations in suitable habitats for species – many species will become extinct as a direct result, others will colonise new areas;
- The temperature and rainfall variation may also cause significant negative impact on the local agriculture industry and also the ability of the Gnangara Mound to provide a sustainable water source for public and private users; and
- A warmer climate may also increase the risk of bushfires and severe weathers including storms and cyclones.

Experts predict that such impacts will become more common and extreme if climate change continues. There are also less acknowledged impacts such as increased liability and indemnity costs, health, emergency and infrastructure management and coastal water and land use planning issues.



4 THE CITY OF WANNEROO'S RESPONSE TO CLIMATE CHANGE

4.1 Think globally, act locally!

Local Governments have a critical role to play in creating and sustaining local solutions to the climate change problem. Their role includes reducing emissions from their own operations, promoting emission reductions by households and businesses and adapting to the impacts of climate change through planning and infrastructure provision.

Local Governments are the tier of government closest to the community, and can subsequently directly and/or indirectly influence many activities that lead to greenhouse emissions. Local Governments' contributions are part of a cooperative effort from all levels of government.

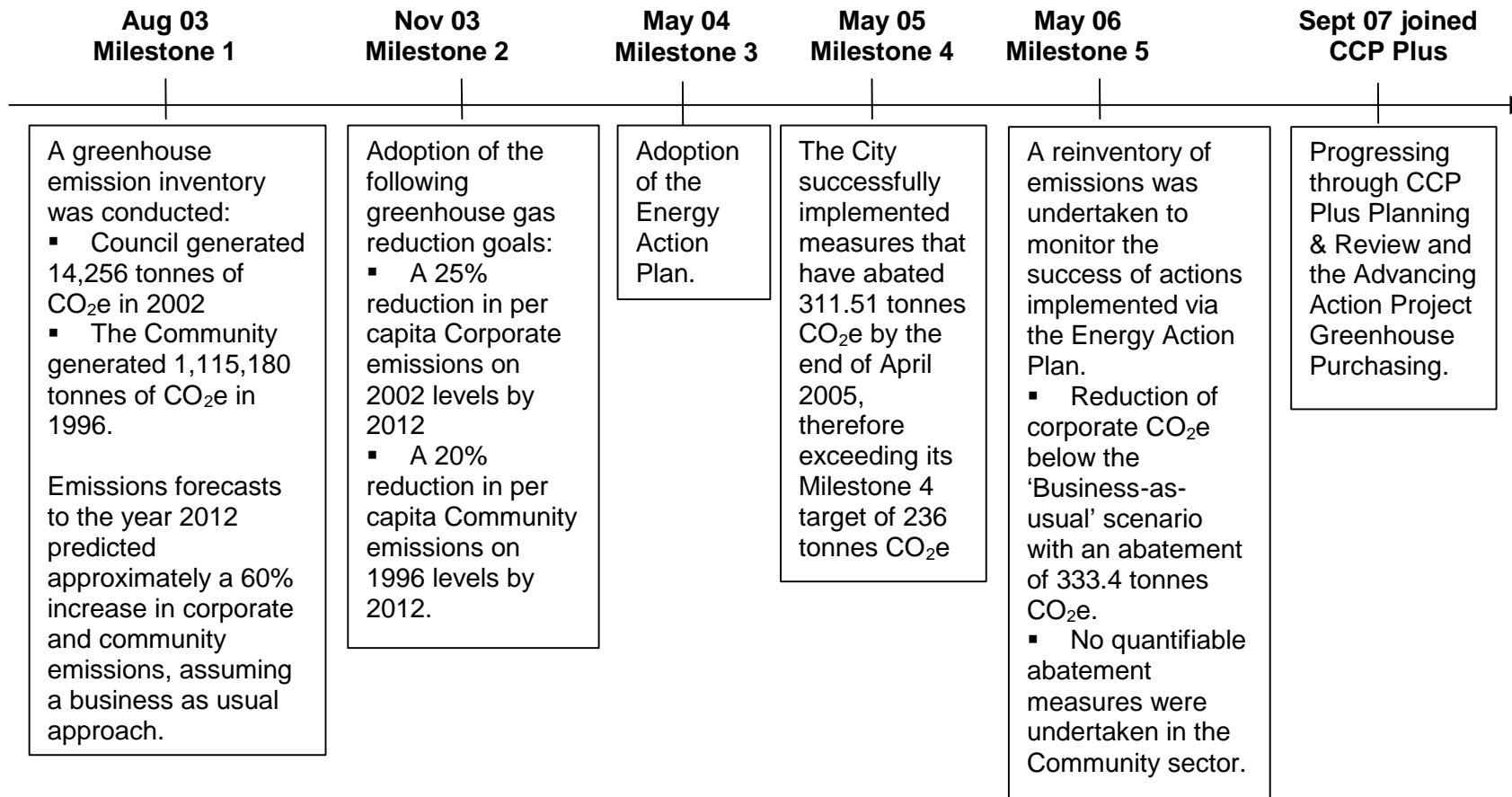
4.2 The City of Wanneroo's participation in the Cities for Climate Protection program

The City joined the CCP™ program in April 2003. The CCP™ program enables councils and their communities to achieve quantifiable reductions in their greenhouse gas emissions and builds their capacity to address climate change through a strategic milestone framework.

This framework guides councils through undertaking an inventory of their emissions, setting reduction goals, planning and implementing actions, monitoring their progress and accelerating action. CCP councils that move beyond the milestone framework and continue to strive towards their corporate and community emission-reduction goals are supported through the CCP™ Plus program. This initiative helps them broaden, strengthen and accelerate their greenhouse gas abatement measures.

Since 1997, CCP Councils throughout Australia have reported reductions of over 8.8 million tonnes CO₂e, equivalent to taking 2 million cars off the road for a year. More than 200 councils are participating to the CCP™ program, representing 80% of the Australian population.

The City of Wanneroo recently joined the CCP™ Plus program after successfully completing the five milestones of CCP to strengthen its greenhouse reduction strategy. Figure 4 below represents the City's progress in the CCP™ program.





5 GREENHOUSE GAS EMISSION PROFILE

5.1 Australia's Greenhouse Gas Emissions

According to the 2005 National Greenhouse Gas inventory, Australia's net greenhouse gas emissions across all sectors totalled 559.1 million tonnes CO₂e in 2005, including 66.6 millions of tonnes for Western Australia representing 12 per cent of total national emissions.

Australia has reduced its emissions per capita over the period 1990 to 2005 by 14.4 per cent from 32.3 to 27.6 tonnes CO₂e. Average per capita emissions in WA decreased slightly to 33.1 tonnes CO₂e over the same period.

Australia's greenhouse emissions constitute about 1.5 per cent of global emissions. However, Australians have the highest greenhouse gas emissions per capita for industrialised nations (See Figure 5 below).

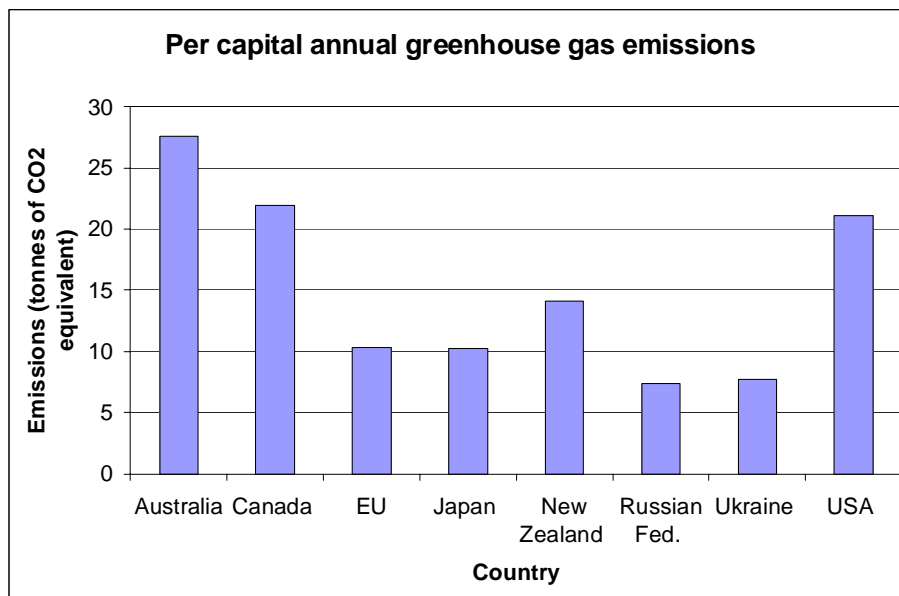


Figure 5: Highest per capita annual Greenhouse Emitting Countries (CO₂e).
 (Source: Based on reports from the Australian Institute
 PowerPoint presentation Aug 2003 Climate Change, Energy Policy, and Cool Communities.)



5.2 The City of Wanneroo's Greenhouse Gas Emissions

The City of Wanneroo's greenhouse gas emissions produced by Council's own operations (corporate sector) and by the local community (community sector) are reported.

Corporate greenhouse gas emissions includes CO₂e emitted in the following sectors: Buildings; Vehicle fleet, Street lighting; Water and Waste.

Community greenhouse gas emissions includes CO₂e emitted in the following sectors: Residential; Commercial & Industrial; Transportation; and Waste.

Note: the Australian Bureau of Statistics (ABS) figures of the City of Wanneroo population were used to produce the per capita greenhouse gas emissions.

5.2.1 Corporate Greenhouse Gas Emissions

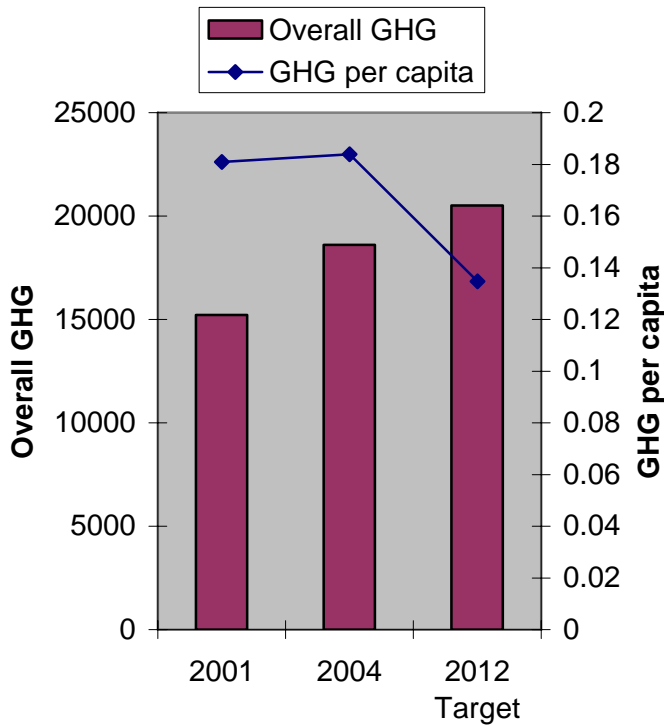
Implementing energy saving measures has enabled the City to reduce its corporate greenhouse emissions below the 'business-as-usual' scenario with a reported corporate abatement of 333.4 tonnes CO₂e. These measures have also delivered good results to the organisation in terms of cost savings. This outcome was due to a strong commitment to energy reduction from within the organisation.

However, Council's greenhouse emissions are still higher than desirable if we are to meet the emissions reduction target set in 2003. The City needs to ensure the continued success of its Greenhouse Gas Reduction Strategy and this is what this revised Energy Action Plan aims to achieve.

The City of Wanneroo's overall corporate greenhouse gas emissions have been increasing. Net emissions are estimated to have increased by 22.2 per cent to a total of 18,603 tonnes of CO₂e from 2001 to 2004. While this overall increase is partly a result of population increase and the new infrastructure that is required, the per capita contribution to Wanneroo's corporate greenhouse gas emissions has also slightly increased from 2001 to 2004.

The graph below represents the overall (column) and per capita (line) City of Wanneroo's greenhouse gas emissions in the corporate sectors in 2001 (baseline), 2004 (reinventory) and if we apply our CO₂e reduction target of 20 per cent by 2012.

The breakdown of greenhouse gas emissions by sub-sectors (see figure 7) shows that the City has reduced its per capita greenhouse gas emissions in the Buildings and Water sectors. It is where the City has concentrated most of its efforts to abate emissions.



Per capita greenhouse gas emissions have increased in the Vehicle Fleet and Streetlighting sectors. The increase of greenhouse gas emissions from the Fleet sector is partly due to bringing bulk rubbish collection in house rather than using a contractor (hence increasing the City's fuel consumption) (City of Wanneroo, CCP Milestone 5 Report). It is important to note that the City does not have control over most of the streetlighting assets. Forty per cent of the City's greenhouse gas emissions come from the streetlighting sector and therefore an increase in this sector alone can greatly influence the overall result.

Emissions from the Waste sector were not measured in the base year and therefore it is not yet possible to measure changes.

Figure 6: City of Wanneroo corporate greenhouse gas emissions (overall and per capita).

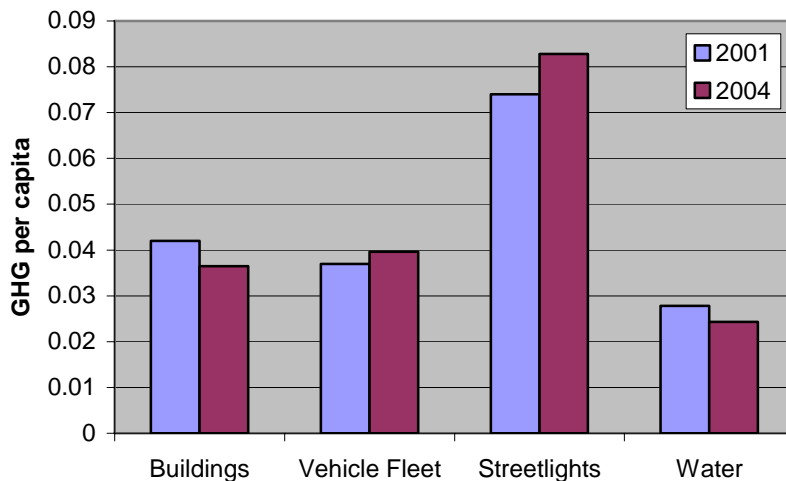


Figure 7: City of Wanneroo corporate greenhouse gas emissions by sub-sectors (2001 and 2004).

It is anticipated that a second reinventory will be carried out in mid-2008 to monitor the City's progress in meeting its greenhouse gas reduction targets.



5.2.2 Community Greenhouse Gas Emissions

The emissions inventory for the community sector was compiled using default census data supplied by ICLEI. These results need to be analysed in view of the exponential growth experienced by the City of Wanneroo.

Wanneroo's net community greenhouse gas emissions have increased by six per cent to a total of 1,764,969 tonnes of CO₂e from 1996 to 2001. However Wanneroo's greenhouse gas emissions per capita have decreased by approximately 18 per cent over the same period. The graph below represents the overall (column) and per capita (line) City of Wanneroo's greenhouse gas emissions in the community sector in 1996 (baseline), 2001 (reinventory) and if we apply our CO₂e reduction target of 25 per cent by 2012.

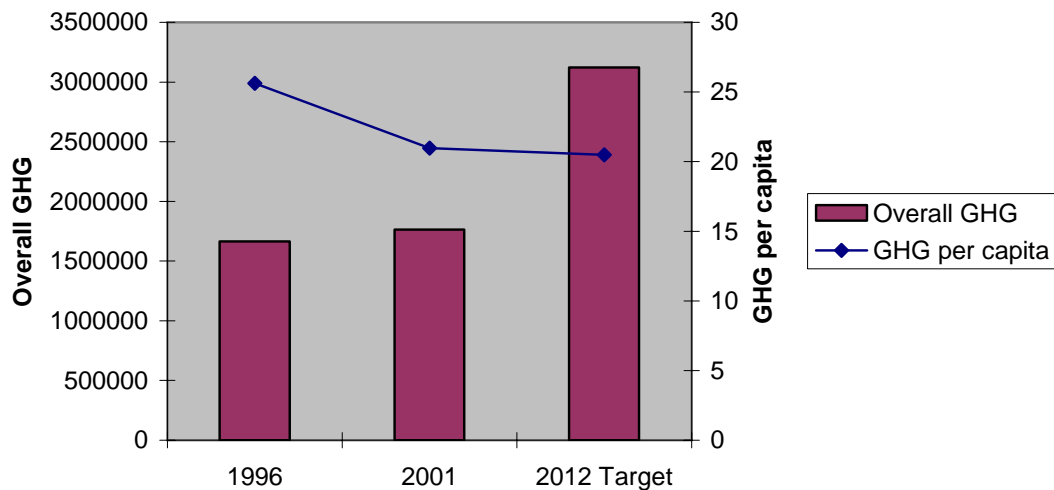


Figure 8: City of Wanneroo community greenhouse gas emissions

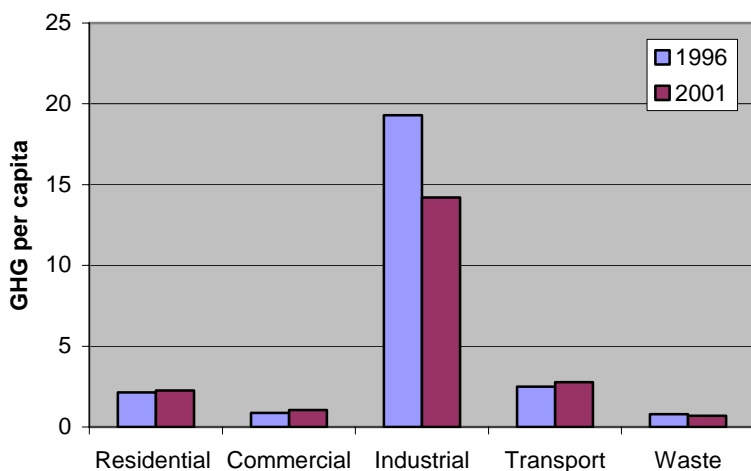


Figure 9: City of Wanneroo community greenhouse gas emissions by sub-sectors

On a per capita basis, the residential, commercial and transportation sectors have all increased their emissions from the base year. Emissions in the Industrial and Waste sectors comparatively decreased their emissions (see figure 9).

It is important to note that the Industrial and Commercial sector was responsible for over 70 per cent of Wanneroo's community greenhouse emissions in 2001 (see figure 9). Comparatively this sector has not increased as much as the City's population. Thus this might have slightly inflated the per capita greenhouse gas emissions reduction.



6 PROGRESS ON THE IMPLEMENTATION OF THE ENERGY ACTION PLAN

6.1 Highlighted achievements

From 2004 to 2007, substantial progress has been made in implementing the majority of measures from the Energy Action Plan across all sectors. Some of the initiatives include:

- “Community Buildings: Lowering Greenhouse and Raising Awareness” project, with the support of the Australian Greenhouse Office in 2005. The project involved energy efficiency upgrades to seven of Council’s community buildings during March to May 2005. Now completed, the project will result in an additional saving of 5.58 tonnes of CO₂e emissions and cost savings of over \$1,000 per annum.
- A parks bore pumps replacement program to reduce energy and water use in several of the City’s parks, resulting in an annual saving of over 126 tonnes CO₂e emissions, with further upgrade works planned.
- A series of energy reduction measures in the Civic Centre, achieving a saving of over 231 tonnes CO₂e emissions in the first year.
- 5MW of electricity is produced annually through methane extraction at the Tamala Park landfill site. This abated 32,933 tonnes of greenhouse gas emissions in 2006.
- The purchase of a hybrid vehicle (petrol/electric) for use on trial basis by the City’s Building Surveyors. The car produces 10 per cent less greenhouse emissions and is far more fuel effective, resulting in a saving of 1.52 tonnes CO₂e emissions per year. The City has also converted ten of its vehicles to Liquid Petroleum Gas (LPG) and is currently trialling the use of biodiesel in two waste collection trucks.
- Implementation of the TravelSmart Household program in the Clarkson and Marangaroo areas. On average, the implementation of this program results in a 10 per cent reduction in car trips and 26 per cent increase in walking trips, 58 per cent in cycling trips and 18 per cent in public transport trips.
- Joint participation with the City of Joondalup and the City of Stirling and with the support of the Australian Greenhouse Office in the EcoBusiness program. Twenty-five businesses per Local Government authority were offered a free energy audit with recommendations on how to reduce their consumption, potentially achieving 5,995 tonnes of greenhouse gas abatements per annum across the three Local Governments.
- Numerous and varied awareness raising initiatives including hosting seminars on how to design a sustainable house, public screening of the movie ‘An Inconvenient Truth’, displays on climate change and articles in the Wanneroo Link and the City’s website on sustainable living.



6.2 Progress Report 2004 to 2007

Information is provided below on the progress achieved on all the actions recommended for implementation in the initial Energy Action Plan from 2004 to 2007. Actions ranked as high priority were to be implemented within 18-month of adoption of the Energy Action Plan, actions ranked as medium priority within 18-month to three years and low priority after four years.

The status of each action is reported below, being:

- Completed;
- Partly completed;
- In progress;
- Not started; and
- Obsolete.

Obsolete actions were considered either not applicable, unrealistic or not relevant anymore. Some actions cannot technically be considered as completed because of their ongoing nature. They will then be considered as *in progress*.

More details on the implementation of the actions along with the reasons supporting the non-implementation of some actions are included in the Appendix.

6.2.1 Corporate sector

To date, in the corporate sector, six actions are deemed to be completed, 15 in progress, 11 not started and 10 obsolete.

NB.	ACTION	PRIORITY	STATUS	
General actions	1	Formally establish an Energy Steering Team to oversee Council's energy programs and coordinate the implementation of this Action Plan.	HIGH	Completed
	2	Establish processes to examine the costs and benefits of pursuing the actions outlined in this Action Plan.	HIGH	Obsolete
	3	Approach energy providers and encourage them to provide quarterly summaries of Council's energy consumption. Establish a process to capture energy consumption data.	HIGH	In progress
	4	Identify and document Council's energy management processes in the next review of the Strategic Plan.	MEDIUM	Completed
	5	Implement a Marketing and Communications Strategy to promote the CCP™ Program internally and to the community.	HIGH	In progress
	6	Review the existing draft Environmental Purchasing policy for Council and update for energy as necessary.	MEDIUM	In progress
	7	Consider establishing a revolving energy fund.	MEDIUM	Obsolete
	8	Consider options for developing and implementing an annual CCP™ Program calendar.	HIGH	Obsolete
	9	Seek funding for energy projects and other initiatives from government funding sources.	MEDIUM	In progress



NB.	ACTION	PRIORITY	STATUS	
Staff education	10	Develop and commence implementation of a staff energy awareness campaign to increase knowledge of Councils' energy issues and promote energy saving behavioural changes.	HIGH	In progress
	11	Set up a display for staff to promote the CCP™ Program and the outcomes of their contributions.	HIGH	Completed
	12	Provide awards or incentives for initiatives and for business units or individuals that achieve targets set.	MEDIUM	Obsolete
Buildings	13	Continue to conduct audits of the City's major energy consuming buildings, and keep updated on technology that can be applied to buildings to improve energy efficiency.	HIGH	In progress
	14	Continue to replace lighting with energy efficient technology as part of routine maintenance and upgrades.	HIGH	In progress
	15	Investigate options for lighting retrofits in Council buildings where appropriate to reduce energy consumption.	HIGH	In progress
	16	Ensure a regular maintenance schedule for Council building is maintained.	HIGH	Obsolete
	17	Investigate fitting timers to high energy consuming equipment in Council buildings.	MEDIUM	Not started
	18	Continue to carry out selective replacement of conventional Cathode Ray Tube (CRT) monitors with Liquid Crystal Display (LCD) screens.	MEDIUM	In progress
	19	Investigate installing AAA rated showerheads in Council buildings.	MEDIUM	Not started
	20	Investigate the implementation of a cogeneration/heat recovery facility in Council buildings where opportunities exist.	MEDIUM	Obsolete
	21	Investigate installation of building management control systems where appropriate, and ensure staff are adequately trained to maximise use of the Building Management Control Systems (BMCS).	HIGH	Obsolete
	22	Negotiate energy contracts with energy providers to increase energy efficiency.	MEDIUM	Not started
	23	Ensure energy efficient building design is incorporated into design contracts and documentation.	HIGH	Not started
	24	Develop schematic plans of Council property showing location of meters, infrastructure serviced by meters etc.	HIGH	Obsolete
25	Investigate purchasing Green Power for Council buildings.	LOW	Not started	
Streetlights	26	Investigate use of alternative energy such as solar powered lighting.	LOW	Not started
	27	Continue lobbying Western Power for improvements in streetlighting service.	MEDIUM	In progress
	28	Work with Western Power to investigate installing Light Emitting Diode lighting in parks and for security lighting in appropriate areas.	MEDIUM	Not started
	29	Lobby Main Roads WA to investigate installing Light Emitting Diode traffic lights.	MEDIUM	Not started



NB.	ACTION	PRIORITY	STATUS.	
Fleet	30	Continue to consider substituting larger vehicles with smaller vehicles (e.g. six cylinder for four cylinder).	HIGH	Completed
	31	Investigate continuation of vehicle fuel conversions for the City's fleet.	HIGH	In progress
	32	Investigate trialling a hybrid-fuel vehicle.	HIGH	Completed
	33	Encourage staff within each directorate to participate in a car-pooling program.	HIGH	In progress
	34	Enforce the maintenance schedule for all plant and fleet to ensure vehicles/plant operate to maximum efficiency.	HIGH	Obsolete
	35	Investigate providing subsidised multi-riders for staff using public transport.	MEDIUM	Not started
Water	36	Ensure that energy efficient motors are installed for new bore pumps and/or old pumps and motors are upgraded/replaced.	HIGH	In progress
	37	Continue monitoring of water usage and consider options to reduce the operating times of bore pumps for irrigation purposes.	HIGH	In progress
	38	Develop and implement a water conservation strategy to reduce need for bores in areas where dry parks are appropriate.	MEDIUM	Not started
	39	Consider installing timers to limit the use of water in showers and change rooms.	MEDIUM	Not started
Waste	40	Implement a Global Positioning System (GPS) to improve fleet routing and control.	HIGH	Completed
	41	Promote and improve internal recycling programs to reduce waste to landfill.	MEDIUM	In progress
	42	Monitor development of the Permo-drive (hydraulic hybrid regenerative driveshaft) system.	MEDIUM	Obsolete



6.2.2 Community sector

To date, in the community sector, one action is deemed completed, two actions partly completed, nine actions in progress and one action not started.

No.	ACTION	PRIORITY	STATUS
General	43 Establish a Community Greenhouse Action Group to promote energy efficiency in the community.	MEDIUM	In progress
	44 Investigate and establish an energy efficient showcase facility to demonstrate and promote energy efficiency and renewable energy technology to the community.	MEDIUM	In progress
	45 Commence work with organisations such as the Sustainable Energy Development Office (SEDO) to develop programs to reduce emissions in the community sector.	MEDIUM	In progress
Residential	46 Incorporate energy efficiency tips for the home in packages given to new residents, and in relevant sections of the Council website.	HIGH	Partly completed
	47 Investigate incorporating energy awards for community members/stakeholders into the Environmental Awards Scheme.	MEDIUM	Completed
	48 Commence the development of options, processes and procedures for incorporating energy efficiency initiatives into the design of new developments (commercial, industrial and residential).	HIGH	In progress
Industrial	49 Form partnerships with industry to promote the uptake of energy efficiency practices.	MEDIUM	In progress
Transport	50 Promote the GreenFleet initiative to the general public.	MEDIUM	Completed
	51 Promote the TravelSmart program.	MEDIUM	In progress
	52 Encourage developers to implement the principles of the Liveable Neighbourhoods Design Code.	HIGH	In progress
Waste	53 Develop an education program to encourage recycling and waste minimisation efforts by residents and businesses.	MEDIUM	In progress
	54 Investigate methods of reusing landfill gas (methane extraction) when new technologies become available to ensure project viability.	MEDIUM	Completed
	55 Support the establishment of a Construction and Demolition Recycling Facility.	MEDIUM	Not started



7 DEVELOPMENT OF THE REVIEWED ENERGY ACTION PLAN

7.1 Factors contributing to the Review

Three years after adoption, it became timely to review the Energy Action Plan for the following reasons:

- Technologies have progressed;
- Valuable lessons were learnt during the implementation of the Energy Action Plan 2004-2007;
- Climate change has become a major issue for Local Governments;
- The release of the new City of Wanneroo Strategic Plan 2006-2021 demonstrating the importance given by Council to environmental sustainability; and
- A review of the Energy Action plan is required as part of the City's participation to the CCP™ Plus program (Planning & Review).

The City is ready to strive towards further reducing its greenhouse gas emissions and encouraging and supporting the local community to adopt a more sustainable lifestyle.

7.2 Review process

The review process involved key stakeholders in the organisation and in the community. The Energy Steering Team, composed of senior City of Wanneroo staff members from across the organisation was heavily involved throughout the review. The wider organisation was involved through a staff workshop held in February 2007, with the support from ICLEI.

The City of Wanneroo's Environmental Advisory Committee (EAC) is composed of community, staff and elected members, whose role is to provide advice to Council on environmental matters also took part in the review. The draft document was also advertised for public comments for 4 weeks, ending in October 2007.

A stringent process was adopted to streamline the existing Energy Action Plan, identifying strengths and weaknesses. From this assessment, actions were removed, carried forward, modified or added (See 6.2 Progress report 2004 to 2007).

The emphasis was put on developing actions that were achievable and tailored to Wanneroo's local situation, as well as being SMART actions (Specific, Measurable, Achievable, Realistic and Timebound). Clear responsibilities and timeframes were allocated to facilitate the implementation stage.

A strong emphasis was also put on delivering community programs to raise awareness of the greenhouse issues and promote the implementation of energy measures across the Local Government.



8 EAP ACTIONS 2007-2012 - DETAILS

8.1 Process for implementing actions

Forty-four actions are proposed for implementation from 2007 to 2012, 21 in the corporate sector (EAP actions 1-24) and 19 in the community sector (EAP actions 24-44).

All actions proposed for implementation have been allocated to one responsible Service Unit. The following Service Units are directly responsible for the implementation of one or more actions:

- Smart Growth;
- Building & Health;
- Governance & Corporate Performance
- Human Resources;
- Infrastructure Maintenance;
- Infrastructure Projects;
- Infrastructure Planning;
- Waste & Fleet;
- Contracts & Property;
- Information Technology; and
- Economic Development.

Responsibilities for the implementation of this Energy Action Plan are spread across the organisation, demonstrating that reducing greenhouse gas emissions has become part of the City's core business. Although one Service Unit has been allocated responsibility, it is recognised that a partnership approach will be required in most cases.

All proposed actions have starting and finishing dates. These actions have been included in relevant Service Unit Plans to ensure their timely implementation. Progress on their implementation will be regularly reported through the City's Service Unit Planning software (Interplan).

Council funding will be allocated through the annual planning and budget process. Larger scale projects will be subject to the corporate project evaluation framework. External funding will be sought when applicable.

It is anticipated that another review of the Energy Action Plan will be undertaken in approximately two years time.



8.2 Greenhouse Actions as at September 2007

The following section provides detailed information on the 44 actions that are proposed for implementation to reduce Wanneroo's greenhouse gas emissions in the corporate and community sectors from 2007 to 2012.

8.2.1 CORPORATE ACTIONS

The implementation of many actions from the corporate sector has successfully contributed to reducing significant amount of greenhouse gas emissions. It is now time to start addressing more challenging sectors to achieve a greater reduction in greenhouse gas emissions.

8.2.1.1 General Actions

ACTION 1

Establish a process to capture the City's energy consumption data.

Timeframe: Nov 07-Jul 08

Responsibility for implementation: Contracts and Property

At present, electricity and gas account consumption information is not recorded electronically within Council, making it extremely difficult to track any patterns in energy use. Accessing data direct from the utility does not always guarantee a true set of data. The City keeps a database of all of the invoices that come into the City for Electricity and Gas usage. From that database details about total units used could be provided.

The ability to track energy consumption over time allows improvements to be seen and quantified and also allows high consumption areas to be targeted. This was one of the main recommendations from the CCP Milestone 5 report.

ACTION 2

Report annually to Council on the City's energy and fuel consumption and waste production (as per the recycling audit).

Timeframe: Aug 08-Ongoing

Responsibility for implementation: Smart Growth

The City will annually report on the amount of greenhouse gas emissions emitted through its operations (electricity, gas and fuel consumption and waste production). Action 1 should provide the information for the electricity and gas consumption. Fuel cost data for all vehicles and plant is already available electronically from Council. Vehicle kilometres travelled (VKT) is also available for the majority of vehicles and plant (usually record hours of operation). Action 24(a) should provide the waste-related information (quantity and type of waste produced).

From this information, the quantity of CO₂e can be estimated using the CCP GHG software made available to all participating Councils. This information will be collated in an annual report, to be distributed to staff, Elected Members and the local community.



ACTION 3

Investigate offsetting some of the City's greenhouse gas emissions by undertaking bushland conservation and/or revegetation projects.

Timeframe: Jan 09-Jun 09

Responsibility for implementation: Infrastructure Maintenance

Trees and other plants take up and store carbon dioxide from the atmosphere as they grow. Protecting existing trees and vegetation and increasing new planting keeps carbon out of the atmosphere and thereby limits greenhouse gas emissions. While vegetation is actively growing and the soil is not emitting significant carbon, the system is known as a greenhouse sink.

Greenhouse considerations can be incorporated into Local Government vegetation management planning. Local Government can also establish new, or protect existing greenhouse sinks through land use planning, zoning, development control and tree protection and clearing controls.

Wollongong City Council has established a ten-hectare greenhouse park as a community environmental project. The former landfill site is in a prominent urban coastal location and forms a habitat corridor. Approximately 3,000 trees have been planted, and solar and wind power has been used for on-site lighting and in the adjacent sewerage plant. The park is increasing community understanding of greenhouse issues by involving schools, industry, business, environmental and community groups.

ACTION 4

Investigate potential impacts of climate change and adaptation strategies in the City of Wanneroo.

Timeframe: Sep 08-Sep 09

Responsibility for implementation: Smart Growth

While the City of Wanneroo is actively taking steps to mitigate greenhouse gas emissions and reduce the magnitude of global warming, the City will also be at the forefront of managing the effects of climate change. The projected impacts of climate change will influence all elements of local government responsibility. Some of the impacts include severe weather events resulting in damaged infrastructure, impacting on water and sewerage services and human health. Projected sea level rise will impact on coastal settlements and recreation facilities; and hotter and drier conditions could lead to more bushfires and reduced local biodiversity values.

Information on the potential impacts of climate change is available from the Intergovernmental Panel on Climate Change, the CSIRO and the Bureau of Meteorology. Having a better understanding of the local impacts of climate change will allow the City to identify the appropriate adaptation responses required to address risk in the following sectors: policy, new buildings and infrastructure, existing buildings and infrastructure, community health and recreation and natural environment.

Both the number of mosquitoes and the effectiveness of control programmes are highly climate sensitive, in particular to higher temperatures and tides. Large numbers of mosquitoes can cause a serious nuisance problem and considerable health risks. The City of Mandurah has adapted its mosquito control program to a changing climate and has developed new techniques for mosquito control that are less affected by high-tide events.



ACTION 5

Investigate feasibility of financially valuing greenhouse gas emissions savings as an internal pricing mechanism when considering energy efficiency costs and paybacks for City's projects.

Timeframe: Oct 08-Apr 09

Responsibility for implementation: Smart Growth

Many sustainable energy projects have extended payback periods, sometimes over 20 years. This has been identified as a significant barrier to further reducing the City's greenhouse gas emissions. The City recognises that reducing greenhouse gas emissions has far greater benefits than strictly financial. To facilitate the consideration of other benefits and also to prepare the City for future emissions trading schemes, it is proposed to investigate the feasibility of financially valuing greenhouse gas emissions as an internal pricing mechanism. This internal pricing of emissions will reduce the financial payback period of any energy efficiency investments and potentially provide greater returns than many other potential investments of Council resources.

In August 2007, the City of Melbourne recommended applying the current market price for Federal Government endorsed offsets of \$15 per tonnes of greenhouse gas emissions as an internal pricing mechanism when considering energy efficiency costs and paybacks.

ACTION 6

Investigate opportunities to support renewable energy production within the City.

Timeframe: Dec 08-Jun 10

Responsibility for implementation: Smart Growth

Attracting and facilitating the implementation of commercial renewable energy projects in the City would deliver significant environmental, social and economic benefits to the local community, as well as accelerating the transition to more sustainable energy systems.

This may be achieved through creating a more favourable planning environment and providing specific support to potential proponents. Suitable mechanisms require further investigation.



8.2.1.2 Staff Education

ACTION 7

(a) Develop a City of Wanneroo-branded education and training program for staff, covering energy efficiency, waste reduction/recycling and alternative transport, with support from Waste & Fleet services and IT services.

Timeframe: Nov 07-Jun 08

Responsibility for implementation: Smart Growth

The City produces significant greenhouse gas emissions at its Council buildings, especially at the Civic Centre, the Ashby Operational Centre and Aquamotion Aquatic Centre. The success of many energy initiatives relies on support from the City's staff. Education and awareness raising projects for staff, with respect to greenhouse and energy issues, will be required to maximise these opportunities.

Many marketing mediums are currently used to raise awareness of greenhouse issues of the City's staff such as the staff newsletter Kangaroo Paw, emails, the Intranet, displays in the foyer or staff kitchens and Lunchtime Forums hold in the Council Chamber. In the future, the City shall endeavour to make the best use of these existing mediums and envisage using additional means such as the City's Social Club, the bi-annual staff Conference, induction sessions and thematic posters.

To foster a culture of sustainability in the workplace, it is proposed to develop a City of Wanneroo-branded education and training program covering the following topics: waste reduction and recycling, energy use, water conservation, use of alternative transport and sustainable purchasing. The branded-program would allow for a consistent and easily recognisable approach to educating all staff, on the above issues.

(b) Implement the City of Wanneroo-branded education and training program for staff.

Timeframe: Jun 08-Ongoing

Responsibility for implementation: Smart Growth

Once prepared, the City of Wanneroo-branded staff education and training program will have to be rolled out progressively across the whole organisation. The program will have to be regularly reviewed to monitor and improve its performance.

ACTION 8

Incorporate an Energy Saving category into the City's Innovation Award Scheme.

Timeframe: Nov 07-Feb 08

Responsibility for implementation: Human Resources

The City has an Innovation Award scheme that encourages staff members to submit innovative ideas that will improve the workplace. Innovation ideas may be under any of the following categories: Process improvement; Cost effective strategy; Strategic idea and Creative idea. It is proposed to add an Energy Saving category to the Innovation scheme to encourage and reward better energy management amongst staff.



8.2.1.3 Buildings

ACTION 9

(a) Prepare a Policy on the energy efficiency requirements of Council's building assets (new buildings and upgrades).

Timeframe: Nov 07-Apr 08

Responsibility for implementation: Smart Growth

The design and specification of new City's building assets provides an opportunity to ensure reduced energy consumption and reduced greenhouse emissions for years into the future. Sustainable buildings offer some of the best opportunities for low-cost, large-scale reductions in greenhouse gas emissions. Many sustainable building measures have been shown to offer significant economic gains by cutting waste and improving occupant health and productivity. Through the sustainable construction and management of community facilities, the City has the opportunity to show leadership.

It is proposed to prepare a policy outlining the energy efficiency requirements of all new City's building assets. This policy would guide the preparation of the specifications for any proposed new City-owned building infrastructure. Opportunities for energy efficient building design include: siting and orientation, building envelope, lighting, heating, ventilation and cooling systems; building management systems; and energy rating system. Input from all Service Units that currently contribute to the design of City's building assets would be sought.

In June 2006 the Commonwealth Government introduced the Energy Efficiency in Government Operations (EEGO) policy. This policy applies to all Commonwealth Government departments and agencies and imposes minimum energy efficiency performance standard for specified buildings and refurbishments.

(b) Implement the energy efficiency requirements for new building assets as identified by the City's Energy Efficiency in Council's building Assets Policy.

Timeframe: May 08-Ongoing

Responsibility for implementation: Contracts & Property

EAP action 9(a) recommends the preparation of a policy listing energy efficiency requirements for all new Council's buildings and building upgrades. All building proposals are assessed by the City's Corporate Projects Evaluation Group (CPEG) composed of key staff from across the organisation. The CPEG specifications will be reviewed to incorporate the recommendations included in the Energy Efficiency in Council's Building Assets policy.

This will ensure energy efficiency requirements are included in all Council's building proposals at the design stage, when there are the most cost-efficient opportunities available to reduce buildings energy usage. The capital project design process will need to incorporate a whole of life costing analysis before the final design is approved. This may result in higher up front capital construction costs but would reduce ongoing annual maintenance capabilities.



ACTION 10

Undertake an energy audit of all City's building assets.

Timeframe: Jul 08-Jun 09

Responsibility for implementation: Infrastructure Maintenance

Energy audits are currently carried out two years after a Council building is finished. In order to make existing infrastructure more energy efficient and to keep up-to-date with new technologies, it is proposed that regular energy audits are carried out for all City's building assets. A planned schedule will be prepared to ensure the efficiency and cost-effectiveness of the process.

ACTION 11

Implement audit recommendations identified to have highest cost-benefit (including lighting, external building security lighting, timers, air-conditioning, electrical appliances, BMCS).

Timeframe: Jul 09-Jun 12

Responsibility for implementation: Infrastructure Maintenance

Recommendations from the energy audits identified to have highest cost-benefit will be implemented on a case-by-case basis.

ACTION 12

Investigate opportunities for the use of renewable energy technologies to provide power to the Civic Centre and a City's community centre or library.

Timeframe: Nov 07-Apr 09

Responsibility for implementation: Smart Growth

A number of CCP councils have undertaken renewable energy projects, using solar or wind power to generate electricity. In addition to reducing greenhouse gas emissions and energy costs, the projects also increase community awareness about the technologies involved. Excess power that is generated can be sold back to the electricity company and resold to GreenPower customers.

Commonwealth Government funding is available towards the installation of photovoltaic (PV) systems in community buildings, in cases where the educational or promotional merit of the project can be demonstrated. Opportunities to power part or all of the electricity needs with renewable energies of the Civic Centre (as a priority) and a library or a community centre will be investigated.

The Civic Centre was identified as part of the CCP Milestone 1 inventory as the Council-owned building that consumed the most energy and therefore was the most costly to Council. It accounted for 41 per cent of total emissions for Council buildings. Other buildings such as community centres or libraries would offer a strong community education component.

The City of Port Philip has created energy neutral Council Chambers by installing twelve solar panels on the roof of St Kilda Town Hall.



ACTION 13

Provide recommendations for the supply of Green Power to the City's infrastructure assets.

Timeframe: Nov 07-Feb 09

Responsibility for implementation: Smart Growth

Building sector greenhouse emissions can be reduced by purchasing electricity generated from renewable sources. It is possible to purchase natural power in portions ranging from 10 per cent of total consumption up to 100 per cent. The City of Wanneroo has a number of facilities, which are eligible to access the deregulated market. Using renewable power for these facilities would reduce corporate greenhouse emissions by a substantial amount. Additional funds spent to purchase natural power help build new renewable energy generators, and help promote greater use of renewable energy.

Some Local Governments have successfully negotiated contracts with independent suppliers to purchase renewable power at a cost equal to or less than conventionally generated power. A combination of Actions 12 and 13 could contribute to making some of the City's buildings carbon neutral.

In October 2000, the City of Stirling committed to purchasing 25 per cent of the electricity used by the City Administration Building from Western Power's Natural Power Scheme. In 2002, the purchase of Natural Power reduced the City's greenhouse gas emissions by 264 tonnes CO₂e at an additional cost of \$7,900.

ACTION 14

Purchase Energy Star compliant office equipment (computers, photocopiers, printers, scanners).

Timeframe: Nov 07-Ongoing

Responsibility for implementation: Information Technology

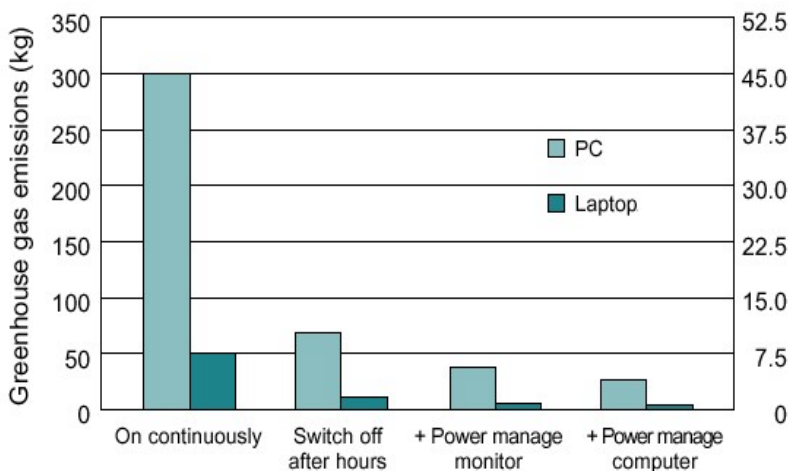


Figure 10 Annual greenhouse gas emissions for PCs and laptops. (Source: AGO Green Office Guide).

ENERGY STAR is an international standard for energy efficient electronic equipment, recognised by many governments including the Australian and WA Governments. ENERGY STAR reduces the amount of energy consumed by a product by either automatically switching it into a 'sleep' mode when it's not being used and/or reducing the amount power used when in 'standby' mode. Purchasing energy efficient office equipment can significantly reduce the amount of electricity required.

The figure 10 illustrates how much energy can be saved annually by enabling the Energy Star function (+ Power manage) on Personal Computers (PC) and laptops.



ACTION 15

Activate all energy reduction facilities (Energy Star) on existing and new office equipment.

Timeframe: Nov 07-Ongoing

Responsibility for implementation: Information Technology

While most office equipment now has the *potential* to save energy (i.e. it is ENERGY STAR compliant), not all machines, particularly PCs, have actually been *enabled* so that the energy saving features are activated. All new office equipment (including computers, printers, photocopiers and scanners) will be checked to ensure the Energy Star function is enabled when it is set up. An audit of all existing machines will be undertaken to ensure the Energy Star function is enabled on all equipment.

If not, power settings will be modified. There is a simple step-by-step procedure to enable ENERGY STAR features on computers.

The City of Adelaide calculated that enabling Energy Star power-saving features on 370 networked computers would provide an annual saving of approximately \$15,000 in energy costs and 107 tonnes CO_{2e}. Using Energy Star features on 45 photocopiers and 30 printers would save an additional \$9718 in energy costs and 70 tonnes of CO_{2e}.

ACTION 16

Establish processes to enable 100% recycling of the City's e-waste (toner and printer cartridges, computers, mobile phones, phones, faxes, printers).

Timeframe: Nov 07-Jun 09

Responsibility for implementation: Information Technology

E-waste is 100 per cent recyclable, and yet currently 96 per cent of it ends up in landfill and only 4 per cent is recycled. Various Councils have set up processes to recycle their own e-waste and to promote the uptake of this practice amongst the local community.

When dumped in our landfills the materials and chemical components used to make computer equipment such as lead, mercury, cadmium and arsenic can leach into and harm our environment. Also it takes less energy and other natural resources to make office equipment using recycled goods than it does to manufacture them from virgin material. Recycling 1 tonne of plastic saves 992 litres of petrol compared with producing it from virgin materials. The website *Recycling Near You* <http://recyclingnearyou.com.au/> could assist Council in identifying existing recycling opportunities.

The City of Wanneroo already recycles some of its e-waste. Obsolete computers are currently given to local community groups or sold to City's staff. Toner cartridges are also recycled through the City's supplier.



8.2.1.4 Lighting

ACTION 17

Install energy-efficient lighting in new City-controlled road, park and car park infrastructure.

Timeframe: Nov 07-ongoing

Responsibility for implementation: Infrastructure Projects

A number of CCP councils have installed Light-Emitting Diodes (LED) or solar lighting in parks or along streets. Significant benefits have been reported from using lanterns with LED including increased reliability, reduced energy costs and longer life expectancy compared to the traditional incandescent lamps. The installation of solar lighting is still relatively costly. This technology should be investigated for remote sites in preference to grid connections. This ensures a reduction in energy consumption and installation costs associated with connecting to the grid.

A relatively small amount of outdoor lighting, mainly in parks and reserves, is under the direct control of Council. The City will endeavour where practicable to install more energy efficient lighting in new road, car park and park infrastructure controlled by the City.

Coffs Harbour City Council became the first Australian council to install energy efficient street lighting across the whole of its Local Government area. The installation of the street lighting technology has been saving Council about \$100,000 a year over a 10-year period, in addition to reducing greenhouse gas emissions.

ACTION 18

Negotiate a revised StreetVision contract that incorporates energy performance.

Timeframe: Nov 07-Jun 12

Responsibility for implementation: Infrastructure Maintenance

In Western Australia, most street lighting is not under the direct control of Councils. Councils are charged for power use and maintenance while Western Power retains ownership of the infrastructure. This arrangement restricts the City's ability to achieve major improvements in energy efficiency in streetlighting.

The City will be working with Western Power and the Western Australia Local Government Association (WALGA) to achieve better energy outcomes. It is anticipated that the renegotiation of the City's streetlighting contract (StreetVision) will be required.



8.2.1.5 Fleet

ACTION 19

Develop a process for monitoring the usage of different fuel types for the City's fleet.

Timeframe: Nov 07-Mar 08

Responsibility for implementation: Waste & Fleet

The City is currently trialing various alternative fuel vehicles, including a hybrid (petrol/electric), ten LPG and two biodiesel vehicles. To accurately assess the outcome of these trials, it is important to set up a robust reporting process that distinguishes between different fuel types. At the present time, only fuel costs and Vehicles Kilometres Travelled (VKT) are recorded. The proposed purchase of Fleet management software should facilitate this process.

ACTION 20

Evaluate and report on the performance (whole of life cycle costs) of the City's fleet, including alternative fuel and power generation vehicles currently trialled.

Timeframe: Nov 07-Dec 08

Responsibility for implementation: Waste & Fleet

The City of Wanneroo is strongly committed to trialling alternative fuel vehicles (see EAP action 17). As new technologies develop and markets open, the City shall endeavour to extend its trial program. To take these new technologies from a trial phase to mainstream implementation, it is important to assess their cost-effectiveness comparatively to traditionally powered vehicles (unleaded and diesel). A whole-of-life cycle cost approach needs to be taken to evaluate their accurate performance.

The assessment would take into account not only the capital (up-front) costs, but also the hidden costs such as fuel consumption, maintenance and selling value over the whole life of the vehicle. As Local Government, other criteria such as leading by example and reducing greenhouse gas emissions would also be considered.

Funding is available through the Alternative Fuels Conversion Program, run by the Australian Greenhouse Office, to assist operators of heavy commercial vehicles to convert their vehicles to run on Compressed Natural Gas (CNG) or Liquid Petroleum Gas (LPG), or to purchase new vehicles operating on these fuels.



ACTION 21

Provide incentives to staff to use alternative transport (public transport, walking, cycling, car pooling).

Responsibility for implementation: Human Resources

Timeframe: Jan 08-Jun 08

To reduce the impact of staff commuting to and from work, incentives for the use of alternative transport (walking, cycling, using public transport and car-pooling) will be offered to all staff. The type of incentives is still to be investigated. They could include subsidised bus or train tickets, free bike service, part of the transportation time counted as work time or additional leave.

This action would have additional benefits such as monetary savings, improved staff health and productivity and reduced road congestion.

Darebin and Mitcham Councils have proposed an additional two days leave as an incentive for staff to ride to work recognising the potential for improved productivity.

ACTION 22

Develop a business case to implement a Global Positioning System (GPS), an Engine Management System and Route Planning software to all waste collection vehicles to improve fleet routing and control.

Timeframe: Nov 07-Jun 09

Responsibility for implementation: Waste & Fleet

The first Energy Action Plan 2004-2012 recommended the trial of a Global Positioning System (GPS) for a waste collection vehicle. Initial field trials indicate that a GPS system will allow increased time and fuel efficiency. An Engine Management System and Route Planning software are also being considered to improve fleet routing and control. It is anticipated the study will be completed in time to support a submission for the 2008/09 budget.



8.2.1.6 Water

ACTION 23

Continue the installation of energy efficient motors for new bore pumps and for the replacement of old pumps and motors.

Timeframe: Nov 07-Jun 12

Responsibility for implementation: Infrastructure Maintenance

The first Energy Action Plan 2004-2007 recommended the installation of efficient motors for new bore pumps and the retrofitting of old pumps and motors. Surface mounted turbine pumps have been replaced with smaller more efficient submersible pumps at John Moloney, Blackmore and Hudson Parks. This action has been very successful, resulting in an annual saving of over 125 tonnes CO₂e emissions.

Further upgrade work is required and new parks are being developed. Therefore it was decided to keep this action in the revised Energy Action Plan.

Note: The City of Wanneroo recently joined the ICLEI Water Campaign and therefore will be developing a Water Action Plan in the near future. Only water-related actions that were relevant to energy conservation were maintained in this revised Energy Action Plan.



8.2.1.7 Waste

ACTION 24

(a) Undertake annually an internal recycling audit of the Civic Centre, the Ashby Operational Centre, the Business Grow Centre, Aquamotion Aquatic Centre and all Council libraries.

Timeframe: Jun 08-Ongoing

Responsibility for implementation: Waste & Fleet

Some information is available regarding the size of office bins and frequency of collection of office bins. As yet, no internal corporate waste audits have been completed and there is no information regarding volumes of waste generated by the City's employees. Better tracking corporate waste emissions was one of CCP Milestone 5 Report recommendations.

The recycling audit will measure the amount and type of waste produced as well as making recommendations to improve recycling and waste minimisation in the following Council buildings: Civic Centre, the Ashby Operational Centre, the Business Growth Centre, Aquamotion Aquatic Centre and all Council libraries. This information will be used to report annually on Council greenhouse gas emissions (see EAP action 2).

(b) Implement the recommendations of the Recycling Audit.

Timeframe: Jan 09-Jun 12

Responsibility for implementation: Waste & Fleet

The City will endeavour to implement the recommendations identified in the internal audits to improve waste minimisation and recycling. The measures may include providing paper recycling facilities at all Council facilities, composting services in staff kitchens and running specific waste minimisation programs at the Ashby Operation centre.

The cost effectiveness of the measures would have to be considered to assist the City in achieving better results. This action would promote the Zero Waste vision set by the Western Australian Zero Waste Strategy.



8.2.2 COMMUNITY ACTIONS

As most greenhouse gas emissions come from the community sector, establishing successful strategies for implementing community measures is essential. The City can have an effect on emissions directly, through policies and regulatory actions and also indirectly by providing advice, information and support.

Community actions are grouped into the following categories:

- Community Education;
- Residential;
- Economic;
- Transportation; and
- Waste.

8.2.2.1 Community Education

ACTION 25

(a) Develop a Marketing and Communication Plan to raise community awareness of the impacts of climate change and how to become more energy efficient, with support from Marketing Services.

Timeframe: Dec 07-Jun 08

Responsibility for implementation: Smart Growth

The City can play a role in reducing community greenhouse emissions by raising public awareness and understanding about the enhanced greenhouse effect and climate change and by promoting energy saving and the use of energy efficient products and services. Local Governments are often the primary contact with the community and therefore have a significant opportunity to influence day-to-day behaviours.

It is recognised that there is more to changing people's behaviour than simply increasing environmental understanding. Efforts to raise awareness and promote behaviour change are most effective when people can relate these issues to their everyday lives. The City will need to take a structured approach to make the best use of available resources, including existing State and Federal education programs and materials. Identifying any major gaps that the City could address will also be a priority.

The Plan may include articles in the local newspaper, on the City's website or in City's publications, conferences or movie screenings, displays or celebrations of special events like World Environment Day or Sustainable September. The Marketing and Communication Plan will formalise marketing and communication processes and timeframes. Support and input from the City's Marketing Services will be sought during the preparation of this plan.

b) Implement the Climate Change & Energy Efficiency Marketing and Communication Plan.

Timeframe: Jun 08-Ongoing

Responsibility for implementation: Smart Growth

Once prepared, the Climate Change and Energy Efficiency Marketing and Communication Plan will have to be implemented over a set period of time. This will be a working document regularly reviewed to be kept up-to-date and relevant.



ACTION 26

Include the latest information on the City's website on how to save energy at home, how to design an energy-efficient home, alternative transport and waste reduction/recycling opportunities.

Timeframe: Dec 07-Jun 08

Responsibility for implementation: Smart Growth

There is already some information on environmental issues available on the City's website. In particular, it provides information on Climate Change, the CCP™ program, how to save energy at home and on the road. This information needs to be up-dated and further developed.

More information needs to be provided, especially on sustainable building, alternative transport and waste reduction/recycling opportunities.

The City of Brisbane has included an interactive Green Home on its website. The Green Home is a model of a comfortable house and garden that uses sustainable living principles. Inside the home you'll find ideas for simple everyday actions, advice on buying new appliances and information about building and renovating in Brisbane. http://www.brisbane.qld.gov.au/BCC:BASE:637840880:pc=PC_1265

ACTION 27

Prepare a brochure providing information on sustainable living in Wanneroo to be distributed to all local residents.

Timeframe: Jun 08-Dec 08

Responsibility for implementation: Smart Growth

In addition to providing information on the City's website, it is proposed to produce a brochure providing information on sustainable living. It would provide a one shop stop for local residents seeking some advice on sustainable living, including sustainable building, transport, energy and water efficiency tips, recycling and environmental purchasing with a link to the City's website where further information would be available.

ACTION 28

Implement the Living Smart Program.

Timeframe: Dec 08-Dec 09

Responsibility for implementation: Smart Growth

Living Smart is a multi-week course developed by the Southern Metropolitan Regional Council. It provides participants with the practical knowledge and skills to take action in their own homes and around the community to live a more sustainable life. Since its establishment in 2003 various Councils including the City of Cockburn, the Town of Cambridge and the City of Albany have hosted the program. The program has been extremely successful in changing the behaviour and attitudes of participants, while encouraging strong community relationships.

The Living Smart course material is provided free of charge. More information is available at <http://www.livingsmart.org.au/>



ACTION 29

(a) Develop a program providing subsidised or low cost Compact Fluorescent Lights (CFLs) to local residents.

Timeframe: Nov 07-Mar 08

Responsibility for implementation: Smart Growth

Replacing standard incandescent light bulbs with compact fluorescent lights (CFLs) is one of the easier steps householders can take to reduce energy consumption. CFLs use about a fifth of the electricity to produce the same illumination. Each bulb also lasts between four and 10 times longer. It leads to major savings in household energy costs, and can pay for themselves in lower power bills within a year.

With the recent announcement by the Federal Environment Minister to phase out standard incandescent light bulbs within three years, it is timely to encourage and support local residents to switch to CFLs. By partnering with a lighting business, the City could promote the switch to more energy efficient light globes and provide CFLs to local residents at a reduced cost. Numerous Local Governments have successfully run similar community giveaway programs of various energy and/or water saving packs.

The 'Green Light' Project was one of the first projects to be launched under the "Switch your thinking!" umbrella by the South East Regional Energy Group (SEREG). Over 4800 top quality energy saving compact fluorescent light globes were distributed through a schools fundraiser and over the counter sales to the broader community at a subsidized price, along with prompts, novelties and information designed to encourage conservation of energy, water and resources, to reduce greenhouse gas emissions by 2600 tonnes over 5 years.

b) Implement the CFLs distribution program.

Timeframe: Apr 08-Feb 09

Responsibility for implementation: Smart Growth

It is anticipated that a similar approach to the SEREG's will be adopted to implement the proposed CFLs distribution program. Involving schools is an effective way to access households. Research has shown that many parents are more willing to listen to their school-aged children when it comes to environmental issues than to governments or companies. Other householders would also be given the opportunity to participate to the program, with for example over the counter sales.



ACTION 30

Promote and support existing rebates and funding from State and Federal government agencies encouraging energy efficiency and renewable energies in the community.

Timeframe: Dec 08-Jun 10

Responsibility for implementation: Smart Growth

Many rebates and funding opportunities are currently available from State and Federal government agencies such as the Sustainable Energy Development Office and the Australian Greenhouse Office, which encourage the community to reduce their greenhouse gas emissions. These incentives provide monetary or in-kind support to install energy efficient appliances (i.e. photovoltaic cells, solar water heaters etc) or to undertake activities that encourage sustainable energy use in the community. However many local residents are not aware of these opportunities or how to access them.

In order to increase the level of participation to these programmes, it is proposed to better inform the local community of existing rebates and funding opportunities as they become available. In some instances, the City may also provide assistance to access these opportunities such as providing letters of support, offering administrative support such as filling in funding applications or providing technical expertise.

8.2.2.2 Residential

ACTION 31

Prepare a sustainable residential development policy to assist in determining planning development applications.

Timeframe: Jun 08-Jun 09

Responsibility for implementation: Smart Growth

The City's growth needs to be managed in a sustainable way. It is proposed that a sustainable residential development policy be developed to assist in determining Structure Plan, Subdivision and Development application approvals. The policy would contain guidelines that would be specific to the level of development.

For instance, the guidelines for structure plan applications would provide information on transport-orientated development, water sensitive urban design and passive solar design; the guidelines for subdivision applications on lot size and orientation, road hierarchy and drainage network; and the guidelines for development applications on correct orientation of dwellings, insulation and shading of windows. The proposed policy would complement other existing planning legislation such as the Metropolitan Regional Scheme (MRS), the District Planning Scheme (DPS No. 2) and the Building Code of Australia (BCA).

The City of Stirling has adopted Energy Efficient Building Design Guidelines for residential properties. The City of Penrith has released the 'Sustainability Blueprint for urban release areas' to guide more sustainable development at the broader level.



ACTION 32

Work in partnership with a developer to design and construct an energy efficient dwelling to showcase sustainable best practice.

Timeframe: Nov 07-Jun 09

Responsibility for implementation: Building & Health

Council has recently entered into a partnership agreement with Cedar Woods Pty Ltd to construct a demonstration project that addresses housing diversity, affordability and promotes best practice in environmental sustainability. The demonstration site will be located within The Kestrels, a Housing Industry of Australia accredited 'Greensmart' estate.

It is anticipated that the demonstration project will be open to the public for two years. It will assist local residents to gain a better understanding of sustainable housing that is also affordable and provide encouragement for them to embrace these principles when constructing or renovating their own homes.

The City of Subiaco, the City of Mandurah and the SEREG, on behalf of the City of Cockburn, City of Gosnells and Shire of Serpentine-Jarrahdale have all successfully undertaken similar Sustainable Demonstration projects.

ACTION 33

Provide new landowners with information on how to design a sustainable house when the City is informed that property settlement has occurred.

Timeframe: Jan 08-Ongoing

Responsibility for implementation: Smart Growth

The City will provide new landowners with information on how to design a sustainable house (i.e. informational brochures) when informed that a land transaction has been carried out.

ACTION 34

Investigate removing environmentally restrictive covenants on new residential developments, in partnership with the UDIA and other relevant stakeholders.

Timeframe: Jan 09-Oct 09

Responsibility for implementation: Smart Growth

Some residential developments have restrictive covenants that indirectly constrain endeavours to improve the energy efficiency of housing in new estates. For example, some covenants specify that solar panels should not be visible from the street or impose a minimum size of dwelling.

It is proposed to firstly undertake a survey of a selection of the new residential estates in the City to ascertain the types of restrictive covenants, which are being imposed by developers. Secondly, the City proposes to work with developers and other relevant stakeholders such as the UDIA (Urban Development Institute of Australia) to discontinue the use of the types of covenants identified previously. Preventing the future use of these restrictive covenants may require an amendment to the DPS (District Planning Scheme) No. 2.



ACTION 35

Promote the HIA GreenSmart program to the local building industry.

Timeframe: Sep 08-Mar 09

Responsibility for implementation: Smart Growth

The Housing Industry of Australia (HIA) is the largest building industry association in Australia supporting builders, contractors, manufacturers and business partners in the industry. It has developed the GreenSmart program that assists the building industry to improve their environmental performance.

The City will investigate ways of promoting the HIA Greensmart program to the local building industry. Working in collaboration with the building industry is a key component of the City's greenhouse gas reduction strategy. The Australian Building Codes Board estimates that energy used in buildings accounts for almost 27 per cent of all energy related greenhouse gas emissions. The City of Wanneroo is currently experiencing exponential growth with approximately 9,000 building applications approved every year.



8.2.2.3 Commercial/Industrial

ACTION 36

Continue and expand the Eco-Business Assessment program, subject to funding/sponsorship opportunities.

Timeframe: Nov 07-Apr 10

Responsibility for implementation: Economic Development

Twenty-five local businesses participated in the EcoBusiness Assessment program. The EcoBusiness program is a regional project, currently run by the Cities of Wanneroo, Joondalup and Stirling that provided free energy audits to local businesses and made recommendations to reduce their energy consumption. This program, supported by the AGO and implemented by the company EcoSmart has been highly successful so far, potentially achieving 5,995 tonnes of greenhouse gas abatements per annum across the three local governments authorities (75 businesses).

It is now timely to extend this program by investigating the following:

- Providing energy assessment to additional local businesses;
- Including other areas in the assessment such as water and waste minimisation;
- Providing additional support to businesses implementing energy reduction measures; through training and mentoring programs; and
- Initiating an accreditation system.

The implementation of this action will depend on securing external funding to support the project.

ACTION 37

Research and showcase local companies and organisations that provide sustainable products and services.

Timeframe: Nov 07-Ongoing

Responsibility for implementation: Economic Development

The City is currently developing a sustainable purchasing program to minimise the environmental impacts of its own procurement processes. There is also a strong demand from the community to have access to more sustainable products and services as concerns for our environment increases.

The City will gather information on existing local companies and organisations that provide sustainable products and services for its own use and investigate ways of providing this information to the local community. The City will also use every opportunity to showcase local companies and organisations that are making an effort to reduce their impacts on the environment during manufacture and/or use of a product or service.



8.2.2.4 Transport

ACTION 38

(a) Prioritise the top five areas to extend the Travel Smart Household program in the City of Wanneroo.

Timeframe: Jan 08-Mar 08

Responsibility for implementation: Infrastructure Planning

The Travel Smart Household program, carried out by the WA Department for Planning and Infrastructure (DPI) is an innovative approach to helping Perth residents to use cars less and to choose alternatives such as walking, cycling, and public transport. More information on the program is available at <http://www.dpi.wa.gov.au/travelsmart/14951.asp>

The City's participation to the program is subject to funding from the DPI. Prioritising local areas, according to existing infrastructure, support from local residents and transport patterns would facilitate the City's participation to the Travel Smart Household program when the opportunity arises.

In the City of Wanneroo, the Travel Smart Household program has been implemented in Clarkson area (Clarkson, Mindarie, Merriwa and Ridgewood) with 14,000 residents participating and Marangaroo area (Marangaroo and part of Girrawheen) with 11,000 residents participating. To see the results of the program, visit the website at <http://www.dpi.wa.gov.au/travelsmart/14960.asp>

(b) Extend the implementation of the Travel Smart Household programme to five other City of Wanneroo's suburbs, subject to Council and the Department for Planning and Infrastructure's approval and funding.

Timeframe: Mar 08-Jun 12

Responsibility for implementation: Infrastructure Planning

The City of Wanneroo will endeavour to extend the Travel Smart Household program (see above) to at least five other suburbs in the next five years as identified in EAP Action 38(a). However the City's participation to the program is subject to Council and the DPI's approval and funding.

An area along the Clarkson train line, involving both the City of Wanneroo and the City of Joondalup is already scheduled for implementation for the next financial year.

ACTION 39

Prepare a Transport Strategy, with a focus on sustainable transport.

Timeframe: Dec 07-Jun 09

Responsibility for implementation: Infrastructure Planning

The City is proposing to prepare a Transport Strategy that will investigate the promotion and development of alternative transport such as walking, cycling and public transport (bus, train) throughout the Wanneroo area.



ACTION 40

(a) Review the City of Wanneroo Local Area Bike Plan.

Timeframe: Nov 07-Oct 08

Responsibility for implementation: Infrastructure Planning

The first City of Wanneroo Local Bike Plan was prepared in 1998 and reviewed in 2002. It is now timely to fully review the cycling network that covers the City of Wanneroo, including existing areas and newly developed areas.

The aim of the new plan will be to provide clear direction on the types and level of provision for bicycle facilities to make cycling safer and more convenient. It will include maintenance and proposed improvement work schedules. Ensuring a good connectivity and safety for all road users as well as providing end of trip facilities and directional signage will be considered in the revised Local Bike Plan.

(b) Implement the City of Wanneroo Local Area Bike Plan.

Timeframe: Nov 08-Oct 11

Responsibility for implementation: Infrastructure Planning

Once prepared, the Local Area Bike Plan will be implemented over the next three years, at which point another review will be undertaken.

ACTION 41

Work with schools and other relevant stakeholders to reduce car trips to and from school.

Timeframe: Jan 08-Jun 12

Responsibility for implementation: Infrastructure Planning

Car trips to and from schools are a major part of overall car-based transport. The City will endeavour to work with local schools to reduce car-based transport and encourage alternative transport such as walking, cycling and using public transport in a safe environment. A wide range of initiatives will be investigated such as Safe Routes to School, DPI Walking School Bus program, RoadWise Committees and various education programs.

ACTION 42

Investigate opportunities for a localised area transport scheme.

Timeframe: Apr 08-Oct 08

Responsibility for implementation: Infrastructure Planning

In the longer term, as the new Wanneroo Town Centre develops; the City will work with Transperth to investigate the suitability of a free localised area transport scheme, on the similar model to the free Central Area Transport (CAT) bus service.

The Cities of Perth, Subiaco, Fremantle and more recently the City of Joondalup, in partnership with Transperth have set up a free CAT bus service linking major attractions and services.



8.2.2.5 Waste

ACTION 43

(a) Develop an action plan to encourage recycling and waste minimisation efforts by residents, schools and businesses.

Timeframe: Dec 08-Jun 09

Responsibility for implementation: Waste & Fleet

The City of Wanneroo offers recycling bags or voluntary 240-litre recycling carts as part of its household recycling service. Soon recycling carts will be provided to all residents at no additional charge. The following items can be recycled: aluminium cans, foils and trays; steel food cans; clear plastic drink bottles coded 1; plastic milk bottles coded 2; newspapers; cardboard; car batteries; and used engine oil. The City of Wanneroo also provides weekend greens recycling facility and compost bins and worm farms for sale.

An Action Plan will be developed to build on from these successes and improve the City's performance in the following sectors:

- Construction and demolition waste;
- Schools recycling and waste minimisation programs;
- Businesses recycling and waste minimisation programs; and
- Household recycling education programs.

(b) Implement the Community Recycling and Waste Minimisation Action Plan.

Timeframe: Jul 09-Jun 12

Responsibility for implementation: Waste & Fleet

Once approved, the Community Recycling and Waste Minimisation Action Plan will be rolled out progressively, according to funding and staff allocation.

ACTION 44

Participate in the construction of the Mindarie Resource Recovery facility to increase Council's recycling capacity.

Timeframe: To be determined, in consultation with the Mindarie Regional Council

Responsibility for implementation: Waste & Fleet

The City of Wanneroo is a member of the Mindarie Regional Council, currently managing the construction of a new Resource Recovery facility in the Neerabup Industrial Area. Resources recovery facilities are essential if the vision of zero waste is to be achieved. Currently, recyclable products, which are being diverted from landfill (such as glass, aluminium and plastics) account for about 10 per cent of the waste stream. With resources recovery facilities in place, we can divert another 60 to 70 percent of our waste away from landfill.

Furthermore the processed waste would provide valuable products including compost and opportunities to convert waste to energy. The new Mindarie Resource Recovery facility will greatly assist the City's recycling efforts.



9 MONITORING, REPORTING AND EVALUATION

This revised Energy Action Plan aims to provide a framework for addressing greenhouse gas emissions and should remain a working document. Actions will be regularly revised and updated to continually improve the progress of reducing greenhouse gas emissions in the City of Wanneroo.

A report will be produced on a two-yearly basis, highlighting progress of specific actions and reviewing actions if necessary. The results will be made available to staff, Elected Members and the community.



10 ACRONYMS

ABS	Australian Bureau of Statistics
AGO	Australian Greenhouse Office
BCA	Building Code of Australia
BMCS	Building Management Control System
CAAP	Community Abatement Assistance Program
CAT	Central Area Transport
CCP	Cities for Climate Protection
CFL	Compact Fluorescent Light
CNG	Compressed Natural Gas
COW	City of Wanneroo
CO ₂	Greenhouse Gas Emissions
CO ₂ e	Greenhouse Gas Emissions Equivalent
CPEG	Corporate Project Evaluation Group
DPI	Department for Planning and Infrastructure
DPS	District Planning Scheme
EAC	Environmental Advisory Committee
EAP	Energy Action Plan
EST	Energy Steering Team
GHG	Greenhouse Gas
GPS	Global Positioning System
ICLEI	International Council for Local Environmental Initiatives
IPCC	International Panel for Climate Change
LED	Light Emitted Diode
LPG	Liquid Petroleum Gas
MRS	Metropolitan Regional Scheme
PC	Personal Computer
PV	Photovoltaic
SEDO	Sustainable Energy Development Office
SEREG	South East Regional Energy Group
SGAT	Smart Growth Assessment Tool
UDIA	Urban Development Institute of Australia
WALGA	Western Australian Local Government Association



11 REFERENCES

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12 APPENDIX

Detailed Progress Report – Energy Action Plan 2004-2007

CORPORATE ACTIONS			
No.	ACTION	PROGRESS	
GENERAL ACTIONS	1	Formally establish an Energy Steering Team to oversee Council's energy programs and coordinate the implementation of this Action Plan.	EST established since 2004, with representatives from all relevant service units.
	2	Establish processes to examine the costs and benefits of pursuing the actions outlined in this Action Plan.	EAP should focus on outcomes, not processes.
	3	Approach energy providers and encourage them to provide quarterly summaries of Council's energy consumption. Establish a process to capture energy consumption data.	Western Power only able to provide general information. City is required to report annually on GHG emissions abatement achieved to ICLEI. A KPI of Strategic Plan.
	4	Identify and document Council's energy management processes in the next review of the Strategic Plan.	New Strategic Plan 2006-2021 takes into account energy management processes. Refer to Outcome Objective 1.6.1.
	5	Implement a Marketing and Communications Strategy to promote the CCP™ Program internally and to the community.	Undertaking an on-going awareness-raising campaign for staff including a display on the enhanced greenhouse effect set up at the Civic Centre, energy efficiency tips published in staff newsletter 'Kangaroo Paw', a Lunchtime forum on Climate Change held in the Council Chamber, energy efficiency web-pages put on the intranet and free staff screening of the film 'An Inconvenient Truth' by Al Gore.
	6	Review the existing draft Environmental Purchasing policy for Council and update for energy as necessary.	The City is participating to a CCP Plus project with six other WA Local Governments on environmental purchasing. The recently adopted Purchasing Policy gives due consideration to the environmental impacts of goods and services.
	7	Consider establishing a revolving energy fund.	While the idea has considerable merit, the process of creating a fund and determining the savings to be transferred to the fund each year for use by future worthy energy saving projects is complex. The City's preferred approach would be for any new initiative to be submitted to CPEG for specific budget funding. Still necessary to highlight savings achieved through energy reduction measures.
	8	Consider options for developing and implementing an annual CCP™ Program calendar.	Being developed as part of CCP Plus.
	9	Seek funding for energy projects and other initiatives from government funding sources.	Awareness raised of twice-yearly SEDO funding. SEDO funding obtained for the EcoSmart project in 2005. AGO CAAP funding obtained in 2004 for energy efficiency upgrades of six community buildings.



CORPORATE ACTIONS		
No.	ACTION	PROGRESS
STAFF EDUCATION	10 Develop and commence implementation of a staff energy awareness campaign to increase knowledge of Councils' energy issues and promote energy saving behavioural changes.	See action 5.
	11 Set up a display for staff to promote the CCP™ Program and the outcomes of their contributions.	Display set up in Civic Centre foyer 7-18 Feb 05 and Billabong staff room 21 Feb- 9 Mar 05.
	12 Provide awards or incentives for initiatives and for business units or individuals that achieve targets set.	Cannot be evenly implemented across the organisation. Scope to be narrowed to innovations/ideas.
BUILDINGS	13 Continue to conduct audits of the City's major energy consuming buildings, and keep updated on technology that can be applied to buildings to improve energy efficiency.	Redefine specific actions to be carried out.
	14 Continue to replace lighting with energy efficient technology as part of routine maintenance and upgrades.	Energy upgrades carried out in 6 community buildings in March-May 2005 (AGO CAAP funded project)
	15 Investigate options for lighting retrofits in Council buildings where appropriate to reduce energy consumption.	As above
	16 Ensure a regular maintenance schedule for Council building is maintained.	Conducted as part of the Preventative Maintenance Program, should not form part of the Energy Action Plan.
	17 Investigate fitting timers to high energy consuming equipment in Council buildings.	
	18 Continue to carry out selective replacement of conventional Cathode Ray Tube (CRT) monitors with Liquid Crystal Display (LCD) screens.	All new PC have LCD screens.
	19 Investigate installing AAA rated showerheads in Council buildings.	Council has joined the ICLEI Water Campaign and will be preparing a Water Action Plan. Action to be forwarded to future Water Action Plan
	20 Investigate the implementation of a cogeneration/heat recovery facility in Council buildings where opportunities exist.	No buildings or sites currently considered acceptable to implement this technology.
	21 Investigate installation of building management control systems where appropriate, and ensure staff are adequately trained to maximise use of the Building Management Control Systems (BMCS).	At this stage no site identified for consideration for the installation of BMCS equipment.
	22 Negotiate energy contracts with energy providers to increase energy efficiency.	
	23 Ensure energy efficient building design is incorporated into design contracts and documentation.	
	24 Develop schematic plans of Council property showing location of meters, infrastructure serviced by meters etc.	Not related to EAP
25 Investigate purchasing Green Power for Council buildings		



CORPORATE ACTIONS		
No.	ACTION	PROGRESS
STREETLIGHTS	26 Investigate use of alternative energy such as solar powered lighting.	The City has three small pockets of streetlight infrastructure it is responsible for and no longer enters into such private arrangements. All new streetlighting is supplied through Western Power.
	27 Continue lobbying Western Power for improvements in streetlighting service.	As above. Refer to WALGA's advocacy work on the StreetVision agreement.
	28 Work with Western Power to investigate installing Light Emitting Diode lighting in parks and for security lighting in appropriate areas.	As above
	29 Lobby Main Roads WA to investigate installing Light Emitting Diode traffic lights.	
FLEET	30 Continue to consider substituting larger vehicles with smaller vehicles (e.g. six cylinder for four cylinder).	Included in vehicles specifications for passenger vehicles when applicable.
	31 Investigate continuation of vehicle fuel conversions for the City's fleet.	10 conversions to LPG. Current trial of biodiesel.
	32 Investigate trialling a hybrid-fuel vehicle.	Hybrid fuel vehicle purchased March 2005, for use on trial basis by City's Building Surveyors.
	33 Encourage staff within each directorate to participate in a car-pooling program.	Car-pooling register set up. Advertised in staff newsletter.
	34 Enforce the maintenance schedule for all plant and fleet to ensure vehicles/plant operate to maximum efficiency.	Maintenance schedules are in place and continually reviewed.
	35 Investigate providing subsidised multi-riders for staff using public transport.	
WATER	36 Ensure that energy efficient motors are installed for new bore pumps and/or old pumps and motors are upgraded/replaced.	More efficient motors have been installed at John Moloney, Blackmore and Hudson Parks.
	37 Continue monitoring of water usage and consider options to reduce the operating times of bore pumps for irrigation purposes.	Water audits have been completed. Water application has been adjusted accordingly. To be included in the future Water Action Plan.
	38 Develop and implement a water conservation strategy to reduce need for bores in areas where dry parks are appropriate.	To be included in the future Water Action Plan.
	39 Consider installing timers to limit the use of water in showers and change rooms.	To be included in the future Water Action Plan.
WASTE	40 Implement a Global Positioning System (GPS) to improve fleet routing and control.	Unit fitted to truck for field evaluation.
	41 Promote and improve internal recycling programs to reduce waste to landfill.	Office paper, printer cartridges, milk bottles and aluminium cans currently recycled.
	42 Monitor development of the Permo-drive (hydraulic hybrid regenerative driveshaft) system.	Permo-Drive are continuing their work for the US military. No news on local commercial applications yet.



COMMUNITY ACTIONS		
No.	ACTION	PROGRESS
GENERAL	43 Establish a Community Greenhouse Action Group to promote energy efficiency in the community.	EAC Working Group created in March 06 to promote energy efficiency in the community. Temporary trial. Contributed to the review of the Energy Action Plan and organised an Energy Efficiency display at the Wanneroo Agricultural Show in November 2007.
	44 Investigate and establish an energy efficient showcase facility to demonstrate and promote energy efficiency and renewable energy technology to the community.	Joint project City of Wanneroo & Cedar Woods Properties Ltd to build an Affordable and Sustainable Demonstration Home at the Kestrels Estate.
	45 Commence work with organisations such as the Sustainable Energy Development Office (SEDO) to develop programs to reduce emissions in the community sector.	City hosted successful Sustainable Housing Design seminars in 2005 and 2007.
RESIDENTIAL	46 Incorporate energy efficiency tips for the home in packages given to new residents, and in relevant sections of the Council website.	Brochure Buying & Building containing some information on energy efficiency was distributed to all new landowners in July 05. Website includes information on climate change and how to save energy.
	47 Investigate incorporating energy awards for community members/stakeholders into the Environmental Awards Scheme.	The Enhanced Greenhouse Effect is one of the City of Wanneroo Awards for Environmental Excellence categories (6 Local Environmental Strategy Key Focus Areas). Theme of 2006 COW Awards for Environmental Excellence was 'Energy Efficiency'. A special prize was awarded in this category.
	48 Commence the development of options, processes and procedures for incorporating energy efficiency initiatives into the design of new developments (commercial, industrial and residential).	The Building Code of Australia implemented requirements for Residential Buildings in July 2003. CoW has one of the highest stringency levels for application processing in WA (checklists accompanied by calculations). Also refer to Action 52.
COMMERCIAL	49 Form partnerships with industry to promote the uptake of energy efficiency practices.	Participation (jointly with Cities of Joondalup & Stirling and with support from the AGO) to the Ecosmart Business program. Offers an energy audit and action plan to 25 local businesses. Eco-business awards held during Conservation Week (March 07).
TRANSPORT	50 Promote the GreenFleet initiative to the general public.	Advertised in Wanneroo Link and What's Happening.
	51 Promote the TravelSmart program.	TravelSmart Household program implemented in Marangaroo and Clarkson areas.
	52 Encourage developers to implement the principles of the Liveable Neighbourhoods Design Code.	Smart Growth Strategy endorsed by Council June 05. Smart Growth Assessment Tool (SGAT), a tool for developers that includes energy efficiency factors as criteria in assessing rating of development, endorsed and being trialled. Local Housing Strategy adopted by Council 1 Nov 2005. This promotes housing types (and their disposition) in a manner consistent with Liveable Neighbourhoods).
WASTE	53 Develop an education program to encourage recycling and waste minimisation efforts by residents and businesses.	A brochure has been produced to assist local residents in using their compost bin or worm farm.
	54 Investigate methods of reusing landfill gas (methane extraction) when new technologies become available to ensure project viability.	5MW of electricity annually produced at Tamala Park from methane extraction. The site is currently at maximum production.
	55 Support the establishment of a Construction and Demolition Recycling Facility	Will be included as part of the future Mindarie Resource Recovery Facility.



FOR MORE INFORMATION

<http://www.greenhouse.gov.au/> Commonwealth Government Australian Greenhouse Office (AGO)

<http://www1.sedo.energy.wa.gov.au/> State Government Sustainable Energy Development Office (SEDO)

<http://www.iclei.org/index.php?id=2291> Cities for Climate Protection (CCP™) Program

<http://www.wasea.com.au/> Western Australia Sustainable Energy Association (WASEA)

<http://www.actnow.wa.gov.au/> Western Australian Government's web portal for sustainable living: *Act Now for the Future*

<http://www.csiro.au/science/ClimateWeather.html> Commonwealth Scientific and Industrial Research Organisation (CSIRO)



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