Hobart's Climate Change Strategies x 5 (HCC S5)

Climate Change an Issue for Everybody 2008 – 2013

May 2009

A review of the Hobart City Council's Greenhouse Local Action Plan

Endorsed Hobart City Council 25 May 2009

Abbreviations

ACE CRC – Antarctic Climate Ecosystems Cooperative Research Centre

CCGLAP – Corporate and Community Greenhouse Local Action Plan

CC&SI – Climate Change and Sustainability Initiative

CCP - Cities for Climate Protection

CCSSC – Climate Change and Sustainable Steering Committee

CDC – Carbon Development Calculator

CPRS – Carbon Pollution Reduction Scheme

DCC - Department of Climate Change (Australian Government formerly Australian Greenhouse Office)

DEP - Derwent Estuary Program

EMP – Council's Energy Management Program

GHCP – Greater Hobart Climate Partnership

ICLEI - Local governments for Sustainability (formerly the International Council for Local Environment Initiatives)

IPCC - International Panel on Climate Change

LGAT - Local Government Association Tasmania

NGAF - National Greenhouse Accounts Factors

STCA – Southern Tasmanian Councils Association

TCCO – Tasmanian Climate Change Office

Mt – mega tonnes

GJ – giga joules

kWh – kilowatt hours

e-CO_2t – equivalent tonnes of carbon dioxide

Useful Links

www.hobartcity.com.au

www.iclei.org/ccp-au

www.climatechange.gov.au

www.climatechange.tas.gov.au

www.tasmanianenvironmentcentre.org.au

www.lgat.tas.gov.au/site/page.cfm

www.environment.gov.au/settlements/renewable/nationalsolarschools/

http://www.sustainableschoolsproject.org/

Foreword by the Lord Mayor

I am proud as the Mayor of Hobart City Council to be celebrating 10 years of climate change action by the Council.

Climate change is a challenge like no other that humanity has ever faced. As a community we have contributed significantly to the situation and must work at finding solutions. We have a small window of opportunity in which to do this.

Climate Change is going to affect how we live our lives, our children's lives, how we do our jobs, how we recreate and also our local, national and international economies. There is very little about the way we live now that will not be affected in some way by the impacts of climate change. Every action we take to increase awareness and address this issue is significant and reinforces the urgent need for action whether on a small or large scale.

It is time to get serious about climate change. We are no longer talking simply about abatement of emissions – our climate is changing and we now need to learn how to firstly, reduce the rate of change and secondly adapt to it! We need to change the way that we live, work and play. This report sets out ways in which the Council is both continuing and further preparing to work with and lead our community to 2013 in response to climate change.

Hobart has been a champion of climate change action since 1999. It has reduced its own emissions by 71%, from 1996 levels, committed to further emission reduction of 30% from 2009 levels by 2020. To date, it has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

In the community sector the Council has introduced Solar Hot Water, Insulation and Water Tank Rebates Schemes. Through its Solar Hot Water Rebate, introduced in 2007, approximately 520 e-CO_2 tonnes have been abated from over 180 installed systems. The Council is also working with the other Councils of Greater Hobart to develop an integrated "Bike Plan."

A much broader and longer term challenge for Hobart is to grow a low emissions economy, adapt at a metropolitan level and aim for reduced emissions at a community level within our municipality.

At its core local government is about sustainability and climate change is intrinsically a part of this. To this end local government has a key role to play in addressing the issue of climate change with its community. We can provide leadership on and demonstration of actions that can be undertaken to reduce greenhouse gas emissions. We can work to increase awareness and advocate action to abate emissions and adapt to the impacts of global warming. Importantly we don't have to reduce our quality of life but we do have to change the way we live so that we cut the amount of waste we generate and improve our energy efficiency – everyone has a stake in this.

The Living Planet Report of 2008 claims that humanity's global footprint now exceeds the world's capacity to regenerate by about 30% and more than three quarters of the world's people now live in nations that are ecological debtors – their national consumption has outstripped their country's bio-capacity and that in two generations we have moved from ecological credit to ecological debit.

The Council commends these strategies for consideration so the community can join in making a difference that matters well into the future.

In the words of James Hansen, director of the US Goddard Institute of Space Sciences, 22 June 2008:

"We're toast if we don't get on a very different path…This is the last chance."

Food for thought as we move into an era of significant change

Lord Mayor, Aldermen Rob Valentine

April 2009

Hobart City Council's Climate Vision:

Hobart's sustainable and climate friendly vision is for:

- A climate aware and resilient community that has supported and invested in a range of strategies led by the Council to abate emissions, adapt to climate change impacts and account for a carbon neutral economy.
- The Council to be an advocate for climate change action and create a climate aware and resilient community.
- The Council, as a local government, to lead our community and urban region for the necessary transitional change to a carbon neutral society at all levels

Images clockwise: Beat Winter Chills and Bills Question and Answer forum West Hobart 2008; Solar Hot Water Rebate recipient - evacuated tubes system; energy efficient development Windsor Court Argyle Street; Energy Display Hobart City Council Atrium June – Sept 2008.

Executive Summary

Climate change is the most significant issue facing human civilisation. It poses an enormous challenge at all levels of human society, to avoid 2^0C of warming that gives way to a runaway greenhouse effect. Tackling climate change is made more complex as the exact scale, timing and the extent of the impacts are unknown. What is known is that the impacts of climate change will significantly change the global climate and earth's ecosystems on which we rely and the way in which we live on the planet. Action is urgently required to reduce greenhouse gas emissions and to begin to prepare both as communities and individuals for a changed climate. Climate change response is more than reducing emissions and adapting to a changed climate - it is about changing our behaviour, attitudes, economies, social structures and built environments so that they are sustainable.

Tasmania is not exempt from the impacts of climate change. The climate-induced drought has necessitated the importation of Victorian coal-based electricity due to low Hydro dam levels resulting in an increase in emissions associated with our electricity use. Higher electricity prices coupled with increased transport costs are creating a greater need for energy efficiency across our communities and organisations, consequently leading to climate friendly and sustainable outcomes.

The Hobart City Council has been active on the issue of climate change since 1999, when it made a political commitment to participate in the Cities for Climate Protection (CCP^{TM}) Program. Since then it has successfully completed the five program milestones, committed to ongoing action through CCP^{TM} Plus and reduced its corporate emissions by 71% from 1996 levels.

Most recently the Council has committed to a further 30% reduction in its emissions from its energy (electricity, fuel and natural gas) use and is investigating options and working towards zero emissions by 2020.

The Council delivers a range of climate change programs to reduce emissions and increase awareness including $500 Solar Hot Water Rebates, installation of cogeneration technologies at McRobies Gully Landfill and Waste Water Treatment Plants, trialling energy efficient street lighting and 'Beat the Winter Chills and Bills Questions and Answers' community information sessions.

The Council has recognised, since 2001, the need for collective local government action on climate change. Hobart's Climate Change Strategy (HCC S5) advocates that 'like' councils work together to effectively address the issue of climate change and implement actions at the broader community level. It progresses a strategic framework for local government across Tasmania through the establishment of groupings of Councils based on land use: urban; peri-urban; rural and natural areas.

On the broader scale climate change as an issue is rapidly progressing with significant changes in policy direction of the incumbent Australian Government and the State Government's establishment of a Climate Change Office in 2008. The Council recognises the need for new structures and frameworks to address this issue. It also recognises that its approaches should be flexible and able to adapt to the changing political and legislative environment.

The review of the Councils Greenhouse Action Plan seeks to begin to prepare Hobart City Council, its community and the region for the necessary transitional change to a carbon neutral society at all levels. It considers action under a framework called the 5A's of climate change with 5 themes: Advocacy, Abatement, Awareness, Adaptation and Accounting.

HCC S5 resets the Councils greenhouse gas emissions abatement targets. It maintains the Councils 70% emissions reduction target focusing on its landfill operations until 2020, it sets a new target for corporate energy greenhouse gas emissions of 30% and advocates a Greater Hobart Community abatement target be set through cooperative action of the Cities for Climate Protection Councils.

Climate change is not a natural resource issue – it is an issue that is linked to every aspect of human activity. The solutions and adaptive responses to climate change are not to be found within our existing structures – they require creative thinking and brave action.

Summary List of Actions.

Advocay Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Political commitment	1.1	Council formally endorse the Council's proposed Climate Change Policy (see Appendix 5) that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership of Hobart's communities and the region.	Council	Immediate
Corporate	Political commitment	1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners program.	Development & Environmental Services	Ongoing
Corporate	Southern Region - Climate Change And Sustainability Initiative	1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework (detailed in this document) that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of a *STCA Climate Change and Sustainability Initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives in recognition of local government climate action to date.	General Manager	Immediate
Corporate	Climate Change and Sustainability Steering Committee	1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change and Sustainability Steering Committee	Ongoing

Corporate	Greenhouse Reference Group	1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant, replacing the Greenhouse Reference Group.	Climate Change and Sustainability Steering Committee	Immediate - Ongoing
Abatement Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Energy Efficiency	2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 -2010 levels (post Sewage and Water Reform).	Corporate Energy Management Team	2020
Corporate	Corporate Energy Efficiency	2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.	Corporate Energy Management Team	2009 – ongoing
Corporate	Corporate Energy Efficiency	2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.5	Develop and implement Energy Management Plans for the Council's corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.7	Implement the recommendations of the report (as appropriate) "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre."	Corporate Energy Management Team	Ongoing
Corporate	Corporate Waste Emissions	2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	Immediate
Corporate	Corporate Waste Emissions	2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.	Environmental Engineering	Immediate
Corporate	Corporate Purchasing	2.10	A Sustainable Purchasing Strategy is developed for the whole of Council, that:	Climate Change and	Medium

	emissions		➢ takes into consideration the Councils complex and varied needs purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ a process for monitoring, reporting and review of the strategies outcomes.	Sustainability Steering Committee	
Corporate	Sustainable Transport Strategy	2.11	Implement recommendations of the Council's Sustainable Transport Strategy, when finalised, in parallel with HCC S5.	Climate Change and Sustainability Steering Committee	Ongoing
Community	Household Sector	2.12	Develop a Sustainable Household Incentive Program, including a Sustainability Rebate, using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Household Sector	2.13	Promote the 'Sustainable Design Guidelines' to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium
Community	Business Sector Commercial Office Sector	2.14	Investigate opportunities for the promotion of the CitySwitch program or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Retail Sector	2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Industrial Sector	2.16	Investigate opportunities for the establishment of partnerships and lobbying for the industrial sector to reduce emissions and partner in adaptation initiatives.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Education Sector	2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground support to schools to uptake the National Solar School Program.	*STCA Climate Change and Sustainability	Medium

				Initiative	
Community	Waste sector	2.18	Community waste emissions: Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, greenwaste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
Community	Waste sector	2.19	Community waste emissions: Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium
Awareness					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Employee Sustainability & Climate Information	3.1	Deliver Office Climate Workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and potential climate change impacts on the workplace.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.2	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.3	Inclusion in Council's Employee Induction Handbook of a section on 'Sustainability and Climate Awareness.'	Environmental Sustainability Program	Medium
Corporate	Employee and community	3.4	Five Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees.	Development and Environmental Services	Immediate
Corporate	Community Engagement	3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➤ Fosters sustainable behaviour change across all community sectors; ➤ Promotes actions to increase energy conservation and abatement of emissions; ➤ Increases understanding of climate change and local government actions; and ➤ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change.	Climate Change and Sustainability Steering Committee	Medium
Community	Community Engagement	3.6	Design sustainability and climate awareness web pages for the Councils intra/internet page.	Environmental Sustainability Program	Medium

Community	Community Engagement	3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
Community	Community Engagement	3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing
Community	Dr Edward Hall Awards – Climate and Sustainability Category	3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing
Adaptation					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Adaptation	4.1	Develop and implement a corporate Climate Adaptation Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change and Sustainability Steering Committee	Immediate
Corporate	Corporate Adaptation	4.2	Participate in the Climate Futures for Tasmania –Infrastructure project (Pitt and Sherry) contributing to project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
Corporate	Corporate Adaptation	4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities.	Climate Adaptation Program	Immediate
Community	Community Adaptation	4.4	Run an Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (29 May 2009).	Environment and Climate Change Officer	Immediate
Community	Community Adaptation	4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	*STCA Climate Change and Sustainability Initiative	Immediate

Accounting Sector	Issue	#	Action	Responsible	Timeframe
Corporate & Community	Energy and Greenhouse Inventories	5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
Corporate & Community	Energy and Greenhouse Inventories	5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate
	Carbon Pollution Reduction Scheme	5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
	Carbon Pollution Reduction Scheme	5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium
Corporate & Community	Modelling impacts	5.5	The Energy Management Program works towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➤ Avoid emissions by modifying behaviour ➤ Improve energy efficiency ➤ Increase local carbon sinks ➤ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing, using an accredited carbon offset.	Climate Change and Sustainability Steering Committee	Long

Corporate & Community	Modelling impacts	5.6	HCC S5 proposes that until such a time that the review is completed that ➤ assets or one–off events (such as the TASTE) adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008; or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the carbon offset review residual emissions following abatement action [1]may include: ➤ The Council purchase and retire carbon permits for specific assets and/or activities; ➤ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or ➤ The Council use carbon offset programs that may be accredited through the review	*STCA Climate Change and Sustainability Initiative	Long
Corporate	Carbon Neutral/Zero Carbon Emissions Policy	5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
Corporate & Community	Carbon Offset Program	5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership investigate the opportunities for the establishment of a Carbon Offset Program, in line with accredited offset providers as a potential income	*STCA Climate Change and Sustainability Initiative	Immediate
Corporate & Community	Carbon Development Calculator	5.9	A project brief be prepared for the Carbon Development Calculators corporate and community parameters.	Environment and Climate Change Officer	Medium
Corporate & Community	Carbon Development Calculator	5.10	The Council investigate opportunities, with the University of Tasmania, for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program	Environment and Climate Change Officer	Medium

[1] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Contents

PART ONE - BACKGROUND

Introduction

When Hobart City Council joined the Cities for Climate Protection Program in 1999, committing to take action on climate change, the emphasis was on the mitigation and abatement of greenhouse emissions as Australia grappled with the question "Will the climate change?" Since then there has been much scientific progress and a seismic shift in community acceptance on the issue and the question is now 'How much will the climate change and how will we adapt?'

Hobart Climate Change Strategy 5 (HCC S5) resets the course for how the Council will address climate change up to 2013. HCC S5 replaces the Council's "Corporate and Community Greenhouse House Local Plan" produced in 2001. In addition to actions that reduce emissions and conserve energy from corporate activities this document sets a strategic way forward to work with our communities through a proposed STCA's Climate Change and Sustainability Initiative Urban Priority Greater Hobart Climate Partnership by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils to prepare for climate change and a carbon neutral future. Importantly it progresses an agenda for a unified and consistent message on Climate Change and how, as a community, we can prepare for its impacts – economic, environmental and social - and a changed climate.

The key concepts behind HCC S5 are:

- Climate Change is an issue of sustainability, it is a mainstream issue.
- Climate Change from a local government perspective should be considered in terms of land use activities: urban, peri urban, rural and natural areas.
- Local government needs to work collectively – groupings of like land use Councils, to allow for the leveraging of action, sharing resources and skills.
- New ways must be found to address climate change – it is necessary to think outside the box to find a range of solutions and develop a carbon friendly lifestyle and to adapt to the impacts of climate change.

At the corporate level Hobart is successfully managing emissions abatement and awareness. The greatest area of action for local government is in the spheres of:

- community development and awareness raising about climate change impacts, actions and opportunities knitting together the opportunities offered through the Australian Governments Energy Efficiency Package and incentives and the Council's rebates to achieve sustainable behaviour change at the individual and community level; and
- adaptation in both the corporate and community sectors through the application of resources developed to assist local government at both the corporate and community/regional levels.

What Hobart has done

Hobart has much to be proud of with regard to its 10 years of action on climate change. The Council has been working on the issue since it joined the Cities for Climate Protection (CCP) Program on the 3rd May 1999. And post the successful completion of the programs five milestones it committed in 2002, to ongoing action through CCP Plus. To date it has completed the five program milestones and joined CCP Plus, a program designed to further embed and deepen climate change action.

To date, the Council has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

Through its Solar Hot Water Rebate, approximately 520 e-CO_2 tonnes has been abated from over 180 systems installed since 2007.

Significant Council actions and outcomes include:

- Reduction of its corporate greenhouse gas emissions by 71% in 2007/08 since 1996/97 its base year; abating a total of 166,937 eCO_2 tonnes from its corporate activities;
- Establishment of a Corporate reserve fund of $50,000 for energy saving projects in addition to those identified in annual budgets;
- Providing a rebate for the installation of solar hot water systems $500 and insulation (for Landlords) $300;
- Trialled energy efficient, and low carbon emission, compact fluorescent and tri-phosphor fluorescent street lighting in residential setting with Aurora Energy;
- Formally committed to reducing its remaining corporate greenhouse gas emissions by a further 30% by 2020;
- Increased awareness of household energy efficiency through its Beat the Winter Chills and Bills Question & Answer Sessions;
- Coordinated the Hobart Regional Arterial Bike Network – a collaboration between Hobart, Clarence, Brighton, Glenorchy and Kingborough Councils and Cycling South to coordinate and rationalise bike networks within Greater Hobart and released for comment its draft Sustainable Transport Strategy 2008; and
- Worked towards Sustainable Transport Outcomes through programs such as the Walking School Bus, the Hobart Regional Arterial Bike Plan and Sustainable Transport Plan.

A summary list of actions and activities by the Councils is contained in Appendix 1 "Summary of the Hobart City Councils Climate Change Activities" or can be accessed at www.hobartcity.com.au.

Hobart's Corporate Emissions Summary

The following table shows the aggregated energy and carbon emissions since the Council began measuring these from its selected base year of 1996/97. Whilst there was a doubling of energy use in 2001/02 due to the Hobart Aquatic Centre becoming operational and a slight spike in 2004 – 2006 due to works associated with the laying of the gas pipeline; overall the table indicates a decreasing trend since 2000/01. The greenhouse gas emissions (eCO_2t) associated with Council activities has been significantly abated. The greatest proportion of emissions and their abatement is associated with the Council's landfill, McRobies Gully. Since 2004 the considerable abatement has been achieved initially by flaring and then cogeneration technologies which feed power generated from landfill methane emissions into the electricity grid.

	1996/97	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
GJ	55,357	107,705	105,341	107,873	120,945	114,826	113,468	103,587
eCO2t	45,818	46,801	47,271	38,495	20,192	12,027	11,662	13,215
Comment	Base Year First inventory undertaken as per CCP program	Increase GJ THAC came on line almost doubling HCC energy consumption		Decrease eCO_2t – due to commencement of flaring of methane (CH_4) at McRobies Gully landfill	Increase GJ due to laying of gas pipe line and increase use of Bitumen plant	Decrease eCO_2t – due to cogeneration of methane (CH_4) at McRobies Gully landfill	Decrease eCO_2t – due to cogeneration of landfill methane and conversion of bitumen plant to natural gas	Increase eCO_2t- due to increase in the Tasmanian Emissions factor 1996 00.2 kg CO2 –e/GJ to 2007 -0.13 kg CO2 –e/GJ

Cities for Climate Protection Program

The "*Cities for Climate Protection*" (CCP ™) program is a voluntary international program of ICLEI – Local Governments for Sustainability, a non government organisation. It has been funded nationally by the Australian Government with an aim of empowering local governments to cut greenhouse gas emissions until 30 June 2009. CCP™ provides local governments with a structured program with the following five milestones:

1. Undertake an inventory of greenhouse emissions in the council and community, and forecast future emissions growth.

2. Set an emissions reduction goal for corporate and community sectors.

3. Develop and adopt a local greenhouse action plan to achieve emission reduction goals.

4. Implement their local greenhouse action plan.

5. Monitor and report on greenhouse gas emissions and implementation of actions and measures.

Hobart City Council joined the CCP ™ program in 1999. It was the first Tasmania Council to join and it set, and has achieved, the highest corporate emission reduction goal, 70% from 1996/97 levels by 2010/11, of any participating Council in Australia. Early on in the program the Council recognised the need for a regional approach where Council's with similar land use patterns work in 'land use-blocks' to address climate change. Hobart has encouraged the participation of Brighton, Clarence, Glenorchy and Kingborough (the Council's of Greater Hobart) in the program.

In Tasmania 7 local governments have participated in the CCP program Brighton, Clarence, Devonport, Glenorchy, Hobart, Launceston, Kingborough. They cover over 60% of the Tasmanian population and equating to a total of 2,471,674 eCO2t or 41,841,937 GJ of greenhouse gas emissions.

Importantly the CCP provides a practical and ongoing framework for climate action that compliments and furthers the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Council's* requiring local government action on the issue.

The cessation of CCP, whilst a disappointment, does not impact on the Council's ongoing climate action. The CCP milestone framework has assisted the Council to build the capacity to develop and implement climate action and embed these across the organisation.

Why review

The Council completed its '*Corporate and Community Greenhouse Local Action Plan*' in 2001 – since then much experience has been gained and many actions undertaken to reduce emissions and increase awareness of the issue in corporate and community sectors. Whilst there have been many successes and the Council has exceeded its corporate goal for greenhouse gas emission reduction, there are a number of drivers for the review. These include:

- The Council's commitment to continual improvement under its wider Business Excellence Framework;
- A requirement for a review in both the Strategic Plan 2008-2013 and the Corporate and Community Greenhouse Local Action Plan Nov 2001;
- An increased awareness, and desire for action, throughout the Hobart's community.
- Improvement and streamlining of climate change actions across the Council corporate sector;
- Increased scientific knowledge and understanding of the rate at which climate change is-occurring, its processes and impacts;
- The shift in emphasis from abatement actions to adaptation and awareness. In particular there is a greater emphasis on risk analysis– these will assist in identifying and potentially lessening the Council's future liability with regards to climate change impacts; and
- The changing political and legislative framework at both the state and commonwealth levels of government.

How is the review to be done?

The review considers the Councils annual corporate emissions inventories from 2000-01 to 2007-08 and the 2006 community inventory (based on Australian Bureau of Statistics 2006 Census data). The review also takes into account the Councils Strategic Plan 2008 – 2013, Corporate Plan 2009-2014 and brings HCC S5 in line with its timeframes; and incorporates resolutions and programs that have been developed subsequent to the CCGLAP.

Two key drivers for the review are to:

- ensure that a whole of Council approach is taken to addressing climate change actions and impacts; and
- investigate opportunities for the regional approaches by local government to climate change and seek opportunities to leverage off and key stakeholders to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.

Significantly the review focuses on the five critical A's of climate change (note these are not listed in hierarchical order):

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

Understanding Climate Change

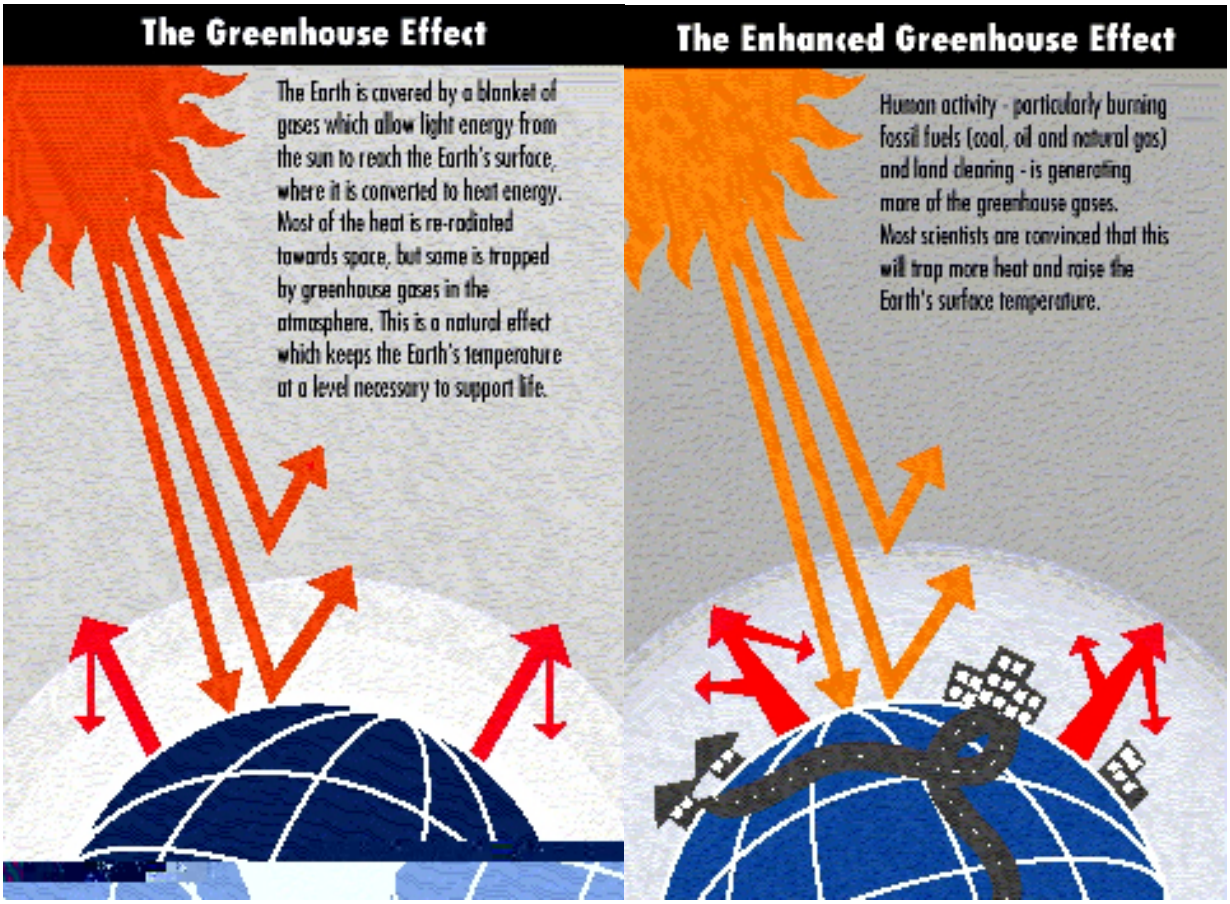
The Greenhouse Effect and the Enhanced Greenhouse Effect

The greenhouse effect is a natural phenomenon. Greenhouses gases, water vapour, carbon dioxide CO_2, methane CH_4 and nitrous oxide N_3O, occur naturally in the atmosphere where they trap the sun's warmth and maintain the earth's surface at a temperature that supports life. Without greenhouse gases the earth would be a cooler and uninhabitable place.

The emission of additional greenhouse gases from human activities has increased the concentration of these gases in the atmosphere resulting in the enhanced greenhouse effect, also known as global warming and climate change. A consequence of the increase is that as the atmosphere warms the climate changes with increased temperatures, increased intensity and frequency of storms events, increased sea level rise from thermal expansion of the oceans and melting glaciers and the changed rainfall patterns.

In pre-industrial times, the concentration of CO_2 in the atmosphere was 280 parts per million (ppm). This level has now increased to 387 ppm, and is rising every year by 2.2 ppm. Without intervention, prevailing scientific opinion is that levels will rise to over 600 parts per million within the next 45 years with profound and adverse consequences. This is a significant concern of climate scientists who predict runaway climate change once 450 ppm or 2 degrees of warming is exceeded.

The United Nations International Panel for Climate Change states that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global air and ocean temperatures, widespread melting of snow and ice and rising global sea level. And 'Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate change, particularly temperature increases.'



How Greenhouse gases are measured

Natural greenhouse gases include water vapour, carbon dioxide, methane ozone and nitrous oxide. Human made greenhouse gases include chlorofluorocarbons. The source, warming potentials and lifespan's of greenhouse gases that are involved in climate change are shown in Table below. ,

Greenhouse Gas	Source	Atmospheric Lifespan (years)	Greenhouse Warming Factor eCO_2
Carbon Dioxide CO_2	Burning fossils fuels for electricity production Cement manufacture	50-200	1.0
Methane CH_4	Waste decomposition without air (ie buried waste in landfill) coal-bed methane from coal mining Leakage of natural gas Grass digestion by grazing animals Burning of biomass fuels	12 - 17	21
Nitrous Oxide N_2O	Soil, nitrogen fertiliser decomposition Burning of petroleum products	120	310
Chlorofluorocarbons and carbon substitutes	Leakage from refrigeration and air-conditioning systems Aluminium production	>1000	CFC 12 8,500 HCFC- 113 93 HFC - 134a ,300

Energy Emissions Factors

The Australian Government though the *National Greenhouse Accounts (NGA) Factors* determines the greenhouse gas emissions factors for energy Australia-wide. Emission factors are used to derive estimates of greenhouse gas emissions based on the amount of emissions generated by an activity such as fuel combusted in a petrol engine or coal combusted to produce electricity. These are now updated annually to provide a more accurate indication of greenhouse gas emissions as the electricity landscape changes.

Electricity Emissions Factor

The emissions factors for Tasmania's electricity have changed considerably overtime. The Australian Government *Emissions and Factors Workbook* 2006 listed Tasmania's emissions factor for the years 1996, 2000 and 2005 as 0.000, 0.002 and 0.045 kg CO_2t-e/kWh respectively. The most recent edition, *National Greenhouse Accounts Factors* 2008, listed in the table below, again retrospectively changes these emissions factors. The most recent increases from 2005 onwards are accredited to the effect of the climate induced drought on Hydro dams levels and the subsequent importation of high emissions (brown coal) electricity from Victoria via Basslink 24% [2]and natural gas 11% to augment the States electricity supplies. For the purposes of HCC S5 the most recent 2008 emissions factors have been used – even though when Hobart initially sets its emission reduction goal the emissions factor for its base year of 1996 was 0.00.

[2] "Water woes cut Hydro power base" the Mercury, 03.09.08

	kg CO_2t- e /kWh (Scope 3)					
	Tasmania	New South Wales	Victoria	Queensland	South Australia	Western Australia
1995	0.02	1.02	1.39	1.10	1.05	1.07
2000	0.01	1.03	1.42	1.05	1.09	1.04
2005	0.04	1.06	1.32	1.04	1.04	0.95
2006	0.06	1.06	1.32	1.04	1.01	0.95
2007[p]	0.13	1.06	1.31	1.04	0.98	0.98

[p] – provisional emissions factor set by the Australian Government– the emissions factor are formalised following confirmation of actual energy mix. Source National Greenhouse Accounts Factors, Australian Government, January 2008

Other Emissions Factors

The table below sets out the emissions factor for energy sources other than electricity – these are typically constant as they are primary fuel source.

Fuel	Energy Content GJ/kL	t CO_2 -e/kL
Petrol	34.2	2.3
Diesel	38.6	2.7
LPG	26.2	1.6
Biodiesel	23.4	0

What are the predicted impacts of Climate Change on Tasmania?

Climate change is going to affect every aspect of our lives as individuals and as communities through the physical impacts of a carbon affected (enhanced greenhouse effect) climate system, resulting in an increase of extreme weather events, changed rainfall patterns, changes in behaviour due to economies that must account and pay for carbon use. Currently concentrations of atmospheric CO_2 are tracking above the IPCC high scenario models

Understanding the physical impacts of climate change is complex. The International Panel on Climate Change (IPCC) climate change scientists have modelled various low – mid - high range scenarios that consider a wide range of variables of not only climate systems but future emissions that are the by product of very intricate and dynamic systems determined by forces such as demographic, socio-economic development and technological change. This work has been further enhanced by the CSIRO to develop Australia – wide scenarios. Whilst these are coarse they do provide an indication of the predicted climate change impacts for Hobart these include:

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days.
- Warmer temperatures are likely to cause a rise in heat-related illness and death for those over 65 years.
- Warmer conditions may spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 % reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

A full summary of projected impacts for Tasmania by the Australian Government is provided in Appendix 2.

A more refined and detailed climate modelling project, the *Climate Futures for Tasmania – local information for local communities* is being undertaken by the Australian Climate and Ecosystems Cooperative Research Centre (ACE CRC). The project builds on work commissioned by Hydro Tasmania and constructs fine scale 14 km^2 grid climate projections for local applications. With an emphasis on terrestrial based ecosystems it plots hundred of variable ranging from rainfall, temperature and wind in range of scenarios, it is intended to provide local decision makers locally relevant information about climate change and help develop adaptation actions. It is anticipated that modelling data will be available from late 2009.

Carbon Neutrality

The Council resolved, in August 2007, to investigate actions necessary to achieve zero net carbon emissions by 2020. For organisations that have committed to carbon neutrality or zero carbon emissions this is typically achieved by reducing their emissions as much as practicable and then purchasing 'carbon offsets' for the residual emissions that are too difficult or costly to eliminate.

Carbon offsets are an investment in a project or activity that "have prevented or removed an equivalent amount of carbon dioxide elsewhere." (Ribon 2007) "The idea being that the removal of greenhouse gases counterbalances emissions from other sources." (Downie 2007). They are divided into four main groups: renewable energy, energy efficiency, methane emissions avoidance and bio sequestration (forestry/ plantations).

The introduction, by the Australian Government, of the Carbon Pollution Reduction Scheme – a cap in trade system brings into question the effectiveness of carbon offsets in contributing towards lowering of Australia's overall greenhouse gas emissions as they will be capped. Richard Dennis argues that *'If households use less energy and create less pollution, they will simply free up permits to allow other families or industries to increase their own emissions…And as a result concerned households and business will not be able to make any meaningful contribution to greenhouse gas abatement. In fact the only way for individuals to lower Australia's total emissions is to buy carbon permits and not use them."*

The Australian Government recently released a Discussion Paper National Carbon Offsets and is currently reviewing options for voluntary carbon offset market. It has committed to developing a national standard for carbon offsets to *"provide national consistency and give consumers confidence in the voluntary carbon offset market. The offset standard will provide guidance on what constitutes a genuine, additional voluntary offset credit, as well as setting requirements for the verification and retirement of such credits, and standards for calculating the emissions of a product or service.* (source http://www.climatechange.gov.au/greenhousefriendly/changes.html)

Until such a the CPRS comes into effect HCC S5 proposes that in line with the Cities for Climate Protection Australian Program's Offset Policy Feb. 2009 the Hobart City Council accept offsets accredited under any of the following schemes.

Gold Standard

All offsets certified by the Gold Standard. These include:Voluntary Emissions Reductions (VERs) and Clean Development Mechanism/Joint Implementation (CDM/JI) Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs). See: www.cdmgoldstandard.org.

Greenhouse Friendly

Greenhouse Friendly Approved Abatement and Greenhouse Friendly certified greenhouse-neutral energy products (such as electricity and fuel). The reductions from the use of energy products should be calculated by multiplying the energy use by the appropriate factors for the council's state from the National Greenhouse Accounts (NGA) Factors. See: www.climatechange.gov.au/greenhousefriendly.

NSW Greenhouse Gas Reduction Scheme (GGAS)

Voluntarily surrendered NSW Greenhouse Abatement Certificates (NGACs) generated under the GGAS scheme. See: www.greenhousegas.nsw.gov.au.

Voluntary Carbon Standard (VCS)

Voluntary Carbon Units (VCUs) accredited directly under the VCS or under one of their approved greenhouse programs. See: www.v-c-s.org.

Mandatory Renewable Energy Target (MRET)

Voluntarily surrendered Renewable Energy Certificates (RECs) created under MRET. RECs are sold in units of energy; they should be converted to emission reductions using the appropriate electricity emission factors for the council's

state from the National Greenhouse Accounts (NGA) Factors. Note that this conversion is approximate, as it is not always known in which state the RECs were actually created. See: www.orer.gov.au/recs.

NOTE: This list will be reviewed regularly in response to ongoing developments in the offsets market.

Appendix 3 provides a discussion of carbon offset considerations.

Carbon Offsets – Hobart City Council

The Council has already commenced to offset some of the emissions associated with its premier activity – the Taste of Tasmania. A total of 67 eCO2t from cooking and waste at the Taste of Tasmania 2006/2007 was offset through Climate Friendly[3] at a cost of $1999.25 including GST. Carbon offsets are now included in the stallholder's package for the 'Taste.'

And indirectly carbon credits derived from McRobies Gully Landfill cogeneration project operated by AGL have been used by Cascade to offset greenhouse gas emissions associated with the its Cascade Green Beer.

[3] Climate Friendly is a Founding Member, and currently, only Australian Member of ICROA. ICROA is a not-for-profit alliance of leading carbon reduction and offset organisations. As an ICROA member, Climate Friendly supports a reduce-and-offset approach to carbon management, and comply with the ICROA Code of Best Practice Climate Friendly (www.climatefriendly.com)

Climate Change Policy Framework

Australia's climate change policy and legislative landscape is evolving at a rapid rate. Over the past 18 months both the Australian Government and the Tasmanian Government have set new carbon reduction goals and are developing initiatives and programs to assist in meeting these. There is also an increasing focus on adaptation to inevitable climate change impacts at the Federal and state level and this is featuring in funding opportunities and program development.

Australian Government

The incumbent Australian Government's climate change approach is underpinned by the three following strategies:

- Reducing Australia's greenhouse gas emissions;
- Adapting to climate change that we cannot avoid; and
- Helping to shape a global solution.

The core Government Departments responsible for the delivery of climate change strategies are the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts. These Departments currently manage the work of the former Australian Greenhouse Office.

Carbon Pollution Reduction Scheme

The Australian Government has expanded and developed new policies to progress its climate change approach. It has committed to the introduction of an emissions trading scheme, as has been done (such as the European Union scheme), in order to reduce Australia's emissions. The government has released the proposed design (white paper) of the scheme, termed the "Carbon Pollution Reduction Scheme", but there are still many details to be finalised. As of May 2009 the scheme is proposed to commence 1 July 2011.

The Australian Government has committed to a long-term target of 60% reduction on 2000 levels by 2050. It has also adopted a minimum (unconditional) commitment to reduce emissions by 5% below 2000 levels by 2020 irrespective of actions by other nations. In the event that global agreement is reached where all major economies commit to substantially restrain emissions and all developed countries take on comparable reductions to that of Australia, this commitment will be increased to 15% below 2000 levels. Australia is also committed under the Kyoto Protocol to limiting its emissions to 108% of 1990 emissions over the period 2008–2012.

The CPRS will work by requiring all large emitters and upstream liquid fuel suppliers in Australia to purchase permits for every tonne of carbon dioxide equivalent (t CO2e) that they emit. The purchase of permits will be required for industry and business sectors that have operational control over a facility producing over 25,000 t CO2e of Scope 1 emissions annually. The number of permits available each year will be limited to ensure that the total emissions are within Australia's Kyoto Protocol and other targets. The cost to scheme participants of purchasing these permits will be in part past on to consumers, providing incentives at all levels of the economy to reduce emissions. All funds generated by the Government from selling the permits will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

The Australian Government has provided an overview of how funds from the scheme will be spent. The following initiatives have been announced:

- $6 billion per annum available from 2010 available to assist households; and
- Cent for cent reduction in fuel tax for three years.
- $2.15 billion allocated over 5 years to assist business, community sector organisations, workers, regions, communities, and emissions-intensive, trade-exposed industries to adapt to the higher costs of greenhouse gas emissions.

Of consequence to the Council are the CPRS's 'Household Assistance' package and complementary 'Energy Efficiency Home Package', which include:

- free ceiling insulation worth up to $1,600 to home owner-occupiers of currently un-insulated homes; or
- a $1,600 rebate on the installation of solar hot water systems; and
- a rebate for landlords for insulation of their rental properties.

The Council also currently has in place a range of sustainability initiatives that complement the Australian Government's Energy efficiency Package, value adding to the opportunities for Hobart's households to increase their energy efficiency these include:

- Solar Hot Water Rebate of $500 for the installation of solar hot water and heat pump systems;
- Insulation Rebate of $300 for installation of insulation of houses constructed prior to 2003 (post 2003 changes to the Building Code of Australia require ceiling insulation in new houses);
- Water Rebate – provides a range of rebates for the installation of water tanks through to water efficient appliances.
- Development Energy Efficiency Rebate on planning applications

The Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Government's climate change policy. This will allow the Council to augment and leverage from the Australian Government's climate action.

National Greenhouse and Energy Reporting System (NGERS)

The *National Greenhouse and Energy Reporting System Act* 2007 is a single national framework for reporting of greenhouse gases emissions, energy use and energy production. The NGERS Act, which is already in effect, requires large emitters, energy producers and energy users to report their annual emissions and energy use and production. Organisations can trigger NGERS thresholds when their emissions or energy use/production trigger either corporate or facility thresholds. For emissions these thresholds are 25,000 t CO_2e for a facility, and 125,000 t CO_2e in 2007/08 to 50,000 t CO_2e for 2010/11 for the entire corporation (based on Scopes 1 + 2 emissions). NGERS applies to constitutional corporations so at this stage does not apply to most local governments.

The reporting framework and emission calculation methodologies developed for the NGERS Act will also be used to underpin emissions reporting under the CPRS. However it is important to note that the entities required to report under the NGERS Act are not necessarily the same as those required to participate in the proposed CPRS. For example CPRS thresholds apply only to emissions from facilities, whereas the NGERS thresholds apply to emissions and energy from both facilities and corporations. Also CPRS thresholds are based only on direct (Scope 1) emissions, whereas NGERS thresholds depend on total direct plus electricity-related emissions (Scopes 1+2).

Will Hobart City Council be required to participate in either the NGERS Act or CPRS?

Hobart City Council is unlikely to be required to report under the NGERS Act, for the time being, as they are not a constitutional corporation.

The CPRS, when it comes into effect, will apply to all entities, including local governments, that have operational control of an emitting facility. Hobart City Council is unlikely to, but may trigger CPRS emission thresholds. Council technical staff have advised that emissions from Hobart's landfills will not trigger the 25,000 t CO_2e threshold. It must be recognised that this element of the CPRS has not been finalised and it has been proposed that some landfills with emissions over 10,000 t CO_2e may trigger the CPRS threshold if within a distance (still to be determined) of another landfill.

Once the CPRS scheme is introduced NGERS technical guidelines and systems will be used as the reporting mechanism for organisations that are included in the scheme.

Hobart's Inventories

Annual inventories of emissions for council operations have been compiled annually by the Hobart City Council as part of our voluntary involvement in the Cities for Climate Protection (CCP) program. These have been designed to be meaningful, assist with decision making and track change over time. With the onset of a regulatory system there have been some changes in the methodology for measuring and recording emissions.

ICLEI Oceania is in the process of updating CCP's greenhouse gas reporting protocols in line with the ICLEI International Local Government GHG Emissions Analysis Protocol (http://www.iclei.org/index.php?id=8154). This will also align CCP reporting with the fundamental elements of GHG emissions reporting under the National Greenhouse and Energy Reporting System (NGERS) Act (so that the CCP inventories could form a basis for NGERS reporting, and vice versa).

Mandatory Renewable Energy Target (MRET)

The Australian Government has expanded the Mandatory Renewable Energy Target (MRET) for the production of energy from renewable sources to 9,500 GWh of per annum by 2010. MRET encourages the development of a more sustainable renewable energy supply industry thereby reducing of greenhouse gas emissions. It does this by establishing a guaranteed market, whereby a legal liability requires large wholesale purchasers of electricity to purchase renewable energy certificates in proportion to electricity they purchase.

The core MRET legislation is: the Renewable Energy (Electricity) Act 2000 (the Act)' the Renewable Energy (Electricity) Charge 2000 and the Renewable Energy (Electricity) Regulations 2001. Interim targets are set to 2010 when 9500 GWh of renewable energy is to be produced. ` From 2010 to 2020, when MRET ends, 9500 GWh is to be produced annually.

Renewable Energy Certificates (REC's) are created by renewable energy generators, where each REC represents one megawatt hour of renewable energy. Renewable energy generators are renewable energy power stations as well as small generation units installations such as photovoltaic systems; solar water heater installations, wind systems and small hydro electric systems.

Owners of small generation units are eligible for RECs and have the choice of claiming the RECs themselves or assigning them to an agent. In the case of McRobies Gully the Council has surrendered the REC's generated from cogeneration of electricity to the company who installed and manages the cogeneration infrastructure

Tasmanian Government

In December 2007, the Tasmanian Government adopted the Crowley report, "*A Framework for Action, Reducing Tasmania's Greenhouse Gas Emissions*." It established the Tasmanian Climate Change Office in 2008, introduced the *Climate Change (State Action) Bill 2008* requiring it to reduce its emissions by 60 per cent by 2050, based on 1990 levels and also released the '*Tasmanian, Framework for Action on Climate Change*' July 2008 that sets out States majors strategies to address climate change.

Of most significance to local government is the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Councils December 2008**. Key elements of the partnership agreements for local government include:

- Compilation of corporate emission inventories and setting emission reduction targets;
- Development of climate change action plans;
- Community consultation and awareness; and
- The incorporation of climate change into regional planning schemes.

The Council's completion and ongoing participation in the Cities for Climate Protection ensures that the Council is well placed to deliver and has already completed much of the work indicated in the partnership agreement. ICLEI Oceania and LGAT are in discussions on how to minimise duplicate effort for CCP councils in Tasmania who are now required to take part in the LGAT process. The Council will also need to consider the incorporation of climate change into regional planning schemes that are yet to be developed. It is noted however that in the new draft Hobart City Council Planning

Scheme does include provisions relating specifically to coastal developed urban situation. The Council also offers a solar hot water rebate and insulation along with guidelines of energy efficiency that encourage sustainable development.

It is further noteworthy that whilst there have not been legislative drivers to date driving climate change action that Council has been proactive in addressing climate change since 1999. In 2000 it set and has achieved in 2008 a 70% corporate emission reduction target.

*Hobart City Council and the State Government under the former Partnership Agreement 2001 – 2004 committed to Reducing Community Greenhouse Gas Emissions. The emphasis of agreement was to develop a coordinated and cooperative approach for strategies to mitigating community emissions, encouraging a regional approach and sharing resources and action for awareness raising and community development.

Local Government Association of Tasmania

From 2006 the Local Government Association of Tasmania has become progressively engaged on the issue of climate change. It coordinates the Climate Change Reference Group for local governments to disseminate information and encourage climate action. In 2008 it engaged a climate change officer and produced a Climate Work Plan for local government that focused on the following areas:

- Strategic Planning
- Carbon Emission Reductions
- Risk Assessment and Management
- Communication, Coordination and Capacity building
- Monitoring and review

The work plan identifies a range of actions in the areas of: Strategic Planning; Emission Reduction; Risk Assessment and Management; Communication, Coordination and Capacity Building. Actions proposed by LGAT include:

- The development of a Local Government Climate Change Strategy;
- The establishment of local government sector based emission reduction targets and a monitoring program;
- Development of a climate change Action Pack for local government;
- Representing local government on climate change project; and
- Coordination of local government's response to Federal and State climate change initiatives including the establishment of working groups through the Climate Change Reference Group.

Local Government and Liability

The legal framework surrounding Climate Change is rapidly evolving. Legal precedents are continuing to be set recognising 'climate change' as a consequence of increased anthropogenic greenhouse gases entering the atmosphere. Increasingly organisations are being exposed to future liabilities based on current decisions and actions that result in either emission of atmospheric greenhouse gases or don't take into account impacts of climate change. It is becoming increasingly imperative that decisions of the Council's are considered to be reasonable responses to climate change to avoid potential litigation in the future.

The paper "Climate Change: What are local governments liable for?" by Phillipa England Griffith University March 2007 "*…. examined some potential legal liabilities of local governments when making decisions about matters affecting climate change as well as matters affected by climate change. Local governments currently have available to them a number of defences that seem likely to protect them from claims based on a failure to recognize and respond to information about climate change. Nevertheless, just as the science of climate change is gathering momentum, so too the law in this area is evolving rapidly. Local governments should therefore take care to ensure their actions, decisions*

and policy responses to matters that may either contribute to, or be affected by, climate change remain current and reasonable in what is a rapidly evolving policy context."

In a more recent article England further makes the case that the "*emergent law seems to require Councils to develop a reasonable response to climate change considerations*." And notes "*…that local governments are becoming increasingly vulnerable to litigation if they fail to take into account climate change considerations when making decisions that will impact of greenhouse gas emissions (England 2008). And in terms of the failure to take into account the consequence s of climate change in their decision making local governments are becoming increasingly exposed.*

To avoid potential litigation local governments should start to assess, as a matter of routine, the impact of their decisions and activities on greenhouse gas emissions and also to consider, where possible ways and means of reducing that impact".

England concludes "*With respect to adaptation to climate change, the law requires that local governments develop a reasonable response – or more accurately, a not wholly unreasonable response to climate change impacts. Provided they do this local governments should remain immune from civil liability for any failure to take into account predicted climate change impacts.*"

Hobart's Strategic Context

Key drivers for addressing the issue of climate change across Council's activities and core business are its Vision Hobart 2025, Strategic Plan 2008 – 2013, and Corporate Plan 2009 - 2014. HCC S5 progresses the climate change elements contained in these strategic documents into a strategic framework that provides a comprehensive way forward on this challenging issue.

The community consultation for Vision Hobart 2025 articulated the community's need to address issues enmeshed in climate change such as sustainable transport, quality urban development and the natural environment. The Council Strategic Plan 2008-2013 integrates key climate change elements for city and its community in response to Hobart's Vision 2025. The Council's Corporate Plan 2009-2014, which is internally focused, provides a driver to realise climate change action across the Council's corporate activities. HCC S5 aligns these strategic documents into a framework for action.

Hobart's Vision – Hobart 2025

In 2025 Hobart will be a city that:

- offers opportunities for all ages and a city for life;
- is recognised for its natural beauty and quality of environment;
- is well-governed at regional and community levels;
- achieves good quality development and urban management;
- is highly accessible through efficient transport options;
- builds strong and healthy communities through diversity, participation and empathy; and
- is dynamic, vibrant and culturally expressive.

MISSION

Our mission is to ensure good governance of our capital city.

VALUES

The Hobart City Council will:

Leadership	Provide effective capital city leadership, integrity and openness in its approach and will be an advocate for the needs and aspirations of the community.
Equity	Ensure equity, consistency and co-operation in its dealings with the community and government.
Community Involvement	Encourage effective democratic involvement by the community in the life of the city through Involvement communication, consultation and participation.
Responsiveness	Be responsive to the needs and aspirations of the community.
Excellence	Ensure continuous improvement in the delivery of all of its services.

Strategic Plan 2008-2013

The key climate change strategies are:

FD2.3. The physical environment has been conserved in a way that ensures we have a healthy and attractive city.

2.3.3. Promote opportunities to improve the energy efficiency of the city.

- Identify emerging initiatives for energy efficiency and potential funding for development.
- Promote energy efficiency initiatives to the community.
- Review Council's initiatives including energy efficiency and solar hot water rebates.
- Review Council's Cities for Climate Protection Greenhouse Local Action Plan.

2.3.7. Develop and implement strategies to minimise greenhouse gas emissions.

- Review and implement Council's Greenhouse Gas Local Action Plan under the Cities for Climate Protection Programme.
- Develop and implement Council's Sustainable Transport Strategy.
- Promote Council's greenhouse emissions reduction initiatives to the community.

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.
- Participate in regional approaches to climate change-related initiatives.

Corporate Plan 2009-2014

HCC S5 is consistent with the Corporate Plan 2009-2014 Element 3.3 Environmental Sustainability in that it specifically seeks to:

- Increases awareness and understanding of climate change
- Promotes leadership in response to climate change
- Implements energy and greenhouse gas emissions reduction strategies
- Adapts to climate change impacts
- Understand the economic impacts of climate change.

Council Resolutions

The following outlines key Council's resolutions with regard to climate change and sustainability as drivers for HCC S5 – a full list of Council resolution is contained in Appendix 4:

13/08/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

That:

- The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.
- For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.
- The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.
- Aldermen and the community be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

25/06/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

"That further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examines the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59 STRATEGIC GOVERNANCE ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

That:

The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

- A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.
- The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.
- The quantum of monies to be allocated to the reserve fund being reviewed annually.
- The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.
- An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

Emissions Profiles

This section examines the emissions profile for Australia, Tasmania, Hobart's municipal area and the Hobart City Council.

Australia's Emissions Profile

Australia is the highest emitter per capita (approximately 28 e-CO_2 tonnes per capita) in the world. Since 1995 has been increasing emissions by 1% per annum.

The Australian Government has produced figures for Australia's total greenhouse gas emissions in 2006. These amounted to 575 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e). The following tables shows the State and Territory breakdown and emissions by sector:

	NSW	Qld	Vic	WA	SA	NT	Tas	ACT	Total
e-CO2 Mt	160	170.9	120.3	70	28	16.2	8.6	1.1	575
% of Aust total	27.8	29.7	20.9	12.2	4.9	2.8	1.5	0.2	100%
Stationary Energy	76	64.6	80.5	36.3	14.2	3.7	2.4	* part of NSW	287.4 (50%)
Transport	21.6	18.7	20.6	9.5	5.9	1.4	1.8	0.9	79.1 (14%)
Fuguitive Emisssions	14	8	2	3.5	3	0.2	Not available	0.01	34.5 (6%)
Industrial Processes	12	5	3	4	1.5	0.1	1	0.1	28.4 (15%)
Agriculture	20	25	16	12	5.8	7.5	2.2	0.01	90.1 (15%)
Land Use, Land Use Change & Forestry	9	27	-5	-2	-4	0.3	3	-0.1	40 (7%)
Waste	6	3	4	2	1	0.1	0.5	0.2	16.6 (3%)

* Stationary energy is mainly greenhouse gas emissions from the production of energy and other direct combustion of fossil fuels in industry such as manufacturing and construction. In Tasmania the manufacturing and construction comprises the most significant source of emissions in this sector with energy production primarily relating to high emissions fuel sources such as diesel, anthracite and heavy fuel oil.

Source: "State and Territory Greenhouse Gas Inventories 2006"
Australian Government June 2008

Hobart's Community Emissions Profile

In 2007 Hobart's municipal area was the source of 349,337 e-CO_2t. The two most significant sources of emissions were in the industrial and transport sectors with 41% and 35% respectively. Emissions in Hobart's very small industry sector are high as anthracite (black coal) is used as the energy source for activities such as heating of industrial boilers in manufacturing processes. It has an emissions factor of 93.6 kg e-CO_2 GJ giving a high emissions output. Conversion to natural gas would significantly reduce emissions from this sector.

	Source	e-CO_2 t	e-CO_2 %	GJ	GJ%
Residential	Electricity	13,165	4	877,672	15
	LPG	1,815	1	30,345	1
	Natural gas	525	0	10,115	0
	Subtotal	15,505	5	918,132	16
Commercial	Electricity	12,387	4	825,780	14
	LPG	1,741	1	29,118	0
	Natural gas	1,511	0	29,118	0
	Diesel	16,224	5	232,943	4
	Subtotal	31,863	10	1,116,959	19
Industrial	Electricity	7,919	3	527,958	9
	Anthracite	74,233	24	830,658	14
	Diesel	20,044	6	287,780	5
	Heavy fuel oil	15,328	5	209,785	4
	Other	15,626	5	190,722	3
	Subtotal	133,150	43	2,046,903	35
Transportation	Petrol	88,174	28	1,270,522	22
	LPG	4,895	2	81,864	1
	Diesel	28,525	9	409,551	7
	Subtotal	121,594	39	1,761,937	30
*Transportation by sector	*Residential (Private Cars, Motorcycles, Buses)*	*93,506*	*77*	*1,402,501*	*80*
	Commercial (Trucks, Vans etc)	*28,088*	*23*	*407,007*	*20*
Waste	Paper products	2,087	1		
	Food waste	2,817	1		
	Plant debris	355	0		
	Wood/Textiles	2,504	1		
	Subtotal	7,762	3		
Waste Water Treatment	Carbon Dioxide	55	0		
	Subtotal	55	0		
	Total	309,929	100	5,843,931	100

*the "Transportation by sector" figures (italics and grey font) are not included in the overall tables calculations – they have been included as the show the difference in emissions between the private residential transport and the commercial sectors.

Source: The data set was provided by ICLEI as default Hobart community data for CCP purposes– it is based on ABS census data and provided to CCP Councils following census years.

Hobart population is almost 48,000 and it has almost 23,000 rateable properties of which 86% are residential, with 11% commercial and the balance vacant land. Overall Tasmania's population is ageing and the second oldest of any capital city.

The following table tracks the electricity consumption and emissions of the majority of Hobart's suburbs from 2004/05 – 2006/07. The central business district (CBD) postcode 7000 consumes the greatest proportion of energy and produces most emissions this is expected as it supports the greatest area of economic activity. Postcode 7007 shows the greatest growth consumption and emissions with 43% increase, which in line with the increase urban development. Overall there has been an increase of electricity use and emissions of 8%.

		Business		Residential		Total	
Postcode	Year	GJ	eCO_2t	GJ	eCO_2t	GJ	eCO_2t
7000	04/05	70,380	25,415	23,983	8,660	94,363	34,075
	05/06	74,463	26,889	23,075	8,333	97,538	35,222
	06/07	83,071	29,998	24,064	8,690	107,135	38,687
7004	04/05	15,111	5,457	13,367	4,827	28,478	10,284
	05/06	15,008	5,420	12,745	4,602	27,753	10,022
	06/07	15,570	5,622	13,437	4,852	29,007	10,475
7005	04/05	18,661	6,739	25,142	9,079	43,803	15,818
	05/06	20,348	7,348	24,244	8,755	44,591	16,102
	06/07	20,364	7,354	25,723	9,289	46,087	16,643
7007	04/05	559	202	5,697	2,057	6,256	2,259
	05/06	981	354	5,302	1,914	6,282	2,269
	06/07	979	353	5,647	2,039	6,625	2,393
7008	04/05	13,285	4,797	19,387	7,001	32,672	11,798
	05/06	14,957	5,401	18,622	6,724	33,579	12,126
	06/07	15,390	5,558	18,897	6,824	34,287	12,381
Total	04/05	117,996	42,610	87,576	31,625	205,572	74,234
	05/06	125,756	45,412	83,987	30,329	209,743	75,740
	06/07	135,374	48,885	87,767	31,694	223,141	80,579

Source: The municipal wide electricity data set was provided by Aurora Energy- due to commercial reasons it can no longer be made available to Hobart City Council.

Postcodes:

7000 Hobart, North Hobart, West Hobart, Glebe

7004 Battery Point, South Hobart

7005 Dynnyrne, Lower Sandy Bay, UTAS

7007 Mount Nelson, Tolmans Hill

7008 Lenah Valley, New Town

NB the postcode 7054 Fern Tree and Ridgeway is not included as the majority of the settlements are located in the municipality of Kingborough.

Hobart's Corporate Emissions Profile

The Hobart City Council joined CCP in 1999, selecting 1996 as its base year and setting a 70% emission reduction goal by 2010. Since then much has changed within the Council's own energy landscape. The Hobart Aquatic Centre came on line in 2000 doubling the Council's energy use. Upgrades and installation of sewage and water pump stations servicing the community have also increased the Council's energy use. Tasmania's greenhouse gas landscape has changed markedly with an increase in electricity emissions as more mainland electricity is imported.

The Council, in spite this, is reducing its energy use through a range of energy saving options such as conversion of all computers to energy saving LCD screens, lighting replacement programs, upgrades of plant equipment and use of natural gas at its bitumen plant. It is interesting to note that since 2001, energy use in the Building, Streetlights and Water/Sewage sectors has decreased along with 'non-energy' emissions sectors of Water/ Sewage and Waste Water Treatment and Waste. A significant emission reduction of almost 80% has been made in the waste sector at the McRobies Gully Landfill. This has been achieved by the use of landfill methane to generate electricity that is exported to the 'grid.' Since the program was commissioned 17,500 MWHrs of electricity have been produced and 135,000 tonnes of greenhouse gas destroyed.[4]

The Council uses online CCP Greenhouse Gas Calculation software for its inventories, conducting annual inventories since 2000/01 and tracking progress and trends. Accurate data is obtained from its electricity and fuel accounts, along with record keeping of waste entering the landfill site and annual landfill cogeneration reports.

	Base Year 1996 [B]	2001	2002	2003	2004	2005	2006	2007	% Change 1996-2007
[A] Buildings Sector									
eCO_2 t	115	22	61	344	392	481	594	1,321	92↑
GJ	20,694	[C]38,992	36,775	39,893	40,272	38,495	39,627	35,705	[D]58 ↑
COST $	650,590	1,063,454	1,064,972	1,194,224	1,217,990	1,225,447	1,277,636	1,231,252	53↑
Vehicle Fleet Sector									
eCO_2 t	1,819	2,299	2,388	2,415	3,438	2,867	2,766	2,476	73↑
GJ	26,254	33,148	34,432	34,825	49,492	41,296	40,346	36,729	[E]71↑
COST $	431,551	721,081	780,201	803,069	1,086,553	1,193,533	1,278,043	1,307,650	33↑
[A]Streetlights Sector									
eCO_2 t	65	8	24	125	141	180	208	496	99.2↑
GJ	11,754	14,267	14,516	14,554	14,484	14,424	13,837	13,403	87↑
COST $	662,791	812,033	855,894	880,189	902,146	927,341	959,824	1,020,882	35↑
[A H] Water/Sewage Sector									
eCO_2 t	37	12	32	160	162	258	295	657	94↑
GJ	6,726	21,298	19,344	18,601	16,697	20,610	19,658	17,750	38[I]↑
COST $	207,494	582,156	523,978	545,913	567,327	619,120	627,938	612,103	34↑
Waste Sector									
eCO_2 t	39,400	43,200	43,500	34,191	14,800	6,982	7,762	8,210	79↓
Waste Water Treatment (Digesters)									
eCO_2 t	4,599	1,260	1,260	1,260	1,260	1,260	55	55	98.8↓
Total									
eCO_2 t	46035	46,801	47,266	38,495	20,192	12,027	11,680	13,215	71↓
GJ	55,357	107,705	105,067	107,873	120,945	114,826	113,468	103,587	53↑
COST $	1,952,426	3,178,724	3,225,045	3,423,394	3,774,016	3,965,441	4,143,441	4,171,887	47↑

[4] AGL July 2008, Hobart Landfill Gas Recovery Report

[A] The energy source for the Building, Streetlights, Water/Sewage sectors is electricity and its emissions factor e-CO_2 kg /kWh has increased from 0.02 CO_2-e/GJ in 1996 to 0.13 CO_2-e/GJ in 2007 due to the effects of the climate induced drought resulting in low Hydro dam levels and the subsequent importation of high emissions electricity from Victoria via Basslink and use of natural gas at Bell Bay to augment the States electricity supplies. A consequence is that emissions in the "electricity" sectors has increased by almost 100%.

[B] The National Greenhouse Accounts Factors 2008 emissions factor of 0.02 kg CO_2-e/GJ for 1996 has been used for the purposes of this inventory. It is noted that in 2000 when Hobart set its emissions targets that the NGFA 2000 the emissions target was 0.00 CO_2-e/GJ and as such in previous inventories produced by the Council this ha been listed as 0.00 eCO_2t.

[C] The almost 50% increase in energy was due to THAC coming on line –it is noted however that between 2001 when it came on line and 2007 that there has been an energy decrease of 8% (3,300 GJ) in the Building sector.

[D] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[E F] The decrease in 11% energy use and 14% decrease in eCO_2t from 2005 to 2007 is due to the Council's Bitumen plant converting from diesel to natural gas

[G] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[H] In 2009 the Water and Sewage Sector will transfer to a Regional Authority this will result in a reduction of approximately: 4% e-CO_2t emissions; 20% of energy (GJ) and 15% in costs.

[I] Between 2001 and 2007 there has been a 17% decrease in energy (GJ) used in the Water/Sewage sector

[J] The decrease in e-CO_2 t is due to the flaring and subsequent cogeneration of methane from the McRobies Gully landfill – residual emissions are fugitive

[K] The decrease in e-CO_2 t is due to cogeneration of methane from the Waste Water Treatment plants for reuse as an energy source in the plant

[L] Between 2001 and 2007 there has been a 4% reduction in energy (GJ) used overall be the Council

PART TWO – STRATEGIES & ACTIONS

5A's Strategies and Actions

Climate change will affect the whole of Council and how it functions and how each employee does their job. It will affect our community, the region we live in. There is nothing about our lives, communities, societies or environments that will not be affected by climate change.

The strategies and actions identified in HCC S5 have been developed to assist the Council and its communities to continue action to mitigate emissions and begin to adapt to climate change impacts and a carbon neutral lifestyle and economy.

The focus of HCC S5 is on the five core strategies of climate which apply across the organisation and our community and regional linkages. It is considered that major aspects of the ramifications of climate change on our social and natural processes are covered by the strategies.

The five A's of climate change are:

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions and progress towards targets.

The strategies are not listed in a hierarchical order – all strategies are considered to be of equal importance. To date the major areas of action have been in the abatement sector, as in the early 2000's the emphasis was on reducing emissions as programs typically focused on mitigation. However in recent times there has been a shift on the realisation that humanity will have to adapt to climate change impacts in the order of 2^0C or more as emissions continue to increase.

HCC'S previous Local Action Plan separated the actions to address climate change into corporate and community, this document blends actions in both these sectors of which there is also considerable overlap into the five core strategies of climate change.

Action Time Frame	Financial Year
Ongoing	n/a
Immediate	2009/10- 2010/11
Medium	2010/11 – 2011/12
Long Term	2012/13 – 2013/14

Advocacy

Advocacy: promoting leadership within the Council and throughout the community in responding to climate change.

The issue of climate changes is challenging all levels of society and there is the urgent need to create sustainable and carbon friendly communities, cities, economies and social structures and processes. The inherent uncertainty in finding and creating solutions and alternatives to progress in the face of climate change requires strong advocacy from across society and its institutions. Local government's core business is 'sustainability' in its broad meaning encompassing economics, environment and social considerations. As such, it is incumbent on the Hobart City Council to advocate for development and implementation of actions and strategies to address climate change issues

The Advocacy Strategy component provides for effective Capital City leadership, integrity and openness in its approach and to climate change. This will provide a political forum to advocate the needs and aspirations of the community with regard to understanding, responding and adapting to climate change.

Advocacy Actions:

Climate Change Policy

HCC S5 proposes that the Council formally endorse the Climate Change Policy that forms Appendix 5 of this document formally affirming and reinforcing its commitment for action and leadership on the issue. The Climate Change Policy forms the basis of the Council's climate change activities and represents its public commitment to leadership and action on climate change.

#	Action	Responsible	Timing
1.1	Council formally endorse the Climate Change Policy that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership to Hobart's communities and the region.	Council	Immediate

CCP Partner Program

In joining ICLEI Oceania - Cities for Climate Protection Program in 1999 the Council committed to acting on the issue of climate change. Through HCC S5 the Council reaffirms and reinforces its commitment to ongoing climate action post the cessation of CCP on 30 June 2009 and its replacement with the CCP Partner Program

The CCP Partner program will be of particular assistance to the Council through its proposed adaptation work and regional briefings. The regional briefings will be of particular support during the introduction of the proposed Carbon Pollution Reduction Scheme in 2011.

#	Action	Responsible	Timing
1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners Program.	Council	Ongoing

STCA - Climate Change and Sustainability Initiative

Greenhouse gas emissions, climate change impacts and the abatement and the mitigation and adaptation solutions are not limited to municipal boundaries. Whilst most Council's can successfully implement climate action at the corporate level as they directly control the emissions – working on community based climate action and meeting community-wide reduction goals is inherently complex and problematic as they do not control emissions and can only influence the behaviour change. HCC S5 proposes that through the Southern Tasmanian Council's Association (STCA) a Climate Change and Sustainability Initiative (CC&SI) be established – refer to flow diagram page 38.

The CC&SI provides a framework for the development of strategies supported by actions based on the four broad based themes of land use: urban, peri urban, rural and natural areas and revolve around the development of strategies and prioritisation of actions for these. The strategies are not mutually exclusive of one another with actions, strategies and program able to be shared and adopted by all Councils represented by the STCA. It does however encourage Councils to work on the development and sharing of programs that are of most concern and relevance to their communities.

The development of the strategies should be undertaken with input from the key stakeholders in use each areas such as local government, state government, non government organisations, statutory authorities, industry etc.

The STCA CC&SI compliments and progresses the Statewide Partnership Agreement on Climate Change between the State Government and LGAT on behalf of Tasmanian Councils.

Initially the STCA CC&SI framework developed by CCP Councils as these already have an understanding of their and their communities emissions and are progressing a structured and supported framework for climate action.

Urban Strategy - Greater Hobart Climate Partnership

The initial project to be developed and piloted under the initiative is the Urban Climate Change Strategy involving Councils of Greater Hobart: Brighton, Clarence, Glenorchy, Hobart and Kingborough – (Devonport and Launceston invited as urban observers). The Greater Hobart Council's are engaged in the Cities for Climate Protection and are reasonably and consistently progressed in terms of the development and implementation of climate change actions.

Urban strategy would focus on two spheres of action:

- Community action on climate change with an emphasis on sustainable behaviour change that leverages off existing programs and incentives i.e. Carbon Pollution Reduction Scheme, HCC Solar Hot Water Rebates etc and focuses on householders, retail, commercial, industrial and education sector
- Adaptation applies the *Local Government Climate Change Adaptation Toolkit* to Greater Hobart including partnership opportunities with the ACE CRC Tasmanian Climate Futures Project and other stakeholders

The GHCP would share resources, set Greater Hobart community-wide emission reduction goals, develop a Greater Hobart Abatement Action Plan, Adaptation Strategy and Awareness Program. It aims to lead, support and mobilise climate action by the community and private and public sectors.

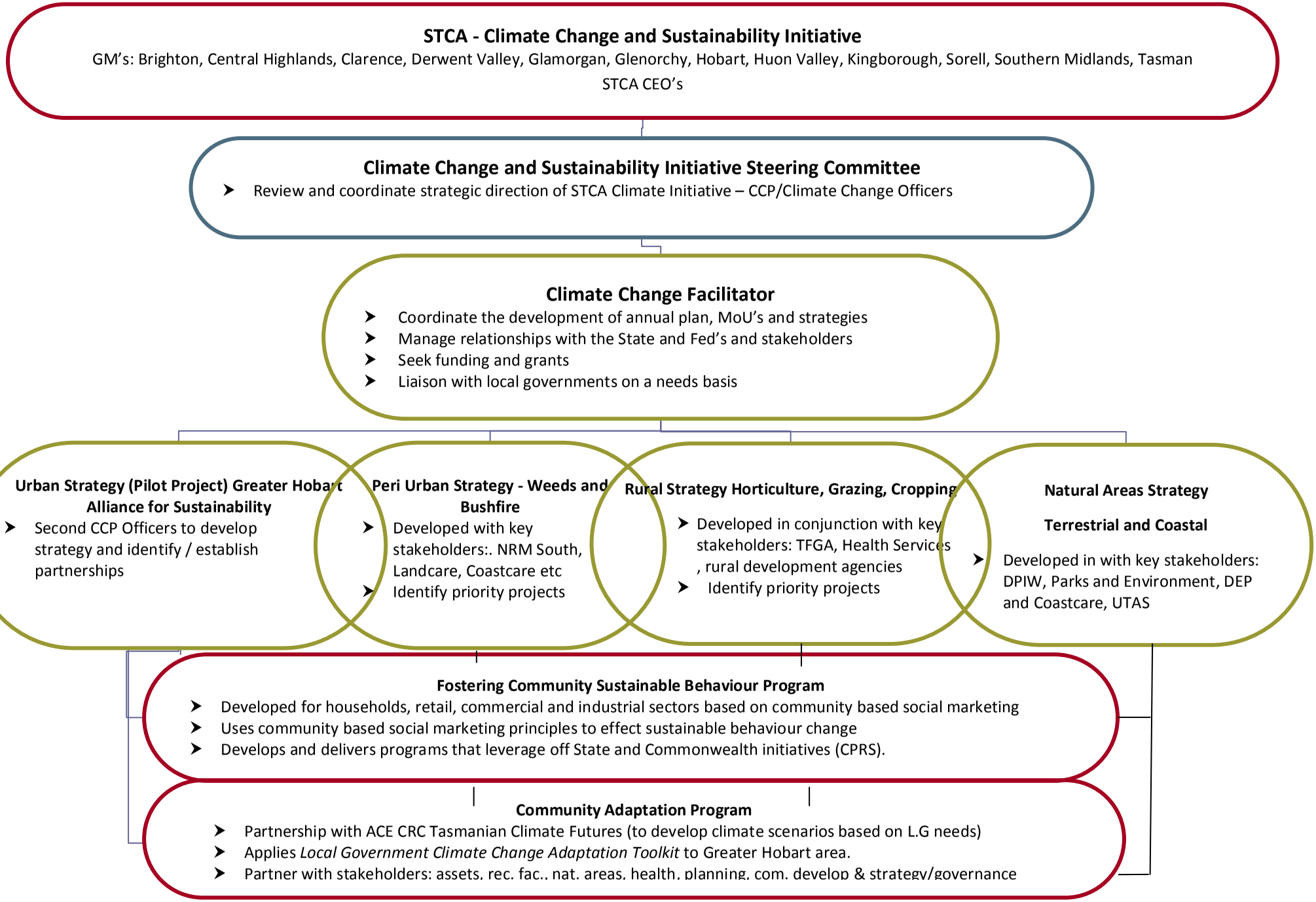
The GHAS would provide a model for other Council represented by the STCA to develop alliances and strategies around common themes of peri urban, rural and natural areas. The partnership is not intended to preclude other Councils from adopting actions and strategies. It is however intended to allow urban Councils leverage action and shared resources and responsibility for their urban communities that have distinct needs compared to peri-urban, rural and natural area communities and local governments.

The formation of a GHCP is supported by ICLEI and its CCP program. It progresses the State Government's Partnership Agreement on Climate Change in particular its principles of: leadership, shared responsibility; best practice and beyond, accelerating outcomes, creative thinking and innovation, openness and transparency.

It furthers the strategic direction adopted for the review of the Councils Climate Action and outlined in a CMT report (dated 06/07/07 – see Appendix 4) circulated, to aldermen, which included a recommendation, that:

"Opportunities are investigated for the establishment of a regional approach to community emissions abatement with other [CCP] *participating councils of Greater Hobart – Glenorchy, Clarence, Brighton and Kingborough."*

The model for the GHCP `would be of a similar to that of the Derwent Estuary Program that includes: Political commitment; a steering committee; and a technical working group supported with resources, to deliver and coordinate the program and on-ground actions.


STCA - Climate Change and Sustainability Initiative
GM's: Brighton, Central Highlands, Clarence, Derwent Valley, Glamorgan, Glenorchy, Hobart, Huon Valley, Kingborough, Sorell, Southern Midlands, Tasman
STCA CEO's
Climate Change and Sustainability Initiative Steering Committee
Review and coordinate strategic direction of STCA Climate Initiative – CCP/Climate Change Officers
Climate Change Facilitator
Coordinate the development of annual plan, MoU's and strategies
Manage relationships with the State and Fed's and stakeholders
Seek funding and grants
Liaison with local governments on a needs basis
Urban Strategy (Pilot Project) Greater Hobart Alliance for Sustainability
Second CCP Officers to develop strategy and identify / establish partnerships
Peri Urban Strategy - Weeds and Bushfire
Developed with key stakeholders:. NRM South, Landcare, Coastcare etc
Identify priority projects
Rural Strategy Horticulture, Grazing, Cropping
Developed in conjunction with key stakeholders: TFGA, Health Services , rural development agencies
Identify priority projects
Natural Areas Strategy
Terrestrial and Coastal
Developed in with key stakeholders: DPIW, Parks and Environment, DEP and Coastcare, UTAS
Fostering Community Sustainable Behaviour Program
Developed for households, retail, commercial and industrial sectors based on community based social marketing
Uses community based social marketing principles to effect sustainable behaviour change
Develops and delivers programs that leverage off State and Commonwealth initiatives (CPRS).
Community Adaptation Program
Partnership with ACE CRC Tasmanian Climate Futures (to develop climate scenarios based on L.G needs)
Applies Local Government Climate Change Adaptation Toolkit to Greater Hobart area.
Partner with stakeholders: assets, rec. fac., nat. areas, health, planning, com. develop & strategy/governance

#	Action	Responsible	Timing
1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of an *STCA Climate Change and Sustainability initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives and recognition of local government climate action to date.	STCA / General Manager	Immediate

Climate Change and Sustainability Steering Committee

The "Climate Change and Sustainability Steering Committee" is a an internally focussed leadership program to coordinate and progress climate and sustainability issues across (i) the Council's sphere of corporate activities and (ii) for input into the Greater Hobart Climate Partnership. CCSSC encompasses Energy Management, Environmental Sustainability and Climate Adaptation Programs. It is a response, in part (see underlined), to the Council motion Meeting 46, 10/09/07:

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

#	Action	Responsible	Timing
1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change & Sustainability Steering Committee	Ongoing

Greenhouse Reference Group

The Greenhouse Reference Group, comprised of Aldermanic representatives and Council officers, was established in 2000 to assist in the development and implementation of the Councils Greenhouse Local Action Plan. In preparing for its review the Council adopted a recommendation, dated 06/08/2007, that:

"The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered."

The scope and range of activities embedded and covered in climate change covers all aspects of the Councils activities: social, economic and environmental. To ensure a more comprehensive response and holistic and informed input by the Council's Aldermen HCC S5 proposes that quarterly briefs are provided – with Council Officers updating on Council actions, strategies and initiatives as well as advising advances in climate science and legislation. Observers and key stakeholders, as relevant, would also be invited to attend and participate in the briefings. Working groups for the development and implementation of projects may also be established on a needs basis. The introduction of regular quarterly briefings will form an important conduit for the sharing of ideas and updates on climate change between elected representatives and the community. It will also have input into the Greater Hobart Climate Partnership.

#	Action	Responsible	Timing
1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant replacing the Greenhouse Reference Group.	Climate Change & Sustainability Steering Committee	2009 Ongoing

Abatement

Abatement: the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Emission Reduction Goals: HCC S5 sets the following the emissions abatement goals for its corporate and community activities:

- Corporate Energy Abatement Goal 30% reduction from 2009 by 2020 (Note this excludes Water and Sewage Sector that will be transferred from the Councils to the Regional Water Authority in 2009).
- Corporate Waste Abatement Goal 70% reduction goal from 1996 by 2010 and maintain until 2020 or until flaring concludes post landfill closure
- Greater Hobart Community Abatement Goal – to be identified under the auspices of the Southern Tasmanian Council Association's, Climate Change and Sustainability Initiative, Urban Program, by the Greater Hobart CCP Councils stakeholders: Brighton, Clarence, Glenorchy, Hobart and Kingborough.

HCC S5 Emissions Abatement Goals builds on and refines the Councils previous corporate and community emission reduction goals set in 2000 under the auspices of the CCP:

- Corporate 70% by 2010 from 1996 levels; and
- Community 20% by 2010 from 1996 levels.

The Council has achieved and exceeded its corporate emission reduction goal of 70% by 2010. It has abated a total a 166,937 e-CO_2 tonnes which is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

A significant proportion, 80%, of this has been achieved through the installation of cogeneration technologies, using methane generated from its McRobies Gully Landfill and Waste Water Treatment operations. Since commissioning landfill cogeneration in 2004 a total of 134,029 e-CO2 t have been destroyed and 17,243 MWhrs of electricity have been generated and exported to the states grid which is enough to power 742 average Tasmanian homes[5]. Residual landfill emissions are fugitive and best addressed though carbon offsets or similar mechanisms. The cogeneration will continue until the expected closure of the landfill in 2018.

To address emissions associated with energy use for the balance of the Council activities a new energy abatement goal of 30% has been set that targets the Councils energy (electricity, fuel and natural gas) use and will result in real energy savings for Council. The electrical energy component typically has minimal emissions due to the low Tasmanian electricity emissions factor that, in 2007, is 0.13 kg CO2 e/kWh as compared to 1.32 kg CO2 e/kWh for Victoria[6]. The 30% Energy Abatement Goal is adjusted to take into account the Water and Sewage Reform – whereby Hobart's waste water treatment and pump assets, accounting 20% of its energy use, are transferred to a Regional Authority in 2009.

The 20% Community Reduction Target set in 2000 is problematic as the Council does not control emissions in this sector. Whilst the Council can exert some influence through its planning scheme, community awareness initiatives and sustainable transport strategies, these have not had a sizeable impact on actual emissions from this sector. It is noted that the greatest proportion of emissions in this sector are derived from industry process that rely anthracite (black coal) as a fuel source for heating boilers. Working co-operatively with the Councils of Greater Hobart and setting a joint community emissions reduction goal will produce realistic and sustainable project and outcomes that produce. A cooperative approach will also leverage greater resource towards abatement project and greater lobbying capacity on behalf of the participating local governments.

[5] AGL Annual report, (McRobies Gully Waste Treatment Facility) July 2008.

[6] National Greenhouse (Factors) Accounts Jan 2009

Corporate Abatement Actions

Energy Management Team [Corporate]

In 2007 an [Corporate] Energy Management Team was established to investigate and implement actions for the all the Council's energy [i.e. electricity, natural gas, diesel/petrol] consumption, costs and energy related greenhouse gas emissions. It is responsible for developing energy efficiency and conservation actions and strategies including alternative energies, emission reduction and carbon offsets for energy/emissions that cannot be reduced. Note: the team is not responsible for greenhouse gas emissions associated with the waste and the Council's McRobies Gully landfill nor energy use within the community sector.

The following table summarises the Councils energy [GJ] consumption and energy greenhouse gas emissions for assets that used more than 500 GJ per annum in 2006 -07:

Asset/s – 2007 greater than 500 GJ per annum	Category	GJ	eCO_2t	eCO_2%	$
The Hobart Aquatic Centre	Building	19921	737	15	611,798
Trucks	Fleet	13771	959	19	514,702
Hobart Streetlights	Streetlights	12759	472	9	985,021
*Selfs Point Waste Water Treatment Plant	Waste/Water	8779	325	6	284,512
Heavy Plant	Fleet	6952	484	10	260,847
Utilities/Vans	Fleet	5689	396	8	218,976
Hot Mix Plant (Natural gas)	Fleet	4536	235	5	85,084
*Macquarie Point Waste Water Treatment Plant	Waste/Water	4152	154	3	135,406
Town Hall	Building	3806	141	3	137,694
Customer Services Centre	Building	3291	122	2	124,255
Council Passenger Vehicles	Fleet	2551	177	4	102,338
4 Wheel Drive Vehicles	Fleet	2124	148	3	79,821
*Pump Station PS2 Nelson Road	Waste/Water	1938	72	1	69,332
*Pump Station 283 Brooker Avenue	Waste/Water	1885	70	1	65,406
Argyle Street Car Park	Building	1746	65	1	59,449
Hot Mix Plant (Natural Gas)	Building	1265	47	1	52,386
Central Car Park	Building	1142	42	1	41,326
Centrepoint Car Park	Building	1005	37	1	31,768
Aldermanic Fuel Allowance	Fleet	820	57	1	34,191
Salamanca Car Park	Building	683	25	0	28,471
Other Assets Energy Use	-	4772	240	5	24,9104
Total		103,587	5005	100	4,171,887

*To be transferred to the Regional Sewage and Water Authority 2009.

Electricity

Overall there has been a modest reduction of electricity energy used since mid 2000 due to actions such as changing all computers screen to energy efficient LCD screens. There is however scope to further reduce electricity emissions and the Council has committed to a further 30% emission and energy reduction by 2020 from 2007 levels. It is anticipated that this will be achieved through energy efficient lighting, energy audits and Heating, Ventilation and Air Conditioning and increased awareness and behaviour change.

HCC S5 notes that the report "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre" identified that there were extremely limited opportunities for the installation on Council's corporate buildings due to poor solar orientation, compromised roof space due to HVAC systems and shading issues.

Fuel/Diesel

Currently the options for reducing energy and emissions in this sector are limited as there currently no viable alternatives fuel sources available within Tasmania. The council is represented on a working group with the State Government into opportunities for Compressed Natural Gas and is lobbying for filling stations in Hobart, Launceston and North West. It has committed funds in the 2009 budget for the purchase of three CNG garbage trucks.

Through the EMT it is working towards the development of strategies to increase awareness and behavioural change to reduce emissions from passenger vehicle use and fleet.

Natural gas

Natural gas is now used in the hot mix plant replacing the diesel as the primary fuel source this has resulted in a 5% emissions reduction since its introduction. EMT is currently examining other opportunities for natural gas for Council assets.

Other

Alternative energies: heat exchange, investigation of alternative energy (solar/wind) with demonstration capacity at demonstration solar at Cleary's Gates

#	Action	Responsible	Timing
2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 – 2010 levels (post Sewage & Water Reform).	Energy Management Program	2020
2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.		2008 – ongoing
2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.		2008-2009
2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.		Ongoing
2.5	Develop and implement Energy Management Plans for the corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.		2007 -2009
2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.		2008
2.7	Implement the recommendations of the report "PV Systems Consultancy and Building, Energy Assessment Hobart Town Hall, City Hall, Council Centre."		2008 - 2010

Corporate Waste Emissions

The Council provides facilities for the recycling of its corporate waste [paper, cardboard and bottles etc] generated from the Town Hall, Customer Services Centre, Cleary's Gates Depot and the Hobart Aquatic Centre. Waste that cannot be recycled enters the Councils kerbside waste collection service.

HCC S5 proposes that an audit is undertaken of the waste generated to measure the effectiveness of the Council's internal waste strategies and identify further opportunities to reduce waste entering kerbside collection stream. Following on from that a strategy will be developed, to address specific waste types and identify opportunities to reduce waste entering the kerbside stream, based on the findings of the initial audit.

#	Action	Responsible	Timing
2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	June 2009
2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.		June 2009

Sustainable Purchasing

The Hobart City Council for 2007 - 2008 spent approximately $36.6 million on materials, services and contracts. The Councils' Divisions are responsible for their individual purchases and purchasing practices. The purchase of office materials is guided by Council Policy (5-11-03) encouraging the purchase of 'environmentally preferable products.' However other purchases are not covered by policy directives or strategies that encourage sustainable outcomes.

The procurement practices of organisations can directly and indirectly influence the sustainability, including the greenhouse gas emissions, of products and services purchased. Wastes, leading to un-sustainable outcomes, can be generated:

- during the production and supply phase (resource extraction, processing, manufacturing, transport and supply);
- while the product is being consumed or 'used' by the end-user;
- once the product has reached its end of life stage and is disposed of by the end-user.

Given the significant purchasing power of the Council HCC S5 provides proposes that the Council develop a sustainable procurement strategies that it will consider:

- strategies to avoid unnecessary consumption and manage demand;
- minimising environmental impacts of the goods and services over the whole of life of the goods and services;
- suppliers' socially responsible practices including compliance with legislative obligations to employees; and
- value for money over the whole-of-life of the goods and services, rather than just initial cost
- the complex purchasing needs of the organisation as w whole; and
- educating and increasing the awareness of staff involved in purchasing across the organisation

The development of the sustainable strategy should consider the following mix of procurement strategies identified by the NSW Sustainable Procurement Program that include:

- influencing procurement patterns to favour sustainable products or discourage unsustainable ones;
- encouraging manufacturers and suppliers to improve their own operations (e.g. requiring them to have environment management systems);
- requiring manufacturers and suppliers to have greater responsibility for the life-cycle impacts of their products (e.g. product stewardship schemes);
- direct regulatory intervention, such as bans or mandatory performance requirements (e.g. eco-specifications on government motor vehicles contract); and
- educating suppliers and the broader community on economic, social and environmental impacts of their production and consumption patterns.'

http://www.greengoods.nsw.gov.au/policy/sustprocingov.htm

#	Action	Responsible	Timing
2.10	A Sustainable Purchasing Strategy is developed across the whole of Council, that: ➢ takes into consideration the Council's complex and varied needs-purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ has a process for monitoring, reporting and review of the strategies outcomes.	Climate Change & Sustainability Steering Committee	Medium

Sustainable Transport Strategy

Hobart's corporate and community transport sectors are significant sources of greenhouse gas emission, 62% and 39% respectively. Finding alternatives to the transport issue is a significant challenge, in the absence of an alternative fuel source to petrol and diesel, measures and strategies revolve around changed behaviours and the transport modes i.e. public transport over private transport options.

The Councils Sustainable Transport Strategy 2008 provides a significant was forward on this issue at both the corporate and community levels.

#	Action	Responsible	Timing
2.11	Implement recommendations of the Sustainable Transport Strategy, when finalised, in parallel with HCC S5	Climate Change & Sustainability Steering Committee	Ongoing

Community Abatement Actions

The community sector encompasses household (residential), business (commercial, retail, and industrial) and transport (private and commercial). In 2006 Hobart's community sector produced 309,929 e-CO_2 t and consumed 5,483,931 GJ. Compared to the base year 1996 where 312,896 e-CO_2 t were produced and 7,195,441 GJ were consumed there has been a reduction in emissions of 2% and energy of 19% - this is for the most part due to the decrease in population along with increased energy efficiencies and alternatives in this sector. The increase in the electricity emissions factor, due to the importation of mainland electricity means that reduction in energy is not reflected in a greater reduction in emissions in this sector.

Community abatement of emissions will be achieved principally through the proposed formation of the Greater Hobart Climate Partnership that aims to encourage, acknowledge and reward sustainable behaviour practices in the community sector. Abatement will be achieved through the empowerment of the community sector to increase their energy efficiency, change behaviours and

Household Sector

The residential or household sector, in 2006, was made up of approximately 20,000 private dwellings that consume 918,132 GJ or 16% of total energy in the community sector and produces the 15,505 eCO_2t or 5% of the total sectors emissions. Whilst the figures may appear relatively small there is considerable scope, and community support, to further reduce energy consumed and emissions produced. Significant gains in reduction of energy use importantly means cost savings to households.

Sustainable Household Incentive Program

The Sustainable Household Incentive Program combines the sustainability actions of the Council and embeds additional actions to encourage sustainable household outcomes such as increased energy efficiency, water conservation, clean air and biodiversity. The program extends and builds on the Councils successful Solar Hot Water and Water Rebates and progresses the recommendation endorsed by Council dated 25/06/2007:

"Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

And the Strategic Plan action:

"2.3.3. Review Council's initiatives including energy efficiency and solar hot water rebates "

HCC S5 proposes that a Sustainability Rebate Program be developed that includes:

- Solar Hot Water Rebate – extend and includes Hot Water Heat Pump;
- Energy Efficiency Audit and Rebate – introduces a rebate that includes a household energy efficiency actions including: ceiling and floor insulation, curtains, pelmets and glazing, energy efficient lighting (CFL's and LED's), appliance energy use;
- Clean Air rebate – for replacement of wood heaters/stoves with non PM emitting i.e. heat pumps, natural gas heating;
- Bushcare Bio-diversity Incentive – household register for native plants and advice on suitable native plant species for properties and conservation covenants;
- Food gardens incentive – encouraging households to reduce food miles through demonstration and community based edible gardens; and
- Waste management awareness – to encourage and increase participation I recycling through the capture of organic material.

SHIP would also annually recognise and acknowledge "Sustainable Houses" and "Sustainable Streets" and "Sustainable Community participating households" with plaques/signs akin to the Safety House Program. Case studies could also be developed of acknowledged participants for awareness and promotional activities.

The intent of SHIP is that it can be implemented within Hobart's municipal area by the proposed Climate Change and Sustainability Working Group and expanded to the Greater Hobart Climate Partnership.

Sustainable Design Guidelines

Promotion of 'Sustainable Design Guidelines' for residential development and extensions specific to Hobart's cool temperate climate and the predicted impacts of climate change in Tasmania.

#	Action	Responsible	Timing
2.12	Develop Sustainable Household Incentive Program, including a Sustainable Rebate using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
2.13	Promote 'Sustainable Design Guidelines' that are available, to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium

Business Sector:

The commercial sector of greater Hobart ranges from small to medium to large size entities and includes commercial offices and retail outlets. In Hobart there are approximately 2500 rateable business properties.

The achievement of sustainability, emissions abatement and energy conservation is complex as a significant proportion of the commercial and retail sector are tenants. This means that they may be limited in their opportunity to influence and/or achieve energy efficiency outcomes as they may not be responsible for building energy systems such as lighting, elevators and heating, air-conditioning and ventilation and the attendant greenhouse gas emissions.

HCC S5 aims, through the Greater Hobart Climate Partnership and collaboration with peak representative bodies to develop and/or align and implement existing programs to assist this sector, in particular commercial and retail tenants, to achieve sustainability, emissions abatement and energy conservation outcomes.

Abatement action will progress the Council's Strategic Plan Strategy to:

"2.3.3 Promote opportunities to improve the energy efficiency of the city "

Commercial Office Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Tasmanian Property Council and the State Government to deliver the CitySwitch or similar program to the commercial office sector.

The CitySwitch Program is a national tenant energy management program run in partnership between the cities of Sydney, North Sydney, Parramatta, Willoughby, Melbourne, Perth, Adelaide and Brisbane and state government agencies. It aims to assist commercial offices, in particular tenants, to reduce their greenhouse gas emissions by improving energy efficiency. Core to the program is the commitment of program participants to the achievement and maintenance of an accredited 4 stars or higher [7]NABERS Energy tenancy rating.

#	Action	Responsible	Timing
2.14	Investigate opportunities for the promotion of CitySwitch program or similar program to promote energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	2009

Retail Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Retail Traders Association and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	Medium

Industrial Sector

[7] NABERS: National and Built Environment Rating System administered by the NSW government.

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Industrial sector and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.16	Investigate opportunities for the establishment of partnership and lobbying for of the industrial sector to reduce emissions and partner in adaptation initiatives.	STCA Climate Change and Sustainability Initiative	Medium

Education Sector

In 2008 the Clarence and Hobart City Councils both hosted with Mackillop College Sustainable Schools Forums to encourage schools within their municipality to participate in the National Solar Schools Program. Through the NSSP up to $50,000 is available to schools for the installation of solar panels and other energy efficiency measures. HCC S5 proposes through the Greater Hobart Climate Partnership that a resource be engaged to support schools and assist in the identification of energy efficiency and solar measures particular to their situation.

#	Action	Responsible	Timing
2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground resource to support schools	STCA Climate Change and Sustainability Initiative	Medium

Waste sector

Community waste emissions

Council currently owns and operates one Waste Management Centre at McRobies Gully. The WMC incorporates a landfill, composting operation, landfill gas extraction plant, and resource recovery operations such as domestic recycling drop-off area and tip shop. The site receives on average 60,000 tonnes of putrescible waste each year. Council is currently working on a strategic plan for the Waste Management Centre.

Council currently provides four (4) kerbside waste collection services, being waste, recycling, green waste and hard waste. Collection frequencies and volumes are as follows;

Service	Frequency	Limit
Waste	Weekly	120 Litres
Recycling	Fortnightly	240 Litres
Green organics	Quarterly	2 m3
Hard Waste	Annually	2 m3

#	Action	Responsible	Timing
2.18	Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, green waste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
2.19	Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium

Awareness

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Recent social research by SGS Consultancy for Clarence City Council has revealed that on the issue of climate change local government is the most trusted tier of government. This finding is not surprising as local government is the closest level of government to the community and is well positioned for dialogue on climate change. It is also the level of government that has also consistently taken action on the issue.

It is important that local government engages with the community in frank and transparent dialogue about the issue of climate change. The information provided to the community from local government should be consistent that would reinforce norms around sustainable behaviours within communities – a key platform for engaging behaviour change.

Corporate Awareness Actions

Employee Sustainability & Climate Information

The Hobart City Council employees 750 people with 580 employed on an equivalent full time basis. As an organisation the Council needs to ensure that its employees understand and are engaged on the issue of sustainability and climate change. The *Beat the Winter Chills and Bills Question and Answe*r in 2008 for Council staff was provided an introduction to the issue. The following actions further information available to Council employees that allow them to undertake and access sustainable and climate friendly action for the workplace and at home:

- Intranet Climate Page – information on climate change:
- What the Council is doing;
- What can employees can do at work to be more climate friendly and reduce emissions (information for home will be available through the Councils internet website);
- Where to find information on sustainability and climate change;
- How climate change will impact on their work;
- Strategic – adaptation and policy;
- Council inventories – detailed reports of corporate sectors;
- Implement Office Waste program – see abatement page 46;
- Provide 5 x Household Energy Audit Kits for loan from Corporate Library – Household Energy Audits designed by South Australian Government includes: Power mates; an appliance for reading energy consumed by appliances, infrared thermometer, timers, thermometers, instruction manual;
- Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work;
- Climate Incentive Program – annual bonus part of EBA to Divisions that reduce their carbon footprint from waste (waste survey) and energy use (sub-metering) and commuting;
- Develop climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities; and
- Sustainability and Climate awareness is included in the Council's Induction Handbook for new employees.

- Sustainability and Climate Updates – include updates, profiles, case studies etc on sustainability and climate action in Employee News

#	Action	Responsible	Timing
3.1	Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work.	Climate Change & Sustainability Steering Committee	Medium
3.2	Inclusion in Council's Employee *Induction Handbook* of a section on 'Sustainability and Climate Awareness.'	Climate Change & Sustainability Steering Committee	Medium
3.3	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities	Climate Change & Sustainability Steering Committee	Medium
3.4	Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees	Development & Environment Services	Immediate

Community Awareness Actions

Increasing community awareness about climate change and the need for sustainable behaviour change is a key action of HCC S5. The enormity of the issue of climate change can make action seem daunting and without empowering communities on action that they can take can have adverse outcomes where the community disengages and/or ignores the issue.

HCC S5 seeks to provide information to the community on nature of the issue and a range of actions that the community can undertake to respond and adapt the issue sowing the seeds for a strengthened sense of community and building community resilience.

When a community is resilient it can respond to crises in a way that strengthens community bonds, resources and the community's capacity to cope. Community resilience refers to the community's capacity to respond to adversity and change. Community resilience is of great interest and relevance to addressing the issue of climate change as it will allow communities to adapt to climate impacts and carbon economies.

In addition to building community awareness is also to encourage sustainable behaviour change. The basis of the community awareness program and actions are to consider the principles of community based social marketing to fostering sustainable behaviour. The programs development should identify barriers, remove external barriers, provide incentives, and create norms and prompts for desired behaviour change.

Key drivers contained in the Council's Strategic Plan:

"2.3.3. Promote energy efficiency to the community."

"2.3.7 Promote Council's greenhouse gas emissions reduction initiatives to the community."

Community Engagement

Through the STCA Climate Change and Sustainability Initiative's Greater Hobart Climate Partnership develop a climate action program to engage the community reducing emissions and building resilience and strengthens community relationships utilising the principles of community based social marketing.

#	Action	Responsible	Timing
3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➢ Fosters sustainable behaviour change across all community sectors ➢ Promotes actions to increase energy conservation and abatement of emissions ➢ Increases understanding of climate change and local government actions and responses ➢ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change	Climate Change & Sustainability Steering Committee	Medium
3.6	Design sustainability and climate awareness web pages for the Council's intra/internet page.	Climate Change & Sustainability Steering Committee	Medium
3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing

*In lieu of the formation STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Dr Edward Hall Awards – Climate and Sustainability Category

The Council's Dr Edward Hall Awards recognise environmental excellence across Southern Tasmania. The inclusion of a sustainability category to recognise sustainable and carbon neutral design in construction will further promote and increase awareness of sustainability and climate change.

#	Action	Responsible	Timing
3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing

Adaptation

Adaptation: the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

The HCC S5 Adaptation Strategy establishes a framework for the Council to respond to climate change, manage risk, identify opportunities and work with communities to prepare them to adapt to climate change impacts and carbon neutrality.

The Councils Strategic Plan is a key driver for the development of a Climate Change adaptation strategy:

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- *Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.*
- *Participate in regional approaches to climate change-related initiatives.*

The effects of climate change on Hobart will range from sea level rise and storm surge through to floods, droughts, extreme weather events and increased risk of fire all of which can impact on infrastructure and our communities. There will be implications for land use planning, local government owned infrastructure, community services and natural assets. The 'risks" and impacts are not new; however they are expected to increase intensity and frequency.

The following table list expected physical risks and social impact of climate change:

	Climate Impacts
Assets	➢ Road pavement construction & maintenance: change rate of deterioration, inundation , interruption to traffic ➢ Stormwater/drainage: intense rainfall events, exceedance of drainage capacity, flood defences, change in environmental flows ➢ Buildings: changes in building HVAC requirements/costs, risk of bushfire damage, extreme storm events damage, higher building deterioration and maintenance costs ➢ Coastal infrastructure: increased coastal erosion and inundation, increased frequency or permanent inundation of utilities, destruction damage to council owned assets and increased erosion and breaches of coastal assets and defences.
Recreational Facilities	➢ Provision and use of recreational facilities: impacts on infrastructure, loss of public space, tourism impacts, increase operation and maintenance costs ➢ Maintenance of recreational facilities: reduced water quality and quantities – implications for irrigation, beach closures due to algal blooms
Health Services	➢ Increase in range of vector borne diseases ➢ High temps increasing food and water borne diseases

	➢ Health impacts/fatalities due to heat waves ➢ Pressure on drinking water supplies ➢ Excessive rainfall and impacts on fresh water supplies ➢ Increase in injuries due to extreme weather events
Natural Resource Management	➢ Shifts in flora and fauna distributions ➢ Increase risk of extinction ➢ Reduced ecosystem resilience ➢ Increased ecosystems and species heat stress ➢ Increased pressure on dune systems ➢ Increase ecological disturbance
Planning	➢ Uncertainty in long term land use planning and infrastructure design ➢ Costs of retrofitting systems ➢ Loss of private property and community assets ➢ Increased insurance costs ➢ Early retirement of capital infrastructure

Local government has a key role to play in adapting for climate change and will need to manage risk to: its own infrastructure and assets, planning scheme requirements and the community sector emergency planning

Two opportunities available that will assist the Council to develop adaptation strategies are the CCP Local Adaptation Toolkit and the Climate Futures for Tasmania Infrastructure Project. The former provides a toolkit for adaptation/risk management that has been developed for and piloted by local government. Whilst the latter will produce climate change scenarios specific to Tasmania and a methodology that can be applied to infrastructure to identify risk levels. The application of both to Hobart City Council its activities, its community's activities and those of Greater Hobart will provide a comprehensive adaptation/risk management approach to climate change impacts. Both projects will leverage and augment the Tasmanian Climate Futures Project that models at a fine scale of 14 km2 grid a range of climate change impact scenarios

A key outcome could be the identification of sustainable urban landscapes across Greater Hobart that could be the focus of targeted programs to climate proof.

<u>CCP Local Government Climate Adaptation Toolkit</u>

A '*Local Government Climate Adaptation Toolkit*' has been developed by ICLEI with the support of the Australian Government. It was launched in March 2009. The Toolkit builds on the Australian Governments 2007 *Climate Change Impacts and Risk Management for Business and Local Government* and has been piloted with a five local governments. As a CCP Leader Hobart will receive support in the delivery and implementation of the toolkit. ICLEI is considering opportunities for the delivery of a 'Regional Adaptation Toolkit' to the CCP Councils of Greater Hobart.

The toolkit provides guidance to Councils and allows them to select tools of relevance to them, it includes:

- Establish an interdisciplinary approach to information gathering for the development of climate change scenarios
- Understand the potential impacts climate change may have on their business and community
- Identify their current risk management systems
- Identify, analyse, evaluate and prioritise risks and opportunities potentially arising from a set of climatic scenarios

- Explore treatment options for the prioritised actions plan
- Establish strategies for monitoring the implementation of the adaptation plan and reviewing its outcomes
- Build the personal capacity of participants to deal with complexity and uncertainty

The opportunity exists for the Council to partner with the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project in the application of the Adaptation Toolkit across the Council its assets, services and programs and in a regional project across the local governments of Greater Hobart. The partnership would allow the Council to access complex climate models and for the ACE CRC to identify the needs of 'users' such as local governments the most suitable for application in a the public sector in a risk and adaptation context.

Climate Futures for Tasmania – Infrastructure

The Climate Futures for Tasmania – Infrastructure project has been developed by consultants Pitt and Sherry as a 'not for profit' project that will develop a risk management methodology for infrastructure using complex modelling being undertaken by the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project. The Hobart City Council is participant in the project and will input into the project's development to meet the Council's needs.

The CFT project is delivered by a consortium of ACE CRC, CSIRO, the Tasmanian Partnership for Advanced Computing, the Tasmanian Institute of Agricultural Research, the University of Tasmanian, the Australian Bureau of Meteorology, Hydro Tasmania and Geoscience Australia. The projects builds on a project commissioned for Hydro Tasmania that modelled impacts of climate change on the level of dams.

The Climate Futures for Tasmania models approximately 100 climate variables using a fine scale of 15 km grid to produce climate impacts across Tasmania. Previous Australia wide climate modelling, by CSIRO, produced coarse scale models at 150 km grids of climate impacts.

Adaptation Actions

The adaptation actions are based on the detailed climate change scenario modelling available through the Tasmanian Climate Futures Project and the CCP Adaptation Toolkit

#	Action	Responsible	Timing
4.1	Establish a corporate Climate Adaptation Working Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change & Sustainability Steering Committee	Immediate
4.2	Participant in the Climate Futures for Tasmania –Infrastructure project; contributing to the project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities	Climate Change & Sustainability Steering Committee	Immediate
4.4	Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (07 May 2007)	Environment and Climate Change Officer	Immediate
4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project - – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	STCA Climate Change and Sustainability Initiative	Immediate

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Accounting

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

The Accounting Strategy component provides for the evaluation of the impact of climate change on the Council and the community and investigates opportunities for a revenue stream for a community based climate and sustainability program. The funds could be used for the engagement of resources to coordinate GHCP activities and for a range of programs including Sustainable Home Incentive Program see page 46, the City Switch and Greenbiz programs see page 47.

Accounting Actions

Energy and Greenhouse Inventories

Understanding trends and pattern is energy use is integral to achieving abatement goals after all 'you can't manage what you can't measure.'

Since 2000 the Council has undertaken annual inventories of its energy and greenhouse gas emissions using CCP software, which is reported to the Australian Government. This has enabled the Council to track its energy and emissions and is key to assisting the EMT in identifying trends and patterns in its energy and developing strategies to reduce energy consumption and emissions.

	Action	Responsible	Timing
5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate

Carbon Pollution Reduction Scheme

The proposed '*Carbon Pollution Reduction Scheme*' released in December 2008 and commencing 01 July 2011, is a core Australian Government initiative for addressing climate change through the introduction of an emissions trading scheme. The CPRS sets out preferred approaches to reduce greenhouse gas emissions and is intended to *'deliver substantial emission reduction while sustaining strong economic growth and securing prosperity.*'

The Australian Government considers a *carbon pollution reduction scheme* the best way to reduce emissions whilst minimising impacts on households and business. The purchase of carbon permits by industry and business sectors that emit more than 25,000 eCO2t per annum (less than 1% of all industry and businesses) provides incentive to reduce emissions. All funds generated will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

Key features of the CPRS are:

Reduction Targets of Australia's Greenhouse Gas Emissions -

- 60% reduction greenhouse gas emissions of 2000 levels by 2050 – a long term target; and
- Between 5 - 15% reduction of 2000 levels of greenhouse gas emissions by 2020 (minimum 5% of 2000 by 2020) – medium term target

Assistance for households and business financial assistance package for households -

- Households $6 billion per annum available from 2010; and
- Cent for cent reduction in fuel tax for three years.

Climate Change Action Fund

- $2.15 billion over 5 years for business, community sector organisations, workers, regions and communities; and
- Assistance to emissions intensive trade exposed industries.

There are still many details to be finalised before the scheme commences 01 July 2011. ICLEI is preparing an information paper to identify impacts on CCP local governments. In addition the Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Governments climate change policy. This will allow the Council to augment and leverage from the Australian Governments climate action.

#	Action	Responsible	Timing
5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or undertake on its own to implement actions and programs.

Carbon Neutrality

Carbon neutrality or zero carbon emissions describe a state where no greenhouse gas emissions are produced by an organisation or activity during a particular period in time. Typically this is achieved by organisations reducing emissions as much as practicable and then purchasing offsets for those that cannot or are too costly to reduce further. A range of offsets are available, which, vary in price and quality, and can be divided into four main groups: renewable energy, energy efficiency, methane emission avoidance and bio sequestration (forestry /plantations).

The Council has sought advice on how it could achieve carbon neutrality through a Council motion, 13/8/2007 that:

- *The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.*

And on 11/08/08 where it adopted a recommendation that:

- *Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.*

The introduction of the Australian Governments *Carbon Pollution Reduction Scheme* brings into question the effectiveness of carbon offsets to reduce Australia's overall emissions as these will be capped. The Australian Government has committed to developing a national standard for carbon offsets and a review is currently underway to provide consistency, confidence and guidance on offset additionality (does it contribute to real emissions abatement).

HCC S5 proposes that until such a time that the review is completed that

- one–off events such as the TASTE or assets , that Council adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008
  or
  where the option of carbon offsets is provided for an activity such as air travel these are utilised.

HCC S5 further proposes that post the review for carbon offset post the review could be that residual emissions following abatement action [8]may include:

- The Council purchase and retire carbon permits for specific assets and/or activities;
- The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or
- The Council use carbon offset programs that may be accredited through the review.

#	Action	Responsible	Timing
5.5	The Energy Management Program work towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➢ Avoid emissions by modifying behaviour ➢ Improve energy efficiency ➢ Increase local carbon sinks ➢ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing using an accredited carbon offset.	Climate Change & Sustainability Steering Committee	Long
5.6	HCC S5 proposes that until such a time that the review is completed that: ➢ 'assets' energy use or one–off events such as the TASTE, adopt ICLEI's Offsets Policy Feb 2009 and Carbon Offset Guide for Local Government June 2008; ➢ or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the review for carbon offset, residual emissions following abatement action 9may include: ➢ Council purchases and retires carbon permits for specific assets and/or activities; ➢ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invests the equivalent carbon offset in actual abatement and energy projects; and/or ➢ The Council use carbon offset programs that may be accredited through	*STCA Climate Change & Sustainability Initiative	Long

- [8] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.
- [9] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

	the review		
5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership Investigate the opportunities for the establishment of carbon offset program, in line with accredited offset providers as a potential income	*STCA Climate Change & Sustainability Initiative	Immediate

Carbon Development Calculator

HCC S5 proposes the development of a 'Carbon Development Calculator' be investigated. Linking to the Councils GIS the CDC could be used to identify the greenhouse gas emissions of corporate and community properties, buildings or assets at various stages of development and could consider embodied emissions, operational emissions and behavioural emissions. Whilst other carbon calculators have been produced these are generic and don't provide users with a comprehensive and detailed understanding of their actual emissions.

In the corporate context the Council could proactively use a CDC to identify the carbon/sustainability footprint of new developments and renovations allowing suggestions for ways to reduce emission and energy footprints. A CDC could value add to Council's community emission inventories providing detailed profiles of energy use over time, and to measure take up of incentives and programs..

In the community sector CDC could be used by property owners to voluntarily identify their embodied, operational and behavioural emissions and track change over time.

Piloted initially by the Council it potentially expanded out to the community and other Councils through the Southern Tasmanian Councils Association and the ICLEI - Local Governments for Sustainability Cities for Climate Protection Program.

A key stakeholder is the University of Tasmania and it is proposed that opportunities through the Council's Scholarship Program, are investigated with them to develop such a resource. It is a multidisciplined project that and strong synergies to the Australian Governments National Framework for Energy Efficiency and the Mandatory Disclosure of Commercial Office Building energy efficiency.

#	Action	Responsible	Timing
5.9	A project brief be prepared for the Carbon Development Calculator corporate and community parameters	Environment and Climate Change Officer	Medium
5.10	The Council investigate opportunities with the University of Tasmania for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program.	Environment and Climate Change Officer	Medium

Glossary

Emission factors are used to convert a given amount of fuel or energy source into carbon dioxide equivalent emissions (e CO_2). They can change over time as the emission intensity of a fuel changes or as better information becomes available. Electricity emission factors are calculated annually by the Australian Government to take into account variations in the actual mix of electricity sources used.

eCO2t – Equivalent carbon dioxide per tonne

Carbon Offsets - "A carbon offset is a financial instrument representing a reduction in greenhouse gas emissions. Although there are six primary categories of greenhouse gases, carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO2e). One carbon offset represents the reduction of one metric ton of carbon dioxide, or its equivalent in other greenhouse gases." Wikipedia

Climate Change - also known as the enhanced greenhouse effect and global warming - see Understanding Climate Change p 19.

Enhanced Greenhouse Effect – also known as the climate change and the global warming - see understanding climate change p 19.

Greenhouse Gases – are gases that are found in the atmosphere which trap heat, the principal greenhouse gases are: carbon dioxide, methane, nitrous oxide, trophospheric ozone, HFC's, PFC's and SF6 see page 20.

Global Warming - also known as the climate change and the enhanced greenhouse effect – see understanding climate change p 19

HCC S5 - Hobart Climate Change Action 5 – a strategy document prepared by the Hobart City Council for climate change action from 2008 – 2013.

Risk – a combination of the likelihood of an occurrence and the consequence of that occurrence.

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Appendix 1: Summary of the Hobart City Council's Climate Change Activities

The following is summary of the Council programs, activities and initiatives that the address the issue of climate change:

Year	Action/Milestone Achieved :
1999	Joined CCP – the first Tasmania Council to join
1999	Milestone 1: Inventory and Forecast for Community and Corporate Greenhouse Gas Emissions
2000	Milestone 2 Establish a greenhouse gas emissions reduction goal (Corporate 70% and community 20%)
2001	Milestone 3 Hobart City Council Greenhouse Local Action Plan
2002	Milestone 4 Implement the Local Action Plan – the Council demonstrated a 20% reduction its corporate emissions
	Milestone 5 Re-inventory of Emissions. The Council completed a complete re-inventory of emissions
2002 – ongoing	CCP Plus: The Council gave a political commitment to join CCP Plus – an ongoing program
2000 – ongoing	Emissions inventory Annual inventory of emissions corporate Census year inventory of emissions community

Climate Change Initiatives and Actions

Year	Climate Change Action/Initiative
1998 – Ongoing	**Hobart City Council's Bushcare Program**: An initiative of the Council to provide on ground support for community based 'Bushcare Groups' to restore native vegetation through the removal of environmental weeds from Bushland reserves and regeneration with local plants.
2000 – ongoing	**Inventory of Greenhouse Gas Emissions** The Council conducts an annual inventory of its greenhouse gas emissions
2001-ongoing	**Energy Efficient Guidelines** The Council prepared a set of Energy Efficiency Guidelines for prospective home builders and designers. The guidelines cover the range of considerations from an analysis of the site and the opportunities it presents for energy efficient design, through to building orientation and layout, ventilation/cooling, insulation and landscaping.
2001-2004	**Partnership Agreement with the State Government – Reducing Greenhouse Gas Emisisons** Covered: Landfill flaring, emissions inventory, CCP regional forum, community awareness and adaptation

2001 – 2006* Upgraded 2006	**Energy Efficiency Rebate:** The Council introduced a 2 tiered rebate on building application fees- 20% for compliance with HIA sustainable housing provision and 25% for compliance with Australian standards. Encouraging applications to meet certain minimum standards for energy efficiency.
2001 - 2002	**Around the World in Eighty Ways:** the Councils developed and hosted a website and provided bikes for two Tasmanian boys who travelled using carbon friendly transport from UN Bonn Climate Change conference (Denmark) to Hobart
2002	**Sustainable Transport Days :** Three Days promoting Sustainable transport including: - displays of alternative vehicles – hybrid - replacement of Lord Mayors car with a Toyota Prius - Community cycle with elected representatives from Brighton to Hobart
2003	**Sustainable Transport Week21 – 28 March:** A Council initiative involving Glenorchy City Council, Metro, Hot FM, Australian Greenhouse Office, Tasmania Environment Centre, Cycling South, to promote Sustainable Transport. The event included: - a series of facilitated workshops with private, public, community sectors with a summary workshop to bring together workshop outcomes - Presentations by guest speakers Dr Paul Mees and Dr Peter Newman -Bike breakfast - Commuter train from Glenorchy - Liverpool Street Closure and Community Fair
2004 - ongoing	**Cogeneration Water Treatment Plant** Installed a new 140 kWh cogeneration plant at Macquarie Point Waste Water Treatment Plant burns methane and reduces the demand on external electricity supply
2004 – ongoing	**Flaring Landfill Gas** Contracted AGL to install methane flaring at the Council McRobies Gully Landfill
2004 – 2005	**Walking School Bus:** the "Walk to School Bus Project" was a partnership of Cool Communities (Australian Greenhouse Office), Hobart City Council and South Hobart Primary School. The walk to school bus concept is designed to enable children to walk to school with the aid of parent volunteers along a designed safe route to school. It can be adopted by the school on a long-term basis, not just as a one off walking day event. The positive outcomes of this model provide reduced green house gas emissions for the local area, participation in moderate physical activity and foster community participation through social interaction with children and parents
2006- ongoing	**Sustainable Transport Officer** The Council engaged a Sustainable Transport Officer to develop a sustainable transport strategy and implement sustainable transport practices
2006*	**Energy Efficiency Rebate**: The Council updated its energy efficiency rebate to 100% rebate on Council's basic planning fee and building administration fee where sound and permanent energy efficient principles and features are incorporated into the planning and design of new houses and additions to existing houses
2007 –	**Sustainable Transport**

ongoing	The Councils received a grant from the Australian Government's Accelerating Action Program to work with the Sustainable Living Tasmania, Cycling South and of Greater Hobart Council's to prepare an Integrated Bicycle Network Plan
2008 – ongoing	**Sustainable Transport Strategy** Draft currently for consultation. Outlines a way forward for the Council to improve the sustainability of commuter and passenger transport (excludes freight) in the Greater Hobart Region.
2007- tba	**Zero Net Carbon Emissions 2020** The Council endorsed a motion: "That the Hobart City Council prepare a report on having zero net carbon emissions by 2020. That the Council use the City of Melbourne Zero Net Strategy as the starting point and include goals include the goals of the program in adapting a program for the use of Hobart City." "The matter be referred to the Council's Greenhouse Reference Group for further consideration." Endorses a motion to aim for zero net emissions through the review of its Greenhouse House Local Action Plan
2007- ongoing	**Energy Management Team** Councils internal Energy Management Team that considers all matters relating to the Council corporate energy use [all sources: electricity, petrol/diesel, natural gas], alternative energy, energy conservation (lighting and energy audits), electricity NEM contestability, carbon offsets and energy actions plans.
2007-2008	**Review of Greenhouse Local Action Plan** The Council commenced its review of Greenhouse Local Action that will include consideration of:- the Council resolution for Zero Net Emissions by 2020: and the five A's of Climate Change Action: Abatement, Accounting, Adaptation, Advocacy, & Awareness
2007-2008-	**Taste of Tasmania - Carbon Offset** Purchase of carbon offset emissions for the Taste of Tasmanian - 66.70 eCO2t were offset through Climate Friendly at a cost of $1999.25 inc GST (21.80 eCO2t Gold Standard and 44.90 of International VCS credits).
2007	**HCC Community Grant** HCC through its community Grants Program provided to a grant to Sustainable Living Tasmania to deliver a series of community workshops on climate change and host a community conference March 2008
2008	**Earth Hour** EH is a global campaign to raise awareness about climate change by turning off lights for 1 hour. HCC participated in Earth Hour 2008 and committed to participating in 2009.
2008	**Beat the Winter Chills and Bills Question and Answer Sessions and Display** HCC engaged SLT to deliver a series of 6 x BWCB Sessions to assist householders to improve their energy efficiency, increase understanding of climate change and action by HCC, and begin to build community resilience. A further 4 Q&A session held for Council staff and aldermen focusing on both the household and workplace actions.
2008	**Street lighting trial** HCC, in conjunction with Aurora is undertaking a small scale trial of street lighting (T5 and CFL's) to

	commence 28.08.08 at Poets Rd T5 (48) and Princes St's CFL's (42). Will run for 12 – 18 mths – to account for climate factors and survey residents
2008/2009	**Climate Futures Tasmania – Infrastructure** Contributing partner to project coordinated by Pitt and Sherry
2008 – ongoing	**Energy Reserve Fund** Establishment of Energy Reserve Fund $50,000 pa for projects not covered by other budget processes
2008 - 2020	**Emissions Reduction Target deepened** HCC has reduced its emissions by 75% from 1996 levels and has resolved to deepen this target by a further 30% 2020.
2008/2009 – ongoing	**Climate Adaptation Team** HCC is establishing a Climate Adaptation Team to implement as appropriate the CCP Local Government Climate Adaptation Toolkit and Climate Change Adaptation Actions for Local Government AGO 2007.

HCC Climate Change Membership and Participation in Climate Change Programs

2000 – Ongoing	Your Home Your Future Australian Government's Technical Working Group – HCC Environment and Climate Change Officer
2006 – ongoing	**LGAT** Climate Change Reference Group
1999 – ongoing	ICLEI Local Governments for Sustainability (ICLEI Oceania) membership and participant in ICLEI Cities for Climate Protection Program CCP – Leader Council.
2006 – ongoing	Australasian Mayors Council for Climate Protection – Coordination Committee - Lord Mayor

Appendix 2: Summary of Projected Impacts - Tasmania

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days, while in Launceston the annual average number of cold days below 0°C could fall from 35 to 16-30 days.
- Warmer temperatures and population growth are likely to cause a rise in heat-related illness and death for those over 65; increasing in Hobart from the current 5 annual deaths to 8 by 2020 and 10-14 by 2050.
- Warmer conditions may also help spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 percent reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Fire risk is unlikely to change in Hobart but, by 2020, the average number of days with very high or extreme fire danger in Launceston could increase slightly from the current 1.5 to 1.5-1.9 days and to 1.6-3.1 by 2050.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Some agricultural crops may benefit from higher CO_2 concentrations however protein content is likely to decline.
- Frost-sensitive crops may respond well to some warming however more hot days and less rainfall may reduce yields.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO_2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.
- Centres dependent upon agriculture and forestry may be adversely affected.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

Appendix 3: Carbon Offsets Considerations

The carbon offset market is new and establishing itself and as such is largely unregulated. The AGO's 'Greenhouse Friendly' program and the NSW Greenhouse Gas Abatement Scheme (GGAS) are two programs that have been developed to provide quality assurance for carbon offset purchases.

Internationally there are the Clean Development Mechanism (CDM), the Voluntary Carbon Standard and the Gold Standard for voluntary emission reductions also provide assurance for the purchase of carbon offsets.

The extent to which an organisation 'carbon offsets' can vary. It may choose to offset all its residual emissions or only offset emissions associated with an activity or asset such as building that has been retrofitted for energy efficiency purposes with the residual emissions offset through the purchase of carbon credits.

The Victorian EPA identifies a number of factors that may be considered in the purchase of carbon offsets:

Additionality is a key concept in evaluating whether or not an offset project leads to real and measurable greenhouse gas reductions. To be regarded as a valid offset, a project must be proven to be 'additional' to what would have occurred anyway. For example, a routine upgrade of equipment or changes in response to a regulatory requirement cannot be regarded as additional.

Translating the concept of additionality into practice requires establishing 'tests' of additionality. Typically these tests address the following types of additionality:

Financial Additionality: the project needs to go beyond business as usual (BAU) commercial practice. A standard test for this is if the project is financially viable without the offset funding.

Regulatory Additionality: the project needs to go beyond existing legal requirements.

Environmental Additionality: the emission reductions cannot be counted toward another emission reduction scheme or commitment.

Permanence: Some emission reductions may not be secure or may involve a range of risks. For example, this can occur with forestry projects where risks from fire or pest infestation are high, or where carbon offset credits are sold in advance. Offset providers should offer some form of guarantee that purchased credits will be maintained, or customers will be compensated if the project doesn't deliver the expected emissions reductions.

Leakage: Changes in emissions that take place beyond the boundary of the project but are attributable to the project activity are called emissions 'leakage'. New and/or additional emissions occurring off-site need to be quantified and taken into account in assessing the emissions reductions achieved. For example, if a forestry project limits logging in one area, the possibility that deforestation will occur elsewhere should be considered. Offset providers should also consider emissions from project operations (eg. electricity use, transportation of materials, etc.) that could increase emissions relative to the project baseline. Leakage should be explicitly addressed in calculation of the net emissions reductions achieved by a project.

Double counting: This can happen when two or more businesses claim the same emissions reduction. This can happen if an offset is sold to two or more entities, or when an entity upstream of the project unknowingly claims the reduction as its own (eg. an electricity generator). The establishment of protocols, and the use of an offsets registry can ensure offsets are adequately accounted for.

Timing of emissions reductions: Some offset providers generate and sell credits from their projects on an annual basis while others forecast credits over the life of their projects and sell them up-front.

For some projects this is necessary to get project funding, but counting on emissions reductions to occur over the lifetime of a project presents several risks. Regulatory requirements could make some offset projects obsolete in the

future. For example, implementing energy efficiency technologies that may be mandated by government in the future would no longer satisfy 'additionality' requirements (see above).

Proper monitoring and verification, and legally-recognised commitments from the offset provider to secure replacement credits if the project doesn't deliver anticipated emissions reductions can help to mitigate these risks.

Purchasers of offsets may wish to ensure that the GHG impact of their operations are neutralised by offsets in 'real time'.

Monitoring and verification: To ensure that the emissions reductions claimed by the project have actually taken place, the emissions should be monitored and verified, in line with a recognised standard.

The verifier should evaluate the project based on an explicit set of criteria that minimise the risk of false emission reduction claims. This should include the ongoing monitoring of the project to ensure that claimed outcomes have eventuated. Use of a third-party verifier is recommended to ensure the integrity of the offset credits.

Co-benefits: Although the primary goal of offsets is to encourage reduction in GHGs, projects may provide secondary benefits such as: reductions of other pollutants; increase in habitats for biodiversity; reducing reliance on fossil fuels in the economy; education benefits from the installation of new energy efficient technologies.

Co-benefits vary between projects and may be an important factor in voluntary offset purchasing decisions.

Appendix 4: Council Resolutions

The following details in full the Council resolutions with regard to climate change and sustainability:

06/07/2007

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11

Recommendations:

That

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11 be received and noted.)

The Local Action Plan is reviewed so that:-

- relevant 'Strategies and Priority Actions' are included within the Strategic Plan, and
- the 'Major Actions/Initiative's are included within the Annual Operating Plan, and
- the relevant actions are included within the appropriate Unit Plans,

The process of review be carried out to:

- ensure that a whole of Council approach is taken.
- recommend a means by which relevant items within the key corporate documents referred to in 16.2 can be separately and collectively identified as an energy efficiency / greenhouse gas emission reduction program.
- the 20% Community Emissions Reduction Goal be reviewed subsequent to the provision of more recent community data by ICLEI.
- opportunities are investigated for the establishment of regional approach to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.
- the Council's corporate electricity consumption is investigated separately from the Councils emissions goal and separate target and strategy be developed under the auspices of CCP TM and ICLEI advised accordingly.

8/3/2007

NOTES FROM A MEETING OF CMT

6.2. CITIES FOR CLIMATE PROTECTION REVIEW LOCAL ACTION PLAN – S17-050-11

Report of the MDP and EP was discussed and the recommendations endorsed.

CMT also agreed to re-establish the Energy Management Team involving all Divisions and chaired by the GMPS.

25/6/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18

13. PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

Ref. Open FCSC 5, 19/6/2007

That: 1. The Council introduce a solar hot water rebate or grant scheme for a period of 18 months for Hobart ratepayers who are looking to install a solar hot water system but are ineligible for the current planning and building administration fee rebate.

2. Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team.

3. The solar hot water rate rebate or grant be either:

(i) a one-off payment of a sum of $300 per solar hot water system or payable on a quarterly basis (rebate only); or

(ii) such higher figure as determined by the Council.

4. A report be provided to the Finance and Corporate Services Committee after 12 months operation, reviewing the success of the new rebate/grant and to enable consideration of its potential continuation beyond the initial 18 month period.

5. A media release be issued informing the public of the new rebate/grant; the qualifications under which it can be achieved and including details of other key energy saving initiatives residents can apply for when considering the installation of a solar hot water system, such as the Commonwealth's Photovoltaic Rebate Program, Renewable Energy Certificates and the Hobart City Council's planning and building administration fee rebate.

6. The Council's website be updated to allow for online access to apply for the rebate/grant and to provide links with key energy saving initiatives.

DEPUTY LORD MAYOR

HAYES That the recommendation be adopted.

Amendment

BRISCOE ARCHER That clause 6 be reworded to read:

6. The Council's website be updated to provide links with key energy saving initiatives and an appropriate means of enabling secure online access to allow for the lodgement of applications for the rebate/grant, be investigated as amended by the following:

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Amendment

BURNET CHRISTIE That Clause 3(i) be reworded to read:

3(i) The solar hot water grant be a one-off payment of a sum of $500 per solar hot water system.

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Cocker

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

Ref. Open DESC 6.2.2, 6/8/2007

That: 1. The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.

2. For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.

3. The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.

4. Aldermen be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

DEPUTY LORD MAYOR

ZUCCO That the recommendation be adopted.

Amendment

BURNET

SEXTON That the recommendation be adopted as amended by the insertion of the words and the community after the word Aldermen in clause 4.

AMENDMENT CARRIED

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING

19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

ALDERMAN COCKER "That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

COCKER

BRISCOE That the motion be adopted.

MOTION CARRIED

VOTING RECORD

AYES

Lord Mayor, Deputy Lord Mayor, Archer, Zucco, Briscoe, Hayes, Freeman, Christie, Cocker

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17/7/2008

NOTES FROM A MEETING OF CMT

ZERO NET CARBON EMISSIONS BY 2020 – IN PRINCIPLE CONSIDERATION OF FUNDING ISSUES – 17-50-11.

D/CITY S and GM-PS spoke to report. It was noted the principle was to get to zero carbon emissions by 2020. The discussion was around the best approach. It was agreed that HCC should make the most of the project based initiatives until at least 2015 and look at offsets to make up the balance to achieve zero by the target date. The establishment of a reserve fund with an initial $50k annual contribution would provide the funding for any future offsets required.

It was suggested that an annual KPI be developed to monitor the shortfall in emission offsets.

The report would be refined and referred to the Strategic Governance Committee.

Action: DCS

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59

STRATEGIC GOVERNANCE

20. HOBART CITY COUNCIL - ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

Ref. Open SGC 5, 5/8/2008

That: 1. The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

(i) A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.

(ii) The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.

(iii) The quantum of monies to be allocated to the reserve fund being reviewed annually.

(iv) The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.

(v) An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

2. Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

DEPUTY LORD MAYOR

HAIGH That the recommendation be adopted.

Appendix 5: Climate Change Policy

TITLE: GENERAL – CLIMATE CHANGE

SUBJECT: The Council's Climate Change Policy

DATE OF COUNCIL APPROVAL: xxxx

OBJECTIVE: The Hobart City Council on the issue of climate change will:

- provide effective and strong leadership to the region and to its communities to respond to climate change and build a sustainable region,

- develop and implement actions and strategies that assist communities to reduce carbon footprints, adapt to climate change impacts and increase their awareness and understanding of climate change and sustainability; and

- complement, collaborate and establish strong partnerships with key stakeholders and other tiers of government that strengthen the Council's responses to climate change.

- plan for and manage Hobart's adaptation to the impacts of climate change, particularly where these impacts represent a threat to people and property.

Hobart's Climate Change Strategies x 5 (HCC S5)

Climate Change an Issue for Everybody 2008 – 2013

May 2009

A review of the Hobart City Council's Greenhouse Local Action Plan

Endorsed Hobart City Council 25 May 2009

Abbreviations

ACE CRC – Antarctic Climate Ecosystems Cooperative Research Centre

CCGLAP – Corporate and Community Greenhouse Local Action Plan

CC&SI – Climate Change and Sustainability Initiative

CCP - Cities for Climate Protection

CCSSC – Climate Change and Sustainable Steering Committee

CDC – Carbon Development Calculator

CPRS – Carbon Pollution Reduction Scheme

DCC - Department of Climate Change (Australian Government formerly Australian Greenhouse Office)

DEP - Derwent Estuary Program

EMP – Council's Energy Management Program

GHCP – Greater Hobart Climate Partnership

ICLEI - Local governments for Sustainability (formerly the International Council for Local Environment Initiatives)

IPCC - International Panel on Climate Change

LGAT - Local Government Association Tasmania

NGAF - National Greenhouse Accounts Factors

STCA – Southern Tasmanian Councils Association

TCCO – Tasmanian Climate Change Office

Mt – mega tonnes

GJ – giga joules

kWh – kilowatt hours

e-CO_2t – equivalent tonnes of carbon dioxide

Useful Links

www.hobartcity.com.au

www.iclei.org/ccp-au

www.climatechange.gov.au

www.climatechange.tas.gov.au

www.tasmanianenvironmentcentre.org.au

www.lgat.tas.gov.au/site/page.cfm

www.environment.gov.au/settlements/renewable/nationalsolarschools/

http://www.sustainableschoolsproject.org/

Foreword by the Lord Mayor

I am proud as the Mayor of Hobart City Council to be celebrating 10 years of climate change action by the Council.

Climate change is a challenge like no other that humanity has ever faced. As a community we have contributed significantly to the situation and must work at finding solutions. We have a small window of opportunity in which to do this.

Climate Change is going to affect how we live our lives, our children's lives, how we do our jobs, how we recreate and also our local, national and international economies. There is very little about the way we live now that will not be affected in some way by the impacts of climate change. Every action we take to increase awareness and address this issue is significant and reinforces the urgent need for action whether on a small or large scale.

It is time to get serious about climate change. We are no longer talking simply about abatement of emissions – our climate is changing and we now need to learn how to firstly, reduce the rate of change and secondly adapt to it! We need to change the way that we live, work and play. This report sets out ways in which the Council is both continuing and further preparing to work with and lead our community to 2013 in response to climate change.

Hobart has been a champion of climate change action since 1999. It has reduced its own emissions by 71%, from 1996 levels, committed to further emission reduction of 30% from 2009 levels by 2020. To date, it has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

In the community sector the Council has introduced Solar Hot Water, Insulation and Water Tank Rebates Schemes. Through its Solar Hot Water Rebate, introduced in 2007, approximately 520 e-CO_2 tonnes have been abated from over 180 installed systems. The Council is also working with the other Councils of Greater Hobart to develop an integrated "Bike Plan."

A much broader and longer term challenge for Hobart is to grow a low emissions economy, adapt at a metropolitan level and aim for reduced emissions at a community level within our municipality.

At its core local government is about sustainability and climate change is intrinsically a part of this. To this end local government has a key role to play in addressing the issue of climate change with its community. We can provide leadership on and demonstration of actions that can be undertaken to reduce greenhouse gas emissions. We can work to increase awareness and advocate action to abate emissions and adapt to the impacts of global warming. Importantly we don't have to reduce our quality of life but we do have to change the way we live so that we cut the amount of waste we generate and improve our energy efficiency – everyone has a stake in this.

The Living Planet Report of 2008 claims that humanity's global footprint now exceeds the world's capacity to regenerate by about 30% and more than three quarters of the world's people now live in nations that are ecological debtors – their national consumption has outstripped their country's bio-capacity and that in two generations we have moved from ecological credit to ecological debit.

The Council commends these strategies for consideration so the community can join in making a difference that matters well into the future.

In the words of James Hansen, director of the US Goddard Institute of Space Sciences, 22 June 2008:

"We're toast if we don't get on a very different path…This is the last chance."

Food for thought as we move into an era of significant change

Lord Mayor, Aldermen Rob Valentine

April 2009

Hobart City Council's Climate Vision:

Hobart's sustainable and climate friendly vision is for:

- A climate aware and resilient community that has supported and invested in a range of strategies led by the Council to abate emissions, adapt to climate change impacts and account for a carbon neutral economy.
- The Council to be an advocate for climate change action and create a climate aware and resilient community.
- The Council, as a local government, to lead our community and urban region for the necessary transitional change to a carbon neutral society at all levels

Images clockwise: Beat Winter Chills and Bills Question and Answer forum West Hobart 2008; Solar Hot Water Rebate recipient - evacuated tubes system; energy efficient development Windsor Court Argyle Street; Energy Display Hobart City Council Atrium June – Sept 2008.

Executive Summary

Climate change is the most significant issue facing human civilisation. It poses an enormous challenge at all levels of human society, to avoid 2^0C of warming that gives way to a runaway greenhouse effect. Tackling climate change is made more complex as the exact scale, timing and the extent of the impacts are unknown. What is known is that the impacts of climate change will significantly change the global climate and earth's ecosystems on which we rely and the way in which we live on the planet. Action is urgently required to reduce greenhouse gas emissions and to begin to prepare both as communities and individuals for a changed climate. Climate change response is more than reducing emissions and adapting to a changed climate - it is about changing our behaviour, attitudes, economies, social structures and built environments so that they are sustainable.

Tasmania is not exempt from the impacts of climate change. The climate-induced drought has necessitated the importation of Victorian coal-based electricity due to low Hydro dam levels resulting in an increase in emissions associated with our electricity use. Higher electricity prices coupled with increased transport costs are creating a greater need for energy efficiency across our communities and organisations, consequently leading to climate friendly and sustainable outcomes.

The Hobart City Council has been active on the issue of climate change since 1999, when it made a political commitment to participate in the Cities for Climate Protection (CCP^{TM}) Program. Since then it has successfully completed the five program milestones, committed to ongoing action through CCP^{TM} Plus and reduced its corporate emissions by 71% from 1996 levels.

Most recently the Council has committed to a further 30% reduction in its emissions from its energy (electricity, fuel and natural gas) use and is investigating options and working towards zero emissions by 2020.

The Council delivers a range of climate change programs to reduce emissions and increase awareness including $500 Solar Hot Water Rebates, installation of cogeneration technologies at McRobies Gully Landfill and Waste Water Treatment Plants, trialling energy efficient street lighting and 'Beat the Winter Chills and Bills Questions and Answers' community information sessions.

The Council has recognised, since 2001, the need for collective local government action on climate change. Hobart's Climate Change Strategy (HCC S5) advocates that 'like' councils work together to effectively address the issue of climate change and implement actions at the broader community level. It progresses a strategic framework for local government across Tasmania through the establishment of groupings of Councils based on land use: urban; peri-urban; rural and natural areas.

On the broader scale climate change as an issue is rapidly progressing with significant changes in policy direction of the incumbent Australian Government and the State Government's establishment of a Climate Change Office in 2008. The Council recognises the need for new structures and frameworks to address this issue. It also recognises that its approaches should be flexible and able to adapt to the changing political and legislative environment.

The review of the Councils Greenhouse Action Plan seeks to begin to prepare Hobart City Council, its community and the region for the necessary transitional change to a carbon neutral society at all levels. It considers action under a framework called the 5A's of climate change with 5 themes: Advocacy, Abatement, Awareness, Adaptation and Accounting.

HCC S5 resets the Councils greenhouse gas emissions abatement targets. It maintains the Councils 70% emissions reduction target focusing on its landfill operations until 2020, it sets a new target for corporate energy greenhouse gas emissions of 30% and advocates a Greater Hobart Community abatement target be set through cooperative action of the Cities for Climate Protection Councils.

Climate change is not a natural resource issue – it is an issue that is linked to every aspect of human activity. The solutions and adaptive responses to climate change are not to be found within our existing structures – they require creative thinking and brave action.

Summary List of Actions.

Advocay Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Political commitment	1.1	Council formally endorse the Council's proposed Climate Change Policy (see Appendix 5) that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership of Hobart's communities and the region.	Council	Immediate
Corporate	Political commitment	1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners program.	Development & Environmental Services	Ongoing
Corporate	Southern Region - Climate Change And Sustainability Initiative	1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework (detailed in this document) that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of a *STCA Climate Change and Sustainability Initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives in recognition of local government climate action to date.	General Manager	Immediate
Corporate	Climate Change and Sustainability Steering Committee	1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change and Sustainability Steering Committee	Ongoing

Corporate	Greenhouse Reference Group	1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant, replacing the Greenhouse Reference Group.	Climate Change and Sustainability Steering Committee	Immediate - Ongoing
Abatement Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Energy Efficiency	2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 -2010 levels (post Sewage and Water Reform).	Corporate Energy Management Team	2020
Corporate	Corporate Energy Efficiency	2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.	Corporate Energy Management Team	2009 – ongoing
Corporate	Corporate Energy Efficiency	2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.5	Develop and implement Energy Management Plans for the Council's corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.7	Implement the recommendations of the report (as appropriate) "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre."	Corporate Energy Management Team	Ongoing
Corporate	Corporate Waste Emissions	2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	Immediate
Corporate	Corporate Waste Emissions	2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.	Environmental Engineering	Immediate
Corporate	Corporate Purchasing	2.10	A Sustainable Purchasing Strategy is developed for the whole of Council, that:	Climate Change and	Medium

	emissions		➢ takes into consideration the Councils complex and varied needs purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ a process for monitoring, reporting and review of the strategies outcomes.	Sustainability Steering Committee	
Corporate	Sustainable Transport Strategy	2.11	Implement recommendations of the Council's Sustainable Transport Strategy, when finalised, in parallel with HCC S5.	Climate Change and Sustainability Steering Committee	Ongoing
Community	Household Sector	2.12	Develop a Sustainable Household Incentive Program, including a Sustainability Rebate, using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Household Sector	2.13	Promote the 'Sustainable Design Guidelines' to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium
Community	Business Sector Commercial Office Sector	2.14	Investigate opportunities for the promotion of the CitySwitch program or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Retail Sector	2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Industrial Sector	2.16	Investigate opportunities for the establishment of partnerships and lobbying for the industrial sector to reduce emissions and partner in adaptation initiatives.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Education Sector	2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground support to schools to uptake the National Solar School Program.	*STCA Climate Change and Sustainability	Medium

				Initiative	
Community	Waste sector	2.18	Community waste emissions: Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, greenwaste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
Community	Waste sector	2.19	Community waste emissions: Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium
Awareness					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Employee Sustainability & Climate Information	3.1	Deliver Office Climate Workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and potential climate change impacts on the workplace.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.2	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.3	Inclusion in Council's Employee Induction Handbook of a section on 'Sustainability and Climate Awareness.'	Environmental Sustainability Program	Medium
Corporate	Employee and community	3.4	Five Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees.	Development and Environmental Services	Immediate
Corporate	Community Engagement	3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➤ Fosters sustainable behaviour change across all community sectors; ➤ Promotes actions to increase energy conservation and abatement of emissions; ➤ Increases understanding of climate change and local government actions; and ➤ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change.	Climate Change and Sustainability Steering Committee	Medium
Community	Community Engagement	3.6	Design sustainability and climate awareness web pages for the Councils intra/internet page.	Environmental Sustainability Program	Medium

Community	Community Engagement	3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
Community	Community Engagement	3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing
Community	Dr Edward Hall Awards – Climate and Sustainability Category	3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing
Adaptation					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Adaptation	4.1	Develop and implement a corporate Climate Adaptation Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change and Sustainability Steering Committee	Immediate
Corporate	Corporate Adaptation	4.2	Participate in the Climate Futures for Tasmania –Infrastructure project (Pitt and Sherry) contributing to project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
Corporate	Corporate Adaptation	4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities.	Climate Adaptation Program	Immediate
Community	Community Adaptation	4.4	Run an Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (29 May 2009).	Environment and Climate Change Officer	Immediate
Community	Community Adaptation	4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	*STCA Climate Change and Sustainability Initiative	Immediate

Accounting Sector	Issue	#	Action	Responsible	Timeframe
Corporate & Community	Energy and Greenhouse Inventories	5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
Corporate & Community	Energy and Greenhouse Inventories	5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate
	Carbon Pollution Reduction Scheme	5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
	Carbon Pollution Reduction Scheme	5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium
Corporate & Community	Modelling impacts	5.5	The Energy Management Program works towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➤ Avoid emissions by modifying behaviour ➤ Improve energy efficiency ➤ Increase local carbon sinks ➤ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing, using an accredited carbon offset.	Climate Change and Sustainability Steering Committee	Long

Corporate & Community	Modelling impacts	5.6	HCC S5 proposes that until such a time that the review is completed that ➤ assets or one–off events (such as the TASTE) adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008; or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the carbon offset review residual emissions following abatement action [1]may include: ➤ The Council purchase and retire carbon permits for specific assets and/or activities; ➤ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or ➤ The Council use carbon offset programs that may be accredited through the review	*STCA Climate Change and Sustainability Initiative	Long
Corporate	Carbon Neutral/Zero Carbon Emissions Policy	5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
Corporate & Community	Carbon Offset Program	5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership investigate the opportunities for the establishment of a Carbon Offset Program, in line with accredited offset providers as a potential income	*STCA Climate Change and Sustainability Initiative	Immediate
Corporate & Community	Carbon Development Calculator	5.9	A project brief be prepared for the Carbon Development Calculators corporate and community parameters.	Environment and Climate Change Officer	Medium
Corporate & Community	Carbon Development Calculator	5.10	The Council investigate opportunities, with the University of Tasmania, for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program	Environment and Climate Change Officer	Medium

[1] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Contents

PART ONE - BACKGROUND

Introduction

When Hobart City Council joined the Cities for Climate Protection Program in 1999, committing to take action on climate change, the emphasis was on the mitigation and abatement of greenhouse emissions as Australia grappled with the question "Will the climate change?" Since then there has been much scientific progress and a seismic shift in community acceptance on the issue and the question is now 'How much will the climate change and how will we adapt?'

Hobart Climate Change Strategy 5 (HCC S5) resets the course for how the Council will address climate change up to 2013. HCC S5 replaces the Council's "Corporate and Community Greenhouse House Local Plan" produced in 2001. In addition to actions that reduce emissions and conserve energy from corporate activities this document sets a strategic way forward to work with our communities through a proposed STCA's Climate Change and Sustainability Initiative Urban Priority Greater Hobart Climate Partnership by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils to prepare for climate change and a carbon neutral future. Importantly it progresses an agenda for a unified and consistent message on Climate Change and how, as a community, we can prepare for its impacts – economic, environmental and social - and a changed climate.

The key concepts behind HCC S5 are:

- Climate Change is an issue of sustainability, it is a mainstream issue.
- Climate Change from a local government perspective should be considered in terms of land use activities: urban, peri urban, rural and natural areas.
- Local government needs to work collectively – groupings of like land use Councils, to allow for the leveraging of action, sharing resources and skills.
- New ways must be found to address climate change – it is necessary to think outside the box to find a range of solutions and develop a carbon friendly lifestyle and to adapt to the impacts of climate change.

At the corporate level Hobart is successfully managing emissions abatement and awareness. The greatest area of action for local government is in the spheres of:

- community development and awareness raising about climate change impacts, actions and opportunities knitting together the opportunities offered through the Australian Governments Energy Efficiency Package and incentives and the Council's rebates to achieve sustainable behaviour change at the individual and community level; and
- adaptation in both the corporate and community sectors through the application of resources developed to assist local government at both the corporate and community/regional levels.

What Hobart has done

Hobart has much to be proud of with regard to its 10 years of action on climate change. The Council has been working on the issue since it joined the Cities for Climate Protection (CCP) Program on the 3rd May 1999. And post the successful completion of the programs five milestones it committed in 2002, to ongoing action through CCP Plus. To date it has completed the five program milestones and joined CCP Plus, a program designed to further embed and deepen climate change action.

To date, the Council has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

Through its Solar Hot Water Rebate, approximately 520 e-CO_2 tonnes has been abated from over 180 systems installed since 2007.

Significant Council actions and outcomes include:

- Reduction of its corporate greenhouse gas emissions by 71% in 2007/08 since 1996/97 its base year; abating a total of 166,937 eCO_2 tonnes from its corporate activities;
- Establishment of a Corporate reserve fund of $50,000 for energy saving projects in addition to those identified in annual budgets;
- Providing a rebate for the installation of solar hot water systems $500 and insulation (for Landlords) $300;
- Trialled energy efficient, and low carbon emission, compact fluorescent and tri-phosphor fluorescent street lighting in residential setting with Aurora Energy;
- Formally committed to reducing its remaining corporate greenhouse gas emissions by a further 30% by 2020;
- Increased awareness of household energy efficiency through its Beat the Winter Chills and Bills Question & Answer Sessions;
- Coordinated the Hobart Regional Arterial Bike Network – a collaboration between Hobart, Clarence, Brighton, Glenorchy and Kingborough Councils and Cycling South to coordinate and rationalise bike networks within Greater Hobart and released for comment its draft Sustainable Transport Strategy 2008; and
- Worked towards Sustainable Transport Outcomes through programs such as the Walking School Bus, the Hobart Regional Arterial Bike Plan and Sustainable Transport Plan.

A summary list of actions and activities by the Councils is contained in Appendix 1 "Summary of the Hobart City Councils Climate Change Activities" or can be accessed at www.hobartcity.com.au.

Hobart's Corporate Emissions Summary

The following table shows the aggregated energy and carbon emissions since the Council began measuring these from its selected base year of 1996/97. Whilst there was a doubling of energy use in 2001/02 due to the Hobart Aquatic Centre becoming operational and a slight spike in 2004 – 2006 due to works associated with the laying of the gas pipeline; overall the table indicates a decreasing trend since 2000/01. The greenhouse gas emissions (eCO_2t) associated with Council activities has been significantly abated. The greatest proportion of emissions and their abatement is associated with the Council's landfill, McRobies Gully. Since 2004 the considerable abatement has been achieved initially by flaring and then cogeneration technologies which feed power generated from landfill methane emissions into the electricity grid.

	1996/97	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
GJ	55,357	107,705	105,341	107,873	120,945	114,826	113,468	103,587
eCO2t	45,818	46,801	47,271	38,495	20,192	12,027	11,662	13,215
Comment	Base Year First inventory undertaken as per CCP program	Increase GJ THAC came on line almost doubling HCC energy consumption		Decrease eCO_2t – due to commencement of flaring of methane (CH_4) at McRobies Gully landfill	Increase GJ due to laying of gas pipe line and increase use of Bitumen plant	Decrease eCO_2t – due to cogeneration of methane (CH_4) at McRobies Gully landfill	Decrease eCO_2t – due to cogeneration of landfill methane and conversion of bitumen plant to natural gas	Increase eCO_2t- due to increase in the Tasmanian Emissions factor 1996 00.2 kg CO2 –e/GJ to 2007 -0.13 kg CO2 –e/GJ

Cities for Climate Protection Program

The "*Cities for Climate Protection*" (CCP ™) program is a voluntary international program of ICLEI – Local Governments for Sustainability, a non government organisation. It has been funded nationally by the Australian Government with an aim of empowering local governments to cut greenhouse gas emissions until 30 June 2009. CCP™ provides local governments with a structured program with the following five milestones:

1. Undertake an inventory of greenhouse emissions in the council and community, and forecast future emissions growth.

2. Set an emissions reduction goal for corporate and community sectors.

3. Develop and adopt a local greenhouse action plan to achieve emission reduction goals.

4. Implement their local greenhouse action plan.

5. Monitor and report on greenhouse gas emissions and implementation of actions and measures.

Hobart City Council joined the CCP ™ program in 1999. It was the first Tasmania Council to join and it set, and has achieved, the highest corporate emission reduction goal, 70% from 1996/97 levels by 2010/11, of any participating Council in Australia. Early on in the program the Council recognised the need for a regional approach where Council's with similar land use patterns work in 'land use-blocks' to address climate change. Hobart has encouraged the participation of Brighton, Clarence, Glenorchy and Kingborough (the Council's of Greater Hobart) in the program.

In Tasmania 7 local governments have participated in the CCP program Brighton, Clarence, Devonport, Glenorchy, Hobart, Launceston, Kingborough. They cover over 60% of the Tasmanian population and equating to a total of 2,471,674 eCO2t or 41,841,937 GJ of greenhouse gas emissions.

Importantly the CCP provides a practical and ongoing framework for climate action that compliments and furthers the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Council's* requiring local government action on the issue.

The cessation of CCP, whilst a disappointment, does not impact on the Council's ongoing climate action. The CCP milestone framework has assisted the Council to build the capacity to develop and implement climate action and embed these across the organisation.

Why review

The Council completed its '*Corporate and Community Greenhouse Local Action Plan*' in 2001 – since then much experience has been gained and many actions undertaken to reduce emissions and increase awareness of the issue in corporate and community sectors. Whilst there have been many successes and the Council has exceeded its corporate goal for greenhouse gas emission reduction, there are a number of drivers for the review. These include:

- The Council's commitment to continual improvement under its wider Business Excellence Framework;
- A requirement for a review in both the Strategic Plan 2008-2013 and the Corporate and Community Greenhouse Local Action Plan Nov 2001;
- An increased awareness, and desire for action, throughout the Hobart's community.
- Improvement and streamlining of climate change actions across the Council corporate sector;
- Increased scientific knowledge and understanding of the rate at which climate change is-occurring, its processes and impacts;
- The shift in emphasis from abatement actions to adaptation and awareness. In particular there is a greater emphasis on risk analysis– these will assist in identifying and potentially lessening the Council's future liability with regards to climate change impacts; and
- The changing political and legislative framework at both the state and commonwealth levels of government.

How is the review to be done?

The review considers the Councils annual corporate emissions inventories from 2000-01 to 2007-08 and the 2006 community inventory (based on Australian Bureau of Statistics 2006 Census data). The review also takes into account the Councils Strategic Plan 2008 – 2013, Corporate Plan 2009-2014 and brings HCC S5 in line with its timeframes; and incorporates resolutions and programs that have been developed subsequent to the CCGLAP.

Two key drivers for the review are to:

- ensure that a whole of Council approach is taken to addressing climate change actions and impacts; and
- investigate opportunities for the regional approaches by local government to climate change and seek opportunities to leverage off and key stakeholders to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.

Significantly the review focuses on the five critical A's of climate change (note these are not listed in hierarchical order):

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

Understanding Climate Change

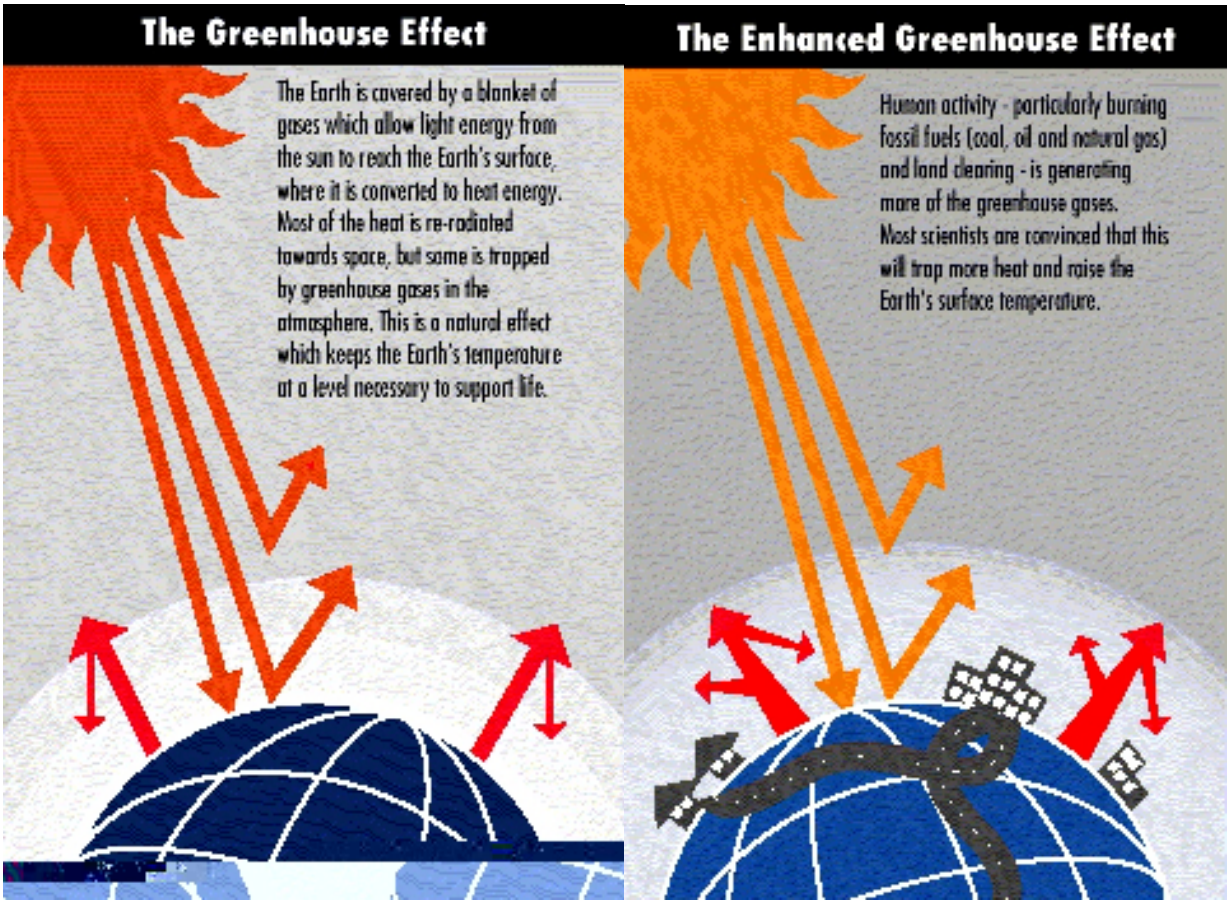
The Greenhouse Effect and the Enhanced Greenhouse Effect

The greenhouse effect is a natural phenomenon. Greenhouses gases, water vapour, carbon dioxide CO_2, methane CH_4 and nitrous oxide N_3O, occur naturally in the atmosphere where they trap the sun's warmth and maintain the earth's surface at a temperature that supports life. Without greenhouse gases the earth would be a cooler and uninhabitable place.

The emission of additional greenhouse gases from human activities has increased the concentration of these gases in the atmosphere resulting in the enhanced greenhouse effect, also known as global warming and climate change. A consequence of the increase is that as the atmosphere warms the climate changes with increased temperatures, increased intensity and frequency of storms events, increased sea level rise from thermal expansion of the oceans and melting glaciers and the changed rainfall patterns.

In pre-industrial times, the concentration of CO_2 in the atmosphere was 280 parts per million (ppm). This level has now increased to 387 ppm, and is rising every year by 2.2 ppm. Without intervention, prevailing scientific opinion is that levels will rise to over 600 parts per million within the next 45 years with profound and adverse consequences. This is a significant concern of climate scientists who predict runaway climate change once 450 ppm or 2 degrees of warming is exceeded.

The United Nations International Panel for Climate Change states that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global air and ocean temperatures, widespread melting of snow and ice and rising global sea level. And 'Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate change, particularly temperature increases.'



How Greenhouse gases are measured

Natural greenhouse gases include water vapour, carbon dioxide, methane ozone and nitrous oxide. Human made greenhouse gases include chlorofluorocarbons. The source, warming potentials and lifespan's of greenhouse gases that are involved in climate change are shown in Table below. ,

Greenhouse Gas	Source	Atmospheric Lifespan (years)	Greenhouse Warming Factor eCO_2
Carbon Dioxide CO_2	Burning fossils fuels for electricity production Cement manufacture	50-200	1.0
Methane CH_4	Waste decomposition without air (ie buried waste in landfill) coal-bed methane from coal mining Leakage of natural gas Grass digestion by grazing animals Burning of biomass fuels	12 - 17	21
Nitrous Oxide N_2O	Soil, nitrogen fertiliser decomposition Burning of petroleum products	120	310
Chlorofluorocarbons and carbon substitutes	Leakage from refrigeration and air-conditioning systems Aluminium production	>1000	CFC 12 8,500 HCFC- 113 93 HFC - 134a ,300

Energy Emissions Factors

The Australian Government though the *National Greenhouse Accounts (NGA) Factors* determines the greenhouse gas emissions factors for energy Australia-wide. Emission factors are used to derive estimates of greenhouse gas emissions based on the amount of emissions generated by an activity such as fuel combusted in a petrol engine or coal combusted to produce electricity. These are now updated annually to provide a more accurate indication of greenhouse gas emissions as the electricity landscape changes.

Electricity Emissions Factor

The emissions factors for Tasmania's electricity have changed considerably overtime. The Australian Government *Emissions and Factors Workbook* 2006 listed Tasmania's emissions factor for the years 1996, 2000 and 2005 as 0.000, 0.002 and 0.045 kg CO_2t-e/kWh respectively. The most recent edition, *National Greenhouse Accounts Factors* 2008, listed in the table below, again retrospectively changes these emissions factors. The most recent increases from 2005 onwards are accredited to the effect of the climate induced drought on Hydro dams levels and the subsequent importation of high emissions (brown coal) electricity from Victoria via Basslink 24% [2]and natural gas 11% to augment the States electricity supplies. For the purposes of HCC S5 the most recent 2008 emissions factors have been used – even though when Hobart initially sets its emission reduction goal the emissions factor for its base year of 1996 was 0.00.

[2] "Water woes cut Hydro power base" the Mercury, 03.09.08

	kg CO_2t- e /kWh (Scope 3)					
	Tasmania	New South Wales	Victoria	Queensland	South Australia	Western Australia
1995	0.02	1.02	1.39	1.10	1.05	1.07
2000	0.01	1.03	1.42	1.05	1.09	1.04
2005	0.04	1.06	1.32	1.04	1.04	0.95
2006	0.06	1.06	1.32	1.04	1.01	0.95
2007[p]	0.13	1.06	1.31	1.04	0.98	0.98

[p] – provisional emissions factor set by the Australian Government– the emissions factor are formalised following confirmation of actual energy mix. Source National Greenhouse Accounts Factors, Australian Government, January 2008

Other Emissions Factors

The table below sets out the emissions factor for energy sources other than electricity – these are typically constant as they are primary fuel source.

Fuel	Energy Content GJ/kL	t CO_2 -e/kL
Petrol	34.2	2.3
Diesel	38.6	2.7
LPG	26.2	1.6
Biodiesel	23.4	0

What are the predicted impacts of Climate Change on Tasmania?

Climate change is going to affect every aspect of our lives as individuals and as communities through the physical impacts of a carbon affected (enhanced greenhouse effect) climate system, resulting in an increase of extreme weather events, changed rainfall patterns, changes in behaviour due to economies that must account and pay for carbon use. Currently concentrations of atmospheric CO_2 are tracking above the IPCC high scenario models

Understanding the physical impacts of climate change is complex. The International Panel on Climate Change (IPCC) climate change scientists have modelled various low – mid - high range scenarios that consider a wide range of variables of not only climate systems but future emissions that are the by product of very intricate and dynamic systems determined by forces such as demographic, socio-economic development and technological change. This work has been further enhanced by the CSIRO to develop Australia – wide scenarios. Whilst these are coarse they do provide an indication of the predicted climate change impacts for Hobart these include:

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days.
- Warmer temperatures are likely to cause a rise in heat-related illness and death for those over 65 years.
- Warmer conditions may spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 % reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

A full summary of projected impacts for Tasmania by the Australian Government is provided in Appendix 2.

A more refined and detailed climate modelling project, the *Climate Futures for Tasmania – local information for local communities* is being undertaken by the Australian Climate and Ecosystems Cooperative Research Centre (ACE CRC). The project builds on work commissioned by Hydro Tasmania and constructs fine scale 14 km^2 grid climate projections for local applications. With an emphasis on terrestrial based ecosystems it plots hundred of variable ranging from rainfall, temperature and wind in range of scenarios, it is intended to provide local decision makers locally relevant information about climate change and help develop adaptation actions. It is anticipated that modelling data will be available from late 2009.

Carbon Neutrality

The Council resolved, in August 2007, to investigate actions necessary to achieve zero net carbon emissions by 2020. For organisations that have committed to carbon neutrality or zero carbon emissions this is typically achieved by reducing their emissions as much as practicable and then purchasing 'carbon offsets' for the residual emissions that are too difficult or costly to eliminate.

Carbon offsets are an investment in a project or activity that "have prevented or removed an equivalent amount of carbon dioxide elsewhere." (Ribon 2007) "The idea being that the removal of greenhouse gases counterbalances emissions from other sources." (Downie 2007). They are divided into four main groups: renewable energy, energy efficiency, methane emissions avoidance and bio sequestration (forestry/ plantations).

The introduction, by the Australian Government, of the Carbon Pollution Reduction Scheme – a cap in trade system brings into question the effectiveness of carbon offsets in contributing towards lowering of Australia's overall greenhouse gas emissions as they will be capped. Richard Dennis argues that *'If households use less energy and create less pollution, they will simply free up permits to allow other families or industries to increase their own emissions…And as a result concerned households and business will not be able to make any meaningful contribution to greenhouse gas abatement. In fact the only way for individuals to lower Australia's total emissions is to buy carbon permits and not use them."*

The Australian Government recently released a Discussion Paper National Carbon Offsets and is currently reviewing options for voluntary carbon offset market. It has committed to developing a national standard for carbon offsets to *"provide national consistency and give consumers confidence in the voluntary carbon offset market. The offset standard will provide guidance on what constitutes a genuine, additional voluntary offset credit, as well as setting requirements for the verification and retirement of such credits, and standards for calculating the emissions of a product or service.* (source http://www.climatechange.gov.au/greenhousefriendly/changes.html)

Until such a the CPRS comes into effect HCC S5 proposes that in line with the Cities for Climate Protection Australian Program's Offset Policy Feb. 2009 the Hobart City Council accept offsets accredited under any of the following schemes.

Gold Standard

All offsets certified by the Gold Standard. These include:Voluntary Emissions Reductions (VERs) and Clean Development Mechanism/Joint Implementation (CDM/JI) Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs). See: www.cdmgoldstandard.org.

Greenhouse Friendly

Greenhouse Friendly Approved Abatement and Greenhouse Friendly certified greenhouse-neutral energy products (such as electricity and fuel). The reductions from the use of energy products should be calculated by multiplying the energy use by the appropriate factors for the council's state from the National Greenhouse Accounts (NGA) Factors. See: www.climatechange.gov.au/greenhousefriendly.

NSW Greenhouse Gas Reduction Scheme (GGAS)

Voluntarily surrendered NSW Greenhouse Abatement Certificates (NGACs) generated under the GGAS scheme. See: www.greenhousegas.nsw.gov.au.

Voluntary Carbon Standard (VCS)

Voluntary Carbon Units (VCUs) accredited directly under the VCS or under one of their approved greenhouse programs. See: www.v-c-s.org.

Mandatory Renewable Energy Target (MRET)

Voluntarily surrendered Renewable Energy Certificates (RECs) created under MRET. RECs are sold in units of energy; they should be converted to emission reductions using the appropriate electricity emission factors for the council's

state from the National Greenhouse Accounts (NGA) Factors. Note that this conversion is approximate, as it is not always known in which state the RECs were actually created. See: www.orer.gov.au/recs.

NOTE: This list will be reviewed regularly in response to ongoing developments in the offsets market.

Appendix 3 provides a discussion of carbon offset considerations.

Carbon Offsets – Hobart City Council

The Council has already commenced to offset some of the emissions associated with its premier activity – the Taste of Tasmania. A total of 67 eCO2t from cooking and waste at the Taste of Tasmania 2006/2007 was offset through Climate Friendly[3] at a cost of $1999.25 including GST. Carbon offsets are now included in the stallholder's package for the 'Taste.'

And indirectly carbon credits derived from McRobies Gully Landfill cogeneration project operated by AGL have been used by Cascade to offset greenhouse gas emissions associated with the its Cascade Green Beer.

[3] Climate Friendly is a Founding Member, and currently, only Australian Member of ICROA. ICROA is a not-for-profit alliance of leading carbon reduction and offset organisations. As an ICROA member, Climate Friendly supports a reduce-and-offset approach to carbon management, and comply with the ICROA Code of Best Practice Climate Friendly (www.climatefriendly.com)

Climate Change Policy Framework

Australia's climate change policy and legislative landscape is evolving at a rapid rate. Over the past 18 months both the Australian Government and the Tasmanian Government have set new carbon reduction goals and are developing initiatives and programs to assist in meeting these. There is also an increasing focus on adaptation to inevitable climate change impacts at the Federal and state level and this is featuring in funding opportunities and program development.

Australian Government

The incumbent Australian Government's climate change approach is underpinned by the three following strategies:

- Reducing Australia's greenhouse gas emissions;
- Adapting to climate change that we cannot avoid; and
- Helping to shape a global solution.

The core Government Departments responsible for the delivery of climate change strategies are the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts. These Departments currently manage the work of the former Australian Greenhouse Office.

Carbon Pollution Reduction Scheme

The Australian Government has expanded and developed new policies to progress its climate change approach. It has committed to the introduction of an emissions trading scheme, as has been done (such as the European Union scheme), in order to reduce Australia's emissions. The government has released the proposed design (white paper) of the scheme, termed the "Carbon Pollution Reduction Scheme", but there are still many details to be finalised. As of May 2009 the scheme is proposed to commence 1 July 2011.

The Australian Government has committed to a long-term target of 60% reduction on 2000 levels by 2050. It has also adopted a minimum (unconditional) commitment to reduce emissions by 5% below 2000 levels by 2020 irrespective of actions by other nations. In the event that global agreement is reached where all major economies commit to substantially restrain emissions and all developed countries take on comparable reductions to that of Australia, this commitment will be increased to 15% below 2000 levels. Australia is also committed under the Kyoto Protocol to limiting its emissions to 108% of 1990 emissions over the period 2008–2012.

The CPRS will work by requiring all large emitters and upstream liquid fuel suppliers in Australia to purchase permits for every tonne of carbon dioxide equivalent (t CO2e) that they emit. The purchase of permits will be required for industry and business sectors that have operational control over a facility producing over 25,000 t CO2e of Scope 1 emissions annually. The number of permits available each year will be limited to ensure that the total emissions are within Australia's Kyoto Protocol and other targets. The cost to scheme participants of purchasing these permits will be in part past on to consumers, providing incentives at all levels of the economy to reduce emissions. All funds generated by the Government from selling the permits will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

The Australian Government has provided an overview of how funds from the scheme will be spent. The following initiatives have been announced:

- $6 billion per annum available from 2010 available to assist households; and
- Cent for cent reduction in fuel tax for three years.
- $2.15 billion allocated over 5 years to assist business, community sector organisations, workers, regions, communities, and emissions-intensive, trade-exposed industries to adapt to the higher costs of greenhouse gas emissions.

Of consequence to the Council are the CPRS's 'Household Assistance' package and complementary 'Energy Efficiency Home Package', which include:

- free ceiling insulation worth up to $1,600 to home owner-occupiers of currently un-insulated homes; or
- a $1,600 rebate on the installation of solar hot water systems; and
- a rebate for landlords for insulation of their rental properties.

The Council also currently has in place a range of sustainability initiatives that complement the Australian Government's Energy efficiency Package, value adding to the opportunities for Hobart's households to increase their energy efficiency these include:

- Solar Hot Water Rebate of $500 for the installation of solar hot water and heat pump systems;
- Insulation Rebate of $300 for installation of insulation of houses constructed prior to 2003 (post 2003 changes to the Building Code of Australia require ceiling insulation in new houses);
- Water Rebate – provides a range of rebates for the installation of water tanks through to water efficient appliances.
- Development Energy Efficiency Rebate on planning applications

The Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Government's climate change policy. This will allow the Council to augment and leverage from the Australian Government's climate action.

National Greenhouse and Energy Reporting System (NGERS)

The *National Greenhouse and Energy Reporting System Act* 2007 is a single national framework for reporting of greenhouse gases emissions, energy use and energy production. The NGERS Act, which is already in effect, requires large emitters, energy producers and energy users to report their annual emissions and energy use and production. Organisations can trigger NGERS thresholds when their emissions or energy use/production trigger either corporate or facility thresholds. For emissions these thresholds are 25,000 t CO_2e for a facility, and 125,000 t CO_2e in 2007/08 to 50,000 t CO_2e for 2010/11 for the entire corporation (based on Scopes 1 + 2 emissions). NGERS applies to constitutional corporations so at this stage does not apply to most local governments.

The reporting framework and emission calculation methodologies developed for the NGERS Act will also be used to underpin emissions reporting under the CPRS. However it is important to note that the entities required to report under the NGERS Act are not necessarily the same as those required to participate in the proposed CPRS. For example CPRS thresholds apply only to emissions from facilities, whereas the NGERS thresholds apply to emissions and energy from both facilities and corporations. Also CPRS thresholds are based only on direct (Scope 1) emissions, whereas NGERS thresholds depend on total direct plus electricity-related emissions (Scopes 1+2).

Will Hobart City Council be required to participate in either the NGERS Act or CPRS?

Hobart City Council is unlikely to be required to report under the NGERS Act, for the time being, as they are not a constitutional corporation.

The CPRS, when it comes into effect, will apply to all entities, including local governments, that have operational control of an emitting facility. Hobart City Council is unlikely to, but may trigger CPRS emission thresholds. Council technical staff have advised that emissions from Hobart's landfills will not trigger the 25,000 t CO_2e threshold. It must be recognised that this element of the CPRS has not been finalised and it has been proposed that some landfills with emissions over 10,000 t CO_2e may trigger the CPRS threshold if within a distance (still to be determined) of another landfill.

Once the CPRS scheme is introduced NGERS technical guidelines and systems will be used as the reporting mechanism for organisations that are included in the scheme.

Hobart's Inventories

Annual inventories of emissions for council operations have been compiled annually by the Hobart City Council as part of our voluntary involvement in the Cities for Climate Protection (CCP) program. These have been designed to be meaningful, assist with decision making and track change over time. With the onset of a regulatory system there have been some changes in the methodology for measuring and recording emissions.

ICLEI Oceania is in the process of updating CCP's greenhouse gas reporting protocols in line with the ICLEI International Local Government GHG Emissions Analysis Protocol (http://www.iclei.org/index.php?id=8154). This will also align CCP reporting with the fundamental elements of GHG emissions reporting under the National Greenhouse and Energy Reporting System (NGERS) Act (so that the CCP inventories could form a basis for NGERS reporting, and vice versa).

Mandatory Renewable Energy Target (MRET)

The Australian Government has expanded the Mandatory Renewable Energy Target (MRET) for the production of energy from renewable sources to 9,500 GWh of per annum by 2010. MRET encourages the development of a more sustainable renewable energy supply industry thereby reducing of greenhouse gas emissions. It does this by establishing a guaranteed market, whereby a legal liability requires large wholesale purchasers of electricity to purchase renewable energy certificates in proportion to electricity they purchase.

The core MRET legislation is: the Renewable Energy (Electricity) Act 2000 (the Act)' the Renewable Energy (Electricity) Charge 2000 and the Renewable Energy (Electricity) Regulations 2001. Interim targets are set to 2010 when 9500 GWh of renewable energy is to be produced. ` From 2010 to 2020, when MRET ends, 9500 GWh is to be produced annually.

Renewable Energy Certificates (REC's) are created by renewable energy generators, where each REC represents one megawatt hour of renewable energy. Renewable energy generators are renewable energy power stations as well as small generation units installations such as photovoltaic systems; solar water heater installations, wind systems and small hydro electric systems.

Owners of small generation units are eligible for RECs and have the choice of claiming the RECs themselves or assigning them to an agent. In the case of McRobies Gully the Council has surrendered the REC's generated from cogeneration of electricity to the company who installed and manages the cogeneration infrastructure

Tasmanian Government

In December 2007, the Tasmanian Government adopted the Crowley report, "*A Framework for Action, Reducing Tasmania's Greenhouse Gas Emissions*." It established the Tasmanian Climate Change Office in 2008, introduced the *Climate Change (State Action) Bill 2008* requiring it to reduce its emissions by 60 per cent by 2050, based on 1990 levels and also released the '*Tasmanian, Framework for Action on Climate Change*' July 2008 that sets out States majors strategies to address climate change.

Of most significance to local government is the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Councils December 2008**. Key elements of the partnership agreements for local government include:

- Compilation of corporate emission inventories and setting emission reduction targets;
- Development of climate change action plans;
- Community consultation and awareness; and
- The incorporation of climate change into regional planning schemes.

The Council's completion and ongoing participation in the Cities for Climate Protection ensures that the Council is well placed to deliver and has already completed much of the work indicated in the partnership agreement. ICLEI Oceania and LGAT are in discussions on how to minimise duplicate effort for CCP councils in Tasmania who are now required to take part in the LGAT process. The Council will also need to consider the incorporation of climate change into regional planning schemes that are yet to be developed. It is noted however that in the new draft Hobart City Council Planning

Scheme does include provisions relating specifically to coastal developed urban situation. The Council also offers a solar hot water rebate and insulation along with guidelines of energy efficiency that encourage sustainable development.

It is further noteworthy that whilst there have not been legislative drivers to date driving climate change action that Council has been proactive in addressing climate change since 1999. In 2000 it set and has achieved in 2008 a 70% corporate emission reduction target.

*Hobart City Council and the State Government under the former Partnership Agreement 2001 – 2004 committed to Reducing Community Greenhouse Gas Emissions. The emphasis of agreement was to develop a coordinated and cooperative approach for strategies to mitigating community emissions, encouraging a regional approach and sharing resources and action for awareness raising and community development.

Local Government Association of Tasmania

From 2006 the Local Government Association of Tasmania has become progressively engaged on the issue of climate change. It coordinates the Climate Change Reference Group for local governments to disseminate information and encourage climate action. In 2008 it engaged a climate change officer and produced a Climate Work Plan for local government that focused on the following areas:

- Strategic Planning
- Carbon Emission Reductions
- Risk Assessment and Management
- Communication, Coordination and Capacity building
- Monitoring and review

The work plan identifies a range of actions in the areas of: Strategic Planning; Emission Reduction; Risk Assessment and Management; Communication, Coordination and Capacity Building. Actions proposed by LGAT include:

- The development of a Local Government Climate Change Strategy;
- The establishment of local government sector based emission reduction targets and a monitoring program;
- Development of a climate change Action Pack for local government;
- Representing local government on climate change project; and
- Coordination of local government's response to Federal and State climate change initiatives including the establishment of working groups through the Climate Change Reference Group.

Local Government and Liability

The legal framework surrounding Climate Change is rapidly evolving. Legal precedents are continuing to be set recognising 'climate change' as a consequence of increased anthropogenic greenhouse gases entering the atmosphere. Increasingly organisations are being exposed to future liabilities based on current decisions and actions that result in either emission of atmospheric greenhouse gases or don't take into account impacts of climate change. It is becoming increasingly imperative that decisions of the Council's are considered to be reasonable responses to climate change to avoid potential litigation in the future.

The paper "Climate Change: What are local governments liable for?" by Phillipa England Griffith University March 2007 "*…. examined some potential legal liabilities of local governments when making decisions about matters affecting climate change as well as matters affected by climate change. Local governments currently have available to them a number of defences that seem likely to protect them from claims based on a failure to recognize and respond to information about climate change. Nevertheless, just as the science of climate change is gathering momentum, so too the law in this area is evolving rapidly. Local governments should therefore take care to ensure their actions, decisions*

and policy responses to matters that may either contribute to, or be affected by, climate change remain current and reasonable in what is a rapidly evolving policy context."

In a more recent article England further makes the case that the "*emergent law seems to require Councils to develop a reasonable response to climate change considerations*." And notes "*…that local governments are becoming increasingly vulnerable to litigation if they fail to take into account climate change considerations when making decisions that will impact of greenhouse gas emissions (England 2008). And in terms of the failure to take into account the consequence s of climate change in their decision making local governments are becoming increasingly exposed.*

To avoid potential litigation local governments should start to assess, as a matter of routine, the impact of their decisions and activities on greenhouse gas emissions and also to consider, where possible ways and means of reducing that impact".

England concludes "*With respect to adaptation to climate change, the law requires that local governments develop a reasonable response – or more accurately, a not wholly unreasonable response to climate change impacts. Provided they do this local governments should remain immune from civil liability for any failure to take into account predicted climate change impacts.*"

Hobart's Strategic Context

Key drivers for addressing the issue of climate change across Council's activities and core business are its Vision Hobart 2025, Strategic Plan 2008 – 2013, and Corporate Plan 2009 - 2014. HCC S5 progresses the climate change elements contained in these strategic documents into a strategic framework that provides a comprehensive way forward on this challenging issue.

The community consultation for Vision Hobart 2025 articulated the community's need to address issues enmeshed in climate change such as sustainable transport, quality urban development and the natural environment. The Council Strategic Plan 2008-2013 integrates key climate change elements for city and its community in response to Hobart's Vision 2025. The Council's Corporate Plan 2009-2014, which is internally focused, provides a driver to realise climate change action across the Council's corporate activities. HCC S5 aligns these strategic documents into a framework for action.

Hobart's Vision – Hobart 2025

In 2025 Hobart will be a city that:

- offers opportunities for all ages and a city for life;
- is recognised for its natural beauty and quality of environment;
- is well-governed at regional and community levels;
- achieves good quality development and urban management;
- is highly accessible through efficient transport options;
- builds strong and healthy communities through diversity, participation and empathy; and
- is dynamic, vibrant and culturally expressive.

MISSION

Our mission is to ensure good governance of our capital city.

VALUES

The Hobart City Council will:

Leadership	Provide effective capital city leadership, integrity and openness in its approach and will be an advocate for the needs and aspirations of the community.
Equity	Ensure equity, consistency and co-operation in its dealings with the community and government.
Community Involvement	Encourage effective democratic involvement by the community in the life of the city through Involvement communication, consultation and participation.
Responsiveness	Be responsive to the needs and aspirations of the community.
Excellence	Ensure continuous improvement in the delivery of all of its services.

Strategic Plan 2008-2013

The key climate change strategies are:

FD2.3. The physical environment has been conserved in a way that ensures we have a healthy and attractive city.

2.3.3. Promote opportunities to improve the energy efficiency of the city.

- Identify emerging initiatives for energy efficiency and potential funding for development.
- Promote energy efficiency initiatives to the community.
- Review Council's initiatives including energy efficiency and solar hot water rebates.
- Review Council's Cities for Climate Protection Greenhouse Local Action Plan.

2.3.7. Develop and implement strategies to minimise greenhouse gas emissions.

- Review and implement Council's Greenhouse Gas Local Action Plan under the Cities for Climate Protection Programme.
- Develop and implement Council's Sustainable Transport Strategy.
- Promote Council's greenhouse emissions reduction initiatives to the community.

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.
- Participate in regional approaches to climate change-related initiatives.

Corporate Plan 2009-2014

HCC S5 is consistent with the Corporate Plan 2009-2014 Element 3.3 Environmental Sustainability in that it specifically seeks to:

- Increases awareness and understanding of climate change
- Promotes leadership in response to climate change
- Implements energy and greenhouse gas emissions reduction strategies
- Adapts to climate change impacts
- Understand the economic impacts of climate change.

Council Resolutions

The following outlines key Council's resolutions with regard to climate change and sustainability as drivers for HCC S5 – a full list of Council resolution is contained in Appendix 4:

13/08/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

That:

- The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.
- For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.
- The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.
- Aldermen and the community be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

25/06/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

"That further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examines the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59 STRATEGIC GOVERNANCE ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

That:

The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

- A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.
- The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.
- The quantum of monies to be allocated to the reserve fund being reviewed annually.
- The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.
- An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

Emissions Profiles

This section examines the emissions profile for Australia, Tasmania, Hobart's municipal area and the Hobart City Council.

Australia's Emissions Profile

Australia is the highest emitter per capita (approximately 28 e-CO_2 tonnes per capita) in the world. Since 1995 has been increasing emissions by 1% per annum.

The Australian Government has produced figures for Australia's total greenhouse gas emissions in 2006. These amounted to 575 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e). The following tables shows the State and Territory breakdown and emissions by sector:

	NSW	Qld	Vic	WA	SA	NT	Tas	ACT	Total
e-CO2 Mt	160	170.9	120.3	70	28	16.2	8.6	1.1	575
% of Aust total	27.8	29.7	20.9	12.2	4.9	2.8	1.5	0.2	100%
Stationary Energy	76	64.6	80.5	36.3	14.2	3.7	2.4	* part of NSW	287.4 (50%)
Transport	21.6	18.7	20.6	9.5	5.9	1.4	1.8	0.9	79.1 (14%)
Fuguitive Emisssions	14	8	2	3.5	3	0.2	Not available	0.01	34.5 (6%)
Industrial Processes	12	5	3	4	1.5	0.1	1	0.1	28.4 (15%)
Agriculture	20	25	16	12	5.8	7.5	2.2	0.01	90.1 (15%)
Land Use, Land Use Change & Forestry	9	27	-5	-2	-4	0.3	3	-0.1	40 (7%)
Waste	6	3	4	2	1	0.1	0.5	0.2	16.6 (3%)

* Stationary energy is mainly greenhouse gas emissions from the production of energy and other direct combustion of fossil fuels in industry such as manufacturing and construction. In Tasmania the manufacturing and construction comprises the most significant source of emissions in this sector with energy production primarily relating to high emissions fuel sources such as diesel, anthracite and heavy fuel oil.

Source: "State and Territory Greenhouse Gas Inventories 2006"
Australian Government June 2008

Hobart's Community Emissions Profile

In 2007 Hobart's municipal area was the source of 349,337 e-CO_2t. The two most significant sources of emissions were in the industrial and transport sectors with 41% and 35% respectively. Emissions in Hobart's very small industry sector are high as anthracite (black coal) is used as the energy source for activities such as heating of industrial boilers in manufacturing processes. It has an emissions factor of 93.6 kg e-CO_2 GJ giving a high emissions output. Conversion to natural gas would significantly reduce emissions from this sector.

	Source	e-CO_2 t	e-CO_2 %	GJ	GJ%
Residential	Electricity	13,165	4	877,672	15
	LPG	1,815	1	30,345	1
	Natural gas	525	0	10,115	0
	Subtotal	15,505	5	918,132	16
Commercial	Electricity	12,387	4	825,780	14
	LPG	1,741	1	29,118	0
	Natural gas	1,511	0	29,118	0
	Diesel	16,224	5	232,943	4
	Subtotal	31,863	10	1,116,959	19
Industrial	Electricity	7,919	3	527,958	9
	Anthracite	74,233	24	830,658	14
	Diesel	20,044	6	287,780	5
	Heavy fuel oil	15,328	5	209,785	4
	Other	15,626	5	190,722	3
	Subtotal	133,150	43	2,046,903	35
Transportation	Petrol	88,174	28	1,270,522	22
	LPG	4,895	2	81,864	1
	Diesel	28,525	9	409,551	7
	Subtotal	121,594	39	1,761,937	30
*Transportation by sector	*Residential (Private Cars, Motorcycles, Buses)*	*93,506*	*77*	*1,402,501*	*80*
	Commercial (Trucks, Vans etc)	*28,088*	*23*	*407,007*	*20*
Waste	Paper products	2,087	1		
	Food waste	2,817	1		
	Plant debris	355	0		
	Wood/Textiles	2,504	1		
	Subtotal	7,762	3		
Waste Water Treatment	Carbon Dioxide	55	0		
	Subtotal	55	0		
	Total	309,929	100	5,843,931	100

*the "Transportation by sector" figures (italics and grey font) are not included in the overall tables calculations – they have been included as the show the difference in emissions between the private residential transport and the commercial sectors.

Source: The data set was provided by ICLEI as default Hobart community data for CCP purposes– it is based on ABS census data and provided to CCP Councils following census years.

Hobart population is almost 48,000 and it has almost 23,000 rateable properties of which 86% are residential, with 11% commercial and the balance vacant land. Overall Tasmania's population is ageing and the second oldest of any capital city.

The following table tracks the electricity consumption and emissions of the majority of Hobart's suburbs from 2004/05 – 2006/07. The central business district (CBD) postcode 7000 consumes the greatest proportion of energy and produces most emissions this is expected as it supports the greatest area of economic activity. Postcode 7007 shows the greatest growth consumption and emissions with 43% increase, which in line with the increase urban development. Overall there has been an increase of electricity use and emissions of 8%.

		Business		Residential		Total	
Postcode	Year	GJ	eCO_2t	GJ	eCO_2t	GJ	eCO_2t
7000	04/05	70,380	25,415	23,983	8,660	94,363	34,075
	05/06	74,463	26,889	23,075	8,333	97,538	35,222
	06/07	83,071	29,998	24,064	8,690	107,135	38,687
7004	04/05	15,111	5,457	13,367	4,827	28,478	10,284
	05/06	15,008	5,420	12,745	4,602	27,753	10,022
	06/07	15,570	5,622	13,437	4,852	29,007	10,475
7005	04/05	18,661	6,739	25,142	9,079	43,803	15,818
	05/06	20,348	7,348	24,244	8,755	44,591	16,102
	06/07	20,364	7,354	25,723	9,289	46,087	16,643
7007	04/05	559	202	5,697	2,057	6,256	2,259
	05/06	981	354	5,302	1,914	6,282	2,269
	06/07	979	353	5,647	2,039	6,625	2,393
7008	04/05	13,285	4,797	19,387	7,001	32,672	11,798
	05/06	14,957	5,401	18,622	6,724	33,579	12,126
	06/07	15,390	5,558	18,897	6,824	34,287	12,381
Total	04/05	117,996	42,610	87,576	31,625	205,572	74,234
	05/06	125,756	45,412	83,987	30,329	209,743	75,740
	06/07	135,374	48,885	87,767	31,694	223,141	80,579

Source: The municipal wide electricity data set was provided by Aurora Energy- due to commercial reasons it can no longer be made available to Hobart City Council.

Postcodes:

7000 Hobart, North Hobart, West Hobart, Glebe

7004 Battery Point, South Hobart

7005 Dynnyrne, Lower Sandy Bay, UTAS

7007 Mount Nelson, Tolmans Hill

7008 Lenah Valley, New Town

NB the postcode 7054 Fern Tree and Ridgeway is not included as the majority of the settlements are located in the municipality of Kingborough.

Hobart's Corporate Emissions Profile

The Hobart City Council joined CCP in 1999, selecting 1996 as its base year and setting a 70% emission reduction goal by 2010. Since then much has changed within the Council's own energy landscape. The Hobart Aquatic Centre came on line in 2000 doubling the Council's energy use. Upgrades and installation of sewage and water pump stations servicing the community have also increased the Council's energy use. Tasmania's greenhouse gas landscape has changed markedly with an increase in electricity emissions as more mainland electricity is imported.

The Council, in spite this, is reducing its energy use through a range of energy saving options such as conversion of all computers to energy saving LCD screens, lighting replacement programs, upgrades of plant equipment and use of natural gas at its bitumen plant. It is interesting to note that since 2001, energy use in the Building, Streetlights and Water/Sewage sectors has decreased along with 'non-energy' emissions sectors of Water/ Sewage and Waste Water Treatment and Waste. A significant emission reduction of almost 80% has been made in the waste sector at the McRobies Gully Landfill. This has been achieved by the use of landfill methane to generate electricity that is exported to the 'grid.' Since the program was commissioned 17,500 MWHrs of electricity have been produced and 135,000 tonnes of greenhouse gas destroyed.[4]

The Council uses online CCP Greenhouse Gas Calculation software for its inventories, conducting annual inventories since 2000/01 and tracking progress and trends. Accurate data is obtained from its electricity and fuel accounts, along with record keeping of waste entering the landfill site and annual landfill cogeneration reports.

	Base Year 1996 [B]	2001	2002	2003	2004	2005	2006	2007	% Change 1996-2007
[A] Buildings Sector									
eCO_2 t	115	22	61	344	392	481	594	1,321	92↑
GJ	20,694	[C]38,992	36,775	39,893	40,272	38,495	39,627	35,705	[D]58 ↑
COST $	650,590	1,063,454	1,064,972	1,194,224	1,217,990	1,225,447	1,277,636	1,231,252	53↑
Vehicle Fleet Sector									
eCO_2 t	1,819	2,299	2,388	2,415	3,438	2,867	2,766	2,476	73↑
GJ	26,254	33,148	34,432	34,825	49,492	41,296	40,346	36,729	[E]71↑
COST $	431,551	721,081	780,201	803,069	1,086,553	1,193,533	1,278,043	1,307,650	33↑
[A]Streetlights Sector									
eCO_2 t	65	8	24	125	141	180	208	496	99.2↑
GJ	11,754	14,267	14,516	14,554	14,484	14,424	13,837	13,403	87↑
COST $	662,791	812,033	855,894	880,189	902,146	927,341	959,824	1,020,882	35↑
[A H] Water/Sewage Sector									
eCO_2 t	37	12	32	160	162	258	295	657	94↑
GJ	6,726	21,298	19,344	18,601	16,697	20,610	19,658	17,750	38[I]↑
COST $	207,494	582,156	523,978	545,913	567,327	619,120	627,938	612,103	34↑
Waste Sector									
eCO_2 t	39,400	43,200	43,500	34,191	14,800	6,982	7,762	8,210	79↓
Waste Water Treatment (Digesters)									
eCO_2 t	4,599	1,260	1,260	1,260	1,260	1,260	55	55	98.8↓
Total									
eCO_2 t	46035	46,801	47,266	38,495	20,192	12,027	11,680	13,215	71↓
GJ	55,357	107,705	105,067	107,873	120,945	114,826	113,468	103,587	53↑
COST $	1,952,426	3,178,724	3,225,045	3,423,394	3,774,016	3,965,441	4,143,441	4,171,887	47↑

[4] AGL July 2008, Hobart Landfill Gas Recovery Report

[A] The energy source for the Building, Streetlights, Water/Sewage sectors is electricity and its emissions factor e-CO_2 kg /kWh has increased from 0.02 CO_2-e/GJ in 1996 to 0.13 CO_2-e/GJ in 2007 due to the effects of the climate induced drought resulting in low Hydro dam levels and the subsequent importation of high emissions electricity from Victoria via Basslink and use of natural gas at Bell Bay to augment the States electricity supplies. A consequence is that emissions in the "electricity" sectors has increased by almost 100%.

[B] The National Greenhouse Accounts Factors 2008 emissions factor of 0.02 kg CO_2-e/GJ for 1996 has been used for the purposes of this inventory. It is noted that in 2000 when Hobart set its emissions targets that the NGFA 2000 the emissions target was 0.00 CO_2-e/GJ and as such in previous inventories produced by the Council this ha been listed as 0.00 eCO_2t.

[C] The almost 50% increase in energy was due to THAC coming on line –it is noted however that between 2001 when it came on line and 2007 that there has been an energy decrease of 8% (3,300 GJ) in the Building sector.

[D] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[E F] The decrease in 11% energy use and 14% decrease in eCO_2t from 2005 to 2007 is due to the Council's Bitumen plant converting from diesel to natural gas

[G] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[H] In 2009 the Water and Sewage Sector will transfer to a Regional Authority this will result in a reduction of approximately: 4% e-CO_2t emissions; 20% of energy (GJ) and 15% in costs.

[I] Between 2001 and 2007 there has been a 17% decrease in energy (GJ) used in the Water/Sewage sector

[J] The decrease in e-CO_2 t is due to the flaring and subsequent cogeneration of methane from the McRobies Gully landfill – residual emissions are fugitive

[K] The decrease in e-CO_2 t is due to cogeneration of methane from the Waste Water Treatment plants for reuse as an energy source in the plant

[L] Between 2001 and 2007 there has been a 4% reduction in energy (GJ) used overall be the Council

PART TWO – STRATEGIES & ACTIONS

5A's Strategies and Actions

Climate change will affect the whole of Council and how it functions and how each employee does their job. It will affect our community, the region we live in. There is nothing about our lives, communities, societies or environments that will not be affected by climate change.

The strategies and actions identified in HCC S5 have been developed to assist the Council and its communities to continue action to mitigate emissions and begin to adapt to climate change impacts and a carbon neutral lifestyle and economy.

The focus of HCC S5 is on the five core strategies of climate which apply across the organisation and our community and regional linkages. It is considered that major aspects of the ramifications of climate change on our social and natural processes are covered by the strategies.

The five A's of climate change are:

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions and progress towards targets.

The strategies are not listed in a hierarchical order – all strategies are considered to be of equal importance. To date the major areas of action have been in the abatement sector, as in the early 2000's the emphasis was on reducing emissions as programs typically focused on mitigation. However in recent times there has been a shift on the realisation that humanity will have to adapt to climate change impacts in the order of 2^0C or more as emissions continue to increase.

HCC'S previous Local Action Plan separated the actions to address climate change into corporate and community, this document blends actions in both these sectors of which there is also considerable overlap into the five core strategies of climate change.

Action Time Frame	Financial Year
Ongoing	n/a
Immediate	2009/10- 2010/11
Medium	2010/11 – 2011/12
Long Term	2012/13 – 2013/14

Advocacy

Advocacy: promoting leadership within the Council and throughout the community in responding to climate change.

The issue of climate changes is challenging all levels of society and there is the urgent need to create sustainable and carbon friendly communities, cities, economies and social structures and processes. The inherent uncertainty in finding and creating solutions and alternatives to progress in the face of climate change requires strong advocacy from across society and its institutions. Local government's core business is 'sustainability' in its broad meaning encompassing economics, environment and social considerations. As such, it is incumbent on the Hobart City Council to advocate for development and implementation of actions and strategies to address climate change issues

The Advocacy Strategy component provides for effective Capital City leadership, integrity and openness in its approach and to climate change. This will provide a political forum to advocate the needs and aspirations of the community with regard to understanding, responding and adapting to climate change.

Advocacy Actions:

Climate Change Policy

HCC S5 proposes that the Council formally endorse the Climate Change Policy that forms Appendix 5 of this document formally affirming and reinforcing its commitment for action and leadership on the issue. The Climate Change Policy forms the basis of the Council's climate change activities and represents its public commitment to leadership and action on climate change.

#	Action	Responsible	Timing
1.1	Council formally endorse the Climate Change Policy that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership to Hobart's communities and the region.	Council	Immediate

CCP Partner Program

In joining ICLEI Oceania - Cities for Climate Protection Program in 1999 the Council committed to acting on the issue of climate change. Through HCC S5 the Council reaffirms and reinforces its commitment to ongoing climate action post the cessation of CCP on 30 June 2009 and its replacement with the CCP Partner Program

The CCP Partner program will be of particular assistance to the Council through its proposed adaptation work and regional briefings. The regional briefings will be of particular support during the introduction of the proposed Carbon Pollution Reduction Scheme in 2011.

#	Action	Responsible	Timing
1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners Program.	Council	Ongoing

STCA - Climate Change and Sustainability Initiative

Greenhouse gas emissions, climate change impacts and the abatement and the mitigation and adaptation solutions are not limited to municipal boundaries. Whilst most Council's can successfully implement climate action at the corporate level as they directly control the emissions – working on community based climate action and meeting community-wide reduction goals is inherently complex and problematic as they do not control emissions and can only influence the behaviour change. HCC S5 proposes that through the Southern Tasmanian Council's Association (STCA) a Climate Change and Sustainability Initiative (CC&SI) be established – refer to flow diagram page 38.

The CC&SI provides a framework for the development of strategies supported by actions based on the four broad based themes of land use: urban, peri urban, rural and natural areas and revolve around the development of strategies and prioritisation of actions for these. The strategies are not mutually exclusive of one another with actions, strategies and program able to be shared and adopted by all Councils represented by the STCA. It does however encourage Councils to work on the development and sharing of programs that are of most concern and relevance to their communities.

The development of the strategies should be undertaken with input from the key stakeholders in use each areas such as local government, state government, non government organisations, statutory authorities, industry etc.

The STCA CC&SI compliments and progresses the Statewide Partnership Agreement on Climate Change between the State Government and LGAT on behalf of Tasmanian Councils.

Initially the STCA CC&SI framework developed by CCP Councils as these already have an understanding of their and their communities emissions and are progressing a structured and supported framework for climate action.

Urban Strategy - Greater Hobart Climate Partnership

The initial project to be developed and piloted under the initiative is the Urban Climate Change Strategy involving Councils of Greater Hobart: Brighton, Clarence, Glenorchy, Hobart and Kingborough – (Devonport and Launceston invited as urban observers). The Greater Hobart Council's are engaged in the Cities for Climate Protection and are reasonably and consistently progressed in terms of the development and implementation of climate change actions.

Urban strategy would focus on two spheres of action:

- Community action on climate change with an emphasis on sustainable behaviour change that leverages off existing programs and incentives i.e. Carbon Pollution Reduction Scheme, HCC Solar Hot Water Rebates etc and focuses on householders, retail, commercial, industrial and education sector
- Adaptation applies the *Local Government Climate Change Adaptation Toolkit* to Greater Hobart including partnership opportunities with the ACE CRC Tasmanian Climate Futures Project and other stakeholders

The GHCP would share resources, set Greater Hobart community-wide emission reduction goals, develop a Greater Hobart Abatement Action Plan, Adaptation Strategy and Awareness Program. It aims to lead, support and mobilise climate action by the community and private and public sectors.

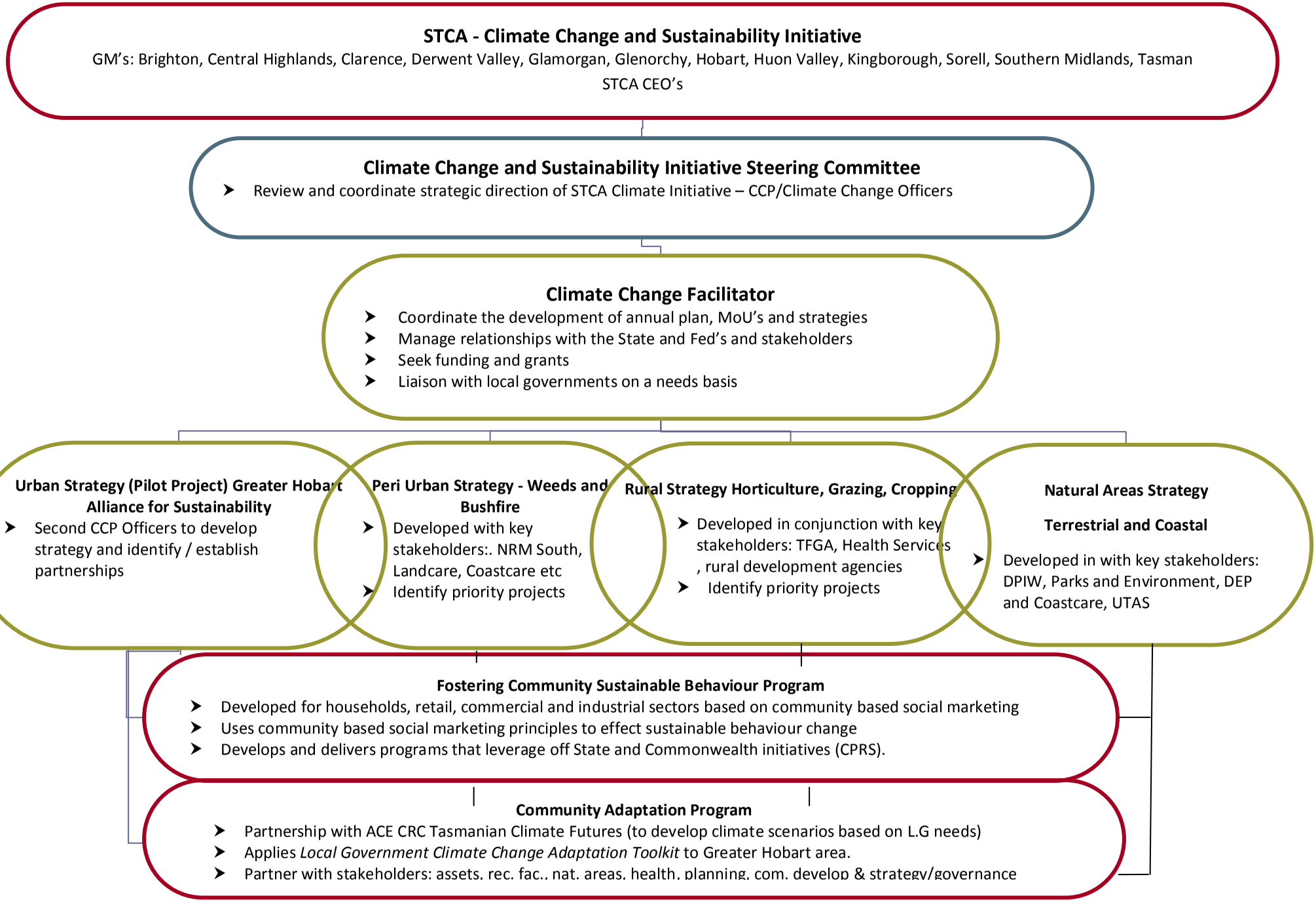
The GHAS would provide a model for other Council represented by the STCA to develop alliances and strategies around common themes of peri urban, rural and natural areas. The partnership is not intended to preclude other Councils from adopting actions and strategies. It is however intended to allow urban Councils leverage action and shared resources and responsibility for their urban communities that have distinct needs compared to peri-urban, rural and natural area communities and local governments.

The formation of a GHCP is supported by ICLEI and its CCP program. It progresses the State Government's Partnership Agreement on Climate Change in particular its principles of: leadership, shared responsibility; best practice and beyond, accelerating outcomes, creative thinking and innovation, openness and transparency.

It furthers the strategic direction adopted for the review of the Councils Climate Action and outlined in a CMT report (dated 06/07/07 – see Appendix 4) circulated, to aldermen, which included a recommendation, that:

"Opportunities are investigated for the establishment of a regional approach to community emissions abatement with other [CCP] *participating councils of Greater Hobart – Glenorchy, Clarence, Brighton and Kingborough."*

The model for the GHCP `would be of a similar to that of the Derwent Estuary Program that includes: Political commitment; a steering committee; and a technical working group supported with resources, to deliver and coordinate the program and on-ground actions.


STCA - Climate Change and Sustainability Initiative
GM's: Brighton, Central Highlands, Clarence, Derwent Valley, Glamorgan, Glenorchy, Hobart, Huon Valley, Kingborough, Sorell, Southern Midlands, Tasman
STCA CEO's
Climate Change and Sustainability Initiative Steering Committee
Review and coordinate strategic direction of STCA Climate Initiative – CCP/Climate Change Officers
Climate Change Facilitator
Coordinate the development of annual plan, MoU's and strategies
Manage relationships with the State and Fed's and stakeholders
Seek funding and grants
Liaison with local governments on a needs basis
Urban Strategy (Pilot Project) Greater Hobart Alliance for Sustainability
Second CCP Officers to develop strategy and identify / establish partnerships
Peri Urban Strategy - Weeds and Bushfire
Developed with key stakeholders:. NRM South, Landcare, Coastcare etc
Identify priority projects
Rural Strategy Horticulture, Grazing, Cropping
Developed in conjunction with key stakeholders: TFGA, Health Services , rural development agencies
Identify priority projects
Natural Areas Strategy
Terrestrial and Coastal
Developed in with key stakeholders: DPIW, Parks and Environment, DEP and Coastcare, UTAS
Fostering Community Sustainable Behaviour Program
Developed for households, retail, commercial and industrial sectors based on community based social marketing
Uses community based social marketing principles to effect sustainable behaviour change
Develops and delivers programs that leverage off State and Commonwealth initiatives (CPRS).
Community Adaptation Program
Partnership with ACE CRC Tasmanian Climate Futures (to develop climate scenarios based on L.G needs)
Applies Local Government Climate Change Adaptation Toolkit to Greater Hobart area.
Partner with stakeholders: assets, rec. fac., nat. areas, health, planning, com. develop & strategy/governance

#	Action	Responsible	Timing
1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of an *STCA Climate Change and Sustainability initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives and recognition of local government climate action to date.	STCA / General Manager	Immediate

Climate Change and Sustainability Steering Committee

The "Climate Change and Sustainability Steering Committee" is a an internally focussed leadership program to coordinate and progress climate and sustainability issues across (i) the Council's sphere of corporate activities and (ii) for input into the Greater Hobart Climate Partnership. CCSSC encompasses Energy Management, Environmental Sustainability and Climate Adaptation Programs. It is a response, in part (see underlined), to the Council motion Meeting 46, 10/09/07:

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

#	Action	Responsible	Timing
1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change & Sustainability Steering Committee	Ongoing

Greenhouse Reference Group

The Greenhouse Reference Group, comprised of Aldermanic representatives and Council officers, was established in 2000 to assist in the development and implementation of the Councils Greenhouse Local Action Plan. In preparing for its review the Council adopted a recommendation, dated 06/08/2007, that:

"The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered."

The scope and range of activities embedded and covered in climate change covers all aspects of the Councils activities: social, economic and environmental. To ensure a more comprehensive response and holistic and informed input by the Council's Aldermen HCC S5 proposes that quarterly briefs are provided – with Council Officers updating on Council actions, strategies and initiatives as well as advising advances in climate science and legislation. Observers and key stakeholders, as relevant, would also be invited to attend and participate in the briefings. Working groups for the development and implementation of projects may also be established on a needs basis. The introduction of regular quarterly briefings will form an important conduit for the sharing of ideas and updates on climate change between elected representatives and the community. It will also have input into the Greater Hobart Climate Partnership.

#	Action	Responsible	Timing
1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant replacing the Greenhouse Reference Group.	Climate Change & Sustainability Steering Committee	2009 Ongoing

Abatement

Abatement: the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Emission Reduction Goals: HCC S5 sets the following the emissions abatement goals for its corporate and community activities:

- Corporate Energy Abatement Goal 30% reduction from 2009 by 2020 (Note this excludes Water and Sewage Sector that will be transferred from the Councils to the Regional Water Authority in 2009).
- Corporate Waste Abatement Goal 70% reduction goal from 1996 by 2010 and maintain until 2020 or until flaring concludes post landfill closure
- Greater Hobart Community Abatement Goal – to be identified under the auspices of the Southern Tasmanian Council Association's, Climate Change and Sustainability Initiative, Urban Program, by the Greater Hobart CCP Councils stakeholders: Brighton, Clarence, Glenorchy, Hobart and Kingborough.

HCC S5 Emissions Abatement Goals builds on and refines the Councils previous corporate and community emission reduction goals set in 2000 under the auspices of the CCP:

- Corporate 70% by 2010 from 1996 levels; and
- Community 20% by 2010 from 1996 levels.

The Council has achieved and exceeded its corporate emission reduction goal of 70% by 2010. It has abated a total a 166,937 e-CO_2 tonnes which is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

A significant proportion, 80%, of this has been achieved through the installation of cogeneration technologies, using methane generated from its McRobies Gully Landfill and Waste Water Treatment operations. Since commissioning landfill cogeneration in 2004 a total of 134,029 e-CO2 t have been destroyed and 17,243 MWhrs of electricity have been generated and exported to the states grid which is enough to power 742 average Tasmanian homes[5]. Residual landfill emissions are fugitive and best addressed though carbon offsets or similar mechanisms. The cogeneration will continue until the expected closure of the landfill in 2018.

To address emissions associated with energy use for the balance of the Council activities a new energy abatement goal of 30% has been set that targets the Councils energy (electricity, fuel and natural gas) use and will result in real energy savings for Council. The electrical energy component typically has minimal emissions due to the low Tasmanian electricity emissions factor that, in 2007, is 0.13 kg CO2 e/kWh as compared to 1.32 kg CO2 e/kWh for Victoria[6]. The 30% Energy Abatement Goal is adjusted to take into account the Water and Sewage Reform – whereby Hobart's waste water treatment and pump assets, accounting 20% of its energy use, are transferred to a Regional Authority in 2009.

The 20% Community Reduction Target set in 2000 is problematic as the Council does not control emissions in this sector. Whilst the Council can exert some influence through its planning scheme, community awareness initiatives and sustainable transport strategies, these have not had a sizeable impact on actual emissions from this sector. It is noted that the greatest proportion of emissions in this sector are derived from industry process that rely anthracite (black coal) as a fuel source for heating boilers. Working co-operatively with the Councils of Greater Hobart and setting a joint community emissions reduction goal will produce realistic and sustainable project and outcomes that produce. A cooperative approach will also leverage greater resource towards abatement project and greater lobbying capacity on behalf of the participating local governments.

[5] AGL Annual report, (McRobies Gully Waste Treatment Facility) July 2008.

[6] National Greenhouse (Factors) Accounts Jan 2009

Corporate Abatement Actions

Energy Management Team [Corporate]

In 2007 an [Corporate] Energy Management Team was established to investigate and implement actions for the all the Council's energy [i.e. electricity, natural gas, diesel/petrol] consumption, costs and energy related greenhouse gas emissions. It is responsible for developing energy efficiency and conservation actions and strategies including alternative energies, emission reduction and carbon offsets for energy/emissions that cannot be reduced. Note: the team is not responsible for greenhouse gas emissions associated with the waste and the Council's McRobies Gully landfill nor energy use within the community sector.

The following table summarises the Councils energy [GJ] consumption and energy greenhouse gas emissions for assets that used more than 500 GJ per annum in 2006 -07:

Asset/s – 2007 greater than 500 GJ per annum	Category	GJ	eCO_2t	eCO_2%	$
The Hobart Aquatic Centre	Building	19921	737	15	611,798
Trucks	Fleet	13771	959	19	514,702
Hobart Streetlights	Streetlights	12759	472	9	985,021
*Selfs Point Waste Water Treatment Plant	Waste/Water	8779	325	6	284,512
Heavy Plant	Fleet	6952	484	10	260,847
Utilities/Vans	Fleet	5689	396	8	218,976
Hot Mix Plant (Natural gas)	Fleet	4536	235	5	85,084
*Macquarie Point Waste Water Treatment Plant	Waste/Water	4152	154	3	135,406
Town Hall	Building	3806	141	3	137,694
Customer Services Centre	Building	3291	122	2	124,255
Council Passenger Vehicles	Fleet	2551	177	4	102,338
4 Wheel Drive Vehicles	Fleet	2124	148	3	79,821
*Pump Station PS2 Nelson Road	Waste/Water	1938	72	1	69,332
*Pump Station 283 Brooker Avenue	Waste/Water	1885	70	1	65,406
Argyle Street Car Park	Building	1746	65	1	59,449
Hot Mix Plant (Natural Gas)	Building	1265	47	1	52,386
Central Car Park	Building	1142	42	1	41,326
Centrepoint Car Park	Building	1005	37	1	31,768
Aldermanic Fuel Allowance	Fleet	820	57	1	34,191
Salamanca Car Park	Building	683	25	0	28,471
Other Assets Energy Use	-	4772	240	5	24,9104
Total		103,587	5005	100	4,171,887

*To be transferred to the Regional Sewage and Water Authority 2009.

Electricity

Overall there has been a modest reduction of electricity energy used since mid 2000 due to actions such as changing all computers screen to energy efficient LCD screens. There is however scope to further reduce electricity emissions and the Council has committed to a further 30% emission and energy reduction by 2020 from 2007 levels. It is anticipated that this will be achieved through energy efficient lighting, energy audits and Heating, Ventilation and Air Conditioning and increased awareness and behaviour change.

HCC S5 notes that the report "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre" identified that there were extremely limited opportunities for the installation on Council's corporate buildings due to poor solar orientation, compromised roof space due to HVAC systems and shading issues.

Fuel/Diesel

Currently the options for reducing energy and emissions in this sector are limited as there currently no viable alternatives fuel sources available within Tasmania. The council is represented on a working group with the State Government into opportunities for Compressed Natural Gas and is lobbying for filling stations in Hobart, Launceston and North West. It has committed funds in the 2009 budget for the purchase of three CNG garbage trucks.

Through the EMT it is working towards the development of strategies to increase awareness and behavioural change to reduce emissions from passenger vehicle use and fleet.

Natural gas

Natural gas is now used in the hot mix plant replacing the diesel as the primary fuel source this has resulted in a 5% emissions reduction since its introduction. EMT is currently examining other opportunities for natural gas for Council assets.

Other

Alternative energies: heat exchange, investigation of alternative energy (solar/wind) with demonstration capacity at demonstration solar at Cleary's Gates

#	Action	Responsible	Timing
2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 – 2010 levels (post Sewage & Water Reform).	Energy Management Program	2020
2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.		2008 – ongoing
2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.		2008-2009
2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.		Ongoing
2.5	Develop and implement Energy Management Plans for the corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.		2007 -2009
2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.		2008
2.7	Implement the recommendations of the report "PV Systems Consultancy and Building, Energy Assessment Hobart Town Hall, City Hall, Council Centre."		2008 - 2010

Corporate Waste Emissions

The Council provides facilities for the recycling of its corporate waste [paper, cardboard and bottles etc] generated from the Town Hall, Customer Services Centre, Cleary's Gates Depot and the Hobart Aquatic Centre. Waste that cannot be recycled enters the Councils kerbside waste collection service.

HCC S5 proposes that an audit is undertaken of the waste generated to measure the effectiveness of the Council's internal waste strategies and identify further opportunities to reduce waste entering kerbside collection stream. Following on from that a strategy will be developed, to address specific waste types and identify opportunities to reduce waste entering the kerbside stream, based on the findings of the initial audit.

#	Action	Responsible	Timing
2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	June 2009
2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.		June 2009

Sustainable Purchasing

The Hobart City Council for 2007 - 2008 spent approximately $36.6 million on materials, services and contracts. The Councils' Divisions are responsible for their individual purchases and purchasing practices. The purchase of office materials is guided by Council Policy (5-11-03) encouraging the purchase of 'environmentally preferable products.' However other purchases are not covered by policy directives or strategies that encourage sustainable outcomes.

The procurement practices of organisations can directly and indirectly influence the sustainability, including the greenhouse gas emissions, of products and services purchased. Wastes, leading to un-sustainable outcomes, can be generated:

- during the production and supply phase (resource extraction, processing, manufacturing, transport and supply);
- while the product is being consumed or 'used' by the end-user;
- once the product has reached its end of life stage and is disposed of by the end-user.

Given the significant purchasing power of the Council HCC S5 provides proposes that the Council develop a sustainable procurement strategies that it will consider:

- strategies to avoid unnecessary consumption and manage demand;
- minimising environmental impacts of the goods and services over the whole of life of the goods and services;
- suppliers' socially responsible practices including compliance with legislative obligations to employees; and
- value for money over the whole-of-life of the goods and services, rather than just initial cost
- the complex purchasing needs of the organisation as w whole; and
- educating and increasing the awareness of staff involved in purchasing across the organisation

The development of the sustainable strategy should consider the following mix of procurement strategies identified by the NSW Sustainable Procurement Program that include:

- influencing procurement patterns to favour sustainable products or discourage unsustainable ones;
- encouraging manufacturers and suppliers to improve their own operations (e.g. requiring them to have environment management systems);
- requiring manufacturers and suppliers to have greater responsibility for the life-cycle impacts of their products (e.g. product stewardship schemes);
- direct regulatory intervention, such as bans or mandatory performance requirements (e.g. eco-specifications on government motor vehicles contract); and
- educating suppliers and the broader community on economic, social and environmental impacts of their production and consumption patterns.'

http://www.greengoods.nsw.gov.au/policy/sustprocingov.htm

#	Action	Responsible	Timing
2.10	A Sustainable Purchasing Strategy is developed across the whole of Council, that: ➢ takes into consideration the Council's complex and varied needs-purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ has a process for monitoring, reporting and review of the strategies outcomes.	Climate Change & Sustainability Steering Committee	Medium

Sustainable Transport Strategy

Hobart's corporate and community transport sectors are significant sources of greenhouse gas emission, 62% and 39% respectively. Finding alternatives to the transport issue is a significant challenge, in the absence of an alternative fuel source to petrol and diesel, measures and strategies revolve around changed behaviours and the transport modes i.e. public transport over private transport options.

The Councils Sustainable Transport Strategy 2008 provides a significant was forward on this issue at both the corporate and community levels.

#	Action	Responsible	Timing
2.11	Implement recommendations of the Sustainable Transport Strategy, when finalised, in parallel with HCC S5	Climate Change & Sustainability Steering Committee	Ongoing

Community Abatement Actions

The community sector encompasses household (residential), business (commercial, retail, and industrial) and transport (private and commercial). In 2006 Hobart's community sector produced 309,929 e-CO_2 t and consumed 5,483,931 GJ. Compared to the base year 1996 where 312,896 e-CO_2 t were produced and 7,195,441 GJ were consumed there has been a reduction in emissions of 2% and energy of 19% - this is for the most part due to the decrease in population along with increased energy efficiencies and alternatives in this sector. The increase in the electricity emissions factor, due to the importation of mainland electricity means that reduction in energy is not reflected in a greater reduction in emissions in this sector.

Community abatement of emissions will be achieved principally through the proposed formation of the Greater Hobart Climate Partnership that aims to encourage, acknowledge and reward sustainable behaviour practices in the community sector. Abatement will be achieved through the empowerment of the community sector to increase their energy efficiency, change behaviours and

Household Sector

The residential or household sector, in 2006, was made up of approximately 20,000 private dwellings that consume 918,132 GJ or 16% of total energy in the community sector and produces the 15,505 eCO_2t or 5% of the total sectors emissions. Whilst the figures may appear relatively small there is considerable scope, and community support, to further reduce energy consumed and emissions produced. Significant gains in reduction of energy use importantly means cost savings to households.

Sustainable Household Incentive Program

The Sustainable Household Incentive Program combines the sustainability actions of the Council and embeds additional actions to encourage sustainable household outcomes such as increased energy efficiency, water conservation, clean air and biodiversity. The program extends and builds on the Councils successful Solar Hot Water and Water Rebates and progresses the recommendation endorsed by Council dated 25/06/2007:

"Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

And the Strategic Plan action:

"2.3.3. Review Council's initiatives including energy efficiency and solar hot water rebates "

HCC S5 proposes that a Sustainability Rebate Program be developed that includes:

- Solar Hot Water Rebate – extend and includes Hot Water Heat Pump;
- Energy Efficiency Audit and Rebate – introduces a rebate that includes a household energy efficiency actions including: ceiling and floor insulation, curtains, pelmets and glazing, energy efficient lighting (CFL's and LED's), appliance energy use;
- Clean Air rebate – for replacement of wood heaters/stoves with non PM emitting i.e. heat pumps, natural gas heating;
- Bushcare Bio-diversity Incentive – household register for native plants and advice on suitable native plant species for properties and conservation covenants;
- Food gardens incentive – encouraging households to reduce food miles through demonstration and community based edible gardens; and
- Waste management awareness – to encourage and increase participation I recycling through the capture of organic material.

SHIP would also annually recognise and acknowledge "Sustainable Houses" and "Sustainable Streets" and "Sustainable Community participating households" with plaques/signs akin to the Safety House Program. Case studies could also be developed of acknowledged participants for awareness and promotional activities.

The intent of SHIP is that it can be implemented within Hobart's municipal area by the proposed Climate Change and Sustainability Working Group and expanded to the Greater Hobart Climate Partnership.

Sustainable Design Guidelines

Promotion of 'Sustainable Design Guidelines' for residential development and extensions specific to Hobart's cool temperate climate and the predicted impacts of climate change in Tasmania.

#	Action	Responsible	Timing
2.12	Develop Sustainable Household Incentive Program, including a Sustainable Rebate using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
2.13	Promote 'Sustainable Design Guidelines' that are available, to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium

Business Sector:

The commercial sector of greater Hobart ranges from small to medium to large size entities and includes commercial offices and retail outlets. In Hobart there are approximately 2500 rateable business properties.

The achievement of sustainability, emissions abatement and energy conservation is complex as a significant proportion of the commercial and retail sector are tenants. This means that they may be limited in their opportunity to influence and/or achieve energy efficiency outcomes as they may not be responsible for building energy systems such as lighting, elevators and heating, air-conditioning and ventilation and the attendant greenhouse gas emissions.

HCC S5 aims, through the Greater Hobart Climate Partnership and collaboration with peak representative bodies to develop and/or align and implement existing programs to assist this sector, in particular commercial and retail tenants, to achieve sustainability, emissions abatement and energy conservation outcomes.

Abatement action will progress the Council's Strategic Plan Strategy to:

"2.3.3 Promote opportunities to improve the energy efficiency of the city "

Commercial Office Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Tasmanian Property Council and the State Government to deliver the CitySwitch or similar program to the commercial office sector.

The CitySwitch Program is a national tenant energy management program run in partnership between the cities of Sydney, North Sydney, Parramatta, Willoughby, Melbourne, Perth, Adelaide and Brisbane and state government agencies. It aims to assist commercial offices, in particular tenants, to reduce their greenhouse gas emissions by improving energy efficiency. Core to the program is the commitment of program participants to the achievement and maintenance of an accredited 4 stars or higher [7]NABERS Energy tenancy rating.

#	Action	Responsible	Timing
2.14	Investigate opportunities for the promotion of CitySwitch program or similar program to promote energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	2009

Retail Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Retail Traders Association and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	Medium

Industrial Sector

[7] NABERS: National and Built Environment Rating System administered by the NSW government.

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Industrial sector and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.16	Investigate opportunities for the establishment of partnership and lobbying for of the industrial sector to reduce emissions and partner in adaptation initiatives.	STCA Climate Change and Sustainability Initiative	Medium

Education Sector

In 2008 the Clarence and Hobart City Councils both hosted with Mackillop College Sustainable Schools Forums to encourage schools within their municipality to participate in the National Solar Schools Program. Through the NSSP up to $50,000 is available to schools for the installation of solar panels and other energy efficiency measures. HCC S5 proposes through the Greater Hobart Climate Partnership that a resource be engaged to support schools and assist in the identification of energy efficiency and solar measures particular to their situation.

#	Action	Responsible	Timing
2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground resource to support schools	STCA Climate Change and Sustainability Initiative	Medium

Waste sector

Community waste emissions

Council currently owns and operates one Waste Management Centre at McRobies Gully. The WMC incorporates a landfill, composting operation, landfill gas extraction plant, and resource recovery operations such as domestic recycling drop-off area and tip shop. The site receives on average 60,000 tonnes of putrescible waste each year. Council is currently working on a strategic plan for the Waste Management Centre.

Council currently provides four (4) kerbside waste collection services, being waste, recycling, green waste and hard waste. Collection frequencies and volumes are as follows;

Service	Frequency	Limit
Waste	Weekly	120 Litres
Recycling	Fortnightly	240 Litres
Green organics	Quarterly	2 m3
Hard Waste	Annually	2 m3

#	Action	Responsible	Timing
2.18	Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, green waste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
2.19	Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium

Awareness

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Recent social research by SGS Consultancy for Clarence City Council has revealed that on the issue of climate change local government is the most trusted tier of government. This finding is not surprising as local government is the closest level of government to the community and is well positioned for dialogue on climate change. It is also the level of government that has also consistently taken action on the issue.

It is important that local government engages with the community in frank and transparent dialogue about the issue of climate change. The information provided to the community from local government should be consistent that would reinforce norms around sustainable behaviours within communities – a key platform for engaging behaviour change.

Corporate Awareness Actions

Employee Sustainability & Climate Information

The Hobart City Council employees 750 people with 580 employed on an equivalent full time basis. As an organisation the Council needs to ensure that its employees understand and are engaged on the issue of sustainability and climate change. The *Beat the Winter Chills and Bills Question and Answe*r in 2008 for Council staff was provided an introduction to the issue. The following actions further information available to Council employees that allow them to undertake and access sustainable and climate friendly action for the workplace and at home:

- Intranet Climate Page – information on climate change:
- What the Council is doing;
- What can employees can do at work to be more climate friendly and reduce emissions (information for home will be available through the Councils internet website);
- Where to find information on sustainability and climate change;
- How climate change will impact on their work;
- Strategic – adaptation and policy;
- Council inventories – detailed reports of corporate sectors;
- Implement Office Waste program – see abatement page 46;
- Provide 5 x Household Energy Audit Kits for loan from Corporate Library – Household Energy Audits designed by South Australian Government includes: Power mates; an appliance for reading energy consumed by appliances, infrared thermometer, timers, thermometers, instruction manual;
- Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work;
- Climate Incentive Program – annual bonus part of EBA to Divisions that reduce their carbon footprint from waste (waste survey) and energy use (sub-metering) and commuting;
- Develop climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities; and
- Sustainability and Climate awareness is included in the Council's Induction Handbook for new employees.

- Sustainability and Climate Updates – include updates, profiles, case studies etc on sustainability and climate action in Employee News

#	Action	Responsible	Timing
3.1	Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work.	Climate Change & Sustainability Steering Committee	Medium
3.2	Inclusion in Council's Employee *Induction Handbook* of a section on 'Sustainability and Climate Awareness.'	Climate Change & Sustainability Steering Committee	Medium
3.3	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities	Climate Change & Sustainability Steering Committee	Medium
3.4	Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees	Development & Environment Services	Immediate

Community Awareness Actions

Increasing community awareness about climate change and the need for sustainable behaviour change is a key action of HCC S5. The enormity of the issue of climate change can make action seem daunting and without empowering communities on action that they can take can have adverse outcomes where the community disengages and/or ignores the issue.

HCC S5 seeks to provide information to the community on nature of the issue and a range of actions that the community can undertake to respond and adapt the issue sowing the seeds for a strengthened sense of community and building community resilience.

When a community is resilient it can respond to crises in a way that strengthens community bonds, resources and the community's capacity to cope. Community resilience refers to the community's capacity to respond to adversity and change. Community resilience is of great interest and relevance to addressing the issue of climate change as it will allow communities to adapt to climate impacts and carbon economies.

In addition to building community awareness is also to encourage sustainable behaviour change. The basis of the community awareness program and actions are to consider the principles of community based social marketing to fostering sustainable behaviour. The programs development should identify barriers, remove external barriers, provide incentives, and create norms and prompts for desired behaviour change.

Key drivers contained in the Council's Strategic Plan:

"2.3.3. Promote energy efficiency to the community."

"2.3.7 Promote Council's greenhouse gas emissions reduction initiatives to the community."

Community Engagement

Through the STCA Climate Change and Sustainability Initiative's Greater Hobart Climate Partnership develop a climate action program to engage the community reducing emissions and building resilience and strengthens community relationships utilising the principles of community based social marketing.

#	Action	Responsible	Timing
3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➢ Fosters sustainable behaviour change across all community sectors ➢ Promotes actions to increase energy conservation and abatement of emissions ➢ Increases understanding of climate change and local government actions and responses ➢ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change	Climate Change & Sustainability Steering Committee	Medium
3.6	Design sustainability and climate awareness web pages for the Council's intra/internet page.	Climate Change & Sustainability Steering Committee	Medium
3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing

*In lieu of the formation STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Dr Edward Hall Awards – Climate and Sustainability Category

The Council's Dr Edward Hall Awards recognise environmental excellence across Southern Tasmania. The inclusion of a sustainability category to recognise sustainable and carbon neutral design in construction will further promote and increase awareness of sustainability and climate change.

#	Action	Responsible	Timing
3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing

Adaptation

Adaptation: the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

The HCC S5 Adaptation Strategy establishes a framework for the Council to respond to climate change, manage risk, identify opportunities and work with communities to prepare them to adapt to climate change impacts and carbon neutrality.

The Councils Strategic Plan is a key driver for the development of a Climate Change adaptation strategy:

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- *Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.*
- *Participate in regional approaches to climate change-related initiatives.*

The effects of climate change on Hobart will range from sea level rise and storm surge through to floods, droughts, extreme weather events and increased risk of fire all of which can impact on infrastructure and our communities. There will be implications for land use planning, local government owned infrastructure, community services and natural assets. The 'risks" and impacts are not new; however they are expected to increase intensity and frequency.

The following table list expected physical risks and social impact of climate change:

	Climate Impacts
Assets	➢ Road pavement construction & maintenance: change rate of deterioration, inundation , interruption to traffic ➢ Stormwater/drainage: intense rainfall events, exceedance of drainage capacity, flood defences, change in environmental flows ➢ Buildings: changes in building HVAC requirements/costs, risk of bushfire damage, extreme storm events damage, higher building deterioration and maintenance costs ➢ Coastal infrastructure: increased coastal erosion and inundation, increased frequency or permanent inundation of utilities, destruction damage to council owned assets and increased erosion and breaches of coastal assets and defences.
Recreational Facilities	➢ Provision and use of recreational facilities: impacts on infrastructure, loss of public space, tourism impacts, increase operation and maintenance costs ➢ Maintenance of recreational facilities: reduced water quality and quantities – implications for irrigation, beach closures due to algal blooms
Health Services	➢ Increase in range of vector borne diseases ➢ High temps increasing food and water borne diseases

	➢ Health impacts/fatalities due to heat waves ➢ Pressure on drinking water supplies ➢ Excessive rainfall and impacts on fresh water supplies ➢ Increase in injuries due to extreme weather events
Natural Resource Management	➢ Shifts in flora and fauna distributions ➢ Increase risk of extinction ➢ Reduced ecosystem resilience ➢ Increased ecosystems and species heat stress ➢ Increased pressure on dune systems ➢ Increase ecological disturbance
Planning	➢ Uncertainty in long term land use planning and infrastructure design ➢ Costs of retrofitting systems ➢ Loss of private property and community assets ➢ Increased insurance costs ➢ Early retirement of capital infrastructure

Local government has a key role to play in adapting for climate change and will need to manage risk to: its own infrastructure and assets, planning scheme requirements and the community sector emergency planning

Two opportunities available that will assist the Council to develop adaptation strategies are the CCP Local Adaptation Toolkit and the Climate Futures for Tasmania Infrastructure Project. The former provides a toolkit for adaptation/risk management that has been developed for and piloted by local government. Whilst the latter will produce climate change scenarios specific to Tasmania and a methodology that can be applied to infrastructure to identify risk levels. The application of both to Hobart City Council its activities, its community's activities and those of Greater Hobart will provide a comprehensive adaptation/risk management approach to climate change impacts. Both projects will leverage and augment the Tasmanian Climate Futures Project that models at a fine scale of 14 km2 grid a range of climate change impact scenarios

A key outcome could be the identification of sustainable urban landscapes across Greater Hobart that could be the focus of targeted programs to climate proof.

<u>CCP Local Government Climate Adaptation Toolkit</u>

A '*Local Government Climate Adaptation Toolkit*' has been developed by ICLEI with the support of the Australian Government. It was launched in March 2009. The Toolkit builds on the Australian Governments 2007 *Climate Change Impacts and Risk Management for Business and Local Government* and has been piloted with a five local governments. As a CCP Leader Hobart will receive support in the delivery and implementation of the toolkit. ICLEI is considering opportunities for the delivery of a 'Regional Adaptation Toolkit' to the CCP Councils of Greater Hobart.

The toolkit provides guidance to Councils and allows them to select tools of relevance to them, it includes:

- Establish an interdisciplinary approach to information gathering for the development of climate change scenarios
- Understand the potential impacts climate change may have on their business and community
- Identify their current risk management systems
- Identify, analyse, evaluate and prioritise risks and opportunities potentially arising from a set of climatic scenarios

- Explore treatment options for the prioritised actions plan
- Establish strategies for monitoring the implementation of the adaptation plan and reviewing its outcomes
- Build the personal capacity of participants to deal with complexity and uncertainty

The opportunity exists for the Council to partner with the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project in the application of the Adaptation Toolkit across the Council its assets, services and programs and in a regional project across the local governments of Greater Hobart. The partnership would allow the Council to access complex climate models and for the ACE CRC to identify the needs of 'users' such as local governments the most suitable for application in a the public sector in a risk and adaptation context.

Climate Futures for Tasmania – Infrastructure

The Climate Futures for Tasmania – Infrastructure project has been developed by consultants Pitt and Sherry as a 'not for profit' project that will develop a risk management methodology for infrastructure using complex modelling being undertaken by the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project. The Hobart City Council is participant in the project and will input into the project's development to meet the Council's needs.

The CFT project is delivered by a consortium of ACE CRC, CSIRO, the Tasmanian Partnership for Advanced Computing, the Tasmanian Institute of Agricultural Research, the University of Tasmanian, the Australian Bureau of Meteorology, Hydro Tasmania and Geoscience Australia. The projects builds on a project commissioned for Hydro Tasmania that modelled impacts of climate change on the level of dams.

The Climate Futures for Tasmania models approximately 100 climate variables using a fine scale of 15 km grid to produce climate impacts across Tasmania. Previous Australia wide climate modelling, by CSIRO, produced coarse scale models at 150 km grids of climate impacts.

Adaptation Actions

The adaptation actions are based on the detailed climate change scenario modelling available through the Tasmanian Climate Futures Project and the CCP Adaptation Toolkit

#	Action	Responsible	Timing
4.1	Establish a corporate Climate Adaptation Working Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change & Sustainability Steering Committee	Immediate
4.2	Participant in the Climate Futures for Tasmania –Infrastructure project; contributing to the project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities	Climate Change & Sustainability Steering Committee	Immediate
4.4	Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (07 May 2007)	Environment and Climate Change Officer	Immediate
4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project - – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	STCA Climate Change and Sustainability Initiative	Immediate

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Accounting

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

The Accounting Strategy component provides for the evaluation of the impact of climate change on the Council and the community and investigates opportunities for a revenue stream for a community based climate and sustainability program. The funds could be used for the engagement of resources to coordinate GHCP activities and for a range of programs including Sustainable Home Incentive Program see page 46, the City Switch and Greenbiz programs see page 47.

Accounting Actions

Energy and Greenhouse Inventories

Understanding trends and pattern is energy use is integral to achieving abatement goals after all 'you can't manage what you can't measure.'

Since 2000 the Council has undertaken annual inventories of its energy and greenhouse gas emissions using CCP software, which is reported to the Australian Government. This has enabled the Council to track its energy and emissions and is key to assisting the EMT in identifying trends and patterns in its energy and developing strategies to reduce energy consumption and emissions.

	Action	Responsible	Timing
5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate

Carbon Pollution Reduction Scheme

The proposed '*Carbon Pollution Reduction Scheme*' released in December 2008 and commencing 01 July 2011, is a core Australian Government initiative for addressing climate change through the introduction of an emissions trading scheme. The CPRS sets out preferred approaches to reduce greenhouse gas emissions and is intended to *'deliver substantial emission reduction while sustaining strong economic growth and securing prosperity.*'

The Australian Government considers a *carbon pollution reduction scheme* the best way to reduce emissions whilst minimising impacts on households and business. The purchase of carbon permits by industry and business sectors that emit more than 25,000 eCO2t per annum (less than 1% of all industry and businesses) provides incentive to reduce emissions. All funds generated will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

Key features of the CPRS are:

Reduction Targets of Australia's Greenhouse Gas Emissions -

- 60% reduction greenhouse gas emissions of 2000 levels by 2050 – a long term target; and
- Between 5 - 15% reduction of 2000 levels of greenhouse gas emissions by 2020 (minimum 5% of 2000 by 2020) – medium term target

Assistance for households and business financial assistance package for households -

- Households $6 billion per annum available from 2010; and
- Cent for cent reduction in fuel tax for three years.

Climate Change Action Fund

- $2.15 billion over 5 years for business, community sector organisations, workers, regions and communities; and
- Assistance to emissions intensive trade exposed industries.

There are still many details to be finalised before the scheme commences 01 July 2011. ICLEI is preparing an information paper to identify impacts on CCP local governments. In addition the Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Governments climate change policy. This will allow the Council to augment and leverage from the Australian Governments climate action.

#	Action	Responsible	Timing
5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or undertake on its own to implement actions and programs.

Carbon Neutrality

Carbon neutrality or zero carbon emissions describe a state where no greenhouse gas emissions are produced by an organisation or activity during a particular period in time. Typically this is achieved by organisations reducing emissions as much as practicable and then purchasing offsets for those that cannot or are too costly to reduce further. A range of offsets are available, which, vary in price and quality, and can be divided into four main groups: renewable energy, energy efficiency, methane emission avoidance and bio sequestration (forestry /plantations).

The Council has sought advice on how it could achieve carbon neutrality through a Council motion, 13/8/2007 that:

- *The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.*

And on 11/08/08 where it adopted a recommendation that:

- *Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.*

The introduction of the Australian Governments *Carbon Pollution Reduction Scheme* brings into question the effectiveness of carbon offsets to reduce Australia's overall emissions as these will be capped. The Australian Government has committed to developing a national standard for carbon offsets and a review is currently underway to provide consistency, confidence and guidance on offset additionality (does it contribute to real emissions abatement).

HCC S5 proposes that until such a time that the review is completed that

- one–off events such as the TASTE or assets , that Council adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008
  or
  where the option of carbon offsets is provided for an activity such as air travel these are utilised.

HCC S5 further proposes that post the review for carbon offset post the review could be that residual emissions following abatement action [8]may include:

- The Council purchase and retire carbon permits for specific assets and/or activities;
- The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or
- The Council use carbon offset programs that may be accredited through the review.

#	Action	Responsible	Timing
5.5	The Energy Management Program work towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➢ Avoid emissions by modifying behaviour ➢ Improve energy efficiency ➢ Increase local carbon sinks ➢ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing using an accredited carbon offset.	Climate Change & Sustainability Steering Committee	Long
5.6	HCC S5 proposes that until such a time that the review is completed that: ➢ 'assets' energy use or one–off events such as the TASTE, adopt ICLEI's Offsets Policy Feb 2009 and Carbon Offset Guide for Local Government June 2008; ➢ or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the review for carbon offset, residual emissions following abatement action 9may include: ➢ Council purchases and retires carbon permits for specific assets and/or activities; ➢ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invests the equivalent carbon offset in actual abatement and energy projects; and/or ➢ The Council use carbon offset programs that may be accredited through	*STCA Climate Change & Sustainability Initiative	Long

- [8] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.
- [9] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

	the review		
5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership Investigate the opportunities for the establishment of carbon offset program, in line with accredited offset providers as a potential income	*STCA Climate Change & Sustainability Initiative	Immediate

Carbon Development Calculator

HCC S5 proposes the development of a 'Carbon Development Calculator' be investigated. Linking to the Councils GIS the CDC could be used to identify the greenhouse gas emissions of corporate and community properties, buildings or assets at various stages of development and could consider embodied emissions, operational emissions and behavioural emissions. Whilst other carbon calculators have been produced these are generic and don't provide users with a comprehensive and detailed understanding of their actual emissions.

In the corporate context the Council could proactively use a CDC to identify the carbon/sustainability footprint of new developments and renovations allowing suggestions for ways to reduce emission and energy footprints. A CDC could value add to Council's community emission inventories providing detailed profiles of energy use over time, and to measure take up of incentives and programs..

In the community sector CDC could be used by property owners to voluntarily identify their embodied, operational and behavioural emissions and track change over time.

Piloted initially by the Council it potentially expanded out to the community and other Councils through the Southern Tasmanian Councils Association and the ICLEI - Local Governments for Sustainability Cities for Climate Protection Program.

A key stakeholder is the University of Tasmania and it is proposed that opportunities through the Council's Scholarship Program, are investigated with them to develop such a resource. It is a multidisciplined project that and strong synergies to the Australian Governments National Framework for Energy Efficiency and the Mandatory Disclosure of Commercial Office Building energy efficiency.

#	Action	Responsible	Timing
5.9	A project brief be prepared for the Carbon Development Calculator corporate and community parameters	Environment and Climate Change Officer	Medium
5.10	The Council investigate opportunities with the University of Tasmania for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program.	Environment and Climate Change Officer	Medium

Glossary

Emission factors are used to convert a given amount of fuel or energy source into carbon dioxide equivalent emissions (e CO_2). They can change over time as the emission intensity of a fuel changes or as better information becomes available. Electricity emission factors are calculated annually by the Australian Government to take into account variations in the actual mix of electricity sources used.

eCO2t – Equivalent carbon dioxide per tonne

Carbon Offsets - "A carbon offset is a financial instrument representing a reduction in greenhouse gas emissions. Although there are six primary categories of greenhouse gases, carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO2e). One carbon offset represents the reduction of one metric ton of carbon dioxide, or its equivalent in other greenhouse gases." Wikipedia

Climate Change - also known as the enhanced greenhouse effect and global warming - see Understanding Climate Change p 19.

Enhanced Greenhouse Effect – also known as the climate change and the global warming - see understanding climate change p 19.

Greenhouse Gases – are gases that are found in the atmosphere which trap heat, the principal greenhouse gases are: carbon dioxide, methane, nitrous oxide, trophospheric ozone, HFC's, PFC's and SF6 see page 20.

Global Warming - also known as the climate change and the enhanced greenhouse effect – see understanding climate change p 19

HCC S5 - Hobart Climate Change Action 5 – a strategy document prepared by the Hobart City Council for climate change action from 2008 – 2013.

Risk – a combination of the likelihood of an occurrence and the consequence of that occurrence.

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Appendix 1: Summary of the Hobart City Council's Climate Change Activities

The following is summary of the Council programs, activities and initiatives that the address the issue of climate change:

Year	Action/Milestone Achieved :
1999	Joined CCP – the first Tasmania Council to join
1999	Milestone 1: Inventory and Forecast for Community and Corporate Greenhouse Gas Emissions
2000	Milestone 2 Establish a greenhouse gas emissions reduction goal (Corporate 70% and community 20%)
2001	Milestone 3 Hobart City Council Greenhouse Local Action Plan
2002	Milestone 4 Implement the Local Action Plan – the Council demonstrated a 20% reduction its corporate emissions
	Milestone 5 Re-inventory of Emissions. The Council completed a complete re-inventory of emissions
2002 – ongoing	CCP Plus: The Council gave a political commitment to join CCP Plus – an ongoing program
2000 – ongoing	Emissions inventory Annual inventory of emissions corporate Census year inventory of emissions community

Climate Change Initiatives and Actions

Year	Climate Change Action/Initiative
1998 – Ongoing	**Hobart City Council's Bushcare Program**: An initiative of the Council to provide on ground support for community based 'Bushcare Groups' to restore native vegetation through the removal of environmental weeds from Bushland reserves and regeneration with local plants.
2000 – ongoing	**Inventory of Greenhouse Gas Emissions** The Council conducts an annual inventory of its greenhouse gas emissions
2001-ongoing	**Energy Efficient Guidelines** The Council prepared a set of Energy Efficiency Guidelines for prospective home builders and designers. The guidelines cover the range of considerations from an analysis of the site and the opportunities it presents for energy efficient design, through to building orientation and layout, ventilation/cooling, insulation and landscaping.
2001-2004	**Partnership Agreement with the State Government – Reducing Greenhouse Gas Emisisons** Covered: Landfill flaring, emissions inventory, CCP regional forum, community awareness and adaptation

2001 – 2006* Upgraded 2006	**Energy Efficiency Rebate:** The Council introduced a 2 tiered rebate on building application fees- 20% for compliance with HIA sustainable housing provision and 25% for compliance with Australian standards. Encouraging applications to meet certain minimum standards for energy efficiency.
2001 - 2002	**Around the World in Eighty Ways:** the Councils developed and hosted a website and provided bikes for two Tasmanian boys who travelled using carbon friendly transport from UN Bonn Climate Change conference (Denmark) to Hobart
2002	**Sustainable Transport Days :** Three Days promoting Sustainable transport including: - displays of alternative vehicles – hybrid - replacement of Lord Mayors car with a Toyota Prius - Community cycle with elected representatives from Brighton to Hobart
2003	**Sustainable Transport Week21 – 28 March:** A Council initiative involving Glenorchy City Council, Metro, Hot FM, Australian Greenhouse Office, Tasmania Environment Centre, Cycling South, to promote Sustainable Transport. The event included: - a series of facilitated workshops with private, public, community sectors with a summary workshop to bring together workshop outcomes - Presentations by guest speakers Dr Paul Mees and Dr Peter Newman -Bike breakfast - Commuter train from Glenorchy - Liverpool Street Closure and Community Fair
2004 - ongoing	**Cogeneration Water Treatment Plant** Installed a new 140 kWh cogeneration plant at Macquarie Point Waste Water Treatment Plant burns methane and reduces the demand on external electricity supply
2004 – ongoing	**Flaring Landfill Gas** Contracted AGL to install methane flaring at the Council McRobies Gully Landfill
2004 – 2005	**Walking School Bus:** the "Walk to School Bus Project" was a partnership of Cool Communities (Australian Greenhouse Office), Hobart City Council and South Hobart Primary School. The walk to school bus concept is designed to enable children to walk to school with the aid of parent volunteers along a designed safe route to school. It can be adopted by the school on a long-term basis, not just as a one off walking day event. The positive outcomes of this model provide reduced green house gas emissions for the local area, participation in moderate physical activity and foster community participation through social interaction with children and parents
2006- ongoing	**Sustainable Transport Officer** The Council engaged a Sustainable Transport Officer to develop a sustainable transport strategy and implement sustainable transport practices
2006*	**Energy Efficiency Rebate**: The Council updated its energy efficiency rebate to 100% rebate on Council's basic planning fee and building administration fee where sound and permanent energy efficient principles and features are incorporated into the planning and design of new houses and additions to existing houses
2007 –	**Sustainable Transport**

ongoing	The Councils received a grant from the Australian Government's Accelerating Action Program to work with the Sustainable Living Tasmania, Cycling South and of Greater Hobart Council's to prepare an Integrated Bicycle Network Plan
2008 – ongoing	**Sustainable Transport Strategy** Draft currently for consultation. Outlines a way forward for the Council to improve the sustainability of commuter and passenger transport (excludes freight) in the Greater Hobart Region.
2007- tba	**Zero Net Carbon Emissions 2020** The Council endorsed a motion: "That the Hobart City Council prepare a report on having zero net carbon emissions by 2020. That the Council use the City of Melbourne Zero Net Strategy as the starting point and include goals include the goals of the program in adapting a program for the use of Hobart City." "The matter be referred to the Council's Greenhouse Reference Group for further consideration." Endorses a motion to aim for zero net emissions through the review of its Greenhouse House Local Action Plan
2007- ongoing	**Energy Management Team** Councils internal Energy Management Team that considers all matters relating to the Council corporate energy use [all sources: electricity, petrol/diesel, natural gas], alternative energy, energy conservation (lighting and energy audits), electricity NEM contestability, carbon offsets and energy actions plans.
2007-2008	**Review of Greenhouse Local Action Plan** The Council commenced its review of Greenhouse Local Action that will include consideration of:- the Council resolution for Zero Net Emissions by 2020: and the five A's of Climate Change Action: Abatement, Accounting, Adaptation, Advocacy, & Awareness
2007-2008-	**Taste of Tasmania - Carbon Offset** Purchase of carbon offset emissions for the Taste of Tasmanian - 66.70 eCO2t were offset through Climate Friendly at a cost of $1999.25 inc GST (21.80 eCO2t Gold Standard and 44.90 of International VCS credits).
2007	**HCC Community Grant** HCC through its community Grants Program provided to a grant to Sustainable Living Tasmania to deliver a series of community workshops on climate change and host a community conference March 2008
2008	**Earth Hour** EH is a global campaign to raise awareness about climate change by turning off lights for 1 hour. HCC participated in Earth Hour 2008 and committed to participating in 2009.
2008	**Beat the Winter Chills and Bills Question and Answer Sessions and Display** HCC engaged SLT to deliver a series of 6 x BWCB Sessions to assist householders to improve their energy efficiency, increase understanding of climate change and action by HCC, and begin to build community resilience. A further 4 Q&A session held for Council staff and aldermen focusing on both the household and workplace actions.
2008	**Street lighting trial** HCC, in conjunction with Aurora is undertaking a small scale trial of street lighting (T5 and CFL's) to

	commence 28.08.08 at Poets Rd T5 (48) and Princes St's CFL's (42). Will run for 12 – 18 mths – to account for climate factors and survey residents
2008/2009	**Climate Futures Tasmania – Infrastructure** Contributing partner to project coordinated by Pitt and Sherry
2008 – ongoing	**Energy Reserve Fund** Establishment of Energy Reserve Fund $50,000 pa for projects not covered by other budget processes
2008 - 2020	**Emissions Reduction Target deepened** HCC has reduced its emissions by 75% from 1996 levels and has resolved to deepen this target by a further 30% 2020.
2008/2009 – ongoing	**Climate Adaptation Team** HCC is establishing a Climate Adaptation Team to implement as appropriate the CCP Local Government Climate Adaptation Toolkit and Climate Change Adaptation Actions for Local Government AGO 2007.

HCC Climate Change Membership and Participation in Climate Change Programs

2000 – Ongoing	Your Home Your Future Australian Government's Technical Working Group – HCC Environment and Climate Change Officer
2006 – ongoing	**LGAT** Climate Change Reference Group
1999 – ongoing	ICLEI Local Governments for Sustainability (ICLEI Oceania) membership and participant in ICLEI Cities for Climate Protection Program CCP – Leader Council.
2006 – ongoing	Australasian Mayors Council for Climate Protection – Coordination Committee - Lord Mayor

Appendix 2: Summary of Projected Impacts - Tasmania

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days, while in Launceston the annual average number of cold days below 0°C could fall from 35 to 16-30 days.
- Warmer temperatures and population growth are likely to cause a rise in heat-related illness and death for those over 65; increasing in Hobart from the current 5 annual deaths to 8 by 2020 and 10-14 by 2050.
- Warmer conditions may also help spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 percent reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Fire risk is unlikely to change in Hobart but, by 2020, the average number of days with very high or extreme fire danger in Launceston could increase slightly from the current 1.5 to 1.5-1.9 days and to 1.6-3.1 by 2050.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Some agricultural crops may benefit from higher CO_2 concentrations however protein content is likely to decline.
- Frost-sensitive crops may respond well to some warming however more hot days and less rainfall may reduce yields.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO_2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.
- Centres dependent upon agriculture and forestry may be adversely affected.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

Appendix 3: Carbon Offsets Considerations

The carbon offset market is new and establishing itself and as such is largely unregulated. The AGO's 'Greenhouse Friendly' program and the NSW Greenhouse Gas Abatement Scheme (GGAS) are two programs that have been developed to provide quality assurance for carbon offset purchases.

Internationally there are the Clean Development Mechanism (CDM), the Voluntary Carbon Standard and the Gold Standard for voluntary emission reductions also provide assurance for the purchase of carbon offsets.

The extent to which an organisation 'carbon offsets' can vary. It may choose to offset all its residual emissions or only offset emissions associated with an activity or asset such as building that has been retrofitted for energy efficiency purposes with the residual emissions offset through the purchase of carbon credits.

The Victorian EPA identifies a number of factors that may be considered in the purchase of carbon offsets:

Additionality is a key concept in evaluating whether or not an offset project leads to real and measurable greenhouse gas reductions. To be regarded as a valid offset, a project must be proven to be 'additional' to what would have occurred anyway. For example, a routine upgrade of equipment or changes in response to a regulatory requirement cannot be regarded as additional.

Translating the concept of additionality into practice requires establishing 'tests' of additionality. Typically these tests address the following types of additionality:

Financial Additionality: the project needs to go beyond business as usual (BAU) commercial practice. A standard test for this is if the project is financially viable without the offset funding.

Regulatory Additionality: the project needs to go beyond existing legal requirements.

Environmental Additionality: the emission reductions cannot be counted toward another emission reduction scheme or commitment.

Permanence: Some emission reductions may not be secure or may involve a range of risks. For example, this can occur with forestry projects where risks from fire or pest infestation are high, or where carbon offset credits are sold in advance. Offset providers should offer some form of guarantee that purchased credits will be maintained, or customers will be compensated if the project doesn't deliver the expected emissions reductions.

Leakage: Changes in emissions that take place beyond the boundary of the project but are attributable to the project activity are called emissions 'leakage'. New and/or additional emissions occurring off-site need to be quantified and taken into account in assessing the emissions reductions achieved. For example, if a forestry project limits logging in one area, the possibility that deforestation will occur elsewhere should be considered. Offset providers should also consider emissions from project operations (eg. electricity use, transportation of materials, etc.) that could increase emissions relative to the project baseline. Leakage should be explicitly addressed in calculation of the net emissions reductions achieved by a project.

Double counting: This can happen when two or more businesses claim the same emissions reduction. This can happen if an offset is sold to two or more entities, or when an entity upstream of the project unknowingly claims the reduction as its own (eg. an electricity generator). The establishment of protocols, and the use of an offsets registry can ensure offsets are adequately accounted for.

Timing of emissions reductions: Some offset providers generate and sell credits from their projects on an annual basis while others forecast credits over the life of their projects and sell them up-front.

For some projects this is necessary to get project funding, but counting on emissions reductions to occur over the lifetime of a project presents several risks. Regulatory requirements could make some offset projects obsolete in the

future. For example, implementing energy efficiency technologies that may be mandated by government in the future would no longer satisfy 'additionality' requirements (see above).

Proper monitoring and verification, and legally-recognised commitments from the offset provider to secure replacement credits if the project doesn't deliver anticipated emissions reductions can help to mitigate these risks.

Purchasers of offsets may wish to ensure that the GHG impact of their operations are neutralised by offsets in 'real time'.

Monitoring and verification: To ensure that the emissions reductions claimed by the project have actually taken place, the emissions should be monitored and verified, in line with a recognised standard.

The verifier should evaluate the project based on an explicit set of criteria that minimise the risk of false emission reduction claims. This should include the ongoing monitoring of the project to ensure that claimed outcomes have eventuated. Use of a third-party verifier is recommended to ensure the integrity of the offset credits.

Co-benefits: Although the primary goal of offsets is to encourage reduction in GHGs, projects may provide secondary benefits such as: reductions of other pollutants; increase in habitats for biodiversity; reducing reliance on fossil fuels in the economy; education benefits from the installation of new energy efficient technologies.

Co-benefits vary between projects and may be an important factor in voluntary offset purchasing decisions.

Appendix 4: Council Resolutions

The following details in full the Council resolutions with regard to climate change and sustainability:

06/07/2007

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11

Recommendations:

That

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11 be received and noted.)

The Local Action Plan is reviewed so that:-

- relevant 'Strategies and Priority Actions' are included within the Strategic Plan, and
- the 'Major Actions/Initiative's are included within the Annual Operating Plan, and
- the relevant actions are included within the appropriate Unit Plans,

The process of review be carried out to:

- ensure that a whole of Council approach is taken.
- recommend a means by which relevant items within the key corporate documents referred to in 16.2 can be separately and collectively identified as an energy efficiency / greenhouse gas emission reduction program.
- the 20% Community Emissions Reduction Goal be reviewed subsequent to the provision of more recent community data by ICLEI.
- opportunities are investigated for the establishment of regional approach to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.
- the Council's corporate electricity consumption is investigated separately from the Councils emissions goal and separate target and strategy be developed under the auspices of CCP TM and ICLEI advised accordingly.

8/3/2007

NOTES FROM A MEETING OF CMT

6.2. CITIES FOR CLIMATE PROTECTION REVIEW LOCAL ACTION PLAN – S17-050-11

Report of the MDP and EP was discussed and the recommendations endorsed.

CMT also agreed to re-establish the Energy Management Team involving all Divisions and chaired by the GMPS.

25/6/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18

13. PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

Ref. Open FCSC 5, 19/6/2007

That: 1. The Council introduce a solar hot water rebate or grant scheme for a period of 18 months for Hobart ratepayers who are looking to install a solar hot water system but are ineligible for the current planning and building administration fee rebate.

2. Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team.

3. The solar hot water rate rebate or grant be either:

(i) a one-off payment of a sum of $300 per solar hot water system or payable on a quarterly basis (rebate only); or

(ii) such higher figure as determined by the Council.

4. A report be provided to the Finance and Corporate Services Committee after 12 months operation, reviewing the success of the new rebate/grant and to enable consideration of its potential continuation beyond the initial 18 month period.

5. A media release be issued informing the public of the new rebate/grant; the qualifications under which it can be achieved and including details of other key energy saving initiatives residents can apply for when considering the installation of a solar hot water system, such as the Commonwealth's Photovoltaic Rebate Program, Renewable Energy Certificates and the Hobart City Council's planning and building administration fee rebate.

6. The Council's website be updated to allow for online access to apply for the rebate/grant and to provide links with key energy saving initiatives.

DEPUTY LORD MAYOR

HAYES That the recommendation be adopted.

Amendment

BRISCOE ARCHER That clause 6 be reworded to read:

6. The Council's website be updated to provide links with key energy saving initiatives and an appropriate means of enabling secure online access to allow for the lodgement of applications for the rebate/grant, be investigated as amended by the following:

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Amendment

BURNET CHRISTIE That Clause 3(i) be reworded to read:

3(i) The solar hot water grant be a one-off payment of a sum of $500 per solar hot water system.

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Cocker

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

Ref. Open DESC 6.2.2, 6/8/2007

That: 1. The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.

2. For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.

3. The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.

4. Aldermen be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

DEPUTY LORD MAYOR

ZUCCO That the recommendation be adopted.

Amendment

BURNET

SEXTON That the recommendation be adopted as amended by the insertion of the words and the community after the word Aldermen in clause 4.

AMENDMENT CARRIED

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING

19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

ALDERMAN COCKER "That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

COCKER

BRISCOE That the motion be adopted.

MOTION CARRIED

VOTING RECORD

AYES

Lord Mayor, Deputy Lord Mayor, Archer, Zucco, Briscoe, Hayes, Freeman, Christie, Cocker

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17/7/2008

NOTES FROM A MEETING OF CMT

ZERO NET CARBON EMISSIONS BY 2020 – IN PRINCIPLE CONSIDERATION OF FUNDING ISSUES – 17-50-11.

D/CITY S and GM-PS spoke to report. It was noted the principle was to get to zero carbon emissions by 2020. The discussion was around the best approach. It was agreed that HCC should make the most of the project based initiatives until at least 2015 and look at offsets to make up the balance to achieve zero by the target date. The establishment of a reserve fund with an initial $50k annual contribution would provide the funding for any future offsets required.

It was suggested that an annual KPI be developed to monitor the shortfall in emission offsets.

The report would be refined and referred to the Strategic Governance Committee.

Action: DCS

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59

STRATEGIC GOVERNANCE

20. HOBART CITY COUNCIL - ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

Ref. Open SGC 5, 5/8/2008

That: 1. The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

(i) A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.

(ii) The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.

(iii) The quantum of monies to be allocated to the reserve fund being reviewed annually.

(iv) The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.

(v) An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

2. Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

DEPUTY LORD MAYOR

HAIGH That the recommendation be adopted.

Appendix 5: Climate Change Policy

TITLE: GENERAL – CLIMATE CHANGE

SUBJECT: The Council's Climate Change Policy

DATE OF COUNCIL APPROVAL: xxxx

OBJECTIVE: The Hobart City Council on the issue of climate change will:

- provide effective and strong leadership to the region and to its communities to respond to climate change and build a sustainable region,

- develop and implement actions and strategies that assist communities to reduce carbon footprints, adapt to climate change impacts and increase their awareness and understanding of climate change and sustainability; and

- complement, collaborate and establish strong partnerships with key stakeholders and other tiers of government that strengthen the Council's responses to climate change.

- plan for and manage Hobart's adaptation to the impacts of climate change, particularly where these impacts represent a threat to people and property.

Hobart's Climate Change Strategies x 5 (HCC S5)

Climate Change an Issue for Everybody 2008 – 2013

May 2009

A review of the Hobart City Council's Greenhouse Local Action Plan

Endorsed Hobart City Council 25 May 2009

Abbreviations

ACE CRC – Antarctic Climate Ecosystems Cooperative Research Centre

CCGLAP – Corporate and Community Greenhouse Local Action Plan

CC&SI – Climate Change and Sustainability Initiative

CCP - Cities for Climate Protection

CCSSC – Climate Change and Sustainable Steering Committee

CDC – Carbon Development Calculator

CPRS – Carbon Pollution Reduction Scheme

DCC - Department of Climate Change (Australian Government formerly Australian Greenhouse Office)

DEP - Derwent Estuary Program

EMP – Council's Energy Management Program

GHCP – Greater Hobart Climate Partnership

ICLEI - Local governments for Sustainability (formerly the International Council for Local Environment Initiatives)

IPCC - International Panel on Climate Change

LGAT - Local Government Association Tasmania

NGAF - National Greenhouse Accounts Factors

STCA – Southern Tasmanian Councils Association

TCCO – Tasmanian Climate Change Office

Mt – mega tonnes

GJ – giga joules

kWh – kilowatt hours

e-CO_2t – equivalent tonnes of carbon dioxide

Useful Links

www.hobartcity.com.au

www.iclei.org/ccp-au

www.climatechange.gov.au

www.climatechange.tas.gov.au

www.tasmanianenvironmentcentre.org.au

www.lgat.tas.gov.au/site/page.cfm

www.environment.gov.au/settlements/renewable/nationalsolarschools/

http://www.sustainableschoolsproject.org/

Foreword by the Lord Mayor

I am proud as the Mayor of Hobart City Council to be celebrating 10 years of climate change action by the Council.

Climate change is a challenge like no other that humanity has ever faced. As a community we have contributed significantly to the situation and must work at finding solutions. We have a small window of opportunity in which to do this.

Climate Change is going to affect how we live our lives, our children's lives, how we do our jobs, how we recreate and also our local, national and international economies. There is very little about the way we live now that will not be affected in some way by the impacts of climate change. Every action we take to increase awareness and address this issue is significant and reinforces the urgent need for action whether on a small or large scale.

It is time to get serious about climate change. We are no longer talking simply about abatement of emissions – our climate is changing and we now need to learn how to firstly, reduce the rate of change and secondly adapt to it! We need to change the way that we live, work and play. This report sets out ways in which the Council is both continuing and further preparing to work with and lead our community to 2013 in response to climate change.

Hobart has been a champion of climate change action since 1999. It has reduced its own emissions by 71%, from 1996 levels, committed to further emission reduction of 30% from 2009 levels by 2020. To date, it has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

In the community sector the Council has introduced Solar Hot Water, Insulation and Water Tank Rebates Schemes. Through its Solar Hot Water Rebate, introduced in 2007, approximately 520 e-CO_2 tonnes have been abated from over 180 installed systems. The Council is also working with the other Councils of Greater Hobart to develop an integrated "Bike Plan."

A much broader and longer term challenge for Hobart is to grow a low emissions economy, adapt at a metropolitan level and aim for reduced emissions at a community level within our municipality.

At its core local government is about sustainability and climate change is intrinsically a part of this. To this end local government has a key role to play in addressing the issue of climate change with its community. We can provide leadership on and demonstration of actions that can be undertaken to reduce greenhouse gas emissions. We can work to increase awareness and advocate action to abate emissions and adapt to the impacts of global warming. Importantly we don't have to reduce our quality of life but we do have to change the way we live so that we cut the amount of waste we generate and improve our energy efficiency – everyone has a stake in this.

The Living Planet Report of 2008 claims that humanity's global footprint now exceeds the world's capacity to regenerate by about 30% and more than three quarters of the world's people now live in nations that are ecological debtors – their national consumption has outstripped their country's bio-capacity and that in two generations we have moved from ecological credit to ecological debit.

The Council commends these strategies for consideration so the community can join in making a difference that matters well into the future.

In the words of James Hansen, director of the US Goddard Institute of Space Sciences, 22 June 2008:

"We're toast if we don't get on a very different path…This is the last chance."

Food for thought as we move into an era of significant change

Lord Mayor, Aldermen Rob Valentine

April 2009

Hobart City Council's Climate Vision:

Hobart's sustainable and climate friendly vision is for:

- A climate aware and resilient community that has supported and invested in a range of strategies led by the Council to abate emissions, adapt to climate change impacts and account for a carbon neutral economy.
- The Council to be an advocate for climate change action and create a climate aware and resilient community.
- The Council, as a local government, to lead our community and urban region for the necessary transitional change to a carbon neutral society at all levels

Images clockwise: Beat Winter Chills and Bills Question and Answer forum West Hobart 2008; Solar Hot Water Rebate recipient - evacuated tubes system; energy efficient development Windsor Court Argyle Street; Energy Display Hobart City Council Atrium June – Sept 2008.

Executive Summary

Climate change is the most significant issue facing human civilisation. It poses an enormous challenge at all levels of human society, to avoid 2^0C of warming that gives way to a runaway greenhouse effect. Tackling climate change is made more complex as the exact scale, timing and the extent of the impacts are unknown. What is known is that the impacts of climate change will significantly change the global climate and earth's ecosystems on which we rely and the way in which we live on the planet. Action is urgently required to reduce greenhouse gas emissions and to begin to prepare both as communities and individuals for a changed climate. Climate change response is more than reducing emissions and adapting to a changed climate - it is about changing our behaviour, attitudes, economies, social structures and built environments so that they are sustainable.

Tasmania is not exempt from the impacts of climate change. The climate-induced drought has necessitated the importation of Victorian coal-based electricity due to low Hydro dam levels resulting in an increase in emissions associated with our electricity use. Higher electricity prices coupled with increased transport costs are creating a greater need for energy efficiency across our communities and organisations, consequently leading to climate friendly and sustainable outcomes.

The Hobart City Council has been active on the issue of climate change since 1999, when it made a political commitment to participate in the Cities for Climate Protection (CCP^{TM}) Program. Since then it has successfully completed the five program milestones, committed to ongoing action through CCP^{TM} Plus and reduced its corporate emissions by 71% from 1996 levels.

Most recently the Council has committed to a further 30% reduction in its emissions from its energy (electricity, fuel and natural gas) use and is investigating options and working towards zero emissions by 2020.

The Council delivers a range of climate change programs to reduce emissions and increase awareness including $500 Solar Hot Water Rebates, installation of cogeneration technologies at McRobies Gully Landfill and Waste Water Treatment Plants, trialling energy efficient street lighting and 'Beat the Winter Chills and Bills Questions and Answers' community information sessions.

The Council has recognised, since 2001, the need for collective local government action on climate change. Hobart's Climate Change Strategy (HCC S5) advocates that 'like' councils work together to effectively address the issue of climate change and implement actions at the broader community level. It progresses a strategic framework for local government across Tasmania through the establishment of groupings of Councils based on land use: urban; peri-urban; rural and natural areas.

On the broader scale climate change as an issue is rapidly progressing with significant changes in policy direction of the incumbent Australian Government and the State Government's establishment of a Climate Change Office in 2008. The Council recognises the need for new structures and frameworks to address this issue. It also recognises that its approaches should be flexible and able to adapt to the changing political and legislative environment.

The review of the Councils Greenhouse Action Plan seeks to begin to prepare Hobart City Council, its community and the region for the necessary transitional change to a carbon neutral society at all levels. It considers action under a framework called the 5A's of climate change with 5 themes: Advocacy, Abatement, Awareness, Adaptation and Accounting.

HCC S5 resets the Councils greenhouse gas emissions abatement targets. It maintains the Councils 70% emissions reduction target focusing on its landfill operations until 2020, it sets a new target for corporate energy greenhouse gas emissions of 30% and advocates a Greater Hobart Community abatement target be set through cooperative action of the Cities for Climate Protection Councils.

Climate change is not a natural resource issue – it is an issue that is linked to every aspect of human activity. The solutions and adaptive responses to climate change are not to be found within our existing structures – they require creative thinking and brave action.

Summary List of Actions.

Advocay Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Political commitment	1.1	Council formally endorse the Council's proposed Climate Change Policy (see Appendix 5) that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership of Hobart's communities and the region.	Council	Immediate
Corporate	Political commitment	1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners program.	Development & Environmental Services	Ongoing
Corporate	Southern Region - Climate Change And Sustainability Initiative	1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework (detailed in this document) that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of a *STCA Climate Change and Sustainability Initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives in recognition of local government climate action to date.	General Manager	Immediate
Corporate	Climate Change and Sustainability Steering Committee	1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change and Sustainability Steering Committee	Ongoing

Corporate	Greenhouse Reference Group	1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant, replacing the Greenhouse Reference Group.	Climate Change and Sustainability Steering Committee	Immediate - Ongoing
Abatement Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Energy Efficiency	2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 -2010 levels (post Sewage and Water Reform).	Corporate Energy Management Team	2020
Corporate	Corporate Energy Efficiency	2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.	Corporate Energy Management Team	2009 – ongoing
Corporate	Corporate Energy Efficiency	2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.5	Develop and implement Energy Management Plans for the Council's corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.7	Implement the recommendations of the report (as appropriate) "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre."	Corporate Energy Management Team	Ongoing
Corporate	Corporate Waste Emissions	2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	Immediate
Corporate	Corporate Waste Emissions	2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.	Environmental Engineering	Immediate
Corporate	Corporate Purchasing	2.10	A Sustainable Purchasing Strategy is developed for the whole of Council, that:	Climate Change and	Medium

	emissions		➢ takes into consideration the Councils complex and varied needs purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ a process for monitoring, reporting and review of the strategies outcomes.	Sustainability Steering Committee	
Corporate	Sustainable Transport Strategy	2.11	Implement recommendations of the Council's Sustainable Transport Strategy, when finalised, in parallel with HCC S5.	Climate Change and Sustainability Steering Committee	Ongoing
Community	Household Sector	2.12	Develop a Sustainable Household Incentive Program, including a Sustainability Rebate, using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Household Sector	2.13	Promote the 'Sustainable Design Guidelines' to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium
Community	Business Sector Commercial Office Sector	2.14	Investigate opportunities for the promotion of the CitySwitch program or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Retail Sector	2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Industrial Sector	2.16	Investigate opportunities for the establishment of partnerships and lobbying for the industrial sector to reduce emissions and partner in adaptation initiatives.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Education Sector	2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground support to schools to uptake the National Solar School Program.	*STCA Climate Change and Sustainability	Medium

				Initiative	
Community	Waste sector	2.18	Community waste emissions: Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, greenwaste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
Community	Waste sector	2.19	Community waste emissions: Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium
Awareness					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Employee Sustainability & Climate Information	3.1	Deliver Office Climate Workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and potential climate change impacts on the workplace.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.2	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.3	Inclusion in Council's Employee Induction Handbook of a section on 'Sustainability and Climate Awareness.'	Environmental Sustainability Program	Medium
Corporate	Employee and community	3.4	Five Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees.	Development and Environmental Services	Immediate
Corporate	Community Engagement	3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➤ Fosters sustainable behaviour change across all community sectors; ➤ Promotes actions to increase energy conservation and abatement of emissions; ➤ Increases understanding of climate change and local government actions; and ➤ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change.	Climate Change and Sustainability Steering Committee	Medium
Community	Community Engagement	3.6	Design sustainability and climate awareness web pages for the Councils intra/internet page.	Environmental Sustainability Program	Medium

Community	Community Engagement	3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
Community	Community Engagement	3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing
Community	Dr Edward Hall Awards – Climate and Sustainability Category	3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing
Adaptation					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Adaptation	4.1	Develop and implement a corporate Climate Adaptation Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change and Sustainability Steering Committee	Immediate
Corporate	Corporate Adaptation	4.2	Participate in the Climate Futures for Tasmania –Infrastructure project (Pitt and Sherry) contributing to project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
Corporate	Corporate Adaptation	4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities.	Climate Adaptation Program	Immediate
Community	Community Adaptation	4.4	Run an Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (29 May 2009).	Environment and Climate Change Officer	Immediate
Community	Community Adaptation	4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	*STCA Climate Change and Sustainability Initiative	Immediate

Accounting Sector	Issue	#	Action	Responsible	Timeframe
Corporate & Community	Energy and Greenhouse Inventories	5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
Corporate & Community	Energy and Greenhouse Inventories	5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate
	Carbon Pollution Reduction Scheme	5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
	Carbon Pollution Reduction Scheme	5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium
Corporate & Community	Modelling impacts	5.5	The Energy Management Program works towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➤ Avoid emissions by modifying behaviour ➤ Improve energy efficiency ➤ Increase local carbon sinks ➤ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing, using an accredited carbon offset.	Climate Change and Sustainability Steering Committee	Long

Corporate & Community	Modelling impacts	5.6	HCC S5 proposes that until such a time that the review is completed that ➤ assets or one–off events (such as the TASTE) adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008; or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the carbon offset review residual emissions following abatement action [1]may include: ➤ The Council purchase and retire carbon permits for specific assets and/or activities; ➤ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or ➤ The Council use carbon offset programs that may be accredited through the review	*STCA Climate Change and Sustainability Initiative	Long
Corporate	Carbon Neutral/Zero Carbon Emissions Policy	5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
Corporate & Community	Carbon Offset Program	5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership investigate the opportunities for the establishment of a Carbon Offset Program, in line with accredited offset providers as a potential income	*STCA Climate Change and Sustainability Initiative	Immediate
Corporate & Community	Carbon Development Calculator	5.9	A project brief be prepared for the Carbon Development Calculators corporate and community parameters.	Environment and Climate Change Officer	Medium
Corporate & Community	Carbon Development Calculator	5.10	The Council investigate opportunities, with the University of Tasmania, for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program	Environment and Climate Change Officer	Medium

[1] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Contents

PART ONE - BACKGROUND

Introduction

When Hobart City Council joined the Cities for Climate Protection Program in 1999, committing to take action on climate change, the emphasis was on the mitigation and abatement of greenhouse emissions as Australia grappled with the question "Will the climate change?" Since then there has been much scientific progress and a seismic shift in community acceptance on the issue and the question is now 'How much will the climate change and how will we adapt?'

Hobart Climate Change Strategy 5 (HCC S5) resets the course for how the Council will address climate change up to 2013. HCC S5 replaces the Council's "Corporate and Community Greenhouse House Local Plan" produced in 2001. In addition to actions that reduce emissions and conserve energy from corporate activities this document sets a strategic way forward to work with our communities through a proposed STCA's Climate Change and Sustainability Initiative Urban Priority Greater Hobart Climate Partnership by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils to prepare for climate change and a carbon neutral future. Importantly it progresses an agenda for a unified and consistent message on Climate Change and how, as a community, we can prepare for its impacts – economic, environmental and social - and a changed climate.

The key concepts behind HCC S5 are:

- Climate Change is an issue of sustainability, it is a mainstream issue.
- Climate Change from a local government perspective should be considered in terms of land use activities: urban, peri urban, rural and natural areas.
- Local government needs to work collectively – groupings of like land use Councils, to allow for the leveraging of action, sharing resources and skills.
- New ways must be found to address climate change – it is necessary to think outside the box to find a range of solutions and develop a carbon friendly lifestyle and to adapt to the impacts of climate change.

At the corporate level Hobart is successfully managing emissions abatement and awareness. The greatest area of action for local government is in the spheres of:

- community development and awareness raising about climate change impacts, actions and opportunities knitting together the opportunities offered through the Australian Governments Energy Efficiency Package and incentives and the Council's rebates to achieve sustainable behaviour change at the individual and community level; and
- adaptation in both the corporate and community sectors through the application of resources developed to assist local government at both the corporate and community/regional levels.

What Hobart has done

Hobart has much to be proud of with regard to its 10 years of action on climate change. The Council has been working on the issue since it joined the Cities for Climate Protection (CCP) Program on the 3rd May 1999. And post the successful completion of the programs five milestones it committed in 2002, to ongoing action through CCP Plus. To date it has completed the five program milestones and joined CCP Plus, a program designed to further embed and deepen climate change action.

To date, the Council has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

Through its Solar Hot Water Rebate, approximately 520 e-CO_2 tonnes has been abated from over 180 systems installed since 2007.

Significant Council actions and outcomes include:

- Reduction of its corporate greenhouse gas emissions by 71% in 2007/08 since 1996/97 its base year; abating a total of 166,937 eCO_2 tonnes from its corporate activities;
- Establishment of a Corporate reserve fund of $50,000 for energy saving projects in addition to those identified in annual budgets;
- Providing a rebate for the installation of solar hot water systems $500 and insulation (for Landlords) $300;
- Trialled energy efficient, and low carbon emission, compact fluorescent and tri-phosphor fluorescent street lighting in residential setting with Aurora Energy;
- Formally committed to reducing its remaining corporate greenhouse gas emissions by a further 30% by 2020;
- Increased awareness of household energy efficiency through its Beat the Winter Chills and Bills Question & Answer Sessions;
- Coordinated the Hobart Regional Arterial Bike Network – a collaboration between Hobart, Clarence, Brighton, Glenorchy and Kingborough Councils and Cycling South to coordinate and rationalise bike networks within Greater Hobart and released for comment its draft Sustainable Transport Strategy 2008; and
- Worked towards Sustainable Transport Outcomes through programs such as the Walking School Bus, the Hobart Regional Arterial Bike Plan and Sustainable Transport Plan.

A summary list of actions and activities by the Councils is contained in Appendix 1 "Summary of the Hobart City Councils Climate Change Activities" or can be accessed at www.hobartcity.com.au.

Hobart's Corporate Emissions Summary

The following table shows the aggregated energy and carbon emissions since the Council began measuring these from its selected base year of 1996/97. Whilst there was a doubling of energy use in 2001/02 due to the Hobart Aquatic Centre becoming operational and a slight spike in 2004 – 2006 due to works associated with the laying of the gas pipeline; overall the table indicates a decreasing trend since 2000/01. The greenhouse gas emissions (eCO_2t) associated with Council activities has been significantly abated. The greatest proportion of emissions and their abatement is associated with the Council's landfill, McRobies Gully. Since 2004 the considerable abatement has been achieved initially by flaring and then cogeneration technologies which feed power generated from landfill methane emissions into the electricity grid.

	1996/97	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
GJ	55,357	107,705	105,341	107,873	120,945	114,826	113,468	103,587
eCO2t	45,818	46,801	47,271	38,495	20,192	12,027	11,662	13,215
Comment	Base Year First inventory undertaken as per CCP program	Increase GJ THAC came on line almost doubling HCC energy consumption		Decrease eCO_2t – due to commencement of flaring of methane (CH_4) at McRobies Gully landfill	Increase GJ due to laying of gas pipe line and increase use of Bitumen plant	Decrease eCO_2t – due to cogeneration of methane (CH_4) at McRobies Gully landfill	Decrease eCO_2t – due to cogeneration of landfill methane and conversion of bitumen plant to natural gas	Increase eCO_2t- due to increase in the Tasmanian Emissions factor 1996 00.2 kg CO2 –e/GJ to 2007 -0.13 kg CO2 –e/GJ

Cities for Climate Protection Program

The "*Cities for Climate Protection*" (CCP ™) program is a voluntary international program of ICLEI – Local Governments for Sustainability, a non government organisation. It has been funded nationally by the Australian Government with an aim of empowering local governments to cut greenhouse gas emissions until 30 June 2009. CCP™ provides local governments with a structured program with the following five milestones:

1. Undertake an inventory of greenhouse emissions in the council and community, and forecast future emissions growth.

2. Set an emissions reduction goal for corporate and community sectors.

3. Develop and adopt a local greenhouse action plan to achieve emission reduction goals.

4. Implement their local greenhouse action plan.

5. Monitor and report on greenhouse gas emissions and implementation of actions and measures.

Hobart City Council joined the CCP ™ program in 1999. It was the first Tasmania Council to join and it set, and has achieved, the highest corporate emission reduction goal, 70% from 1996/97 levels by 2010/11, of any participating Council in Australia. Early on in the program the Council recognised the need for a regional approach where Council's with similar land use patterns work in 'land use-blocks' to address climate change. Hobart has encouraged the participation of Brighton, Clarence, Glenorchy and Kingborough (the Council's of Greater Hobart) in the program.

In Tasmania 7 local governments have participated in the CCP program Brighton, Clarence, Devonport, Glenorchy, Hobart, Launceston, Kingborough. They cover over 60% of the Tasmanian population and equating to a total of 2,471,674 eCO2t or 41,841,937 GJ of greenhouse gas emissions.

Importantly the CCP provides a practical and ongoing framework for climate action that compliments and furthers the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Council's* requiring local government action on the issue.

The cessation of CCP, whilst a disappointment, does not impact on the Council's ongoing climate action. The CCP milestone framework has assisted the Council to build the capacity to develop and implement climate action and embed these across the organisation.

Why review

The Council completed its '*Corporate and Community Greenhouse Local Action Plan*' in 2001 – since then much experience has been gained and many actions undertaken to reduce emissions and increase awareness of the issue in corporate and community sectors. Whilst there have been many successes and the Council has exceeded its corporate goal for greenhouse gas emission reduction, there are a number of drivers for the review. These include:

- The Council's commitment to continual improvement under its wider Business Excellence Framework;
- A requirement for a review in both the Strategic Plan 2008-2013 and the Corporate and Community Greenhouse Local Action Plan Nov 2001;
- An increased awareness, and desire for action, throughout the Hobart's community.
- Improvement and streamlining of climate change actions across the Council corporate sector;
- Increased scientific knowledge and understanding of the rate at which climate change is-occurring, its processes and impacts;
- The shift in emphasis from abatement actions to adaptation and awareness. In particular there is a greater emphasis on risk analysis– these will assist in identifying and potentially lessening the Council's future liability with regards to climate change impacts; and
- The changing political and legislative framework at both the state and commonwealth levels of government.

How is the review to be done?

The review considers the Councils annual corporate emissions inventories from 2000-01 to 2007-08 and the 2006 community inventory (based on Australian Bureau of Statistics 2006 Census data). The review also takes into account the Councils Strategic Plan 2008 – 2013, Corporate Plan 2009-2014 and brings HCC S5 in line with its timeframes; and incorporates resolutions and programs that have been developed subsequent to the CCGLAP.

Two key drivers for the review are to:

- ensure that a whole of Council approach is taken to addressing climate change actions and impacts; and
- investigate opportunities for the regional approaches by local government to climate change and seek opportunities to leverage off and key stakeholders to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.

Significantly the review focuses on the five critical A's of climate change (note these are not listed in hierarchical order):

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

Understanding Climate Change

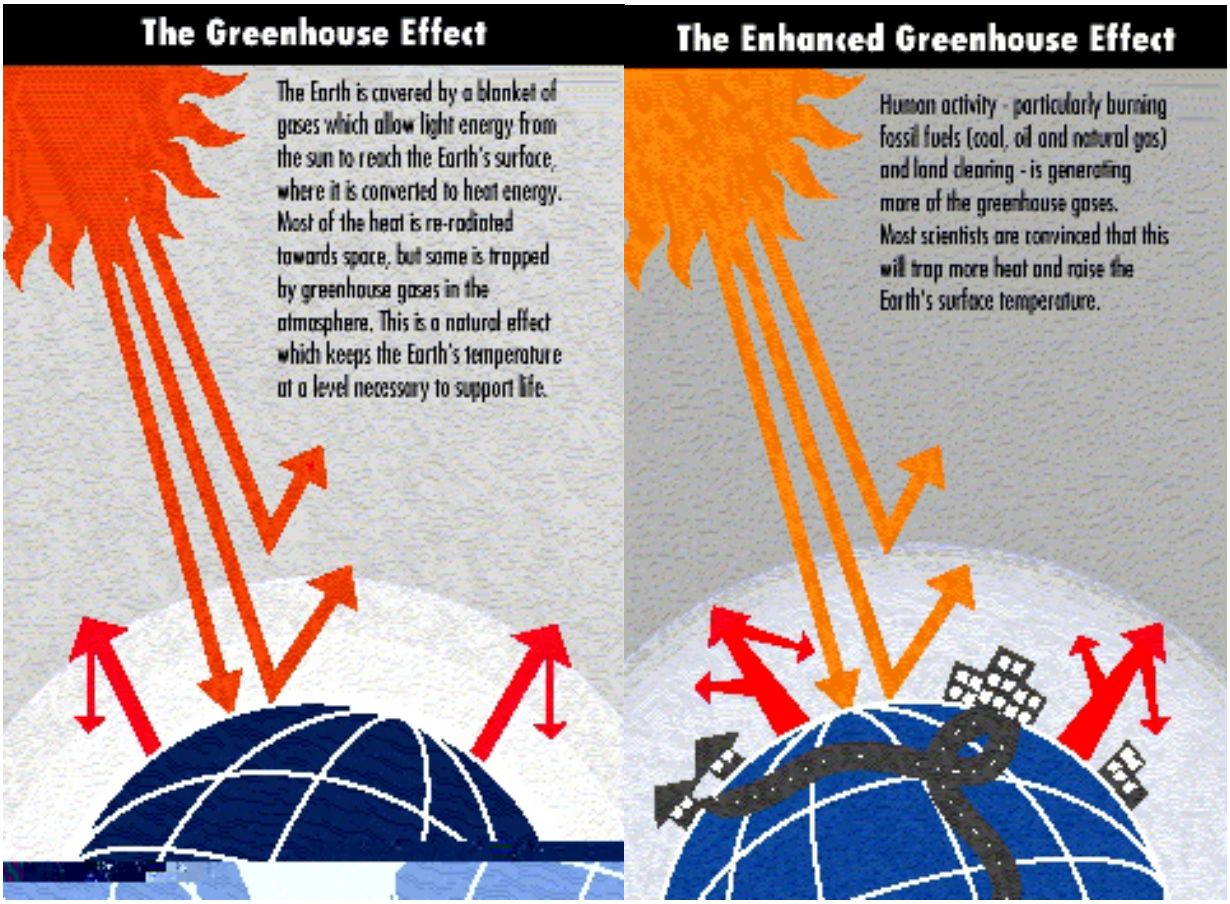
The Greenhouse Effect and the Enhanced Greenhouse Effect

The greenhouse effect is a natural phenomenon. Greenhouses gases, water vapour, carbon dioxide CO_2, methane CH_4 and nitrous oxide N_3O, occur naturally in the atmosphere where they trap the sun's warmth and maintain the earth's surface at a temperature that supports life. Without greenhouse gases the earth would be a cooler and uninhabitable place.

The emission of additional greenhouse gases from human activities has increased the concentration of these gases in the atmosphere resulting in the enhanced greenhouse effect, also known as global warming and climate change. A consequence of the increase is that as the atmosphere warms the climate changes with increased temperatures, increased intensity and frequency of storms events, increased sea level rise from thermal expansion of the oceans and melting glaciers and the changed rainfall patterns.

In pre-industrial times, the concentration of CO_2 in the atmosphere was 280 parts per million (ppm). This level has now increased to 387 ppm, and is rising every year by 2.2 ppm. Without intervention, prevailing scientific opinion is that levels will rise to over 600 parts per million within the next 45 years with profound and adverse consequences. This is a significant concern of climate scientists who predict runaway climate change once 450 ppm or 2 degrees of warming is exceeded.

The United Nations International Panel for Climate Change states that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global air and ocean temperatures, widespread melting of snow and ice and rising global sea level. And 'Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate change, particularly temperature increases.'



How Greenhouse gases are measured

Natural greenhouse gases include water vapour, carbon dioxide, methane ozone and nitrous oxide. Human made greenhouse gases include chlorofluorocarbons. The source, warming potentials and lifespan's of greenhouse gases that are involved in climate change are shown in Table below. ,

Greenhouse Gas	Source	Atmospheric Lifespan (years)	Greenhouse Warming Factor eCO_2
Carbon Dioxide CO_2	Burning fossils fuels for electricity production Cement manufacture	50-200	1.0
Methane CH_4	Waste decomposition without air (ie buried waste in landfill) coal-bed methane from coal mining Leakage of natural gas Grass digestion by grazing animals Burning of biomass fuels	12 - 17	21
Nitrous Oxide N_2O	Soil, nitrogen fertiliser decomposition Burning of petroleum products	120	310
Chlorofluorocarbons and carbon substitutes	Leakage from refrigeration and air-conditioning systems Aluminium production	>1000	CFC 12 8,500 HCFC- 113 93 HFC - 134a ,300

Energy Emissions Factors

The Australian Government though the *National Greenhouse Accounts (NGA) Factors* determines the greenhouse gas emissions factors for energy Australia-wide. Emission factors are used to derive estimates of greenhouse gas emissions based on the amount of emissions generated by an activity such as fuel combusted in a petrol engine or coal combusted to produce electricity. These are now updated annually to provide a more accurate indication of greenhouse gas emissions as the electricity landscape changes.

Electricity Emissions Factor

The emissions factors for Tasmania's electricity have changed considerably overtime. The Australian Government *Emissions and Factors Workbook* 2006 listed Tasmania's emissions factor for the years 1996, 2000 and 2005 as 0.000, 0.002 and 0.045 kg CO_2t-e/kWh respectively. The most recent edition, *National Greenhouse Accounts Factors* 2008, listed in the table below, again retrospectively changes these emissions factors. The most recent increases from 2005 onwards are accredited to the effect of the climate induced drought on Hydro dams levels and the subsequent importation of high emissions (brown coal) electricity from Victoria via Basslink 24% [2]and natural gas 11% to augment the States electricity supplies. For the purposes of HCC S5 the most recent 2008 emissions factors have been used – even though when Hobart initially sets its emission reduction goal the emissions factor for its base year of 1996 was 0.00.

[2] "Water woes cut Hydro power base" the Mercury, 03.09.08

	kg CO_2t- e /kWh (Scope 3)					
	Tasmania	New South Wales	Victoria	Queensland	South Australia	Western Australia
1995	0.02	1.02	1.39	1.10	1.05	1.07
2000	0.01	1.03	1.42	1.05	1.09	1.04
2005	0.04	1.06	1.32	1.04	1.04	0.95
2006	0.06	1.06	1.32	1.04	1.01	0.95
2007[p]	0.13	1.06	1.31	1.04	0.98	0.98

[p] – provisional emissions factor set by the Australian Government– the emissions factor are formalised following confirmation of actual energy mix. Source National Greenhouse Accounts Factors, Australian Government, January 2008

Other Emissions Factors

The table below sets out the emissions factor for energy sources other than electricity – these are typically constant as they are primary fuel source.

Fuel	Energy Content GJ/kL	t CO_2 -e/kL
Petrol	34.2	2.3
Diesel	38.6	2.7
LPG	26.2	1.6
Biodiesel	23.4	0

What are the predicted impacts of Climate Change on Tasmania?

Climate change is going to affect every aspect of our lives as individuals and as communities through the physical impacts of a carbon affected (enhanced greenhouse effect) climate system, resulting in an increase of extreme weather events, changed rainfall patterns, changes in behaviour due to economies that must account and pay for carbon use. Currently concentrations of atmospheric CO_2 are tracking above the IPCC high scenario models

Understanding the physical impacts of climate change is complex. The International Panel on Climate Change (IPCC) climate change scientists have modelled various low – mid - high range scenarios that consider a wide range of variables of not only climate systems but future emissions that are the by product of very intricate and dynamic systems determined by forces such as demographic, socio-economic development and technological change. This work has been further enhanced by the CSIRO to develop Australia – wide scenarios. Whilst these are coarse they do provide an indication of the predicted climate change impacts for Hobart these include:

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days.
- Warmer temperatures are likely to cause a rise in heat-related illness and death for those over 65 years.
- Warmer conditions may spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 % reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

A full summary of projected impacts for Tasmania by the Australian Government is provided in Appendix 2.

A more refined and detailed climate modelling project, the *Climate Futures for Tasmania – local information for local communities* is being undertaken by the Australian Climate and Ecosystems Cooperative Research Centre (ACE CRC). The project builds on work commissioned by Hydro Tasmania and constructs fine scale 14 km^2 grid climate projections for local applications. With an emphasis on terrestrial based ecosystems it plots hundred of variable ranging from rainfall, temperature and wind in range of scenarios, it is intended to provide local decision makers locally relevant information about climate change and help develop adaptation actions. It is anticipated that modelling data will be available from late 2009.

Carbon Neutrality

The Council resolved, in August 2007, to investigate actions necessary to achieve zero net carbon emissions by 2020. For organisations that have committed to carbon neutrality or zero carbon emissions this is typically achieved by reducing their emissions as much as practicable and then purchasing 'carbon offsets' for the residual emissions that are too difficult or costly to eliminate.

Carbon offsets are an investment in a project or activity that "have prevented or removed an equivalent amount of carbon dioxide elsewhere." (Ribon 2007) "The idea being that the removal of greenhouse gases counterbalances emissions from other sources." (Downie 2007). They are divided into four main groups: renewable energy, energy efficiency, methane emissions avoidance and bio sequestration (forestry/ plantations).

The introduction, by the Australian Government, of the Carbon Pollution Reduction Scheme – a cap in trade system brings into question the effectiveness of carbon offsets in contributing towards lowering of Australia's overall greenhouse gas emissions as they will be capped. Richard Dennis argues that *'If households use less energy and create less pollution, they will simply free up permits to allow other families or industries to increase their own emissions…And as a result concerned households and business will not be able to make any meaningful contribution to greenhouse gas abatement. In fact the only way for individuals to lower Australia's total emissions is to buy carbon permits and not use them."*

The Australian Government recently released a Discussion Paper National Carbon Offsets and is currently reviewing options for voluntary carbon offset market. It has committed to developing a national standard for carbon offsets to *"provide national consistency and give consumers confidence in the voluntary carbon offset market. The offset standard will provide guidance on what constitutes a genuine, additional voluntary offset credit, as well as setting requirements for the verification and retirement of such credits, and standards for calculating the emissions of a product or service.* (source http://www.climatechange.gov.au/greenhousefriendly/changes.html)

Until such a the CPRS comes into effect HCC S5 proposes that in line with the Cities for Climate Protection Australian Program's Offset Policy Feb. 2009 the Hobart City Council accept offsets accredited under any of the following schemes.

Gold Standard

All offsets certified by the Gold Standard. These include:Voluntary Emissions Reductions (VERs) and Clean Development Mechanism/Joint Implementation (CDM/JI) Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs). See: www.cdmgoldstandard.org.

Greenhouse Friendly

Greenhouse Friendly Approved Abatement and Greenhouse Friendly certified greenhouse-neutral energy products (such as electricity and fuel). The reductions from the use of energy products should be calculated by multiplying the energy use by the appropriate factors for the council's state from the National Greenhouse Accounts (NGA) Factors. See: www.climatechange.gov.au/greenhousefriendly.

NSW Greenhouse Gas Reduction Scheme (GGAS)

Voluntarily surrendered NSW Greenhouse Abatement Certificates (NGACs) generated under the GGAS scheme. See: www.greenhousegas.nsw.gov.au.

Voluntary Carbon Standard (VCS)

Voluntary Carbon Units (VCUs) accredited directly under the VCS or under one of their approved greenhouse programs. See: www.v-c-s.org.

Mandatory Renewable Energy Target (MRET)

Voluntarily surrendered Renewable Energy Certificates (RECs) created under MRET. RECs are sold in units of energy; they should be converted to emission reductions using the appropriate electricity emission factors for the council's

state from the National Greenhouse Accounts (NGA) Factors. Note that this conversion is approximate, as it is not always known in which state the RECs were actually created. See: www.orer.gov.au/recs.

NOTE: This list will be reviewed regularly in response to ongoing developments in the offsets market.

Appendix 3 provides a discussion of carbon offset considerations.

Carbon Offsets – Hobart City Council

The Council has already commenced to offset some of the emissions associated with its premier activity – the Taste of Tasmania. A total of 67 eCO2t from cooking and waste at the Taste of Tasmania 2006/2007 was offset through Climate Friendly[3] at a cost of $1999.25 including GST. Carbon offsets are now included in the stallholder's package for the 'Taste.'

And indirectly carbon credits derived from McRobies Gully Landfill cogeneration project operated by AGL have been used by Cascade to offset greenhouse gas emissions associated with the its Cascade Green Beer.

[3] Climate Friendly is a Founding Member, and currently, only Australian Member of ICROA. ICROA is a not-for-profit alliance of leading carbon reduction and offset organisations. As an ICROA member, Climate Friendly supports a reduce-and-offset approach to carbon management, and comply with the ICROA Code of Best Practice Climate Friendly (www.climatefriendly.com)

Climate Change Policy Framework

Australia's climate change policy and legislative landscape is evolving at a rapid rate. Over the past 18 months both the Australian Government and the Tasmanian Government have set new carbon reduction goals and are developing initiatives and programs to assist in meeting these. There is also an increasing focus on adaptation to inevitable climate change impacts at the Federal and state level and this is featuring in funding opportunities and program development.

Australian Government

The incumbent Australian Government's climate change approach is underpinned by the three following strategies:

- Reducing Australia's greenhouse gas emissions;
- Adapting to climate change that we cannot avoid; and
- Helping to shape a global solution.

The core Government Departments responsible for the delivery of climate change strategies are the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts. These Departments currently manage the work of the former Australian Greenhouse Office.

Carbon Pollution Reduction Scheme

The Australian Government has expanded and developed new policies to progress its climate change approach. It has committed to the introduction of an emissions trading scheme, as has been done (such as the European Union scheme), in order to reduce Australia's emissions. The government has released the proposed design (white paper) of the scheme, termed the "Carbon Pollution Reduction Scheme", but there are still many details to be finalised. As of May 2009 the scheme is proposed to commence 1 July 2011.

The Australian Government has committed to a long-term target of 60% reduction on 2000 levels by 2050. It has also adopted a minimum (unconditional) commitment to reduce emissions by 5% below 2000 levels by 2020 irrespective of actions by other nations. In the event that global agreement is reached where all major economies commit to substantially restrain emissions and all developed countries take on comparable reductions to that of Australia, this commitment will be increased to 15% below 2000 levels. Australia is also committed under the Kyoto Protocol to limiting its emissions to 108% of 1990 emissions over the period 2008–2012.

The CPRS will work by requiring all large emitters and upstream liquid fuel suppliers in Australia to purchase permits for every tonne of carbon dioxide equivalent (t CO2e) that they emit. The purchase of permits will be required for industry and business sectors that have operational control over a facility producing over 25,000 t CO2e of Scope 1 emissions annually. The number of permits available each year will be limited to ensure that the total emissions are within Australia's Kyoto Protocol and other targets. The cost to scheme participants of purchasing these permits will be in part past on to consumers, providing incentives at all levels of the economy to reduce emissions. All funds generated by the Government from selling the permits will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

The Australian Government has provided an overview of how funds from the scheme will be spent. The following initiatives have been announced:

- $6 billion per annum available from 2010 available to assist households; and
- Cent for cent reduction in fuel tax for three years.
- $2.15 billion allocated over 5 years to assist business, community sector organisations, workers, regions, communities, and emissions-intensive, trade-exposed industries to adapt to the higher costs of greenhouse gas emissions.

Of consequence to the Council are the CPRS's 'Household Assistance' package and complementary 'Energy Efficiency Home Package', which include:

- free ceiling insulation worth up to $1,600 to home owner-occupiers of currently un-insulated homes; or
- a $1,600 rebate on the installation of solar hot water systems; and
- a rebate for landlords for insulation of their rental properties.

The Council also currently has in place a range of sustainability initiatives that complement the Australian Government's Energy efficiency Package, value adding to the opportunities for Hobart's households to increase their energy efficiency these include:

- Solar Hot Water Rebate of $500 for the installation of solar hot water and heat pump systems;
- Insulation Rebate of $300 for installation of insulation of houses constructed prior to 2003 (post 2003 changes to the Building Code of Australia require ceiling insulation in new houses);
- Water Rebate – provides a range of rebates for the installation of water tanks through to water efficient appliances.
- Development Energy Efficiency Rebate on planning applications

The Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Government's climate change policy. This will allow the Council to augment and leverage from the Australian Government's climate action.

National Greenhouse and Energy Reporting System (NGERS)

The *National Greenhouse and Energy Reporting System Act* 2007 is a single national framework for reporting of greenhouse gases emissions, energy use and energy production. The NGERS Act, which is already in effect, requires large emitters, energy producers and energy users to report their annual emissions and energy use and production. Organisations can trigger NGERS thresholds when their emissions or energy use/production trigger either corporate or facility thresholds. For emissions these thresholds are 25,000 t CO_2e for a facility, and 125,000 t CO_2e in 2007/08 to 50,000 t CO_2e for 2010/11 for the entire corporation (based on Scopes 1 + 2 emissions). NGERS applies to constitutional corporations so at this stage does not apply to most local governments.

The reporting framework and emission calculation methodologies developed for the NGERS Act will also be used to underpin emissions reporting under the CPRS. However it is important to note that the entities required to report under the NGERS Act are not necessarily the same as those required to participate in the proposed CPRS. For example CPRS thresholds apply only to emissions from facilities, whereas the NGERS thresholds apply to emissions and energy from both facilities and corporations. Also CPRS thresholds are based only on direct (Scope 1) emissions, whereas NGERS thresholds depend on total direct plus electricity-related emissions (Scopes 1+2).

Will Hobart City Council be required to participate in either the NGERS Act or CPRS?

Hobart City Council is unlikely to be required to report under the NGERS Act, for the time being, as they are not a constitutional corporation.

The CPRS, when it comes into effect, will apply to all entities, including local governments, that have operational control of an emitting facility. Hobart City Council is unlikely to, but may trigger CPRS emission thresholds. Council technical staff have advised that emissions from Hobart's landfills will not trigger the 25,000 t CO_2e threshold. It must be recognised that this element of the CPRS has not been finalised and it has been proposed that some landfills with emissions over 10,000 t CO_2e may trigger the CPRS threshold if within a distance (still to be determined) of another landfill.

Once the CPRS scheme is introduced NGERS technical guidelines and systems will be used as the reporting mechanism for organisations that are included in the scheme.

Hobart's Inventories

Annual inventories of emissions for council operations have been compiled annually by the Hobart City Council as part of our voluntary involvement in the Cities for Climate Protection (CCP) program. These have been designed to be meaningful, assist with decision making and track change over time. With the onset of a regulatory system there have been some changes in the methodology for measuring and recording emissions.

ICLEI Oceania is in the process of updating CCP's greenhouse gas reporting protocols in line with the ICLEI International Local Government GHG Emissions Analysis Protocol (http://www.iclei.org/index.php?id=8154). This will also align CCP reporting with the fundamental elements of GHG emissions reporting under the National Greenhouse and Energy Reporting System (NGERS) Act (so that the CCP inventories could form a basis for NGERS reporting, and vice versa).

Mandatory Renewable Energy Target (MRET)

The Australian Government has expanded the Mandatory Renewable Energy Target (MRET) for the production of energy from renewable sources to 9,500 GWh of per annum by 2010. MRET encourages the development of a more sustainable renewable energy supply industry thereby reducing of greenhouse gas emissions. It does this by establishing a guaranteed market, whereby a legal liability requires large wholesale purchasers of electricity to purchase renewable energy certificates in proportion to electricity they purchase.

The core MRET legislation is: the Renewable Energy (Electricity) Act 2000 (the Act)' the Renewable Energy (Electricity) Charge 2000 and the Renewable Energy (Electricity) Regulations 2001. Interim targets are set to 2010 when 9500 GWh of renewable energy is to be produced. ` From 2010 to 2020, when MRET ends, 9500 GWh is to be produced annually.

Renewable Energy Certificates (REC's) are created by renewable energy generators, where each REC represents one megawatt hour of renewable energy. Renewable energy generators are renewable energy power stations as well as small generation units installations such as photovoltaic systems; solar water heater installations, wind systems and small hydro electric systems.

Owners of small generation units are eligible for RECs and have the choice of claiming the RECs themselves or assigning them to an agent. In the case of McRobies Gully the Council has surrendered the REC's generated from cogeneration of electricity to the company who installed and manages the cogeneration infrastructure

Tasmanian Government

In December 2007, the Tasmanian Government adopted the Crowley report, "*A Framework for Action, Reducing Tasmania's Greenhouse Gas Emissions*." It established the Tasmanian Climate Change Office in 2008, introduced the *Climate Change (State Action) Bill 2008* requiring it to reduce its emissions by 60 per cent by 2050, based on 1990 levels and also released the '*Tasmanian, Framework for Action on Climate Change*' July 2008 that sets out States majors strategies to address climate change.

Of most significance to local government is the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Councils December 2008**. Key elements of the partnership agreements for local government include:

- Compilation of corporate emission inventories and setting emission reduction targets;
- Development of climate change action plans;
- Community consultation and awareness; and
- The incorporation of climate change into regional planning schemes.

The Council's completion and ongoing participation in the Cities for Climate Protection ensures that the Council is well placed to deliver and has already completed much of the work indicated in the partnership agreement. ICLEI Oceania and LGAT are in discussions on how to minimise duplicate effort for CCP councils in Tasmania who are now required to take part in the LGAT process. The Council will also need to consider the incorporation of climate change into regional planning schemes that are yet to be developed. It is noted however that in the new draft Hobart City Council Planning

Scheme does include provisions relating specifically to coastal developed urban situation. The Council also offers a solar hot water rebate and insulation along with guidelines of energy efficiency that encourage sustainable development.

It is further noteworthy that whilst there have not been legislative drivers to date driving climate change action that Council has been proactive in addressing climate change since 1999. In 2000 it set and has achieved in 2008 a 70% corporate emission reduction target.

*Hobart City Council and the State Government under the former Partnership Agreement 2001 – 2004 committed to Reducing Community Greenhouse Gas Emissions. The emphasis of agreement was to develop a coordinated and cooperative approach for strategies to mitigating community emissions, encouraging a regional approach and sharing resources and action for awareness raising and community development.

Local Government Association of Tasmania

From 2006 the Local Government Association of Tasmania has become progressively engaged on the issue of climate change. It coordinates the Climate Change Reference Group for local governments to disseminate information and encourage climate action. In 2008 it engaged a climate change officer and produced a Climate Work Plan for local government that focused on the following areas:

- Strategic Planning
- Carbon Emission Reductions
- Risk Assessment and Management
- Communication, Coordination and Capacity building
- Monitoring and review

The work plan identifies a range of actions in the areas of: Strategic Planning; Emission Reduction; Risk Assessment and Management; Communication, Coordination and Capacity Building. Actions proposed by LGAT include:

- The development of a Local Government Climate Change Strategy;
- The establishment of local government sector based emission reduction targets and a monitoring program;
- Development of a climate change Action Pack for local government;
- Representing local government on climate change project; and
- Coordination of local government's response to Federal and State climate change initiatives including the establishment of working groups through the Climate Change Reference Group.

Local Government and Liability

The legal framework surrounding Climate Change is rapidly evolving. Legal precedents are continuing to be set recognising 'climate change' as a consequence of increased anthropogenic greenhouse gases entering the atmosphere. Increasingly organisations are being exposed to future liabilities based on current decisions and actions that result in either emission of atmospheric greenhouse gases or don't take into account impacts of climate change. It is becoming increasingly imperative that decisions of the Council's are considered to be reasonable responses to climate change to avoid potential litigation in the future.

The paper "Climate Change: What are local governments liable for?" by Phillipa England Griffith University March 2007 "*…. examined some potential legal liabilities of local governments when making decisions about matters affecting climate change as well as matters affected by climate change. Local governments currently have available to them a number of defences that seem likely to protect them from claims based on a failure to recognize and respond to information about climate change. Nevertheless, just as the science of climate change is gathering momentum, so too the law in this area is evolving rapidly. Local governments should therefore take care to ensure their actions, decisions*

and policy responses to matters that may either contribute to, or be affected by, climate change remain current and reasonable in what is a rapidly evolving policy context."

In a more recent article England further makes the case that the "*emergent law seems to require Councils to develop a reasonable response to climate change considerations*." And notes "*…that local governments are becoming increasingly vulnerable to litigation if they fail to take into account climate change considerations when making decisions that will impact of greenhouse gas emissions (England 2008). And in terms of the failure to take into account the consequence s of climate change in their decision making local governments are becoming increasingly exposed.*

To avoid potential litigation local governments should start to assess, as a matter of routine, the impact of their decisions and activities on greenhouse gas emissions and also to consider, where possible ways and means of reducing that impact".

England concludes "*With respect to adaptation to climate change, the law requires that local governments develop a reasonable response – or more accurately, a not wholly unreasonable response to climate change impacts. Provided they do this local governments should remain immune from civil liability for any failure to take into account predicted climate change impacts.*"

Hobart's Strategic Context

Key drivers for addressing the issue of climate change across Council's activities and core business are its Vision Hobart 2025, Strategic Plan 2008 – 2013, and Corporate Plan 2009 - 2014. HCC S5 progresses the climate change elements contained in these strategic documents into a strategic framework that provides a comprehensive way forward on this challenging issue.

The community consultation for Vision Hobart 2025 articulated the community's need to address issues enmeshed in climate change such as sustainable transport, quality urban development and the natural environment. The Council Strategic Plan 2008-2013 integrates key climate change elements for city and its community in response to Hobart's Vision 2025. The Council's Corporate Plan 2009-2014, which is internally focused, provides a driver to realise climate change action across the Council's corporate activities. HCC S5 aligns these strategic documents into a framework for action.

Hobart's Vision – Hobart 2025

In 2025 Hobart will be a city that:

- offers opportunities for all ages and a city for life;
- is recognised for its natural beauty and quality of environment;
- is well-governed at regional and community levels;
- achieves good quality development and urban management;
- is highly accessible through efficient transport options;
- builds strong and healthy communities through diversity, participation and empathy; and
- is dynamic, vibrant and culturally expressive.

MISSION

Our mission is to ensure good governance of our capital city.

VALUES

The Hobart City Council will:

Leadership	Provide effective capital city leadership, integrity and openness in its approach and will be an advocate for the needs and aspirations of the community.
Equity	Ensure equity, consistency and co-operation in its dealings with the community and government.
Community Involvement	Encourage effective democratic involvement by the community in the life of the city through Involvement communication, consultation and participation.
Responsiveness	Be responsive to the needs and aspirations of the community.
Excellence	Ensure continuous improvement in the delivery of all of its services.

Strategic Plan 2008-2013

The key climate change strategies are:

FD2.3. The physical environment has been conserved in a way that ensures we have a healthy and attractive city.

2.3.3. Promote opportunities to improve the energy efficiency of the city.

- Identify emerging initiatives for energy efficiency and potential funding for development.
- Promote energy efficiency initiatives to the community.
- Review Council's initiatives including energy efficiency and solar hot water rebates.
- Review Council's Cities for Climate Protection Greenhouse Local Action Plan.

2.3.7. Develop and implement strategies to minimise greenhouse gas emissions.

- Review and implement Council's Greenhouse Gas Local Action Plan under the Cities for Climate Protection Programme.
- Develop and implement Council's Sustainable Transport Strategy.
- Promote Council's greenhouse emissions reduction initiatives to the community.

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.
- Participate in regional approaches to climate change-related initiatives.

Corporate Plan 2009-2014

HCC S5 is consistent with the Corporate Plan 2009-2014 Element 3.3 Environmental Sustainability in that it specifically seeks to:

- Increases awareness and understanding of climate change
- Promotes leadership in response to climate change
- Implements energy and greenhouse gas emissions reduction strategies
- Adapts to climate change impacts
- Understand the economic impacts of climate change.

Council Resolutions

The following outlines key Council's resolutions with regard to climate change and sustainability as drivers for HCC S5 – a full list of Council resolution is contained in Appendix 4:

13/08/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

That:

- The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.
- For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.
- The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.
- Aldermen and the community be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

25/06/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

"That further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examines the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59 STRATEGIC GOVERNANCE ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

That:

The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

- A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.
- The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.
- The quantum of monies to be allocated to the reserve fund being reviewed annually.
- The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.
- An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

Emissions Profiles

This section examines the emissions profile for Australia, Tasmania, Hobart's municipal area and the Hobart City Council.

Australia's Emissions Profile

Australia is the highest emitter per capita (approximately 28 e-CO_2 tonnes per capita) in the world. Since 1995 has been increasing emissions by 1% per annum.

The Australian Government has produced figures for Australia's total greenhouse gas emissions in 2006. These amounted to 575 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e). The following tables shows the State and Territory breakdown and emissions by sector:

	NSW	Qld	Vic	WA	SA	NT	Tas	ACT	Total
e-CO2 Mt	160	170.9	120.3	70	28	16.2	8.6	1.1	575
% of Aust total	27.8	29.7	20.9	12.2	4.9	2.8	1.5	0.2	100%
Stationary Energy	76	64.6	80.5	36.3	14.2	3.7	2.4	* part of NSW	287.4 (50%)
Transport	21.6	18.7	20.6	9.5	5.9	1.4	1.8	0.9	79.1 (14%)
Fuguitive Emisssions	14	8	2	3.5	3	0.2	Not available	0.01	34.5 (6%)
Industrial Processes	12	5	3	4	1.5	0.1	1	0.1	28.4 (15%)
Agriculture	20	25	16	12	5.8	7.5	2.2	0.01	90.1 (15%)
Land Use, Land Use Change & Forestry	9	27	-5	-2	-4	0.3	3	-0.1	40 (7%)
Waste	6	3	4	2	1	0.1	0.5	0.2	16.6 (3%)

* Stationary energy is mainly greenhouse gas emissions from the production of energy and other direct combustion of fossil fuels in industry such as manufacturing and construction. In Tasmania the manufacturing and construction comprises the most significant source of emissions in this sector with energy production primarily relating to high emissions fuel sources such as diesel, anthracite and heavy fuel oil.

Source: "State and Territory Greenhouse Gas Inventories 2006"
Australian Government June 2008

Hobart's Community Emissions Profile

In 2007 Hobart's municipal area was the source of 349,337 e-CO_2t. The two most significant sources of emissions were in the industrial and transport sectors with 41% and 35% respectively. Emissions in Hobart's very small industry sector are high as anthracite (black coal) is used as the energy source for activities such as heating of industrial boilers in manufacturing processes. It has an emissions factor of 93.6 kg e-CO_2 GJ giving a high emissions output. Conversion to natural gas would significantly reduce emissions from this sector.

	Source	e-CO_2 t	e-CO_2 %	GJ	GJ%
Residential	Electricity	13,165	4	877,672	15
	LPG	1,815	1	30,345	1
	Natural gas	525	0	10,115	0
	Subtotal	15,505	5	918,132	16
Commercial	Electricity	12,387	4	825,780	14
	LPG	1,741	1	29,118	0
	Natural gas	1,511	0	29,118	0
	Diesel	16,224	5	232,943	4
	Subtotal	31,863	10	1,116,959	19
Industrial	Electricity	7,919	3	527,958	9
	Anthracite	74,233	24	830,658	14
	Diesel	20,044	6	287,780	5
	Heavy fuel oil	15,328	5	209,785	4
	Other	15,626	5	190,722	3
	Subtotal	133,150	43	2,046,903	35
Transportation	Petrol	88,174	28	1,270,522	22
	LPG	4,895	2	81,864	1
	Diesel	28,525	9	409,551	7
	Subtotal	121,594	39	1,761,937	30
*Transportation by sector	*Residential (Private Cars, Motorcycles, Buses)*	*93,506*	*77*	*1,402,501*	*80*
	Commercial (Trucks, Vans etc)	*28,088*	*23*	*407,007*	*20*
Waste	Paper products	2,087	1		
	Food waste	2,817	1		
	Plant debris	355	0		
	Wood/Textiles	2,504	1		
	Subtotal	7,762	3		
Waste Water Treatment	Carbon Dioxide	55	0		
	Subtotal	55	0		
	Total	309,929	100	5,843,931	100

*the "Transportation by sector" figures (italics and grey font) are not included in the overall tables calculations – they have been included as the show the difference in emissions between the private residential transport and the commercial sectors.

Source: The data set was provided by ICLEI as default Hobart community data for CCP purposes– it is based on ABS census data and provided to CCP Councils following census years.

Hobart population is almost 48,000 and it has almost 23,000 rateable properties of which 86% are residential, with 11% commercial and the balance vacant land. Overall Tasmania's population is ageing and the second oldest of any capital city.

The following table tracks the electricity consumption and emissions of the majority of Hobart's suburbs from 2004/05 – 2006/07. The central business district (CBD) postcode 7000 consumes the greatest proportion of energy and produces most emissions this is expected as it supports the greatest area of economic activity. Postcode 7007 shows the greatest growth consumption and emissions with 43% increase, which in line with the increase urban development. Overall there has been an increase of electricity use and emissions of 8%.

		Business		Residential		Total	
Postcode	Year	GJ	eCO_2t	GJ	eCO_2t	GJ	eCO_2t
7000	04/05	70,380	25,415	23,983	8,660	94,363	34,075
	05/06	74,463	26,889	23,075	8,333	97,538	35,222
	06/07	83,071	29,998	24,064	8,690	107,135	38,687
7004	04/05	15,111	5,457	13,367	4,827	28,478	10,284
	05/06	15,008	5,420	12,745	4,602	27,753	10,022
	06/07	15,570	5,622	13,437	4,852	29,007	10,475
7005	04/05	18,661	6,739	25,142	9,079	43,803	15,818
	05/06	20,348	7,348	24,244	8,755	44,591	16,102
	06/07	20,364	7,354	25,723	9,289	46,087	16,643
7007	04/05	559	202	5,697	2,057	6,256	2,259
	05/06	981	354	5,302	1,914	6,282	2,269
	06/07	979	353	5,647	2,039	6,625	2,393
7008	04/05	13,285	4,797	19,387	7,001	32,672	11,798
	05/06	14,957	5,401	18,622	6,724	33,579	12,126
	06/07	15,390	5,558	18,897	6,824	34,287	12,381
Total	04/05	117,996	42,610	87,576	31,625	205,572	74,234
	05/06	125,756	45,412	83,987	30,329	209,743	75,740
	06/07	135,374	48,885	87,767	31,694	223,141	80,579

Source: The municipal wide electricity data set was provided by Aurora Energy- due to commercial reasons it can no longer be made available to Hobart City Council.

Postcodes:

7000 Hobart, North Hobart, West Hobart, Glebe

7004 Battery Point, South Hobart

7005 Dynnyrne, Lower Sandy Bay, UTAS

7007 Mount Nelson, Tolmans Hill

7008 Lenah Valley, New Town

NB the postcode 7054 Fern Tree and Ridgeway is not included as the majority of the settlements are located in the municipality of Kingborough.

Hobart's Corporate Emissions Profile

The Hobart City Council joined CCP in 1999, selecting 1996 as its base year and setting a 70% emission reduction goal by 2010. Since then much has changed within the Council's own energy landscape. The Hobart Aquatic Centre came on line in 2000 doubling the Council's energy use. Upgrades and installation of sewage and water pump stations servicing the community have also increased the Council's energy use. Tasmania's greenhouse gas landscape has changed markedly with an increase in electricity emissions as more mainland electricity is imported.

The Council, in spite this, is reducing its energy use through a range of energy saving options such as conversion of all computers to energy saving LCD screens, lighting replacement programs, upgrades of plant equipment and use of natural gas at its bitumen plant. It is interesting to note that since 2001, energy use in the Building, Streetlights and Water/Sewage sectors has decreased along with 'non-energy' emissions sectors of Water/ Sewage and Waste Water Treatment and Waste. A significant emission reduction of almost 80% has been made in the waste sector at the McRobies Gully Landfill. This has been achieved by the use of landfill methane to generate electricity that is exported to the 'grid.' Since the program was commissioned 17,500 MWHrs of electricity have been produced and 135,000 tonnes of greenhouse gas destroyed.[4]

The Council uses online CCP Greenhouse Gas Calculation software for its inventories, conducting annual inventories since 2000/01 and tracking progress and trends. Accurate data is obtained from its electricity and fuel accounts, along with record keeping of waste entering the landfill site and annual landfill cogeneration reports.

	Base Year 1996 [B]	2001	2002	2003	2004	2005	2006	2007	% Change 1996-2007
[A] Buildings Sector									
eCO_2 t	115	22	61	344	392	481	594	1,321	92↑
GJ	20,694	[C]38,992	36,775	39,893	40,272	38,495	39,627	35,705	[D]58 ↑
COST $	650,590	1,063,454	1,064,972	1,194,224	1,217,990	1,225,447	1,277,636	1,231,252	53↑
Vehicle Fleet Sector									
eCO_2 t	1,819	2,299	2,388	2,415	3,438	2,867	2,766	2,476	73↑
GJ	26,254	33,148	34,432	34,825	49,492	41,296	40,346	36,729	[E]71↑
COST $	431,551	721,081	780,201	803,069	1,086,553	1,193,533	1,278,043	1,307,650	33↑
[A]Streetlights Sector									
eCO_2 t	65	8	24	125	141	180	208	496	99.2↑
GJ	11,754	14,267	14,516	14,554	14,484	14,424	13,837	13,403	87↑
COST $	662,791	812,033	855,894	880,189	902,146	927,341	959,824	1,020,882	35↑
[A H] Water/Sewage Sector									
eCO_2 t	37	12	32	160	162	258	295	657	94↑
GJ	6,726	21,298	19,344	18,601	16,697	20,610	19,658	17,750	38[I]↑
COST $	207,494	582,156	523,978	545,913	567,327	619,120	627,938	612,103	34↑
Waste Sector									
eCO_2 t	39,400	43,200	43,500	34,191	14,800	6,982	7,762	8,210	79↓
Waste Water Treatment (Digesters)									
eCO_2 t	4,599	1,260	1,260	1,260	1,260	1,260	55	55	98.8↓
Total									
eCO_2 t	46035	46,801	47,266	38,495	20,192	12,027	11,680	13,215	71↓
GJ	55,357	107,705	105,067	107,873	120,945	114,826	113,468	103,587	53↑
COST $	1,952,426	3,178,724	3,225,045	3,423,394	3,774,016	3,965,441	4,143,441	4,171,887	47↑

[4] AGL July 2008, Hobart Landfill Gas Recovery Report

[A] The energy source for the Building, Streetlights, Water/Sewage sectors is electricity and its emissions factor e-CO_2 kg /kWh has increased from 0.02 CO_2-e/GJ in 1996 to 0.13 CO_2-e/GJ in 2007 due to the effects of the climate induced drought resulting in low Hydro dam levels and the subsequent importation of high emissions electricity from Victoria via Basslink and use of natural gas at Bell Bay to augment the States electricity supplies. A consequence is that emissions in the "electricity" sectors has increased by almost 100%.

[B] The National Greenhouse Accounts Factors 2008 emissions factor of 0.02 kg CO_2-e/GJ for 1996 has been used for the purposes of this inventory. It is noted that in 2000 when Hobart set its emissions targets that the NGFA 2000 the emissions target was 0.00 CO_2-e/GJ and as such in previous inventories produced by the Council this ha been listed as 0.00 eCO_2t.

[C] The almost 50% increase in energy was due to THAC coming on line –it is noted however that between 2001 when it came on line and 2007 that there has been an energy decrease of 8% (3,300 GJ) in the Building sector.

[D] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[E F] The decrease in 11% energy use and 14% decrease in eCO_2t from 2005 to 2007 is due to the Council's Bitumen plant converting from diesel to natural gas

[G] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[H] In 2009 the Water and Sewage Sector will transfer to a Regional Authority this will result in a reduction of approximately: 4% e-CO_2t emissions; 20% of energy (GJ) and 15% in costs.

[I] Between 2001 and 2007 there has been a 17% decrease in energy (GJ) used in the Water/Sewage sector

[J] The decrease in e-CO_2 t is due to the flaring and subsequent cogeneration of methane from the McRobies Gully landfill – residual emissions are fugitive

[K] The decrease in e-CO_2 t is due to cogeneration of methane from the Waste Water Treatment plants for reuse as an energy source in the plant

[L] Between 2001 and 2007 there has been a 4% reduction in energy (GJ) used overall be the Council

PART TWO – STRATEGIES & ACTIONS

5A's Strategies and Actions

Climate change will affect the whole of Council and how it functions and how each employee does their job. It will affect our community, the region we live in. There is nothing about our lives, communities, societies or environments that will not be affected by climate change.

The strategies and actions identified in HCC S5 have been developed to assist the Council and its communities to continue action to mitigate emissions and begin to adapt to climate change impacts and a carbon neutral lifestyle and economy.

The focus of HCC S5 is on the five core strategies of climate which apply across the organisation and our community and regional linkages. It is considered that major aspects of the ramifications of climate change on our social and natural processes are covered by the strategies.

The five A's of climate change are:

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions and progress towards targets.

The strategies are not listed in a hierarchical order – all strategies are considered to be of equal importance. To date the major areas of action have been in the abatement sector, as in the early 2000's the emphasis was on reducing emissions as programs typically focused on mitigation. However in recent times there has been a shift on the realisation that humanity will have to adapt to climate change impacts in the order of 2^0C or more as emissions continue to increase.

HCC'S previous Local Action Plan separated the actions to address climate change into corporate and community, this document blends actions in both these sectors of which there is also considerable overlap into the five core strategies of climate change.

Action Time Frame	Financial Year
Ongoing	n/a
Immediate	2009/10- 2010/11
Medium	2010/11 – 2011/12
Long Term	2012/13 – 2013/14

Advocacy

Advocacy: promoting leadership within the Council and throughout the community in responding to climate change.

The issue of climate changes is challenging all levels of society and there is the urgent need to create sustainable and carbon friendly communities, cities, economies and social structures and processes. The inherent uncertainty in finding and creating solutions and alternatives to progress in the face of climate change requires strong advocacy from across society and its institutions. Local government's core business is 'sustainability' in its broad meaning encompassing economics, environment and social considerations. As such, it is incumbent on the Hobart City Council to advocate for development and implementation of actions and strategies to address climate change issues

The Advocacy Strategy component provides for effective Capital City leadership, integrity and openness in its approach and to climate change. This will provide a political forum to advocate the needs and aspirations of the community with regard to understanding, responding and adapting to climate change.

Advocacy Actions:

Climate Change Policy

HCC S5 proposes that the Council formally endorse the Climate Change Policy that forms Appendix 5 of this document formally affirming and reinforcing its commitment for action and leadership on the issue. The Climate Change Policy forms the basis of the Council's climate change activities and represents its public commitment to leadership and action on climate change.

#	Action	Responsible	Timing
1.1	Council formally endorse the Climate Change Policy that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership to Hobart's communities and the region.	Council	Immediate

CCP Partner Program

In joining ICLEI Oceania - Cities for Climate Protection Program in 1999 the Council committed to acting on the issue of climate change. Through HCC S5 the Council reaffirms and reinforces its commitment to ongoing climate action post the cessation of CCP on 30 June 2009 and its replacement with the CCP Partner Program

The CCP Partner program will be of particular assistance to the Council through its proposed adaptation work and regional briefings. The regional briefings will be of particular support during the introduction of the proposed Carbon Pollution Reduction Scheme in 2011.

#	Action	Responsible	Timing
1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners Program.	Council	Ongoing

STCA - Climate Change and Sustainability Initiative

Greenhouse gas emissions, climate change impacts and the abatement and the mitigation and adaptation solutions are not limited to municipal boundaries. Whilst most Council's can successfully implement climate action at the corporate level as they directly control the emissions – working on community based climate action and meeting community-wide reduction goals is inherently complex and problematic as they do not control emissions and can only influence the behaviour change. HCC S5 proposes that through the Southern Tasmanian Council's Association (STCA) a Climate Change and Sustainability Initiative (CC&SI) be established – refer to flow diagram page 38.

The CC&SI provides a framework for the development of strategies supported by actions based on the four broad based themes of land use: urban, peri urban, rural and natural areas and revolve around the development of strategies and prioritisation of actions for these. The strategies are not mutually exclusive of one another with actions, strategies and program able to be shared and adopted by all Councils represented by the STCA. It does however encourage Councils to work on the development and sharing of programs that are of most concern and relevance to their communities.

The development of the strategies should be undertaken with input from the key stakeholders in use each areas such as local government, state government, non government organisations, statutory authorities, industry etc.

The STCA CC&SI compliments and progresses the Statewide Partnership Agreement on Climate Change between the State Government and LGAT on behalf of Tasmanian Councils.

Initially the STCA CC&SI framework developed by CCP Councils as these already have an understanding of their and their communities emissions and are progressing a structured and supported framework for climate action.

Urban Strategy - Greater Hobart Climate Partnership

The initial project to be developed and piloted under the initiative is the Urban Climate Change Strategy involving Councils of Greater Hobart: Brighton, Clarence, Glenorchy, Hobart and Kingborough – (Devonport and Launceston invited as urban observers). The Greater Hobart Council's are engaged in the Cities for Climate Protection and are reasonably and consistently progressed in terms of the development and implementation of climate change actions.

Urban strategy would focus on two spheres of action:

- Community action on climate change with an emphasis on sustainable behaviour change that leverages off existing programs and incentives i.e. Carbon Pollution Reduction Scheme, HCC Solar Hot Water Rebates etc and focuses on householders, retail, commercial, industrial and education sector
- Adaptation applies the *Local Government Climate Change Adaptation Toolkit* to Greater Hobart including partnership opportunities with the ACE CRC Tasmanian Climate Futures Project and other stakeholders

The GHCP would share resources, set Greater Hobart community-wide emission reduction goals, develop a Greater Hobart Abatement Action Plan, Adaptation Strategy and Awareness Program. It aims to lead, support and mobilise climate action by the community and private and public sectors.

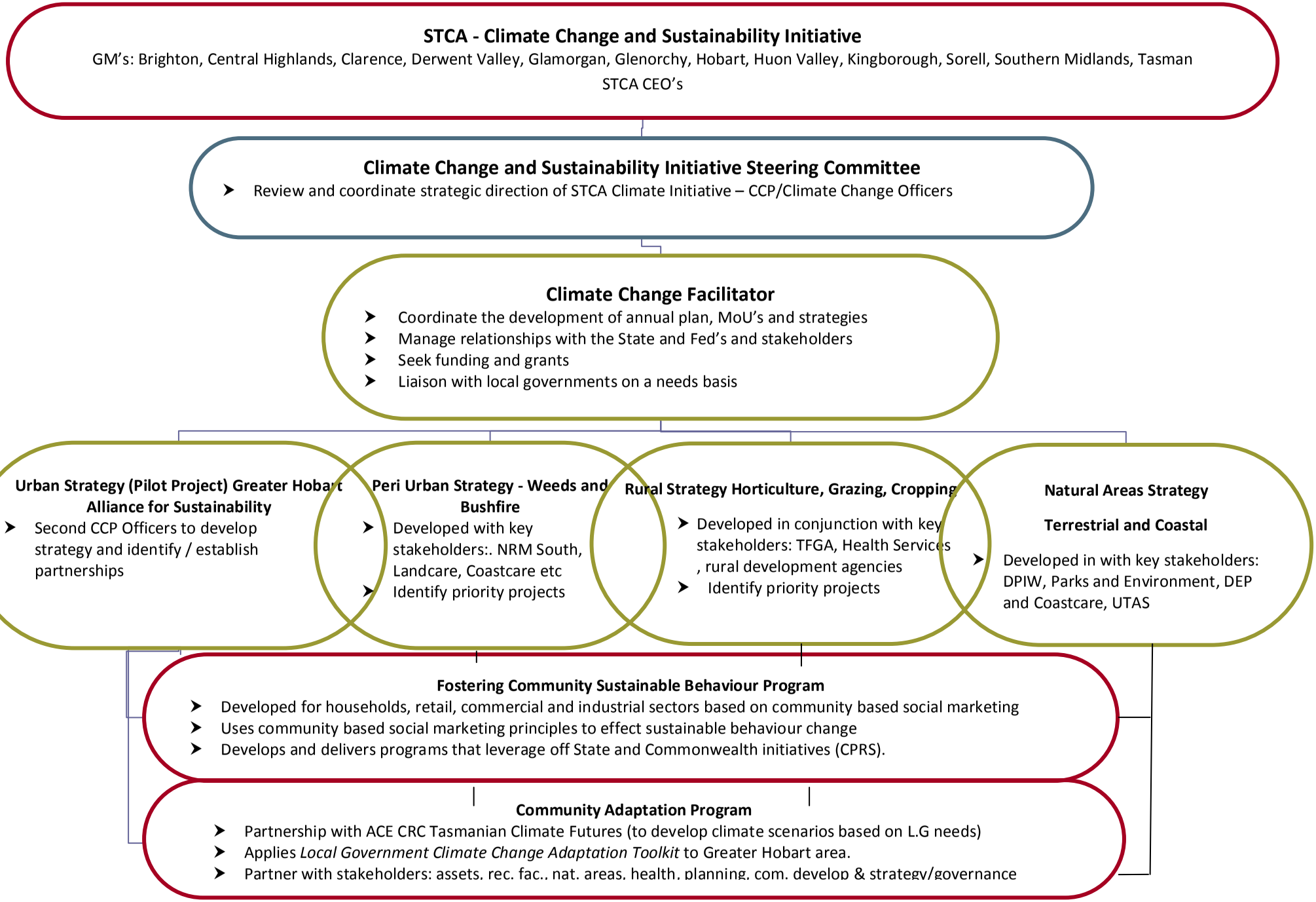
The GHAS would provide a model for other Council represented by the STCA to develop alliances and strategies around common themes of peri urban, rural and natural areas. The partnership is not intended to preclude other Councils from adopting actions and strategies. It is however intended to allow urban Councils leverage action and shared resources and responsibility for their urban communities that have distinct needs compared to peri-urban, rural and natural area communities and local governments.

The formation of a GHCP is supported by ICLEI and its CCP program. It progresses the State Government's Partnership Agreement on Climate Change in particular its principles of: leadership, shared responsibility; best practice and beyond, accelerating outcomes, creative thinking and innovation, openness and transparency.

It furthers the strategic direction adopted for the review of the Councils Climate Action and outlined in a CMT report (dated 06/07/07 – see Appendix 4) circulated, to aldermen, which included a recommendation, that:

"Opportunities are investigated for the establishment of a regional approach to community emissions abatement with other [CCP] *participating councils of Greater Hobart – Glenorchy, Clarence, Brighton and Kingborough."*

The model for the GHCP `would be of a similar to that of the Derwent Estuary Program that includes: Political commitment; a steering committee; and a technical working group supported with resources, to deliver and coordinate the program and on-ground actions.


STCA - Climate Change and Sustainability Initiative
GM's: Brighton, Central Highlands, Clarence, Derwent Valley, Glamorgan, Glenorchy, Hobart, Huon Valley, Kingborough, Sorell, Southern Midlands, Tasman
STCA CEO's
Climate Change and Sustainability Initiative Steering Committee
Review and coordinate strategic direction of STCA Climate Initiative – CCP/Climate Change Officers
Climate Change Facilitator
Coordinate the development of annual plan, MoU's and strategies
Manage relationships with the State and Fed's and stakeholders
Seek funding and grants
Liaison with local governments on a needs basis
Urban Strategy (Pilot Project) Greater Hobart Alliance for Sustainability
Second CCP Officers to develop strategy and identify / establish partnerships
Peri Urban Strategy - Weeds and Bushfire
Developed with key stakeholders:. NRM South, Landcare, Coastcare etc
Identify priority projects
Rural Strategy Horticulture, Grazing, Cropping
Developed in conjunction with key stakeholders: TFGA, Health Services , rural development agencies
Identify priority projects
Natural Areas Strategy
Terrestrial and Coastal
Developed in with key stakeholders: DPIW, Parks and Environment, DEP and Coastcare, UTAS
Fostering Community Sustainable Behaviour Program
Developed for households, retail, commercial and industrial sectors based on community based social marketing
Uses community based social marketing principles to effect sustainable behaviour change
Develops and delivers programs that leverage off State and Commonwealth initiatives (CPRS).
Community Adaptation Program
Partnership with ACE CRC Tasmanian Climate Futures (to develop climate scenarios based on L.G needs)
Applies Local Government Climate Change Adaptation Toolkit to Greater Hobart area.
Partner with stakeholders: assets, rec. fac., nat. areas, health, planning, com. develop & strategy/governance

#	Action	Responsible	Timing
1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of an *STCA Climate Change and Sustainability initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives and recognition of local government climate action to date.	STCA / General Manager	Immediate

Climate Change and Sustainability Steering Committee

The "Climate Change and Sustainability Steering Committee" is a an internally focussed leadership program to coordinate and progress climate and sustainability issues across (i) the Council's sphere of corporate activities and (ii) for input into the Greater Hobart Climate Partnership. CCSSC encompasses Energy Management, Environmental Sustainability and Climate Adaptation Programs. It is a response, in part (see underlined), to the Council motion Meeting 46, 10/09/07:

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

#	Action	Responsible	Timing
1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change & Sustainability Steering Committee	Ongoing

Greenhouse Reference Group

The Greenhouse Reference Group, comprised of Aldermanic representatives and Council officers, was established in 2000 to assist in the development and implementation of the Councils Greenhouse Local Action Plan. In preparing for its review the Council adopted a recommendation, dated 06/08/2007, that:

"The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered."

The scope and range of activities embedded and covered in climate change covers all aspects of the Councils activities: social, economic and environmental. To ensure a more comprehensive response and holistic and informed input by the Council's Aldermen HCC S5 proposes that quarterly briefs are provided – with Council Officers updating on Council actions, strategies and initiatives as well as advising advances in climate science and legislation. Observers and key stakeholders, as relevant, would also be invited to attend and participate in the briefings. Working groups for the development and implementation of projects may also be established on a needs basis. The introduction of regular quarterly briefings will form an important conduit for the sharing of ideas and updates on climate change between elected representatives and the community. It will also have input into the Greater Hobart Climate Partnership.

#	Action	Responsible	Timing
1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant replacing the Greenhouse Reference Group.	Climate Change & Sustainability Steering Committee	2009 Ongoing

Abatement

Abatement: the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Emission Reduction Goals: HCC S5 sets the following the emissions abatement goals for its corporate and community activities:

- Corporate Energy Abatement Goal 30% reduction from 2009 by 2020 (Note this excludes Water and Sewage Sector that will be transferred from the Councils to the Regional Water Authority in 2009).
- Corporate Waste Abatement Goal 70% reduction goal from 1996 by 2010 and maintain until 2020 or until flaring concludes post landfill closure
- Greater Hobart Community Abatement Goal – to be identified under the auspices of the Southern Tasmanian Council Association's, Climate Change and Sustainability Initiative, Urban Program, by the Greater Hobart CCP Councils stakeholders: Brighton, Clarence, Glenorchy, Hobart and Kingborough.

HCC S5 Emissions Abatement Goals builds on and refines the Councils previous corporate and community emission reduction goals set in 2000 under the auspices of the CCP:

- Corporate 70% by 2010 from 1996 levels; and
- Community 20% by 2010 from 1996 levels.

The Council has achieved and exceeded its corporate emission reduction goal of 70% by 2010. It has abated a total a 166,937 e-CO_2 tonnes which is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

A significant proportion, 80%, of this has been achieved through the installation of cogeneration technologies, using methane generated from its McRobies Gully Landfill and Waste Water Treatment operations. Since commissioning landfill cogeneration in 2004 a total of 134,029 e-CO2 t have been destroyed and 17,243 MWhrs of electricity have been generated and exported to the states grid which is enough to power 742 average Tasmanian homes[5]. Residual landfill emissions are fugitive and best addressed though carbon offsets or similar mechanisms. The cogeneration will continue until the expected closure of the landfill in 2018.

To address emissions associated with energy use for the balance of the Council activities a new energy abatement goal of 30% has been set that targets the Councils energy (electricity, fuel and natural gas) use and will result in real energy savings for Council. The electrical energy component typically has minimal emissions due to the low Tasmanian electricity emissions factor that, in 2007, is 0.13 kg CO2 e/kWh as compared to 1.32 kg CO2 e/kWh for Victoria[6]. The 30% Energy Abatement Goal is adjusted to take into account the Water and Sewage Reform – whereby Hobart's waste water treatment and pump assets, accounting 20% of its energy use, are transferred to a Regional Authority in 2009.

The 20% Community Reduction Target set in 2000 is problematic as the Council does not control emissions in this sector. Whilst the Council can exert some influence through its planning scheme, community awareness initiatives and sustainable transport strategies, these have not had a sizeable impact on actual emissions from this sector. It is noted that the greatest proportion of emissions in this sector are derived from industry process that rely anthracite (black coal) as a fuel source for heating boilers. Working co-operatively with the Councils of Greater Hobart and setting a joint community emissions reduction goal will produce realistic and sustainable project and outcomes that produce. A cooperative approach will also leverage greater resource towards abatement project and greater lobbying capacity on behalf of the participating local governments.

[5] AGL Annual report, (McRobies Gully Waste Treatment Facility) July 2008.

[6] National Greenhouse (Factors) Accounts Jan 2009

Corporate Abatement Actions

Energy Management Team [Corporate]

In 2007 an [Corporate] Energy Management Team was established to investigate and implement actions for the all the Council's energy [i.e. electricity, natural gas, diesel/petrol] consumption, costs and energy related greenhouse gas emissions. It is responsible for developing energy efficiency and conservation actions and strategies including alternative energies, emission reduction and carbon offsets for energy/emissions that cannot be reduced. Note: the team is not responsible for greenhouse gas emissions associated with the waste and the Council's McRobies Gully landfill nor energy use within the community sector.

The following table summarises the Councils energy [GJ] consumption and energy greenhouse gas emissions for assets that used more than 500 GJ per annum in 2006 -07:

Asset/s – 2007 greater than 500 GJ per annum	Category	GJ	eCO_2t	eCO_2%	$
The Hobart Aquatic Centre	Building	19921	737	15	611,798
Trucks	Fleet	13771	959	19	514,702
Hobart Streetlights	Streetlights	12759	472	9	985,021
*Selfs Point Waste Water Treatment Plant	Waste/Water	8779	325	6	284,512
Heavy Plant	Fleet	6952	484	10	260,847
Utilities/Vans	Fleet	5689	396	8	218,976
Hot Mix Plant (Natural gas)	Fleet	4536	235	5	85,084
*Macquarie Point Waste Water Treatment Plant	Waste/Water	4152	154	3	135,406
Town Hall	Building	3806	141	3	137,694
Customer Services Centre	Building	3291	122	2	124,255
Council Passenger Vehicles	Fleet	2551	177	4	102,338
4 Wheel Drive Vehicles	Fleet	2124	148	3	79,821
*Pump Station PS2 Nelson Road	Waste/Water	1938	72	1	69,332
*Pump Station 283 Brooker Avenue	Waste/Water	1885	70	1	65,406
Argyle Street Car Park	Building	1746	65	1	59,449
Hot Mix Plant (Natural Gas)	Building	1265	47	1	52,386
Central Car Park	Building	1142	42	1	41,326
Centrepoint Car Park	Building	1005	37	1	31,768
Aldermanic Fuel Allowance	Fleet	820	57	1	34,191
Salamanca Car Park	Building	683	25	0	28,471
Other Assets Energy Use	-	4772	240	5	24,9104
Total		103,587	5005	100	4,171,887

*To be transferred to the Regional Sewage and Water Authority 2009.

Electricity

Overall there has been a modest reduction of electricity energy used since mid 2000 due to actions such as changing all computers screen to energy efficient LCD screens. There is however scope to further reduce electricity emissions and the Council has committed to a further 30% emission and energy reduction by 2020 from 2007 levels. It is anticipated that this will be achieved through energy efficient lighting, energy audits and Heating, Ventilation and Air Conditioning and increased awareness and behaviour change.

HCC S5 notes that the report "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre" identified that there were extremely limited opportunities for the installation on Council's corporate buildings due to poor solar orientation, compromised roof space due to HVAC systems and shading issues.

Fuel/Diesel

Currently the options for reducing energy and emissions in this sector are limited as there currently no viable alternatives fuel sources available within Tasmania. The council is represented on a working group with the State Government into opportunities for Compressed Natural Gas and is lobbying for filling stations in Hobart, Launceston and North West. It has committed funds in the 2009 budget for the purchase of three CNG garbage trucks.

Through the EMT it is working towards the development of strategies to increase awareness and behavioural change to reduce emissions from passenger vehicle use and fleet.

Natural gas

Natural gas is now used in the hot mix plant replacing the diesel as the primary fuel source this has resulted in a 5% emissions reduction since its introduction. EMT is currently examining other opportunities for natural gas for Council assets.

Other

Alternative energies: heat exchange, investigation of alternative energy (solar/wind) with demonstration capacity at demonstration solar at Cleary's Gates

#	Action	Responsible	Timing
2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 – 2010 levels (post Sewage & Water Reform).	Energy Management Program	2020
2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.		2008 – ongoing
2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.		2008-2009
2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.		Ongoing
2.5	Develop and implement Energy Management Plans for the corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.		2007 -2009
2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.		2008
2.7	Implement the recommendations of the report "PV Systems Consultancy and Building, Energy Assessment Hobart Town Hall, City Hall, Council Centre."		2008 - 2010

Corporate Waste Emissions

The Council provides facilities for the recycling of its corporate waste [paper, cardboard and bottles etc] generated from the Town Hall, Customer Services Centre, Cleary's Gates Depot and the Hobart Aquatic Centre. Waste that cannot be recycled enters the Councils kerbside waste collection service.

HCC S5 proposes that an audit is undertaken of the waste generated to measure the effectiveness of the Council's internal waste strategies and identify further opportunities to reduce waste entering kerbside collection stream. Following on from that a strategy will be developed, to address specific waste types and identify opportunities to reduce waste entering the kerbside stream, based on the findings of the initial audit.

#	Action	Responsible	Timing
2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	June 2009
2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.		June 2009

Sustainable Purchasing

The Hobart City Council for 2007 - 2008 spent approximately $36.6 million on materials, services and contracts. The Councils' Divisions are responsible for their individual purchases and purchasing practices. The purchase of office materials is guided by Council Policy (5-11-03) encouraging the purchase of 'environmentally preferable products.' However other purchases are not covered by policy directives or strategies that encourage sustainable outcomes.

The procurement practices of organisations can directly and indirectly influence the sustainability, including the greenhouse gas emissions, of products and services purchased. Wastes, leading to un-sustainable outcomes, can be generated:

- during the production and supply phase (resource extraction, processing, manufacturing, transport and supply);
- while the product is being consumed or 'used' by the end-user;
- once the product has reached its end of life stage and is disposed of by the end-user.

Given the significant purchasing power of the Council HCC S5 provides proposes that the Council develop a sustainable procurement strategies that it will consider:

- strategies to avoid unnecessary consumption and manage demand;
- minimising environmental impacts of the goods and services over the whole of life of the goods and services;
- suppliers' socially responsible practices including compliance with legislative obligations to employees; and
- value for money over the whole-of-life of the goods and services, rather than just initial cost
- the complex purchasing needs of the organisation as w whole; and
- educating and increasing the awareness of staff involved in purchasing across the organisation

The development of the sustainable strategy should consider the following mix of procurement strategies identified by the NSW Sustainable Procurement Program that include:

- influencing procurement patterns to favour sustainable products or discourage unsustainable ones;
- encouraging manufacturers and suppliers to improve their own operations (e.g. requiring them to have environment management systems);
- requiring manufacturers and suppliers to have greater responsibility for the life-cycle impacts of their products (e.g. product stewardship schemes);
- direct regulatory intervention, such as bans or mandatory performance requirements (e.g. eco-specifications on government motor vehicles contract); and
- educating suppliers and the broader community on economic, social and environmental impacts of their production and consumption patterns.'

http://www.greengoods.nsw.gov.au/policy/sustprocingov.htm

#	Action	Responsible	Timing
2.10	A Sustainable Purchasing Strategy is developed across the whole of Council, that: ➢ takes into consideration the Council's complex and varied needs-purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ has a process for monitoring, reporting and review of the strategies outcomes.	Climate Change & Sustainability Steering Committee	Medium

Sustainable Transport Strategy

Hobart's corporate and community transport sectors are significant sources of greenhouse gas emission, 62% and 39% respectively. Finding alternatives to the transport issue is a significant challenge, in the absence of an alternative fuel source to petrol and diesel, measures and strategies revolve around changed behaviours and the transport modes i.e. public transport over private transport options.

The Councils Sustainable Transport Strategy 2008 provides a significant was forward on this issue at both the corporate and community levels.

#	Action	Responsible	Timing
2.11	Implement recommendations of the Sustainable Transport Strategy, when finalised, in parallel with HCC S5	Climate Change & Sustainability Steering Committee	Ongoing

Community Abatement Actions

The community sector encompasses household (residential), business (commercial, retail, and industrial) and transport (private and commercial). In 2006 Hobart's community sector produced 309,929 e-CO_2 t and consumed 5,483,931 GJ. Compared to the base year 1996 where 312,896 e-CO_2 t were produced and 7,195,441 GJ were consumed there has been a reduction in emissions of 2% and energy of 19% - this is for the most part due to the decrease in population along with increased energy efficiencies and alternatives in this sector. The increase in the electricity emissions factor, due to the importation of mainland electricity means that reduction in energy is not reflected in a greater reduction in emissions in this sector.

Community abatement of emissions will be achieved principally through the proposed formation of the Greater Hobart Climate Partnership that aims to encourage, acknowledge and reward sustainable behaviour practices in the community sector. Abatement will be achieved through the empowerment of the community sector to increase their energy efficiency, change behaviours and

Household Sector

The residential or household sector, in 2006, was made up of approximately 20,000 private dwellings that consume 918,132 GJ or 16% of total energy in the community sector and produces the 15,505 eCO_2t or 5% of the total sectors emissions. Whilst the figures may appear relatively small there is considerable scope, and community support, to further reduce energy consumed and emissions produced. Significant gains in reduction of energy use importantly means cost savings to households.

Sustainable Household Incentive Program

The Sustainable Household Incentive Program combines the sustainability actions of the Council and embeds additional actions to encourage sustainable household outcomes such as increased energy efficiency, water conservation, clean air and biodiversity. The program extends and builds on the Councils successful Solar Hot Water and Water Rebates and progresses the recommendation endorsed by Council dated 25/06/2007:

"Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

And the Strategic Plan action:

"2.3.3. Review Council's initiatives including energy efficiency and solar hot water rebates "

HCC S5 proposes that a Sustainability Rebate Program be developed that includes:

- Solar Hot Water Rebate – extend and includes Hot Water Heat Pump;
- Energy Efficiency Audit and Rebate – introduces a rebate that includes a household energy efficiency actions including: ceiling and floor insulation, curtains, pelmets and glazing, energy efficient lighting (CFL's and LED's), appliance energy use;
- Clean Air rebate – for replacement of wood heaters/stoves with non PM emitting i.e. heat pumps, natural gas heating;
- Bushcare Bio-diversity Incentive – household register for native plants and advice on suitable native plant species for properties and conservation covenants;
- Food gardens incentive – encouraging households to reduce food miles through demonstration and community based edible gardens; and
- Waste management awareness – to encourage and increase participation I recycling through the capture of organic material.

SHIP would also annually recognise and acknowledge "Sustainable Houses" and "Sustainable Streets" and "Sustainable Community participating households" with plaques/signs akin to the Safety House Program. Case studies could also be developed of acknowledged participants for awareness and promotional activities.

The intent of SHIP is that it can be implemented within Hobart's municipal area by the proposed Climate Change and Sustainability Working Group and expanded to the Greater Hobart Climate Partnership.

Sustainable Design Guidelines

Promotion of 'Sustainable Design Guidelines' for residential development and extensions specific to Hobart's cool temperate climate and the predicted impacts of climate change in Tasmania.

#	Action	Responsible	Timing
2.12	Develop Sustainable Household Incentive Program, including a Sustainable Rebate using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
2.13	Promote 'Sustainable Design Guidelines' that are available, to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium

Business Sector:

The commercial sector of greater Hobart ranges from small to medium to large size entities and includes commercial offices and retail outlets. In Hobart there are approximately 2500 rateable business properties.

The achievement of sustainability, emissions abatement and energy conservation is complex as a significant proportion of the commercial and retail sector are tenants. This means that they may be limited in their opportunity to influence and/or achieve energy efficiency outcomes as they may not be responsible for building energy systems such as lighting, elevators and heating, air-conditioning and ventilation and the attendant greenhouse gas emissions.

HCC S5 aims, through the Greater Hobart Climate Partnership and collaboration with peak representative bodies to develop and/or align and implement existing programs to assist this sector, in particular commercial and retail tenants, to achieve sustainability, emissions abatement and energy conservation outcomes.

Abatement action will progress the Council's Strategic Plan Strategy to:

"2.3.3 Promote opportunities to improve the energy efficiency of the city "

Commercial Office Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Tasmanian Property Council and the State Government to deliver the CitySwitch or similar program to the commercial office sector.

The CitySwitch Program is a national tenant energy management program run in partnership between the cities of Sydney, North Sydney, Parramatta, Willoughby, Melbourne, Perth, Adelaide and Brisbane and state government agencies. It aims to assist commercial offices, in particular tenants, to reduce their greenhouse gas emissions by improving energy efficiency. Core to the program is the commitment of program participants to the achievement and maintenance of an accredited 4 stars or higher [7]NABERS Energy tenancy rating.

#	Action	Responsible	Timing
2.14	Investigate opportunities for the promotion of CitySwitch program or similar program to promote energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	2009

Retail Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Retail Traders Association and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	Medium

Industrial Sector

[7] NABERS: National and Built Environment Rating System administered by the NSW government.

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Industrial sector and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.16	Investigate opportunities for the establishment of partnership and lobbying for of the industrial sector to reduce emissions and partner in adaptation initiatives.	STCA Climate Change and Sustainability Initiative	Medium

Education Sector

In 2008 the Clarence and Hobart City Councils both hosted with Mackillop College Sustainable Schools Forums to encourage schools within their municipality to participate in the National Solar Schools Program. Through the NSSP up to $50,000 is available to schools for the installation of solar panels and other energy efficiency measures. HCC S5 proposes through the Greater Hobart Climate Partnership that a resource be engaged to support schools and assist in the identification of energy efficiency and solar measures particular to their situation.

#	Action	Responsible	Timing
2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground resource to support schools	STCA Climate Change and Sustainability Initiative	Medium

Waste sector

Community waste emissions

Council currently owns and operates one Waste Management Centre at McRobies Gully. The WMC incorporates a landfill, composting operation, landfill gas extraction plant, and resource recovery operations such as domestic recycling drop-off area and tip shop. The site receives on average 60,000 tonnes of putrescible waste each year. Council is currently working on a strategic plan for the Waste Management Centre.

Council currently provides four (4) kerbside waste collection services, being waste, recycling, green waste and hard waste. Collection frequencies and volumes are as follows;

Service	Frequency	Limit
Waste	Weekly	120 Litres
Recycling	Fortnightly	240 Litres
Green organics	Quarterly	2 m3
Hard Waste	Annually	2 m3

#	Action	Responsible	Timing
2.18	Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, green waste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
2.19	Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium

Awareness

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Recent social research by SGS Consultancy for Clarence City Council has revealed that on the issue of climate change local government is the most trusted tier of government. This finding is not surprising as local government is the closest level of government to the community and is well positioned for dialogue on climate change. It is also the level of government that has also consistently taken action on the issue.

It is important that local government engages with the community in frank and transparent dialogue about the issue of climate change. The information provided to the community from local government should be consistent that would reinforce norms around sustainable behaviours within communities – a key platform for engaging behaviour change.

Corporate Awareness Actions

Employee Sustainability & Climate Information

The Hobart City Council employees 750 people with 580 employed on an equivalent full time basis. As an organisation the Council needs to ensure that its employees understand and are engaged on the issue of sustainability and climate change. The *Beat the Winter Chills and Bills Question and Answe*r in 2008 for Council staff was provided an introduction to the issue. The following actions further information available to Council employees that allow them to undertake and access sustainable and climate friendly action for the workplace and at home:

- Intranet Climate Page – information on climate change:
- What the Council is doing;
- What can employees can do at work to be more climate friendly and reduce emissions (information for home will be available through the Councils internet website);
- Where to find information on sustainability and climate change;
- How climate change will impact on their work;
- Strategic – adaptation and policy;
- Council inventories – detailed reports of corporate sectors;
- Implement Office Waste program – see abatement page 46;
- Provide 5 x Household Energy Audit Kits for loan from Corporate Library – Household Energy Audits designed by South Australian Government includes: Power mates; an appliance for reading energy consumed by appliances, infrared thermometer, timers, thermometers, instruction manual;
- Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work;
- Climate Incentive Program – annual bonus part of EBA to Divisions that reduce their carbon footprint from waste (waste survey) and energy use (sub-metering) and commuting;
- Develop climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities; and
- Sustainability and Climate awareness is included in the Council's Induction Handbook for new employees.

- Sustainability and Climate Updates – include updates, profiles, case studies etc on sustainability and climate action in Employee News

#	Action	Responsible	Timing
3.1	Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work.	Climate Change & Sustainability Steering Committee	Medium
3.2	Inclusion in Council's Employee *Induction Handbook* of a section on 'Sustainability and Climate Awareness.'	Climate Change & Sustainability Steering Committee	Medium
3.3	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities	Climate Change & Sustainability Steering Committee	Medium
3.4	Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees	Development & Environment Services	Immediate

Community Awareness Actions

Increasing community awareness about climate change and the need for sustainable behaviour change is a key action of HCC S5. The enormity of the issue of climate change can make action seem daunting and without empowering communities on action that they can take can have adverse outcomes where the community disengages and/or ignores the issue.

HCC S5 seeks to provide information to the community on nature of the issue and a range of actions that the community can undertake to respond and adapt the issue sowing the seeds for a strengthened sense of community and building community resilience.

When a community is resilient it can respond to crises in a way that strengthens community bonds, resources and the community's capacity to cope. Community resilience refers to the community's capacity to respond to adversity and change. Community resilience is of great interest and relevance to addressing the issue of climate change as it will allow communities to adapt to climate impacts and carbon economies.

In addition to building community awareness is also to encourage sustainable behaviour change. The basis of the community awareness program and actions are to consider the principles of community based social marketing to fostering sustainable behaviour. The programs development should identify barriers, remove external barriers, provide incentives, and create norms and prompts for desired behaviour change.

Key drivers contained in the Council's Strategic Plan:

"2.3.3. Promote energy efficiency to the community."

"2.3.7 Promote Council's greenhouse gas emissions reduction initiatives to the community."

Community Engagement

Through the STCA Climate Change and Sustainability Initiative's Greater Hobart Climate Partnership develop a climate action program to engage the community reducing emissions and building resilience and strengthens community relationships utilising the principles of community based social marketing.

#	Action	Responsible	Timing
3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➢ Fosters sustainable behaviour change across all community sectors ➢ Promotes actions to increase energy conservation and abatement of emissions ➢ Increases understanding of climate change and local government actions and responses ➢ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change	Climate Change & Sustainability Steering Committee	Medium
3.6	Design sustainability and climate awareness web pages for the Council's intra/internet page.	Climate Change & Sustainability Steering Committee	Medium
3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing

*In lieu of the formation STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Dr Edward Hall Awards – Climate and Sustainability Category

The Council's Dr Edward Hall Awards recognise environmental excellence across Southern Tasmania. The inclusion of a sustainability category to recognise sustainable and carbon neutral design in construction will further promote and increase awareness of sustainability and climate change.

#	Action	Responsible	Timing
3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing

Adaptation

Adaptation: the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

The HCC S5 Adaptation Strategy establishes a framework for the Council to respond to climate change, manage risk, identify opportunities and work with communities to prepare them to adapt to climate change impacts and carbon neutrality.

The Councils Strategic Plan is a key driver for the development of a Climate Change adaptation strategy:

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- *Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.*
- *Participate in regional approaches to climate change-related initiatives.*

The effects of climate change on Hobart will range from sea level rise and storm surge through to floods, droughts, extreme weather events and increased risk of fire all of which can impact on infrastructure and our communities. There will be implications for land use planning, local government owned infrastructure, community services and natural assets. The 'risks" and impacts are not new; however they are expected to increase intensity and frequency.

The following table list expected physical risks and social impact of climate change:

	Climate Impacts
Assets	➢ Road pavement construction & maintenance: change rate of deterioration, inundation , interruption to traffic ➢ Stormwater/drainage: intense rainfall events, exceedance of drainage capacity, flood defences, change in environmental flows ➢ Buildings: changes in building HVAC requirements/costs, risk of bushfire damage, extreme storm events damage, higher building deterioration and maintenance costs ➢ Coastal infrastructure: increased coastal erosion and inundation, increased frequency or permanent inundation of utilities, destruction damage to council owned assets and increased erosion and breaches of coastal assets and defences.
Recreational Facilities	➢ Provision and use of recreational facilities: impacts on infrastructure, loss of public space, tourism impacts, increase operation and maintenance costs ➢ Maintenance of recreational facilities: reduced water quality and quantities – implications for irrigation, beach closures due to algal blooms
Health Services	➢ Increase in range of vector borne diseases ➢ High temps increasing food and water borne diseases

	➢ Health impacts/fatalities due to heat waves ➢ Pressure on drinking water supplies ➢ Excessive rainfall and impacts on fresh water supplies ➢ Increase in injuries due to extreme weather events
Natural Resource Management	➢ Shifts in flora and fauna distributions ➢ Increase risk of extinction ➢ Reduced ecosystem resilience ➢ Increased ecosystems and species heat stress ➢ Increased pressure on dune systems ➢ Increase ecological disturbance
Planning	➢ Uncertainty in long term land use planning and infrastructure design ➢ Costs of retrofitting systems ➢ Loss of private property and community assets ➢ Increased insurance costs ➢ Early retirement of capital infrastructure

Local government has a key role to play in adapting for climate change and will need to manage risk to: its own infrastructure and assets, planning scheme requirements and the community sector emergency planning

Two opportunities available that will assist the Council to develop adaptation strategies are the CCP Local Adaptation Toolkit and the Climate Futures for Tasmania Infrastructure Project. The former provides a toolkit for adaptation/risk management that has been developed for and piloted by local government. Whilst the latter will produce climate change scenarios specific to Tasmania and a methodology that can be applied to infrastructure to identify risk levels. The application of both to Hobart City Council its activities, its community's activities and those of Greater Hobart will provide a comprehensive adaptation/risk management approach to climate change impacts. Both projects will leverage and augment the Tasmanian Climate Futures Project that models at a fine scale of 14 km2 grid a range of climate change impact scenarios

A key outcome could be the identification of sustainable urban landscapes across Greater Hobart that could be the focus of targeted programs to climate proof.

<u>CCP Local Government Climate Adaptation Toolkit</u>

A '*Local Government Climate Adaptation Toolkit*' has been developed by ICLEI with the support of the Australian Government. It was launched in March 2009. The Toolkit builds on the Australian Governments 2007 *Climate Change Impacts and Risk Management for Business and Local Government* and has been piloted with a five local governments. As a CCP Leader Hobart will receive support in the delivery and implementation of the toolkit. ICLEI is considering opportunities for the delivery of a 'Regional Adaptation Toolkit' to the CCP Councils of Greater Hobart.

The toolkit provides guidance to Councils and allows them to select tools of relevance to them, it includes:

- Establish an interdisciplinary approach to information gathering for the development of climate change scenarios
- Understand the potential impacts climate change may have on their business and community
- Identify their current risk management systems
- Identify, analyse, evaluate and prioritise risks and opportunities potentially arising from a set of climatic scenarios

- Explore treatment options for the prioritised actions plan
- Establish strategies for monitoring the implementation of the adaptation plan and reviewing its outcomes
- Build the personal capacity of participants to deal with complexity and uncertainty

The opportunity exists for the Council to partner with the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project in the application of the Adaptation Toolkit across the Council its assets, services and programs and in a regional project across the local governments of Greater Hobart. The partnership would allow the Council to access complex climate models and for the ACE CRC to identify the needs of 'users' such as local governments the most suitable for application in a the public sector in a risk and adaptation context.

Climate Futures for Tasmania – Infrastructure

The Climate Futures for Tasmania – Infrastructure project has been developed by consultants Pitt and Sherry as a 'not for profit' project that will develop a risk management methodology for infrastructure using complex modelling being undertaken by the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project. The Hobart City Council is participant in the project and will input into the project's development to meet the Council's needs.

The CFT project is delivered by a consortium of ACE CRC, CSIRO, the Tasmanian Partnership for Advanced Computing, the Tasmanian Institute of Agricultural Research, the University of Tasmanian, the Australian Bureau of Meteorology, Hydro Tasmania and Geoscience Australia. The projects builds on a project commissioned for Hydro Tasmania that modelled impacts of climate change on the level of dams.

The Climate Futures for Tasmania models approximately 100 climate variables using a fine scale of 15 km grid to produce climate impacts across Tasmania. Previous Australia wide climate modelling, by CSIRO, produced coarse scale models at 150 km grids of climate impacts.

Adaptation Actions

The adaptation actions are based on the detailed climate change scenario modelling available through the Tasmanian Climate Futures Project and the CCP Adaptation Toolkit

#	Action	Responsible	Timing
4.1	Establish a corporate Climate Adaptation Working Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change & Sustainability Steering Committee	Immediate
4.2	Participant in the Climate Futures for Tasmania –Infrastructure project; contributing to the project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities	Climate Change & Sustainability Steering Committee	Immediate
4.4	Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (07 May 2007)	Environment and Climate Change Officer	Immediate
4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project - – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	STCA Climate Change and Sustainability Initiative	Immediate

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Accounting

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

The Accounting Strategy component provides for the evaluation of the impact of climate change on the Council and the community and investigates opportunities for a revenue stream for a community based climate and sustainability program. The funds could be used for the engagement of resources to coordinate GHCP activities and for a range of programs including Sustainable Home Incentive Program see page 46, the City Switch and Greenbiz programs see page 47.

Accounting Actions

Energy and Greenhouse Inventories

Understanding trends and pattern is energy use is integral to achieving abatement goals after all 'you can't manage what you can't measure.'

Since 2000 the Council has undertaken annual inventories of its energy and greenhouse gas emissions using CCP software, which is reported to the Australian Government. This has enabled the Council to track its energy and emissions and is key to assisting the EMT in identifying trends and patterns in its energy and developing strategies to reduce energy consumption and emissions.

	Action	Responsible	Timing
5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate

Carbon Pollution Reduction Scheme

The proposed '*Carbon Pollution Reduction Scheme*' released in December 2008 and commencing 01 July 2011, is a core Australian Government initiative for addressing climate change through the introduction of an emissions trading scheme. The CPRS sets out preferred approaches to reduce greenhouse gas emissions and is intended to *'deliver substantial emission reduction while sustaining strong economic growth and securing prosperity.*'

The Australian Government considers a *carbon pollution reduction scheme* the best way to reduce emissions whilst minimising impacts on households and business. The purchase of carbon permits by industry and business sectors that emit more than 25,000 eCO2t per annum (less than 1% of all industry and businesses) provides incentive to reduce emissions. All funds generated will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

Key features of the CPRS are:

Reduction Targets of Australia's Greenhouse Gas Emissions -

- 60% reduction greenhouse gas emissions of 2000 levels by 2050 – a long term target; and
- Between 5 - 15% reduction of 2000 levels of greenhouse gas emissions by 2020 (minimum 5% of 2000 by 2020) – medium term target

Assistance for households and business financial assistance package for households -

- Households $6 billion per annum available from 2010; and
- Cent for cent reduction in fuel tax for three years.

Climate Change Action Fund

- $2.15 billion over 5 years for business, community sector organisations, workers, regions and communities; and
- Assistance to emissions intensive trade exposed industries.

There are still many details to be finalised before the scheme commences 01 July 2011. ICLEI is preparing an information paper to identify impacts on CCP local governments. In addition the Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Governments climate change policy. This will allow the Council to augment and leverage from the Australian Governments climate action.

#	Action	Responsible	Timing
5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or undertake on its own to implement actions and programs.

Carbon Neutrality

Carbon neutrality or zero carbon emissions describe a state where no greenhouse gas emissions are produced by an organisation or activity during a particular period in time. Typically this is achieved by organisations reducing emissions as much as practicable and then purchasing offsets for those that cannot or are too costly to reduce further. A range of offsets are available, which, vary in price and quality, and can be divided into four main groups: renewable energy, energy efficiency, methane emission avoidance and bio sequestration (forestry /plantations).

The Council has sought advice on how it could achieve carbon neutrality through a Council motion, 13/8/2007 that:

- *The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.*

And on 11/08/08 where it adopted a recommendation that:

- *Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.*

The introduction of the Australian Governments *Carbon Pollution Reduction Scheme* brings into question the effectiveness of carbon offsets to reduce Australia's overall emissions as these will be capped. The Australian Government has committed to developing a national standard for carbon offsets and a review is currently underway to provide consistency, confidence and guidance on offset additionality (does it contribute to real emissions abatement).

HCC S5 proposes that until such a time that the review is completed that

- one–off events such as the TASTE or assets , that Council adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008
  or
  where the option of carbon offsets is provided for an activity such as air travel these are utilised.

HCC S5 further proposes that post the review for carbon offset post the review could be that residual emissions following abatement action [8]may include:

- The Council purchase and retire carbon permits for specific assets and/or activities;
- The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or
- The Council use carbon offset programs that may be accredited through the review.

#	Action	Responsible	Timing
5.5	The Energy Management Program work towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➢ Avoid emissions by modifying behaviour ➢ Improve energy efficiency ➢ Increase local carbon sinks ➢ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing using an accredited carbon offset.	Climate Change & Sustainability Steering Committee	Long
5.6	HCC S5 proposes that until such a time that the review is completed that: ➢ 'assets' energy use or one–off events such as the TASTE, adopt ICLEI's Offsets Policy Feb 2009 and Carbon Offset Guide for Local Government June 2008; ➢ or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the review for carbon offset, residual emissions following abatement action 9may include: ➢ Council purchases and retires carbon permits for specific assets and/or activities; ➢ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invests the equivalent carbon offset in actual abatement and energy projects; and/or ➢ The Council use carbon offset programs that may be accredited through	*STCA Climate Change & Sustainability Initiative	Long

- [8] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.
- [9] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

	the review		
5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership Investigate the opportunities for the establishment of carbon offset program, in line with accredited offset providers as a potential income	*STCA Climate Change & Sustainability Initiative	Immediate

Carbon Development Calculator

HCC S5 proposes the development of a 'Carbon Development Calculator' be investigated. Linking to the Councils GIS the CDC could be used to identify the greenhouse gas emissions of corporate and community properties, buildings or assets at various stages of development and could consider embodied emissions, operational emissions and behavioural emissions. Whilst other carbon calculators have been produced these are generic and don't provide users with a comprehensive and detailed understanding of their actual emissions.

In the corporate context the Council could proactively use a CDC to identify the carbon/sustainability footprint of new developments and renovations allowing suggestions for ways to reduce emission and energy footprints. A CDC could value add to Council's community emission inventories providing detailed profiles of energy use over time, and to measure take up of incentives and programs..

In the community sector CDC could be used by property owners to voluntarily identify their embodied, operational and behavioural emissions and track change over time.

Piloted initially by the Council it potentially expanded out to the community and other Councils through the Southern Tasmanian Councils Association and the ICLEI - Local Governments for Sustainability Cities for Climate Protection Program.

A key stakeholder is the University of Tasmania and it is proposed that opportunities through the Council's Scholarship Program, are investigated with them to develop such a resource. It is a multidisciplined project that and strong synergies to the Australian Governments National Framework for Energy Efficiency and the Mandatory Disclosure of Commercial Office Building energy efficiency.

#	Action	Responsible	Timing
5.9	A project brief be prepared for the Carbon Development Calculator corporate and community parameters	Environment and Climate Change Officer	Medium
5.10	The Council investigate opportunities with the University of Tasmania for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program.	Environment and Climate Change Officer	Medium

Glossary

Emission factors are used to convert a given amount of fuel or energy source into carbon dioxide equivalent emissions (e CO_2). They can change over time as the emission intensity of a fuel changes or as better information becomes available. Electricity emission factors are calculated annually by the Australian Government to take into account variations in the actual mix of electricity sources used.

eCO2t – Equivalent carbon dioxide per tonne

Carbon Offsets - "A carbon offset is a financial instrument representing a reduction in greenhouse gas emissions. Although there are six primary categories of greenhouse gases, carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO2e). One carbon offset represents the reduction of one metric ton of carbon dioxide, or its equivalent in other greenhouse gases." Wikipedia

Climate Change - also known as the enhanced greenhouse effect and global warming - see Understanding Climate Change p 19.

Enhanced Greenhouse Effect – also known as the climate change and the global warming - see understanding climate change p 19.

Greenhouse Gases – are gases that are found in the atmosphere which trap heat, the principal greenhouse gases are: carbon dioxide, methane, nitrous oxide, trophospheric ozone, HFC's, PFC's and SF6 see page 20.

Global Warming - also known as the climate change and the enhanced greenhouse effect – see understanding climate change p 19

HCC S5 - Hobart Climate Change Action 5 – a strategy document prepared by the Hobart City Council for climate change action from 2008 – 2013.

Risk – a combination of the likelihood of an occurrence and the consequence of that occurrence.

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Appendix 1: Summary of the Hobart City Council's Climate Change Activities

The following is summary of the Council programs, activities and initiatives that the address the issue of climate change:

Year	Action/Milestone Achieved :
1999	Joined CCP – the first Tasmania Council to join
1999	Milestone 1: Inventory and Forecast for Community and Corporate Greenhouse Gas Emissions
2000	Milestone 2 Establish a greenhouse gas emissions reduction goal (Corporate 70% and community 20%)
2001	Milestone 3 Hobart City Council Greenhouse Local Action Plan
2002	Milestone 4 Implement the Local Action Plan – the Council demonstrated a 20% reduction its corporate emissions
	Milestone 5 Re-inventory of Emissions. The Council completed a complete re-inventory of emissions
2002 – ongoing	CCP Plus: The Council gave a political commitment to join CCP Plus – an ongoing program
2000 – ongoing	Emissions inventory Annual inventory of emissions corporate Census year inventory of emissions community

Climate Change Initiatives and Actions

Year	Climate Change Action/Initiative
1998 – Ongoing	**Hobart City Council's Bushcare Program**: An initiative of the Council to provide on ground support for community based 'Bushcare Groups' to restore native vegetation through the removal of environmental weeds from Bushland reserves and regeneration with local plants.
2000 – ongoing	**Inventory of Greenhouse Gas Emissions** The Council conducts an annual inventory of its greenhouse gas emissions
2001-ongoing	**Energy Efficient Guidelines** The Council prepared a set of Energy Efficiency Guidelines for prospective home builders and designers. The guidelines cover the range of considerations from an analysis of the site and the opportunities it presents for energy efficient design, through to building orientation and layout, ventilation/cooling, insulation and landscaping.
2001-2004	**Partnership Agreement with the State Government – Reducing Greenhouse Gas Emisisons** Covered: Landfill flaring, emissions inventory, CCP regional forum, community awareness and adaptation

2001 – 2006* Upgraded 2006	**Energy Efficiency Rebate:** The Council introduced a 2 tiered rebate on building application fees- 20% for compliance with HIA sustainable housing provision and 25% for compliance with Australian standards. Encouraging applications to meet certain minimum standards for energy efficiency.
2001 - 2002	**Around the World in Eighty Ways:** the Councils developed and hosted a website and provided bikes for two Tasmanian boys who travelled using carbon friendly transport from UN Bonn Climate Change conference (Denmark) to Hobart
2002	**Sustainable Transport Days :** Three Days promoting Sustainable transport including: - displays of alternative vehicles – hybrid - replacement of Lord Mayors car with a Toyota Prius - Community cycle with elected representatives from Brighton to Hobart
2003	**Sustainable Transport Week21 – 28 March:** A Council initiative involving Glenorchy City Council, Metro, Hot FM, Australian Greenhouse Office, Tasmania Environment Centre, Cycling South, to promote Sustainable Transport. The event included: - a series of facilitated workshops with private, public, community sectors with a summary workshop to bring together workshop outcomes - Presentations by guest speakers Dr Paul Mees and Dr Peter Newman -Bike breakfast - Commuter train from Glenorchy - Liverpool Street Closure and Community Fair
2004 - ongoing	**Cogeneration Water Treatment Plant** Installed a new 140 kWh cogeneration plant at Macquarie Point Waste Water Treatment Plant burns methane and reduces the demand on external electricity supply
2004 – ongoing	**Flaring Landfill Gas** Contracted AGL to install methane flaring at the Council McRobies Gully Landfill
2004 – 2005	**Walking School Bus:** the "Walk to School Bus Project" was a partnership of Cool Communities (Australian Greenhouse Office), Hobart City Council and South Hobart Primary School. The walk to school bus concept is designed to enable children to walk to school with the aid of parent volunteers along a designed safe route to school. It can be adopted by the school on a long-term basis, not just as a one off walking day event. The positive outcomes of this model provide reduced green house gas emissions for the local area, participation in moderate physical activity and foster community participation through social interaction with children and parents
2006- ongoing	**Sustainable Transport Officer** The Council engaged a Sustainable Transport Officer to develop a sustainable transport strategy and implement sustainable transport practices
2006*	**Energy Efficiency Rebate**: The Council updated its energy efficiency rebate to 100% rebate on Council's basic planning fee and building administration fee where sound and permanent energy efficient principles and features are incorporated into the planning and design of new houses and additions to existing houses
2007 –	**Sustainable Transport**

ongoing	The Councils received a grant from the Australian Government's Accelerating Action Program to work with the Sustainable Living Tasmania, Cycling South and of Greater Hobart Council's to prepare an Integrated Bicycle Network Plan
2008 – ongoing	**Sustainable Transport Strategy** Draft currently for consultation. Outlines a way forward for the Council to improve the sustainability of commuter and passenger transport (excludes freight) in the Greater Hobart Region.
2007- tba	**Zero Net Carbon Emissions 2020** The Council endorsed a motion: "That the Hobart City Council prepare a report on having zero net carbon emissions by 2020. That the Council use the City of Melbourne Zero Net Strategy as the starting point and include goals include the goals of the program in adapting a program for the use of Hobart City." "The matter be referred to the Council's Greenhouse Reference Group for further consideration." Endorses a motion to aim for zero net emissions through the review of its Greenhouse House Local Action Plan
2007- ongoing	**Energy Management Team** Councils internal Energy Management Team that considers all matters relating to the Council corporate energy use [all sources: electricity, petrol/diesel, natural gas], alternative energy, energy conservation (lighting and energy audits), electricity NEM contestability, carbon offsets and energy actions plans.
2007-2008	**Review of Greenhouse Local Action Plan** The Council commenced its review of Greenhouse Local Action that will include consideration of:- the Council resolution for Zero Net Emissions by 2020: and the five A's of Climate Change Action: Abatement, Accounting, Adaptation, Advocacy, & Awareness
2007-2008-	**Taste of Tasmania - Carbon Offset** Purchase of carbon offset emissions for the Taste of Tasmanian - 66.70 eCO2t were offset through Climate Friendly at a cost of $1999.25 inc GST (21.80 eCO2t Gold Standard and 44.90 of International VCS credits).
2007	**HCC Community Grant** HCC through its community Grants Program provided to a grant to Sustainable Living Tasmania to deliver a series of community workshops on climate change and host a community conference March 2008
2008	**Earth Hour** EH is a global campaign to raise awareness about climate change by turning off lights for 1 hour. HCC participated in Earth Hour 2008 and committed to participating in 2009.
2008	**Beat the Winter Chills and Bills Question and Answer Sessions and Display** HCC engaged SLT to deliver a series of 6 x BWCB Sessions to assist householders to improve their energy efficiency, increase understanding of climate change and action by HCC, and begin to build community resilience. A further 4 Q&A session held for Council staff and aldermen focusing on both the household and workplace actions.
2008	**Street lighting trial** HCC, in conjunction with Aurora is undertaking a small scale trial of street lighting (T5 and CFL's) to

	commence 28.08.08 at Poets Rd T5 (48) and Princes St's CFL's (42). Will run for 12 – 18 mths – to account for climate factors and survey residents
2008/2009	**Climate Futures Tasmania – Infrastructure** Contributing partner to project coordinated by Pitt and Sherry
2008 – ongoing	**Energy Reserve Fund** Establishment of Energy Reserve Fund $50,000 pa for projects not covered by other budget processes
2008 - 2020	**Emissions Reduction Target deepened** HCC has reduced its emissions by 75% from 1996 levels and has resolved to deepen this target by a further 30% 2020.
2008/2009 – ongoing	**Climate Adaptation Team** HCC is establishing a Climate Adaptation Team to implement as appropriate the CCP Local Government Climate Adaptation Toolkit and Climate Change Adaptation Actions for Local Government AGO 2007.

HCC Climate Change Membership and Participation in Climate Change Programs

2000 – Ongoing	Your Home Your Future Australian Government's Technical Working Group – HCC Environment and Climate Change Officer
2006 – ongoing	**LGAT** Climate Change Reference Group
1999 – ongoing	ICLEI Local Governments for Sustainability (ICLEI Oceania) membership and participant in ICLEI Cities for Climate Protection Program CCP – Leader Council.
2006 – ongoing	Australasian Mayors Council for Climate Protection – Coordination Committee - Lord Mayor

Appendix 2: Summary of Projected Impacts - Tasmania

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days, while in Launceston the annual average number of cold days below 0°C could fall from 35 to 16-30 days.
- Warmer temperatures and population growth are likely to cause a rise in heat-related illness and death for those over 65; increasing in Hobart from the current 5 annual deaths to 8 by 2020 and 10-14 by 2050.
- Warmer conditions may also help spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 percent reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Fire risk is unlikely to change in Hobart but, by 2020, the average number of days with very high or extreme fire danger in Launceston could increase slightly from the current 1.5 to 1.5-1.9 days and to 1.6-3.1 by 2050.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Some agricultural crops may benefit from higher CO_2 concentrations however protein content is likely to decline.
- Frost-sensitive crops may respond well to some warming however more hot days and less rainfall may reduce yields.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO_2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.
- Centres dependent upon agriculture and forestry may be adversely affected.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

Appendix 3: Carbon Offsets Considerations

The carbon offset market is new and establishing itself and as such is largely unregulated. The AGO's 'Greenhouse Friendly' program and the NSW Greenhouse Gas Abatement Scheme (GGAS) are two programs that have been developed to provide quality assurance for carbon offset purchases.

Internationally there are the Clean Development Mechanism (CDM), the Voluntary Carbon Standard and the Gold Standard for voluntary emission reductions also provide assurance for the purchase of carbon offsets.

The extent to which an organisation 'carbon offsets' can vary. It may choose to offset all its residual emissions or only offset emissions associated with an activity or asset such as building that has been retrofitted for energy efficiency purposes with the residual emissions offset through the purchase of carbon credits.

The Victorian EPA identifies a number of factors that may be considered in the purchase of carbon offsets:

Additionality is a key concept in evaluating whether or not an offset project leads to real and measurable greenhouse gas reductions. To be regarded as a valid offset, a project must be proven to be 'additional' to what would have occurred anyway. For example, a routine upgrade of equipment or changes in response to a regulatory requirement cannot be regarded as additional.

Translating the concept of additionality into practice requires establishing 'tests' of additionality. Typically these tests address the following types of additionality:

Financial Additionality: the project needs to go beyond business as usual (BAU) commercial practice. A standard test for this is if the project is financially viable without the offset funding.

Regulatory Additionality: the project needs to go beyond existing legal requirements.

Environmental Additionality: the emission reductions cannot be counted toward another emission reduction scheme or commitment.

Permanence: Some emission reductions may not be secure or may involve a range of risks. For example, this can occur with forestry projects where risks from fire or pest infestation are high, or where carbon offset credits are sold in advance. Offset providers should offer some form of guarantee that purchased credits will be maintained, or customers will be compensated if the project doesn't deliver the expected emissions reductions.

Leakage: Changes in emissions that take place beyond the boundary of the project but are attributable to the project activity are called emissions 'leakage'. New and/or additional emissions occurring off-site need to be quantified and taken into account in assessing the emissions reductions achieved. For example, if a forestry project limits logging in one area, the possibility that deforestation will occur elsewhere should be considered. Offset providers should also consider emissions from project operations (eg. electricity use, transportation of materials, etc.) that could increase emissions relative to the project baseline. Leakage should be explicitly addressed in calculation of the net emissions reductions achieved by a project.

Double counting: This can happen when two or more businesses claim the same emissions reduction. This can happen if an offset is sold to two or more entities, or when an entity upstream of the project unknowingly claims the reduction as its own (eg. an electricity generator). The establishment of protocols, and the use of an offsets registry can ensure offsets are adequately accounted for.

Timing of emissions reductions: Some offset providers generate and sell credits from their projects on an annual basis while others forecast credits over the life of their projects and sell them up-front.

For some projects this is necessary to get project funding, but counting on emissions reductions to occur over the lifetime of a project presents several risks. Regulatory requirements could make some offset projects obsolete in the

future. For example, implementing energy efficiency technologies that may be mandated by government in the future would no longer satisfy 'additionality' requirements (see above).

Proper monitoring and verification, and legally-recognised commitments from the offset provider to secure replacement credits if the project doesn't deliver anticipated emissions reductions can help to mitigate these risks.

Purchasers of offsets may wish to ensure that the GHG impact of their operations are neutralised by offsets in 'real time'.

Monitoring and verification: To ensure that the emissions reductions claimed by the project have actually taken place, the emissions should be monitored and verified, in line with a recognised standard.

The verifier should evaluate the project based on an explicit set of criteria that minimise the risk of false emission reduction claims. This should include the ongoing monitoring of the project to ensure that claimed outcomes have eventuated. Use of a third-party verifier is recommended to ensure the integrity of the offset credits.

Co-benefits: Although the primary goal of offsets is to encourage reduction in GHGs, projects may provide secondary benefits such as: reductions of other pollutants; increase in habitats for biodiversity; reducing reliance on fossil fuels in the economy; education benefits from the installation of new energy efficient technologies.

Co-benefits vary between projects and may be an important factor in voluntary offset purchasing decisions.

Appendix 4: Council Resolutions

The following details in full the Council resolutions with regard to climate change and sustainability:

06/07/2007

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11

Recommendations:

That

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11 be received and noted.)

The Local Action Plan is reviewed so that:-

- relevant 'Strategies and Priority Actions' are included within the Strategic Plan, and
- the 'Major Actions/Initiative's are included within the Annual Operating Plan, and
- the relevant actions are included within the appropriate Unit Plans,

The process of review be carried out to:

- ensure that a whole of Council approach is taken.
- recommend a means by which relevant items within the key corporate documents referred to in 16.2 can be separately and collectively identified as an energy efficiency / greenhouse gas emission reduction program.
- the 20% Community Emissions Reduction Goal be reviewed subsequent to the provision of more recent community data by ICLEI.
- opportunities are investigated for the establishment of regional approach to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.
- the Council's corporate electricity consumption is investigated separately from the Councils emissions goal and separate target and strategy be developed under the auspices of CCP TM and ICLEI advised accordingly.

8/3/2007

NOTES FROM A MEETING OF CMT

6.2. CITIES FOR CLIMATE PROTECTION REVIEW LOCAL ACTION PLAN – S17-050-11

Report of the MDP and EP was discussed and the recommendations endorsed.

CMT also agreed to re-establish the Energy Management Team involving all Divisions and chaired by the GMPS.

25/6/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18

13. PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

Ref. Open FCSC 5, 19/6/2007

That: 1. The Council introduce a solar hot water rebate or grant scheme for a period of 18 months for Hobart ratepayers who are looking to install a solar hot water system but are ineligible for the current planning and building administration fee rebate.

2. Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team.

3. The solar hot water rate rebate or grant be either:

(i) a one-off payment of a sum of $300 per solar hot water system or payable on a quarterly basis (rebate only); or

(ii) such higher figure as determined by the Council.

4. A report be provided to the Finance and Corporate Services Committee after 12 months operation, reviewing the success of the new rebate/grant and to enable consideration of its potential continuation beyond the initial 18 month period.

5. A media release be issued informing the public of the new rebate/grant; the qualifications under which it can be achieved and including details of other key energy saving initiatives residents can apply for when considering the installation of a solar hot water system, such as the Commonwealth's Photovoltaic Rebate Program, Renewable Energy Certificates and the Hobart City Council's planning and building administration fee rebate.

6. The Council's website be updated to allow for online access to apply for the rebate/grant and to provide links with key energy saving initiatives.

DEPUTY LORD MAYOR

HAYES That the recommendation be adopted.

Amendment

BRISCOE ARCHER That clause 6 be reworded to read:

6. The Council's website be updated to provide links with key energy saving initiatives and an appropriate means of enabling secure online access to allow for the lodgement of applications for the rebate/grant, be investigated as amended by the following:

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Amendment

BURNET CHRISTIE That Clause 3(i) be reworded to read:

3(i) The solar hot water grant be a one-off payment of a sum of $500 per solar hot water system.

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Cocker

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

Ref. Open DESC 6.2.2, 6/8/2007

That: 1. The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.

2. For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.

3. The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.

4. Aldermen be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

DEPUTY LORD MAYOR

ZUCCO That the recommendation be adopted.

Amendment

BURNET

SEXTON That the recommendation be adopted as amended by the insertion of the words and the community after the word Aldermen in clause 4.

AMENDMENT CARRIED

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING

19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

ALDERMAN COCKER "That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

COCKER

BRISCOE That the motion be adopted.

MOTION CARRIED

VOTING RECORD

AYES

Lord Mayor, Deputy Lord Mayor, Archer, Zucco, Briscoe, Hayes, Freeman, Christie, Cocker

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17/7/2008

NOTES FROM A MEETING OF CMT

ZERO NET CARBON EMISSIONS BY 2020 – IN PRINCIPLE CONSIDERATION OF FUNDING ISSUES – 17-50-11.

D/CITY S and GM-PS spoke to report. It was noted the principle was to get to zero carbon emissions by 2020. The discussion was around the best approach. It was agreed that HCC should make the most of the project based initiatives until at least 2015 and look at offsets to make up the balance to achieve zero by the target date. The establishment of a reserve fund with an initial $50k annual contribution would provide the funding for any future offsets required.

It was suggested that an annual KPI be developed to monitor the shortfall in emission offsets.

The report would be refined and referred to the Strategic Governance Committee.

Action: DCS

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59

STRATEGIC GOVERNANCE

20. HOBART CITY COUNCIL - ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

Ref. Open SGC 5, 5/8/2008

That: 1. The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

(i) A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.

(ii) The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.

(iii) The quantum of monies to be allocated to the reserve fund being reviewed annually.

(iv) The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.

(v) An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

2. Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

DEPUTY LORD MAYOR

HAIGH That the recommendation be adopted.

Appendix 5: Climate Change Policy

TITLE: GENERAL – CLIMATE CHANGE

SUBJECT: The Council's Climate Change Policy

DATE OF COUNCIL APPROVAL: xxxx

OBJECTIVE: The Hobart City Council on the issue of climate change will:

- provide effective and strong leadership to the region and to its communities to respond to climate change and build a sustainable region,

- develop and implement actions and strategies that assist communities to reduce carbon footprints, adapt to climate change impacts and increase their awareness and understanding of climate change and sustainability; and

- complement, collaborate and establish strong partnerships with key stakeholders and other tiers of government that strengthen the Council's responses to climate change.

- plan for and manage Hobart's adaptation to the impacts of climate change, particularly where these impacts represent a threat to people and property.

Hobart's Climate Change Strategies x 5 (HCC S5)

Climate Change an Issue for Everybody 2008 – 2013

May 2009

A review of the Hobart City Council's Greenhouse Local Action Plan

Endorsed Hobart City Council 25 May 2009

Abbreviations

ACE CRC – Antarctic Climate Ecosystems Cooperative Research Centre

CCGLAP – Corporate and Community Greenhouse Local Action Plan

CC&SI – Climate Change and Sustainability Initiative

CCP - Cities for Climate Protection

CCSSC – Climate Change and Sustainable Steering Committee

CDC – Carbon Development Calculator

CPRS – Carbon Pollution Reduction Scheme

DCC - Department of Climate Change (Australian Government formerly Australian Greenhouse Office)

DEP - Derwent Estuary Program

EMP – Council's Energy Management Program

GHCP – Greater Hobart Climate Partnership

ICLEI - Local governments for Sustainability (formerly the International Council for Local Environment Initiatives)

IPCC - International Panel on Climate Change

LGAT - Local Government Association Tasmania

NGAF - National Greenhouse Accounts Factors

STCA – Southern Tasmanian Councils Association

TCCO – Tasmanian Climate Change Office

Mt – mega tonnes

GJ – giga joules

kWh – kilowatt hours

e-CO_2t – equivalent tonnes of carbon dioxide

Useful Links

www.hobartcity.com.au

www.iclei.org/ccp-au

www.climatechange.gov.au

www.climatechange.tas.gov.au

www.tasmanianenvironmentcentre.org.au

www.lgat.tas.gov.au/site/page.cfm

www.environment.gov.au/settlements/renewable/nationalsolarschools/

http://www.sustainableschoolsproject.org/

Foreword by the Lord Mayor

I am proud as the Mayor of Hobart City Council to be celebrating 10 years of climate change action by the Council.

Climate change is a challenge like no other that humanity has ever faced. As a community we have contributed significantly to the situation and must work at finding solutions. We have a small window of opportunity in which to do this.

Climate Change is going to affect how we live our lives, our children's lives, how we do our jobs, how we recreate and also our local, national and international economies. There is very little about the way we live now that will not be affected in some way by the impacts of climate change. Every action we take to increase awareness and address this issue is significant and reinforces the urgent need for action whether on a small or large scale.

It is time to get serious about climate change. We are no longer talking simply about abatement of emissions – our climate is changing and we now need to learn how to firstly, reduce the rate of change and secondly adapt to it! We need to change the way that we live, work and play. This report sets out ways in which the Council is both continuing and further preparing to work with and lead our community to 2013 in response to climate change.

Hobart has been a champion of climate change action since 1999. It has reduced its own emissions by 71%, from 1996 levels, committed to further emission reduction of 30% from 2009 levels by 2020. To date, it has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

In the community sector the Council has introduced Solar Hot Water, Insulation and Water Tank Rebates Schemes. Through its Solar Hot Water Rebate, introduced in 2007, approximately 520 e-CO_2 tonnes have been abated from over 180 installed systems. The Council is also working with the other Councils of Greater Hobart to develop an integrated "Bike Plan."

A much broader and longer term challenge for Hobart is to grow a low emissions economy, adapt at a metropolitan level and aim for reduced emissions at a community level within our municipality.

At its core local government is about sustainability and climate change is intrinsically a part of this. To this end local government has a key role to play in addressing the issue of climate change with its community. We can provide leadership on and demonstration of actions that can be undertaken to reduce greenhouse gas emissions. We can work to increase awareness and advocate action to abate emissions and adapt to the impacts of global warming. Importantly we don't have to reduce our quality of life but we do have to change the way we live so that we cut the amount of waste we generate and improve our energy efficiency – everyone has a stake in this.

The Living Planet Report of 2008 claims that humanity's global footprint now exceeds the world's capacity to regenerate by about 30% and more than three quarters of the world's people now live in nations that are ecological debtors – their national consumption has outstripped their country's bio-capacity and that in two generations we have moved from ecological credit to ecological debit.

The Council commends these strategies for consideration so the community can join in making a difference that matters well into the future.

In the words of James Hansen, director of the US Goddard Institute of Space Sciences, 22 June 2008:

"We're toast if we don't get on a very different path…This is the last chance."

Food for thought as we move into an era of significant change

Lord Mayor, Aldermen Rob Valentine

April 2009

Hobart City Council's Climate Vision:

Hobart's sustainable and climate friendly vision is for:

- A climate aware and resilient community that has supported and invested in a range of strategies led by the Council to abate emissions, adapt to climate change impacts and account for a carbon neutral economy.
- The Council to be an advocate for climate change action and create a climate aware and resilient community.
- The Council, as a local government, to lead our community and urban region for the necessary transitional change to a carbon neutral society at all levels

Images clockwise: Beat Winter Chills and Bills Question and Answer forum West Hobart 2008; Solar Hot Water Rebate recipient - evacuated tubes system; energy efficient development Windsor Court Argyle Street; Energy Display Hobart City Council Atrium June – Sept 2008.

Executive Summary

Climate change is the most significant issue facing human civilisation. It poses an enormous challenge at all levels of human society, to avoid 2^0C of warming that gives way to a runaway greenhouse effect. Tackling climate change is made more complex as the exact scale, timing and the extent of the impacts are unknown. What is known is that the impacts of climate change will significantly change the global climate and earth's ecosystems on which we rely and the way in which we live on the planet. Action is urgently required to reduce greenhouse gas emissions and to begin to prepare both as communities and individuals for a changed climate. Climate change response is more than reducing emissions and adapting to a changed climate - it is about changing our behaviour, attitudes, economies, social structures and built environments so that they are sustainable.

Tasmania is not exempt from the impacts of climate change. The climate-induced drought has necessitated the importation of Victorian coal-based electricity due to low Hydro dam levels resulting in an increase in emissions associated with our electricity use. Higher electricity prices coupled with increased transport costs are creating a greater need for energy efficiency across our communities and organisations, consequently leading to climate friendly and sustainable outcomes.

The Hobart City Council has been active on the issue of climate change since 1999, when it made a political commitment to participate in the Cities for Climate Protection (CCP^{TM}) Program. Since then it has successfully completed the five program milestones, committed to ongoing action through CCP^{TM} Plus and reduced its corporate emissions by 71% from 1996 levels.

Most recently the Council has committed to a further 30% reduction in its emissions from its energy (electricity, fuel and natural gas) use and is investigating options and working towards zero emissions by 2020.

The Council delivers a range of climate change programs to reduce emissions and increase awareness including $500 Solar Hot Water Rebates, installation of cogeneration technologies at McRobies Gully Landfill and Waste Water Treatment Plants, trialling energy efficient street lighting and 'Beat the Winter Chills and Bills Questions and Answers' community information sessions.

The Council has recognised, since 2001, the need for collective local government action on climate change. Hobart's Climate Change Strategy (HCC S5) advocates that 'like' councils work together to effectively address the issue of climate change and implement actions at the broader community level. It progresses a strategic framework for local government across Tasmania through the establishment of groupings of Councils based on land use: urban; peri-urban; rural and natural areas.

On the broader scale climate change as an issue is rapidly progressing with significant changes in policy direction of the incumbent Australian Government and the State Government's establishment of a Climate Change Office in 2008. The Council recognises the need for new structures and frameworks to address this issue. It also recognises that its approaches should be flexible and able to adapt to the changing political and legislative environment.

The review of the Councils Greenhouse Action Plan seeks to begin to prepare Hobart City Council, its community and the region for the necessary transitional change to a carbon neutral society at all levels. It considers action under a framework called the 5A's of climate change with 5 themes: Advocacy, Abatement, Awareness, Adaptation and Accounting.

HCC S5 resets the Councils greenhouse gas emissions abatement targets. It maintains the Councils 70% emissions reduction target focusing on its landfill operations until 2020, it sets a new target for corporate energy greenhouse gas emissions of 30% and advocates a Greater Hobart Community abatement target be set through cooperative action of the Cities for Climate Protection Councils.

Climate change is not a natural resource issue – it is an issue that is linked to every aspect of human activity. The solutions and adaptive responses to climate change are not to be found within our existing structures – they require creative thinking and brave action.

Summary List of Actions.

Advocay Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Political commitment	1.1	Council formally endorse the Council's proposed Climate Change Policy (see Appendix 5) that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership of Hobart's communities and the region.	Council	Immediate
Corporate	Political commitment	1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners program.	Development & Environmental Services	Ongoing
Corporate	Southern Region - Climate Change And Sustainability Initiative	1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework (detailed in this document) that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of a *STCA Climate Change and Sustainability Initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives in recognition of local government climate action to date.	General Manager	Immediate
Corporate	Climate Change and Sustainability Steering Committee	1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change and Sustainability Steering Committee	Ongoing

Corporate	Greenhouse Reference Group	1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant, replacing the Greenhouse Reference Group.	Climate Change and Sustainability Steering Committee	Immediate - Ongoing
Abatement Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Energy Efficiency	2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 -2010 levels (post Sewage and Water Reform).	Corporate Energy Management Team	2020
Corporate	Corporate Energy Efficiency	2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.	Corporate Energy Management Team	2009 – ongoing
Corporate	Corporate Energy Efficiency	2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.5	Develop and implement Energy Management Plans for the Council's corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.7	Implement the recommendations of the report (as appropriate) "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre."	Corporate Energy Management Team	Ongoing
Corporate	Corporate Waste Emissions	2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	Immediate
Corporate	Corporate Waste Emissions	2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.	Environmental Engineering	Immediate
Corporate	Corporate Purchasing	2.10	A Sustainable Purchasing Strategy is developed for the whole of Council, that:	Climate Change and	Medium

	emissions		➢ takes into consideration the Councils complex and varied needs purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ a process for monitoring, reporting and review of the strategies outcomes.	Sustainability Steering Committee	
Corporate	Sustainable Transport Strategy	2.11	Implement recommendations of the Council's Sustainable Transport Strategy, when finalised, in parallel with HCC S5.	Climate Change and Sustainability Steering Committee	Ongoing
Community	Household Sector	2.12	Develop a Sustainable Household Incentive Program, including a Sustainability Rebate, using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Household Sector	2.13	Promote the 'Sustainable Design Guidelines' to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium
Community	Business Sector Commercial Office Sector	2.14	Investigate opportunities for the promotion of the CitySwitch program or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Retail Sector	2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Industrial Sector	2.16	Investigate opportunities for the establishment of partnerships and lobbying for the industrial sector to reduce emissions and partner in adaptation initiatives.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Education Sector	2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground support to schools to uptake the National Solar School Program.	*STCA Climate Change and Sustainability	Medium

				Initiative	
Community	Waste sector	2.18	Community waste emissions: Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, greenwaste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
Community	Waste sector	2.19	Community waste emissions: Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium
Awareness					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Employee Sustainability & Climate Information	3.1	Deliver Office Climate Workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and potential climate change impacts on the workplace.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.2	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.3	Inclusion in Council's Employee Induction Handbook of a section on 'Sustainability and Climate Awareness.'	Environmental Sustainability Program	Medium
Corporate	Employee and community	3.4	Five Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees.	Development and Environmental Services	Immediate
Corporate	Community Engagement	3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➤ Fosters sustainable behaviour change across all community sectors; ➤ Promotes actions to increase energy conservation and abatement of emissions; ➤ Increases understanding of climate change and local government actions; and ➤ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change.	Climate Change and Sustainability Steering Committee	Medium
Community	Community Engagement	3.6	Design sustainability and climate awareness web pages for the Councils intra/internet page.	Environmental Sustainability Program	Medium

Community	Community Engagement	3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
Community	Community Engagement	3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing
Community	Dr Edward Hall Awards – Climate and Sustainability Category	3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing
Adaptation					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Adaptation	4.1	Develop and implement a corporate Climate Adaptation Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change and Sustainability Steering Committee	Immediate
Corporate	Corporate Adaptation	4.2	Participate in the Climate Futures for Tasmania –Infrastructure project (Pitt and Sherry) contributing to project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
Corporate	Corporate Adaptation	4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities.	Climate Adaptation Program	Immediate
Community	Community Adaptation	4.4	Run an Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (29 May 2009).	Environment and Climate Change Officer	Immediate
Community	Community Adaptation	4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	*STCA Climate Change and Sustainability Initiative	Immediate

Accounting Sector	Issue	#	Action	Responsible	Timeframe
Corporate & Community	Energy and Greenhouse Inventories	5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
Corporate & Community	Energy and Greenhouse Inventories	5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate
	Carbon Pollution Reduction Scheme	5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
	Carbon Pollution Reduction Scheme	5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium
Corporate & Community	Modelling impacts	5.5	The Energy Management Program works towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➤ Avoid emissions by modifying behaviour ➤ Improve energy efficiency ➤ Increase local carbon sinks ➤ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing, using an accredited carbon offset.	Climate Change and Sustainability Steering Committee	Long

Corporate & Community	Modelling impacts	5.6	HCC S5 proposes that until such a time that the review is completed that ➤ assets or one–off events (such as the TASTE) adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008; or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the carbon offset review residual emissions following abatement action [1]may include: ➤ The Council purchase and retire carbon permits for specific assets and/or activities; ➤ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or ➤ The Council use carbon offset programs that may be accredited through the review	*STCA Climate Change and Sustainability Initiative	Long
Corporate	Carbon Neutral/Zero Carbon Emissions Policy	5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
Corporate & Community	Carbon Offset Program	5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership investigate the opportunities for the establishment of a Carbon Offset Program, in line with accredited offset providers as a potential income	*STCA Climate Change and Sustainability Initiative	Immediate
Corporate & Community	Carbon Development Calculator	5.9	A project brief be prepared for the Carbon Development Calculators corporate and community parameters.	Environment and Climate Change Officer	Medium
Corporate & Community	Carbon Development Calculator	5.10	The Council investigate opportunities, with the University of Tasmania, for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program	Environment and Climate Change Officer	Medium

[1] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Contents

PART ONE - BACKGROUND

Introduction

When Hobart City Council joined the Cities for Climate Protection Program in 1999, committing to take action on climate change, the emphasis was on the mitigation and abatement of greenhouse emissions as Australia grappled with the question "Will the climate change?" Since then there has been much scientific progress and a seismic shift in community acceptance on the issue and the question is now 'How much will the climate change and how will we adapt?'

Hobart Climate Change Strategy 5 (HCC S5) resets the course for how the Council will address climate change up to 2013. HCC S5 replaces the Council's "Corporate and Community Greenhouse House Local Plan" produced in 2001. In addition to actions that reduce emissions and conserve energy from corporate activities this document sets a strategic way forward to work with our communities through a proposed STCA's Climate Change and Sustainability Initiative Urban Priority Greater Hobart Climate Partnership by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils to prepare for climate change and a carbon neutral future. Importantly it progresses an agenda for a unified and consistent message on Climate Change and how, as a community, we can prepare for its impacts – economic, environmental and social - and a changed climate.

The key concepts behind HCC S5 are:

- Climate Change is an issue of sustainability, it is a mainstream issue.
- Climate Change from a local government perspective should be considered in terms of land use activities: urban, peri urban, rural and natural areas.
- Local government needs to work collectively – groupings of like land use Councils, to allow for the leveraging of action, sharing resources and skills.
- New ways must be found to address climate change – it is necessary to think outside the box to find a range of solutions and develop a carbon friendly lifestyle and to adapt to the impacts of climate change.

At the corporate level Hobart is successfully managing emissions abatement and awareness. The greatest area of action for local government is in the spheres of:

- community development and awareness raising about climate change impacts, actions and opportunities knitting together the opportunities offered through the Australian Governments Energy Efficiency Package and incentives and the Council's rebates to achieve sustainable behaviour change at the individual and community level; and
- adaptation in both the corporate and community sectors through the application of resources developed to assist local government at both the corporate and community/regional levels.

What Hobart has done

Hobart has much to be proud of with regard to its 10 years of action on climate change. The Council has been working on the issue since it joined the Cities for Climate Protection (CCP) Program on the 3rd May 1999. And post the successful completion of the programs five milestones it committed in 2002, to ongoing action through CCP Plus. To date it has completed the five program milestones and joined CCP Plus, a program designed to further embed and deepen climate change action.

To date, the Council has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

Through its Solar Hot Water Rebate, approximately 520 e-CO_2 tonnes has been abated from over 180 systems installed since 2007.

Significant Council actions and outcomes include:

- Reduction of its corporate greenhouse gas emissions by 71% in 2007/08 since 1996/97 its base year; abating a total of 166,937 eCO_2 tonnes from its corporate activities;
- Establishment of a Corporate reserve fund of $50,000 for energy saving projects in addition to those identified in annual budgets;
- Providing a rebate for the installation of solar hot water systems $500 and insulation (for Landlords) $300;
- Trialled energy efficient, and low carbon emission, compact fluorescent and tri-phosphor fluorescent street lighting in residential setting with Aurora Energy;
- Formally committed to reducing its remaining corporate greenhouse gas emissions by a further 30% by 2020;
- Increased awareness of household energy efficiency through its Beat the Winter Chills and Bills Question & Answer Sessions;
- Coordinated the Hobart Regional Arterial Bike Network – a collaboration between Hobart, Clarence, Brighton, Glenorchy and Kingborough Councils and Cycling South to coordinate and rationalise bike networks within Greater Hobart and released for comment its draft Sustainable Transport Strategy 2008; and
- Worked towards Sustainable Transport Outcomes through programs such as the Walking School Bus, the Hobart Regional Arterial Bike Plan and Sustainable Transport Plan.

A summary list of actions and activities by the Councils is contained in Appendix 1 "Summary of the Hobart City Councils Climate Change Activities" or can be accessed at www.hobartcity.com.au.

Hobart's Corporate Emissions Summary

The following table shows the aggregated energy and carbon emissions since the Council began measuring these from its selected base year of 1996/97. Whilst there was a doubling of energy use in 2001/02 due to the Hobart Aquatic Centre becoming operational and a slight spike in 2004 – 2006 due to works associated with the laying of the gas pipeline; overall the table indicates a decreasing trend since 2000/01. The greenhouse gas emissions (eCO_2t) associated with Council activities has been significantly abated. The greatest proportion of emissions and their abatement is associated with the Council's landfill, McRobies Gully. Since 2004 the considerable abatement has been achieved initially by flaring and then cogeneration technologies which feed power generated from landfill methane emissions into the electricity grid.

	1996/97	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
GJ	55,357	107,705	105,341	107,873	120,945	114,826	113,468	103,587
eCO2t	45,818	46,801	47,271	38,495	20,192	12,027	11,662	13,215
Comment	Base Year First inventory undertaken as per CCP program	Increase GJ THAC came on line almost doubling HCC energy consumption		Decrease eCO_2t – due to commencement of flaring of methane (CH_4) at McRobies Gully landfill	Increase GJ due to laying of gas pipe line and increase use of Bitumen plant	Decrease eCO_2t – due to cogeneration of methane (CH_4) at McRobies Gully landfill	Decrease eCO_2t – due to cogeneration of landfill methane and conversion of bitumen plant to natural gas	Increase eCO_2t- due to increase in the Tasmanian Emissions factor 1996 00.2 kg CO2 –e/GJ to 2007 -0.13 kg CO2 –e/GJ

Cities for Climate Protection Program

The "*Cities for Climate Protection*" (CCP ™) program is a voluntary international program of ICLEI – Local Governments for Sustainability, a non government organisation. It has been funded nationally by the Australian Government with an aim of empowering local governments to cut greenhouse gas emissions until 30 June 2009. CCP™ provides local governments with a structured program with the following five milestones:

1. Undertake an inventory of greenhouse emissions in the council and community, and forecast future emissions growth.

2. Set an emissions reduction goal for corporate and community sectors.

3. Develop and adopt a local greenhouse action plan to achieve emission reduction goals.

4. Implement their local greenhouse action plan.

5. Monitor and report on greenhouse gas emissions and implementation of actions and measures.

Hobart City Council joined the CCP ™ program in 1999. It was the first Tasmania Council to join and it set, and has achieved, the highest corporate emission reduction goal, 70% from 1996/97 levels by 2010/11, of any participating Council in Australia. Early on in the program the Council recognised the need for a regional approach where Council's with similar land use patterns work in 'land use-blocks' to address climate change. Hobart has encouraged the participation of Brighton, Clarence, Glenorchy and Kingborough (the Council's of Greater Hobart) in the program.

In Tasmania 7 local governments have participated in the CCP program Brighton, Clarence, Devonport, Glenorchy, Hobart, Launceston, Kingborough. They cover over 60% of the Tasmanian population and equating to a total of 2,471,674 eCO2t or 41,841,937 GJ of greenhouse gas emissions.

Importantly the CCP provides a practical and ongoing framework for climate action that compliments and furthers the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Council's* requiring local government action on the issue.

The cessation of CCP, whilst a disappointment, does not impact on the Council's ongoing climate action. The CCP milestone framework has assisted the Council to build the capacity to develop and implement climate action and embed these across the organisation.

Why review

The Council completed its '*Corporate and Community Greenhouse Local Action Plan*' in 2001 – since then much experience has been gained and many actions undertaken to reduce emissions and increase awareness of the issue in corporate and community sectors. Whilst there have been many successes and the Council has exceeded its corporate goal for greenhouse gas emission reduction, there are a number of drivers for the review. These include:

- The Council's commitment to continual improvement under its wider Business Excellence Framework;
- A requirement for a review in both the Strategic Plan 2008-2013 and the Corporate and Community Greenhouse Local Action Plan Nov 2001;
- An increased awareness, and desire for action, throughout the Hobart's community.
- Improvement and streamlining of climate change actions across the Council corporate sector;
- Increased scientific knowledge and understanding of the rate at which climate change is-occurring, its processes and impacts;
- The shift in emphasis from abatement actions to adaptation and awareness. In particular there is a greater emphasis on risk analysis– these will assist in identifying and potentially lessening the Council's future liability with regards to climate change impacts; and
- The changing political and legislative framework at both the state and commonwealth levels of government.

How is the review to be done?

The review considers the Councils annual corporate emissions inventories from 2000-01 to 2007-08 and the 2006 community inventory (based on Australian Bureau of Statistics 2006 Census data). The review also takes into account the Councils Strategic Plan 2008 – 2013, Corporate Plan 2009-2014 and brings HCC S5 in line with its timeframes; and incorporates resolutions and programs that have been developed subsequent to the CCGLAP.

Two key drivers for the review are to:

- ensure that a whole of Council approach is taken to addressing climate change actions and impacts; and
- investigate opportunities for the regional approaches by local government to climate change and seek opportunities to leverage off and key stakeholders to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.

Significantly the review focuses on the five critical A's of climate change (note these are not listed in hierarchical order):

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

Understanding Climate Change

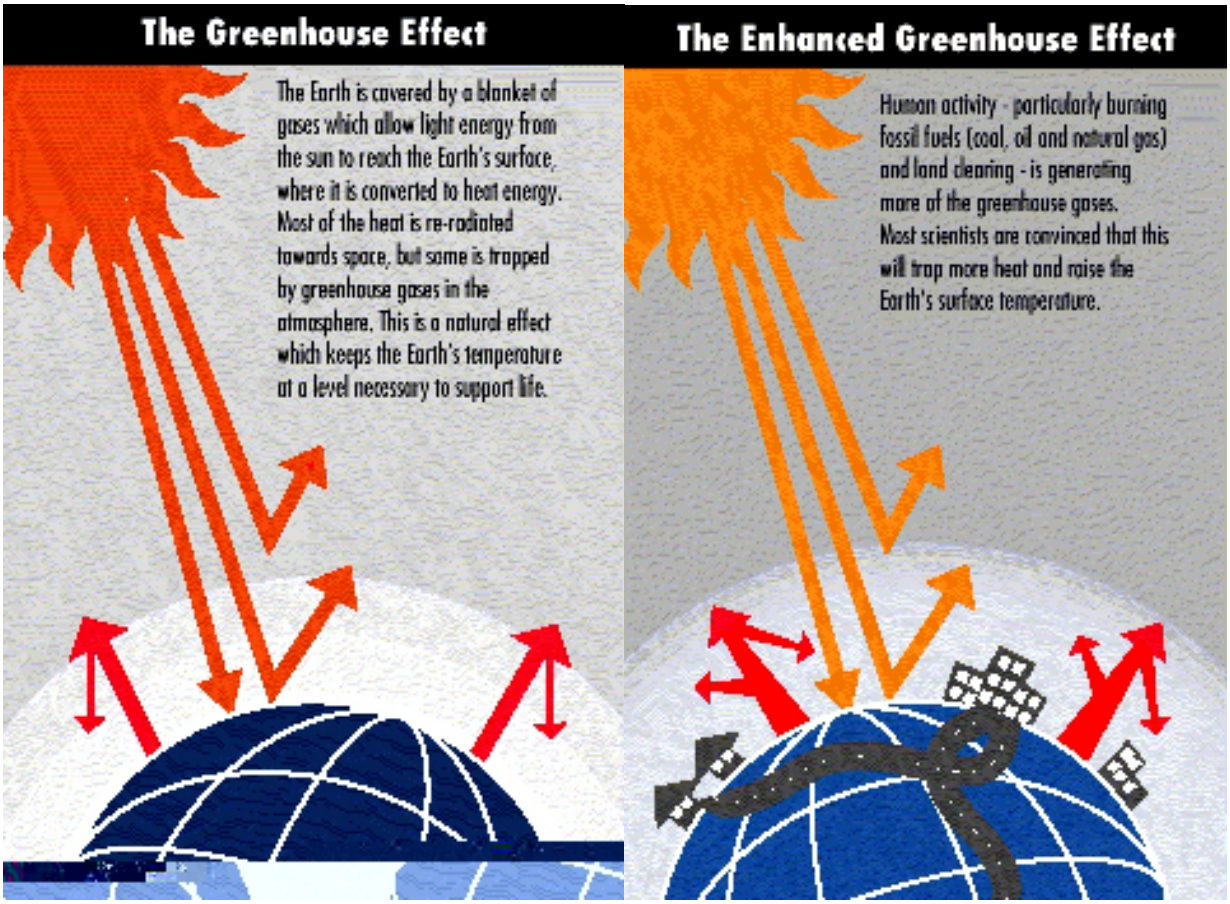
The Greenhouse Effect and the Enhanced Greenhouse Effect

The greenhouse effect is a natural phenomenon. Greenhouses gases, water vapour, carbon dioxide CO_2, methane CH_4 and nitrous oxide N_3O, occur naturally in the atmosphere where they trap the sun's warmth and maintain the earth's surface at a temperature that supports life. Without greenhouse gases the earth would be a cooler and uninhabitable place.

The emission of additional greenhouse gases from human activities has increased the concentration of these gases in the atmosphere resulting in the enhanced greenhouse effect, also known as global warming and climate change. A consequence of the increase is that as the atmosphere warms the climate changes with increased temperatures, increased intensity and frequency of storms events, increased sea level rise from thermal expansion of the oceans and melting glaciers and the changed rainfall patterns.

In pre-industrial times, the concentration of CO_2 in the atmosphere was 280 parts per million (ppm). This level has now increased to 387 ppm, and is rising every year by 2.2 ppm. Without intervention, prevailing scientific opinion is that levels will rise to over 600 parts per million within the next 45 years with profound and adverse consequences. This is a significant concern of climate scientists who predict runaway climate change once 450 ppm or 2 degrees of warming is exceeded.

The United Nations International Panel for Climate Change states that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global air and ocean temperatures, widespread melting of snow and ice and rising global sea level. And 'Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate change, particularly temperature increases.'



How Greenhouse gases are measured

Natural greenhouse gases include water vapour, carbon dioxide, methane ozone and nitrous oxide. Human made greenhouse gases include chlorofluorocarbons. The source, warming potentials and lifespan's of greenhouse gases that are involved in climate change are shown in Table below. ,

Greenhouse Gas	Source	Atmospheric Lifespan (years)	Greenhouse Warming Factor eCO_2
Carbon Dioxide CO_2	Burning fossils fuels for electricity production Cement manufacture	50-200	1.0
Methane CH_4	Waste decomposition without air (ie buried waste in landfill) coal-bed methane from coal mining Leakage of natural gas Grass digestion by grazing animals Burning of biomass fuels	12 - 17	21
Nitrous Oxide N_2O	Soil, nitrogen fertiliser decomposition Burning of petroleum products	120	310
Chlorofluorocarbons and carbon substitutes	Leakage from refrigeration and air-conditioning systems Aluminium production	>1000	CFC 12 8,500 HCFC- 113 93 HFC - 134a ,300

Energy Emissions Factors

The Australian Government though the *National Greenhouse Accounts (NGA) Factors* determines the greenhouse gas emissions factors for energy Australia-wide. Emission factors are used to derive estimates of greenhouse gas emissions based on the amount of emissions generated by an activity such as fuel combusted in a petrol engine or coal combusted to produce electricity. These are now updated annually to provide a more accurate indication of greenhouse gas emissions as the electricity landscape changes.

Electricity Emissions Factor

The emissions factors for Tasmania's electricity have changed considerably overtime. The Australian Government *Emissions and Factors Workbook* 2006 listed Tasmania's emissions factor for the years 1996, 2000 and 2005 as 0.000, 0.002 and 0.045 kg CO_2t-e/kWh respectively. The most recent edition, *National Greenhouse Accounts Factors* 2008, listed in the table below, again retrospectively changes these emissions factors. The most recent increases from 2005 onwards are accredited to the effect of the climate induced drought on Hydro dams levels and the subsequent importation of high emissions (brown coal) electricity from Victoria via Basslink 24% [2]and natural gas 11% to augment the States electricity supplies. For the purposes of HCC S5 the most recent 2008 emissions factors have been used – even though when Hobart initially sets its emission reduction goal the emissions factor for its base year of 1996 was 0.00.

[2] "Water woes cut Hydro power base" the Mercury, 03.09.08

	kg CO_2t- e /kWh (Scope 3)					
	Tasmania	New South Wales	Victoria	Queensland	South Australia	Western Australia
1995	0.02	1.02	1.39	1.10	1.05	1.07
2000	0.01	1.03	1.42	1.05	1.09	1.04
2005	0.04	1.06	1.32	1.04	1.04	0.95
2006	0.06	1.06	1.32	1.04	1.01	0.95
2007[p]	0.13	1.06	1.31	1.04	0.98	0.98

[p] – provisional emissions factor set by the Australian Government– the emissions factor are formalised following confirmation of actual energy mix. Source National Greenhouse Accounts Factors, Australian Government, January 2008

Other Emissions Factors

The table below sets out the emissions factor for energy sources other than electricity – these are typically constant as they are primary fuel source.

Fuel	Energy Content GJ/kL	t CO_2 -e/kL
Petrol	34.2	2.3
Diesel	38.6	2.7
LPG	26.2	1.6
Biodiesel	23.4	0

What are the predicted impacts of Climate Change on Tasmania?

Climate change is going to affect every aspect of our lives as individuals and as communities through the physical impacts of a carbon affected (enhanced greenhouse effect) climate system, resulting in an increase of extreme weather events, changed rainfall patterns, changes in behaviour due to economies that must account and pay for carbon use. Currently concentrations of atmospheric CO_2 are tracking above the IPCC high scenario models

Understanding the physical impacts of climate change is complex. The International Panel on Climate Change (IPCC) climate change scientists have modelled various low – mid - high range scenarios that consider a wide range of variables of not only climate systems but future emissions that are the by product of very intricate and dynamic systems determined by forces such as demographic, socio-economic development and technological change. This work has been further enhanced by the CSIRO to develop Australia – wide scenarios. Whilst these are coarse they do provide an indication of the predicted climate change impacts for Hobart these include:

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days.
- Warmer temperatures are likely to cause a rise in heat-related illness and death for those over 65 years.
- Warmer conditions may spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 % reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

A full summary of projected impacts for Tasmania by the Australian Government is provided in Appendix 2.

A more refined and detailed climate modelling project, the *Climate Futures for Tasmania – local information for local communities* is being undertaken by the Australian Climate and Ecosystems Cooperative Research Centre (ACE CRC). The project builds on work commissioned by Hydro Tasmania and constructs fine scale 14 km^2 grid climate projections for local applications. With an emphasis on terrestrial based ecosystems it plots hundred of variable ranging from rainfall, temperature and wind in range of scenarios, it is intended to provide local decision makers locally relevant information about climate change and help develop adaptation actions. It is anticipated that modelling data will be available from late 2009.

Carbon Neutrality

The Council resolved, in August 2007, to investigate actions necessary to achieve zero net carbon emissions by 2020. For organisations that have committed to carbon neutrality or zero carbon emissions this is typically achieved by reducing their emissions as much as practicable and then purchasing 'carbon offsets' for the residual emissions that are too difficult or costly to eliminate.

Carbon offsets are an investment in a project or activity that "have prevented or removed an equivalent amount of carbon dioxide elsewhere." (Ribon 2007) "The idea being that the removal of greenhouse gases counterbalances emissions from other sources." (Downie 2007). They are divided into four main groups: renewable energy, energy efficiency, methane emissions avoidance and bio sequestration (forestry/ plantations).

The introduction, by the Australian Government, of the Carbon Pollution Reduction Scheme – a cap in trade system brings into question the effectiveness of carbon offsets in contributing towards lowering of Australia's overall greenhouse gas emissions as they will be capped. Richard Dennis argues that *'If households use less energy and create less pollution, they will simply free up permits to allow other families or industries to increase their own emissions…And as a result concerned households and business will not be able to make any meaningful contribution to greenhouse gas abatement. In fact the only way for individuals to lower Australia's total emissions is to buy carbon permits and not use them."*

The Australian Government recently released a Discussion Paper National Carbon Offsets and is currently reviewing options for voluntary carbon offset market. It has committed to developing a national standard for carbon offsets to *"provide national consistency and give consumers confidence in the voluntary carbon offset market. The offset standard will provide guidance on what constitutes a genuine, additional voluntary offset credit, as well as setting requirements for the verification and retirement of such credits, and standards for calculating the emissions of a product or service.* (source http://www.climatechange.gov.au/greenhousefriendly/changes.html)

Until such a the CPRS comes into effect HCC S5 proposes that in line with the Cities for Climate Protection Australian Program's Offset Policy Feb. 2009 the Hobart City Council accept offsets accredited under any of the following schemes.

Gold Standard

All offsets certified by the Gold Standard. These include:Voluntary Emissions Reductions (VERs) and Clean Development Mechanism/Joint Implementation (CDM/JI) Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs). See: www.cdmgoldstandard.org.

Greenhouse Friendly

Greenhouse Friendly Approved Abatement and Greenhouse Friendly certified greenhouse-neutral energy products (such as electricity and fuel). The reductions from the use of energy products should be calculated by multiplying the energy use by the appropriate factors for the council's state from the National Greenhouse Accounts (NGA) Factors. See: www.climatechange.gov.au/greenhousefriendly.

NSW Greenhouse Gas Reduction Scheme (GGAS)

Voluntarily surrendered NSW Greenhouse Abatement Certificates (NGACs) generated under the GGAS scheme. See: www.greenhousegas.nsw.gov.au.

Voluntary Carbon Standard (VCS)

Voluntary Carbon Units (VCUs) accredited directly under the VCS or under one of their approved greenhouse programs. See: www.v-c-s.org.

Mandatory Renewable Energy Target (MRET)

Voluntarily surrendered Renewable Energy Certificates (RECs) created under MRET. RECs are sold in units of energy; they should be converted to emission reductions using the appropriate electricity emission factors for the council's

state from the National Greenhouse Accounts (NGA) Factors. Note that this conversion is approximate, as it is not always known in which state the RECs were actually created. See: www.orer.gov.au/recs.

NOTE: This list will be reviewed regularly in response to ongoing developments in the offsets market.

Appendix 3 provides a discussion of carbon offset considerations.

Carbon Offsets – Hobart City Council

The Council has already commenced to offset some of the emissions associated with its premier activity – the Taste of Tasmania. A total of 67 eCO2t from cooking and waste at the Taste of Tasmania 2006/2007 was offset through Climate Friendly[3] at a cost of $1999.25 including GST. Carbon offsets are now included in the stallholder's package for the 'Taste.'

And indirectly carbon credits derived from McRobies Gully Landfill cogeneration project operated by AGL have been used by Cascade to offset greenhouse gas emissions associated with the its Cascade Green Beer.

[3] Climate Friendly is a Founding Member, and currently, only Australian Member of ICROA. ICROA is a not-for-profit alliance of leading carbon reduction and offset organisations. As an ICROA member, Climate Friendly supports a reduce-and-offset approach to carbon management, and comply with the ICROA Code of Best Practice Climate Friendly (www.climatefriendly.com)

Climate Change Policy Framework

Australia's climate change policy and legislative landscape is evolving at a rapid rate. Over the past 18 months both the Australian Government and the Tasmanian Government have set new carbon reduction goals and are developing initiatives and programs to assist in meeting these. There is also an increasing focus on adaptation to inevitable climate change impacts at the Federal and state level and this is featuring in funding opportunities and program development.

Australian Government

The incumbent Australian Government's climate change approach is underpinned by the three following strategies:

- Reducing Australia's greenhouse gas emissions;
- Adapting to climate change that we cannot avoid; and
- Helping to shape a global solution.

The core Government Departments responsible for the delivery of climate change strategies are the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts. These Departments currently manage the work of the former Australian Greenhouse Office.

Carbon Pollution Reduction Scheme

The Australian Government has expanded and developed new policies to progress its climate change approach. It has committed to the introduction of an emissions trading scheme, as has been done (such as the European Union scheme), in order to reduce Australia's emissions. The government has released the proposed design (white paper) of the scheme, termed the "Carbon Pollution Reduction Scheme", but there are still many details to be finalised. As of May 2009 the scheme is proposed to commence 1 July 2011.

The Australian Government has committed to a long-term target of 60% reduction on 2000 levels by 2050. It has also adopted a minimum (unconditional) commitment to reduce emissions by 5% below 2000 levels by 2020 irrespective of actions by other nations. In the event that global agreement is reached where all major economies commit to substantially restrain emissions and all developed countries take on comparable reductions to that of Australia, this commitment will be increased to 15% below 2000 levels. Australia is also committed under the Kyoto Protocol to limiting its emissions to 108% of 1990 emissions over the period 2008–2012.

The CPRS will work by requiring all large emitters and upstream liquid fuel suppliers in Australia to purchase permits for every tonne of carbon dioxide equivalent (t CO2e) that they emit. The purchase of permits will be required for industry and business sectors that have operational control over a facility producing over 25,000 t CO2e of Scope 1 emissions annually. The number of permits available each year will be limited to ensure that the total emissions are within Australia's Kyoto Protocol and other targets. The cost to scheme participants of purchasing these permits will be in part past on to consumers, providing incentives at all levels of the economy to reduce emissions. All funds generated by the Government from selling the permits will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

The Australian Government has provided an overview of how funds from the scheme will be spent. The following initiatives have been announced:

- $6 billion per annum available from 2010 available to assist households; and
- Cent for cent reduction in fuel tax for three years.
- $2.15 billion allocated over 5 years to assist business, community sector organisations, workers, regions, communities, and emissions-intensive, trade-exposed industries to adapt to the higher costs of greenhouse gas emissions.

Of consequence to the Council are the CPRS's 'Household Assistance' package and complementary 'Energy Efficiency Home Package', which include:

- free ceiling insulation worth up to $1,600 to home owner-occupiers of currently un-insulated homes; or
- a $1,600 rebate on the installation of solar hot water systems; and
- a rebate for landlords for insulation of their rental properties.

The Council also currently has in place a range of sustainability initiatives that complement the Australian Government's Energy efficiency Package, value adding to the opportunities for Hobart's households to increase their energy efficiency these include:

- Solar Hot Water Rebate of $500 for the installation of solar hot water and heat pump systems;
- Insulation Rebate of $300 for installation of insulation of houses constructed prior to 2003 (post 2003 changes to the Building Code of Australia require ceiling insulation in new houses);
- Water Rebate – provides a range of rebates for the installation of water tanks through to water efficient appliances.
- Development Energy Efficiency Rebate on planning applications

The Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Government's climate change policy. This will allow the Council to augment and leverage from the Australian Government's climate action.

National Greenhouse and Energy Reporting System (NGERS)

The *National Greenhouse and Energy Reporting System Act* 2007 is a single national framework for reporting of greenhouse gases emissions, energy use and energy production. The NGERS Act, which is already in effect, requires large emitters, energy producers and energy users to report their annual emissions and energy use and production. Organisations can trigger NGERS thresholds when their emissions or energy use/production trigger either corporate or facility thresholds. For emissions these thresholds are 25,000 t CO_2e for a facility, and 125,000 t CO_2e in 2007/08 to 50,000 t CO_2e for 2010/11 for the entire corporation (based on Scopes 1 + 2 emissions). NGERS applies to constitutional corporations so at this stage does not apply to most local governments.

The reporting framework and emission calculation methodologies developed for the NGERS Act will also be used to underpin emissions reporting under the CPRS. However it is important to note that the entities required to report under the NGERS Act are not necessarily the same as those required to participate in the proposed CPRS. For example CPRS thresholds apply only to emissions from facilities, whereas the NGERS thresholds apply to emissions and energy from both facilities and corporations. Also CPRS thresholds are based only on direct (Scope 1) emissions, whereas NGERS thresholds depend on total direct plus electricity-related emissions (Scopes 1+2).

Will Hobart City Council be required to participate in either the NGERS Act or CPRS?

Hobart City Council is unlikely to be required to report under the NGERS Act, for the time being, as they are not a constitutional corporation.

The CPRS, when it comes into effect, will apply to all entities, including local governments, that have operational control of an emitting facility. Hobart City Council is unlikely to, but may trigger CPRS emission thresholds. Council technical staff have advised that emissions from Hobart's landfills will not trigger the 25,000 t CO_2e threshold. It must be recognised that this element of the CPRS has not been finalised and it has been proposed that some landfills with emissions over 10,000 t CO_2e may trigger the CPRS threshold if within a distance (still to be determined) of another landfill.

Once the CPRS scheme is introduced NGERS technical guidelines and systems will be used as the reporting mechanism for organisations that are included in the scheme.

Hobart's Inventories

Annual inventories of emissions for council operations have been compiled annually by the Hobart City Council as part of our voluntary involvement in the Cities for Climate Protection (CCP) program. These have been designed to be meaningful, assist with decision making and track change over time. With the onset of a regulatory system there have been some changes in the methodology for measuring and recording emissions.

ICLEI Oceania is in the process of updating CCP's greenhouse gas reporting protocols in line with the ICLEI International Local Government GHG Emissions Analysis Protocol (http://www.iclei.org/index.php?id=8154). This will also align CCP reporting with the fundamental elements of GHG emissions reporting under the National Greenhouse and Energy Reporting System (NGERS) Act (so that the CCP inventories could form a basis for NGERS reporting, and vice versa).

Mandatory Renewable Energy Target (MRET)

The Australian Government has expanded the Mandatory Renewable Energy Target (MRET) for the production of energy from renewable sources to 9,500 GWh of per annum by 2010. MRET encourages the development of a more sustainable renewable energy supply industry thereby reducing of greenhouse gas emissions. It does this by establishing a guaranteed market, whereby a legal liability requires large wholesale purchasers of electricity to purchase renewable energy certificates in proportion to electricity they purchase.

The core MRET legislation is: the Renewable Energy (Electricity) Act 2000 (the Act)' the Renewable Energy (Electricity) Charge 2000 and the Renewable Energy (Electricity) Regulations 2001. Interim targets are set to 2010 when 9500 GWh of renewable energy is to be produced. ` From 2010 to 2020, when MRET ends, 9500 GWh is to be produced annually.

Renewable Energy Certificates (REC's) are created by renewable energy generators, where each REC represents one megawatt hour of renewable energy. Renewable energy generators are renewable energy power stations as well as small generation units installations such as photovoltaic systems; solar water heater installations, wind systems and small hydro electric systems.

Owners of small generation units are eligible for RECs and have the choice of claiming the RECs themselves or assigning them to an agent. In the case of McRobies Gully the Council has surrendered the REC's generated from cogeneration of electricity to the company who installed and manages the cogeneration infrastructure

Tasmanian Government

In December 2007, the Tasmanian Government adopted the Crowley report, "*A Framework for Action, Reducing Tasmania's Greenhouse Gas Emissions*." It established the Tasmanian Climate Change Office in 2008, introduced the *Climate Change (State Action) Bill 2008* requiring it to reduce its emissions by 60 per cent by 2050, based on 1990 levels and also released the '*Tasmanian, Framework for Action on Climate Change*' July 2008 that sets out States majors strategies to address climate change.

Of most significance to local government is the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Councils December 2008**. Key elements of the partnership agreements for local government include:

- Compilation of corporate emission inventories and setting emission reduction targets;
- Development of climate change action plans;
- Community consultation and awareness; and
- The incorporation of climate change into regional planning schemes.

The Council's completion and ongoing participation in the Cities for Climate Protection ensures that the Council is well placed to deliver and has already completed much of the work indicated in the partnership agreement. ICLEI Oceania and LGAT are in discussions on how to minimise duplicate effort for CCP councils in Tasmania who are now required to take part in the LGAT process. The Council will also need to consider the incorporation of climate change into regional planning schemes that are yet to be developed. It is noted however that in the new draft Hobart City Council Planning

Scheme does include provisions relating specifically to coastal developed urban situation. The Council also offers a solar hot water rebate and insulation along with guidelines of energy efficiency that encourage sustainable development.

It is further noteworthy that whilst there have not been legislative drivers to date driving climate change action that Council has been proactive in addressing climate change since 1999. In 2000 it set and has achieved in 2008 a 70% corporate emission reduction target.

*Hobart City Council and the State Government under the former Partnership Agreement 2001 – 2004 committed to Reducing Community Greenhouse Gas Emissions. The emphasis of agreement was to develop a coordinated and cooperative approach for strategies to mitigating community emissions, encouraging a regional approach and sharing resources and action for awareness raising and community development.

Local Government Association of Tasmania

From 2006 the Local Government Association of Tasmania has become progressively engaged on the issue of climate change. It coordinates the Climate Change Reference Group for local governments to disseminate information and encourage climate action. In 2008 it engaged a climate change officer and produced a Climate Work Plan for local government that focused on the following areas:

- Strategic Planning
- Carbon Emission Reductions
- Risk Assessment and Management
- Communication, Coordination and Capacity building
- Monitoring and review

The work plan identifies a range of actions in the areas of: Strategic Planning; Emission Reduction; Risk Assessment and Management; Communication, Coordination and Capacity Building. Actions proposed by LGAT include:

- The development of a Local Government Climate Change Strategy;
- The establishment of local government sector based emission reduction targets and a monitoring program;
- Development of a climate change Action Pack for local government;
- Representing local government on climate change project; and
- Coordination of local government's response to Federal and State climate change initiatives including the establishment of working groups through the Climate Change Reference Group.

Local Government and Liability

The legal framework surrounding Climate Change is rapidly evolving. Legal precedents are continuing to be set recognising 'climate change' as a consequence of increased anthropogenic greenhouse gases entering the atmosphere. Increasingly organisations are being exposed to future liabilities based on current decisions and actions that result in either emission of atmospheric greenhouse gases or don't take into account impacts of climate change. It is becoming increasingly imperative that decisions of the Council's are considered to be reasonable responses to climate change to avoid potential litigation in the future.

The paper "Climate Change: What are local governments liable for?" by Phillipa England Griffith University March 2007 "*…. examined some potential legal liabilities of local governments when making decisions about matters affecting climate change as well as matters affected by climate change. Local governments currently have available to them a number of defences that seem likely to protect them from claims based on a failure to recognize and respond to information about climate change. Nevertheless, just as the science of climate change is gathering momentum, so too the law in this area is evolving rapidly. Local governments should therefore take care to ensure their actions, decisions*

and policy responses to matters that may either contribute to, or be affected by, climate change remain current and reasonable in what is a rapidly evolving policy context."

In a more recent article England further makes the case that the "*emergent law seems to require Councils to develop a reasonable response to climate change considerations*." And notes "*…that local governments are becoming increasingly vulnerable to litigation if they fail to take into account climate change considerations when making decisions that will impact of greenhouse gas emissions (England 2008). And in terms of the failure to take into account the consequence s of climate change in their decision making local governments are becoming increasingly exposed.*

To avoid potential litigation local governments should start to assess, as a matter of routine, the impact of their decisions and activities on greenhouse gas emissions and also to consider, where possible ways and means of reducing that impact".

England concludes "*With respect to adaptation to climate change, the law requires that local governments develop a reasonable response – or more accurately, a not wholly unreasonable response to climate change impacts. Provided they do this local governments should remain immune from civil liability for any failure to take into account predicted climate change impacts.*"

Hobart's Strategic Context

Key drivers for addressing the issue of climate change across Council's activities and core business are its Vision Hobart 2025, Strategic Plan 2008 – 2013, and Corporate Plan 2009 - 2014. HCC S5 progresses the climate change elements contained in these strategic documents into a strategic framework that provides a comprehensive way forward on this challenging issue.

The community consultation for Vision Hobart 2025 articulated the community's need to address issues enmeshed in climate change such as sustainable transport, quality urban development and the natural environment. The Council Strategic Plan 2008-2013 integrates key climate change elements for city and its community in response to Hobart's Vision 2025. The Council's Corporate Plan 2009-2014, which is internally focused, provides a driver to realise climate change action across the Council's corporate activities. HCC S5 aligns these strategic documents into a framework for action.

Hobart's Vision – Hobart 2025

In 2025 Hobart will be a city that:

- offers opportunities for all ages and a city for life;
- is recognised for its natural beauty and quality of environment;
- is well-governed at regional and community levels;
- achieves good quality development and urban management;
- is highly accessible through efficient transport options;
- builds strong and healthy communities through diversity, participation and empathy; and
- is dynamic, vibrant and culturally expressive.

MISSION

Our mission is to ensure good governance of our capital city.

VALUES

The Hobart City Council will:

Leadership	Provide effective capital city leadership, integrity and openness in its approach and will be an advocate for the needs and aspirations of the community.
Equity	Ensure equity, consistency and co-operation in its dealings with the community and government.
Community Involvement	Encourage effective democratic involvement by the community in the life of the city through Involvement communication, consultation and participation.
Responsiveness	Be responsive to the needs and aspirations of the community.
Excellence	Ensure continuous improvement in the delivery of all of its services.

Strategic Plan 2008-2013

The key climate change strategies are:

FD2.3. The physical environment has been conserved in a way that ensures we have a healthy and attractive city.

2.3.3. Promote opportunities to improve the energy efficiency of the city.

- Identify emerging initiatives for energy efficiency and potential funding for development.
- Promote energy efficiency initiatives to the community.
- Review Council's initiatives including energy efficiency and solar hot water rebates.
- Review Council's Cities for Climate Protection Greenhouse Local Action Plan.

2.3.7. Develop and implement strategies to minimise greenhouse gas emissions.

- Review and implement Council's Greenhouse Gas Local Action Plan under the Cities for Climate Protection Programme.
- Develop and implement Council's Sustainable Transport Strategy.
- Promote Council's greenhouse emissions reduction initiatives to the community.

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.
- Participate in regional approaches to climate change-related initiatives.

Corporate Plan 2009-2014

HCC S5 is consistent with the Corporate Plan 2009-2014 Element 3.3 Environmental Sustainability in that it specifically seeks to:

- Increases awareness and understanding of climate change
- Promotes leadership in response to climate change
- Implements energy and greenhouse gas emissions reduction strategies
- Adapts to climate change impacts
- Understand the economic impacts of climate change.

Council Resolutions

The following outlines key Council's resolutions with regard to climate change and sustainability as drivers for HCC S5 – a full list of Council resolution is contained in Appendix 4:

13/08/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

That:

- The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.
- For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.
- The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.
- Aldermen and the community be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

25/06/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

"That further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examines the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59 STRATEGIC GOVERNANCE ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

That:

The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

- A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.
- The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.
- The quantum of monies to be allocated to the reserve fund being reviewed annually.
- The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.
- An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

Emissions Profiles

This section examines the emissions profile for Australia, Tasmania, Hobart's municipal area and the Hobart City Council.

Australia's Emissions Profile

Australia is the highest emitter per capita (approximately 28 e-CO_2 tonnes per capita) in the world. Since 1995 has been increasing emissions by 1% per annum.

The Australian Government has produced figures for Australia's total greenhouse gas emissions in 2006. These amounted to 575 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e). The following tables shows the State and Territory breakdown and emissions by sector:

	NSW	Qld	Vic	WA	SA	NT	Tas	ACT	Total
e-CO2 Mt	160	170.9	120.3	70	28	16.2	8.6	1.1	575
% of Aust total	27.8	29.7	20.9	12.2	4.9	2.8	1.5	0.2	100%
Stationary Energy	76	64.6	80.5	36.3	14.2	3.7	2.4	* part of NSW	287.4 (50%)
Transport	21.6	18.7	20.6	9.5	5.9	1.4	1.8	0.9	79.1 (14%)
Fuguitive Emisssions	14	8	2	3.5	3	0.2	Not available	0.01	34.5 (6%)
Industrial Processes	12	5	3	4	1.5	0.1	1	0.1	28.4 (15%)
Agriculture	20	25	16	12	5.8	7.5	2.2	0.01	90.1 (15%)
Land Use, Land Use Change & Forestry	9	27	-5	-2	-4	0.3	3	-0.1	40 (7%)
Waste	6	3	4	2	1	0.1	0.5	0.2	16.6 (3%)

* Stationary energy is mainly greenhouse gas emissions from the production of energy and other direct combustion of fossil fuels in industry such as manufacturing and construction. In Tasmania the manufacturing and construction comprises the most significant source of emissions in this sector with energy production primarily relating to high emissions fuel sources such as diesel, anthracite and heavy fuel oil.

Source: "State and Territory Greenhouse Gas Inventories 2006"
Australian Government June 2008

Hobart's Community Emissions Profile

In 2007 Hobart's municipal area was the source of 349,337 e-CO_2t. The two most significant sources of emissions were in the industrial and transport sectors with 41% and 35% respectively. Emissions in Hobart's very small industry sector are high as anthracite (black coal) is used as the energy source for activities such as heating of industrial boilers in manufacturing processes. It has an emissions factor of 93.6 kg e-CO_2 GJ giving a high emissions output. Conversion to natural gas would significantly reduce emissions from this sector.

	Source	e-CO_2 t	e-CO_2 %	GJ	GJ%
Residential	Electricity	13,165	4	877,672	15
	LPG	1,815	1	30,345	1
	Natural gas	525	0	10,115	0
	Subtotal	15,505	5	918,132	16
Commercial	Electricity	12,387	4	825,780	14
	LPG	1,741	1	29,118	0
	Natural gas	1,511	0	29,118	0
	Diesel	16,224	5	232,943	4
	Subtotal	31,863	10	1,116,959	19
Industrial	Electricity	7,919	3	527,958	9
	Anthracite	74,233	24	830,658	14
	Diesel	20,044	6	287,780	5
	Heavy fuel oil	15,328	5	209,785	4
	Other	15,626	5	190,722	3
	Subtotal	133,150	43	2,046,903	35
Transportation	Petrol	88,174	28	1,270,522	22
	LPG	4,895	2	81,864	1
	Diesel	28,525	9	409,551	7
	Subtotal	121,594	39	1,761,937	30
*Transportation by sector	*Residential (Private Cars, Motorcycles, Buses)*	*93,506*	*77*	*1,402,501*	*80*
	Commercial (Trucks, Vans etc)	*28,088*	*23*	*407,007*	*20*
Waste	Paper products	2,087	1		
	Food waste	2,817	1		
	Plant debris	355	0		
	Wood/Textiles	2,504	1		
	Subtotal	7,762	3		
Waste Water Treatment	Carbon Dioxide	55	0		
	Subtotal	55	0		
	Total	309,929	100	5,843,931	100

*the "Transportation by sector" figures (italics and grey font) are not included in the overall tables calculations – they have been included as the show the difference in emissions between the private residential transport and the commercial sectors.

Source: The data set was provided by ICLEI as default Hobart community data for CCP purposes– it is based on ABS census data and provided to CCP Councils following census years.

Hobart population is almost 48,000 and it has almost 23,000 rateable properties of which 86% are residential, with 11% commercial and the balance vacant land. Overall Tasmania's population is ageing and the second oldest of any capital city.

The following table tracks the electricity consumption and emissions of the majority of Hobart's suburbs from 2004/05 – 2006/07. The central business district (CBD) postcode 7000 consumes the greatest proportion of energy and produces most emissions this is expected as it supports the greatest area of economic activity. Postcode 7007 shows the greatest growth consumption and emissions with 43% increase, which in line with the increase urban development. Overall there has been an increase of electricity use and emissions of 8%.

		Business		Residential		Total	
Postcode	Year	GJ	eCO_2t	GJ	eCO_2t	GJ	eCO_2t
7000	04/05	70,380	25,415	23,983	8,660	94,363	34,075
	05/06	74,463	26,889	23,075	8,333	97,538	35,222
	06/07	83,071	29,998	24,064	8,690	107,135	38,687
7004	04/05	15,111	5,457	13,367	4,827	28,478	10,284
	05/06	15,008	5,420	12,745	4,602	27,753	10,022
	06/07	15,570	5,622	13,437	4,852	29,007	10,475
7005	04/05	18,661	6,739	25,142	9,079	43,803	15,818
	05/06	20,348	7,348	24,244	8,755	44,591	16,102
	06/07	20,364	7,354	25,723	9,289	46,087	16,643
7007	04/05	559	202	5,697	2,057	6,256	2,259
	05/06	981	354	5,302	1,914	6,282	2,269
	06/07	979	353	5,647	2,039	6,625	2,393
7008	04/05	13,285	4,797	19,387	7,001	32,672	11,798
	05/06	14,957	5,401	18,622	6,724	33,579	12,126
	06/07	15,390	5,558	18,897	6,824	34,287	12,381
Total	04/05	117,996	42,610	87,576	31,625	205,572	74,234
	05/06	125,756	45,412	83,987	30,329	209,743	75,740
	06/07	135,374	48,885	87,767	31,694	223,141	80,579

Source: The municipal wide electricity data set was provided by Aurora Energy- due to commercial reasons it can no longer be made available to Hobart City Council.

Postcodes:

7000 Hobart, North Hobart, West Hobart, Glebe

7004 Battery Point, South Hobart

7005 Dynnyrne, Lower Sandy Bay, UTAS

7007 Mount Nelson, Tolmans Hill

7008 Lenah Valley, New Town

NB the postcode 7054 Fern Tree and Ridgeway is not included as the majority of the settlements are located in the municipality of Kingborough.

Hobart's Corporate Emissions Profile

The Hobart City Council joined CCP in 1999, selecting 1996 as its base year and setting a 70% emission reduction goal by 2010. Since then much has changed within the Council's own energy landscape. The Hobart Aquatic Centre came on line in 2000 doubling the Council's energy use. Upgrades and installation of sewage and water pump stations servicing the community have also increased the Council's energy use. Tasmania's greenhouse gas landscape has changed markedly with an increase in electricity emissions as more mainland electricity is imported.

The Council, in spite this, is reducing its energy use through a range of energy saving options such as conversion of all computers to energy saving LCD screens, lighting replacement programs, upgrades of plant equipment and use of natural gas at its bitumen plant. It is interesting to note that since 2001, energy use in the Building, Streetlights and Water/Sewage sectors has decreased along with 'non-energy' emissions sectors of Water/ Sewage and Waste Water Treatment and Waste. A significant emission reduction of almost 80% has been made in the waste sector at the McRobies Gully Landfill. This has been achieved by the use of landfill methane to generate electricity that is exported to the 'grid.' Since the program was commissioned 17,500 MWHrs of electricity have been produced and 135,000 tonnes of greenhouse gas destroyed.[4]

The Council uses online CCP Greenhouse Gas Calculation software for its inventories, conducting annual inventories since 2000/01 and tracking progress and trends. Accurate data is obtained from its electricity and fuel accounts, along with record keeping of waste entering the landfill site and annual landfill cogeneration reports.

	Base Year 1996 [B]	2001	2002	2003	2004	2005	2006	2007	% Change 1996-2007
[A] Buildings Sector									
eCO_2 t	115	22	61	344	392	481	594	1,321	92↑
GJ	20,694	[C]38,992	36,775	39,893	40,272	38,495	39,627	35,705	[D]58 ↑
COST $	650,590	1,063,454	1,064,972	1,194,224	1,217,990	1,225,447	1,277,636	1,231,252	53↑
Vehicle Fleet Sector									
eCO_2 t	1,819	2,299	2,388	2,415	3,438	2,867	2,766	2,476	73↑
GJ	26,254	33,148	34,432	34,825	49,492	41,296	40,346	36,729	[E]71↑
COST $	431,551	721,081	780,201	803,069	1,086,553	1,193,533	1,278,043	1,307,650	33↑
[A]Streetlights Sector									
eCO_2 t	65	8	24	125	141	180	208	496	99.2↑
GJ	11,754	14,267	14,516	14,554	14,484	14,424	13,837	13,403	87↑
COST $	662,791	812,033	855,894	880,189	902,146	927,341	959,824	1,020,882	35↑
[A H] Water/Sewage Sector									
eCO_2 t	37	12	32	160	162	258	295	657	94↑
GJ	6,726	21,298	19,344	18,601	16,697	20,610	19,658	17,750	38[I]↑
COST $	207,494	582,156	523,978	545,913	567,327	619,120	627,938	612,103	34↑
Waste Sector									
eCO_2 t	39,400	43,200	43,500	34,191	14,800	6,982	7,762	8,210	79↓
Waste Water Treatment (Digesters)									
eCO_2 t	4,599	1,260	1,260	1,260	1,260	1,260	55	55	98.8↓
Total									
eCO_2 t	46035	46,801	47,266	38,495	20,192	12,027	11,680	13,215	71↓
GJ	55,357	107,705	105,067	107,873	120,945	114,826	113,468	103,587	53↑
COST $	1,952,426	3,178,724	3,225,045	3,423,394	3,774,016	3,965,441	4,143,441	4,171,887	47↑

[4] AGL July 2008, Hobart Landfill Gas Recovery Report

[A] The energy source for the Building, Streetlights, Water/Sewage sectors is electricity and its emissions factor e-CO_2 kg /kWh has increased from 0.02 CO_2-e/GJ in 1996 to 0.13 CO_2-e/GJ in 2007 due to the effects of the climate induced drought resulting in low Hydro dam levels and the subsequent importation of high emissions electricity from Victoria via Basslink and use of natural gas at Bell Bay to augment the States electricity supplies. A consequence is that emissions in the "electricity" sectors has increased by almost 100%.

[B] The National Greenhouse Accounts Factors 2008 emissions factor of 0.02 kg CO_2-e/GJ for 1996 has been used for the purposes of this inventory. It is noted that in 2000 when Hobart set its emissions targets that the NGFA 2000 the emissions target was 0.00 CO_2-e/GJ and as such in previous inventories produced by the Council this ha been listed as 0.00 eCO_2t.

[C] The almost 50% increase in energy was due to THAC coming on line –it is noted however that between 2001 when it came on line and 2007 that there has been an energy decrease of 8% (3,300 GJ) in the Building sector.

[D] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[E F] The decrease in 11% energy use and 14% decrease in eCO_2t from 2005 to 2007 is due to the Council's Bitumen plant converting from diesel to natural gas

[G] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[H] In 2009 the Water and Sewage Sector will transfer to a Regional Authority this will result in a reduction of approximately: 4% e-CO_2t emissions; 20% of energy (GJ) and 15% in costs.

[I] Between 2001 and 2007 there has been a 17% decrease in energy (GJ) used in the Water/Sewage sector

[J] The decrease in e-CO_2 t is due to the flaring and subsequent cogeneration of methane from the McRobies Gully landfill – residual emissions are fugitive

[K] The decrease in e-CO_2 t is due to cogeneration of methane from the Waste Water Treatment plants for reuse as an energy source in the plant

[L] Between 2001 and 2007 there has been a 4% reduction in energy (GJ) used overall be the Council

PART TWO – STRATEGIES & ACTIONS

5A's Strategies and Actions

Climate change will affect the whole of Council and how it functions and how each employee does their job. It will affect our community, the region we live in. There is nothing about our lives, communities, societies or environments that will not be affected by climate change.

The strategies and actions identified in HCC S5 have been developed to assist the Council and its communities to continue action to mitigate emissions and begin to adapt to climate change impacts and a carbon neutral lifestyle and economy.

The focus of HCC S5 is on the five core strategies of climate which apply across the organisation and our community and regional linkages. It is considered that major aspects of the ramifications of climate change on our social and natural processes are covered by the strategies.

The five A's of climate change are:

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions and progress towards targets.

The strategies are not listed in a hierarchical order – all strategies are considered to be of equal importance. To date the major areas of action have been in the abatement sector, as in the early 2000's the emphasis was on reducing emissions as programs typically focused on mitigation. However in recent times there has been a shift on the realisation that humanity will have to adapt to climate change impacts in the order of 2^0C or more as emissions continue to increase.

HCC'S previous Local Action Plan separated the actions to address climate change into corporate and community, this document blends actions in both these sectors of which there is also considerable overlap into the five core strategies of climate change.

Action Time Frame	Financial Year
Ongoing	n/a
Immediate	2009/10- 2010/11
Medium	2010/11 – 2011/12
Long Term	2012/13 – 2013/14

Advocacy

Advocacy: promoting leadership within the Council and throughout the community in responding to climate change.

The issue of climate changes is challenging all levels of society and there is the urgent need to create sustainable and carbon friendly communities, cities, economies and social structures and processes. The inherent uncertainty in finding and creating solutions and alternatives to progress in the face of climate change requires strong advocacy from across society and its institutions. Local government's core business is 'sustainability' in its broad meaning encompassing economics, environment and social considerations. As such, it is incumbent on the Hobart City Council to advocate for development and implementation of actions and strategies to address climate change issues

The Advocacy Strategy component provides for effective Capital City leadership, integrity and openness in its approach and to climate change. This will provide a political forum to advocate the needs and aspirations of the community with regard to understanding, responding and adapting to climate change.

Advocacy Actions:

Climate Change Policy

HCC S5 proposes that the Council formally endorse the Climate Change Policy that forms Appendix 5 of this document formally affirming and reinforcing its commitment for action and leadership on the issue. The Climate Change Policy forms the basis of the Council's climate change activities and represents its public commitment to leadership and action on climate change.

#	Action	Responsible	Timing
1.1	Council formally endorse the Climate Change Policy that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership to Hobart's communities and the region.	Council	Immediate

CCP Partner Program

In joining ICLEI Oceania - Cities for Climate Protection Program in 1999 the Council committed to acting on the issue of climate change. Through HCC S5 the Council reaffirms and reinforces its commitment to ongoing climate action post the cessation of CCP on 30 June 2009 and its replacement with the CCP Partner Program

The CCP Partner program will be of particular assistance to the Council through its proposed adaptation work and regional briefings. The regional briefings will be of particular support during the introduction of the proposed Carbon Pollution Reduction Scheme in 2011.

#	Action	Responsible	Timing
1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners Program.	Council	Ongoing

STCA - Climate Change and Sustainability Initiative

Greenhouse gas emissions, climate change impacts and the abatement and the mitigation and adaptation solutions are not limited to municipal boundaries. Whilst most Council's can successfully implement climate action at the corporate level as they directly control the emissions – working on community based climate action and meeting community-wide reduction goals is inherently complex and problematic as they do not control emissions and can only influence the behaviour change. HCC S5 proposes that through the Southern Tasmanian Council's Association (STCA) a Climate Change and Sustainability Initiative (CC&SI) be established – refer to flow diagram page 38.

The CC&SI provides a framework for the development of strategies supported by actions based on the four broad based themes of land use: urban, peri urban, rural and natural areas and revolve around the development of strategies and prioritisation of actions for these. The strategies are not mutually exclusive of one another with actions, strategies and program able to be shared and adopted by all Councils represented by the STCA. It does however encourage Councils to work on the development and sharing of programs that are of most concern and relevance to their communities.

The development of the strategies should be undertaken with input from the key stakeholders in use each areas such as local government, state government, non government organisations, statutory authorities, industry etc.

The STCA CC&SI compliments and progresses the Statewide Partnership Agreement on Climate Change between the State Government and LGAT on behalf of Tasmanian Councils.

Initially the STCA CC&SI framework developed by CCP Councils as these already have an understanding of their and their communities emissions and are progressing a structured and supported framework for climate action.

Urban Strategy - Greater Hobart Climate Partnership

The initial project to be developed and piloted under the initiative is the Urban Climate Change Strategy involving Councils of Greater Hobart: Brighton, Clarence, Glenorchy, Hobart and Kingborough – (Devonport and Launceston invited as urban observers). The Greater Hobart Council's are engaged in the Cities for Climate Protection and are reasonably and consistently progressed in terms of the development and implementation of climate change actions.

Urban strategy would focus on two spheres of action:

- Community action on climate change with an emphasis on sustainable behaviour change that leverages off existing programs and incentives i.e. Carbon Pollution Reduction Scheme, HCC Solar Hot Water Rebates etc and focuses on householders, retail, commercial, industrial and education sector
- Adaptation applies the *Local Government Climate Change Adaptation Toolkit* to Greater Hobart including partnership opportunities with the ACE CRC Tasmanian Climate Futures Project and other stakeholders

The GHCP would share resources, set Greater Hobart community-wide emission reduction goals, develop a Greater Hobart Abatement Action Plan, Adaptation Strategy and Awareness Program. It aims to lead, support and mobilise climate action by the community and private and public sectors.

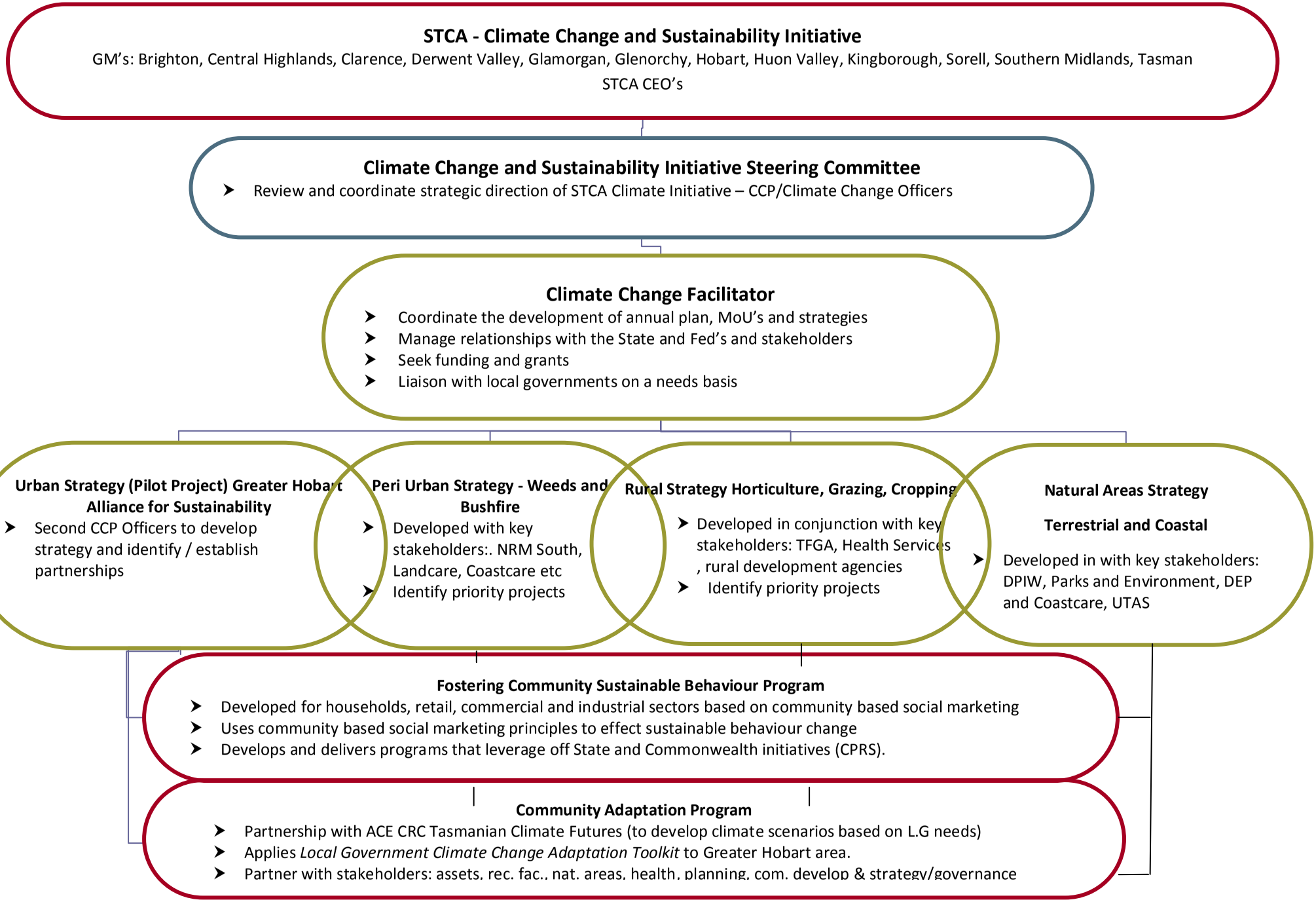
The GHAS would provide a model for other Council represented by the STCA to develop alliances and strategies around common themes of peri urban, rural and natural areas. The partnership is not intended to preclude other Councils from adopting actions and strategies. It is however intended to allow urban Councils leverage action and shared resources and responsibility for their urban communities that have distinct needs compared to peri-urban, rural and natural area communities and local governments.

The formation of a GHCP is supported by ICLEI and its CCP program. It progresses the State Government's Partnership Agreement on Climate Change in particular its principles of: leadership, shared responsibility; best practice and beyond, accelerating outcomes, creative thinking and innovation, openness and transparency.

It furthers the strategic direction adopted for the review of the Councils Climate Action and outlined in a CMT report (dated 06/07/07 – see Appendix 4) circulated, to aldermen, which included a recommendation, that:

"Opportunities are investigated for the establishment of a regional approach to community emissions abatement with other [CCP] *participating councils of Greater Hobart – Glenorchy, Clarence, Brighton and Kingborough."*

The model for the GHCP `would be of a similar to that of the Derwent Estuary Program that includes: Political commitment; a steering committee; and a technical working group supported with resources, to deliver and coordinate the program and on-ground actions.


STCA - Climate Change and Sustainability Initiative
GM's: Brighton, Central Highlands, Clarence, Derwent Valley, Glamorgan, Glenorchy, Hobart, Huon Valley, Kingborough, Sorell, Southern Midlands, Tasman
STCA CEO's
Climate Change and Sustainability Initiative Steering Committee
Review and coordinate strategic direction of STCA Climate Initiative – CCP/Climate Change Officers
Climate Change Facilitator
Coordinate the development of annual plan, MoU's and strategies
Manage relationships with the State and Fed's and stakeholders
Seek funding and grants
Liaison with local governments on a needs basis
Urban Strategy (Pilot Project) Greater Hobart Alliance for Sustainability
Second CCP Officers to develop strategy and identify / establish partnerships
Peri Urban Strategy - Weeds and Bushfire
Developed with key stakeholders:. NRM South, Landcare, Coastcare etc
Identify priority projects
Rural Strategy Horticulture, Grazing, Cropping
Developed in conjunction with key stakeholders: TFGA, Health Services , rural development agencies
Identify priority projects
Natural Areas Strategy
Terrestrial and Coastal
Developed in with key stakeholders: DPIW, Parks and Environment, DEP and Coastcare, UTAS
Fostering Community Sustainable Behaviour Program
Developed for households, retail, commercial and industrial sectors based on community based social marketing
Uses community based social marketing principles to effect sustainable behaviour change
Develops and delivers programs that leverage off State and Commonwealth initiatives (CPRS).
Community Adaptation Program
Partnership with ACE CRC Tasmanian Climate Futures (to develop climate scenarios based on L.G needs)
Applies Local Government Climate Change Adaptation Toolkit to Greater Hobart area.
Partner with stakeholders: assets, rec. fac., nat. areas, health, planning, com. develop & strategy/governance

#	Action	Responsible	Timing
1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of an *STCA Climate Change and Sustainability initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives and recognition of local government climate action to date.	STCA / General Manager	Immediate

Climate Change and Sustainability Steering Committee

The "Climate Change and Sustainability Steering Committee" is a an internally focussed leadership program to coordinate and progress climate and sustainability issues across (i) the Council's sphere of corporate activities and (ii) for input into the Greater Hobart Climate Partnership. CCSSC encompasses Energy Management, Environmental Sustainability and Climate Adaptation Programs. It is a response, in part (see underlined), to the Council motion Meeting 46, 10/09/07:

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

#	Action	Responsible	Timing
1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change & Sustainability Steering Committee	Ongoing

Greenhouse Reference Group

The Greenhouse Reference Group, comprised of Aldermanic representatives and Council officers, was established in 2000 to assist in the development and implementation of the Councils Greenhouse Local Action Plan. In preparing for its review the Council adopted a recommendation, dated 06/08/2007, that:

"The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered."

The scope and range of activities embedded and covered in climate change covers all aspects of the Councils activities: social, economic and environmental. To ensure a more comprehensive response and holistic and informed input by the Council's Aldermen HCC S5 proposes that quarterly briefs are provided – with Council Officers updating on Council actions, strategies and initiatives as well as advising advances in climate science and legislation. Observers and key stakeholders, as relevant, would also be invited to attend and participate in the briefings. Working groups for the development and implementation of projects may also be established on a needs basis. The introduction of regular quarterly briefings will form an important conduit for the sharing of ideas and updates on climate change between elected representatives and the community. It will also have input into the Greater Hobart Climate Partnership.

#	Action	Responsible	Timing
1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant replacing the Greenhouse Reference Group.	Climate Change & Sustainability Steering Committee	2009 Ongoing

Abatement

Abatement: the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Emission Reduction Goals: HCC S5 sets the following the emissions abatement goals for its corporate and community activities:

- Corporate Energy Abatement Goal 30% reduction from 2009 by 2020 (Note this excludes Water and Sewage Sector that will be transferred from the Councils to the Regional Water Authority in 2009).
- Corporate Waste Abatement Goal 70% reduction goal from 1996 by 2010 and maintain until 2020 or until flaring concludes post landfill closure
- Greater Hobart Community Abatement Goal – to be identified under the auspices of the Southern Tasmanian Council Association's, Climate Change and Sustainability Initiative, Urban Program, by the Greater Hobart CCP Councils stakeholders: Brighton, Clarence, Glenorchy, Hobart and Kingborough.

HCC S5 Emissions Abatement Goals builds on and refines the Councils previous corporate and community emission reduction goals set in 2000 under the auspices of the CCP:

- Corporate 70% by 2010 from 1996 levels; and
- Community 20% by 2010 from 1996 levels.

The Council has achieved and exceeded its corporate emission reduction goal of 70% by 2010. It has abated a total a 166,937 e-CO_2 tonnes which is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

A significant proportion, 80%, of this has been achieved through the installation of cogeneration technologies, using methane generated from its McRobies Gully Landfill and Waste Water Treatment operations. Since commissioning landfill cogeneration in 2004 a total of 134,029 e-CO2 t have been destroyed and 17,243 MWhrs of electricity have been generated and exported to the states grid which is enough to power 742 average Tasmanian homes[5]. Residual landfill emissions are fugitive and best addressed though carbon offsets or similar mechanisms. The cogeneration will continue until the expected closure of the landfill in 2018.

To address emissions associated with energy use for the balance of the Council activities a new energy abatement goal of 30% has been set that targets the Councils energy (electricity, fuel and natural gas) use and will result in real energy savings for Council. The electrical energy component typically has minimal emissions due to the low Tasmanian electricity emissions factor that, in 2007, is 0.13 kg CO2 e/kWh as compared to 1.32 kg CO2 e/kWh for Victoria[6]. The 30% Energy Abatement Goal is adjusted to take into account the Water and Sewage Reform – whereby Hobart's waste water treatment and pump assets, accounting 20% of its energy use, are transferred to a Regional Authority in 2009.

The 20% Community Reduction Target set in 2000 is problematic as the Council does not control emissions in this sector. Whilst the Council can exert some influence through its planning scheme, community awareness initiatives and sustainable transport strategies, these have not had a sizeable impact on actual emissions from this sector. It is noted that the greatest proportion of emissions in this sector are derived from industry process that rely anthracite (black coal) as a fuel source for heating boilers. Working co-operatively with the Councils of Greater Hobart and setting a joint community emissions reduction goal will produce realistic and sustainable project and outcomes that produce. A cooperative approach will also leverage greater resource towards abatement project and greater lobbying capacity on behalf of the participating local governments.

[5] AGL Annual report, (McRobies Gully Waste Treatment Facility) July 2008.

[6] National Greenhouse (Factors) Accounts Jan 2009

Corporate Abatement Actions

Energy Management Team [Corporate]

In 2007 an [Corporate] Energy Management Team was established to investigate and implement actions for the all the Council's energy [i.e. electricity, natural gas, diesel/petrol] consumption, costs and energy related greenhouse gas emissions. It is responsible for developing energy efficiency and conservation actions and strategies including alternative energies, emission reduction and carbon offsets for energy/emissions that cannot be reduced. Note: the team is not responsible for greenhouse gas emissions associated with the waste and the Council's McRobies Gully landfill nor energy use within the community sector.

The following table summarises the Councils energy [GJ] consumption and energy greenhouse gas emissions for assets that used more than 500 GJ per annum in 2006 -07:

Asset/s – 2007 greater than 500 GJ per annum	Category	GJ	eCO_2t	eCO_2%	$
The Hobart Aquatic Centre	Building	19921	737	15	611,798
Trucks	Fleet	13771	959	19	514,702
Hobart Streetlights	Streetlights	12759	472	9	985,021
*Selfs Point Waste Water Treatment Plant	Waste/Water	8779	325	6	284,512
Heavy Plant	Fleet	6952	484	10	260,847
Utilities/Vans	Fleet	5689	396	8	218,976
Hot Mix Plant (Natural gas)	Fleet	4536	235	5	85,084
*Macquarie Point Waste Water Treatment Plant	Waste/Water	4152	154	3	135,406
Town Hall	Building	3806	141	3	137,694
Customer Services Centre	Building	3291	122	2	124,255
Council Passenger Vehicles	Fleet	2551	177	4	102,338
4 Wheel Drive Vehicles	Fleet	2124	148	3	79,821
*Pump Station PS2 Nelson Road	Waste/Water	1938	72	1	69,332
*Pump Station 283 Brooker Avenue	Waste/Water	1885	70	1	65,406
Argyle Street Car Park	Building	1746	65	1	59,449
Hot Mix Plant (Natural Gas)	Building	1265	47	1	52,386
Central Car Park	Building	1142	42	1	41,326
Centrepoint Car Park	Building	1005	37	1	31,768
Aldermanic Fuel Allowance	Fleet	820	57	1	34,191
Salamanca Car Park	Building	683	25	0	28,471
Other Assets Energy Use	-	4772	240	5	24,9104
Total		103,587	5005	100	4,171,887

*To be transferred to the Regional Sewage and Water Authority 2009.

Electricity

Overall there has been a modest reduction of electricity energy used since mid 2000 due to actions such as changing all computers screen to energy efficient LCD screens. There is however scope to further reduce electricity emissions and the Council has committed to a further 30% emission and energy reduction by 2020 from 2007 levels. It is anticipated that this will be achieved through energy efficient lighting, energy audits and Heating, Ventilation and Air Conditioning and increased awareness and behaviour change.

HCC S5 notes that the report "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre" identified that there were extremely limited opportunities for the installation on Council's corporate buildings due to poor solar orientation, compromised roof space due to HVAC systems and shading issues.

Fuel/Diesel

Currently the options for reducing energy and emissions in this sector are limited as there currently no viable alternatives fuel sources available within Tasmania. The council is represented on a working group with the State Government into opportunities for Compressed Natural Gas and is lobbying for filling stations in Hobart, Launceston and North West. It has committed funds in the 2009 budget for the purchase of three CNG garbage trucks.

Through the EMT it is working towards the development of strategies to increase awareness and behavioural change to reduce emissions from passenger vehicle use and fleet.

Natural gas

Natural gas is now used in the hot mix plant replacing the diesel as the primary fuel source this has resulted in a 5% emissions reduction since its introduction. EMT is currently examining other opportunities for natural gas for Council assets.

Other

Alternative energies: heat exchange, investigation of alternative energy (solar/wind) with demonstration capacity at demonstration solar at Cleary's Gates

#	Action	Responsible	Timing
2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 – 2010 levels (post Sewage & Water Reform).	Energy Management Program	2020
2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.		2008 – ongoing
2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.		2008-2009
2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.		Ongoing
2.5	Develop and implement Energy Management Plans for the corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.		2007 -2009
2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.		2008
2.7	Implement the recommendations of the report "PV Systems Consultancy and Building, Energy Assessment Hobart Town Hall, City Hall, Council Centre."		2008 - 2010

Corporate Waste Emissions

The Council provides facilities for the recycling of its corporate waste [paper, cardboard and bottles etc] generated from the Town Hall, Customer Services Centre, Cleary's Gates Depot and the Hobart Aquatic Centre. Waste that cannot be recycled enters the Councils kerbside waste collection service.

HCC S5 proposes that an audit is undertaken of the waste generated to measure the effectiveness of the Council's internal waste strategies and identify further opportunities to reduce waste entering kerbside collection stream. Following on from that a strategy will be developed, to address specific waste types and identify opportunities to reduce waste entering the kerbside stream, based on the findings of the initial audit.

#	Action	Responsible	Timing
2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	June 2009
2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.		June 2009

Sustainable Purchasing

The Hobart City Council for 2007 - 2008 spent approximately $36.6 million on materials, services and contracts. The Councils' Divisions are responsible for their individual purchases and purchasing practices. The purchase of office materials is guided by Council Policy (5-11-03) encouraging the purchase of 'environmentally preferable products.' However other purchases are not covered by policy directives or strategies that encourage sustainable outcomes.

The procurement practices of organisations can directly and indirectly influence the sustainability, including the greenhouse gas emissions, of products and services purchased. Wastes, leading to un-sustainable outcomes, can be generated:

- during the production and supply phase (resource extraction, processing, manufacturing, transport and supply);
- while the product is being consumed or 'used' by the end-user;
- once the product has reached its end of life stage and is disposed of by the end-user.

Given the significant purchasing power of the Council HCC S5 provides proposes that the Council develop a sustainable procurement strategies that it will consider:

- strategies to avoid unnecessary consumption and manage demand;
- minimising environmental impacts of the goods and services over the whole of life of the goods and services;
- suppliers' socially responsible practices including compliance with legislative obligations to employees; and
- value for money over the whole-of-life of the goods and services, rather than just initial cost
- the complex purchasing needs of the organisation as w whole; and
- educating and increasing the awareness of staff involved in purchasing across the organisation

The development of the sustainable strategy should consider the following mix of procurement strategies identified by the NSW Sustainable Procurement Program that include:

- influencing procurement patterns to favour sustainable products or discourage unsustainable ones;
- encouraging manufacturers and suppliers to improve their own operations (e.g. requiring them to have environment management systems);
- requiring manufacturers and suppliers to have greater responsibility for the life-cycle impacts of their products (e.g. product stewardship schemes);
- direct regulatory intervention, such as bans or mandatory performance requirements (e.g. eco-specifications on government motor vehicles contract); and
- educating suppliers and the broader community on economic, social and environmental impacts of their production and consumption patterns.'

http://www.greengoods.nsw.gov.au/policy/sustprocingov.htm

#	Action	Responsible	Timing
2.10	A Sustainable Purchasing Strategy is developed across the whole of Council, that: ➢ takes into consideration the Council's complex and varied needs-purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ has a process for monitoring, reporting and review of the strategies outcomes.	Climate Change & Sustainability Steering Committee	Medium

Sustainable Transport Strategy

Hobart's corporate and community transport sectors are significant sources of greenhouse gas emission, 62% and 39% respectively. Finding alternatives to the transport issue is a significant challenge, in the absence of an alternative fuel source to petrol and diesel, measures and strategies revolve around changed behaviours and the transport modes i.e. public transport over private transport options.

The Councils Sustainable Transport Strategy 2008 provides a significant was forward on this issue at both the corporate and community levels.

#	Action	Responsible	Timing
2.11	Implement recommendations of the Sustainable Transport Strategy, when finalised, in parallel with HCC S5	Climate Change & Sustainability Steering Committee	Ongoing

Community Abatement Actions

The community sector encompasses household (residential), business (commercial, retail, and industrial) and transport (private and commercial). In 2006 Hobart's community sector produced 309,929 e-CO_2 t and consumed 5,483,931 GJ. Compared to the base year 1996 where 312,896 e-CO_2 t were produced and 7,195,441 GJ were consumed there has been a reduction in emissions of 2% and energy of 19% - this is for the most part due to the decrease in population along with increased energy efficiencies and alternatives in this sector. The increase in the electricity emissions factor, due to the importation of mainland electricity means that reduction in energy is not reflected in a greater reduction in emissions in this sector.

Community abatement of emissions will be achieved principally through the proposed formation of the Greater Hobart Climate Partnership that aims to encourage, acknowledge and reward sustainable behaviour practices in the community sector. Abatement will be achieved through the empowerment of the community sector to increase their energy efficiency, change behaviours and

Household Sector

The residential or household sector, in 2006, was made up of approximately 20,000 private dwellings that consume 918,132 GJ or 16% of total energy in the community sector and produces the 15,505 eCO_2t or 5% of the total sectors emissions. Whilst the figures may appear relatively small there is considerable scope, and community support, to further reduce energy consumed and emissions produced. Significant gains in reduction of energy use importantly means cost savings to households.

Sustainable Household Incentive Program

The Sustainable Household Incentive Program combines the sustainability actions of the Council and embeds additional actions to encourage sustainable household outcomes such as increased energy efficiency, water conservation, clean air and biodiversity. The program extends and builds on the Councils successful Solar Hot Water and Water Rebates and progresses the recommendation endorsed by Council dated 25/06/2007:

"Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

And the Strategic Plan action:

"2.3.3. Review Council's initiatives including energy efficiency and solar hot water rebates "

HCC S5 proposes that a Sustainability Rebate Program be developed that includes:

- Solar Hot Water Rebate – extend and includes Hot Water Heat Pump;
- Energy Efficiency Audit and Rebate – introduces a rebate that includes a household energy efficiency actions including: ceiling and floor insulation, curtains, pelmets and glazing, energy efficient lighting (CFL's and LED's), appliance energy use;
- Clean Air rebate – for replacement of wood heaters/stoves with non PM emitting i.e. heat pumps, natural gas heating;
- Bushcare Bio-diversity Incentive – household register for native plants and advice on suitable native plant species for properties and conservation covenants;
- Food gardens incentive – encouraging households to reduce food miles through demonstration and community based edible gardens; and
- Waste management awareness – to encourage and increase participation I recycling through the capture of organic material.

SHIP would also annually recognise and acknowledge "Sustainable Houses" and "Sustainable Streets" and "Sustainable Community participating households" with plaques/signs akin to the Safety House Program. Case studies could also be developed of acknowledged participants for awareness and promotional activities.

The intent of SHIP is that it can be implemented within Hobart's municipal area by the proposed Climate Change and Sustainability Working Group and expanded to the Greater Hobart Climate Partnership.

Sustainable Design Guidelines

Promotion of 'Sustainable Design Guidelines' for residential development and extensions specific to Hobart's cool temperate climate and the predicted impacts of climate change in Tasmania.

#	Action	Responsible	Timing
2.12	Develop Sustainable Household Incentive Program, including a Sustainable Rebate using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
2.13	Promote 'Sustainable Design Guidelines' that are available, to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium

Business Sector:

The commercial sector of greater Hobart ranges from small to medium to large size entities and includes commercial offices and retail outlets. In Hobart there are approximately 2500 rateable business properties.

The achievement of sustainability, emissions abatement and energy conservation is complex as a significant proportion of the commercial and retail sector are tenants. This means that they may be limited in their opportunity to influence and/or achieve energy efficiency outcomes as they may not be responsible for building energy systems such as lighting, elevators and heating, air-conditioning and ventilation and the attendant greenhouse gas emissions.

HCC S5 aims, through the Greater Hobart Climate Partnership and collaboration with peak representative bodies to develop and/or align and implement existing programs to assist this sector, in particular commercial and retail tenants, to achieve sustainability, emissions abatement and energy conservation outcomes.

Abatement action will progress the Council's Strategic Plan Strategy to:

"2.3.3 Promote opportunities to improve the energy efficiency of the city "

Commercial Office Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Tasmanian Property Council and the State Government to deliver the CitySwitch or similar program to the commercial office sector.

The CitySwitch Program is a national tenant energy management program run in partnership between the cities of Sydney, North Sydney, Parramatta, Willoughby, Melbourne, Perth, Adelaide and Brisbane and state government agencies. It aims to assist commercial offices, in particular tenants, to reduce their greenhouse gas emissions by improving energy efficiency. Core to the program is the commitment of program participants to the achievement and maintenance of an accredited 4 stars or higher [7]NABERS Energy tenancy rating.

#	Action	Responsible	Timing
2.14	Investigate opportunities for the promotion of CitySwitch program or similar program to promote energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	2009

Retail Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Retail Traders Association and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	Medium

Industrial Sector

[7] NABERS: National and Built Environment Rating System administered by the NSW government.

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Industrial sector and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.16	Investigate opportunities for the establishment of partnership and lobbying for of the industrial sector to reduce emissions and partner in adaptation initiatives.	STCA Climate Change and Sustainability Initiative	Medium

Education Sector

In 2008 the Clarence and Hobart City Councils both hosted with Mackillop College Sustainable Schools Forums to encourage schools within their municipality to participate in the National Solar Schools Program. Through the NSSP up to $50,000 is available to schools for the installation of solar panels and other energy efficiency measures. HCC S5 proposes through the Greater Hobart Climate Partnership that a resource be engaged to support schools and assist in the identification of energy efficiency and solar measures particular to their situation.

#	Action	Responsible	Timing
2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground resource to support schools	STCA Climate Change and Sustainability Initiative	Medium

Waste sector

Community waste emissions

Council currently owns and operates one Waste Management Centre at McRobies Gully. The WMC incorporates a landfill, composting operation, landfill gas extraction plant, and resource recovery operations such as domestic recycling drop-off area and tip shop. The site receives on average 60,000 tonnes of putrescible waste each year. Council is currently working on a strategic plan for the Waste Management Centre.

Council currently provides four (4) kerbside waste collection services, being waste, recycling, green waste and hard waste. Collection frequencies and volumes are as follows;

Service	Frequency	Limit
Waste	Weekly	120 Litres
Recycling	Fortnightly	240 Litres
Green organics	Quarterly	2 m3
Hard Waste	Annually	2 m3

#	Action	Responsible	Timing
2.18	Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, green waste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
2.19	Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium

Awareness

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Recent social research by SGS Consultancy for Clarence City Council has revealed that on the issue of climate change local government is the most trusted tier of government. This finding is not surprising as local government is the closest level of government to the community and is well positioned for dialogue on climate change. It is also the level of government that has also consistently taken action on the issue.

It is important that local government engages with the community in frank and transparent dialogue about the issue of climate change. The information provided to the community from local government should be consistent that would reinforce norms around sustainable behaviours within communities – a key platform for engaging behaviour change.

Corporate Awareness Actions

Employee Sustainability & Climate Information

The Hobart City Council employees 750 people with 580 employed on an equivalent full time basis. As an organisation the Council needs to ensure that its employees understand and are engaged on the issue of sustainability and climate change. The *Beat the Winter Chills and Bills Question and Answe*r in 2008 for Council staff was provided an introduction to the issue. The following actions further information available to Council employees that allow them to undertake and access sustainable and climate friendly action for the workplace and at home:

- Intranet Climate Page – information on climate change:
- What the Council is doing;
- What can employees can do at work to be more climate friendly and reduce emissions (information for home will be available through the Councils internet website);
- Where to find information on sustainability and climate change;
- How climate change will impact on their work;
- Strategic – adaptation and policy;
- Council inventories – detailed reports of corporate sectors;
- Implement Office Waste program – see abatement page 46;
- Provide 5 x Household Energy Audit Kits for loan from Corporate Library – Household Energy Audits designed by South Australian Government includes: Power mates; an appliance for reading energy consumed by appliances, infrared thermometer, timers, thermometers, instruction manual;
- Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work;
- Climate Incentive Program – annual bonus part of EBA to Divisions that reduce their carbon footprint from waste (waste survey) and energy use (sub-metering) and commuting;
- Develop climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities; and
- Sustainability and Climate awareness is included in the Council's Induction Handbook for new employees.

- Sustainability and Climate Updates – include updates, profiles, case studies etc on sustainability and climate action in Employee News

#	Action	Responsible	Timing
3.1	Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work.	Climate Change & Sustainability Steering Committee	Medium
3.2	Inclusion in Council's Employee *Induction Handbook* of a section on 'Sustainability and Climate Awareness.'	Climate Change & Sustainability Steering Committee	Medium
3.3	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities	Climate Change & Sustainability Steering Committee	Medium
3.4	Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees	Development & Environment Services	Immediate

Community Awareness Actions

Increasing community awareness about climate change and the need for sustainable behaviour change is a key action of HCC S5. The enormity of the issue of climate change can make action seem daunting and without empowering communities on action that they can take can have adverse outcomes where the community disengages and/or ignores the issue.

HCC S5 seeks to provide information to the community on nature of the issue and a range of actions that the community can undertake to respond and adapt the issue sowing the seeds for a strengthened sense of community and building community resilience.

When a community is resilient it can respond to crises in a way that strengthens community bonds, resources and the community's capacity to cope. Community resilience refers to the community's capacity to respond to adversity and change. Community resilience is of great interest and relevance to addressing the issue of climate change as it will allow communities to adapt to climate impacts and carbon economies.

In addition to building community awareness is also to encourage sustainable behaviour change. The basis of the community awareness program and actions are to consider the principles of community based social marketing to fostering sustainable behaviour. The programs development should identify barriers, remove external barriers, provide incentives, and create norms and prompts for desired behaviour change.

Key drivers contained in the Council's Strategic Plan:

"2.3.3. Promote energy efficiency to the community."

"2.3.7 Promote Council's greenhouse gas emissions reduction initiatives to the community."

Community Engagement

Through the STCA Climate Change and Sustainability Initiative's Greater Hobart Climate Partnership develop a climate action program to engage the community reducing emissions and building resilience and strengthens community relationships utilising the principles of community based social marketing.

#	Action	Responsible	Timing
3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➢ Fosters sustainable behaviour change across all community sectors ➢ Promotes actions to increase energy conservation and abatement of emissions ➢ Increases understanding of climate change and local government actions and responses ➢ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change	Climate Change & Sustainability Steering Committee	Medium
3.6	Design sustainability and climate awareness web pages for the Council's intra/internet page.	Climate Change & Sustainability Steering Committee	Medium
3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing

*In lieu of the formation STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Dr Edward Hall Awards – Climate and Sustainability Category

The Council's Dr Edward Hall Awards recognise environmental excellence across Southern Tasmania. The inclusion of a sustainability category to recognise sustainable and carbon neutral design in construction will further promote and increase awareness of sustainability and climate change.

#	Action	Responsible	Timing
3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing

Adaptation

Adaptation: the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

The HCC S5 Adaptation Strategy establishes a framework for the Council to respond to climate change, manage risk, identify opportunities and work with communities to prepare them to adapt to climate change impacts and carbon neutrality.

The Councils Strategic Plan is a key driver for the development of a Climate Change adaptation strategy:

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- *Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.*
- *Participate in regional approaches to climate change-related initiatives.*

The effects of climate change on Hobart will range from sea level rise and storm surge through to floods, droughts, extreme weather events and increased risk of fire all of which can impact on infrastructure and our communities. There will be implications for land use planning, local government owned infrastructure, community services and natural assets. The 'risks" and impacts are not new; however they are expected to increase intensity and frequency.

The following table list expected physical risks and social impact of climate change:

	Climate Impacts
Assets	➢ Road pavement construction & maintenance: change rate of deterioration, inundation , interruption to traffic ➢ Stormwater/drainage: intense rainfall events, exceedance of drainage capacity, flood defences, change in environmental flows ➢ Buildings: changes in building HVAC requirements/costs, risk of bushfire damage, extreme storm events damage, higher building deterioration and maintenance costs ➢ Coastal infrastructure: increased coastal erosion and inundation, increased frequency or permanent inundation of utilities, destruction damage to council owned assets and increased erosion and breaches of coastal assets and defences.
Recreational Facilities	➢ Provision and use of recreational facilities: impacts on infrastructure, loss of public space, tourism impacts, increase operation and maintenance costs ➢ Maintenance of recreational facilities: reduced water quality and quantities – implications for irrigation, beach closures due to algal blooms
Health Services	➢ Increase in range of vector borne diseases ➢ High temps increasing food and water borne diseases

	➢ Health impacts/fatalities due to heat waves ➢ Pressure on drinking water supplies ➢ Excessive rainfall and impacts on fresh water supplies ➢ Increase in injuries due to extreme weather events
Natural Resource Management	➢ Shifts in flora and fauna distributions ➢ Increase risk of extinction ➢ Reduced ecosystem resilience ➢ Increased ecosystems and species heat stress ➢ Increased pressure on dune systems ➢ Increase ecological disturbance
Planning	➢ Uncertainty in long term land use planning and infrastructure design ➢ Costs of retrofitting systems ➢ Loss of private property and community assets ➢ Increased insurance costs ➢ Early retirement of capital infrastructure

Local government has a key role to play in adapting for climate change and will need to manage risk to: its own infrastructure and assets, planning scheme requirements and the community sector emergency planning

Two opportunities available that will assist the Council to develop adaptation strategies are the CCP Local Adaptation Toolkit and the Climate Futures for Tasmania Infrastructure Project. The former provides a toolkit for adaptation/risk management that has been developed for and piloted by local government. Whilst the latter will produce climate change scenarios specific to Tasmania and a methodology that can be applied to infrastructure to identify risk levels. The application of both to Hobart City Council its activities, its community's activities and those of Greater Hobart will provide a comprehensive adaptation/risk management approach to climate change impacts. Both projects will leverage and augment the Tasmanian Climate Futures Project that models at a fine scale of 14 km2 grid a range of climate change impact scenarios

A key outcome could be the identification of sustainable urban landscapes across Greater Hobart that could be the focus of targeted programs to climate proof.

<u>CCP Local Government Climate Adaptation Toolkit</u>

A '*Local Government Climate Adaptation Toolkit*' has been developed by ICLEI with the support of the Australian Government. It was launched in March 2009. The Toolkit builds on the Australian Governments 2007 *Climate Change Impacts and Risk Management for Business and Local Government* and has been piloted with a five local governments. As a CCP Leader Hobart will receive support in the delivery and implementation of the toolkit. ICLEI is considering opportunities for the delivery of a 'Regional Adaptation Toolkit' to the CCP Councils of Greater Hobart.

The toolkit provides guidance to Councils and allows them to select tools of relevance to them, it includes:

- Establish an interdisciplinary approach to information gathering for the development of climate change scenarios
- Understand the potential impacts climate change may have on their business and community
- Identify their current risk management systems
- Identify, analyse, evaluate and prioritise risks and opportunities potentially arising from a set of climatic scenarios

- Explore treatment options for the prioritised actions plan
- Establish strategies for monitoring the implementation of the adaptation plan and reviewing its outcomes
- Build the personal capacity of participants to deal with complexity and uncertainty

The opportunity exists for the Council to partner with the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project in the application of the Adaptation Toolkit across the Council its assets, services and programs and in a regional project across the local governments of Greater Hobart. The partnership would allow the Council to access complex climate models and for the ACE CRC to identify the needs of 'users' such as local governments the most suitable for application in a the public sector in a risk and adaptation context.

Climate Futures for Tasmania – Infrastructure

The Climate Futures for Tasmania – Infrastructure project has been developed by consultants Pitt and Sherry as a 'not for profit' project that will develop a risk management methodology for infrastructure using complex modelling being undertaken by the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project. The Hobart City Council is participant in the project and will input into the project's development to meet the Council's needs.

The CFT project is delivered by a consortium of ACE CRC, CSIRO, the Tasmanian Partnership for Advanced Computing, the Tasmanian Institute of Agricultural Research, the University of Tasmanian, the Australian Bureau of Meteorology, Hydro Tasmania and Geoscience Australia. The projects builds on a project commissioned for Hydro Tasmania that modelled impacts of climate change on the level of dams.

The Climate Futures for Tasmania models approximately 100 climate variables using a fine scale of 15 km grid to produce climate impacts across Tasmania. Previous Australia wide climate modelling, by CSIRO, produced coarse scale models at 150 km grids of climate impacts.

Adaptation Actions

The adaptation actions are based on the detailed climate change scenario modelling available through the Tasmanian Climate Futures Project and the CCP Adaptation Toolkit

#	Action	Responsible	Timing
4.1	Establish a corporate Climate Adaptation Working Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change & Sustainability Steering Committee	Immediate
4.2	Participant in the Climate Futures for Tasmania –Infrastructure project; contributing to the project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities	Climate Change & Sustainability Steering Committee	Immediate
4.4	Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (07 May 2007)	Environment and Climate Change Officer	Immediate
4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project - – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	STCA Climate Change and Sustainability Initiative	Immediate

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Accounting

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

The Accounting Strategy component provides for the evaluation of the impact of climate change on the Council and the community and investigates opportunities for a revenue stream for a community based climate and sustainability program. The funds could be used for the engagement of resources to coordinate GHCP activities and for a range of programs including Sustainable Home Incentive Program see page 46, the City Switch and Greenbiz programs see page 47.

Accounting Actions

Energy and Greenhouse Inventories

Understanding trends and pattern is energy use is integral to achieving abatement goals after all 'you can't manage what you can't measure.'

Since 2000 the Council has undertaken annual inventories of its energy and greenhouse gas emissions using CCP software, which is reported to the Australian Government. This has enabled the Council to track its energy and emissions and is key to assisting the EMT in identifying trends and patterns in its energy and developing strategies to reduce energy consumption and emissions.

	Action	Responsible	Timing
5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate

Carbon Pollution Reduction Scheme

The proposed '*Carbon Pollution Reduction Scheme*' released in December 2008 and commencing 01 July 2011, is a core Australian Government initiative for addressing climate change through the introduction of an emissions trading scheme. The CPRS sets out preferred approaches to reduce greenhouse gas emissions and is intended to *'deliver substantial emission reduction while sustaining strong economic growth and securing prosperity.*'

The Australian Government considers a *carbon pollution reduction scheme* the best way to reduce emissions whilst minimising impacts on households and business. The purchase of carbon permits by industry and business sectors that emit more than 25,000 eCO2t per annum (less than 1% of all industry and businesses) provides incentive to reduce emissions. All funds generated will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

Key features of the CPRS are:

Reduction Targets of Australia's Greenhouse Gas Emissions -

- 60% reduction greenhouse gas emissions of 2000 levels by 2050 – a long term target; and
- Between 5 - 15% reduction of 2000 levels of greenhouse gas emissions by 2020 (minimum 5% of 2000 by 2020) – medium term target

Assistance for households and business financial assistance package for households -

- Households $6 billion per annum available from 2010; and
- Cent for cent reduction in fuel tax for three years.

Climate Change Action Fund

- $2.15 billion over 5 years for business, community sector organisations, workers, regions and communities; and
- Assistance to emissions intensive trade exposed industries.

There are still many details to be finalised before the scheme commences 01 July 2011. ICLEI is preparing an information paper to identify impacts on CCP local governments. In addition the Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Governments climate change policy. This will allow the Council to augment and leverage from the Australian Governments climate action.

#	Action	Responsible	Timing
5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or undertake on its own to implement actions and programs.

Carbon Neutrality

Carbon neutrality or zero carbon emissions describe a state where no greenhouse gas emissions are produced by an organisation or activity during a particular period in time. Typically this is achieved by organisations reducing emissions as much as practicable and then purchasing offsets for those that cannot or are too costly to reduce further. A range of offsets are available, which, vary in price and quality, and can be divided into four main groups: renewable energy, energy efficiency, methane emission avoidance and bio sequestration (forestry /plantations).

The Council has sought advice on how it could achieve carbon neutrality through a Council motion, 13/8/2007 that:

- *The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.*

And on 11/08/08 where it adopted a recommendation that:

- *Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.*

The introduction of the Australian Governments *Carbon Pollution Reduction Scheme* brings into question the effectiveness of carbon offsets to reduce Australia's overall emissions as these will be capped. The Australian Government has committed to developing a national standard for carbon offsets and a review is currently underway to provide consistency, confidence and guidance on offset additionality (does it contribute to real emissions abatement).

HCC S5 proposes that until such a time that the review is completed that

- one–off events such as the TASTE or assets , that Council adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008
  or
  where the option of carbon offsets is provided for an activity such as air travel these are utilised.

HCC S5 further proposes that post the review for carbon offset post the review could be that residual emissions following abatement action [8]may include:

- The Council purchase and retire carbon permits for specific assets and/or activities;
- The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or
- The Council use carbon offset programs that may be accredited through the review.

#	Action	Responsible	Timing
5.5	The Energy Management Program work towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➢ Avoid emissions by modifying behaviour ➢ Improve energy efficiency ➢ Increase local carbon sinks ➢ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing using an accredited carbon offset.	Climate Change & Sustainability Steering Committee	Long
5.6	HCC S5 proposes that until such a time that the review is completed that: ➢ 'assets' energy use or one–off events such as the TASTE, adopt ICLEI's Offsets Policy Feb 2009 and Carbon Offset Guide for Local Government June 2008; ➢ or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the review for carbon offset, residual emissions following abatement action 9may include: ➢ Council purchases and retires carbon permits for specific assets and/or activities; ➢ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invests the equivalent carbon offset in actual abatement and energy projects; and/or ➢ The Council use carbon offset programs that may be accredited through	*STCA Climate Change & Sustainability Initiative	Long

- [8] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.
- [9] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

	the review		
5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership Investigate the opportunities for the establishment of carbon offset program, in line with accredited offset providers as a potential income	*STCA Climate Change & Sustainability Initiative	Immediate

Carbon Development Calculator

HCC S5 proposes the development of a 'Carbon Development Calculator' be investigated. Linking to the Councils GIS the CDC could be used to identify the greenhouse gas emissions of corporate and community properties, buildings or assets at various stages of development and could consider embodied emissions, operational emissions and behavioural emissions. Whilst other carbon calculators have been produced these are generic and don't provide users with a comprehensive and detailed understanding of their actual emissions.

In the corporate context the Council could proactively use a CDC to identify the carbon/sustainability footprint of new developments and renovations allowing suggestions for ways to reduce emission and energy footprints. A CDC could value add to Council's community emission inventories providing detailed profiles of energy use over time, and to measure take up of incentives and programs..

In the community sector CDC could be used by property owners to voluntarily identify their embodied, operational and behavioural emissions and track change over time.

Piloted initially by the Council it potentially expanded out to the community and other Councils through the Southern Tasmanian Councils Association and the ICLEI - Local Governments for Sustainability Cities for Climate Protection Program.

A key stakeholder is the University of Tasmania and it is proposed that opportunities through the Council's Scholarship Program, are investigated with them to develop such a resource. It is a multidisciplined project that and strong synergies to the Australian Governments National Framework for Energy Efficiency and the Mandatory Disclosure of Commercial Office Building energy efficiency.

#	Action	Responsible	Timing
5.9	A project brief be prepared for the Carbon Development Calculator corporate and community parameters	Environment and Climate Change Officer	Medium
5.10	The Council investigate opportunities with the University of Tasmania for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program.	Environment and Climate Change Officer	Medium

Glossary

Emission factors are used to convert a given amount of fuel or energy source into carbon dioxide equivalent emissions (e CO_2). They can change over time as the emission intensity of a fuel changes or as better information becomes available. Electricity emission factors are calculated annually by the Australian Government to take into account variations in the actual mix of electricity sources used.

eCO2t – Equivalent carbon dioxide per tonne

Carbon Offsets - "A carbon offset is a financial instrument representing a reduction in greenhouse gas emissions. Although there are six primary categories of greenhouse gases, carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO2e). One carbon offset represents the reduction of one metric ton of carbon dioxide, or its equivalent in other greenhouse gases." Wikipedia

Climate Change - also known as the enhanced greenhouse effect and global warming - see Understanding Climate Change p 19.

Enhanced Greenhouse Effect – also known as the climate change and the global warming - see understanding climate change p 19.

Greenhouse Gases – are gases that are found in the atmosphere which trap heat, the principal greenhouse gases are: carbon dioxide, methane, nitrous oxide, trophospheric ozone, HFC's, PFC's and SF6 see page 20.

Global Warming - also known as the climate change and the enhanced greenhouse effect – see understanding climate change p 19

HCC S5 - Hobart Climate Change Action 5 – a strategy document prepared by the Hobart City Council for climate change action from 2008 – 2013.

Risk – a combination of the likelihood of an occurrence and the consequence of that occurrence.

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Going Solar, "PV systems and Consultancy & Energy Assessment – Hobart Town Hall, City Hall and Council Centre for Hobart City Council" May 2007

Ribon, Leonardo; Scott, Helen. "Carbon Offsets Providers in Australia 2007" Global Sustainability at RMIT University May 2007

"Statewide Partnership Agreement on Climate Change – between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Councils," ` December 2008

Appendix 1: Summary of the Hobart City Council's Climate Change Activities

The following is summary of the Council programs, activities and initiatives that the address the issue of climate change:

Year	Action/Milestone Achieved :
1999	Joined CCP – the first Tasmania Council to join
1999	Milestone 1: Inventory and Forecast for Community and Corporate Greenhouse Gas Emissions
2000	Milestone 2 Establish a greenhouse gas emissions reduction goal (Corporate 70% and community 20%)
2001	Milestone 3 Hobart City Council Greenhouse Local Action Plan
2002	Milestone 4 Implement the Local Action Plan – the Council demonstrated a 20% reduction its corporate emissions
	Milestone 5 Re-inventory of Emissions. The Council completed a complete re-inventory of emissions
2002 – ongoing	CCP Plus: The Council gave a political commitment to join CCP Plus – an ongoing program
2000 – ongoing	Emissions inventory Annual inventory of emissions corporate Census year inventory of emissions community

Climate Change Initiatives and Actions

Year	Climate Change Action/Initiative
1998 – Ongoing	**Hobart City Council's Bushcare Program**: An initiative of the Council to provide on ground support for community based 'Bushcare Groups' to restore native vegetation through the removal of environmental weeds from Bushland reserves and regeneration with local plants.
2000 – ongoing	**Inventory of Greenhouse Gas Emissions** The Council conducts an annual inventory of its greenhouse gas emissions
2001-ongoing	**Energy Efficient Guidelines** The Council prepared a set of Energy Efficiency Guidelines for prospective home builders and designers. The guidelines cover the range of considerations from an analysis of the site and the opportunities it presents for energy efficient design, through to building orientation and layout, ventilation/cooling, insulation and landscaping.
2001-2004	**Partnership Agreement with the State Government – Reducing Greenhouse Gas Emisisons** Covered: Landfill flaring, emissions inventory, CCP regional forum, community awareness and adaptation

2001 – 2006* Upgraded 2006	**Energy Efficiency Rebate:** The Council introduced a 2 tiered rebate on building application fees- 20% for compliance with HIA sustainable housing provision and 25% for compliance with Australian standards. Encouraging applications to meet certain minimum standards for energy efficiency.
2001 - 2002	**Around the World in Eighty Ways:** the Councils developed and hosted a website and provided bikes for two Tasmanian boys who travelled using carbon friendly transport from UN Bonn Climate Change conference (Denmark) to Hobart
2002	**Sustainable Transport Days :** Three Days promoting Sustainable transport including: - displays of alternative vehicles – hybrid - replacement of Lord Mayors car with a Toyota Prius - Community cycle with elected representatives from Brighton to Hobart
2003	**Sustainable Transport Week21 – 28 March:** A Council initiative involving Glenorchy City Council, Metro, Hot FM, Australian Greenhouse Office, Tasmania Environment Centre, Cycling South, to promote Sustainable Transport. The event included: - a series of facilitated workshops with private, public, community sectors with a summary workshop to bring together workshop outcomes - Presentations by guest speakers Dr Paul Mees and Dr Peter Newman -Bike breakfast - Commuter train from Glenorchy - Liverpool Street Closure and Community Fair
2004 - ongoing	**Cogeneration Water Treatment Plant** Installed a new 140 kWh cogeneration plant at Macquarie Point Waste Water Treatment Plant burns methane and reduces the demand on external electricity supply
2004 – ongoing	**Flaring Landfill Gas** Contracted AGL to install methane flaring at the Council McRobies Gully Landfill
2004 – 2005	**Walking School Bus:** the "Walk to School Bus Project" was a partnership of Cool Communities (Australian Greenhouse Office), Hobart City Council and South Hobart Primary School. The walk to school bus concept is designed to enable children to walk to school with the aid of parent volunteers along a designed safe route to school. It can be adopted by the school on a long-term basis, not just as a one off walking day event. The positive outcomes of this model provide reduced green house gas emissions for the local area, participation in moderate physical activity and foster community participation through social interaction with children and parents
2006- ongoing	**Sustainable Transport Officer** The Council engaged a Sustainable Transport Officer to develop a sustainable transport strategy and implement sustainable transport practices
2006*	**Energy Efficiency Rebate**: The Council updated its energy efficiency rebate to 100% rebate on Council's basic planning fee and building administration fee where sound and permanent energy efficient principles and features are incorporated into the planning and design of new houses and additions to existing houses
2007 –	**Sustainable Transport**

ongoing	The Councils received a grant from the Australian Government's Accelerating Action Program to work with the Sustainable Living Tasmania, Cycling South and of Greater Hobart Council's to prepare an Integrated Bicycle Network Plan
2008 – ongoing	**Sustainable Transport Strategy** Draft currently for consultation. Outlines a way forward for the Council to improve the sustainability of commuter and passenger transport (excludes freight) in the Greater Hobart Region.
2007- tba	**Zero Net Carbon Emissions 2020** The Council endorsed a motion: "That the Hobart City Council prepare a report on having zero net carbon emissions by 2020. That the Council use the City of Melbourne Zero Net Strategy as the starting point and include goals include the goals of the program in adapting a program for the use of Hobart City." "The matter be referred to the Council's Greenhouse Reference Group for further consideration." Endorses a motion to aim for zero net emissions through the review of its Greenhouse House Local Action Plan
2007- ongoing	**Energy Management Team** Councils internal Energy Management Team that considers all matters relating to the Council corporate energy use [all sources: electricity, petrol/diesel, natural gas], alternative energy, energy conservation (lighting and energy audits), electricity NEM contestability, carbon offsets and energy actions plans.
2007-2008	**Review of Greenhouse Local Action Plan** The Council commenced its review of Greenhouse Local Action that will include consideration of:- the Council resolution for Zero Net Emissions by 2020: and the five A's of Climate Change Action: Abatement, Accounting, Adaptation, Advocacy, & Awareness
2007-2008-	**Taste of Tasmania - Carbon Offset** Purchase of carbon offset emissions for the Taste of Tasmanian - 66.70 eCO2t were offset through Climate Friendly at a cost of $1999.25 inc GST (21.80 eCO2t Gold Standard and 44.90 of International VCS credits).
2007	**HCC Community Grant** HCC through its community Grants Program provided to a grant to Sustainable Living Tasmania to deliver a series of community workshops on climate change and host a community conference March 2008
2008	**Earth Hour** EH is a global campaign to raise awareness about climate change by turning off lights for 1 hour. HCC participated in Earth Hour 2008 and committed to participating in 2009.
2008	**Beat the Winter Chills and Bills Question and Answer Sessions and Display** HCC engaged SLT to deliver a series of 6 x BWCB Sessions to assist householders to improve their energy efficiency, increase understanding of climate change and action by HCC, and begin to build community resilience. A further 4 Q&A session held for Council staff and aldermen focusing on both the household and workplace actions.
2008	**Street lighting trial** HCC, in conjunction with Aurora is undertaking a small scale trial of street lighting (T5 and CFL's) to

	commence 28.08.08 at Poets Rd T5 (48) and Princes St's CFL's (42). Will run for 12 – 18 mths – to account for climate factors and survey residents
2008/2009	**Climate Futures Tasmania – Infrastructure** Contributing partner to project coordinated by Pitt and Sherry
2008 – ongoing	**Energy Reserve Fund** Establishment of Energy Reserve Fund $50,000 pa for projects not covered by other budget processes
2008 - 2020	**Emissions Reduction Target deepened** HCC has reduced its emissions by 75% from 1996 levels and has resolved to deepen this target by a further 30% 2020.
2008/2009 – ongoing	**Climate Adaptation Team** HCC is establishing a Climate Adaptation Team to implement as appropriate the CCP Local Government Climate Adaptation Toolkit and Climate Change Adaptation Actions for Local Government AGO 2007.

HCC Climate Change Membership and Participation in Climate Change Programs

2000 – Ongoing	Your Home Your Future Australian Government's Technical Working Group – HCC Environment and Climate Change Officer
2006 – ongoing	**LGAT** Climate Change Reference Group
1999 – ongoing	ICLEI Local Governments for Sustainability (ICLEI Oceania) membership and participant in ICLEI Cities for Climate Protection Program CCP – Leader Council.
2006 – ongoing	Australasian Mayors Council for Climate Protection – Coordination Committee - Lord Mayor

Appendix 2: Summary of Projected Impacts - Tasmania

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days, while in Launceston the annual average number of cold days below 0°C could fall from 35 to 16-30 days.
- Warmer temperatures and population growth are likely to cause a rise in heat-related illness and death for those over 65; increasing in Hobart from the current 5 annual deaths to 8 by 2020 and 10-14 by 2050.
- Warmer conditions may also help spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 percent reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Fire risk is unlikely to change in Hobart but, by 2020, the average number of days with very high or extreme fire danger in Launceston could increase slightly from the current 1.5 to 1.5-1.9 days and to 1.6-3.1 by 2050.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Some agricultural crops may benefit from higher CO_2 concentrations however protein content is likely to decline.
- Frost-sensitive crops may respond well to some warming however more hot days and less rainfall may reduce yields.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO_2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.
- Centres dependent upon agriculture and forestry may be adversely affected.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

Appendix 3: Carbon Offsets Considerations

The carbon offset market is new and establishing itself and as such is largely unregulated. The AGO's 'Greenhouse Friendly' program and the NSW Greenhouse Gas Abatement Scheme (GGAS) are two programs that have been developed to provide quality assurance for carbon offset purchases.

Internationally there are the Clean Development Mechanism (CDM), the Voluntary Carbon Standard and the Gold Standard for voluntary emission reductions also provide assurance for the purchase of carbon offsets.

The extent to which an organisation 'carbon offsets' can vary. It may choose to offset all its residual emissions or only offset emissions associated with an activity or asset such as building that has been retrofitted for energy efficiency purposes with the residual emissions offset through the purchase of carbon credits.

The Victorian EPA identifies a number of factors that may be considered in the purchase of carbon offsets:

Additionality is a key concept in evaluating whether or not an offset project leads to real and measurable greenhouse gas reductions. To be regarded as a valid offset, a project must be proven to be 'additional' to what would have occurred anyway. For example, a routine upgrade of equipment or changes in response to a regulatory requirement cannot be regarded as additional.

Translating the concept of additionality into practice requires establishing 'tests' of additionality. Typically these tests address the following types of additionality:

Financial Additionality: the project needs to go beyond business as usual (BAU) commercial practice. A standard test for this is if the project is financially viable without the offset funding.

Regulatory Additionality: the project needs to go beyond existing legal requirements.

Environmental Additionality: the emission reductions cannot be counted toward another emission reduction scheme or commitment.

Permanence: Some emission reductions may not be secure or may involve a range of risks. For example, this can occur with forestry projects where risks from fire or pest infestation are high, or where carbon offset credits are sold in advance. Offset providers should offer some form of guarantee that purchased credits will be maintained, or customers will be compensated if the project doesn't deliver the expected emissions reductions.

Leakage: Changes in emissions that take place beyond the boundary of the project but are attributable to the project activity are called emissions 'leakage'. New and/or additional emissions occurring off-site need to be quantified and taken into account in assessing the emissions reductions achieved. For example, if a forestry project limits logging in one area, the possibility that deforestation will occur elsewhere should be considered. Offset providers should also consider emissions from project operations (eg. electricity use, transportation of materials, etc.) that could increase emissions relative to the project baseline. Leakage should be explicitly addressed in calculation of the net emissions reductions achieved by a project.

Double counting: This can happen when two or more businesses claim the same emissions reduction. This can happen if an offset is sold to two or more entities, or when an entity upstream of the project unknowingly claims the reduction as its own (eg. an electricity generator). The establishment of protocols, and the use of an offsets registry can ensure offsets are adequately accounted for.

Timing of emissions reductions: Some offset providers generate and sell credits from their projects on an annual basis while others forecast credits over the life of their projects and sell them up-front.

For some projects this is necessary to get project funding, but counting on emissions reductions to occur over the lifetime of a project presents several risks. Regulatory requirements could make some offset projects obsolete in the

future. For example, implementing energy efficiency technologies that may be mandated by government in the future would no longer satisfy 'additionality' requirements (see above).

Proper monitoring and verification, and legally-recognised commitments from the offset provider to secure replacement credits if the project doesn't deliver anticipated emissions reductions can help to mitigate these risks.

Purchasers of offsets may wish to ensure that the GHG impact of their operations are neutralised by offsets in 'real time'.

Monitoring and verification: To ensure that the emissions reductions claimed by the project have actually taken place, the emissions should be monitored and verified, in line with a recognised standard.

The verifier should evaluate the project based on an explicit set of criteria that minimise the risk of false emission reduction claims. This should include the ongoing monitoring of the project to ensure that claimed outcomes have eventuated. Use of a third-party verifier is recommended to ensure the integrity of the offset credits.

Co-benefits: Although the primary goal of offsets is to encourage reduction in GHGs, projects may provide secondary benefits such as: reductions of other pollutants; increase in habitats for biodiversity; reducing reliance on fossil fuels in the economy; education benefits from the installation of new energy efficient technologies.

Co-benefits vary between projects and may be an important factor in voluntary offset purchasing decisions.

Appendix 4: Council Resolutions

The following details in full the Council resolutions with regard to climate change and sustainability:

06/07/2007

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11

Recommendations:

That

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11 be received and noted.)

The Local Action Plan is reviewed so that:-

- relevant 'Strategies and Priority Actions' are included within the Strategic Plan, and
- the 'Major Actions/Initiative's are included within the Annual Operating Plan, and
- the relevant actions are included within the appropriate Unit Plans,

The process of review be carried out to:

- ensure that a whole of Council approach is taken.
- recommend a means by which relevant items within the key corporate documents referred to in 16.2 can be separately and collectively identified as an energy efficiency / greenhouse gas emission reduction program.
- the 20% Community Emissions Reduction Goal be reviewed subsequent to the provision of more recent community data by ICLEI.
- opportunities are investigated for the establishment of regional approach to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.
- the Council's corporate electricity consumption is investigated separately from the Councils emissions goal and separate target and strategy be developed under the auspices of CCP TM and ICLEI advised accordingly.

8/3/2007

NOTES FROM A MEETING OF CMT

6.2. CITIES FOR CLIMATE PROTECTION REVIEW LOCAL ACTION PLAN – S17-050-11

Report of the MDP and EP was discussed and the recommendations endorsed.

CMT also agreed to re-establish the Energy Management Team involving all Divisions and chaired by the GMPS.

25/6/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18

13. PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

Ref. Open FCSC 5, 19/6/2007

That: 1. The Council introduce a solar hot water rebate or grant scheme for a period of 18 months for Hobart ratepayers who are looking to install a solar hot water system but are ineligible for the current planning and building administration fee rebate.

2. Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team.

3. The solar hot water rate rebate or grant be either:

(i) a one-off payment of a sum of $300 per solar hot water system or payable on a quarterly basis (rebate only); or

(ii) such higher figure as determined by the Council.

4. A report be provided to the Finance and Corporate Services Committee after 12 months operation, reviewing the success of the new rebate/grant and to enable consideration of its potential continuation beyond the initial 18 month period.

5. A media release be issued informing the public of the new rebate/grant; the qualifications under which it can be achieved and including details of other key energy saving initiatives residents can apply for when considering the installation of a solar hot water system, such as the Commonwealth's Photovoltaic Rebate Program, Renewable Energy Certificates and the Hobart City Council's planning and building administration fee rebate.

6. The Council's website be updated to allow for online access to apply for the rebate/grant and to provide links with key energy saving initiatives.

DEPUTY LORD MAYOR

HAYES That the recommendation be adopted.

Amendment

BRISCOE ARCHER That clause 6 be reworded to read:

6. The Council's website be updated to provide links with key energy saving initiatives and an appropriate means of enabling secure online access to allow for the lodgement of applications for the rebate/grant, be investigated as amended by the following:

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Amendment

BURNET CHRISTIE That Clause 3(i) be reworded to read:

3(i) The solar hot water grant be a one-off payment of a sum of $500 per solar hot water system.

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Cocker

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

Ref. Open DESC 6.2.2, 6/8/2007

That: 1. The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.

2. For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.

3. The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.

4. Aldermen be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

DEPUTY LORD MAYOR

ZUCCO That the recommendation be adopted.

Amendment

BURNET

SEXTON That the recommendation be adopted as amended by the insertion of the words and the community after the word Aldermen in clause 4.

AMENDMENT CARRIED

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING

19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

ALDERMAN COCKER "That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

COCKER

BRISCOE That the motion be adopted.

MOTION CARRIED

VOTING RECORD

AYES

Lord Mayor, Deputy Lord Mayor, Archer, Zucco, Briscoe, Hayes, Freeman, Christie, Cocker

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17/7/2008

NOTES FROM A MEETING OF CMT

ZERO NET CARBON EMISSIONS BY 2020 – IN PRINCIPLE CONSIDERATION OF FUNDING ISSUES – 17-50-11.

D/CITY S and GM-PS spoke to report. It was noted the principle was to get to zero carbon emissions by 2020. The discussion was around the best approach. It was agreed that HCC should make the most of the project based initiatives until at least 2015 and look at offsets to make up the balance to achieve zero by the target date. The establishment of a reserve fund with an initial $50k annual contribution would provide the funding for any future offsets required.

It was suggested that an annual KPI be developed to monitor the shortfall in emission offsets.

The report would be refined and referred to the Strategic Governance Committee.

Action: DCS

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59

STRATEGIC GOVERNANCE

20. HOBART CITY COUNCIL - ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

Ref. Open SGC 5, 5/8/2008

That: 1. The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

(i) A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.

(ii) The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.

(iii) The quantum of monies to be allocated to the reserve fund being reviewed annually.

(iv) The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.

(v) An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

2. Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

DEPUTY LORD MAYOR

HAIGH That the recommendation be adopted.

Appendix 5: Climate Change Policy

TITLE: GENERAL – CLIMATE CHANGE

SUBJECT: The Council's Climate Change Policy

DATE OF COUNCIL APPROVAL: xxxx

OBJECTIVE: The Hobart City Council on the issue of climate change will:

- provide effective and strong leadership to the region and to its communities to respond to climate change and build a sustainable region,

- develop and implement actions and strategies that assist communities to reduce carbon footprints, adapt to climate change impacts and increase their awareness and understanding of climate change and sustainability; and

- complement, collaborate and establish strong partnerships with key stakeholders and other tiers of government that strengthen the Council's responses to climate change.

- plan for and manage Hobart's adaptation to the impacts of climate change, particularly where these impacts represent a threat to people and property.

Hobart's Climate Change Strategies x 5 (HCC S5)

Climate Change an Issue for Everybody 2008 – 2013

May 2009

A review of the Hobart City Council's Greenhouse Local Action Plan

Endorsed Hobart City Council 25 May 2009

Abbreviations

ACE CRC – Antarctic Climate Ecosystems Cooperative Research Centre

CCGLAP – Corporate and Community Greenhouse Local Action Plan

CC&SI – Climate Change and Sustainability Initiative

CCP - Cities for Climate Protection

CCSSC – Climate Change and Sustainable Steering Committee

CDC – Carbon Development Calculator

CPRS – Carbon Pollution Reduction Scheme

DCC - Department of Climate Change (Australian Government formerly Australian Greenhouse Office)

DEP - Derwent Estuary Program

EMP – Council's Energy Management Program

GHCP – Greater Hobart Climate Partnership

ICLEI - Local governments for Sustainability (formerly the International Council for Local Environment Initiatives)

IPCC - International Panel on Climate Change

LGAT - Local Government Association Tasmania

NGAF - National Greenhouse Accounts Factors

STCA – Southern Tasmanian Councils Association

TCCO – Tasmanian Climate Change Office

Mt – mega tonnes

GJ – giga joules

kWh – kilowatt hours

e-CO_2t – equivalent tonnes of carbon dioxide

Useful Links

www.hobartcity.com.au

www.iclei.org/ccp-au

www.climatechange.gov.au

www.climatechange.tas.gov.au

www.tasmanianenvironmentcentre.org.au

www.lgat.tas.gov.au/site/page.cfm

www.environment.gov.au/settlements/renewable/nationalsolarschools/

http://www.sustainableschoolsproject.org/

Foreword by the Lord Mayor

I am proud as the Mayor of Hobart City Council to be celebrating 10 years of climate change action by the Council.

Climate change is a challenge like no other that humanity has ever faced. As a community we have contributed significantly to the situation and must work at finding solutions. We have a small window of opportunity in which to do this.

Climate Change is going to affect how we live our lives, our children's lives, how we do our jobs, how we recreate and also our local, national and international economies. There is very little about the way we live now that will not be affected in some way by the impacts of climate change. Every action we take to increase awareness and address this issue is significant and reinforces the urgent need for action whether on a small or large scale.

It is time to get serious about climate change. We are no longer talking simply about abatement of emissions – our climate is changing and we now need to learn how to firstly, reduce the rate of change and secondly adapt to it! We need to change the way that we live, work and play. This report sets out ways in which the Council is both continuing and further preparing to work with and lead our community to 2013 in response to climate change.

Hobart has been a champion of climate change action since 1999. It has reduced its own emissions by 71%, from 1996 levels, committed to further emission reduction of 30% from 2009 levels by 2020. To date, it has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

In the community sector the Council has introduced Solar Hot Water, Insulation and Water Tank Rebates Schemes. Through its Solar Hot Water Rebate, introduced in 2007, approximately 520 e-CO_2 tonnes have been abated from over 180 installed systems. The Council is also working with the other Councils of Greater Hobart to develop an integrated "Bike Plan."

A much broader and longer term challenge for Hobart is to grow a low emissions economy, adapt at a metropolitan level and aim for reduced emissions at a community level within our municipality.

At its core local government is about sustainability and climate change is intrinsically a part of this. To this end local government has a key role to play in addressing the issue of climate change with its community. We can provide leadership on and demonstration of actions that can be undertaken to reduce greenhouse gas emissions. We can work to increase awareness and advocate action to abate emissions and adapt to the impacts of global warming. Importantly we don't have to reduce our quality of life but we do have to change the way we live so that we cut the amount of waste we generate and improve our energy efficiency – everyone has a stake in this.

The Living Planet Report of 2008 claims that humanity's global footprint now exceeds the world's capacity to regenerate by about 30% and more than three quarters of the world's people now live in nations that are ecological debtors – their national consumption has outstripped their country's bio-capacity and that in two generations we have moved from ecological credit to ecological debit.

The Council commends these strategies for consideration so the community can join in making a difference that matters well into the future.

In the words of James Hansen, director of the US Goddard Institute of Space Sciences, 22 June 2008:

"We're toast if we don't get on a very different path…This is the last chance."

Food for thought as we move into an era of significant change

Lord Mayor, Aldermen Rob Valentine

April 2009

Hobart City Council's Climate Vision:

Hobart's sustainable and climate friendly vision is for:

- A climate aware and resilient community that has supported and invested in a range of strategies led by the Council to abate emissions, adapt to climate change impacts and account for a carbon neutral economy.
- The Council to be an advocate for climate change action and create a climate aware and resilient community.
- The Council, as a local government, to lead our community and urban region for the necessary transitional change to a carbon neutral society at all levels

Images clockwise: Beat Winter Chills and Bills Question and Answer forum West Hobart 2008; Solar Hot Water Rebate recipient - evacuated tubes system; energy efficient development Windsor Court Argyle Street; Energy Display Hobart City Council Atrium June – Sept 2008.

Executive Summary

Climate change is the most significant issue facing human civilisation. It poses an enormous challenge at all levels of human society, to avoid 2^0C of warming that gives way to a runaway greenhouse effect. Tackling climate change is made more complex as the exact scale, timing and the extent of the impacts are unknown. What is known is that the impacts of climate change will significantly change the global climate and earth's ecosystems on which we rely and the way in which we live on the planet. Action is urgently required to reduce greenhouse gas emissions and to begin to prepare both as communities and individuals for a changed climate. Climate change response is more than reducing emissions and adapting to a changed climate - it is about changing our behaviour, attitudes, economies, social structures and built environments so that they are sustainable.

Tasmania is not exempt from the impacts of climate change. The climate-induced drought has necessitated the importation of Victorian coal-based electricity due to low Hydro dam levels resulting in an increase in emissions associated with our electricity use. Higher electricity prices coupled with increased transport costs are creating a greater need for energy efficiency across our communities and organisations, consequently leading to climate friendly and sustainable outcomes.

The Hobart City Council has been active on the issue of climate change since 1999, when it made a political commitment to participate in the Cities for Climate Protection (CCP^{TM}) Program. Since then it has successfully completed the five program milestones, committed to ongoing action through CCP^{TM} Plus and reduced its corporate emissions by 71% from 1996 levels.

Most recently the Council has committed to a further 30% reduction in its emissions from its energy (electricity, fuel and natural gas) use and is investigating options and working towards zero emissions by 2020.

The Council delivers a range of climate change programs to reduce emissions and increase awareness including $500 Solar Hot Water Rebates, installation of cogeneration technologies at McRobies Gully Landfill and Waste Water Treatment Plants, trialling energy efficient street lighting and 'Beat the Winter Chills and Bills Questions and Answers' community information sessions.

The Council has recognised, since 2001, the need for collective local government action on climate change. Hobart's Climate Change Strategy (HCC S5) advocates that 'like' councils work together to effectively address the issue of climate change and implement actions at the broader community level. It progresses a strategic framework for local government across Tasmania through the establishment of groupings of Councils based on land use: urban; peri-urban; rural and natural areas.

On the broader scale climate change as an issue is rapidly progressing with significant changes in policy direction of the incumbent Australian Government and the State Government's establishment of a Climate Change Office in 2008. The Council recognises the need for new structures and frameworks to address this issue. It also recognises that its approaches should be flexible and able to adapt to the changing political and legislative environment.

The review of the Councils Greenhouse Action Plan seeks to begin to prepare Hobart City Council, its community and the region for the necessary transitional change to a carbon neutral society at all levels. It considers action under a framework called the 5A's of climate change with 5 themes: Advocacy, Abatement, Awareness, Adaptation and Accounting.

HCC S5 resets the Councils greenhouse gas emissions abatement targets. It maintains the Councils 70% emissions reduction target focusing on its landfill operations until 2020, it sets a new target for corporate energy greenhouse gas emissions of 30% and advocates a Greater Hobart Community abatement target be set through cooperative action of the Cities for Climate Protection Councils.

Climate change is not a natural resource issue – it is an issue that is linked to every aspect of human activity. The solutions and adaptive responses to climate change are not to be found within our existing structures – they require creative thinking and brave action.

Summary List of Actions.

Advocay Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Political commitment	1.1	Council formally endorse the Council's proposed Climate Change Policy (see Appendix 5) that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership of Hobart's communities and the region.	Council	Immediate
Corporate	Political commitment	1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners program.	Development & Environmental Services	Ongoing
Corporate	Southern Region - Climate Change And Sustainability Initiative	1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework (detailed in this document) that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of a *STCA Climate Change and Sustainability Initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives in recognition of local government climate action to date.	General Manager	Immediate
Corporate	Climate Change and Sustainability Steering Committee	1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change and Sustainability Steering Committee	Ongoing

Corporate	Greenhouse Reference Group	1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant, replacing the Greenhouse Reference Group.	Climate Change and Sustainability Steering Committee	Immediate - Ongoing
Abatement Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Energy Efficiency	2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 -2010 levels (post Sewage and Water Reform).	Corporate Energy Management Team	2020
Corporate	Corporate Energy Efficiency	2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.	Corporate Energy Management Team	2009 – ongoing
Corporate	Corporate Energy Efficiency	2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.5	Develop and implement Energy Management Plans for the Council's corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.	Corporate Energy Management Team	Immediate
Corporate	Corporate Energy Efficiency	2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.	Corporate Energy Management Team	Ongoing
Corporate	Corporate Energy Efficiency	2.7	Implement the recommendations of the report (as appropriate) "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre."	Corporate Energy Management Team	Ongoing
Corporate	Corporate Waste Emissions	2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	Immediate
Corporate	Corporate Waste Emissions	2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.	Environmental Engineering	Immediate
Corporate	Corporate Purchasing	2.10	A Sustainable Purchasing Strategy is developed for the whole of Council, that:	Climate Change and	Medium

	emissions		➢ takes into consideration the Councils complex and varied needs purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ a process for monitoring, reporting and review of the strategies outcomes.	Sustainability Steering Committee	
Corporate	Sustainable Transport Strategy	2.11	Implement recommendations of the Council's Sustainable Transport Strategy, when finalised, in parallel with HCC S5.	Climate Change and Sustainability Steering Committee	Ongoing
Community	Household Sector	2.12	Develop a Sustainable Household Incentive Program, including a Sustainability Rebate, using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Household Sector	2.13	Promote the 'Sustainable Design Guidelines' to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium
Community	Business Sector Commercial Office Sector	2.14	Investigate opportunities for the promotion of the CitySwitch program or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Retail Sector	2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Business Sector Industrial Sector	2.16	Investigate opportunities for the establishment of partnerships and lobbying for the industrial sector to reduce emissions and partner in adaptation initiatives.	*STCA Climate Change and Sustainability Initiative	Medium
Community	Education Sector	2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground support to schools to uptake the National Solar School Program.	*STCA Climate Change and Sustainability	Medium

				Initiative	
Community	Waste sector	2.18	Community waste emissions: Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, greenwaste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
Community	Waste sector	2.19	Community waste emissions: Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium
Awareness					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Employee Sustainability & Climate Information	3.1	Deliver Office Climate Workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and potential climate change impacts on the workplace.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.2	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities.	Climate Change and Sustainability Steering Committee	Medium
Corporate	Employee Sustainability & Climate Information	3.3	Inclusion in Council's Employee Induction Handbook of a section on 'Sustainability and Climate Awareness.'	Environmental Sustainability Program	Medium
Corporate	Employee and community	3.4	Five Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees.	Development and Environmental Services	Immediate
Corporate	Community Engagement	3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➤ Fosters sustainable behaviour change across all community sectors; ➤ Promotes actions to increase energy conservation and abatement of emissions; ➤ Increases understanding of climate change and local government actions; and ➤ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change.	Climate Change and Sustainability Steering Committee	Medium
Community	Community Engagement	3.6	Design sustainability and climate awareness web pages for the Councils intra/internet page.	Environmental Sustainability Program	Medium

Community	Community Engagement	3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
Community	Community Engagement	3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing
Community	Dr Edward Hall Awards – Climate and Sustainability Category	3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing
Adaptation					
Sector	Issue	#	Action	Responsible	Timeframe
Corporate	Corporate Adaptation	4.1	Develop and implement a corporate Climate Adaptation Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change and Sustainability Steering Committee	Immediate
Corporate	Corporate Adaptation	4.2	Participate in the Climate Futures for Tasmania –Infrastructure project (Pitt and Sherry) contributing to project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
Corporate	Corporate Adaptation	4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities.	Climate Adaptation Program	Immediate
Community	Community Adaptation	4.4	Run an Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (29 May 2009).	Environment and Climate Change Officer	Immediate
Community	Community Adaptation	4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	*STCA Climate Change and Sustainability Initiative	Immediate

Accounting Sector	Issue	#	Action	Responsible	Timeframe
Corporate & Community	Energy and Greenhouse Inventories	5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
Corporate & Community	Energy and Greenhouse Inventories	5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate
	Carbon Pollution Reduction Scheme	5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
	Carbon Pollution Reduction Scheme	5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium
Corporate & Community	Modelling impacts	5.5	The Energy Management Program works towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➤ Avoid emissions by modifying behaviour ➤ Improve energy efficiency ➤ Increase local carbon sinks ➤ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing, using an accredited carbon offset.	Climate Change and Sustainability Steering Committee	Long

Corporate & Community	Modelling impacts	5.6	HCC S5 proposes that until such a time that the review is completed that ➤ assets or one–off events (such as the TASTE) adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008; or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the carbon offset review residual emissions following abatement action [1]may include: ➤ The Council purchase and retire carbon permits for specific assets and/or activities; ➤ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or ➤ The Council use carbon offset programs that may be accredited through the review	*STCA Climate Change and Sustainability Initiative	Long
Corporate	Carbon Neutral/Zero Carbon Emissions Policy	5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
Corporate & Community	Carbon Offset Program	5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership investigate the opportunities for the establishment of a Carbon Offset Program, in line with accredited offset providers as a potential income	*STCA Climate Change and Sustainability Initiative	Immediate
Corporate & Community	Carbon Development Calculator	5.9	A project brief be prepared for the Carbon Development Calculators corporate and community parameters.	Environment and Climate Change Officer	Medium
Corporate & Community	Carbon Development Calculator	5.10	The Council investigate opportunities, with the University of Tasmania, for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program	Environment and Climate Change Officer	Medium

[1] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Contents

PART ONE - BACKGROUND

Introduction

When Hobart City Council joined the Cities for Climate Protection Program in 1999, committing to take action on climate change, the emphasis was on the mitigation and abatement of greenhouse emissions as Australia grappled with the question "Will the climate change?" Since then there has been much scientific progress and a seismic shift in community acceptance on the issue and the question is now 'How much will the climate change and how will we adapt?'

Hobart Climate Change Strategy 5 (HCC S5) resets the course for how the Council will address climate change up to 2013. HCC S5 replaces the Council's "Corporate and Community Greenhouse House Local Plan" produced in 2001. In addition to actions that reduce emissions and conserve energy from corporate activities this document sets a strategic way forward to work with our communities through a proposed STCA's Climate Change and Sustainability Initiative Urban Priority Greater Hobart Climate Partnership by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils to prepare for climate change and a carbon neutral future. Importantly it progresses an agenda for a unified and consistent message on Climate Change and how, as a community, we can prepare for its impacts – economic, environmental and social - and a changed climate.

The key concepts behind HCC S5 are:

- Climate Change is an issue of sustainability, it is a mainstream issue.
- Climate Change from a local government perspective should be considered in terms of land use activities: urban, peri urban, rural and natural areas.
- Local government needs to work collectively – groupings of like land use Councils, to allow for the leveraging of action, sharing resources and skills.
- New ways must be found to address climate change – it is necessary to think outside the box to find a range of solutions and develop a carbon friendly lifestyle and to adapt to the impacts of climate change.

At the corporate level Hobart is successfully managing emissions abatement and awareness. The greatest area of action for local government is in the spheres of:

- community development and awareness raising about climate change impacts, actions and opportunities knitting together the opportunities offered through the Australian Governments Energy Efficiency Package and incentives and the Council's rebates to achieve sustainable behaviour change at the individual and community level; and
- adaptation in both the corporate and community sectors through the application of resources developed to assist local government at both the corporate and community/regional levels.

What Hobart has done

Hobart has much to be proud of with regard to its 10 years of action on climate change. The Council has been working on the issue since it joined the Cities for Climate Protection (CCP) Program on the 3rd May 1999. And post the successful completion of the programs five milestones it committed in 2002, to ongoing action through CCP Plus. To date it has completed the five program milestones and joined CCP Plus, a program designed to further embed and deepen climate change action.

To date, the Council has abated a total of 166,937 e-CO_2 tonnes from its activities with over 40% being achieved since 2007. This is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

Through its Solar Hot Water Rebate, approximately 520 e-CO_2 tonnes has been abated from over 180 systems installed since 2007.

Significant Council actions and outcomes include:

- Reduction of its corporate greenhouse gas emissions by 71% in 2007/08 since 1996/97 its base year; abating a total of 166,937 eCO_2 tonnes from its corporate activities;
- Establishment of a Corporate reserve fund of $50,000 for energy saving projects in addition to those identified in annual budgets;
- Providing a rebate for the installation of solar hot water systems $500 and insulation (for Landlords) $300;
- Trialled energy efficient, and low carbon emission, compact fluorescent and tri-phosphor fluorescent street lighting in residential setting with Aurora Energy;
- Formally committed to reducing its remaining corporate greenhouse gas emissions by a further 30% by 2020;
- Increased awareness of household energy efficiency through its Beat the Winter Chills and Bills Question & Answer Sessions;
- Coordinated the Hobart Regional Arterial Bike Network – a collaboration between Hobart, Clarence, Brighton, Glenorchy and Kingborough Councils and Cycling South to coordinate and rationalise bike networks within Greater Hobart and released for comment its draft Sustainable Transport Strategy 2008; and
- Worked towards Sustainable Transport Outcomes through programs such as the Walking School Bus, the Hobart Regional Arterial Bike Plan and Sustainable Transport Plan.

A summary list of actions and activities by the Councils is contained in Appendix 1 "Summary of the Hobart City Councils Climate Change Activities" or can be accessed at www.hobartcity.com.au.

Hobart's Corporate Emissions Summary

The following table shows the aggregated energy and carbon emissions since the Council began measuring these from its selected base year of 1996/97. Whilst there was a doubling of energy use in 2001/02 due to the Hobart Aquatic Centre becoming operational and a slight spike in 2004 – 2006 due to works associated with the laying of the gas pipeline; overall the table indicates a decreasing trend since 2000/01. The greenhouse gas emissions (eCO_2t) associated with Council activities has been significantly abated. The greatest proportion of emissions and their abatement is associated with the Council's landfill, McRobies Gully. Since 2004 the considerable abatement has been achieved initially by flaring and then cogeneration technologies which feed power generated from landfill methane emissions into the electricity grid.

	1996/97	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
GJ	55,357	107,705	105,341	107,873	120,945	114,826	113,468	103,587
eCO2t	45,818	46,801	47,271	38,495	20,192	12,027	11,662	13,215
Comment	Base Year First inventory undertaken as per CCP program	Increase GJ THAC came on line almost doubling HCC energy consumption		Decrease eCO_2t – due to commencement of flaring of methane (CH_4) at McRobies Gully landfill	Increase GJ due to laying of gas pipe line and increase use of Bitumen plant	Decrease eCO_2t – due to cogeneration of methane (CH_4) at McRobies Gully landfill	Decrease eCO_2t – due to cogeneration of landfill methane and conversion of bitumen plant to natural gas	Increase eCO_2t- due to increase in the Tasmanian Emissions factor 1996 00.2 kg CO2 –e/GJ to 2007 -0.13 kg CO2 –e/GJ

Cities for Climate Protection Program

The "*Cities for Climate Protection*" (CCP ™) program is a voluntary international program of ICLEI – Local Governments for Sustainability, a non government organisation. It has been funded nationally by the Australian Government with an aim of empowering local governments to cut greenhouse gas emissions until 30 June 2009. CCP™ provides local governments with a structured program with the following five milestones:

1. Undertake an inventory of greenhouse emissions in the council and community, and forecast future emissions growth.

2. Set an emissions reduction goal for corporate and community sectors.

3. Develop and adopt a local greenhouse action plan to achieve emission reduction goals.

4. Implement their local greenhouse action plan.

5. Monitor and report on greenhouse gas emissions and implementation of actions and measures.

Hobart City Council joined the CCP ™ program in 1999. It was the first Tasmania Council to join and it set, and has achieved, the highest corporate emission reduction goal, 70% from 1996/97 levels by 2010/11, of any participating Council in Australia. Early on in the program the Council recognised the need for a regional approach where Council's with similar land use patterns work in 'land use-blocks' to address climate change. Hobart has encouraged the participation of Brighton, Clarence, Glenorchy and Kingborough (the Council's of Greater Hobart) in the program.

In Tasmania 7 local governments have participated in the CCP program Brighton, Clarence, Devonport, Glenorchy, Hobart, Launceston, Kingborough. They cover over 60% of the Tasmanian population and equating to a total of 2,471,674 eCO2t or 41,841,937 GJ of greenhouse gas emissions.

Importantly the CCP provides a practical and ongoing framework for climate action that compliments and furthers the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Council's* requiring local government action on the issue.

The cessation of CCP, whilst a disappointment, does not impact on the Council's ongoing climate action. The CCP milestone framework has assisted the Council to build the capacity to develop and implement climate action and embed these across the organisation.

Why review

The Council completed its '*Corporate and Community Greenhouse Local Action Plan*' in 2001 – since then much experience has been gained and many actions undertaken to reduce emissions and increase awareness of the issue in corporate and community sectors. Whilst there have been many successes and the Council has exceeded its corporate goal for greenhouse gas emission reduction, there are a number of drivers for the review. These include:

- The Council's commitment to continual improvement under its wider Business Excellence Framework;
- A requirement for a review in both the Strategic Plan 2008-2013 and the Corporate and Community Greenhouse Local Action Plan Nov 2001;
- An increased awareness, and desire for action, throughout the Hobart's community.
- Improvement and streamlining of climate change actions across the Council corporate sector;
- Increased scientific knowledge and understanding of the rate at which climate change is-occurring, its processes and impacts;
- The shift in emphasis from abatement actions to adaptation and awareness. In particular there is a greater emphasis on risk analysis– these will assist in identifying and potentially lessening the Council's future liability with regards to climate change impacts; and
- The changing political and legislative framework at both the state and commonwealth levels of government.

How is the review to be done?

The review considers the Councils annual corporate emissions inventories from 2000-01 to 2007-08 and the 2006 community inventory (based on Australian Bureau of Statistics 2006 Census data). The review also takes into account the Councils Strategic Plan 2008 – 2013, Corporate Plan 2009-2014 and brings HCC S5 in line with its timeframes; and incorporates resolutions and programs that have been developed subsequent to the CCGLAP.

Two key drivers for the review are to:

- ensure that a whole of Council approach is taken to addressing climate change actions and impacts; and
- investigate opportunities for the regional approaches by local government to climate change and seek opportunities to leverage off and key stakeholders to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.

Significantly the review focuses on the five critical A's of climate change (note these are not listed in hierarchical order):

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

Understanding Climate Change

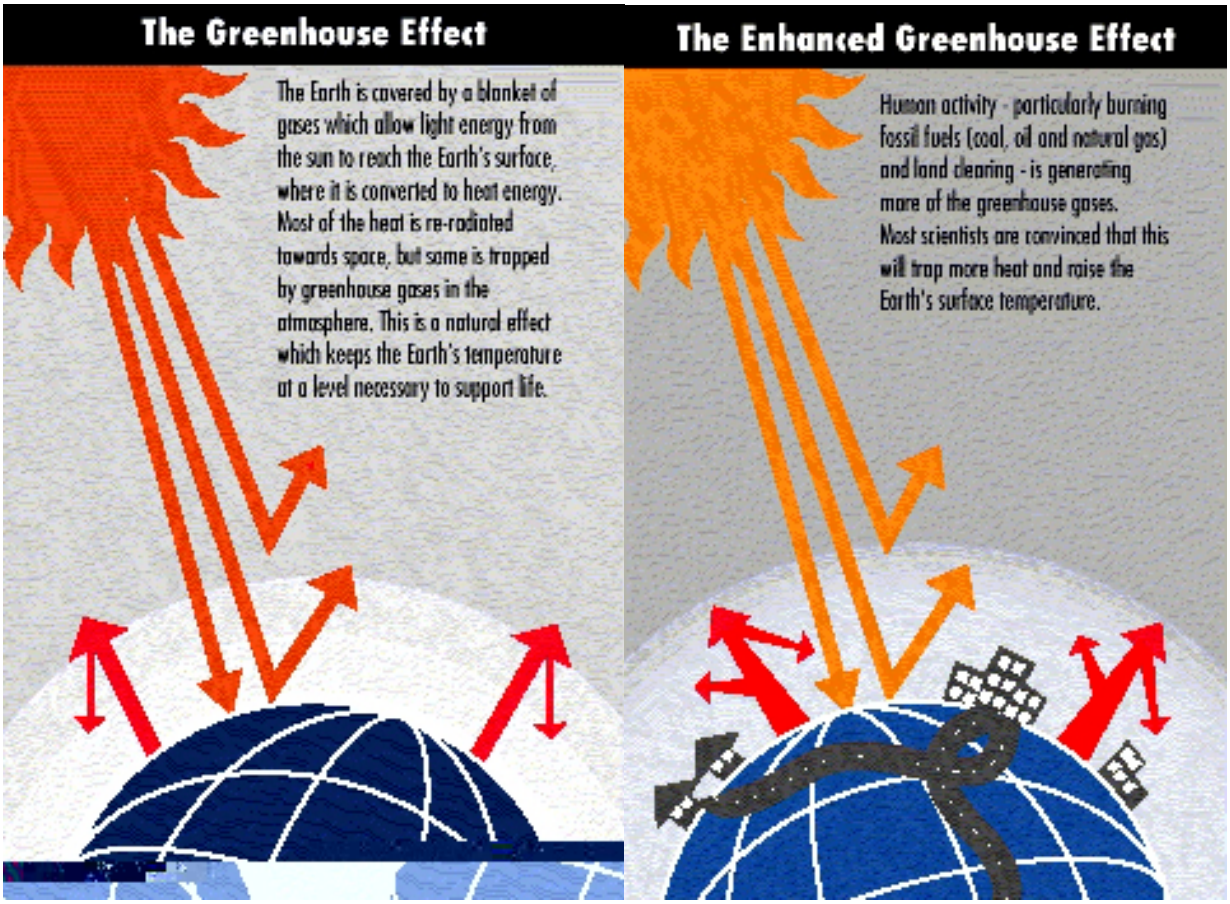
The Greenhouse Effect and the Enhanced Greenhouse Effect

The greenhouse effect is a natural phenomenon. Greenhouses gases, water vapour, carbon dioxide CO_2, methane CH_4 and nitrous oxide N_3O, occur naturally in the atmosphere where they trap the sun's warmth and maintain the earth's surface at a temperature that supports life. Without greenhouse gases the earth would be a cooler and uninhabitable place.

The emission of additional greenhouse gases from human activities has increased the concentration of these gases in the atmosphere resulting in the enhanced greenhouse effect, also known as global warming and climate change. A consequence of the increase is that as the atmosphere warms the climate changes with increased temperatures, increased intensity and frequency of storms events, increased sea level rise from thermal expansion of the oceans and melting glaciers and the changed rainfall patterns.

In pre-industrial times, the concentration of CO_2 in the atmosphere was 280 parts per million (ppm). This level has now increased to 387 ppm, and is rising every year by 2.2 ppm. Without intervention, prevailing scientific opinion is that levels will rise to over 600 parts per million within the next 45 years with profound and adverse consequences. This is a significant concern of climate scientists who predict runaway climate change once 450 ppm or 2 degrees of warming is exceeded.

The United Nations International Panel for Climate Change states that "Warming of the climate system is unequivocal, as is now evident from observations of increases in global air and ocean temperatures, widespread melting of snow and ice and rising global sea level. And 'Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate change, particularly temperature increases.'



How Greenhouse gases are measured

Natural greenhouse gases include water vapour, carbon dioxide, methane ozone and nitrous oxide. Human made greenhouse gases include chlorofluorocarbons. The source, warming potentials and lifespan's of greenhouse gases that are involved in climate change are shown in Table below. ,

Greenhouse Gas	Source	Atmospheric Lifespan (years)	Greenhouse Warming Factor eCO_2
Carbon Dioxide CO_2	Burning fossils fuels for electricity production Cement manufacture	50-200	1.0
Methane CH_4	Waste decomposition without air (ie buried waste in landfill) coal-bed methane from coal mining Leakage of natural gas Grass digestion by grazing animals Burning of biomass fuels	12 - 17	21
Nitrous Oxide N_2O	Soil, nitrogen fertiliser decomposition Burning of petroleum products	120	310
Chlorofluorocarbons and carbon substitutes	Leakage from refrigeration and air-conditioning systems Aluminium production	>1000	CFC 12 8,500 HCFC- 113 93 HFC - 134a ,300

Energy Emissions Factors

The Australian Government though the *National Greenhouse Accounts (NGA) Factors* determines the greenhouse gas emissions factors for energy Australia-wide. Emission factors are used to derive estimates of greenhouse gas emissions based on the amount of emissions generated by an activity such as fuel combusted in a petrol engine or coal combusted to produce electricity. These are now updated annually to provide a more accurate indication of greenhouse gas emissions as the electricity landscape changes.

Electricity Emissions Factor

The emissions factors for Tasmania's electricity have changed considerably overtime. The Australian Government *Emissions and Factors Workbook* 2006 listed Tasmania's emissions factor for the years 1996, 2000 and 2005 as 0.000, 0.002 and 0.045 kg CO_2t-e/kWh respectively. The most recent edition, *National Greenhouse Accounts Factors* 2008, listed in the table below, again retrospectively changes these emissions factors. The most recent increases from 2005 onwards are accredited to the effect of the climate induced drought on Hydro dams levels and the subsequent importation of high emissions (brown coal) electricity from Victoria via Basslink 24% [2]and natural gas 11% to augment the States electricity supplies. For the purposes of HCC S5 the most recent 2008 emissions factors have been used – even though when Hobart initially sets its emission reduction goal the emissions factor for its base year of 1996 was 0.00.

[2] "Water woes cut Hydro power base" the Mercury, 03.09.08

	kg CO_2t- e /kWh (Scope 3)					
	Tasmania	New South Wales	Victoria	Queensland	South Australia	Western Australia
1995	0.02	1.02	1.39	1.10	1.05	1.07
2000	0.01	1.03	1.42	1.05	1.09	1.04
2005	0.04	1.06	1.32	1.04	1.04	0.95
2006	0.06	1.06	1.32	1.04	1.01	0.95
2007[p]	0.13	1.06	1.31	1.04	0.98	0.98

[p] – provisional emissions factor set by the Australian Government– the emissions factor are formalised following confirmation of actual energy mix. Source National Greenhouse Accounts Factors, Australian Government, January 2008

Other Emissions Factors

The table below sets out the emissions factor for energy sources other than electricity – these are typically constant as they are primary fuel source.

Fuel	Energy Content GJ/kL	t CO_2 -e/kL
Petrol	34.2	2.3
Diesel	38.6	2.7
LPG	26.2	1.6
Biodiesel	23.4	0

What are the predicted impacts of Climate Change on Tasmania?

Climate change is going to affect every aspect of our lives as individuals and as communities through the physical impacts of a carbon affected (enhanced greenhouse effect) climate system, resulting in an increase of extreme weather events, changed rainfall patterns, changes in behaviour due to economies that must account and pay for carbon use. Currently concentrations of atmospheric CO_2 are tracking above the IPCC high scenario models

Understanding the physical impacts of climate change is complex. The International Panel on Climate Change (IPCC) climate change scientists have modelled various low – mid - high range scenarios that consider a wide range of variables of not only climate systems but future emissions that are the by product of very intricate and dynamic systems determined by forces such as demographic, socio-economic development and technological change. This work has been further enhanced by the CSIRO to develop Australia – wide scenarios. Whilst these are coarse they do provide an indication of the predicted climate change impacts for Hobart these include:

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days.
- Warmer temperatures are likely to cause a rise in heat-related illness and death for those over 65 years.
- Warmer conditions may spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 % reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

A full summary of projected impacts for Tasmania by the Australian Government is provided in Appendix 2.

A more refined and detailed climate modelling project, the *Climate Futures for Tasmania – local information for local communities* is being undertaken by the Australian Climate and Ecosystems Cooperative Research Centre (ACE CRC). The project builds on work commissioned by Hydro Tasmania and constructs fine scale 14 km^2 grid climate projections for local applications. With an emphasis on terrestrial based ecosystems it plots hundred of variable ranging from rainfall, temperature and wind in range of scenarios, it is intended to provide local decision makers locally relevant information about climate change and help develop adaptation actions. It is anticipated that modelling data will be available from late 2009.

Carbon Neutrality

The Council resolved, in August 2007, to investigate actions necessary to achieve zero net carbon emissions by 2020. For organisations that have committed to carbon neutrality or zero carbon emissions this is typically achieved by reducing their emissions as much as practicable and then purchasing 'carbon offsets' for the residual emissions that are too difficult or costly to eliminate.

Carbon offsets are an investment in a project or activity that "have prevented or removed an equivalent amount of carbon dioxide elsewhere." (Ribon 2007) "The idea being that the removal of greenhouse gases counterbalances emissions from other sources." (Downie 2007). They are divided into four main groups: renewable energy, energy efficiency, methane emissions avoidance and bio sequestration (forestry/ plantations).

The introduction, by the Australian Government, of the Carbon Pollution Reduction Scheme – a cap in trade system brings into question the effectiveness of carbon offsets in contributing towards lowering of Australia's overall greenhouse gas emissions as they will be capped. Richard Dennis argues that *'If households use less energy and create less pollution, they will simply free up permits to allow other families or industries to increase their own emissions…And as a result concerned households and business will not be able to make any meaningful contribution to greenhouse gas abatement. In fact the only way for individuals to lower Australia's total emissions is to buy carbon permits and not use them."*

The Australian Government recently released a Discussion Paper National Carbon Offsets and is currently reviewing options for voluntary carbon offset market. It has committed to developing a national standard for carbon offsets to *"provide national consistency and give consumers confidence in the voluntary carbon offset market. The offset standard will provide guidance on what constitutes a genuine, additional voluntary offset credit, as well as setting requirements for the verification and retirement of such credits, and standards for calculating the emissions of a product or service.* (source http://www.climatechange.gov.au/greenhousefriendly/changes.html)

Until such a the CPRS comes into effect HCC S5 proposes that in line with the Cities for Climate Protection Australian Program's Offset Policy Feb. 2009 the Hobart City Council accept offsets accredited under any of the following schemes.

Gold Standard

All offsets certified by the Gold Standard. These include:Voluntary Emissions Reductions (VERs) and Clean Development Mechanism/Joint Implementation (CDM/JI) Certified Emission Reductions (CERs) and Emission Reduction Units (ERUs). See: www.cdmgoldstandard.org.

Greenhouse Friendly

Greenhouse Friendly Approved Abatement and Greenhouse Friendly certified greenhouse-neutral energy products (such as electricity and fuel). The reductions from the use of energy products should be calculated by multiplying the energy use by the appropriate factors for the council's state from the National Greenhouse Accounts (NGA) Factors. See: www.climatechange.gov.au/greenhousefriendly.

NSW Greenhouse Gas Reduction Scheme (GGAS)

Voluntarily surrendered NSW Greenhouse Abatement Certificates (NGACs) generated under the GGAS scheme. See: www.greenhousegas.nsw.gov.au.

Voluntary Carbon Standard (VCS)

Voluntary Carbon Units (VCUs) accredited directly under the VCS or under one of their approved greenhouse programs. See: www.v-c-s.org.

Mandatory Renewable Energy Target (MRET)

Voluntarily surrendered Renewable Energy Certificates (RECs) created under MRET. RECs are sold in units of energy; they should be converted to emission reductions using the appropriate electricity emission factors for the council's

state from the National Greenhouse Accounts (NGA) Factors. Note that this conversion is approximate, as it is not always known in which state the RECs were actually created. See: www.orer.gov.au/recs.

NOTE: This list will be reviewed regularly in response to ongoing developments in the offsets market.

Appendix 3 provides a discussion of carbon offset considerations.

Carbon Offsets – Hobart City Council

The Council has already commenced to offset some of the emissions associated with its premier activity – the Taste of Tasmania. A total of 67 eCO2t from cooking and waste at the Taste of Tasmania 2006/2007 was offset through Climate Friendly[3] at a cost of $1999.25 including GST. Carbon offsets are now included in the stallholder's package for the 'Taste.'

And indirectly carbon credits derived from McRobies Gully Landfill cogeneration project operated by AGL have been used by Cascade to offset greenhouse gas emissions associated with the its Cascade Green Beer.

[3] Climate Friendly is a Founding Member, and currently, only Australian Member of ICROA. ICROA is a not-for-profit alliance of leading carbon reduction and offset organisations. As an ICROA member, Climate Friendly supports a reduce-and-offset approach to carbon management, and comply with the ICROA Code of Best Practice Climate Friendly (www.climatefriendly.com)

Climate Change Policy Framework

Australia's climate change policy and legislative landscape is evolving at a rapid rate. Over the past 18 months both the Australian Government and the Tasmanian Government have set new carbon reduction goals and are developing initiatives and programs to assist in meeting these. There is also an increasing focus on adaptation to inevitable climate change impacts at the Federal and state level and this is featuring in funding opportunities and program development.

Australian Government

The incumbent Australian Government's climate change approach is underpinned by the three following strategies:

- Reducing Australia's greenhouse gas emissions;
- Adapting to climate change that we cannot avoid; and
- Helping to shape a global solution.

The core Government Departments responsible for the delivery of climate change strategies are the Department of Climate Change and the Department of the Environment, Water, Heritage and the Arts. These Departments currently manage the work of the former Australian Greenhouse Office.

Carbon Pollution Reduction Scheme

The Australian Government has expanded and developed new policies to progress its climate change approach. It has committed to the introduction of an emissions trading scheme, as has been done (such as the European Union scheme), in order to reduce Australia's emissions. The government has released the proposed design (white paper) of the scheme, termed the "Carbon Pollution Reduction Scheme", but there are still many details to be finalised. As of May 2009 the scheme is proposed to commence 1 July 2011.

The Australian Government has committed to a long-term target of 60% reduction on 2000 levels by 2050. It has also adopted a minimum (unconditional) commitment to reduce emissions by 5% below 2000 levels by 2020 irrespective of actions by other nations. In the event that global agreement is reached where all major economies commit to substantially restrain emissions and all developed countries take on comparable reductions to that of Australia, this commitment will be increased to 15% below 2000 levels. Australia is also committed under the Kyoto Protocol to limiting its emissions to 108% of 1990 emissions over the period 2008–2012.

The CPRS will work by requiring all large emitters and upstream liquid fuel suppliers in Australia to purchase permits for every tonne of carbon dioxide equivalent (t CO2e) that they emit. The purchase of permits will be required for industry and business sectors that have operational control over a facility producing over 25,000 t CO2e of Scope 1 emissions annually. The number of permits available each year will be limited to ensure that the total emissions are within Australia's Kyoto Protocol and other targets. The cost to scheme participants of purchasing these permits will be in part past on to consumers, providing incentives at all levels of the economy to reduce emissions. All funds generated by the Government from selling the permits will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

The Australian Government has provided an overview of how funds from the scheme will be spent. The following initiatives have been announced:

- $6 billion per annum available from 2010 available to assist households; and
- Cent for cent reduction in fuel tax for three years.
- $2.15 billion allocated over 5 years to assist business, community sector organisations, workers, regions, communities, and emissions-intensive, trade-exposed industries to adapt to the higher costs of greenhouse gas emissions.

Of consequence to the Council are the CPRS's 'Household Assistance' package and complementary 'Energy Efficiency Home Package', which include:

- free ceiling insulation worth up to $1,600 to home owner-occupiers of currently un-insulated homes; or
- a $1,600 rebate on the installation of solar hot water systems; and
- a rebate for landlords for insulation of their rental properties.

The Council also currently has in place a range of sustainability initiatives that complement the Australian Government's Energy efficiency Package, value adding to the opportunities for Hobart's households to increase their energy efficiency these include:

- Solar Hot Water Rebate of $500 for the installation of solar hot water and heat pump systems;
- Insulation Rebate of $300 for installation of insulation of houses constructed prior to 2003 (post 2003 changes to the Building Code of Australia require ceiling insulation in new houses);
- Water Rebate – provides a range of rebates for the installation of water tanks through to water efficient appliances.
- Development Energy Efficiency Rebate on planning applications

The Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Government's climate change policy. This will allow the Council to augment and leverage from the Australian Government's climate action.

National Greenhouse and Energy Reporting System (NGERS)

The *National Greenhouse and Energy Reporting System Act* 2007 is a single national framework for reporting of greenhouse gases emissions, energy use and energy production. The NGERS Act, which is already in effect, requires large emitters, energy producers and energy users to report their annual emissions and energy use and production. Organisations can trigger NGERS thresholds when their emissions or energy use/production trigger either corporate or facility thresholds. For emissions these thresholds are 25,000 t CO_2e for a facility, and 125,000 t CO_2e in 2007/08 to 50,000 t CO_2e for 2010/11 for the entire corporation (based on Scopes 1 + 2 emissions). NGERS applies to constitutional corporations so at this stage does not apply to most local governments.

The reporting framework and emission calculation methodologies developed for the NGERS Act will also be used to underpin emissions reporting under the CPRS. However it is important to note that the entities required to report under the NGERS Act are not necessarily the same as those required to participate in the proposed CPRS. For example CPRS thresholds apply only to emissions from facilities, whereas the NGERS thresholds apply to emissions and energy from both facilities and corporations. Also CPRS thresholds are based only on direct (Scope 1) emissions, whereas NGERS thresholds depend on total direct plus electricity-related emissions (Scopes 1+2).

Will Hobart City Council be required to participate in either the NGERS Act or CPRS?

Hobart City Council is unlikely to be required to report under the NGERS Act, for the time being, as they are not a constitutional corporation.

The CPRS, when it comes into effect, will apply to all entities, including local governments, that have operational control of an emitting facility. Hobart City Council is unlikely to, but may trigger CPRS emission thresholds. Council technical staff have advised that emissions from Hobart's landfills will not trigger the 25,000 t CO_2e threshold. It must be recognised that this element of the CPRS has not been finalised and it has been proposed that some landfills with emissions over 10,000 t CO_2e may trigger the CPRS threshold if within a distance (still to be determined) of another landfill.

Once the CPRS scheme is introduced NGERS technical guidelines and systems will be used as the reporting mechanism for organisations that are included in the scheme.

Hobart's Inventories

Annual inventories of emissions for council operations have been compiled annually by the Hobart City Council as part of our voluntary involvement in the Cities for Climate Protection (CCP) program. These have been designed to be meaningful, assist with decision making and track change over time. With the onset of a regulatory system there have been some changes in the methodology for measuring and recording emissions.

ICLEI Oceania is in the process of updating CCP's greenhouse gas reporting protocols in line with the ICLEI International Local Government GHG Emissions Analysis Protocol (http://www.iclei.org/index.php?id=8154). This will also align CCP reporting with the fundamental elements of GHG emissions reporting under the National Greenhouse and Energy Reporting System (NGERS) Act (so that the CCP inventories could form a basis for NGERS reporting, and vice versa).

Mandatory Renewable Energy Target (MRET)

The Australian Government has expanded the Mandatory Renewable Energy Target (MRET) for the production of energy from renewable sources to 9,500 GWh of per annum by 2010. MRET encourages the development of a more sustainable renewable energy supply industry thereby reducing of greenhouse gas emissions. It does this by establishing a guaranteed market, whereby a legal liability requires large wholesale purchasers of electricity to purchase renewable energy certificates in proportion to electricity they purchase.

The core MRET legislation is: the Renewable Energy (Electricity) Act 2000 (the Act)' the Renewable Energy (Electricity) Charge 2000 and the Renewable Energy (Electricity) Regulations 2001. Interim targets are set to 2010 when 9500 GWh of renewable energy is to be produced. ` From 2010 to 2020, when MRET ends, 9500 GWh is to be produced annually.

Renewable Energy Certificates (REC's) are created by renewable energy generators, where each REC represents one megawatt hour of renewable energy. Renewable energy generators are renewable energy power stations as well as small generation units installations such as photovoltaic systems; solar water heater installations, wind systems and small hydro electric systems.

Owners of small generation units are eligible for RECs and have the choice of claiming the RECs themselves or assigning them to an agent. In the case of McRobies Gully the Council has surrendered the REC's generated from cogeneration of electricity to the company who installed and manages the cogeneration infrastructure

Tasmanian Government

In December 2007, the Tasmanian Government adopted the Crowley report, "*A Framework for Action, Reducing Tasmania's Greenhouse Gas Emissions*." It established the Tasmanian Climate Change Office in 2008, introduced the *Climate Change (State Action) Bill 2008* requiring it to reduce its emissions by 60 per cent by 2050, based on 1990 levels and also released the '*Tasmanian, Framework for Action on Climate Change*' July 2008 that sets out States majors strategies to address climate change.

Of most significance to local government is the *Statewide Partnership Agreement on Climate Change between the State Government and the Local Government Association of Tasmania on behalf of Tasmanian Councils December 2008**. Key elements of the partnership agreements for local government include:

- Compilation of corporate emission inventories and setting emission reduction targets;
- Development of climate change action plans;
- Community consultation and awareness; and
- The incorporation of climate change into regional planning schemes.

The Council's completion and ongoing participation in the Cities for Climate Protection ensures that the Council is well placed to deliver and has already completed much of the work indicated in the partnership agreement. ICLEI Oceania and LGAT are in discussions on how to minimise duplicate effort for CCP councils in Tasmania who are now required to take part in the LGAT process. The Council will also need to consider the incorporation of climate change into regional planning schemes that are yet to be developed. It is noted however that in the new draft Hobart City Council Planning

Scheme does include provisions relating specifically to coastal developed urban situation. The Council also offers a solar hot water rebate and insulation along with guidelines of energy efficiency that encourage sustainable development.

It is further noteworthy that whilst there have not been legislative drivers to date driving climate change action that Council has been proactive in addressing climate change since 1999. In 2000 it set and has achieved in 2008 a 70% corporate emission reduction target.

*Hobart City Council and the State Government under the former Partnership Agreement 2001 – 2004 committed to Reducing Community Greenhouse Gas Emissions. The emphasis of agreement was to develop a coordinated and cooperative approach for strategies to mitigating community emissions, encouraging a regional approach and sharing resources and action for awareness raising and community development.

Local Government Association of Tasmania

From 2006 the Local Government Association of Tasmania has become progressively engaged on the issue of climate change. It coordinates the Climate Change Reference Group for local governments to disseminate information and encourage climate action. In 2008 it engaged a climate change officer and produced a Climate Work Plan for local government that focused on the following areas:

- Strategic Planning
- Carbon Emission Reductions
- Risk Assessment and Management
- Communication, Coordination and Capacity building
- Monitoring and review

The work plan identifies a range of actions in the areas of: Strategic Planning; Emission Reduction; Risk Assessment and Management; Communication, Coordination and Capacity Building. Actions proposed by LGAT include:

- The development of a Local Government Climate Change Strategy;
- The establishment of local government sector based emission reduction targets and a monitoring program;
- Development of a climate change Action Pack for local government;
- Representing local government on climate change project; and
- Coordination of local government's response to Federal and State climate change initiatives including the establishment of working groups through the Climate Change Reference Group.

Local Government and Liability

The legal framework surrounding Climate Change is rapidly evolving. Legal precedents are continuing to be set recognising 'climate change' as a consequence of increased anthropogenic greenhouse gases entering the atmosphere. Increasingly organisations are being exposed to future liabilities based on current decisions and actions that result in either emission of atmospheric greenhouse gases or don't take into account impacts of climate change. It is becoming increasingly imperative that decisions of the Council's are considered to be reasonable responses to climate change to avoid potential litigation in the future.

The paper "Climate Change: What are local governments liable for?" by Phillipa England Griffith University March 2007 "*…. examined some potential legal liabilities of local governments when making decisions about matters affecting climate change as well as matters affected by climate change. Local governments currently have available to them a number of defences that seem likely to protect them from claims based on a failure to recognize and respond to information about climate change. Nevertheless, just as the science of climate change is gathering momentum, so too the law in this area is evolving rapidly. Local governments should therefore take care to ensure their actions, decisions*

and policy responses to matters that may either contribute to, or be affected by, climate change remain current and reasonable in what is a rapidly evolving policy context."

In a more recent article England further makes the case that the "*emergent law seems to require Councils to develop a reasonable response to climate change considerations*." And notes "*…that local governments are becoming increasingly vulnerable to litigation if they fail to take into account climate change considerations when making decisions that will impact of greenhouse gas emissions (England 2008). And in terms of the failure to take into account the consequence s of climate change in their decision making local governments are becoming increasingly exposed.*

To avoid potential litigation local governments should start to assess, as a matter of routine, the impact of their decisions and activities on greenhouse gas emissions and also to consider, where possible ways and means of reducing that impact".

England concludes "*With respect to adaptation to climate change, the law requires that local governments develop a reasonable response – or more accurately, a not wholly unreasonable response to climate change impacts. Provided they do this local governments should remain immune from civil liability for any failure to take into account predicted climate change impacts.*"

Hobart's Strategic Context

Key drivers for addressing the issue of climate change across Council's activities and core business are its Vision Hobart 2025, Strategic Plan 2008 – 2013, and Corporate Plan 2009 - 2014. HCC S5 progresses the climate change elements contained in these strategic documents into a strategic framework that provides a comprehensive way forward on this challenging issue.

The community consultation for Vision Hobart 2025 articulated the community's need to address issues enmeshed in climate change such as sustainable transport, quality urban development and the natural environment. The Council Strategic Plan 2008-2013 integrates key climate change elements for city and its community in response to Hobart's Vision 2025. The Council's Corporate Plan 2009-2014, which is internally focused, provides a driver to realise climate change action across the Council's corporate activities. HCC S5 aligns these strategic documents into a framework for action.

Hobart's Vision – Hobart 2025

In 2025 Hobart will be a city that:

- offers opportunities for all ages and a city for life;
- is recognised for its natural beauty and quality of environment;
- is well-governed at regional and community levels;
- achieves good quality development and urban management;
- is highly accessible through efficient transport options;
- builds strong and healthy communities through diversity, participation and empathy; and
- is dynamic, vibrant and culturally expressive.

MISSION

Our mission is to ensure good governance of our capital city.

VALUES

The Hobart City Council will:

Leadership	Provide effective capital city leadership, integrity and openness in its approach and will be an advocate for the needs and aspirations of the community.
Equity	Ensure equity, consistency and co-operation in its dealings with the community and government.
Community Involvement	Encourage effective democratic involvement by the community in the life of the city through Involvement communication, consultation and participation.
Responsiveness	Be responsive to the needs and aspirations of the community.
Excellence	Ensure continuous improvement in the delivery of all of its services.

Strategic Plan 2008-2013

The key climate change strategies are:

FD2.3. The physical environment has been conserved in a way that ensures we have a healthy and attractive city.

2.3.3. Promote opportunities to improve the energy efficiency of the city.

- Identify emerging initiatives for energy efficiency and potential funding for development.
- Promote energy efficiency initiatives to the community.
- Review Council's initiatives including energy efficiency and solar hot water rebates.
- Review Council's Cities for Climate Protection Greenhouse Local Action Plan.

2.3.7. Develop and implement strategies to minimise greenhouse gas emissions.

- Review and implement Council's Greenhouse Gas Local Action Plan under the Cities for Climate Protection Programme.
- Develop and implement Council's Sustainable Transport Strategy.
- Promote Council's greenhouse emissions reduction initiatives to the community.

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.
- Participate in regional approaches to climate change-related initiatives.

Corporate Plan 2009-2014

HCC S5 is consistent with the Corporate Plan 2009-2014 Element 3.3 Environmental Sustainability in that it specifically seeks to:

- Increases awareness and understanding of climate change
- Promotes leadership in response to climate change
- Implements energy and greenhouse gas emissions reduction strategies
- Adapts to climate change impacts
- Understand the economic impacts of climate change.

Council Resolutions

The following outlines key Council's resolutions with regard to climate change and sustainability as drivers for HCC S5 – a full list of Council resolution is contained in Appendix 4:

13/08/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

That:

- The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.
- For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.
- The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.
- Aldermen and the community be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

25/06/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

"That further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examines the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59 STRATEGIC GOVERNANCE ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

That:

The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

- A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.
- The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.
- The quantum of monies to be allocated to the reserve fund being reviewed annually.
- The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.
- An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

Emissions Profiles

This section examines the emissions profile for Australia, Tasmania, Hobart's municipal area and the Hobart City Council.

Australia's Emissions Profile

Australia is the highest emitter per capita (approximately 28 e-CO_2 tonnes per capita) in the world. Since 1995 has been increasing emissions by 1% per annum.

The Australian Government has produced figures for Australia's total greenhouse gas emissions in 2006. These amounted to 575 million tonnes (Mt) of carbon dioxide equivalent (CO_2-e). The following tables shows the State and Territory breakdown and emissions by sector:

	NSW	Qld	Vic	WA	SA	NT	Tas	ACT	Total
e-CO2 Mt	160	170.9	120.3	70	28	16.2	8.6	1.1	575
% of Aust total	27.8	29.7	20.9	12.2	4.9	2.8	1.5	0.2	100%
Stationary Energy	76	64.6	80.5	36.3	14.2	3.7	2.4	* part of NSW	287.4 (50%)
Transport	21.6	18.7	20.6	9.5	5.9	1.4	1.8	0.9	79.1 (14%)
Fuguitive Emisssions	14	8	2	3.5	3	0.2	Not available	0.01	34.5 (6%)
Industrial Processes	12	5	3	4	1.5	0.1	1	0.1	28.4 (15%)
Agriculture	20	25	16	12	5.8	7.5	2.2	0.01	90.1 (15%)
Land Use, Land Use Change & Forestry	9	27	-5	-2	-4	0.3	3	-0.1	40 (7%)
Waste	6	3	4	2	1	0.1	0.5	0.2	16.6 (3%)

* Stationary energy is mainly greenhouse gas emissions from the production of energy and other direct combustion of fossil fuels in industry such as manufacturing and construction. In Tasmania the manufacturing and construction comprises the most significant source of emissions in this sector with energy production primarily relating to high emissions fuel sources such as diesel, anthracite and heavy fuel oil.

Source: "State and Territory Greenhouse Gas Inventories 2006"
Australian Government June 2008

Hobart's Community Emissions Profile

In 2007 Hobart's municipal area was the source of 349,337 e-CO_2t. The two most significant sources of emissions were in the industrial and transport sectors with 41% and 35% respectively. Emissions in Hobart's very small industry sector are high as anthracite (black coal) is used as the energy source for activities such as heating of industrial boilers in manufacturing processes. It has an emissions factor of 93.6 kg e-CO_2 GJ giving a high emissions output. Conversion to natural gas would significantly reduce emissions from this sector.

	Source	e-CO_2 t	e-CO_2 %	GJ	GJ%
Residential	Electricity	13,165	4	877,672	15
	LPG	1,815	1	30,345	1
	Natural gas	525	0	10,115	0
	Subtotal	15,505	5	918,132	16
Commercial	Electricity	12,387	4	825,780	14
	LPG	1,741	1	29,118	0
	Natural gas	1,511	0	29,118	0
	Diesel	16,224	5	232,943	4
	Subtotal	31,863	10	1,116,959	19
Industrial	Electricity	7,919	3	527,958	9
	Anthracite	74,233	24	830,658	14
	Diesel	20,044	6	287,780	5
	Heavy fuel oil	15,328	5	209,785	4
	Other	15,626	5	190,722	3
	Subtotal	133,150	43	2,046,903	35
Transportation	Petrol	88,174	28	1,270,522	22
	LPG	4,895	2	81,864	1
	Diesel	28,525	9	409,551	7
	Subtotal	121,594	39	1,761,937	30
*Transportation by sector	*Residential (Private Cars, Motorcycles, Buses)*	*93,506*	*77*	*1,402,501*	*80*
	Commercial (Trucks, Vans etc)	*28,088*	*23*	*407,007*	*20*
Waste	Paper products	2,087	1		
	Food waste	2,817	1		
	Plant debris	355	0		
	Wood/Textiles	2,504	1		
	Subtotal	7,762	3		
Waste Water Treatment	Carbon Dioxide	55	0		
	Subtotal	55	0		
	Total	309,929	100	5,843,931	100

*the "Transportation by sector" figures (italics and grey font) are not included in the overall tables calculations – they have been included as the show the difference in emissions between the private residential transport and the commercial sectors.

Source: The data set was provided by ICLEI as default Hobart community data for CCP purposes– it is based on ABS census data and provided to CCP Councils following census years.

Hobart population is almost 48,000 and it has almost 23,000 rateable properties of which 86% are residential, with 11% commercial and the balance vacant land. Overall Tasmania's population is ageing and the second oldest of any capital city.

The following table tracks the electricity consumption and emissions of the majority of Hobart's suburbs from 2004/05 – 2006/07. The central business district (CBD) postcode 7000 consumes the greatest proportion of energy and produces most emissions this is expected as it supports the greatest area of economic activity. Postcode 7007 shows the greatest growth consumption and emissions with 43% increase, which in line with the increase urban development. Overall there has been an increase of electricity use and emissions of 8%.

		Business		Residential		Total	
Postcode	Year	GJ	eCO_2t	GJ	eCO_2t	GJ	eCO_2t
7000	04/05	70,380	25,415	23,983	8,660	94,363	34,075
	05/06	74,463	26,889	23,075	8,333	97,538	35,222
	06/07	83,071	29,998	24,064	8,690	107,135	38,687
7004	04/05	15,111	5,457	13,367	4,827	28,478	10,284
	05/06	15,008	5,420	12,745	4,602	27,753	10,022
	06/07	15,570	5,622	13,437	4,852	29,007	10,475
7005	04/05	18,661	6,739	25,142	9,079	43,803	15,818
	05/06	20,348	7,348	24,244	8,755	44,591	16,102
	06/07	20,364	7,354	25,723	9,289	46,087	16,643
7007	04/05	559	202	5,697	2,057	6,256	2,259
	05/06	981	354	5,302	1,914	6,282	2,269
	06/07	979	353	5,647	2,039	6,625	2,393
7008	04/05	13,285	4,797	19,387	7,001	32,672	11,798
	05/06	14,957	5,401	18,622	6,724	33,579	12,126
	06/07	15,390	5,558	18,897	6,824	34,287	12,381
Total	04/05	117,996	42,610	87,576	31,625	205,572	74,234
	05/06	125,756	45,412	83,987	30,329	209,743	75,740
	06/07	135,374	48,885	87,767	31,694	223,141	80,579

Source: The municipal wide electricity data set was provided by Aurora Energy- due to commercial reasons it can no longer be made available to Hobart City Council.

Postcodes:

7000 Hobart, North Hobart, West Hobart, Glebe

7004 Battery Point, South Hobart

7005 Dynnyrne, Lower Sandy Bay, UTAS

7007 Mount Nelson, Tolmans Hill

7008 Lenah Valley, New Town

NB the postcode 7054 Fern Tree and Ridgeway is not included as the majority of the settlements are located in the municipality of Kingborough.

Hobart's Corporate Emissions Profile

The Hobart City Council joined CCP in 1999, selecting 1996 as its base year and setting a 70% emission reduction goal by 2010. Since then much has changed within the Council's own energy landscape. The Hobart Aquatic Centre came on line in 2000 doubling the Council's energy use. Upgrades and installation of sewage and water pump stations servicing the community have also increased the Council's energy use. Tasmania's greenhouse gas landscape has changed markedly with an increase in electricity emissions as more mainland electricity is imported.

The Council, in spite this, is reducing its energy use through a range of energy saving options such as conversion of all computers to energy saving LCD screens, lighting replacement programs, upgrades of plant equipment and use of natural gas at its bitumen plant. It is interesting to note that since 2001, energy use in the Building, Streetlights and Water/Sewage sectors has decreased along with 'non-energy' emissions sectors of Water/ Sewage and Waste Water Treatment and Waste. A significant emission reduction of almost 80% has been made in the waste sector at the McRobies Gully Landfill. This has been achieved by the use of landfill methane to generate electricity that is exported to the 'grid.' Since the program was commissioned 17,500 MWHrs of electricity have been produced and 135,000 tonnes of greenhouse gas destroyed.[4]

The Council uses online CCP Greenhouse Gas Calculation software for its inventories, conducting annual inventories since 2000/01 and tracking progress and trends. Accurate data is obtained from its electricity and fuel accounts, along with record keeping of waste entering the landfill site and annual landfill cogeneration reports.

	Base Year 1996 [B]	2001	2002	2003	2004	2005	2006	2007	% Change 1996-2007
[A] Buildings Sector									
eCO_2 t	115	22	61	344	392	481	594	1,321	92↑
GJ	20,694	[C]38,992	36,775	39,893	40,272	38,495	39,627	35,705	[D]58 ↑
COST $	650,590	1,063,454	1,064,972	1,194,224	1,217,990	1,225,447	1,277,636	1,231,252	53↑
Vehicle Fleet Sector									
eCO_2 t	1,819	2,299	2,388	2,415	3,438	2,867	2,766	2,476	73↑
GJ	26,254	33,148	34,432	34,825	49,492	41,296	40,346	36,729	[E]71↑
COST $	431,551	721,081	780,201	803,069	1,086,553	1,193,533	1,278,043	1,307,650	33↑
[A]Streetlights Sector									
eCO_2 t	65	8	24	125	141	180	208	496	99.2↑
GJ	11,754	14,267	14,516	14,554	14,484	14,424	13,837	13,403	87↑
COST $	662,791	812,033	855,894	880,189	902,146	927,341	959,824	1,020,882	35↑
[A H] Water/Sewage Sector									
eCO_2 t	37	12	32	160	162	258	295	657	94↑
GJ	6,726	21,298	19,344	18,601	16,697	20,610	19,658	17,750	38[I]↑
COST $	207,494	582,156	523,978	545,913	567,327	619,120	627,938	612,103	34↑
Waste Sector									
eCO_2 t	39,400	43,200	43,500	34,191	14,800	6,982	7,762	8,210	79↓
Waste Water Treatment (Digesters)									
eCO_2 t	4,599	1,260	1,260	1,260	1,260	1,260	55	55	98.8↓
Total									
eCO_2 t	46035	46,801	47,266	38,495	20,192	12,027	11,680	13,215	71↓
GJ	55,357	107,705	105,067	107,873	120,945	114,826	113,468	103,587	53↑
COST $	1,952,426	3,178,724	3,225,045	3,423,394	3,774,016	3,965,441	4,143,441	4,171,887	47↑

[4] AGL July 2008, Hobart Landfill Gas Recovery Report

[A] The energy source for the Building, Streetlights, Water/Sewage sectors is electricity and its emissions factor e-CO_2 kg /kWh has increased from 0.02 CO_2-e/GJ in 1996 to 0.13 CO_2-e/GJ in 2007 due to the effects of the climate induced drought resulting in low Hydro dam levels and the subsequent importation of high emissions electricity from Victoria via Basslink and use of natural gas at Bell Bay to augment the States electricity supplies. A consequence is that emissions in the "electricity" sectors has increased by almost 100%.

[B] The National Greenhouse Accounts Factors 2008 emissions factor of 0.02 kg CO_2-e/GJ for 1996 has been used for the purposes of this inventory. It is noted that in 2000 when Hobart set its emissions targets that the NGFA 2000 the emissions target was 0.00 CO_2-e/GJ and as such in previous inventories produced by the Council this ha been listed as 0.00 eCO_2t.

[C] The almost 50% increase in energy was due to THAC coming on line –it is noted however that between 2001 when it came on line and 2007 that there has been an energy decrease of 8% (3,300 GJ) in the Building sector.

[D] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[E F] The decrease in 11% energy use and 14% decrease in eCO_2t from 2005 to 2007 is due to the Council's Bitumen plant converting from diesel to natural gas

[G] Between 2001 and 2007 there has been a 6% reduction in energy (GJ) used in the Streetlights sector.

[H] In 2009 the Water and Sewage Sector will transfer to a Regional Authority this will result in a reduction of approximately: 4% e-CO_2t emissions; 20% of energy (GJ) and 15% in costs.

[I] Between 2001 and 2007 there has been a 17% decrease in energy (GJ) used in the Water/Sewage sector

[J] The decrease in e-CO_2 t is due to the flaring and subsequent cogeneration of methane from the McRobies Gully landfill – residual emissions are fugitive

[K] The decrease in e-CO_2 t is due to cogeneration of methane from the Waste Water Treatment plants for reuse as an energy source in the plant

[L] Between 2001 and 2007 there has been a 4% reduction in energy (GJ) used overall be the Council

PART TWO – STRATEGIES & ACTIONS

5A's Strategies and Actions

Climate change will affect the whole of Council and how it functions and how each employee does their job. It will affect our community, the region we live in. There is nothing about our lives, communities, societies or environments that will not be affected by climate change.

The strategies and actions identified in HCC S5 have been developed to assist the Council and its communities to continue action to mitigate emissions and begin to adapt to climate change impacts and a carbon neutral lifestyle and economy.

The focus of HCC S5 is on the five core strategies of climate which apply across the organisation and our community and regional linkages. It is considered that major aspects of the ramifications of climate change on our social and natural processes are covered by the strategies.

The five A's of climate change are:

Advocacy promoting leadership within the Council and throughout the community in responding to climate change.

Abatement the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Adaptation the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions and progress towards targets.

The strategies are not listed in a hierarchical order – all strategies are considered to be of equal importance. To date the major areas of action have been in the abatement sector, as in the early 2000's the emphasis was on reducing emissions as programs typically focused on mitigation. However in recent times there has been a shift on the realisation that humanity will have to adapt to climate change impacts in the order of 2^0C or more as emissions continue to increase.

HCC'S previous Local Action Plan separated the actions to address climate change into corporate and community, this document blends actions in both these sectors of which there is also considerable overlap into the five core strategies of climate change.

Action Time Frame	Financial Year
Ongoing	n/a
Immediate	2009/10- 2010/11
Medium	2010/11 – 2011/12
Long Term	2012/13 – 2013/14

Advocacy

Advocacy: promoting leadership within the Council and throughout the community in responding to climate change.

The issue of climate changes is challenging all levels of society and there is the urgent need to create sustainable and carbon friendly communities, cities, economies and social structures and processes. The inherent uncertainty in finding and creating solutions and alternatives to progress in the face of climate change requires strong advocacy from across society and its institutions. Local government's core business is 'sustainability' in its broad meaning encompassing economics, environment and social considerations. As such, it is incumbent on the Hobart City Council to advocate for development and implementation of actions and strategies to address climate change issues

The Advocacy Strategy component provides for effective Capital City leadership, integrity and openness in its approach and to climate change. This will provide a political forum to advocate the needs and aspirations of the community with regard to understanding, responding and adapting to climate change.

Advocacy Actions:

Climate Change Policy

HCC S5 proposes that the Council formally endorse the Climate Change Policy that forms Appendix 5 of this document formally affirming and reinforcing its commitment for action and leadership on the issue. The Climate Change Policy forms the basis of the Council's climate change activities and represents its public commitment to leadership and action on climate change.

#	Action	Responsible	Timing
1.1	Council formally endorse the Climate Change Policy that recognises that climate change is an issue affecting humanity; recognises the urgency of the need for comprehensive action on the issue and commits to leadership to Hobart's communities and the region.	Council	Immediate

CCP Partner Program

In joining ICLEI Oceania - Cities for Climate Protection Program in 1999 the Council committed to acting on the issue of climate change. Through HCC S5 the Council reaffirms and reinforces its commitment to ongoing climate action post the cessation of CCP on 30 June 2009 and its replacement with the CCP Partner Program

The CCP Partner program will be of particular assistance to the Council through its proposed adaptation work and regional briefings. The regional briefings will be of particular support during the introduction of the proposed Carbon Pollution Reduction Scheme in 2011.

#	Action	Responsible	Timing
1.2	Hobart City Council maintains its ICLEI membership and participation in Cities for Climate Partners Program.	Council	Ongoing

STCA - Climate Change and Sustainability Initiative

Greenhouse gas emissions, climate change impacts and the abatement and the mitigation and adaptation solutions are not limited to municipal boundaries. Whilst most Council's can successfully implement climate action at the corporate level as they directly control the emissions – working on community based climate action and meeting community-wide reduction goals is inherently complex and problematic as they do not control emissions and can only influence the behaviour change. HCC S5 proposes that through the Southern Tasmanian Council's Association (STCA) a Climate Change and Sustainability Initiative (CC&SI) be established – refer to flow diagram page 38.

The CC&SI provides a framework for the development of strategies supported by actions based on the four broad based themes of land use: urban, peri urban, rural and natural areas and revolve around the development of strategies and prioritisation of actions for these. The strategies are not mutually exclusive of one another with actions, strategies and program able to be shared and adopted by all Councils represented by the STCA. It does however encourage Councils to work on the development and sharing of programs that are of most concern and relevance to their communities.

The development of the strategies should be undertaken with input from the key stakeholders in use each areas such as local government, state government, non government organisations, statutory authorities, industry etc.

The STCA CC&SI compliments and progresses the Statewide Partnership Agreement on Climate Change between the State Government and LGAT on behalf of Tasmanian Councils.

Initially the STCA CC&SI framework developed by CCP Councils as these already have an understanding of their and their communities emissions and are progressing a structured and supported framework for climate action.

Urban Strategy - Greater Hobart Climate Partnership

The initial project to be developed and piloted under the initiative is the Urban Climate Change Strategy involving Councils of Greater Hobart: Brighton, Clarence, Glenorchy, Hobart and Kingborough – (Devonport and Launceston invited as urban observers). The Greater Hobart Council's are engaged in the Cities for Climate Protection and are reasonably and consistently progressed in terms of the development and implementation of climate change actions.

Urban strategy would focus on two spheres of action:

- Community action on climate change with an emphasis on sustainable behaviour change that leverages off existing programs and incentives i.e. Carbon Pollution Reduction Scheme, HCC Solar Hot Water Rebates etc and focuses on householders, retail, commercial, industrial and education sector
- Adaptation applies the *Local Government Climate Change Adaptation Toolkit* to Greater Hobart including partnership opportunities with the ACE CRC Tasmanian Climate Futures Project and other stakeholders

The GHCP would share resources, set Greater Hobart community-wide emission reduction goals, develop a Greater Hobart Abatement Action Plan, Adaptation Strategy and Awareness Program. It aims to lead, support and mobilise climate action by the community and private and public sectors.

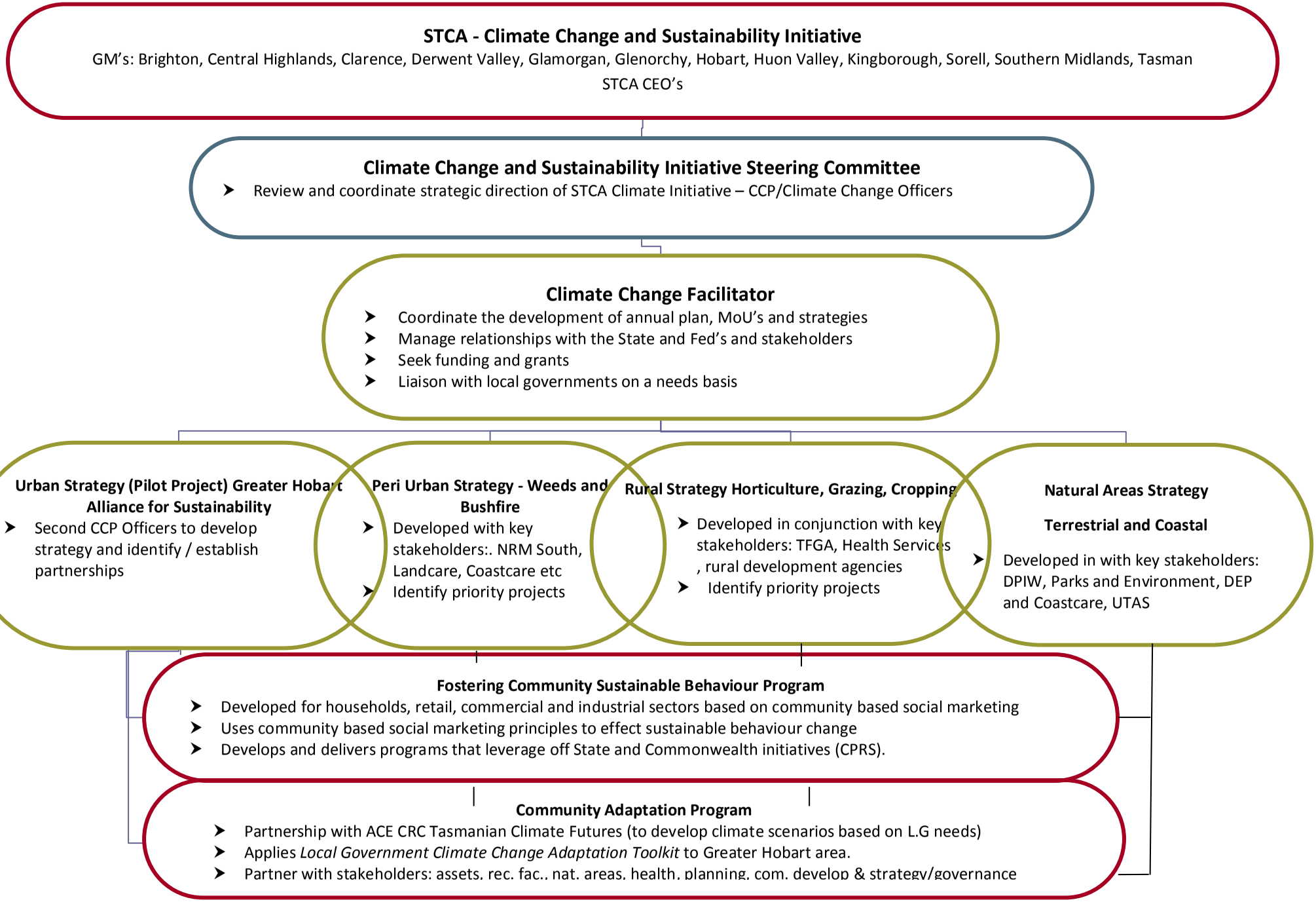
The GHAS would provide a model for other Council represented by the STCA to develop alliances and strategies around common themes of peri urban, rural and natural areas. The partnership is not intended to preclude other Councils from adopting actions and strategies. It is however intended to allow urban Councils leverage action and shared resources and responsibility for their urban communities that have distinct needs compared to peri-urban, rural and natural area communities and local governments.

The formation of a GHCP is supported by ICLEI and its CCP program. It progresses the State Government's Partnership Agreement on Climate Change in particular its principles of: leadership, shared responsibility; best practice and beyond, accelerating outcomes, creative thinking and innovation, openness and transparency.

It furthers the strategic direction adopted for the review of the Councils Climate Action and outlined in a CMT report (dated 06/07/07 – see Appendix 4) circulated, to aldermen, which included a recommendation, that:

"Opportunities are investigated for the establishment of a regional approach to community emissions abatement with other [CCP] *participating councils of Greater Hobart – Glenorchy, Clarence, Brighton and Kingborough."*

The model for the GHCP `would be of a similar to that of the Derwent Estuary Program that includes: Political commitment; a steering committee; and a technical working group supported with resources, to deliver and coordinate the program and on-ground actions.


STCA - Climate Change and Sustainability Initiative
GM's: Brighton, Central Highlands, Clarence, Derwent Valley, Glamorgan, Glenorchy, Hobart, Huon Valley, Kingborough, Sorell, Southern Midlands, Tasman
STCA CEO's
Climate Change and Sustainability Initiative Steering Committee
Review and coordinate strategic direction of STCA Climate Initiative – CCP/Climate Change Officers
Climate Change Facilitator
Coordinate the development of annual plan, MoU's and strategies
Manage relationships with the State and Fed's and stakeholders
Seek funding and grants
Liaison with local governments on a needs basis
Urban Strategy (Pilot Project) Greater Hobart Alliance for Sustainability
Second CCP Officers to develop strategy and identify / establish partnerships
Peri Urban Strategy - Weeds and Bushfire
Developed with key stakeholders:. NRM South, Landcare, Coastcare etc
Identify priority projects
Rural Strategy Horticulture, Grazing, Cropping
Developed in conjunction with key stakeholders: TFGA, Health Services , rural development agencies
Identify priority projects
Natural Areas Strategy
Terrestrial and Coastal
Developed in with key stakeholders: DPIW, Parks and Environment, DEP and Coastcare, UTAS
Fostering Community Sustainable Behaviour Program
Developed for households, retail, commercial and industrial sectors based on community based social marketing
Uses community based social marketing principles to effect sustainable behaviour change
Develops and delivers programs that leverage off State and Commonwealth initiatives (CPRS).
Community Adaptation Program
Partnership with ACE CRC Tasmanian Climate Futures (to develop climate scenarios based on L.G needs)
Applies Local Government Climate Change Adaptation Toolkit to Greater Hobart area.
Partner with stakeholders: assets, rec. fac., nat. areas, health, planning, com. develop & strategy/governance

#	Action	Responsible	Timing
1.3	The Hobart City Council formally proposes that the Southern Tasmanian Councils Association adopt the Climate Change and Sustainability Initiative Framework that includes: (i) the development of climate change and sustainability strategies based on the 'land use' themes: urban, peri-urban, rural and natural areas; (ii) the formation of an *STCA Climate Change and Sustainability initiative by Brighton, Clarence, Glenorchy, Hobart and Kingborough Councils , based on the Derwent Estuary Program model, to develop and implement an Urban Climate and Sustainability Strategy and to facilitate shared responsibility, knowledge, skills and resources and leverage regional, state and national climate actions to act on the issue of climate change at the community level; and (iii) as a gesture of commitment and good faith the Hobart City Council commit seed resourcing for the formation of a *STCA Climate Change and Sustainability Initiative and seek additional funding from both private and public sector (iv) investigate partnership opportunities with key stakeholders on climate initiatives and recognition of local government climate action to date.	STCA / General Manager	Immediate

Climate Change and Sustainability Steering Committee

The "Climate Change and Sustainability Steering Committee" is a an internally focussed leadership program to coordinate and progress climate and sustainability issues across (i) the Council's sphere of corporate activities and (ii) for input into the Greater Hobart Climate Partnership. CCSSC encompasses Energy Management, Environmental Sustainability and Climate Adaptation Programs. It is a response, in part (see underlined), to the Council motion Meeting 46, 10/09/07:

"That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

#	Action	Responsible	Timing
1.4	The "Climate Change and Sustainability Steering Committee" leads, coordinates and integrates corporate actions on issues of climate change and sustainability across the Council's sphere of corporate activities. The CCSSC includes Energy Management, Environmental Sustainability and Climate Change Adaptation Programs.	Climate Change & Sustainability Steering Committee	Ongoing

Greenhouse Reference Group

The Greenhouse Reference Group, comprised of Aldermanic representatives and Council officers, was established in 2000 to assist in the development and implementation of the Councils Greenhouse Local Action Plan. In preparing for its review the Council adopted a recommendation, dated 06/08/2007, that:

"The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered."

The scope and range of activities embedded and covered in climate change covers all aspects of the Councils activities: social, economic and environmental. To ensure a more comprehensive response and holistic and informed input by the Council's Aldermen HCC S5 proposes that quarterly briefs are provided – with Council Officers updating on Council actions, strategies and initiatives as well as advising advances in climate science and legislation. Observers and key stakeholders, as relevant, would also be invited to attend and participate in the briefings. Working groups for the development and implementation of projects may also be established on a needs basis. The introduction of regular quarterly briefings will form an important conduit for the sharing of ideas and updates on climate change between elected representatives and the community. It will also have input into the Greater Hobart Climate Partnership.

#	Action	Responsible	Timing
1.5	Aldermanic quarterly briefs, or as necessary, are provided by Council officers updating climate and sustainability actions, strategies and initiatives along with advances in climate science and legislation as relevant replacing the Greenhouse Reference Group.	Climate Change & Sustainability Steering Committee	2009 Ongoing

Abatement

Abatement: the reduction of direct and indirect greenhouse gas emissions through on-ground actions - typically these relate to energy efficiency conservation measures.

Emission Reduction Goals: HCC S5 sets the following the emissions abatement goals for its corporate and community activities:

- Corporate Energy Abatement Goal 30% reduction from 2009 by 2020 (Note this excludes Water and Sewage Sector that will be transferred from the Councils to the Regional Water Authority in 2009).
- Corporate Waste Abatement Goal 70% reduction goal from 1996 by 2010 and maintain until 2020 or until flaring concludes post landfill closure
- Greater Hobart Community Abatement Goal – to be identified under the auspices of the Southern Tasmanian Council Association's, Climate Change and Sustainability Initiative, Urban Program, by the Greater Hobart CCP Councils stakeholders: Brighton, Clarence, Glenorchy, Hobart and Kingborough.

HCC S5 Emissions Abatement Goals builds on and refines the Councils previous corporate and community emission reduction goals set in 2000 under the auspices of the CCP:

- Corporate 70% by 2010 from 1996 levels; and
- Community 20% by 2010 from 1996 levels.

The Council has achieved and exceeded its corporate emission reduction goal of 70% by 2010. It has abated a total a 166,937 e-CO_2 tonnes which is equivalent to taking 38,823 cars permanently off the road or turning off all Australian streetlights for 53 days.

A significant proportion, 80%, of this has been achieved through the installation of cogeneration technologies, using methane generated from its McRobies Gully Landfill and Waste Water Treatment operations. Since commissioning landfill cogeneration in 2004 a total of 134,029 e-CO2 t have been destroyed and 17,243 MWhrs of electricity have been generated and exported to the states grid which is enough to power 742 average Tasmanian homes[5]. Residual landfill emissions are fugitive and best addressed though carbon offsets or similar mechanisms. The cogeneration will continue until the expected closure of the landfill in 2018.

To address emissions associated with energy use for the balance of the Council activities a new energy abatement goal of 30% has been set that targets the Councils energy (electricity, fuel and natural gas) use and will result in real energy savings for Council. The electrical energy component typically has minimal emissions due to the low Tasmanian electricity emissions factor that, in 2007, is 0.13 kg CO2 e/kWh as compared to 1.32 kg CO2 e/kWh for Victoria[6]. The 30% Energy Abatement Goal is adjusted to take into account the Water and Sewage Reform – whereby Hobart's waste water treatment and pump assets, accounting 20% of its energy use, are transferred to a Regional Authority in 2009.

The 20% Community Reduction Target set in 2000 is problematic as the Council does not control emissions in this sector. Whilst the Council can exert some influence through its planning scheme, community awareness initiatives and sustainable transport strategies, these have not had a sizeable impact on actual emissions from this sector. It is noted that the greatest proportion of emissions in this sector are derived from industry process that rely anthracite (black coal) as a fuel source for heating boilers. Working co-operatively with the Councils of Greater Hobart and setting a joint community emissions reduction goal will produce realistic and sustainable project and outcomes that produce. A cooperative approach will also leverage greater resource towards abatement project and greater lobbying capacity on behalf of the participating local governments.

[5] AGL Annual report, (McRobies Gully Waste Treatment Facility) July 2008.

[6] National Greenhouse (Factors) Accounts Jan 2009

Corporate Abatement Actions

Energy Management Team [Corporate]

In 2007 an [Corporate] Energy Management Team was established to investigate and implement actions for the all the Council's energy [i.e. electricity, natural gas, diesel/petrol] consumption, costs and energy related greenhouse gas emissions. It is responsible for developing energy efficiency and conservation actions and strategies including alternative energies, emission reduction and carbon offsets for energy/emissions that cannot be reduced. Note: the team is not responsible for greenhouse gas emissions associated with the waste and the Council's McRobies Gully landfill nor energy use within the community sector.

The following table summarises the Councils energy [GJ] consumption and energy greenhouse gas emissions for assets that used more than 500 GJ per annum in 2006 -07:

Asset/s – 2007 greater than 500 GJ per annum	Category	GJ	eCO_2t	eCO_2%	$
The Hobart Aquatic Centre	Building	19921	737	15	611,798
Trucks	Fleet	13771	959	19	514,702
Hobart Streetlights	Streetlights	12759	472	9	985,021
*Selfs Point Waste Water Treatment Plant	Waste/Water	8779	325	6	284,512
Heavy Plant	Fleet	6952	484	10	260,847
Utilities/Vans	Fleet	5689	396	8	218,976
Hot Mix Plant (Natural gas)	Fleet	4536	235	5	85,084
*Macquarie Point Waste Water Treatment Plant	Waste/Water	4152	154	3	135,406
Town Hall	Building	3806	141	3	137,694
Customer Services Centre	Building	3291	122	2	124,255
Council Passenger Vehicles	Fleet	2551	177	4	102,338
4 Wheel Drive Vehicles	Fleet	2124	148	3	79,821
*Pump Station PS2 Nelson Road	Waste/Water	1938	72	1	69,332
*Pump Station 283 Brooker Avenue	Waste/Water	1885	70	1	65,406
Argyle Street Car Park	Building	1746	65	1	59,449
Hot Mix Plant (Natural Gas)	Building	1265	47	1	52,386
Central Car Park	Building	1142	42	1	41,326
Centrepoint Car Park	Building	1005	37	1	31,768
Aldermanic Fuel Allowance	Fleet	820	57	1	34,191
Salamanca Car Park	Building	683	25	0	28,471
Other Assets Energy Use	-	4772	240	5	24,9104
Total		103,587	5005	100	4,171,887

*To be transferred to the Regional Sewage and Water Authority 2009.

Electricity

Overall there has been a modest reduction of electricity energy used since mid 2000 due to actions such as changing all computers screen to energy efficient LCD screens. There is however scope to further reduce electricity emissions and the Council has committed to a further 30% emission and energy reduction by 2020 from 2007 levels. It is anticipated that this will be achieved through energy efficient lighting, energy audits and Heating, Ventilation and Air Conditioning and increased awareness and behaviour change.

HCC S5 notes that the report "PV Systems Consultancy and Building Energy Assessment Hobart Town Hall, City Hall, Council Centre" identified that there were extremely limited opportunities for the installation on Council's corporate buildings due to poor solar orientation, compromised roof space due to HVAC systems and shading issues.

Fuel/Diesel

Currently the options for reducing energy and emissions in this sector are limited as there currently no viable alternatives fuel sources available within Tasmania. The council is represented on a working group with the State Government into opportunities for Compressed Natural Gas and is lobbying for filling stations in Hobart, Launceston and North West. It has committed funds in the 2009 budget for the purchase of three CNG garbage trucks.

Through the EMT it is working towards the development of strategies to increase awareness and behavioural change to reduce emissions from passenger vehicle use and fleet.

Natural gas

Natural gas is now used in the hot mix plant replacing the diesel as the primary fuel source this has resulted in a 5% emissions reduction since its introduction. EMT is currently examining other opportunities for natural gas for Council assets.

Other

Alternative energies: heat exchange, investigation of alternative energy (solar/wind) with demonstration capacity at demonstration solar at Cleary's Gates

#	Action	Responsible	Timing
2.1	Reduce corporate emissions by a further 30% by 2020 from 2009 – 2010 levels (post Sewage & Water Reform).	Energy Management Program	2020
2.2	Coordinate the Energy Reserve Fund expenditure of ERF $50,000 for projects that achieve energy efficient and emissions abatement that are not included in budgets.		2008 – ongoing
2.3	Undertake a Lighting Audit of Town Hall, Aquatic Centre and Customer Services Centre – potential energy savings of 10% by the end of 2009.		2008-2009
2.4	Coordinate Energy Audits on a needs basis of Council assets/building and infrastructure.		Ongoing
2.5	Develop and implement Energy Management Plans for the corporate energy sector: Buildings, Streetlights; Fleet and Plant. NB Waste water treatment and water supply/pumping will be transferred to the Regional Water Authority and as such action plans are not included.		2007 -2009
2.6	Lobby the State Government for the installation of a CNG (Compressed Natural Gas) filling station within Greater Hobart, Launceston and North West.		2008
2.7	Implement the recommendations of the report "PV Systems Consultancy and Building, Energy Assessment Hobart Town Hall, City Hall, Council Centre."		2008 - 2010

Corporate Waste Emissions

The Council provides facilities for the recycling of its corporate waste [paper, cardboard and bottles etc] generated from the Town Hall, Customer Services Centre, Cleary's Gates Depot and the Hobart Aquatic Centre. Waste that cannot be recycled enters the Councils kerbside waste collection service.

HCC S5 proposes that an audit is undertaken of the waste generated to measure the effectiveness of the Council's internal waste strategies and identify further opportunities to reduce waste entering kerbside collection stream. Following on from that a strategy will be developed, to address specific waste types and identify opportunities to reduce waste entering the kerbside stream, based on the findings of the initial audit.

#	Action	Responsible	Timing
2.8	Conduct initial waste audits and develop a comprehensive waste management strategy that incorporates waste generated from all corporate assets (THAC, buildings, nursery etc), and details opportunities to reduce waste and/or increase recycling & reuse.	Environmental Engineering	June 2009
2.9	Develop a Strategic Plan for the Waste Management Centre, incorporating areas specific to emissions, operated by the Council, such as the Landfill Gas extraction plant and putrescible waste receival and treatment.		June 2009

Sustainable Purchasing

The Hobart City Council for 2007 - 2008 spent approximately $36.6 million on materials, services and contracts. The Councils' Divisions are responsible for their individual purchases and purchasing practices. The purchase of office materials is guided by Council Policy (5-11-03) encouraging the purchase of 'environmentally preferable products.' However other purchases are not covered by policy directives or strategies that encourage sustainable outcomes.

The procurement practices of organisations can directly and indirectly influence the sustainability, including the greenhouse gas emissions, of products and services purchased. Wastes, leading to un-sustainable outcomes, can be generated:

- during the production and supply phase (resource extraction, processing, manufacturing, transport and supply);
- while the product is being consumed or 'used' by the end-user;
- once the product has reached its end of life stage and is disposed of by the end-user.

Given the significant purchasing power of the Council HCC S5 provides proposes that the Council develop a sustainable procurement strategies that it will consider:

- strategies to avoid unnecessary consumption and manage demand;
- minimising environmental impacts of the goods and services over the whole of life of the goods and services;
- suppliers' socially responsible practices including compliance with legislative obligations to employees; and
- value for money over the whole-of-life of the goods and services, rather than just initial cost
- the complex purchasing needs of the organisation as w whole; and
- educating and increasing the awareness of staff involved in purchasing across the organisation

The development of the sustainable strategy should consider the following mix of procurement strategies identified by the NSW Sustainable Procurement Program that include:

- influencing procurement patterns to favour sustainable products or discourage unsustainable ones;
- encouraging manufacturers and suppliers to improve their own operations (e.g. requiring them to have environment management systems);
- requiring manufacturers and suppliers to have greater responsibility for the life-cycle impacts of their products (e.g. product stewardship schemes);
- direct regulatory intervention, such as bans or mandatory performance requirements (e.g. eco-specifications on government motor vehicles contract); and
- educating suppliers and the broader community on economic, social and environmental impacts of their production and consumption patterns.'

http://www.greengoods.nsw.gov.au/policy/sustprocingov.htm

#	Action	Responsible	Timing
2.10	A Sustainable Purchasing Strategy is developed across the whole of Council, that: ➢ takes into consideration the Council's complex and varied needs-purchasing behaviours, ➢ includes an education and awareness component for staff and suppliers; ➢ includes actions to reduce direct and indirect greenhouse gas emissions; and ➢ has a process for monitoring, reporting and review of the strategies outcomes.	Climate Change & Sustainability Steering Committee	Medium

Sustainable Transport Strategy

Hobart's corporate and community transport sectors are significant sources of greenhouse gas emission, 62% and 39% respectively. Finding alternatives to the transport issue is a significant challenge, in the absence of an alternative fuel source to petrol and diesel, measures and strategies revolve around changed behaviours and the transport modes i.e. public transport over private transport options.

The Councils Sustainable Transport Strategy 2008 provides a significant was forward on this issue at both the corporate and community levels.

#	Action	Responsible	Timing
2.11	Implement recommendations of the Sustainable Transport Strategy, when finalised, in parallel with HCC S5	Climate Change & Sustainability Steering Committee	Ongoing

Community Abatement Actions

The community sector encompasses household (residential), business (commercial, retail, and industrial) and transport (private and commercial). In 2006 Hobart's community sector produced 309,929 e-CO_2 t and consumed 5,483,931 GJ. Compared to the base year 1996 where 312,896 e-CO_2 t were produced and 7,195,441 GJ were consumed there has been a reduction in emissions of 2% and energy of 19% - this is for the most part due to the decrease in population along with increased energy efficiencies and alternatives in this sector. The increase in the electricity emissions factor, due to the importation of mainland electricity means that reduction in energy is not reflected in a greater reduction in emissions in this sector.

Community abatement of emissions will be achieved principally through the proposed formation of the Greater Hobart Climate Partnership that aims to encourage, acknowledge and reward sustainable behaviour practices in the community sector. Abatement will be achieved through the empowerment of the community sector to increase their energy efficiency, change behaviours and

Household Sector

The residential or household sector, in 2006, was made up of approximately 20,000 private dwellings that consume 918,132 GJ or 16% of total energy in the community sector and produces the 15,505 eCO_2t or 5% of the total sectors emissions. Whilst the figures may appear relatively small there is considerable scope, and community support, to further reduce energy consumed and emissions produced. Significant gains in reduction of energy use importantly means cost savings to households.

Sustainable Household Incentive Program

The Sustainable Household Incentive Program combines the sustainability actions of the Council and embeds additional actions to encourage sustainable household outcomes such as increased energy efficiency, water conservation, clean air and biodiversity. The program extends and builds on the Councils successful Solar Hot Water and Water Rebates and progresses the recommendation endorsed by Council dated 25/06/2007:

"Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team."

And the Strategic Plan action:

"2.3.3. Review Council's initiatives including energy efficiency and solar hot water rebates "

HCC S5 proposes that a Sustainability Rebate Program be developed that includes:

- Solar Hot Water Rebate – extend and includes Hot Water Heat Pump;
- Energy Efficiency Audit and Rebate – introduces a rebate that includes a household energy efficiency actions including: ceiling and floor insulation, curtains, pelmets and glazing, energy efficient lighting (CFL's and LED's), appliance energy use;
- Clean Air rebate – for replacement of wood heaters/stoves with non PM emitting i.e. heat pumps, natural gas heating;
- Bushcare Bio-diversity Incentive – household register for native plants and advice on suitable native plant species for properties and conservation covenants;
- Food gardens incentive – encouraging households to reduce food miles through demonstration and community based edible gardens; and
- Waste management awareness – to encourage and increase participation I recycling through the capture of organic material.

SHIP would also annually recognise and acknowledge "Sustainable Houses" and "Sustainable Streets" and "Sustainable Community participating households" with plaques/signs akin to the Safety House Program. Case studies could also be developed of acknowledged participants for awareness and promotional activities.

The intent of SHIP is that it can be implemented within Hobart's municipal area by the proposed Climate Change and Sustainability Working Group and expanded to the Greater Hobart Climate Partnership.

Sustainable Design Guidelines

Promotion of 'Sustainable Design Guidelines' for residential development and extensions specific to Hobart's cool temperate climate and the predicted impacts of climate change in Tasmania.

#	Action	Responsible	Timing
2.12	Develop Sustainable Household Incentive Program, including a Sustainable Rebate using community based social marketing design principles, to assist and support sustainable and climate friendly actions by households that leverages existing HCC and Australian Government rebates: the program can be implemented across Hobart's municipal area and expanded to the Greater Hobart subsequent to the formation of the *STCA Climate Change and Sustainability Initiative.	*STCA Climate Change and Sustainability Initiative	Medium
2.13	Promote 'Sustainable Design Guidelines' that are available, to encourage sustainable and carbon neutral building construction, design and development.	Development & Environmental Services.	Medium

Business Sector:

The commercial sector of greater Hobart ranges from small to medium to large size entities and includes commercial offices and retail outlets. In Hobart there are approximately 2500 rateable business properties.

The achievement of sustainability, emissions abatement and energy conservation is complex as a significant proportion of the commercial and retail sector are tenants. This means that they may be limited in their opportunity to influence and/or achieve energy efficiency outcomes as they may not be responsible for building energy systems such as lighting, elevators and heating, air-conditioning and ventilation and the attendant greenhouse gas emissions.

HCC S5 aims, through the Greater Hobart Climate Partnership and collaboration with peak representative bodies to develop and/or align and implement existing programs to assist this sector, in particular commercial and retail tenants, to achieve sustainability, emissions abatement and energy conservation outcomes.

Abatement action will progress the Council's Strategic Plan Strategy to:

"2.3.3 Promote opportunities to improve the energy efficiency of the city "

Commercial Office Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Tasmanian Property Council and the State Government to deliver the CitySwitch or similar program to the commercial office sector.

The CitySwitch Program is a national tenant energy management program run in partnership between the cities of Sydney, North Sydney, Parramatta, Willoughby, Melbourne, Perth, Adelaide and Brisbane and state government agencies. It aims to assist commercial offices, in particular tenants, to reduce their greenhouse gas emissions by improving energy efficiency. Core to the program is the commitment of program participants to the achievement and maintenance of an accredited 4 stars or higher [7]NABERS Energy tenancy rating.

#	Action	Responsible	Timing
2.14	Investigate opportunities for the promotion of CitySwitch program or similar program to promote energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership in collaboration with the State Government and peak organisations to greater Hobart's commercial office sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	2009

Retail Sector

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Retail Traders Association and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.15	Investigate opportunities for the promotion the Greenbiz or similar program to improve energy efficiency, through the *STCA Climate Change and Sustainability Initiative Greater Hobart Climate Partnership, in collaboration with the State Government and peak organisations to the Greater Hobart retail sector – with an emphasis on tenants.	STCA Climate Change and Sustainability Initiative	Medium

Industrial Sector

[7] NABERS: National and Built Environment Rating System administered by the NSW government.

HCC S5 proposes that the through the Greater Hobart Climate Partnership that the opportunities be sought with the Industrial sector and the State Government to provide opportunities for the retail sector to increase their energy conservation and reduce greenhouse gas emissions.

#	Action	Responsible	Timing
2.16	Investigate opportunities for the establishment of partnership and lobbying for of the industrial sector to reduce emissions and partner in adaptation initiatives.	STCA Climate Change and Sustainability Initiative	Medium

Education Sector

In 2008 the Clarence and Hobart City Councils both hosted with Mackillop College Sustainable Schools Forums to encourage schools within their municipality to participate in the National Solar Schools Program. Through the NSSP up to $50,000 is available to schools for the installation of solar panels and other energy efficiency measures. HCC S5 proposes through the Greater Hobart Climate Partnership that a resource be engaged to support schools and assist in the identification of energy efficiency and solar measures particular to their situation.

#	Action	Responsible	Timing
2.17	Investigate the expansion of the Clarence and Hobart Sustainable Schools Project to provide on-ground resource to support schools	STCA Climate Change and Sustainability Initiative	Medium

Waste sector

Community waste emissions

Council currently owns and operates one Waste Management Centre at McRobies Gully. The WMC incorporates a landfill, composting operation, landfill gas extraction plant, and resource recovery operations such as domestic recycling drop-off area and tip shop. The site receives on average 60,000 tonnes of putrescible waste each year. Council is currently working on a strategic plan for the Waste Management Centre.

Council currently provides four (4) kerbside waste collection services, being waste, recycling, green waste and hard waste. Collection frequencies and volumes are as follows;

Service	Frequency	Limit
Waste	Weekly	120 Litres
Recycling	Fortnightly	240 Litres
Green organics	Quarterly	2 m3
Hard Waste	Annually	2 m3

#	Action	Responsible	Timing
2.18	Continue to develop and promote waste and recycling services within the community, in particular the kerbside services offered (waste, recycling, green waste, food waste etc) and the management of waste and recycling at major events.	Environmental Engineering	Medium
2.19	Investigate opportunities for metropolitan wide inventories of emissions from the waste sector.	Environmental Engineering	Medium

Awareness

Awareness increasing awareness and understanding of climate change throughout the community and across the Council.

Recent social research by SGS Consultancy for Clarence City Council has revealed that on the issue of climate change local government is the most trusted tier of government. This finding is not surprising as local government is the closest level of government to the community and is well positioned for dialogue on climate change. It is also the level of government that has also consistently taken action on the issue.

It is important that local government engages with the community in frank and transparent dialogue about the issue of climate change. The information provided to the community from local government should be consistent that would reinforce norms around sustainable behaviours within communities – a key platform for engaging behaviour change.

Corporate Awareness Actions

Employee Sustainability & Climate Information

The Hobart City Council employees 750 people with 580 employed on an equivalent full time basis. As an organisation the Council needs to ensure that its employees understand and are engaged on the issue of sustainability and climate change. The *Beat the Winter Chills and Bills Question and Answe*r in 2008 for Council staff was provided an introduction to the issue. The following actions further information available to Council employees that allow them to undertake and access sustainable and climate friendly action for the workplace and at home:

- Intranet Climate Page – information on climate change:
- What the Council is doing;
- What can employees can do at work to be more climate friendly and reduce emissions (information for home will be available through the Councils internet website);
- Where to find information on sustainability and climate change;
- How climate change will impact on their work;
- Strategic – adaptation and policy;
- Council inventories – detailed reports of corporate sectors;
- Implement Office Waste program – see abatement page 46;
- Provide 5 x Household Energy Audit Kits for loan from Corporate Library – Household Energy Audits designed by South Australian Government includes: Power mates; an appliance for reading energy consumed by appliances, infrared thermometer, timers, thermometers, instruction manual;
- Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work;
- Climate Incentive Program – annual bonus part of EBA to Divisions that reduce their carbon footprint from waste (waste survey) and energy use (sub-metering) and commuting;
- Develop climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities; and
- Sustainability and Climate awareness is included in the Council's Induction Handbook for new employees.

- Sustainability and Climate Updates – include updates, profiles, case studies etc on sustainability and climate action in Employee News

#	Action	Responsible	Timing
3.1	Deliver Office Climate workshops to all Divisions that include: a workplace carbon audit, action plan to reduce emissions and how climate change will impact on their work.	Climate Change & Sustainability Steering Committee	Medium
3.2	Inclusion in Council's Employee *Induction Handbook* of a section on 'Sustainability and Climate Awareness.'	Climate Change & Sustainability Steering Committee	Medium
3.3	Investigate climate friendly work practices – work from home, extend and reduce days, offset emissions from air travel, teleconferencing opportunities	Climate Change & Sustainability Steering Committee	Medium
3.4	Household Energy Efficiency Kits available for lending to the ratepayers, residents and Council employees	Development & Environment Services	Immediate

Community Awareness Actions

Increasing community awareness about climate change and the need for sustainable behaviour change is a key action of HCC S5. The enormity of the issue of climate change can make action seem daunting and without empowering communities on action that they can take can have adverse outcomes where the community disengages and/or ignores the issue.

HCC S5 seeks to provide information to the community on nature of the issue and a range of actions that the community can undertake to respond and adapt the issue sowing the seeds for a strengthened sense of community and building community resilience.

When a community is resilient it can respond to crises in a way that strengthens community bonds, resources and the community's capacity to cope. Community resilience refers to the community's capacity to respond to adversity and change. Community resilience is of great interest and relevance to addressing the issue of climate change as it will allow communities to adapt to climate impacts and carbon economies.

In addition to building community awareness is also to encourage sustainable behaviour change. The basis of the community awareness program and actions are to consider the principles of community based social marketing to fostering sustainable behaviour. The programs development should identify barriers, remove external barriers, provide incentives, and create norms and prompts for desired behaviour change.

Key drivers contained in the Council's Strategic Plan:

"2.3.3. Promote energy efficiency to the community."

"2.3.7 Promote Council's greenhouse gas emissions reduction initiatives to the community."

Community Engagement

Through the STCA Climate Change and Sustainability Initiative's Greater Hobart Climate Partnership develop a climate action program to engage the community reducing emissions and building resilience and strengthens community relationships utilising the principles of community based social marketing.

#	Action	Responsible	Timing
3.5	Through the *STCA Climate Change and Sustainability Initiative engage a consultant to develop a Community Climate Change Communications Strategy that: ➢ Fosters sustainable behaviour change across all community sectors ➢ Promotes actions to increase energy conservation and abatement of emissions ➢ Increases understanding of climate change and local government actions and responses ➢ Promotes programs and opportunities to assist in energy conservation, abatement of emissions and sustainable behaviour change	Climate Change & Sustainability Steering Committee	Medium
3.6	Design sustainability and climate awareness web pages for the Council's intra/internet page.	Climate Change & Sustainability Steering Committee	Medium
3.7	Communication and Community Development Initiatives - promotion of HCC S5 and broadening understanding of climate change.	Environment and Climate Change Officer	Immediate
3.8	Regular sustainability and climate change article / column in Capital City News	Marketing Unit	Ongoing

*In lieu of the formation STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Dr Edward Hall Awards – Climate and Sustainability Category

The Council's Dr Edward Hall Awards recognise environmental excellence across Southern Tasmania. The inclusion of a sustainability category to recognise sustainable and carbon neutral design in construction will further promote and increase awareness of sustainability and climate change.

#	Action	Responsible	Timing
3.9	Include a sustainability category in the Dr Edward Hall awards that recognises sustainable design and the application of sustainable principles within the built environment.	Marketing Unit	Ongoing

Adaptation

Adaptation: the identification of
(i) the barriers and opportunities to adapting to the impacts of climate change;
(i) recommendations that shape the Councils response to climate change impacts; and
(iii) key interventions to trigger timely responses and action to climate change impacts:
that will assist the Councils to improve its capacity to adapt to climate change through future management decisions.

The HCC S5 Adaptation Strategy establishes a framework for the Council to respond to climate change, manage risk, identify opportunities and work with communities to prepare them to adapt to climate change impacts and carbon neutrality.

The Councils Strategic Plan is a key driver for the development of a Climate Change adaptation strategy:

FD2.4. Climate change and its potential effect on the natural and built environment are more fully understood and strategies developed.

2.4.1. Undertake a climate change risk analysis and develop a mitigation plan.

- *Identify emerging research in the field of climate change adaptation and examine implications for the natural and built environments.*
- *Participate in regional approaches to climate change-related initiatives.*

The effects of climate change on Hobart will range from sea level rise and storm surge through to floods, droughts, extreme weather events and increased risk of fire all of which can impact on infrastructure and our communities. There will be implications for land use planning, local government owned infrastructure, community services and natural assets. The 'risks" and impacts are not new; however they are expected to increase intensity and frequency.

The following table list expected physical risks and social impact of climate change:

	Climate Impacts
Assets	➢ Road pavement construction & maintenance: change rate of deterioration, inundation , interruption to traffic ➢ Stormwater/drainage: intense rainfall events, exceedance of drainage capacity, flood defences, change in environmental flows ➢ Buildings: changes in building HVAC requirements/costs, risk of bushfire damage, extreme storm events damage, higher building deterioration and maintenance costs ➢ Coastal infrastructure: increased coastal erosion and inundation, increased frequency or permanent inundation of utilities, destruction damage to council owned assets and increased erosion and breaches of coastal assets and defences.
Recreational Facilities	➢ Provision and use of recreational facilities: impacts on infrastructure, loss of public space, tourism impacts, increase operation and maintenance costs ➢ Maintenance of recreational facilities: reduced water quality and quantities – implications for irrigation, beach closures due to algal blooms
Health Services	➢ Increase in range of vector borne diseases ➢ High temps increasing food and water borne diseases

	➢ Health impacts/fatalities due to heat waves ➢ Pressure on drinking water supplies ➢ Excessive rainfall and impacts on fresh water supplies ➢ Increase in injuries due to extreme weather events
Natural Resource Management	➢ Shifts in flora and fauna distributions ➢ Increase risk of extinction ➢ Reduced ecosystem resilience ➢ Increased ecosystems and species heat stress ➢ Increased pressure on dune systems ➢ Increase ecological disturbance
Planning	➢ Uncertainty in long term land use planning and infrastructure design ➢ Costs of retrofitting systems ➢ Loss of private property and community assets ➢ Increased insurance costs ➢ Early retirement of capital infrastructure

Local government has a key role to play in adapting for climate change and will need to manage risk to: its own infrastructure and assets, planning scheme requirements and the community sector emergency planning

Two opportunities available that will assist the Council to develop adaptation strategies are the CCP Local Adaptation Toolkit and the Climate Futures for Tasmania Infrastructure Project. The former provides a toolkit for adaptation/risk management that has been developed for and piloted by local government. Whilst the latter will produce climate change scenarios specific to Tasmania and a methodology that can be applied to infrastructure to identify risk levels. The application of both to Hobart City Council its activities, its community's activities and those of Greater Hobart will provide a comprehensive adaptation/risk management approach to climate change impacts. Both projects will leverage and augment the Tasmanian Climate Futures Project that models at a fine scale of 14 km2 grid a range of climate change impact scenarios

A key outcome could be the identification of sustainable urban landscapes across Greater Hobart that could be the focus of targeted programs to climate proof.

<u>CCP Local Government Climate Adaptation Toolkit</u>

A '*Local Government Climate Adaptation Toolkit*' has been developed by ICLEI with the support of the Australian Government. It was launched in March 2009. The Toolkit builds on the Australian Governments 2007 *Climate Change Impacts and Risk Management for Business and Local Government* and has been piloted with a five local governments. As a CCP Leader Hobart will receive support in the delivery and implementation of the toolkit. ICLEI is considering opportunities for the delivery of a 'Regional Adaptation Toolkit' to the CCP Councils of Greater Hobart.

The toolkit provides guidance to Councils and allows them to select tools of relevance to them, it includes:

- Establish an interdisciplinary approach to information gathering for the development of climate change scenarios
- Understand the potential impacts climate change may have on their business and community
- Identify their current risk management systems
- Identify, analyse, evaluate and prioritise risks and opportunities potentially arising from a set of climatic scenarios

- Explore treatment options for the prioritised actions plan
- Establish strategies for monitoring the implementation of the adaptation plan and reviewing its outcomes
- Build the personal capacity of participants to deal with complexity and uncertainty

The opportunity exists for the Council to partner with the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project in the application of the Adaptation Toolkit across the Council its assets, services and programs and in a regional project across the local governments of Greater Hobart. The partnership would allow the Council to access complex climate models and for the ACE CRC to identify the needs of 'users' such as local governments the most suitable for application in a the public sector in a risk and adaptation context.

Climate Futures for Tasmania – Infrastructure

The Climate Futures for Tasmania – Infrastructure project has been developed by consultants Pitt and Sherry as a 'not for profit' project that will develop a risk management methodology for infrastructure using complex modelling being undertaken by the Antarctic Climate Ecosystems CRC Tasmanian Climate Futures Project. The Hobart City Council is participant in the project and will input into the project's development to meet the Council's needs.

The CFT project is delivered by a consortium of ACE CRC, CSIRO, the Tasmanian Partnership for Advanced Computing, the Tasmanian Institute of Agricultural Research, the University of Tasmanian, the Australian Bureau of Meteorology, Hydro Tasmania and Geoscience Australia. The projects builds on a project commissioned for Hydro Tasmania that modelled impacts of climate change on the level of dams.

The Climate Futures for Tasmania models approximately 100 climate variables using a fine scale of 15 km grid to produce climate impacts across Tasmania. Previous Australia wide climate modelling, by CSIRO, produced coarse scale models at 150 km grids of climate impacts.

Adaptation Actions

The adaptation actions are based on the detailed climate change scenario modelling available through the Tasmanian Climate Futures Project and the CCP Adaptation Toolkit

#	Action	Responsible	Timing
4.1	Establish a corporate Climate Adaptation Working Program to review existing risk management strategies and include climate adaptation actions in line with new asset management systems.	Climate Change & Sustainability Steering Committee	Immediate
4.2	Participant in the Climate Futures for Tasmania –Infrastructure project; contributing to the project development specific to the Councils needs and requirements and application of methodologies developed for Council assets and infrastructure.	Pitt and Sherry & Climate Adaptation Program	Immediate
4.3	Apply the *Local Government Climate Adaptation Toolkit*' – using climate change scenarios produced from the Tasmanian Climate Futures project (ACE CRC) across the whole of Council activities, jurisdiction and responsibilities	Climate Change & Sustainability Steering Committee	Immediate
4.4	Adaptation Forum – Local Government Climate Change Adaptation Toolkit – for all Tasmanian Councils and key stakeholders (07 May 2007)	Environment and Climate Change Officer	Immediate
4.5	Apply the *Local Government Climate Adaptation Toolkit*' to the proposed *STCA Climate Change and Sustainability Initiative Urban Adaptation Project - – using climate change scenarios produced from the Climate Futures for modelling of climate change impacts & CCP Adaptation Toolkit to develop adaptation strategies that address regional adaptation initiatives & actions for urban, peri-urban, rural and natural areas.	STCA Climate Change and Sustainability Initiative	Immediate

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or on its own implement actions and programs.

Accounting

Accounting investigation of the economic impacts of climate change on the Council's activities and on our community and undertake annual inventories of energy consumption and greenhouse gas emissions to determine progress towards established targets.

The Accounting Strategy component provides for the evaluation of the impact of climate change on the Council and the community and investigates opportunities for a revenue stream for a community based climate and sustainability program. The funds could be used for the engagement of resources to coordinate GHCP activities and for a range of programs including Sustainable Home Incentive Program see page 46, the City Switch and Greenbiz programs see page 47.

Accounting Actions

Energy and Greenhouse Inventories

Understanding trends and pattern is energy use is integral to achieving abatement goals after all 'you can't manage what you can't measure.'

Since 2000 the Council has undertaken annual inventories of its energy and greenhouse gas emissions using CCP software, which is reported to the Australian Government. This has enabled the Council to track its energy and emissions and is key to assisting the EMT in identifying trends and patterns in its energy and developing strategies to reduce energy consumption and emissions.

	Action	Responsible	Timing
5.1	The Council prepares inventories of energy consumption and greenhouse gas emissions inventories (i) for its corporate activities annually and (ii) for the community sector subject to the availability of data (i.e. based on the provision of default census data supplied by ICLEI or data that may be provided by the State Government). An Inventory Summary Report is to be made available to the Executive Leadership Team , the Council and other stakeholders within 4 weeks of completion.	Climate Change and Sustainability Steering Committee	Ongoing
5.2	The Council lobbies the State Government to provide annual emissions summaries for municipal wide emissions to (i) compliment the Councils ongoing corporate and community inventory process and (ii) allow the identification of community emissions and emerging trends and (iii) allow for monitoring of actions across the community sector.	Climate Change and Sustainability Steering Committee	Immediate

Carbon Pollution Reduction Scheme

The proposed '*Carbon Pollution Reduction Scheme*' released in December 2008 and commencing 01 July 2011, is a core Australian Government initiative for addressing climate change through the introduction of an emissions trading scheme. The CPRS sets out preferred approaches to reduce greenhouse gas emissions and is intended to *'deliver substantial emission reduction while sustaining strong economic growth and securing prosperity.*'

The Australian Government considers a *carbon pollution reduction scheme* the best way to reduce emissions whilst minimising impacts on households and business. The purchase of carbon permits by industry and business sectors that emit more than 25,000 eCO2t per annum (less than 1% of all industry and businesses) provides incentive to reduce emissions. All funds generated will go back into the community and households to assist in adjusting and adapting to the new "carbon economy."

Key features of the CPRS are:

Reduction Targets of Australia's Greenhouse Gas Emissions -

- 60% reduction greenhouse gas emissions of 2000 levels by 2050 – a long term target; and
- Between 5 - 15% reduction of 2000 levels of greenhouse gas emissions by 2020 (minimum 5% of 2000 by 2020) – medium term target

Assistance for households and business financial assistance package for households -

- Households $6 billion per annum available from 2010; and
- Cent for cent reduction in fuel tax for three years.

Climate Change Action Fund

- $2.15 billion over 5 years for business, community sector organisations, workers, regions and communities; and
- Assistance to emissions intensive trade exposed industries.

There are still many details to be finalised before the scheme commences 01 July 2011. ICLEI is preparing an information paper to identify impacts on CCP local governments. In addition the Council will need to monitor and if necessary review its strategic climate change strategy following the formalisation of the Australian Governments climate change policy. This will allow the Council to augment and leverage from the Australian Governments climate action.

#	Action	Responsible	Timing
5.3	Following the finalisation of Council's Carbon Pollution Reduction Scheme a report be prepared that identifies its economic implications on Council operations, services, functions and assets.	Climate Change & Sustainability Steering Committee	Medium
5.4	Following formalisation of the *STCA Greater Hobart Climate Partnership a report be prepared that identifies the economic implications of the Carbon Pollution Reduction Scheme on Greater Hobart Council operations, services, functions and assets and communities.	STCA Climate Change and Sustainability Initiative	Medium

*In lieu of the STCA Climate Change and Sustainability Initiative the Council will partner with other Councils or undertake on its own to implement actions and programs.

Carbon Neutrality

Carbon neutrality or zero carbon emissions describe a state where no greenhouse gas emissions are produced by an organisation or activity during a particular period in time. Typically this is achieved by organisations reducing emissions as much as practicable and then purchasing offsets for those that cannot or are too costly to reduce further. A range of offsets are available, which, vary in price and quality, and can be divided into four main groups: renewable energy, energy efficiency, methane emission avoidance and bio sequestration (forestry /plantations).

The Council has sought advice on how it could achieve carbon neutrality through a Council motion, 13/8/2007 that:

- *The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.*

And on 11/08/08 where it adopted a recommendation that:

- *Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.*

The introduction of the Australian Governments *Carbon Pollution Reduction Scheme* brings into question the effectiveness of carbon offsets to reduce Australia's overall emissions as these will be capped. The Australian Government has committed to developing a national standard for carbon offsets and a review is currently underway to provide consistency, confidence and guidance on offset additionality (does it contribute to real emissions abatement).

HCC S5 proposes that until such a time that the review is completed that

- one–off events such as the TASTE or assets , that Council adopt ICLEI's *Offsets Policy* Feb 2009 and *Carbon Offset Guide for Local Government* June 2008
  or
  where the option of carbon offsets is provided for an activity such as air travel these are utilised.

HCC S5 further proposes that post the review for carbon offset post the review could be that residual emissions following abatement action [8]may include:

- The Council purchase and retire carbon permits for specific assets and/or activities;
- The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invest the equivalent carbon offset in actual abatement and energy projects; and/or
- The Council use carbon offset programs that may be accredited through the review.

#	Action	Responsible	Timing
5.5	The Energy Management Program work towards the preparation of a carbon neutral policy for the emissions associated with Councils activities and operations that: ➢ Avoid emissions by modifying behaviour ➢ Improve energy efficiency ➢ Increase local carbon sinks ➢ Increase renewable energy generation For one off events carbon offsets should reduce emissions within 12 months of the event finishing using an accredited carbon offset.	Climate Change & Sustainability Steering Committee	Long
5.6	HCC S5 proposes that until such a time that the review is completed that: ➢ 'assets' energy use or one–off events such as the TASTE, adopt ICLEI's Offsets Policy Feb 2009 and Carbon Offset Guide for Local Government June 2008; ➢ or where the option of carbon offsets is provided for an activity such as air travel these are utilised. HCC S5 further proposes that post the review for carbon offset, residual emissions following abatement action 9may include: ➢ Council purchases and retires carbon permits for specific assets and/or activities; ➢ The Council adopts a carbon price for the residual emissions of a specific asset and/or activity and invests the equivalent carbon offset in actual abatement and energy projects; and/or ➢ The Council use carbon offset programs that may be accredited through	*STCA Climate Change & Sustainability Initiative	Long

- [8] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.
- [9] Abatement actions include: avoidance of emissions by modifying behaviour, improvement of energy efficiency, increase in local carbon sinks and renewable energy generation.

	the review		
5.7	The Council consider the adoption of a goal for Corporate Carbon Neutrality (Zero Carbon Emissions) by 2020 following consideration of implications of the Carbon Pollution Reduction Scheme	Energy Management Program	Immediate
5.8	Following formalisation of the *STCA Greater Hobart Climate Partnership the Greater Hobart Climate Partnership Investigate the opportunities for the establishment of carbon offset program, in line with accredited offset providers as a potential income	*STCA Climate Change & Sustainability Initiative	Immediate

Carbon Development Calculator

HCC S5 proposes the development of a 'Carbon Development Calculator' be investigated. Linking to the Councils GIS the CDC could be used to identify the greenhouse gas emissions of corporate and community properties, buildings or assets at various stages of development and could consider embodied emissions, operational emissions and behavioural emissions. Whilst other carbon calculators have been produced these are generic and don't provide users with a comprehensive and detailed understanding of their actual emissions.

In the corporate context the Council could proactively use a CDC to identify the carbon/sustainability footprint of new developments and renovations allowing suggestions for ways to reduce emission and energy footprints. A CDC could value add to Council's community emission inventories providing detailed profiles of energy use over time, and to measure take up of incentives and programs..

In the community sector CDC could be used by property owners to voluntarily identify their embodied, operational and behavioural emissions and track change over time.

Piloted initially by the Council it potentially expanded out to the community and other Councils through the Southern Tasmanian Councils Association and the ICLEI - Local Governments for Sustainability Cities for Climate Protection Program.

A key stakeholder is the University of Tasmania and it is proposed that opportunities through the Council's Scholarship Program, are investigated with them to develop such a resource. It is a multidisciplined project that and strong synergies to the Australian Governments National Framework for Energy Efficiency and the Mandatory Disclosure of Commercial Office Building energy efficiency.

#	Action	Responsible	Timing
5.9	A project brief be prepared for the Carbon Development Calculator corporate and community parameters	Environment and Climate Change Officer	Medium
5.10	The Council investigate opportunities with the University of Tasmania for the creation of a carbon development calculator that can be linked to the Councils GIS for corporate and community use under the auspices of the Council's Scholarship Program.	Environment and Climate Change Officer	Medium

Glossary

Emission factors are used to convert a given amount of fuel or energy source into carbon dioxide equivalent emissions (e CO_2). They can change over time as the emission intensity of a fuel changes or as better information becomes available. Electricity emission factors are calculated annually by the Australian Government to take into account variations in the actual mix of electricity sources used.

eCO2t – Equivalent carbon dioxide per tonne

Carbon Offsets - "A carbon offset is a financial instrument representing a reduction in greenhouse gas emissions. Although there are six primary categories of greenhouse gases, carbon offsets are measured in metric tons of carbon dioxide-equivalent (CO2e). One carbon offset represents the reduction of one metric ton of carbon dioxide, or its equivalent in other greenhouse gases." Wikipedia

Climate Change - also known as the enhanced greenhouse effect and global warming - see Understanding Climate Change p 19.

Enhanced Greenhouse Effect – also known as the climate change and the global warming - see understanding climate change p 19.

Greenhouse Gases – are gases that are found in the atmosphere which trap heat, the principal greenhouse gases are: carbon dioxide, methane, nitrous oxide, trophospheric ozone, HFC's, PFC's and SF6 see page 20.

Global Warming - also known as the climate change and the enhanced greenhouse effect – see understanding climate change p 19

HCC S5 - Hobart Climate Change Action 5 – a strategy document prepared by the Hobart City Council for climate change action from 2008 – 2013.

Risk – a combination of the likelihood of an occurrence and the consequence of that occurrence.

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Appendix 1: Summary of the Hobart City Council's Climate Change Activities

The following is summary of the Council programs, activities and initiatives that the address the issue of climate change:

Year	Action/Milestone Achieved :
1999	Joined CCP – the first Tasmania Council to join
1999	Milestone 1: Inventory and Forecast for Community and Corporate Greenhouse Gas Emissions
2000	Milestone 2 Establish a greenhouse gas emissions reduction goal (Corporate 70% and community 20%)
2001	Milestone 3 Hobart City Council Greenhouse Local Action Plan
2002	Milestone 4 Implement the Local Action Plan – the Council demonstrated a 20% reduction its corporate emissions
	Milestone 5 Re-inventory of Emissions. The Council completed a complete re-inventory of emissions
2002 – ongoing	CCP Plus: The Council gave a political commitment to join CCP Plus – an ongoing program
2000 – ongoing	Emissions inventory Annual inventory of emissions corporate Census year inventory of emissions community

Climate Change Initiatives and Actions

Year	Climate Change Action/Initiative
1998 – Ongoing	**Hobart City Council's Bushcare Program**: An initiative of the Council to provide on ground support for community based 'Bushcare Groups' to restore native vegetation through the removal of environmental weeds from Bushland reserves and regeneration with local plants.
2000 – ongoing	**Inventory of Greenhouse Gas Emissions** The Council conducts an annual inventory of its greenhouse gas emissions
2001-ongoing	**Energy Efficient Guidelines** The Council prepared a set of Energy Efficiency Guidelines for prospective home builders and designers. The guidelines cover the range of considerations from an analysis of the site and the opportunities it presents for energy efficient design, through to building orientation and layout, ventilation/cooling, insulation and landscaping.
2001-2004	**Partnership Agreement with the State Government – Reducing Greenhouse Gas Emisisons** Covered: Landfill flaring, emissions inventory, CCP regional forum, community awareness and adaptation

2001 – 2006* Upgraded 2006	**Energy Efficiency Rebate:** The Council introduced a 2 tiered rebate on building application fees- 20% for compliance with HIA sustainable housing provision and 25% for compliance with Australian standards. Encouraging applications to meet certain minimum standards for energy efficiency.
2001 - 2002	**Around the World in Eighty Ways:** the Councils developed and hosted a website and provided bikes for two Tasmanian boys who travelled using carbon friendly transport from UN Bonn Climate Change conference (Denmark) to Hobart
2002	**Sustainable Transport Days :** Three Days promoting Sustainable transport including: - displays of alternative vehicles – hybrid - replacement of Lord Mayors car with a Toyota Prius - Community cycle with elected representatives from Brighton to Hobart
2003	**Sustainable Transport Week21 – 28 March:** A Council initiative involving Glenorchy City Council, Metro, Hot FM, Australian Greenhouse Office, Tasmania Environment Centre, Cycling South, to promote Sustainable Transport. The event included: - a series of facilitated workshops with private, public, community sectors with a summary workshop to bring together workshop outcomes - Presentations by guest speakers Dr Paul Mees and Dr Peter Newman -Bike breakfast - Commuter train from Glenorchy - Liverpool Street Closure and Community Fair
2004 - ongoing	**Cogeneration Water Treatment Plant** Installed a new 140 kWh cogeneration plant at Macquarie Point Waste Water Treatment Plant burns methane and reduces the demand on external electricity supply
2004 – ongoing	**Flaring Landfill Gas** Contracted AGL to install methane flaring at the Council McRobies Gully Landfill
2004 – 2005	**Walking School Bus:** the "Walk to School Bus Project" was a partnership of Cool Communities (Australian Greenhouse Office), Hobart City Council and South Hobart Primary School. The walk to school bus concept is designed to enable children to walk to school with the aid of parent volunteers along a designed safe route to school. It can be adopted by the school on a long-term basis, not just as a one off walking day event. The positive outcomes of this model provide reduced green house gas emissions for the local area, participation in moderate physical activity and foster community participation through social interaction with children and parents
2006- ongoing	**Sustainable Transport Officer** The Council engaged a Sustainable Transport Officer to develop a sustainable transport strategy and implement sustainable transport practices
2006*	**Energy Efficiency Rebate**: The Council updated its energy efficiency rebate to 100% rebate on Council's basic planning fee and building administration fee where sound and permanent energy efficient principles and features are incorporated into the planning and design of new houses and additions to existing houses
2007 –	**Sustainable Transport**

ongoing	The Councils received a grant from the Australian Government's Accelerating Action Program to work with the Sustainable Living Tasmania, Cycling South and of Greater Hobart Council's to prepare an Integrated Bicycle Network Plan
2008 – ongoing	**Sustainable Transport Strategy** Draft currently for consultation. Outlines a way forward for the Council to improve the sustainability of commuter and passenger transport (excludes freight) in the Greater Hobart Region.
2007- tba	**Zero Net Carbon Emissions 2020** The Council endorsed a motion: "That the Hobart City Council prepare a report on having zero net carbon emissions by 2020. That the Council use the City of Melbourne Zero Net Strategy as the starting point and include goals include the goals of the program in adapting a program for the use of Hobart City." "The matter be referred to the Council's Greenhouse Reference Group for further consideration." Endorses a motion to aim for zero net emissions through the review of its Greenhouse House Local Action Plan
2007- ongoing	**Energy Management Team** Councils internal Energy Management Team that considers all matters relating to the Council corporate energy use [all sources: electricity, petrol/diesel, natural gas], alternative energy, energy conservation (lighting and energy audits), electricity NEM contestability, carbon offsets and energy actions plans.
2007-2008	**Review of Greenhouse Local Action Plan** The Council commenced its review of Greenhouse Local Action that will include consideration of:- the Council resolution for Zero Net Emissions by 2020: and the five A's of Climate Change Action: Abatement, Accounting, Adaptation, Advocacy, & Awareness
2007-2008-	**Taste of Tasmania - Carbon Offset** Purchase of carbon offset emissions for the Taste of Tasmanian - 66.70 eCO2t were offset through Climate Friendly at a cost of $1999.25 inc GST (21.80 eCO2t Gold Standard and 44.90 of International VCS credits).
2007	**HCC Community Grant** HCC through its community Grants Program provided to a grant to Sustainable Living Tasmania to deliver a series of community workshops on climate change and host a community conference March 2008
2008	**Earth Hour** EH is a global campaign to raise awareness about climate change by turning off lights for 1 hour. HCC participated in Earth Hour 2008 and committed to participating in 2009.
2008	**Beat the Winter Chills and Bills Question and Answer Sessions and Display** HCC engaged SLT to deliver a series of 6 x BWCB Sessions to assist householders to improve their energy efficiency, increase understanding of climate change and action by HCC, and begin to build community resilience. A further 4 Q&A session held for Council staff and aldermen focusing on both the household and workplace actions.
2008	**Street lighting trial** HCC, in conjunction with Aurora is undertaking a small scale trial of street lighting (T5 and CFL's) to

	commence 28.08.08 at Poets Rd T5 (48) and Princes St's CFL's (42). Will run for 12 – 18 mths – to account for climate factors and survey residents
2008/2009	**Climate Futures Tasmania – Infrastructure** Contributing partner to project coordinated by Pitt and Sherry
2008 – ongoing	**Energy Reserve Fund** Establishment of Energy Reserve Fund $50,000 pa for projects not covered by other budget processes
2008 - 2020	**Emissions Reduction Target deepened** HCC has reduced its emissions by 75% from 1996 levels and has resolved to deepen this target by a further 30% 2020.
2008/2009 – ongoing	**Climate Adaptation Team** HCC is establishing a Climate Adaptation Team to implement as appropriate the CCP Local Government Climate Adaptation Toolkit and Climate Change Adaptation Actions for Local Government AGO 2007.

HCC Climate Change Membership and Participation in Climate Change Programs

2000 – Ongoing	Your Home Your Future Australian Government's Technical Working Group – HCC Environment and Climate Change Officer
2006 – ongoing	**LGAT** Climate Change Reference Group
1999 – ongoing	ICLEI Local Governments for Sustainability (ICLEI Oceania) membership and participant in ICLEI Cities for Climate Protection Program CCP – Leader Council.
2006 – ongoing	Australasian Mayors Council for Climate Protection – Coordination Committee - Lord Mayor

Appendix 2: Summary of Projected Impacts - Tasmania

- Tasmania is expected to become warmer with more hot days and less cold nights.
- Growth in peak summer energy demand is likely, due to air-conditioning use, which may increase the risk of blackouts.
- By 2030 the annual average number of days over 35°C in Hobart could grow from the current 1 to 1-2 days, while in Launceston the annual average number of cold days below 0°C could fall from 35 to 16-30 days.
- Warmer temperatures and population growth are likely to cause a rise in heat-related illness and death for those over 65; increasing in Hobart from the current 5 annual deaths to 8 by 2020 and 10-14 by 2050.
- Warmer conditions may also help spread vector-borne, water-borne and food-borne disease further south. These health issues could increase pressure on medical and hospital services. Urban water security may be threatened by increases in demand and climate-driven reductions in water supply.
- An increase in annual rainfall combined with higher evaporation leads to uncertain effects on run-off into rivers by 2030.
- By 2020 a 10-40 percent reduction in snow cover is likely with potentially significant consequences for alpine tourism and ecosystems.
- Fire risk is unlikely to change in Hobart but, by 2020, the average number of days with very high or extreme fire danger in Launceston could increase slightly from the current 1.5 to 1.5-1.9 days and to 1.6-3.1 by 2050.
- Increases in extreme storm events are expected to cause more flash flooding affecting industry and infrastructure, including water, sewerage and stormwater, transport and communications, and may challenge emergency services. In low-lying coastal areas infrastructure is vulnerable to sea level rise and inundation.
- Some agricultural crops may benefit from higher CO_2 concentrations however protein content is likely to decline.
- Frost-sensitive crops may respond well to some warming however more hot days and less rainfall may reduce yields.
- Adverse effects for agriculture include reduced stone fruit yields in warmer winters, livestock stress and an increased prevalence of plant diseases, weeds and pests.
- CO_2 benefits experienced by forestry may be offset by a decline in rainfall, more bushfires and changes in pests.
- Centres dependent upon agriculture and forestry may be adversely affected.

Source: http://www.climatechange.gov.au/impacts/regions/tas.html

Appendix 3: Carbon Offsets Considerations

The carbon offset market is new and establishing itself and as such is largely unregulated. The AGO's 'Greenhouse Friendly' program and the NSW Greenhouse Gas Abatement Scheme (GGAS) are two programs that have been developed to provide quality assurance for carbon offset purchases.

Internationally there are the Clean Development Mechanism (CDM), the Voluntary Carbon Standard and the Gold Standard for voluntary emission reductions also provide assurance for the purchase of carbon offsets.

The extent to which an organisation 'carbon offsets' can vary. It may choose to offset all its residual emissions or only offset emissions associated with an activity or asset such as building that has been retrofitted for energy efficiency purposes with the residual emissions offset through the purchase of carbon credits.

The Victorian EPA identifies a number of factors that may be considered in the purchase of carbon offsets:

Additionality is a key concept in evaluating whether or not an offset project leads to real and measurable greenhouse gas reductions. To be regarded as a valid offset, a project must be proven to be 'additional' to what would have occurred anyway. For example, a routine upgrade of equipment or changes in response to a regulatory requirement cannot be regarded as additional.

Translating the concept of additionality into practice requires establishing 'tests' of additionality. Typically these tests address the following types of additionality:

Financial Additionality: the project needs to go beyond business as usual (BAU) commercial practice. A standard test for this is if the project is financially viable without the offset funding.

Regulatory Additionality: the project needs to go beyond existing legal requirements.

Environmental Additionality: the emission reductions cannot be counted toward another emission reduction scheme or commitment.

Permanence: Some emission reductions may not be secure or may involve a range of risks. For example, this can occur with forestry projects where risks from fire or pest infestation are high, or where carbon offset credits are sold in advance. Offset providers should offer some form of guarantee that purchased credits will be maintained, or customers will be compensated if the project doesn't deliver the expected emissions reductions.

Leakage: Changes in emissions that take place beyond the boundary of the project but are attributable to the project activity are called emissions 'leakage'. New and/or additional emissions occurring off-site need to be quantified and taken into account in assessing the emissions reductions achieved. For example, if a forestry project limits logging in one area, the possibility that deforestation will occur elsewhere should be considered. Offset providers should also consider emissions from project operations (eg. electricity use, transportation of materials, etc.) that could increase emissions relative to the project baseline. Leakage should be explicitly addressed in calculation of the net emissions reductions achieved by a project.

Double counting: This can happen when two or more businesses claim the same emissions reduction. This can happen if an offset is sold to two or more entities, or when an entity upstream of the project unknowingly claims the reduction as its own (eg. an electricity generator). The establishment of protocols, and the use of an offsets registry can ensure offsets are adequately accounted for.

Timing of emissions reductions: Some offset providers generate and sell credits from their projects on an annual basis while others forecast credits over the life of their projects and sell them up-front.

For some projects this is necessary to get project funding, but counting on emissions reductions to occur over the lifetime of a project presents several risks. Regulatory requirements could make some offset projects obsolete in the

future. For example, implementing energy efficiency technologies that may be mandated by government in the future would no longer satisfy 'additionality' requirements (see above).

Proper monitoring and verification, and legally-recognised commitments from the offset provider to secure replacement credits if the project doesn't deliver anticipated emissions reductions can help to mitigate these risks.

Purchasers of offsets may wish to ensure that the GHG impact of their operations are neutralised by offsets in 'real time'.

Monitoring and verification: To ensure that the emissions reductions claimed by the project have actually taken place, the emissions should be monitored and verified, in line with a recognised standard.

The verifier should evaluate the project based on an explicit set of criteria that minimise the risk of false emission reduction claims. This should include the ongoing monitoring of the project to ensure that claimed outcomes have eventuated. Use of a third-party verifier is recommended to ensure the integrity of the offset credits.

Co-benefits: Although the primary goal of offsets is to encourage reduction in GHGs, projects may provide secondary benefits such as: reductions of other pollutants; increase in habitats for biodiversity; reducing reliance on fossil fuels in the economy; education benefits from the installation of new energy efficient technologies.

Co-benefits vary between projects and may be an important factor in voluntary offset purchasing decisions.

Appendix 4: Council Resolutions

The following details in full the Council resolutions with regard to climate change and sustainability:

06/07/2007

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11

Recommendations:

That

Report : Cities for Climate Protection - Review Local Action Plan 17-50-11 be received and noted.)

The Local Action Plan is reviewed so that:-

- relevant 'Strategies and Priority Actions' are included within the Strategic Plan, and
- the 'Major Actions/Initiative's are included within the Annual Operating Plan, and
- the relevant actions are included within the appropriate Unit Plans,

The process of review be carried out to:

- ensure that a whole of Council approach is taken.
- recommend a means by which relevant items within the key corporate documents referred to in 16.2 can be separately and collectively identified as an energy efficiency / greenhouse gas emission reduction program.
- the 20% Community Emissions Reduction Goal be reviewed subsequent to the provision of more recent community data by ICLEI.
- opportunities are investigated for the establishment of regional approach to community emissions abatement with other participating Councils of greater Hobart – Glenorchy, Clarence, Brighton and Kingborough.
- the Council's corporate electricity consumption is investigated separately from the Councils emissions goal and separate target and strategy be developed under the auspices of CCP TM and ICLEI advised accordingly.

8/3/2007

NOTES FROM A MEETING OF CMT

6.2. CITIES FOR CLIMATE PROTECTION REVIEW LOCAL ACTION PLAN – S17-050-11

Report of the MDP and EP was discussed and the recommendations endorsed.

CMT also agreed to re-establish the Energy Management Team involving all Divisions and chaired by the GMPS.

25/6/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18

13. PROPOSED SOLAR HOT WATER REBATE SCHEME – FILE REF: 10-45-1

Ref. Open FCSC 5, 19/6/2007

That: 1. The Council introduce a solar hot water rebate or grant scheme for a period of 18 months for Hobart ratepayers who are looking to install a solar hot water system but are ineligible for the current planning and building administration fee rebate.

2. Further investigation be undertaken into integrating Council's existing rebates, including a solar hot water rebate or grant and other new initiatives amongst those on offer, into a single "Sustainability Rebate" through the review of the Council's Greenhouse Local Action Plan and the Energy Management Team.

3. The solar hot water rate rebate or grant be either:

(i) a one-off payment of a sum of $300 per solar hot water system or payable on a quarterly basis (rebate only); or

(ii) such higher figure as determined by the Council.

4. A report be provided to the Finance and Corporate Services Committee after 12 months operation, reviewing the success of the new rebate/grant and to enable consideration of its potential continuation beyond the initial 18 month period.

5. A media release be issued informing the public of the new rebate/grant; the qualifications under which it can be achieved and including details of other key energy saving initiatives residents can apply for when considering the installation of a solar hot water system, such as the Commonwealth's Photovoltaic Rebate Program, Renewable Energy Certificates and the Hobart City Council's planning and building administration fee rebate.

6. The Council's website be updated to allow for online access to apply for the rebate/grant and to provide links with key energy saving initiatives.

DEPUTY LORD MAYOR

HAYES That the recommendation be adopted.

Amendment

BRISCOE ARCHER That clause 6 be reworded to read:

6. The Council's website be updated to provide links with key energy saving initiatives and an appropriate means of enabling secure online access to allow for the lodgement of applications for the rebate/grant, be investigated as amended by the following:

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Amendment

BURNET CHRISTIE That Clause 3(i) be reworded to read:

3(i) The solar hot water grant be a one-off payment of a sum of $500 per solar hot water system.

AMENDMENT CARRIED

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

VOTING RECORD

AYES

Lord Mayor

Deputy Lord Mayor

Archer

Haigh

Briscoe

Hayes

Christie

Burnet

Cocker

MINUTES OPEN PORTION OF THE COUNCIL MEETING 18 13/8/2007 9. ZERO NET CARBON EMISSIONS BY 2020 – REVIEW – FILE REF: 17-50-11

Ref. Open DESC 6.2.2, 6/8/2007

That: 1. The actions required for the Hobart City Council to achieve 'zero net carbon emissions by 2020' be identified through the preparation of the revised Hobart City Council Corporate and Community Greenhouse Local Action Plan.

2. For the purposes of the review of the Council's current Greenhouse Local Action Plan and the activities of the officer Energy Management Team, both the City of Melbourne's 'Zero Net Emissions by 2020 Strategy' and the Brisbane City Council's 'Climate Change and Energy Taskforce A Call to Action' report, be considered.

3. The issue of the retention and/or role of the Greenhouse Reference Group be reviewed at the time a draft revised Local Action Plan is considered.

4. Aldermen be invited to submit any specific examples for consideration as a measure that would contribute to a further reduction of Council's carbon emissions to the General Manager.

DEPUTY LORD MAYOR

ZUCCO That the recommendation be adopted.

Amendment

BURNET

SEXTON That the recommendation be adopted as amended by the insertion of the words and the community after the word Aldermen in clause 4.

AMENDMENT CARRIED

10/09/2007

MINUTES OPEN PORTION OF THE COUNCIL MEETING

19 PROPOSED COUNCIL SUSTAINABILITY TEAM – FILE REF: 13-1-9; 10-9-2

ALDERMAN COCKER "That a report be prepared on the establishment of a sustainability team for the Hobart City Council. That the report examine the desirable amount of resources to have a functioning team that provides expert advice to all areas of Council, developers and ratepayers on sustainability options and ideas."

COCKER

BRISCOE That the motion be adopted.

MOTION CARRIED

VOTING RECORD

AYES

Lord Mayor, Deputy Lord Mayor, Archer, Zucco, Briscoe, Hayes, Freeman, Christie, Cocker

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17/7/2008

NOTES FROM A MEETING OF CMT

ZERO NET CARBON EMISSIONS BY 2020 – IN PRINCIPLE CONSIDERATION OF FUNDING ISSUES – 17-50-11.

D/CITY S and GM-PS spoke to report. It was noted the principle was to get to zero carbon emissions by 2020. The discussion was around the best approach. It was agreed that HCC should make the most of the project based initiatives until at least 2015 and look at offsets to make up the balance to achieve zero by the target date. The establishment of a reserve fund with an initial $50k annual contribution would provide the funding for any future offsets required.

It was suggested that an annual KPI be developed to monitor the shortfall in emission offsets.

The report would be refined and referred to the Strategic Governance Committee.

Action: DCS

11/8/2008

MINUTES OPEN PORTION OF THE COUNCIL MEETING 59

STRATEGIC GOVERNANCE

20. HOBART CITY COUNCIL - ZERO NET CARBON EMISSIONS BY 2020 – FUNDING ISSUES –FILE REF: 17-50-11

Ref. Open SGC 5, 5/8/2008

That: 1. The Council agree, in-principle, to the following actions being incorporated into the Hobart City Council Greenhouse Local Action Plan to achieve zero net carbon emissions by 2020:-

(i) A greenhouse gas reserve fund being set up with an annual allocation to fund those greenhouse gas reducing projects which would not otherwise gain approval through standard budget preparation processes.

(ii) The reserve fund, with an initial amount of $50,000, being listed for consideration in the preparation of the 2009/2010 year budget.

(iii) The quantum of monies to be allocated to the reserve fund being reviewed annually.

(iv) The Council seeking to achieve at least a 30% reduction in its actual greenhouse gas emissions from 2007 to 2020, adjusting for the impact of the Water and Sewerage reform.

(v) An annual report being provided to the Council on greenhouse gas emissions, energy consumption and related projects.

2. Further investigation be undertaken into the purchase of carbon offsets in order to achieve zero net carbon emissions by 2020.

DEPUTY LORD MAYOR

HAIGH That the recommendation be adopted.

Appendix 5: Climate Change Policy

TITLE: GENERAL – CLIMATE CHANGE

SUBJECT: The Council's Climate Change Policy

DATE OF COUNCIL APPROVAL: xxxx

OBJECTIVE: The Hobart City Council on the issue of climate change will:

- provide effective and strong leadership to the region and to its communities to respond to climate change and build a sustainable region,

- develop and implement actions and strategies that assist communities to reduce carbon footprints, adapt to climate change impacts and increase their awareness and understanding of climate change and sustainability; and

- complement, collaborate and establish strong partnerships with key stakeholders and other tiers of government that strengthen the Council's responses to climate change.

- plan for and manage Hobart's adaptation to the impacts of climate change, particularly where these impacts represent a threat to people and property.