
DRAFT CLIMATE CHANGE ACTION PLAN

1. Purpose of Paper

This paper seeks Committee agreement:

- to the draft Climate Change Action Plan towards achieving the Council's carbon neutral vision
- to key organisational decision making principles for climate change mitigation and sustainability.

2. Executive Summary

To demonstrate commitment to reducing our impact on the climate, the Council agreed in June 2007 to a carbon neutral vision. Council tasked officers with developing a plan of action that details *how* we achieve carbon neutrality and at *what pace* we do it. A Climate Change Working Party, comprising of five elected members, was established to provide guidance and input into the development of the draft Climate Change Action Plan.

The draft Climate Change Action Plan (attached as Appendix 1) presents a package of actions that are sustainable and affordable within the Council's current financial position. The draft Climate Change Action Plan ('the Action Plan') includes the following key decision making principles:

- the Council should prioritise work on its own corporate emissions profile in the short-term ahead of community actions
- the Council should focus on actions that reduce greenhouse gas emissions ('emissions') as opposed to purchasing offsets in the short-term
- any carbon credits awarded to the Council being utilised to fund project costs, with remaining revenue going to emissions reduction projects or sustainability projects, will be investigated as the preferred approach.

The draft Action Plan also:

- outlines new emission reduction targets
- outlines a range of initiatives, approaches and programmes
- cross-references to existing initiatives from the 2006/16 Long Term Council Community Plan (LTCCP) relating to climate change mitigation and sustainability

- highlights that this draft Action Plan is the first stage in an ongoing process to reduce emissions and make Council operations more sustainable
- notes that the conclusions of feasibility studies for renewable energy opportunities and recommendations for identifying additional cost-effective community interventions will be included for consideration in the 2009/19 LTCCP
- references key national policies and global trends that will influence the Council's planning on climate change mitigation.

The draft Action Plan has three key focus areas:

1. Reduction targets

The Council's vision is to achieve carbon neutrality for Council operations and community activities. Ambitious reduction targets will drive Council action to reduce emissions.

2. Corporate activities

The draft Action Plan identifies processes and opportunities for reducing the Council's emissions. Close to 99% of the Council's emissions are associated with energy consumption in some form: electricity, gas, diesel, petrol and jet fuel (see Appendix 1, section 9 for more details). The primary actions for Council operations involve reducing energy.

3. Community activities

Again, most of the emissions from the community are derived from energy consumption, with landfill methane also contributing to community emissions (see Appendix 1, section 9). These priority actions focus on reducing emissions from the transport sector and residential energy use with specific initiatives identified.

Cost benefit analysis

In most cases, the draft Action Plan has qualitative analysis but does not include specific emissions reductions estimates for initiatives. Detailed emissions modelling and forecasting is in its infancy and there are a variety of reasons why detailed emissions estimates and potential financial costs are not included in this paper. Officers have analysed value cases, case studies and overseas experience in developing the rationale for specific actions. The proposals are consistent with action plans and procurement policies of cities that have proven leadership in climate change mitigation and sustainability. Some actions involve undertaking cost benefit analysis rather than actual implementation.

3. Recommendations

It is recommended that the Committee:

1. *Receive the information.*

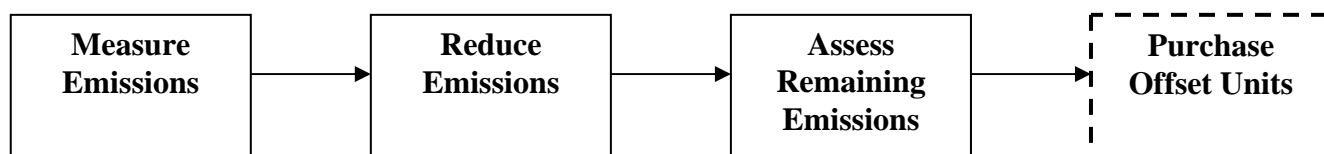
2. *Agree to the approach of the draft Climate Change Action Plan attached as Appendix 1, with new projects being considered as part of the 2008/09 Draft Annual Plan process.*
3. *Agree that, in the short-term, the Council should only consider purchasing offsets to achieve carbon neutrality when all avenues to reduce greenhouse gas emissions have been exhausted or are deemed to be too expensive for ratepayers.*
4. *Agree that the principle that carbon credits acquired by Council should be utilised to fund additional cost-effective emission reduction projects identified, rather than retain the carbon credits for offsetting purposes, will be investigated as the preferred approach.*
5. *Agree that the draft Climate Change Action Plan inform the development of the 2009/19 LTCCP with officers more fully scoping cost effective corporate and community interventions.*
6. *Agree that the Council advocate to the Regional Economic Development Agency to focus on renewable energy research and development and carbon-trading-support industry as prime cluster areas for economic growth.*

4. Background

4.1 Definition and scope of Carbon Neutrality

In June 2007, the Council agreed to a vision of carbon neutrality for the Council and the city and asked officers to report back with a plan of action for achieving this vision.

Carbon neutrality requires a combination of actions that reduce emissions and actions that offset emissions by purchasing or trading for carbon credits.¹ The diagram below shows the steps in achieving carbon neutrality.



The two main considerations for achieving carbon neutrality are:

1) How we get there

- changing organisational practices, priorities and internal resource allocation
- making new investment and undertaking new actions

¹ Council can also be awarded carbon credits through the New Zealand Emissions Trading Scheme and from voluntary trading schemes.

- identifying best-value-for-money focus areas
- bolstering existing actions
- using of carbon credits
- purchasing offsets.

2) The pace of getting there

- rate of investment
- internal resource prioritisation for climate change and sustainability
- ability to leverage partnerships and other funding sources
- timing of impacts from national climate change policies
- unrelated drivers (e.g. increased oil prices stimulating changes in transport practices)
- timing of use of carbon credits
- timing of purchasing offsets.

The draft Action Plan provides a balanced and prudent approach to positioning Wellington as a Carbon Neutral city. The draft Action Plan includes:

- principles for decision making and organisational priorities
- new emissions reduction goals
- new projects.

The draft Action Plan has three key focus areas:

- new emissions reduction targets
- Corporate Actions, focusing on Council activities (see Appendix 1)
- Community Actions, focusing on community leadership and cost-effective interventions (see Appendix 1).

The draft Action Plan will be reviewed each year as part of annual plan processes and as new opportunities present themselves. Several actions and initiatives incorporated in the draft Action Plan were developed from the priorities of the 2006/16 LTCCP. This demonstrates that Council has already committed to managing the city's growth and infrastructure networks in a sustainable way.

4.2 Current Situation

Of the major New Zealand centres, Wellington rates highly in several sustainability indicators, specifically relating to transport and compactness. Table 1 shows how Wellington's compactness leads to higher rates of public transport commuting, active mode commuting and urban density compared to other New Zealand centres. This is useful information to use as a starting point

for promoting Wellington as a sustainable place to live, work and visit (especially when businesses are making decisions on where to locate offices).

Table 1: How Wellington compares on transport and density measures

	Wellington	Auckland	Christchurch	Waitakere	Hamilton	Dunedin	North Shore
% residents using PT*	17.7 (1)	8.8	4.3	5.0	1.9	2.9	6.1
% residents using active modes*	18.1 (1)	8.2	10.0	3.2	8.5	10.7	3.8
Urban density (people/km ²)	1,381 (2)	2,319 (1)	549	657	158	420	800
% residents in central city	7.3 (1)	4.4	2.2	2.8	2.1	NA	NA
% of FTE's in central city	69.7 (1)	26.0	28.0	18.8	30.1	NA	NA

* Census data.

4.3 Preliminary Residential Satisfaction Survey results

The November results of the Residents Satisfaction Survey showed that Wellington residents are concerned about the risks of climate change and understand they can make changes to reduce their impact on the climate. The attitudes and growing awareness of Wellington residents towards climate change are consistent with similar survey results conducted by the New Zealand Business Council for Sustainable Development and overseas surveys. The key preliminary results are:

- 79% of respondents are concerned about climate change
- 88% of respondents believe climate change will have a very strong, strong or reasonably strong affect on future generations
- 74% of respondents believe they personally can help reduce global warming/climate change
- 73% of respondents are willing to change their behaviour to help reduce global warming/climate change.

This information has important implications for the Council's leadership and education role in the community. It directs the Council towards concentrating on a more productive education role focused on the mitigation of, rather than the causes of, climate change.

5. Discussion

5.1 Focus on reducing emissions

The Intergovernmental Panel on Climate Change (IPCC) report concludes that the world needs to reduce global emissions output by 50%-85% from 2000 levels by 2050 in order to keep the effects of climate change to manageable levels. While the mechanism of purchasing offsets is acknowledged as a tool to achieve carbon neutrality, the focus of the Action Plan should be *reducing* emissions from Council and community activities. This demonstrates that the Council is leading by example rather than relying on the actions of others to reduce emissions.

Purchasing offsets should be considered when all other alternatives for reducing emissions are exhausted. This is the approach taken by several government bodies and businesses alike. Because most of the Council's emissions are a result of energy consumption, this approach also reduces the Council's energy expenditure and reduces the Council's exposure to increases in energy prices from oil supply issues and carbon prices. If the Council had a policy of purchasing offsets to achieve carbon neutrality, there would be greater risk exposure to both energy and carbon credit price increases.

As indicated in the principles in the Plan, the Council should look to identify the least-cost options for achieving its emission reduction targets. This position needs to be continually reviewed to address whether emissions reductions are still affordable and achievable compared to offsets.

5.2 Emissions reduction targets

The Council agreed to the vision of carbon neutrality for its own operations and the community. As a key principle of the draft Action Plan is to focus on reducing emissions as much as practical before looking to offset, there is no definitive date recommended for achieving carbon neutrality. Instead, ambitious reduction targets will drive Council action to reduce emissions. These targets are identified in tables 2 and 3 below. It is recommended that the timing for achieving carbon neutrality is reviewed with each LTCCP as progress is made with reducing emissions.

Table 2: Council Targets

	Base Year	2010	2020	2050
Existing Targets	2003	stabilise	20%	---
Proposed Targets	2003	stabilise	40%	80%

Table 3: Community Targets

	Base Year	2010	2020	2050
Existing Targets	2003	stabilise	10%	---
Proposed Targets	2003	stabilise	30%	80%

The new reduction targets reflect the IPCC conclusions and Wellington's potential. They are also informed by global research and developments and

assumptions relating to national policy (see Appendix 2). Wellington is in a unique position to be a global leader in municipal sustainability. Its compact nature, smart urban growth policies, travel demand management initiatives, the Regional Council's new investment in public transport infrastructure and increasing costs of fuels should ensure Wellington's strong performance relating to transit and active mode transportation will continue. Wellington is also one of the few capital cities in the world that could meet all its electricity demands from renewable sources in the medium-term (2020).

5.3 Sustainability is the answer to climate change

While climate change and reducing emissions is the main focus of the draft Action Plan, the overarching response to the issue of climate change is sustainability. This means changing behaviour to be less resource intensive and making decisions that consider whole-of-life implications. It has a broader focus than just reducing energy consumption and emissions and includes water conservation, waste reduction and sustainable procurement practices. Achieving the Council's objectives for climate change is made easier when the community adopts a broad spectrum of sustainable practices.

5.4 Primary focus on Council operations

The Council should demonstrate leadership by prioritising actions to reduce emissions from its own activities in the short-term. Corporate action focuses on reducing the Council's energy consumption (or increasing use of renewable energy), ensuring that sustainability is a key priority for Council procurement decisions and addressing other areas of sustainability such as waste and water consumption. Prioritisation will focus on cost effectiveness but will also include criteria such as visibility and influence on the community. The Council's Corporate Action Plan identifies seven key areas the Council should target to reduce emissions:

1. Council buildings and facilities (56% of emissions)
2. Renewable energy
3. Forest sinks
4. Fleet and organisational travel (23% of emissions)
5. Streetlighting and infrastructure (18% of emissions)
6. Sustainable Procurement
7. Organisational sustainability

In targeting these focus areas, the Council will:

- develop mandatory *sustainable building design guidelines* for officers to use during the planning process for new buildings and facilities, upgrades, retrofits and renewals to optimise energy efficient design, reduce water consumption, reduce waste and reduce the total cost of ownership of Council assets

- *centralise and update the vehicle procurement processes* to ensure fuel efficiency and total cost of ownership are prioritised while maintaining or increasing safety standards
- *investigate strategic renewable/alternative energy projects* that have potential to deliver on corporate and community reduction goals
- *apply for carbon credits* under the Government's Permanent Forest Sink Initiative
- *develop a procurement policy and procurement standards* that prioritise sustainability and energy efficiency.

5.5 Adaptation

In terms of climate change planning, adapting to the effects of climate change is arguably the Council's most important role. The Council will need to continue to develop infrastructure and influence development to ensure that Wellington is not at significant risk from climate change impacts.

Council officers monitor scientific data and information to review and assess specific risks to Wellington to ensure we are best positioned to adapt to identified threats. While countries like Australia are adapting quickly to changing rainfall patterns and drier conditions, they are responding to specific problems that require immediate response.

For the Council, planning for climate impacts means taking into consideration the forecasted environmental effects, namely:

- managing the risks to coastal communities and infrastructure from sea level rise and storm surge (South Coast, Wellington Airport, etc)
- ensuring that provisions are in place to combat the frequency and severity of major storms such as adequate stormwater capacity, flood prevention and slip mitigation
- taking climate change impacts into account with planning decisions, especially in flood prone areas, coastal areas, landslide vulnerable areas and water storage
- ensuring that Wellington has a continuous adequate water supply in the event of rainfall patterns changing sufficiently to affect water storage provisions.

The planning process is difficult because of the uncertainty in the timing and rate of climate change. Aside from the physical impacts, there are also major economic and social risks from climate change and climate change policy. These include:

- impacts to the economy from increased costs of fossil fuel derived energy (e.g. emissions trading scheme)

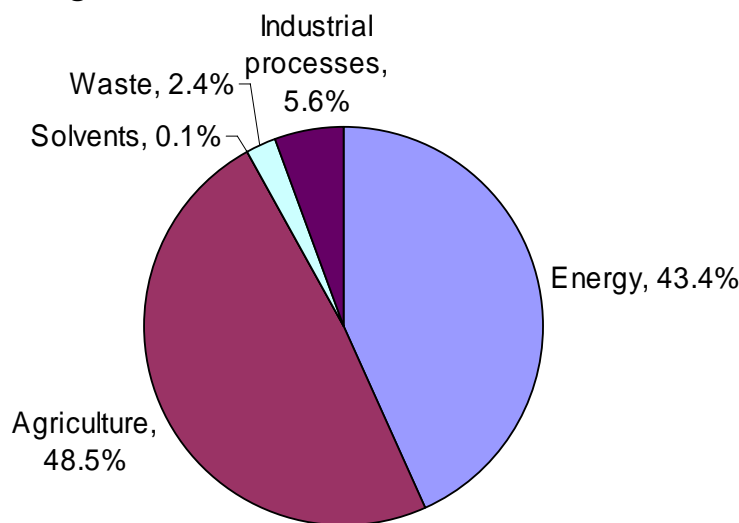
- associated down-stream impacts on goods from increased energy prices such as food and infrastructure contracting prices
- impacts on the export and tourism industries from the negative perception of carbon miles
- escalating insurance premiums
- increased costs to ratepayers from potential large-scale infrastructure development (e.g. sea walls, major upgrades to the capacity of stormwater network)
- economic impact of natural disasters such as major storms
- impacts to New Zealand’s primary product industries: forestry, agriculture and fishing.

5.6 National context

While New Zealand contributes only 0.15%-0.30% of global emissions, New Zealand has significant economic exposure to climate change policies (e.g. carbon pricing) compared to other developed countries. New Zealand is the second most emissions intensive economy² for OECD countries (T-CO₂/GDP unit) and has the 12th highest per capita emissions³. New Zealand also promotes itself as a tourist destination as “100% Pure” and “clean and green”. Its image and economy are at risk if New Zealand adopted a business as usual approach or if tourists/consumers start to prioritise low-carbon options with their purchases.

Figure 1 below shows the national emissions profile. New Zealand is unique in generating 48.5% of its emissions from agricultural activities (agriculture usually account for 10-15% of emissions in most countries).

Figure 1: National Emissions Profile



² New Zealand Institute, *We're Right Behind You*, Oct. 2007

³ Ministry for the Environment

5.6.1 Emissions Trading Scheme

The Government recently released a suite of initiatives and goals relating to climate change with the core policy being the Emissions Trading Scheme (ETS). Through the ETS, the Government is shifting the responsibility for climate change mitigation to those that make investment and consumption decisions that cause emissions (“polluter pays”).

The ETS is a price-based measure that aims to influence a wide range of firms and consumers to reduce greenhouse gas emissions. It will cover all sectors of the economy with a phased approach for introducing each sector (see Appendix 3). Under the ETS, there are obligations on participants to hold emissions units that match emission levels for which they are responsible. The ETS sits alongside several other recently announced policies outlined in Appendix 2.

5.6.2 Impact on Wellington City and the Council

The ETS will have immediate impacts and opportunities for Wellington residents and businesses including:

- increased cost of transport fuels and energy
- making low-emissions choices more cost effective
- increased profitability of afforestation activities
- gradual impacts on emissions with significant shifts to low-emissions technologies and fuels over time (e.g. by 2025).

The impacts, opportunities and obligations to Council from the ETS include:

- energy cost increases of approximately \$400,000 by 2010⁴ (conservative estimate). This figure could double if the predicted carbon price forecasted by some market experts was applied
- opportunities for forestry credits with Council reserves
- possible obligations to purchase carbon credits on the open market starting in 2013 to account for its landfill gas
- opportunities for projects that are eligible for carbon credits.

5.7 The Council's role in the community

The Council's role for reducing emissions in the community includes:

- being a role model and leader to the community
- educating the community on sustainable behaviour change

⁴ These estimates are based on 2006/07 energy consumption data and the energy unit cost predictions supplied by the Ministry for the Environment with a carbon price of \$15/tonne.

- providing incentives for change such as subsidies for household interventions
- advocating for changes to government policies (e.g. vehicle fuel efficiency and public transport spend)
- putting in place (in its role as the road control authority) travel demand measures that reduce emissions and congestion
- putting in place regulations that lead to beneficial outcomes through the District Plan (e.g. Plan Change 32)
- facilitating the growth of expertise and innovation in Wellington to make it a centre of excellence
- purchasing credits on the open market due to the Council's future obligations as a landfill owner under the ETS
- establishing partnerships with businesses, research institutions and non-profit organisations.

5.8 Partnership opportunities

The Council has the opportunity to partner with industry, research institutions and universities⁵ to ensure that Wellington is New Zealand's leading centre of research and design for sustainable technology and climate change. This would mean supporting the development of renewable energy technology in the city and region and growing expertise in other areas such as energy efficiency and green building design.

Wellington is one of the few capital cities in the world that could become a net exporter of renewable electricity in the medium term (2020) with the growth of wind farms within the city boundaries and the potential for harnessing marine energy from the Cook Strait.

The Council should advocate to the Regional Economic Development Agency that renewable energy research and development and businesses relating to carbon trading should be priority focus areas for business clusters. Promoting the New Zealand Stock Exchange (NZX) as the centre of carbon trading in Australasia will demonstrate further action towards making Wellington a 'centre of excellence' for climate change and sustainability.

Other key developments that could raise Wellington's profile as a sustainable city and a centre of excellence include:

- partnering with leading businesses that are promoting sustainable practices
- partnering with the New Zealand Climate Change Centre
- partnering with the Sustainable Cities Centre

⁵ Victoria University, Massey University, NIWA, GNS (Hutt Valley) and Industrial Research Limited (Hutt Valley)

- developing capability with community groups (e.g. the Sustainability Trust)
- partnering with the International Council for Local Environmental Initiatives (ICLEI)
- exposure from the United Nations' World Environment Day to be hosted by Wellington in June 2008.

5.8.1 ICLEI partnership

Council has developed a memorandum of understanding with ICLEI's New Zealand office to establish Wellington as its base location and Wellington City Council as its key Council partner in New Zealand. ICLEI has identified a range of areas to assist the Council including coordinating seminars on climate change issues and providing materials for awareness campaigns. ICLEI has also submitted a proposal to develop "sustainability awards" to recognise Wellington businesses, community groups and individuals that demonstrate commitment and innovation to sustainable development.

5.9 Reducing community emissions

The actions identified for the community sector are the first step in an ongoing process to reduce community emissions through motivating sustainable behaviour change with residents and businesses. Most of the initiatives in the community sector are cross-referenced from the Council's strategic priorities from the 2006/16 LTCCP, including:

- Travel Demand Management implementation measures, particularly delivering on the first stage of the bus priority plan
- Compact Growth implementation through infill policy development and Growth Spine implementation
- increased promotion of household energy efficiency by subsidising building consent fees that incorporate energy efficient building solutions when retrofitting or building a new home
- identifying District Plan incentives (height and/or bulk) for buildings meeting sustainable design standards, particularly in greenfield areas or areas of intensification
- strengthened partnerships with stakeholders by promoting Wellington as a centre of excellence for climate change research and sustainable technology
- facilitating sustainable behaviour change in the community, particularly through partnering with the Sustainability Trust to continue implementation of the Healthy Homes Project and also through a new pilot project, the Wellington Energy Advice Centre.

The 2009/19 LTCCP will be used to identify additional interventions in the community so that Council adds to (as opposed to duplicates) existing household schemes provided by EECA, energy trusts and energy companies.

Achieving measurable and significant reductions in community emissions is a much greater challenge for the Council and will rely heavily on government policies such as those mentioned in Appendix 2. The Council will have to engage with the public on several levels to stimulate behaviour change in the city. Some areas like transport and waste will require a regional approach. The Council's level of influence on reducing emissions from the community varies from sector to sector.

Key areas of focus include:

Transport

Even with intensive public transport policies, more efficient vehicle technology and introduction of bio-fuel legislation, regional transport emissions are expected to increase by 20% by 2016 because of population growth and increased economic activity. Greater Wellington's modelling shows that significant regional emissions reductions can only be achieved through greater vehicle fuel efficiency and through road pricing measures.

Building design

The Council does not have regulatory powers to require higher standards for energy efficiency in buildings. The Building Code is being reviewed and it is expected that the new building design requirements will lead to reduction in building energy use by 20%. The Council can look to use the District Plan to provide incentives for sustainable building features, which is one part of the draft Action Plan.

Renewable Energy Generation

Facilitating large-scale renewable energy projects and distributive generation projects for commercial buildings is possibly the greatest contribution the Council can make to the national emissions profile. The Council has already addressed the issue of renewable energy generation (specifically wind energy) and its impacts on the environment through District Plan Changes 32 and 33. The Council could also look to set in place new policies specifically to address marine energy and micro-generation to meet Council and community objectives.

5.10 The Draft Action Plan is the first step in an ongoing process

The draft Action Plan will use the 2008/09 Draft Annual Plan process as the first step in an ongoing process of identifying cost effective measures to reduce emissions, develop partnerships, provide incentives for sustainable behaviour change and improve Council systems. The 2009/19 LTCCP will be used as a framework for further initiatives and interventions. The community outcomes process provides an opportunity for the Council to engage the community in identifying priority areas for change.

By 2008, there will also be greater certainty with key government policies such as the Waste Minimisation and Resource Recovery Bill and Emissions Trading

Scheme, which could provide the Council with opportunities for reducing emissions and additional revenue streams. The additional time will also assist the Council to best leverage funding for community interventions with EECA and other potential partners.

5.11 Immediate 2008/09 Projects

Table 4: New projects recommended for 2008/09 Draft Annual Plan process

New Project	Focus Area
Carey's Gully Wind Energy Feasibility Study	Renewable Energy
Carey's Gully Bio-Reactor Feasibility Study	Renewable Energy
Incentives for Sustainable Building Features	Residential Behaviour Change
Household Travel Survey	Transport

Wind Energy Feasibility Study

The Council has several operations located in Carey's Gully including the Southern Landfill, sewage sludge dewatering plant, compost plant and CitiOperations depot and offices. Carey's Gully acts as a wind tunnel to both northerly and southerly winds. The Brooklyn wind turbine, which sits atop the ridge above Carey's Gully, is one of the most productive turbines in the world. The Council is aware of commercial interest in investigating options for wind energy in the Carey's Gully.

The feasibility study will determine if Carey's Gully is a viable location for wind energy and if so, make recommendations on the most suitable engineering and commercial models to be pursued.

Bio-Reactor Feasibility Study

The Council has run the composting operation in Carey's Gully for the past 8 years and the Council is in the process of reviewing this operation. There are other options for bio-solids disposal currently available and Council officers are considering these in light of their energy potential. Digestion and pyrolysis are two means by which sludge could be processed to yield energy, most likely in the form of gas or electricity. The feasibility study will determine the commercial viability of using this technology to treat bio-solids.

Incentives for Sustainable Building Features

The aim is to reduce resource consent fees to homeowners that utilise sustainable energy solutions for areas like water heating and local electricity generation.⁶ It is proposed that funding for this initiative is considered as part of the Draft Annual Plan process with a review of funding for 2009/10 to determine whether it is cost-effective. The options for this funding could come

⁶ Westland, Hamilton and Waitakere Councils have all reduced fees for solar hot water heating consents.

from reprioritisation of existing funding, general rates funding or increasing the standard fee for building consents to fund the subsidy.

Providing subsidies for building consents is one way to motivate household behaviour change and is primarily targeted at influencing building design and building solutions. While the Council has control over consent fees, there are several programmes aimed at motivating reduced energy in the household. The programme would supplement existing EECA programmes, which will contribute a combined \$23 million over the next five years to promote greater uptake of sustainable energy solutions for households: insulation, solar hot water heating and clean heat technology. Through this programme, and the Energy Advice Centre outlined in the draft Action Plan, the Council can identify how to achieve best value-for-money from household interventions.

Household Travel Survey

The Household Travel Survey is a comprehensive and detailed survey that would identify trends in travel behaviour for Wellington commuters and residents. It would receive 50% funding from the National Land Transport Fund. The Survey would inform decision making leading for the 2009/19 LTCCP on how to best leverage and prioritise the Council's investment relating to TDM and road space allocation including prioritising measures that contribute more strongly to the Council's transport objectives; reducing congestion and increasing the amount of trips taken by public transport and active modes.

Internal resource allocation: corporate and community

The remaining initiatives in the draft Action Plan will require the allocation of internal resources (mainly officer time) to develop policy or implement projects, including:

- Sustainable Building Design Guidelines for Council buildings
- In-house Sustainability Plan
- Organisational Travel Plan
- Social Marketing Campaign: Facilitating Sustainable Behaviour Change
- investigation of incorporating sustainable features into the Council housing upgrade.⁷

The Council's goal is to develop the projects above using existing resources in the next 12 months. Additional funding required for a Social Marketing Campaign will be identified for consideration in the 2009/19 LTCCP. Delivering on these initiatives and the other initiatives identified in the draft Action Plan will require the full allocation of relevant officer resource for 2008/09. The prioritisation of other work on the Strategy and Policy Committee forward

⁷ While there are existing budgets for concept design consultancy for the housing upgrade work, this initiative is referenced to note its significance in terms of the potential for expanding the upgrade from a 'basic, modern' upgrade to one that more fully looks at opportunities for sustainable building design.

programme would have consequences on officers' ability to deliver on the draft Action Plan within the timelines signalled.

5.12 Benefits: Quantified and Qualified

The draft Action Plan has qualitative cost benefit analysis but does not include specific emissions reduction estimates for each initiative. For example, the draft Action Plan does not detail all the projects and associated emissions reductions that will lead the Council to its 2010 and 2020 targets. Detailed emissions modelling and forecasting is in its infancy and there are a variety of reasons why detailed emissions estimates and potential financial costs are not included in this paper:

- calculating emissions reductions from community projects is extremely difficult (particularly for transport, urban growth policies and social marketing campaigns) and relies on extensive modelling, which tends to have low levels of confidence
- calculating costs and savings from procurement policies or changes in management practices (e.g. building design and vehicles) requires detailed design scoping for all potential decisions. For example, this would mean providing green-building design scopes for all retrofits, upgrades and new buildings over a set period. Rather than undertake this time-consuming and costly exercise, case-studies and qualitative analysis are instead used to support recommendations
- corporate and community activities will likely grow significantly by 2020 due to population growth and it is difficult to accurately predict the impact on baseline emissions because of the number of assumptions that need to be made
- this draft Action Plan establishes a starting position by recommending priority actions for the short-term. The policy areas of climate change and sustainability are dynamic fields that rapidly evolve. This framework gives the Council a kick-start and Council needs to continually reassess opportunities annually as well as through LTCCP cycles.

However, three important projects of the draft Action Plan (feasibility studies for wind energy in Carey's Gully, bio-reactor technology and micro-hydro opportunities at Moa Point) do involve undertaking detailed cost benefit analysis. There are several possible outcomes for these studies ranging from:

- not viable even if carbon credits were allocated from the voluntary market
- commercially viable with net profits, carbon credits and environmental benefits being accrued.

5.12.1 Value Case for Sustainable Buildings

The concept behind the Sustainable Building Guidelines is to deliver emissions reductions and cost savings over the lifespan of the building. The *Value Case for*

Sustainable Building in New Zealand prepared for the Ministry for the Environment states that the benefits of sustainable building are:

- for owner occupiers, a 20-year whole-of-life cost view indicates the marginal cost increase of sustainable building is likely to be repaid between five or six times by operating cost savings alone (see Appendix 4)
- the case studies show that to achieve the above investment returns, the difference in the initial capital costs of sustainable buildings compared to conventional good quality buildings varies from 15% less to 11.5% more, with sustainable features initially costing an average of 2-6% more.

The Ministry for the Environment recently presented information to Treasury that indicated an 8% premium for renting sustainable, A-grade office blocks that would be paid back two to three times over a 20 year time period.

5.12.2 Value Case for Sustainable Vehicle Procurement

The Ministry of Transport recently conducted a fleet review of 21 government agencies. The review looked at the benefits that could be made by replacing existing vehicles with “equally fit for purpose vehicles” which were more fuel efficient, had lower emissions output, had better safety ratings, had equal or better emissions standards and were within 10% of the existing cost of the replacement model. The review found that there were:

- potential average emissions savings of at least 14% for 20 of the 22 agencies
- potential average fuel savings of at least 25% for 19 of the 22 agencies
- potential average cost savings for 14 of the 22 agencies.

Officers are in the process of undertaking similar investigations through the new fleet management contractor, FleetSmart, and will be looking to incorporate best-practice procurement processes into a fleet procurement standard. The Council is currently operating several fully-depreciated vehicles in its fleet. Some of these vehicles are more than ten years old and to bring the fleet up to modern safety, performance and fuel efficiency standards would require significant investment. As this would have obvious impacts on capital budgets, the effort to modernise the fleet must be done in a staged and pragmatic way.

The prioritised work programme structure for fleet procurement is to work with FleetSmart to:

1. Develop a *Vehicle Replacement Standard* to prioritise fuel efficiency, lower emissions and total-cost-of-ownership purchasing
2. Recommend plan *to modernise the fleet* over a three to five year period by replacing older, fully depreciated vehicles
3. Develop strategies to better utilise the fleet to reduce fuel consumption and identify excess fleet.

5.13 What to do with carbon credits?

The Council can be awarded carbon credits under the Government's new Emissions Trading Scheme (ETS) and also through voluntary schemes for the following types of activities:

- regenerating native forests that were grassland or farmland before 1990
- maintaining/replanting exotic forests (e.g. Spicer's Forest)
- investing in projects that reduce emissions through the use of renewable or alternative energy technology.

The Council will undoubtedly receive carbon credits. The first credits could come from forest sink credits if the Council is successful in its application to the Government's Permanent Forest Sink Initiative. If the Council is awarded carbon credits, there should be a clear directive on how to use these credits. The Council has three generic options available:

1. **Retaining** the credits to offset the Council's emissions
2. **Selling** the credits and receive revenue from credits
3. **Combination** of 1 and 2

It is recommended that the Council investigate the principle of selling credits with the aim of covering costs associated with the projects and reinvesting any remaining revenue into further emissions reduction projects, as the preferred option.

There may in 2013 be obligations placed on the Council as owner/operator of the Southern Landfill under the ETS. Depending on the outcomes of Government policy, the Council will need to review decisions on retaining carbon credits by 2012 to determine if on-selling credits is still the preferred approach.

6. Conclusion

Council agreed to a carbon neutral vision in June 2007. This paper seeks the Committee's approval of the draft Climate Change Action Plan (attached as Appendix 1) and agreement to key organisational decision making principles for climate change mitigation and sustainability.

Contact Officer: Zach Rissel, Policy Advisor

Supporting Information

1) Strategic Fit / Strategic Outcome

This report relates to several long-term outcomes from the Council's overall strategic direction, as reflected in the LTCCP, including:

*More Sustainable
More Compact
Safer
Healthier
More Competitive
More Prosperous.*

This report also relates to several three-year priorities from the LTCCP, including:

*Energy efficiency and conservation, energy security, renewable energy, and leadership in this area
'Growth spine' planning
Travel demand management
Bus priority measures
Strengthening the city's status as a centre of creativity and innovation.*

2) LTCCP/Annual Plan reference and long term financial impact

Funding implications will be considered as part of the 2008/09 Draft Annual Plan and the 2009/19 LTCCP processes.

3) Treaty of Waitangi considerations

This report has no Treaty implications.

4) Decision-Making

This report does not require a significant decision to be made.

5) Consultation

a) General Consultation

Consultation on specific work items will occur as part of the 2008/09 Draft Annual Plan.

b) Consultation with Maori

Consultation with Maori will be conducted as part of the consultation identified above.

6) Legal Implications

There are no legal implications from this report.

7) Consistency with existing policy

This report is consistent with the outcomes and priorities of the Environment Strategy and Transport Strategy as reflected in the LTCCP. The advice provided supports existing policy and planning work to implement the Council's strategic direction, such as travel demand management, compact growth, and energy management planning.

APPENDIX 1

Wellington City Council Draft Climate Change Action Plan: Creating a Carbon Neutral Council and Community December 2007

“The investment that takes place in the next 10-20 years will have a profound effect on the climate in the second half of this century and in the next. Our actions now and over the coming decades could create risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. And it will be difficult or impossible to reverse these changes....

...There is still time to avoid the worst impacts of climate change, if we take strong action now...The evidence gathered by the Review (Stern Report) leads to a simple conclusion: the benefits of strong and early action for outweigh the economic costs of not acting.”

Nicolas Stern, in a report prepared for the United Kingdom Treasury Department in 2006.

1. Introduction

The Council understands the risks that climate change presents to our economy, society and environment. These risks are shared on both a micro-community scale and a macro-global scale. The risks can only be mitigated through urgent and sustained action to **reduce greenhouse gas emissions** ('emissions') and safeguard the community by **adapting to changes** to the environment and economy. Adaptation will be necessary to address impacts resulting from the warming that are already unavoidable due to past emissions. Many forecasted impacts can be avoided, reduced or delayed by mitigation (net emission reductions). Scientists and economists have concluded together that the world needs to reduce emissions between 50%-85% by 2050 in order to keep impacts from climate change to manageable levels.⁸

The challenge to the global community needs buy-in at all levels. To signal our commitment to act on climate change, in June 2007, the Council agreed to the aspirational vision of carbon neutrality for Wellington City Council and for the city as a whole. Achieving carbon neutrality requires a combination of actions that reduce greenhouse gas emissions and actions that offset greenhouse emissions by receiving or trading for 'carbon credits'.

Achieving the vision of carbon neutrality requires setting targets for reducing emissions and more importantly, implementing an action plan that will lead to progress towards the carbon neutral vision. While the mechanism of offsetting is acknowledged as a tool to achieve carbon neutrality, the Council's primary focus with the Climate Change Action Plan ('the Action Plan') is reducing greenhouse gas emissions from Council and

⁸ Intergovernmental Panel on Climate Change, 4th Assessment Report, 2007

community activities. This demonstrates that the Council wants to lead by example rather than rely on the actions of others.

2. Purpose of the Action Plan

The purpose of the Action Plan is to identify cost-effective initiatives for Council operations and the community that will:

- help the Council achieve its carbon neutral vision
- promote sustainable behaviour.

The Action Plan identifies the Council's priority actions for reducing emissions from Council operations and the community for the 2008/09 fiscal year. The plan will be updated to coincide with the strategic review and outcomes process for the 2009/19 LTCCP.

3. Building on Wellington's strengths

Of the major New Zealand centres, Wellington rates highly in several sustainability indicators. Wellington's compactness leads to higher rates of public transport commuting, active mode commuting and urban density compared to other New Zealand centres. The Action Plan helps Wellington further develop its strengths, reduce emissions and position the city as one of the most sustainable places to live, work and visit in the world. The following list details some of Wellington's strengths:

- Wellington has the highest usage of public transport and active modes for main urban centres in New Zealand.
- Wellington has the highest concentration of the city's employees in the city centre with 70% of Wellington's employment is concentrated in the CBD compared to 26% and 28% for Auckland and Christchurch respectively.
- Wellington has the highest percentage of its population living in the central city areas of all New Zealand centres.
- Wellington's density and compactness means public transport is efficient and user-friendly and it also means the city is more walkable.
- Wellington will be home to a Meridian Energy's wind farm, Project West Wind, that can produce enough energy to meet all of the residential electricity demand for Wellington and neighbouring cities Porirua and Hutt City.
- There is potential for more wind energy in Wellington's boundaries and huge potential to produce marine energy using the strong currents of the Cook Strait. The first resource consent for a marine energy trial has recently been lodged with Greater Wellington Regional Council.
- The New Zealand Stock Exchange based in Wellington will be the home for carbon trading for New Zealand (and possibly Australasia) putting it alongside London and Chicago as carbon trading centres.
- Victoria University, Massey University, Otago University's Wellington campus, NIWA, GNS and Industrial Research Limited provide research centres that focus on climate change impacts, mitigation solutions, and sustainable

behaviour. There are already developments in place to link these research institutions more directly to the work of local governments.

- The International Council for Local Environmental Initiatives (ICLEI) has its New Zealand head office in Wellington, which gives the Council close access to its partner organisation.
- For businesses and homeowners, Wellington is a sustainable choice to be located because of its compactness and links to public transport and active modes.
- Todd Energy will help Wellington join cities in New Zealand and around the world that generate electricity from landfill gas when they install their new generator in late 2007. There is potential for this operation to grow over time through strengthening the gas collection network.
- 85% of Wellingtonians currently use the kerbside recycling system.
- Wellington's Karori Sanctuary is a world-first conservation area that is 2km from the city centre and provides fantastic educational and research opportunities for schools and universities.

4. Weaknesses

There are also some challenges that the Council will be addressing through the Action Plan and other Council policies, which include:

- Despite good usage of public transport and active modes, car ownership and congestion keep increasing leading to growing rates of transport emissions.
- Wellington has the highest water consumption per capita of all New Zealand centres.
- Wellington has a large number of old, poorly insulated homes that take more energy to heat compared to modern homes.
- Poorly designed office buildings and commercial buildings lead to energy consumption wastage through heating, water heating, lighting, air conditioning and ventilation.
- Internationally, nationally and locally, trends show that it is extremely difficult to facilitate sustainable behaviour change in the community through education and awareness campaigns alone (incentives and direct interventions are necessary).
- Even with extensive waste reduction measures in place, the ratio of landfill waste to recycling/composting still remains high.
- There are many regulatory areas that are outside the Council's control that have the potential to reduce emissions greatly: the Building Code, public transport investment and vehicle fuel efficiency standards.

5. Risks

The environmental, social and economic risks that are presented by climate change include:

- more severe and frequent storm events putting strain on infrastructure and causing floods and slips
- sea level rises threatening coastal communities and infrastructure
- changes to precipitation patterns affecting water supplies
- adverse effects on Wellington's and New Zealand's ecosystems from air and sea temperature changes
- risks⁹ to the New Zealand economy from:
 - increased energy costs resulting from climate change policies like the Emissions Trading Scheme
 - impacts to the tourism and export industries from the consumer preference relating to carbon miles
 - escalating insurance premiums due to increases in climate related claims
 - increased costs to ratepayers from potential large-scale infrastructure development responding to a climatic risk (e.g. sea walls, major upgrades to the capacity of stormwater network)
 - economic of impact of natural disasters like major storms
 - impacts to New Zealand's primary product industries: agriculture, forestry and fisheries.

6. Principles

The following principles have been developed to guide Council actions on climate change. Some are focused specifically on the Action Plan and others are more broadly intended to guide all Council decision making.

1. Sustainability is the overarching response to the issue of climate change.
2. Emission reduction projects will be prioritised over purchasing offsets in the short-term.
3. The short-term focus should be on Council activities to demonstrate leadership, with community interventions following once Council actions are in place.
4. The work programme on climate change will be dynamic and regularly updated to reflect new research, technology, central government policy, and local and international agreements.
5. Council decisions will consider economic, social, environmental and cultural imperatives for taking action on climate change.
6. Council decisions will consider whole-of-life implications of its decisions, spending and procurement.
7. Emissions analysis, cost-benefit analysis and cost effectiveness will inform prioritisation of climate change actions. The Council should be looking to achieve its emissions reduction targets at the least cost to the ratepayer.

⁹ There are also opportunities for Wellington (and New Zealand) relating to climate change impacts, climate change policy and global consumer preferences. These are designed to be captured in the actions of the Action Plan.

8. Emissions inventories will include measures of all emissions released within Wellington.
9. A whole-of-organisation commitment is required to reduce corporate and community emissions.
10. The Council will show leadership in partnering and engaging with businesses, residents and visitors to take action on climate change.
11. The Council will use both information and incentives to promote sustainable behaviour uptake of its staff and in the community.
12. Outcomes and measures will be monitored regularly and reported to Council and the public.

7. Mitigation, adaptation and research

The climate change policy requires work on three key areas:

- **Mitigation** - the prevention or reduction of impacts through reduced emissions.
- **Adaptation** - adapting to address impacts resulting from the warming which is already unavoidable due to past emissions.
- **Research** – research conducted in partnership with local universities and other research institutions, on the potential local impacts of climate change and the best ways to mitigate and adapt to those impacts.

8. Corporate and community action

The Council targets and action plan on climate change is divided into two parts:

1. Corporate targets and actions: the Council should first and foremost demonstrate leadership with its own activities through urgent and comprehensive actions to reduce emissions from its own activities. These actions will target all aspects of Council activities including Council controlled organisations and Council suppliers. The Council obviously has more influence and control over its own activities so corporate action is relatively simpler to implement and monitor compared to community action. Corporate action will focus on reducing the Council's energy consumption, ensuring that sustainability is a key priority for Council procurement decisions and addressing other areas of sustainability such as waste and water consumption.
2. Community targets and actions: the bigger challenge for the Council is supporting the community in reducing its emissions. While the Council's actions for its own activities can provide leadership and direction to the community, the Council needs to work hard to change the behaviour of both residents and businesses alike. This means engaging with the public on several levels and helping to stimulate change in the city and region. The Council's level of influence on reducing emissions from the community varies from sector to sector.

9. Emissions measurement and reporting

Figure 1 below details the emissions profile of the Council by source. Nearly all of Council's emissions come from consumption of four energy sources: electricity, natural gas, diesel and petrol.

Figure 1: Corporate Emissions by Source (2006) - 12,670 T-CO₂ equivalent

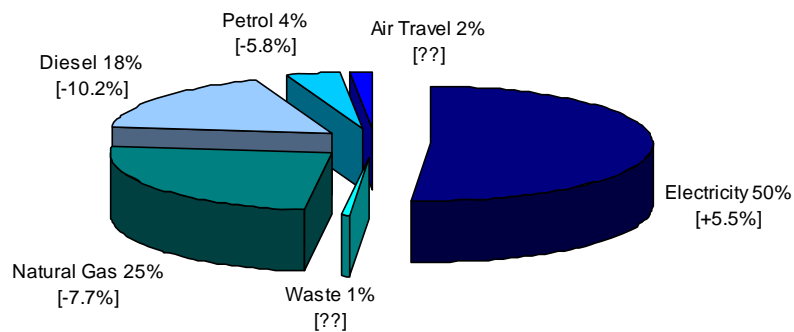


Figure 2 below details the emissions profile from Council operations. The energy used within our building portfolio accounts for 56% of the overall emissions when including pools. The vehicle fleet alone accounts for approximately 23% of the corporate emission profile. It is important to note that the analysis done to generate this picture did not include some of the Council's Controlled Organisations (CCO) such as Wellington Waterfront. Nor did it include specific contracts the Council manages such as those with United Water Ltd or Living Earth Ltd, both of which will have significant impacts on the Council's carbon footprint due to the size of their respective operations. As we endeavour to refine our emission profile, more and more data will get incorporated and is a key part of the ongoing work programme of the Council's Energy Manager.

Figure 2: Corporate Emissions by Sector (2006) - 12,670 T-CO₂ equivalent

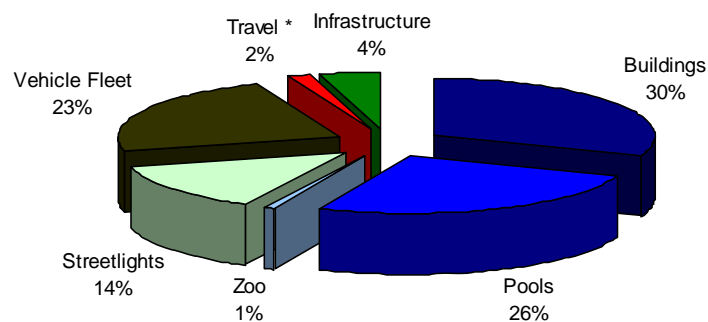
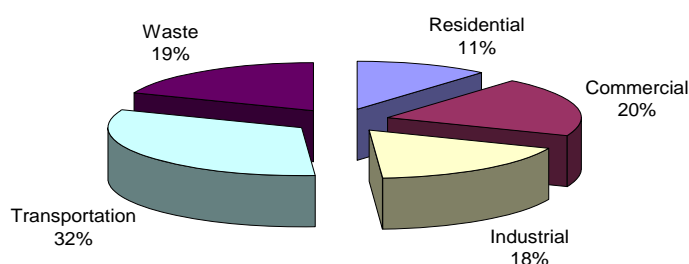


Figure 3 below provides an indicative outline of the city's emissions. The profile is currently being reviewed and will be updated in time for the final Action Plan in June 2008. Not surprisingly, emissions from the transport sector (32%) and emissions from electricity and natural gas use by households and businesses (49%) are the key contributors to emissions in the city.

Figure 3: Community Emissions Profile (2001) – 1,078,794 T-CO₂ equivalent



10. Emissions reduction targets

The vision for Council is to achieve carbon neutrality for the Council and community. As one of the principles is to focus on reducing emissions as much as practical before looking to offset, there is no definitive date set for achieving carbon neutrality. This will be reviewed with each 3-year plan as progress is made with reducing emissions. Instead, ambitious reduction targets will drive Council action to reduce emissions. These reduction targets are informed by:

Global research, trends and developments

- the Intergovernmental Panel on Climate Change (IPCC) recommendations to stabilise global emissions by 2015 and then reduce emissions by 50%-85% by 2050 to keep human induced climate change to a minimum
- analysis of emission reduction targets of other Councils, state governments and national governments (see Appendix 1)
- the urgency required to act on climate change mitigation as highlighted in the IPCC reports, the Stern Report and research produced by NIWA
- assumptions that a progressive international treaty on emissions reduction will be reached by key governments in the next two to five years, which will stimulate significant shifts towards cleaner technology, specifically vehicle fuel efficiency, further development of renewable energy technology and carbon sequestration
- growing investment internationally and domestically in more efficient, cleaner technologies that consume less energy
- a major shift by industry and multi-national companies to more sustainable business practices.

Assumption relating to New Zealand government policy

- the Government's goal to have 90% of New Zealand's electricity generation come from renewable sources by 2020
- the introduction of the New Zealand Emission Trading Scheme, which places a price on carbon emissions in order to promote "cleaner", less emissions intensive energy sources and technologies and incentivise forestry over other land use choices
- clear direction that Government Policy will place more emphasis on transport demand management and clear priority given to public transport, walking and cycling
- the Government's goal for average fuel economy to improve by around 25% by 2015 for New Zealand's vehicle fleet
- the outcomes of the Building Code review, which will require improved energy efficiency performances for new buildings and retrofits (households and commercial structures)
- the Government's goal for New Zealand to be a leader in the uptake of electric vehicles
- the introduction of mandatory bio-fuels legislation
- the roll-out of energywise homes initiatives that give incentives for solar hot water heating, clean-heat and insulation retrofits.

Council Targets

	Base Year	2010	2020	2050
Existing Targets	2003	stabilise	20%	---
New Targets	2003	stabilise	40%	80%

Community Targets

	Base Year	2010	2020	2050
Existing Targets	2003	stabilise	10%	---
New Targets	2003	stabilise	30%	80%

11. Corporate Action Plan

The Council's Corporate Action Plan on climate change will focus on six key areas in order to reduce the Council's emissions and make the Council more sustainable. The order of the focus areas are loosely related to their impact on the Council's corporate emissions profile. As mentioned previously, prioritisation will focus on cost

effectiveness but will also include criteria such as visibility and influence on the community.

1. Council buildings and facilities
2. Council Vehicle fleet
3. Carbon credit opportunities: renewable energy and forest sinks
4. Procurement
5. Streetlighting and infrastructure
6. Organisational sustainability

Council buildings and facilities (55% of Council emissions)

Action: Developing Sustainable Building Design Guidelines

Sustainable buildings provide significant environmental benefits as well as operational savings and increased productivity for occupants. The Council will maximise environmental and financial benefits of sustainable building by developing mandatory Sustainable Building Design Guidelines by July 2008 to use during the planning process for:

- new buildings and facilities
- upgrades and retrofits
- renewals.

Council facilities that fit under these categories must either meet specific design rating tools (e.g. Green Star rating tool for office buildings) or performance guidelines for specific building types. The purpose of the guidelines is to optimise energy efficient design and reduce the total cost of ownership of Council assets. This means that Council will identify cost-effective design features that will reduce energy consumption, water consumption and ongoing maintenance requirements. Research shows that a 50% reduction in energy is achievable for office buildings with reasonable additional capital costs. The design focus will be on maximising natural lighting, efficient lighting and heating, energy efficient technology, renewable energy, natural ventilation, recycling rain water and efficient water heating in the most cost-effective manner.

Total cost of ownership

There will undoubtedly be additional capital costs associated with building projects that incorporate sustainable design as a priority with cost premiums ranging between 2%-10% (there are some case studies of sustainable buildings costing less than the standard design). These additional costs are most often paid back within five to fifteen years through significant reductions in operating costs, primarily energy and maintenance. This means that a sustainable building is cheaper than a standard building over the building life time.¹⁰ As part of the Guidelines, paybacks must be identified during the design phase of the project.

¹⁰ In the Ministry for the Environment's *Value Case for Sustainable Building in New Zealand* prepared by e Cubed Consulting it concludes that for owner occupiers, a 20-year whole-of-life cost view indicates the marginal cost increase of sustainable building is likely to be repaid five or six times by operating cost savings alone.

Action: Investigation of incorporating sustainable features into Council housing stock upgrade

The Government is providing \$220 million to upgrade the Council's housing stock over the next 10-15 years, which consists of around 2,300 rental properties (over 3% of the city's dwellings). When accepting the Crown offer, the Council agreed to undertake upgrade work focusing on:

- ensuring compliance with the Building Code, particularly seismic strengthening
- improving thermal insulation and ventilation of units
- increasing site and unit safety and security
- upgrading the essential amenities in the units, including replacing kitchens and bathrooms
- improving community facilities provided in the larger complexes
- reconfiguration of approximately 50% of bedsits to 1 and 2 bedroom units.

The Crown funding and Council's ring-fenced housing income is sufficient to fund upgrades to meet the objectives above. The Council will also investigate opportunities to also incorporate additional healthy and sustainable housing initiatives into the upgrades of its stock through the concept design phase in 2008. The priority aim of the investigation is to identify ways to more efficiently heat air and water for the housing units, which would result in reduced emissions.

Designing and constructing sustainable Council housing stock would result in operational savings for the tenants but not the Council. Therefore the Council would not receive the same payback on investment as it would with its own buildings. The benefits would focus much more on building sustainable communities and looking at the whole-of-life impact of Council assets. As part of the investigative work, the Council will identify how to fund the sustainable initiatives through alternative funding sources (e.g. EECA energy efficiency loans) and how costs can be kept to a minimum. The results of this investigative work will be complete by November 2009.

Carbon credit opportunities: renewable energy and forest sinks

Action: Making the most of Wellington's resources: investing in renewable energy technology

Wellington is famous for its wind. The wind swept hills close to our compact urban centre make Wellington one of the top locations in the world for developing wind energy sites. The Council will facilitate the growth of the local renewable energy industry and also invest in renewable energy technology for its own operations. The aim is to invest in technology that would either directly power a Council operation or feed into the grid. By feeding power into the grid from renewable energy, we can offset demand required from the national grid.

This action starts out through a range of feasibility studies into strategic projects that have potential to deliver on corporate and community reduction goals. The Council will conduct feasibility studies in 2008/09 on several projects. The

conclusions and outcomes of the studies will feed into either the 2009/19 LTCCP or the 2010/11 Draft Annual Plan. The feasibility studies will investigate options and viability of:

- wind energy in Carey's Gully
- bio-reactor technology in Carey's Gully
- micro-hydro energy from the Moa Point sewage outflow.

Action: Partnering with Todd Energy to optimise landfill gas generator

Todd Energy (through its subsidiary company Nova Gas) has owned the rights to the landfill gas at the Southern Landfill since 1995, when a deed agreement was signed with the Council. Under the deed, Todd Energy has the responsibility to install gas collection infrastructure and destroy the landfill gas. The Council also has obligations to assist Todd Energy with earthworks and other aspects of installing the gas collection infrastructure. Until recently, Todd Energy has destroyed the gas through two large combustion flares, converting the powerful greenhouse gas methane into the less potent carbon dioxide (methane absorbs 23 times more radiation than carbon dioxide).

Todd Energy is in the process of installing a 1MW generator to convert the landfill gas into electricity. This is a fantastic development that is possibly the first in many renewable energy initiatives near the landfill site. The Council has assisted Todd Energy with in-kind earthworks for the generator site and also by working with Todd Energy to find the most suitable location for the generator.

The Council will continue to partner with Todd Energy by providing in-kind support and earthworks to optimise the efficiency of the gas collection network and the output of the generator. This is a win-win partnership for the Council and Todd Energy with Todd Energy gaining revenue from electricity generation and Wellington being home to another renewable energy project. It also helps to alleviate the Council's levels of obligations relating to possible outcomes of the Emissions Trading Scheme and enhances the sustainability of the Council's landfill operations.

Action: Permanent Forest Sink Initiative

The Council owns several hundred hectares of reserve land that meets the criteria for receiving forest sink credits under Government's Permanent Forest Sink Initiative (PFSI), which opens in December. The Council will be preparing an application to PFSI by March 2008 and also investigating other ways to best utilise and grow Council land as a forest sink, whilst delivering on other objectives relating to biodiversity, sense of place and recreation.

The Council will investigate partnership opportunities with neighbouring landowners through the application process. This would build on work already being developed relating to coordinated pest management controls for the major land-owners in southwest Wellington.

Council vehicle fleet (25% of Council emissions)

Action: Sustainable fleet management

The Council will centralise and update its vehicle procurement processes to ensure fuel efficiency and total cost of ownership are prioritised while maintaining or increasing safety standards and Council operations. The aim of the new fleet procurement standard will be to:

- reduce emissions with vehicle replacement
- reduce fuel consumption with vehicle replacement
- reduce the total cost of ownership of vehicles.

Part of this initiative includes reviewing the turn-over of Council vehicles and looking to replace old vehicles with modern, more efficient vehicles. While there is a significant capital cost to replacing older vehicles, this cost will be partially offset from the savings made on maintenance and the increased fuel efficiency and productivity of the fleet. The new vehicle procurement standard and recommendations on policies for retiring older vehicles will be completed by July 2008.

Procurement

Action: Sustainable Procurement

The Council spends approximately \$230 million each year (75% of its total revenue) on a diverse range of goods and services including:

- building design
- vehicles
- infrastructure construction and maintenance
- ICT Hardware
- facilities maintenance
- office paper and stationary supplies
- legal and financial advice.

There is significant potential for the Council to better manage its overall spend with suppliers and require stronger environmental performance and reporting. A robust and comprehensive commitment to sustainable procurement will lead to resource efficiency, environmental sustainability, sound labour practices, sound health and safety practices and value for money.

Sustainable procurement will require changes in the way the Council conducts its procurement practices and in the way our preferred suppliers conduct business across a range of activities. It will lift the quality and standards of Council suppliers as a whole and improve reporting provided by suppliers.

The cost of implementing a sustainable procurement framework cannot be accurately calculated given that each supply category review will involve different variables. The costs and benefits will have to be assessed on a case by case so that specific products and contractual services can be weighed-up against each other. For example, the costs and benefits of adopting environmental sustainability as a key weighting priority for paper supply will be assessed when this contract comes up for renewal.

Of particular significance in the draft revised Procurement Policy is the focus on whole-of-life considerations. Significant cost savings and other related benefits from this approach are likely in the medium to longer-term from savings made on areas like energy consumption, manufacturing, maintenance and waste management. The Council will look to adopt best-practice procurement methods by learning from:

- previous Council procurement experiences
- the Govt3 programme
- Ministry for Economic Development's procurement standards for core government departments
- procurement methods of businesses.

This Action Plan already highlights two key procurement standards that will be implemented to prioritise emissions reduction and total-cost-of-ownership principles: the Sustainable Building Design Guidelines and the Vehicle Procurement Standard. Aside from building design and vehicles, examples of other key focus areas include:

- streetlighting technology
- facilities maintenance
- trades
- paper products and timber products
- ICT equipment and printing/copying equipment
- infrastructure services, materials and equipment (e.g. roading, drainage)
- energy contracts
- travel.

Organisational Sustainability

Action: In-House Sustainability Plan

The Council will be developing an in-house sustainability plan to engage Council staff and allow staff to take ownership in delivering initiatives. As part of the plan, the Council will look to have leaders in the organisation that promote and encourage their colleagues to make changes in the work environment. The first actions to take place under this plan are the Organisational Travel Plan and changes to the Council's internal waste management systems. Both actions are explained in more detail below.

Action: Organisational Travel Plan

The Council will implement an organisational travel plan (OTP) to promote sustainable modes of transport for the journey to and from work by Council staff. It will be targeted at employees and visitors who are both willing and able to make a change to sustainable transport. Examples of measures include those that:

- reduce the need to travel - by using technology (such as telecommuting¹¹, audio and video conferencing) and location of facilities (e.g. neighbourhood centres)
- provide alternatives to single occupancy car use - encourage ridesharing, public transport, walking and cycling
- change the time of travel e.g. through supporting consideration of flexi-hour arrangements, where appropriate.

Action: Sustainable Waste Disposal for Council Operations

The Council currently has recycling in place with in the Civic Complex and some locations in the suburbs. This project will upgrade the Council's current waste systems for all Council staff. The new system will be rolled out in stages starting with the Civic Complex and then moving onto other locations. The upgrades will include the following key components:

- implementing food waste recycling
- ensuring that standard recycling was in place in all Council buildings and facilities
- down-sizing the compactor in the Civic Complex to a smaller skip bin
- removing desk rubbish bins from staff to incentivise recycling and composting
- making staff (not cleaners) responsible for emptying their waste into the appropriate wheelie bins.

Streetlighting and Infrastructure

Action: Kilbirnie Streetlighting Trial

The Council is upgrading a small amount of aging streetlighting infrastructure in Kilbirnie to a modern, more efficient standard. The Council will be trialling new lighting technology (that has only recently been imported to New Zealand) coupled with new control technology. The streetlighting technology being trialled has the potential to deliver significant financial benefits to Wellington through two avenues:

- a different billing system
- reduced energy consumption from a more efficient lighting solution.

The monitoring results of the trial will inform the Council's future decisions about whether a wider roll-out of this technology will be beneficial financially and environmentally. These recommendations will be made to inform either the 2009/19 LTCCP or the 2010/11 Draft Annual Plan.

¹¹ This measure is dependent on access to reliable, fast broadband connections.

12. Community Action Plan

The Council's Community Action Plan on climate change will focus on six key areas in order to reduce the community's emissions and make the Wellington community more sustainable:

1. Transport and urban development
2. Sustainable behaviour change
3. Wellington as centre of excellence for research and development
4. Adapting to Climate Change: environmental, economic and social changes
5. Waste
6. Advocacy and facilitation for renewable energy generation and sustainable technology

The role of the Council as a leader and educator of community opinion, underpins all these areas.

Transport and Urban Development

Action: Continuing Travel Demand Management Implementation

The Council's Bus Priority Plan aims to increase mode shift from single passenger vehicle trips to bus trips, which will reduce congestion and reduce the amount of fossil fuels burned up on our roads. To be effective, the bus priority work must be implemented in conjunction with increased frequency of bus services and upgrades to modernise the bus fleet. The bus priority work will complement implementation of the action plans for walking, cycling and parking.

Bus Priority - Stage 1: Development of bus lanes on Taranaki, Courtenay, Cambridge

The Bus Priority measure will require strategic community engagement and consultation as there are several competing interests related to bus lane dedication. The speed of the Bus Priority work relies heavily on public acceptance of bus lane roll-outs. Funding is already in place for this initiative and the work is programmed to start in 2008.

Bus Priority – Stage 2: Bus Priority Stage 2: Alternative routes from Courtenay Place to Lambton Quay

As with stage 1, the speed at which stage 2 progresses will depend on community engagement. Funding is already in place for this initiative and the work is programmed to start in 2008-09.

Household Travel Survey

The Household Travel Survey is a comprehensive and detailed survey that will identify travel behaviour trends for Wellington commuters and residents. The

Survey will be used to inform decision making leading into the 2009/19 LTCCP on how to best leverage the Council's investment and resources relating to travel demand management and road space allocation.

Action: Compact Growth

Having compact urban form is a pivotal component of the city's urban development strategy. Encouraging growth in this manner will ensure that:

- the city's vibrant central area is maintained
- key town centres are strengthened and matured
- residents have greater accessibility to public transport and amenities
- the city is more walkable
- residents have greater transport choice and do not need to rely on private vehicle trips for commuting or for shopping.

To date Council has delivered this by clearly defining the urban edge through the District Plan and promoting new development (such as infill housing) to be located within existing urban areas.

There is a need to do much better however, particularly in the way we manage residential infill housing and intensification. To this effect, the review of infill housing identifies a need to be much more sophisticated about the location of residential infill in order to improve efficient use of resources and in order to support wider council aims to improve urban design quality and locate development where we have the infrastructure (growth spine, centres, community facilities, work, transport routes).

While District Plan rules set the baseline, a wider range of tools will be necessary to ensure that we fully achieve the Council's objectives, including quality of urban design and sustainable building design and construction. One of the potential opportunities is to facilitate demonstration projects in key areas or engage in joint ventures with developers and agencies such as Housing New Zealand.

Action: Following Through with the Broadband Vision

The Council's vision is to have a high capacity, open access, symmetrical broadband network available city-wide by 2012 so that all residents, businesses and organisations have access to these benefits. The benefits of high capacity broadband go well beyond faster internet speeds and more television channels. Based on research and case studies, there are significant opportunities to achieve meaningful emissions reductions through improved telecommunication services and access. The specific applications that can help to reduce emissions include:

- energy sector innovations (e.g. such as "smart metering", remote appliance power management, presence based power) which enable energy savings
- improved telecommuting choices (e.g. enabling individuals to work at home)
- real-time freight management that allows freight to be assigned to unladen or under laden vehicles or rail-cars

- high definition video-conferencing reducing the need for flight travel or motor travel
- linking renewable energy supplies and active load management of heating, cooling and other appliances in buildings and homes, which allows renewable energy to contribute an increased component of the electricity supply
- tele-medicine/online health services (e.g. remote diagnostics or surgery, linking elderly patients with a video nurse) that reduces the need for a patient to travel to a medical centre or a medical professional to a patient
- online education/e-learning (e.g. enabling schools to increase subject availability through videoconferencing).

Adapting to Climate Change: environmental, economic and social changes

Adapting to the effects of climate change is arguably the Council's most important role in terms of climate change planning. Council can manage infrastructure and influence development to ensure that our city is not at significant risk from climate change impacts. This means planning to reflect the forecasted environmental effects appropriately, namely:

- managing the risks to coastal communities and infrastructure from sea level rise and storm surge
- ensuring that provisions are in place for the increased frequency and severity of major storms such as adequate stormwater capacity, flood prevention and slip mitigation
- taking climate change impacts into account with planning decisions, especially in flood prone areas, coastal areas, landslide vulnerable areas and water storage.
- ensuring that Wellington has a continuous adequate water supply in the event of rainfall patterns changing sufficiently to affect water storage provisions.

Aside from the physical impacts, there are also major economic and social risks from climate change and climate change policy. These include:

- impacts to New Zealand economy from increased costs of fossil fuel derived energy (e.g. emissions trading scheme)
- impacts to the tourism and export industries from the negative perception of carbon miles
- escalating insurance premiums due to increases in climate related claims
- increased costs to ratepayers from potential large-scale infrastructure development (e.g. sea walls, major upgrades to the capacity of stormwater network)
- economic impact of natural disasters such as major storms
- impacts to New Zealand's primary product industries: agriculture, forestry and fisheries.

Making Wellington a Centre of Excellence for Sustainable Technology and Research

The Council has the opportunity to partner with industry, research institutions and universities to ensure that Wellington is New Zealand's leading centre of research and design for sustainable technology and climate change. This will mean supporting the development of renewable energy technology in the city and region and growing expertise in other areas such as energy efficiency and green building design. Wellington is one of the few capital cities in the world that could become a net exporter of renewable electricity in the medium term (2020) with the growth of wind farms in the city boundaries and the massive potential for harnessing marine energy from the Cook Strait.

One of the largest contributions the Council could make to Wellington's and New Zealand's emissions profile is to facilitate the development of more large scale renewable energy projects in Wellington. This does not mean that the resource consent process should be circumvented. On the contrary, it means that the Council should work with interested parties to ensure that options for renewable energy projects in Wellington are explored and acted upon.

Another way to make Wellington a 'centre of excellence' is to promote the New Zealand Stock Exchange (NZX) as the centre of carbon trading in Australasia. As the centre for carbon trading centre for Time Zone 1, Wellington will benefit from the growth of industry and expertise relating to carbon trading. It will also put Wellington's name on the map alongside Chicago and London as carbon trading centres. Renewable energy research and development and industry relating to carbon trading will be prime cluster areas to focus on for the Regional Economic Development Agency.

Other key relationships and partnerships the Council will attempt to develop are:

- ***Local Industry***: Partnering with key business and industry leaders in the Wellington Region to deliver joint projects, share knowledge and promote Wellington as a sustainable business hub.
- ***Partnerships with Victoria University and Massey***: strengthening collaboration to work on shared outcomes and projects.
- ***New Zealand Climate Change Centre***: role of facilitating and coordinating collaborative research to address New Zealand's needs and advise government, local government and businesses on science-based tools for adaptation and mitigation.
- ***Sustainable Cities Centre***: will work in partnership with councils and communities to develop knowledge to address key urban issues, particularly reducing emissions.
- ***ICLEI partnership***: working to maximise potential with the ICLEI partnership and developing a Wellington based awards scheme to recognise sustainability in Wellington.

Sustainable Behaviour Change

Action: Social Marketing Campaign - Facilitating Sustainable Behaviour Change in the Community

The climate change story is ongoing. While we cannot stop the effects of what we have done in the past, we can influence the future by facilitating sustainable behaviour change from residents and businesses. Taking action on climate change starts with understanding why we need to do it. There are already several solutions that exist and these can bring about other positive benefits such as economic growth, financial savings and improved local environments.

The focus of the Council should be making climate change easily understood and a prominent issue for the public. It is also necessary to increase the awareness and buy-in of what needs to be done to control climate change. This work will focus on changing people's behaviour, attitudes and perceptions of climate change and sustainability.

The challenge of getting residents and businesses adapt sustainable behaviours in significant numbers is significant. It will require a comprehensive communications and engagement plan. The Council will need to encourage and enable Wellington residents and businesses to adopt more sustainable lifestyles/behaviours such as:

- reducing the amount of energy required to heat, cool and light buildings
- changing travel modes or vehicle technology to reduce emissions from transport activities
- reduce waste going to landfill, especially organic, paper and plastic wastes
- increase water conservation.

The specific projects that will be developed in 2008/09 include:

- engagement with community groups to raise awareness of climate change and environmental issues and also provide motivation and information for changing behaviour
- building more capability in existing environmental community groups to deliver effective interventions
- developing social marketing tools to use to the community that will raise awareness, engage the public and motivate people to change.

Action: Eco Advisor

The role of the Eco Advisor is facilitate the growth of green building design and developments in the community through providing better information and improving access to incentives. The Eco Advisor is funded through grants from the Department of Building and Housing and existing resources.

Action: Consent Incentives for Sustainable Building

The Council will provide a two-year pilot scheme where incentives are provided through the consent process to homeowners that choose sustainable building solutions for areas like water heating and distributed energy generation. The funding

will be available for 2008/09 and 2009/10 with a potential review of funding for the 2009/19 LTCCP if the scheme is highly successful. The Council will look to provide incentives for around 100 households per annum through this trial programme.

Action: District Plan Incentives

Council will identify what types of incentives can be provided through the District Plan (e.g. increased height allowances) in exchange for sustainable building design features. The work will look at setting height and bulk limits that are deemed to be acceptable, and make sustainable design a requirement for achieving these maximum allowances. The key areas of focus will be:

- areas of intensification like suburban centres and residential infill
- “greenfields” development
- central city area development targeting commercial buildings and apartments.

As part of these District Plan reviews, the Council will look to remove barriers that preclude or strongly discourage sustainable building features. One improvement might be to clarify the status of roof-mounted wind turbines in terms of determining whether they should be exempt from height limits as is currently the case with TV aerials, chimneys, and “decorative features”.

Action: World Environment Day

The Council will play a coordination role with the Ministry for the Environment and community groups in planning the 2008 United Nations World Environment Day, which is being hosted by the New Zealand Government and centred in Wellington. The Council will develop events and coordinate activities to raise awareness of environmental issues, particularly around the theme of reducing dependence on fossil fuel based energy. The programme of events will present a fantastic opportunity to showcase Wellington to an international audience.

Action: Wellington Energy Advice Centre

The Ministry for the Environment is supporting a one year project submitted by the Energy Efficiency Community Network (EECN) to develop and pilot a network of Sustainable Energy Advice Centre (SEAC). The Wellington based Sustainability Trust, as a member of EECN, is interested in being the first Trust to develop a SEAC. The Council will provide assistance and support to the Trust during the pilot to ensure maximum outreach to the community. The SEAC will be linked to the following related processes:

- Home Energy Rating Scheme (HERS)
- an energy advice line established by Energy Efficiency and Conservation Authority (EECA) later in 2007
- national websites (e.g. Smarter Homes and sustainability.govt.nz)
- energy company initiatives
- Sustainable Households initiatives provided by EECA (e.g. solar water heating grants, insulation grants and loans, clean heat grants and loans).

The Council will use the experience (plus the findings from the building incentives programme and Wellington Healthy Homes programme) to identify how the Council can provide cost-effective household interventions that compliment some of the initiatives being developed by EECA and other agencies. These recommendations will be included in the 2009/19 LTCCP.

Action: Wellington Healthy Homes Project

The Wellington Healthy Homes Project is a joint project between Wellington City Council, EECA and the Capital and Coast District Health Board. The project is being delivered by the Sustainability Trust. The aim of the project is to provide insulation retrofits to 400 low-income families in Wellington City. The lessons learned from this project will be used to identify the most cost effective interventions for the 2009/19 LTCCP.

Waste

Action: Maximising Potential of Compost Plant: Subsidising Organic Waste Disposal

Around 30% of the total waste being sent to Wellington's landfill is organic. Adjusting the gate price for green waste and food waste will lead to increased provision of organic waste collection services for residential and commercial customers. Diverting organic waste to the compost plant will minimise the amount of methane produced from landfill activities.

The Government is bringing through the Waste Minimisation and Resource Recovery Bill through Parliament, which is proposing to bring a landfill levy. The Council will wait for more clarity on the outcomes of the Bill so that levy funding can be used to fund any subsidisation of organic waste disposal. Options for organic waste disposal fees will be presented through the Solid Waste Management Plan, which will be completed following the finalisation of the Bill.

Action: Public Place Recycling

The Council will be delivering the Public Place Recycling Trial over the next three years using Government grants. The initiative will raise awareness on sustainable behaviour with the public and also promote Wellington as a sustainable city to visitors.

APPENDIX 1: Comparison of Emission Reduction Targets

Corporate Emissions Reduction Targets

	Base Year	2010	2020	2025
Wellington (existing targets)	2003	stabilise	20%	
Kapiti Coast District	2001	15%	-	
Waitakere City ¹²	2001	stabilise	50%	
Auckland City			CN ¹³	
Hamilton City Council	2001	(10%)	20%	
Kaikoura District Council	2001		100%	
Carterton District Council	2001	10%		70%
Masterton District Council	2001			70%
South Wairarapa	2001	5%		70%
Taranaki Regional Council	2001	stabilise		

Community Emissions Reduction Targets

	Base Year	2010	2012	2015	2020	2050
Wellington (existing targets)	2001	stabilise	-	-	10%	-
Kapiti Coast District	2001	stabilise	-	20%	-	-
Waitakere City ¹⁴	2001	15%	-	-	40%	80%
Hamilton	2001	-	-	stabilise	-	-
Auckland City		-	-	-	CN	-
NZ Government	1990	-	stabilise	-	-	-
UK Government	1990	-	-	-	-	60%
British Columbia, Canada	2007	-	-	-	33%	-
Toronto, Canada	1990	-	6%	-	30%	80%
Brisbane City Council		-	-	-	-	CN
Vancouver, Canada	2007	-	-	-	33%	80%
Melbourne City Council		-	-	-	CN	-
Portland, Oregon	1990	10%	-	-	-	-
World Mayors Council on Climate Change ¹⁵	2007			-	30%	80%
California, USA	1990				stabilise	
Midwestern Regional Greenhouse Gas Reduction Accord ¹⁶	2007					60-80%
Colorado, USA	2005				20%	80%

12 The emissions reduction targets are per capita targets e.g. reduce the city's greenhouse gas emissions, compared to 2001 levels by 15% per person by 2010

13 CN refers to Carbon Neutrality.

14 The emissions reduction targets are per capita targets e.g. reduce the city's greenhouse gas emissions, compared to 2001 levels by 15% per person by 2010

15 Signatories include mayors of Auckland, Kapiti Coast District, Kyoto, Melbourne, Toronto, Paris, Vancouver, Stockholm, Geneva and Bonn, Germany.

16 Illinois, Iowa, Kansas, Michigan, Minnesota, Wisconsin and Province of Manitoba, CN

Overview of Global Situation

There has been a huge shift in public opinion and awareness regarding global climate change with the recent high profile reports issued by the UN's Intergovernmental Panel on Climate Change (IPCC), the Stern Report prepared for the United Kingdom Treasury Department in 2006 and Al Gore's documentary, *An Inconvenient Truth*. The IPCC reports are unequivocal in concluding that:

- most of the observed climatic warming since the mid-20th century is very likely due to increased emissions from human activities
- even if emissions levels were stabilised at 2000 levels, the earth's climate will continue to warm
- continued growth in emissions at or above existing rates will cause more intense warming and climatic changes compared to those experienced in the 20th century
- global emissions must be stabilised by 2015 and then reduced 50%-80% by 2050 to keep human induced climate change to a minimum.

The two main contributing factors to emissions are fossil fuel based energy consumption (the driver for the global economy) and deforestation for agricultural purposes. International climate treaties will be crucial to reducing global emissions and they must include the large emitting countries/regions (USA, the European Union, China, Russia, Japan, Canada, India) to be effective. There is a United Nations climate conference taking place in December, where nations will start discussing a replacement for the Kyoto Protocol.

Aside from the bullets listed above, other key developments that have influenced recommendations for the draft Action Plan, specifically for emission reduction targets, include:

- emission reduction targets of other Councils, state governments and national governments (see the reduction targets contained in Appendix 1 of the draft Action Plan)
- the urgency required to act on climate change mitigation as highlighted in the IPCC reports, the Stern Report and research produced by scientific research institutions such as NIWA
- assumptions that a progressive, post-Kyoto international treaty on emissions reduction will be reached within five years¹⁷, which will stimulate significant shifts towards cleaner technology, specifically vehicle fuel efficiency, alternative fuels, public transport investment, renewable energy technology, energy efficient appliances and building solutions and carbon sequestration.
- growing investment internationally and domestically in more efficient, cleaner technologies that consume less energy

¹⁷ To be effective, any international treaty should include the major global emitters, which includes the USA, the European Union, China, Russia, Japan, Canada and India.

- a continuing trend with industry and multi-national companies to adopt more sustainable business practices
- the International Energy Agency predicting global demand for oil could outstrip supply in the short to medium-term, which will result in significantly higher oil prices and shifts towards alternative fuels, more efficient vehicles and transport mode shifts.

Overview of National Situation

New Zealand also promotes itself as tourist destination as “100% Pure” and “clean and green”. New Zealand’s image and economy could be at risk if New Zealand adopted a business as usual approach or if tourists/consumers started to prioritise low-carbon options with their purchases.

The Government has signalled both the risks and opportunities to New Zealand from climate change. It recently released a suite of initiatives and goals relating to climate change and sustainability. The ability of the Council to achieve its reduction targets and will be heavily influenced by:

- the introduction of the New Zealand Emission Trading Scheme, which places a price on carbon emissions, and should result in a shift towards “cleaner”, less emissions intensive energy sources and technologies making low-emissions energy choices more cost effective
- the Government’s goal to have 90% of New Zealand’s electricity generation come from renewable sources by 2020
- Government Policy placing more emphasis on travel demand management and clear priority given to public transport, walking and cycling
- the Government’s goal for average fuel economy to improve by around 25% by 2015 for New Zealand’s vehicle fleet
- the outcomes of the Building Code review, which will likely require increased energy efficiency performances for new buildings and retrofits (households and commercial structures)
- the Government’s goal for New Zealand to be a leader in the uptake of electric vehicles
- the introduction of mandatory bio-fuels legislation
- the roll-out the \$23 million energywise homes initiative, which should lead to greater uptake of energy efficient building solutions.
- faster development of marine energy technology aided by \$8 million in research and development grants
- carbon neutrality goal for six large public sector agencies by 2012 and support for local government in delivering regional transport, energy strategies and improved urban design

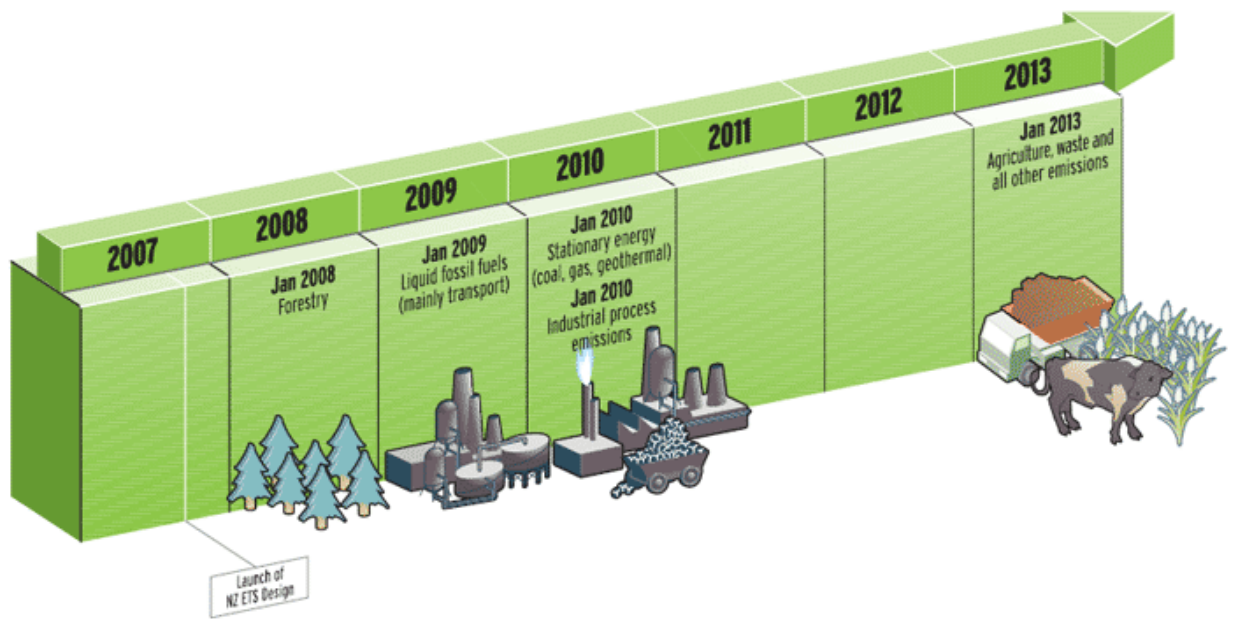
- mandatory requirement for Government departments to lease office buildings with green star ratings of 4 or better, which should create more demand for sustainable office buildings.

Aside from Government initiatives, there is an increasing move by businesses (in New Zealand and overseas) to position themselves as the sustainable choice in the market place. Some examples of New Zealand businesses following this trend are:

- Meridian Energy achieving carbon neutral verification and promoting the fact that 100% of its electricity generation comes from renewable sources
- Contact Energy linking with Mitre 10 to provide cheaper products to homeowners relating to energy efficiency
- Air New Zealand trialling bio-fuel blends in its aircraft
- Grove Mill becoming the first certified CarbonNZero winemaker in the world and doubling its sales in Sainsbury supermarkets in the UK
- Energy Mad, wholesale supplier of energy efficient light bulbs, receiving the Deloitte/ Unlimited Fast 50 award as New Zealand's fastest growing company with a growth rate in excess of 2,700%
- the growing number of businesses locating their offices in Green Star accredited buildings (e.g Bank of New Zealand).

APPENDIX 3

Timeline for the entry of sectors into the New Zealand Emissions Trading Scheme



Building type	Benchmark building capital cost \$/m ²	ESD building capital cost \$/m ²	ESD building premium \$/m ²	ESD building premium %	Annual energy cost savings \$/m ²	Annual water cost savings \$/m ²	Total annual cost savings	Simple payback	20-year
Office – low/medium ESD	2000	2130	130	6.0	11.0	0.3	11.3	10.65	-3
Office – medium/high ESD	2000	2230	230	11.5	17.0	0.6	17.6	13.09	-23
Library	2384	2494	110	4.9	7.5	0.6	8.1	17.3	32

APPENDIX 4

Indicative cost/benefit summary for case studies