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**REPORT 2**  
*(1215/52/IM)*

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## **THE DRAFT 2010 CLIMATE CHANGE ACTION PLAN**

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### **1. Purpose of Report**

To seek in principle agreement to the Draft 2010 Climate Change Action Plan and for the new initiatives to be included for consideration as part of the 2010/11 Draft Annual Plan deliberations.

### **2. Executive Summary**

The Council has recently reinforced its commitment to climate change action in the 2009-19 Long Term Council Community Plan (LTCCP). The LTCCP also recognises that the approach and priorities in this area will be influenced by a constantly changing environment which includes issues such as the global financial context, increasing demand for Council services and growing concern about climate change.

The Draft 2010 Climate Change Action Plan aims to tie proposed actions more explicitly to the Council's emission reduction targets. It has a dual focus:

|                   |  |
|-------------------|--|
| <b>Adaptation</b> | Preparing for the impacts of climate change (such as temperature and sea level rise) to safeguard the community, the environment and the economy from likely risks |
| <b>Mitigation</b> | Reducing greenhouse gas emissions, or sequestering (capturing) carbon dioxide in forests   |

The climate change actions outlined in this report are based on taking a pragmatic approach, which is fit for purpose in the current environment. They provide the foundation for a more ambitious programme when reviewed as part of the 2012/22 LTCCP. They have been developed by considering international best practice, internal discussion and input from key external stakeholders.

A number of new actions are proposed through to 2012. These are either new initiatives or actions to be achieved within existing budgets, as follows:

|  |   |
|--|---|
| <p><b>New Initiatives</b></p> <p><i>(funding implications would be considered as part of the 2010/11 Draft Annual Plan)</i></p>  | <p>The following <b>five</b> new initiatives are proposed (at a total cost of \$280k in 2010/11):</p> <ul style="list-style-type: none"> <li>• Preparing for the impacts of climate change</li> <li>• Residential Energy Efficiency</li> <li>• Business energy efficiency programme</li> <li>• Council energy efficiency programme</li> <li>• Electric vehicle pilot project</li> </ul>   |
| <p><b>Achieved within existing budgets</b></p> <p><i>(included in the Draft 2010 Climate Change Action Plan, which will be consulted on alongside the 2010/11 Draft Annual Plan)</i></p> | <p>Examples of actions include:</p> <ul style="list-style-type: none"> <li>• delivering on existing Council projects and policies with climate change benefits</li> <li>• advocating for additional central government policy and leadership in both mitigation and adaptation</li> <li>• development of a Council approach and policy for managing carbon credits and Emissions Trading Scheme (ETS) obligations</li> <li>• improving the Council’s approach to community engagement on climate change impacts and emissions.</li> </ul> |

The full list of proposed new actions is included at **Appendix A**. In addition, the Council has previously committed to a number of key actions that have associated climate change benefits (many of these referenced in the 2007 Climate Change Action Plan). For example, \$35m is included in the 2009-19 LTCCP to implement the centre plans (compact growth), the bus priority projects and walking and cycling plans.

Wellington has obvious opportunities presented by its unique characteristics such as its renewable energy resources, compact form, forest sink potential, opportunities for energy efficiency in its buildings and the development of clean-technology. Further opportunities exist for ongoing leadership and development of an ambitious vision for the city – which could make Wellington a “renewable energy capital”. The *Wellington 2040* work is examining several opportunities to improve strategies to deliver an affordable, internationally competitive city. This includes investigation of short, medium and long-term options for Wellington to embrace the concept of a low-carbon economy.

The 2007 Climate Change Action Plan committed the Council to achieve emissions reduction targets for Wellington city and for Council’s own operations. These targets remain relevant for the Council to work towards. However, an additional interim target is recommended: that the Council, the community and its stakeholders aim to achieve a 3% reduction for city emissions by the end of the 2012/13 financial year. This interim target would provide a key milestone to track progress towards the 2020 and 2050 reduction targets for the city.

### 3. Recommendations

Officers recommend that the Committee:

1. *Receive the information.*

2. *Note that Council's 2007 Climate Change Action Plan committed the Council to long-term reduction targets and has achieved good progress, such as:*
  - *developing more accurate emissions monitoring and reporting systems*
  - *developing an energy management programme delivering savings of \$50,000 annually*
  - *offering \$300 grants to households for installation of sustainable energy solutions (30 taken-up to date)*
  - *removing barriers to installation of solar hot water heating systems through amendments in the District Plan.*
  - *gaining approval in principle for an Energy Efficiency and Conservation Authority grant (\$500,000 over four years) to assist with the cost of insulation for the council housing upgrade programme.*
  
3. *Agree that the approach for the Draft 2010 Climate Change Action Plan should be to:*
  - *focus on the dual aspects of mitigation and adaptation*
  - *shift the mitigation focus to community emissions, while also enhancing organisational actions*
  - *adopt an interim emissions reduction target for community emissions of 3% by June 2013*
  - *build on the city's distinct advantages, past decisions and key opportunities*
  - *develop a series of pragmatic actions which are linked to targets and achievable in the short-term*
  - *continue to grow Wellington's leadership role and opportunities*
  - *provide the foundation for further advancing climate change work as part of the 2012/22 LTCCP*
  - *present the diverse opportunities and action being undertaken across Council activities that has climate change benefits.*
  
4. *Agree to the five new initiatives (with additional funding implications) to be included for consideration as part of the Draft Annual Plan deliberations (2010/11). The new initiatives are:*
  - (a) *Preparing for the impacts of climate change*
  - (b) *A residential energy efficiency programme*
  - (c) *Business energy efficiency programme (eMission)*
  - (d) *Council energy efficiency programme*
  - (e) *Electric vehicle pilot project*
  
5. *Agree that the Draft 2010 Climate Change Action Plan be considered by Council in March 2010 and consulted on in conjunction with the 2010/11 Draft Annual Plan.*

## 4. Background

### 4.1 The 2009-19 LTCCP

Global warming is now unequivocal, with evidence of increased air and ocean temperatures, widespread melting of snow and ice and rising sea level. The world's leading climate scientists agree that it is very likely (90% certain) that human activities are causing climate change.

The 2009-19 LTCCP recognises the importance of climate change for Wellington. The Council has committed to a three-year priority of taking steps to reduce the Council's and the city's greenhouse gas emissions. The LTCCP also recognises that the strategic approach takes place in a complex "*environment of economic uncertainty, pressure on household budgets, **growing concern about climate change**, competition from other cities, changing technology, and demand for services from a population that is growing, ageing, becoming more diverse, and expecting more from Council services.*"

The two broad areas of focus for the draft 2010 Climate Change Action Plan are:

- **Adaptation:** Preparing for the impacts of climate change, such as temperature and sea level rise, to safeguard the community, the environment the economy from likely risks
- **Mitigation:** Reducing greenhouse gas emissions, or sequestering (capturing) carbon dioxide in forests

A range of work is being delivered in the 2009-19 LTCCP, which has a strong inter-relationship with climate change, including: the compact growth centres programme, travel demand management (including the bus priority projects and walking and cycling plans, with over \$35m in Council funding budgeted in the 2009-19 LTCCP). For a list of significant Council projects with climate change benefits (either completed or underway) see **Appendix B**.

### 4.2 The 2007 Climate Change Action Plan

The Council has already demonstrated leadership and made substantial commitments to respond to climate change. This has included:

- initiating a process to measure and report on greenhouse gas emissions
- agreeing to a Climate Change Action Plan in 2007, greenhouse gas emissions reduction targets and a carbon neutral vision, to deliver:
  - improved emissions monitoring and reporting through use of best practice international guidelines
  - continued development of the Council's energy management programme to improve the efficiency of energy used in Council facilities
  - initiating a Council fleet review and organisational sustainability projects to improve resource efficiency and reduce costs

- delivering programmes aimed at reducing energy consumption in households such as a \$300 grant for sustainable energy installations
- continued support for the Government's home insulation programme
- development of the landfill gas electricity plant, producing enough energy to power 1,000 homes
- ongoing development of the compact growth programme and transport policies
- supporting the sustainable business programme *eMission*
- participating in key climate change fora including:
  - the Australasian Mayors Council for Climate Protection
  - national and international climate change meetings for cities (including the upcoming C40 Climate Summit for Mayors in Copenhagen).

### **4.3 Adaptation: Council's role**

A range of impacts resulting from climate change will affect Wellington. For example, much of Wellington city and region's economic, social, cultural and environmental assets are located in coastal areas potentially exposed to sea level rise. It is imperative that climate change impacts are recognised early and risks are properly identified, planned for and responded to. Climate change is likely to have an impact through:

- coastal hazards from sea level rise such as increased erosion and storm surge events
- difficulty in maintaining water supply in the summer months due to reduced rainfall, higher temperatures and increased demand
- surface flooding from extreme rainfall events in low lying and coastal areas
- slips, high winds, and storm surge from extreme weather events, resulting in damage and disruption (e.g. damage to roading and property).

#### **4.3.1 Legislative responsibility to protect the public**

The Council has a responsibility to protect residents, property and infrastructure from the impacts of climate change. This responsibility is encompassed in legislation such as the Resource Management Act, the Local Government Act, the Building Act, and the Civil Defence and Emergency Management Act. Climate change impacts are also a key consideration for Wellington's long-term future where features of the city that are valued should be adequately protected.

The Council's role includes designing stormwater systems and coastal defences that can withstand significant storm events, and managing water supply networks to cope with dry years. The Council must use climate change science to inform its asset management planning so that decisions made now will address increased risks in the future. Implementing renewals, upgrades or new

developments that carefully incorporate impacts from climate change will ensure that the cost and risk is equitably shared between present and future generations. Currently, Asset Management Plans (AMP's) are required to consider risks, including those that are likely from climate change. The Council has recognised the high risk status of climate change and is monitoring this through the Audit and Risk Management Sub-Committee.

#### 4.4 Mitigation: Council's role

Cities and urban areas are estimated to be responsible for 75% of all greenhouse gas emissions worldwide<sup>1</sup>. Reducing energy use and emissions in cities is therefore fundamental in the global effort to reduce the impact on the environment. Like other global challenges, no single country, region, or city can do it alone.

The 2007 Climate Change Action Plan committed the Council to achieve the following **emissions reduction** targets:

|                             | <b>Base Year</b> | <b>2010</b> | <b>2020</b> | <b>2050</b> |
|-----------------------------|------------------|-------------|-------------|-------------|
| <b>Wellington community</b> | 2001             | stabilise   | 30%         | 80%         |
| <b>Council operations</b>   | 2003             | stabilise   | 40%         | 80%         |

The Council has the ability to directly influence these targets through provision of Council services. These include services such as urban planning and public space development, transport planning, transport networks and parking, construction guidance and development control and facilitation.

The Council can demonstrate strong leadership in the community by developing projects that reduce emissions and facilitate a transition to a low-carbon economy. This also includes planning for the Council's new direct and indirect liabilities under the Emissions Trading Scheme

Preliminary analysis of trends in Council corporate emissions has shown a reduction of around 25% since 2003. Most of this reduction is a result of changes to the amount of methane generated from the landfill<sup>2</sup>. It is estimated that Wellington city's emissions have increased by 5% between 2001 and 2007<sup>3</sup> based on trends in national emissions.

<sup>1</sup> C40 Cities: Climate Leadership Group. <http://www.c40cities.org/about/goals.jsp>

<sup>2</sup> Further analysis is proposed to assess landfill greenhouse gas emissions in detail.

<sup>3</sup> This excludes greenhouse gas removal from forest growth and is mainly driven by increasing energy use for transport and electricity. Improved estimates of emissions trends for Wellington city will be made when the city's emissions inventory is updated in 2010.

#### 4.4.1 The Emissions Trading Scheme (ETS)

The ETS is placing a cost of carbon on the economy. Globally carbon constrained economies are likely to be a feature of the 21<sup>st</sup> century. With the passage of the ETS and continual development of international carbon markets, the products and services we pay for will increasingly include the cost of carbon<sup>4</sup>. The ETS is the primary national mechanism to ensure that greenhouse gas emitters take responsibility for their emissions. Households, businesses, industries and communities that start transitioning towards reduced carbon consumption will become more resilient. Those that do not may experience negative financial impacts.

##### *Waste emissions*

As a landfill operator Wellington City Council will be a designated 'point of obligation' within the waste sector from 2013. This means that Council will be required to surrender carbon credits for all direct greenhouse gas emissions from landfill activities (Southern and Spicer). In addition, the Waste Minimisation Act (2008) requires the Council to develop a comprehensive *Waste Management and Minimisation Plan* by 2012. A scoping paper on the *Waste Management and Minimisation Plan* will be presented to Committee in June 2010. There are clear overlaps between the Council's role in minimising waste and reducing emissions from landfill operators.

##### *Forest sinks*

The forestry sector entered the ETS in 2008 and the Council is able to receive or surrender carbon credits for eligible forestry activities. The Council approved the dedication of certain native and exotic forests into the ETS and Permanent Forest Sink Initiative (PFSI) in April 2008 and the application process is currently underway. The Council is already receiving 784 emission units annually through plantation forest growth in Clelland Forest.

##### *Carbon Management Policy*

To manage the Council's ETS obligations and the administration of carbon credits, the Draft 2010 Climate Change Action Plan includes development of a *Carbon Management Policy* (scheduled on the forward programme for September 2010). The Council will be subject to indirect costs from the ETS from 1 July 2010 (when the transport and energy sectors come into effect) but these additional costs have already been factored into the Council's budgeting. The Carbon Management Policy will propose guidance for how the Council will make decisions and plan for:

- developing short, medium and long-term cost mitigation policies for the ETS
- managing and reporting on the Council's ETS landfill liability (including how the liability will be funded)
- developing purchasing and trading strategies for emissions units
- reporting on the Council's emission unit assets
- identifying how the Council will use potential revenue from forest sinks.

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<sup>4</sup> The final form of the ETS is subject to political agreement at the time of writing.

#### 4.5 Climate change opportunities

Climate change presents opportunities for Wellington that can help the Council fulfil its vision for the city being “vibrant, internationally competitive, and affordable”. The draft 2010 Climate Change Action Plan identifies opportunities for Wellington to be recognised internationally as a leader in sustainability by pursuing a range of approaches, such as:

| <b>Strengths</b>   | <b>Opportunities</b>  |
|--|---|
| Abundant renewable wind and marine resources   | Becoming internationally recognised for renewable energy development, expertise and supporting infrastructure |
| Innovative and creative businesses and research agencies with international expertise in climate change and clean technology solutions | Becoming renowned for green building and development of new clean-technology solutions                        |
| Compact city form and high public transport patronage  | Higher density development along primary transport routes   |
| Historic preservation and restoration of green belts   | Maintaining and developing forest sinks   |
| Motivated, educated and environmentally responsible residents  | Engagement with communities to enhance climate change actions and outcomes                                    |

The Council can work to emerge from the current economic context with a clear focus on developing a low-carbon community. Actions to reduce emissions can create jobs, support the development of new clean technology industries and exports, and improve business profitability and community resilience.

Specific opportunities also exist to address current areas of challenge, such as improving the energy performance<sup>5</sup> of buildings (particularly homes) including the standard of insulation and orientation to take advantage of natural light and heating. Like much of New Zealand, Wellington’s housing stock does not use energy efficiently. Many homes and even some commercial buildings currently perform very poorly in terms of international standards and benchmarks. For example, the average winter temperature of New Zealand homes is below World Health Organisation standards. The government scheme “Warm Up New Zealand” is providing \$350m over 4 years to improve home insulation and heating in New Zealand homes. Competitive cities need housing stock that is comfortable, healthy and built to high standards. The Council agreed to promote the scheme and leverage 3<sup>rd</sup> party funding as part of the 2009-19 LTCCP in order to increase the number of retrofits in Wellington.

Many of these opportunities are being explored through the Draft 2010 Climate Change Action Plan but some of the more ambitious options need to be considered as part of a broader city visioning exercise. For example, the Council can further position Wellington as a leader in this field by enhancing

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<sup>5</sup> In this context, energy performance is a qualitative term relating to how well our buildings are insulated, the energy efficiency of heating devices, ventilation systems, appliances, lighting and water heating systems and design factors such as optimal orientation and the placement of eaves.



partnerships across the city and potentially an ambitious vision for the city as a “renewable energy capital”, where the amount of renewable energy produced in Wellington City is equivalent to or exceeds the total energy needs. The *Wellington 2040* project will provide an opportunity to look at this and other goals and actions that can transition Wellington towards a low-carbon economy. This in turn will influence the development of further actions as part of the 2012-22 LTCCP. A paper on the *Wellington 2040* project will be presented to Committee in June 2010, reporting on the vision, issues and opportunities based on consultation and analysis.

## 5. Discussion

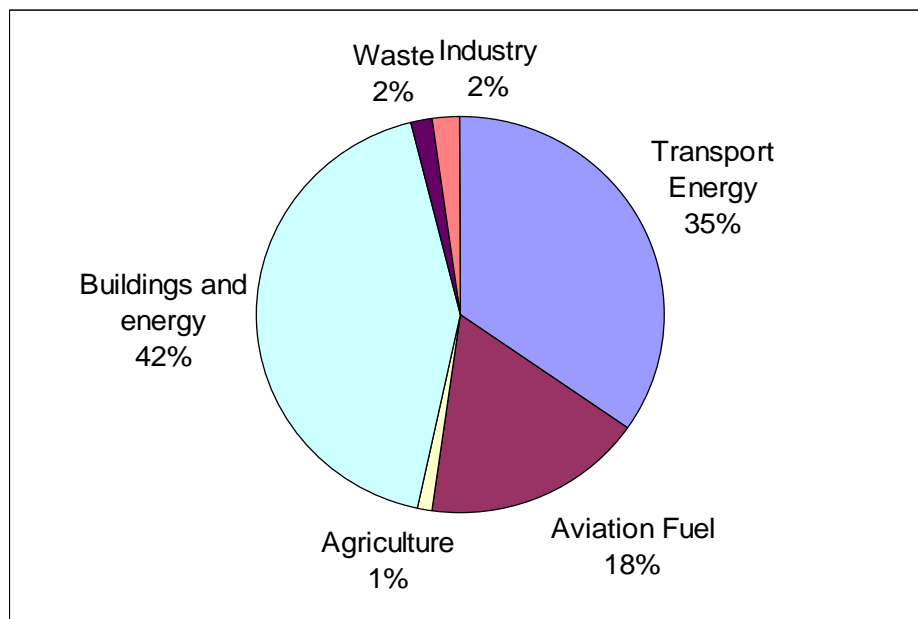
### 5.1 Wellington city emissions

Wellington city’s emissions profile is dominated by emissions associated with energy consumption:

- Electricity, gas and coal in buildings (42% of the total)
- Petrol, diesel and LPG usage<sup>6</sup> (35% of the total)
- Aviation fuel (18% of the total).

Wellington’s total greenhouse gas emissions in the 2006/07 financial year were 1.2 million tonnes of CO<sub>2</sub> equivalent. The split of this total by sector is shown in Figure 1. Forest sinks in Wellington have the effect of offsetting total emissions by 4%.

Figure 1: Wellington city’s emissions by source (2006/07)



Source: Greenhouse Gas Inventory Report 2006/07 (Landcare Research)

<sup>6</sup> The inventory reporting does not currently separate energy for maritime transport, ferry operations, diesel buses and the electricity/diesel used for rail. Such improvements may be possible as we continue to refine the inventory. Our current assumption is that this fuel is all consumed by land transport.

## 5.2 Action areas

The recommended actions for the Draft 2010 Climate Change Action Plan relate to seven key areas:

| <b>Focus</b>      | <b>Action Area</b>   |
|-------------------|----------------------|
| <b>Adaptation</b> | Adaptation planning  |
| <b>Mitigation</b> | Buildings and Energy |
|                   | Land Transport       |
|                   | Waste                |
|                   | Forestry             |
|                   | Council Operations   |
|                   | Aviation             |

For mitigation, the action areas focus on the largest sources of emissions. Given the importance of energy in city-wide emissions, the Council's approach and priority is on reducing emissions from **Buildings and Energy, Land Transport and Aviation**. Together, these three energy-related action areas represent close to 95% of Wellington's total emissions.

The other three sectors were identified as action areas for the following reasons:

- **Waste:** though it only represents around 2% of the city's emissions, the waste sector is important to the Council because of future liabilities under the Emissions Trading Scheme (ETS) to acquire or purchase emissions units to match landfill emissions.
- **Forestry:** forest sinks are currently the only activity that removes carbon dioxide from the atmosphere and the Council owns a large amount of land that is eligible for emission units under the ETS. The Council is also working with land-owners to protect and develop biodiversity on private land, which has linkages with development of forest sinks.
- **Council operations:** the Council continues to demonstrate leadership within the community by reducing its own emissions, with a focus on reducing the use of electricity and gas.

## 5.3 Emission Reduction Targets

The Draft 2010 Climate Change Action Plan aims to improve the relationship between the actions and emission reduction targets. The targets (agreed to in 2007) are based on advice from the Intergovernmental Panel on Climate Change (IPCC) as well as reduction targets of leading municipalities and governments internationally. Many of the actions agreed in the 2007 Climate Change Action Plan have been achieved. However, further efforts are needed to achieve the agreed targets.

Whilst it is still imperative to use the advice from the IPCC and other scientific agencies to inform the debate relating to reduction targets, it is also important that Wellington's reduction targets realistically reflect the actions that have been

agreed to by the Council, its key partners and the community. Ideally, the reduction targets will reflect both the scientific consensus views on reducing emissions as well as what the Council, its key partners and the community are able to implement.

It is extremely difficult to predict variables such as global climate change policy development, technology innovation and uptake, and carbon prices. These global factors will be hugely influential in whether Wellington meets its 2020 and 2050 targets. Significant policy, technology and behaviour change will be necessary for Wellington to achieve these targets. However, these targets remain relevant for the Council to work towards.

An additional interim target is recommended: that the Council, the community and its stakeholders aim to achieve a 3% reduction for city emissions by the end of the 2012/13 financial year. An interim target provides a key milestone to track progress towards the 2020 and 2050 reduction targets for the city. Much of the progress toward the interim target can be made through the actions outlined in the 2010 draft Climate Change Action Plan. Progress against this plan will be reported through the quarterly and annual reporting processes.

|                             | <b>Base Year</b> | <b>2010</b> | <b>2013</b> | <b>2020</b> | <b>2050</b> |
|-----------------------------|------------------|-------------|-------------|-------------|-------------|
| <b>Wellington community</b> | 2001             | stabilise   | 3%          | 30%         | 80%         |

### 5.3.1 Emissions reduction potential of Council actions

The following table outlines key projects where emissions reductions can be achieved.

| <b>Action</b>  | <b>Emissions Reduction Potential (T-CO<sub>2</sub>-e Reduced)</b> |
|--|---|
| Spicer Landfill Gas Capture                          | 7,800   |
| Household energy efficiency retrofits                | 1,300   |
| Converting sludge to energy                          | 1,250   |
| Business energy efficiency programme                 | 1,125   |
| Warm Up NZ Scheme                                    | 460   |
| Private forest conversions                           | 300   |
| Energy Management Programme                          | 185   |
| MOU with Wellington Airport                          | 210   |
| Council fleet management programme                   | 50  |
| Council planting programme                           | 36  |
| Community engagement -voluntary household changes    | 10,500  |
| Facilitating mode shift from private vehicle trips   | 3,130   |
| <b>Total (CO<sub>2</sub>-e reduced)</b>              | <b>26,346</b>   |
| <b>Total (as a % of Wellington City's emissions)</b> | <b>2.3%</b>   |

## **5.4 Proposed Approach**

Actions identified in the Draft 2010 Climate Change Action Plan represent a pragmatic approach in responding to climate change, with scope for ongoing development. The actions recommended for consideration in the 2010/11 Draft Annual Plan have been chosen on the basis of a range of factors including:

- existing decisions made by Council
- building on the progress achieved to-date on the 2007 Climate Change Action Plan
- the likely risks faced from climate change
- analysis of emissions and identification of priority sectors
- value for money
- proven levels of success elsewhere
- identification of co-benefits (such as job creation or improved health)
- advice from climate change experts and input from the Council's Environmental Reference Group (ERG)
- level of collaboration and interest from key partners locally, regionally and nationally
- ease of implementation.

The actions presented in the following sections are categorised into two areas:

- New initiatives seeking additional funding, and proposed for consideration in the Draft Annual Plan 2010/11 (section 5.5)
- Actions delivered within current funding levels (section 5.6)

The draft 2010 Climate Change Action Plan provides a strong foundation to launch a more ambitious programme for the 2012/22 LTCCP, if such an approach is required.

## **5.5 New initiatives seeking additional funding**

The five proposed new initiatives focus on key cost-effective measures for improving our preparedness and reducing our emissions. The following table summarises the costs associated with these initiatives for the financial years 2010/11 and 2011/12. Ongoing funding would be reassessed as part of the priorities to be agreed during the 2012/22 LTCCP process:

| <b>Initiative</b>                           |              | <b>2010/11<br/>(\$000)</b> | <b>2011/12<br/>(\$000)</b> | <b>Total</b>     |
|---|--------------|----------------------------|----------------------------|------------------|
| Preparing for the impacts of climate change |              | \$30<br>(OPEX)             | \$100 (OPEX)               | \$130<br>(OPEX)  |
| Residential Energy Efficiency               |              | \$100<br>(OPEX)            | \$100<br>(OPEX)            | \$200<br>(OPEX)  |
| Business energy efficiency programme        |              | \$25<br>(OPEX)             | \$25<br>(OPEX)             | \$50<br>(OPEX)   |
| Council energy efficiency initiatives       |              | \$50<br>(CAPEX)            | \$150<br>(CAPEX)           | \$200<br>(CAPEX) |
|   |              | \$25<br>(OPEX)             | \$25<br>(OPEX)             | \$50<br>(OPEX)   |
| Electric vehicle pilot project              |              | \$50<br>(CAPEX)            | ---                        | \$50<br>(CAPEX)  |
| <b>TOTALS</b>                               | <b>OPEX</b>  | \$180                      | \$250                      | \$430            |
|   | <b>CAPEX</b> | \$100                      | \$150                      | \$250            |
| <b>GRAND TOTAL</b>                          |              | \$280                      | \$400                      | \$680            |

### 5.5.1 Action 1: Preparing for the impacts of climate change

#### *Purpose*

This initiative aims to gather better information on vulnerabilities, and develop a strategic approach on how to consider, prioritise and respond to climate change impacts across the city and region. This must be implemented in conjunction with the community. While the Council has access to regional climate change data (for New Zealand and for the Wellington Region) on impacts such as temperature increases, precipitation changes, sea level rise and major storm events, much more detailed local information is needed. This initiative has two inter-related parts:

#### *Part 1 - Regional coastal study*

The Council would expand on previous research on sea level rise by contributing to a detailed regional coastal study led by Greater Wellington Regional Council. Greater Wellington Regional Council is seeking funding commitments from Councils within the region toward a total cost of around \$200k. The study will be initiated in early 2010 with preliminary results and reports ready by early 2011. It is recommended that the Council contribute \$30k in 2010/11. The Council's funding would be contingent on analysis and reporting results for Wellington City being completed first so that they can inform relevant policy work such as the Eastern Suburbs Framework. This study provides the opportunity to carry out a cost effective research project in partnership across the region, with major benefits for Wellington city.

#### *Part 2 - Wellington city vulnerability assessment*

The second stage of the Council's climate change vulnerability assessment would commence in 2011/12, following the work completed internally to investigate the impacts of sea level rise in the Kilbirnie area. Similar scoping work would be carried out for other areas of the city (such as the central city, the

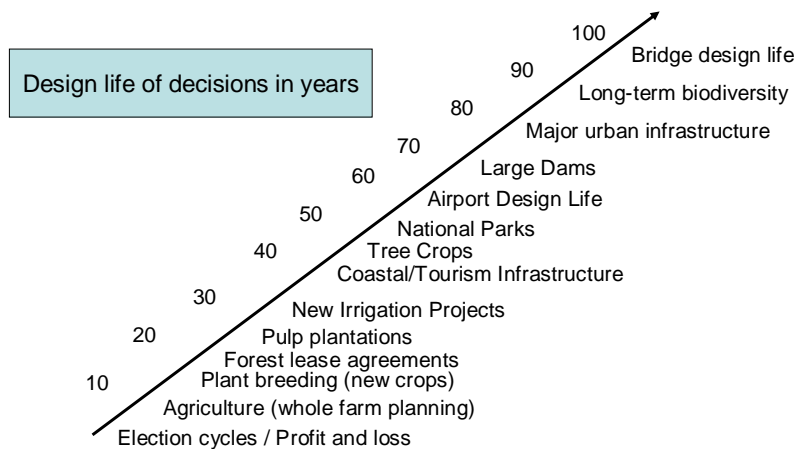
eastern suburbs, and the Hutt road). These vulnerability assessments will examine local conditions (e.g. the topography or infrastructure capacity of an area) and apply various climate impact scenarios. From a scenario analysis, we can identify where vulnerabilities exist and likely response options.

Funding is sought in 2011/12 to carry out further, more detailed analysis for those areas identified as the most vulnerable locations. This would assess possible climate change impacts and response options involving studies, input and advice from experts such as engineers, hydrologists and climatologists.

Benefits

This initiative is about safe-guarding Wellington’s future and ensuring that informed thinking goes into asset management decisions. Through proper design of new assets or those scheduled for renewal or upgrade, we can reduce risks and adaptation costs can be shared across present and future generations. Some Council assets have very long life-spans (50-100 years). The figure below outlines the approximate “design” life of certain decisions. It illustrates that for urban infrastructure, a decision made now will often continue to be of significance to Wellingtonians in 2050 or even 2090.

Design life of decisions and assets



(R. Jones CSIRO, from “Climate change in S Australia”, 2002)

Relationship to existing or planned work

This work has a relationship to several pieces of Council policy work as well as other work being carried out by the Regional Council and Government. This includes:

- **the District Plan review** – the outcome of the studies from this initiative could be used to inform the District Plan by re-mapping hazard areas based on climate impacts

- **studies by NIWA and Victoria University (VUW)** – the Council is partnering with NIWA and VUW on projects<sup>7</sup> to assess the impact of climate change on Wellington infrastructure/urban form and community health and cohesion.
- **Asset Management Plans** – The proposed vulnerability studies would be used to inform options for the Council’s Asset Management Plans (AMPs). Amendments to AMPs would be made through the 3-yearly review process.
- **other Council work** – Initial analysis of the impacts of sea level rise has taken place as part of the Kilbirnie Town Centre work. The future security of the city’s water supply is being addressed through development of the Council’s Water Conservation Plan.
- **national and international climate science** – the field of climate change adaptation is rapidly evolving. MfE have prepared guidance on climate impacts at a local government level that can be used for broad-level assessments. Cabinet is currently considering a National Environmental Standard for sea level rise so that all planning authorities in New Zealand use a common figure. Internationally, research into climate impacts at a global and regional level will be used to inform Council’s work where applicable. It is important to note that projections, such as rates of sea level rise, are likely to change as the evidence and modelling improve and this could include significant increases in expected sea level rise.

Timeframes and costs for this work

The first study would be completed in partnership with the Wellington Regional Council at a cost of \$30k in 2010/11. This is to be followed by further detailed analysis across Wellington city, with particular focus on areas identified as most at risk. The specific risks and response options will be assessed involving input from expert consultants (\$100k 2011/12).

|      | <b>2010/11<br/>(\$000)</b> | <b>2011/12<br/>(\$000)</b> | <b>Total<br/>(\$000)</b> |
|------|----------------------------|----------------------------|--------------------------|
| OPEX | \$30                       | \$100                      | \$130                    |

### 5.5.2 Action 2: Residential Energy Efficiency

Purpose

International studies consistently show that household and commercial building energy efficiency projects are the easiest and most cost-effective measures for reducing greenhouse gas emissions. Studies conducted in New Zealand have shown similar results.

This initiative aims to reduce emissions associated with household energy consumption by establishing a programme that would provide incentives to households for low-cost energy retrofits, namely:

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<sup>7</sup> Both projects are in their early stages and are one part of a number of case-studies across New Zealand. The VUW project will examine the impact of water shortages on supply/demand issues. The NIWA project is to focus on slope stability issues resulting from more intense rainfall.

- energy efficient lighting
- low-flow shower-heads
- hot water cylinder wraps.

The initial performance target being considered is to retrofit between 1,000 and 1,500 homes per annum with at least one of the options identified above. The programme would involve establishing partnerships with Government, the private sector and regional partners.

### Benefits

These retrofits would deliver easy, affordable opportunities for improving household energy efficiency that provide very high return on investment. Analysis shows that, on average, lighting replacement, hot water cylinder wrap and low-flow shower head replacement has the highest payback of a range of potential household initiatives. Lighting replacements, in particular, pay for themselves within six months. If 1,500 households were retrofitted annually from 2010/11, approximately 1,300 T-CO<sub>2</sub>-e would be saved per annum.

Projects offering low-cost financing or incentives for residential energy efficiency are common in cities that have well established emissions reduction programmes. Due to their cost effectiveness, these type of projects also contribute to the vision of Wellington as an affordable city.

Critical success factors for the programme include:

- the ability of the Council to create funding partnerships with 3rd parties
- working with existing insulation and heating service providers as well as trade associations (e.g. master plumbers) to develop implementation options
- working with the Government and the Regional Council to identify partnership opportunities and ensure the programme complements the 'Warm Up NZ' scheme.

### Relationship to existing or planned work

Reducing water consumption by including low-flow shower heads would assist with achievement of the Council's Water Conservation Plan. A residential energy efficiency programme would also complement home energy programmes underway currently. The Government has put in place the "Warm Up New Zealand" scheme, involving improvements to home insulation and energy efficient heating. The scheme is designed to address the significant national problem of older poorly insulated homes, which are expensive and difficult to heat. Over 180,000 homes will receive funding to install insulation or clean heating devices such as heat pumps or wood burners from 2009/10 to 2012/13. On a pro-rata basis, this translates to over 8,000 retrofits for Wellington City. The Council has already agreed to allocate \$35k per annum over 3 years to leverage 3rd party funding (i.e. in partnership with business and others) and promote the Warm Up NZ programme in Wellington.

Projects targeted at households also have overlaps to the Council's effort to engage on climate change issues. Residents often feel empowered that they are making a positive contribution to reducing emissions and this action could be a



useful tool to engage on other issues such as waste minimisation or encouraging more trips by walking, cycling and public transport.

Greater Wellington Regional Council is also introducing a funding mechanism<sup>8</sup> allowing ratepayers accessing the Warm Up New Zealand scheme to spread the cost of their upgrade over a nine-year period (ie, paid back via their rates bill). The mechanism will incur interest and a small administration fee.

Timeframes and costs for this work

The funding for this initiative would be used for subsidising and promoting energy retrofits in households.

|      | <b>2010/11<br/>(\$000)</b> | <b>2011/12<br/>(\$000)</b> | <b>Total<br/>(\$000)</b> |
|------|----------------------------|----------------------------|--------------------------|
| OPEX | \$100                      | \$100                      | \$200                    |

### 5.5.3 Action 3: Business energy efficiency programme

Purpose and rationale

Businesses who occupy commercial or industrial buildings are responsible for around 50% of total emissions from the action area “Buildings and Energy” (or around 20% of Wellington’s total emissions). Energy efficiency opportunities in buildings have been shown to provide high return on investment in terms of emissions reduction opportunities, similar to that described for residential buildings (section 5.5.2).

The purpose of this programme is to reduce energy consumption (and the associated emissions) for Wellington businesses. This initiative involves making a 3-year commitment to the *eMission* programme which helps small to medium sized businesses monitor and reduce energy, water and waste.

Benefits, context and costs

The *eMission* programme is managed by the Greater Wellington Regional Council in partnership with the Wellington City Council, Hutt City Council, Porirua City Council, the Ministry of Economic Development and the Energy Efficiency and Conservation Authority. It aims to help businesses (mostly small to medium sized enterprises) reduce their carbon footprint, reduce waste and attain a recognised certification of environmental performance. This is the first programme in New Zealand to offer this combination of services to businesses. The Council has had involvement supporting *eMission* and *eMission’s* predecessor (*EnviroSmart*) for the past three years as a pilot project.

While many businesses are interested in becoming more sustainable (or required to do so under contracts) they often do not have the resources or information to change. Certainly the majority of feedback from businesses participating in *eMission* (and *EnviroSmart*) has been that they needed a guiding hand to get them on the path to more sustainable business practices.

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<sup>8</sup> The Greater Wellington Regional Council scheme is anticipated to be operational from December 2009

This initiative would involve collaborating with the Regional Council, Government, private sponsors, other local authorities and businesses to establish a funding and implementation partnership. Each year, we would aim to involve 25 businesses in Wellington city with an average reduction target of 5 T-CO<sub>2</sub>-e per business (giving a total emissions reduction of 125 T-CO<sub>2</sub>-e per annum). The cost of this programme would be \$25,000 per annum through to 2019, with funding used for recruiting businesses, facilitating workshops, and conducting waste and energy audits.

|      | <b>2010/11<br/>(\$000)</b> | <b>2011/12<br/>(\$000)</b> | <b>Total<br/>(\$000)</b> |
|------|----------------------------|----------------------------|--------------------------|
| OPEX | \$25                       | \$25                       | \$50                     |

#### **5.5.4 Action 4: Council energy efficiency initiatives**

The Council spends approximately \$6m on electricity and natural gas per annum. Consumption of this energy results in greenhouse gas emissions of more than 15,000 T-CO<sub>2</sub>-e annually (around 39% of the emissions from Council operations). Reducing energy consumption in Council operations will both reduce emissions and result in financial savings. Based on projects implemented since 2007, the Council is saving approximately \$50,000 and reducing greenhouse gas emissions by 116 T-CO<sub>2</sub>-e per annum.

##### Purpose

The purpose of this initiative is to reduce energy consumption in Council operations through further investment in capital energy efficiency projects and changes in facility and equipment operations. It would involve:

- committing to the Energy Management Programme out to 2011/12 within the LTCCP (currently the capital expenditure ceases after 2010/11)
- increasing the scale of the programme, focusing on facilities to be used in the Rugby World Cup 2011 as well as the most energy intensive facilities
- considering ways to improve on the existing energy management framework that exists for Council operations.

##### Benefits

Effective energy management planning will help to reduce the Council's exposure to energy cost increases as a result of inflation as well as the costs from the ETS. Demonstrating a commitment to energy efficiency in Council facilities and meeting environmental standards is part of the Wellington's environmental sustainability commitment to hosting the Rugby World Cup 2011.

##### Relationship to existing or planned work

The Council is already delivering an Energy Management Programme. It was agreed as part of the 2006/16 LTCCP. The Council employs a full-time energy manager who monitors and evaluates the Council's energy consumption to look for opportunities for savings.

The Energy Manager uses a capital fund of \$100,000 to invest in energy efficient technologies for Council operations. Some of the recent projects have included:

- installing solar hot water heating on the Evans Bay changing facilities
- installing solar PV cells on the Makara Cemetery toilets
- lighting improvements to the Michael Fowler Centre
- improved account management.

*Timeframes and costs for this work*

This initiative will involve additional capital expenditure of \$50,000 in 2010/11 and \$150,000 per in 2011/12. The increase in capital expenditure from 2011/12 and beyond is because the Energy Management Programme originally had five years of funding attached to it (which currently ceases after 2010/11). It also increases the operational expenditure by an additional \$25,000 per annum to be used for energy assessments, audits and design work.

|       | <b>2010/11<br/>(\$000)</b> | <b>2011/12<br/>(\$000)</b> | <b>Total<br/>(\$000)</b> |
|-------|----------------------------|----------------------------|--------------------------|
| OPEX  | \$25                       | \$25                       | \$50                     |
| CAPEX | \$50                       | \$150                      | \$200                    |

Capital investment opportunities will only be taken up where costs would be fully offset by operational cost savings over the life of the asset. Preference will be given to opportunities that have a five-year payback or less. Capital projects tend to be the most cost-effective when timed to coincide with an existing renewal or upgrade. The funds from the energy management programme can be used to top-up funding already included in Asset Management Plans. There are also cases where cost effective opportunities exist outside of renewal or upgrade programmes.

The Council’s goal is to become more sophisticated with the financial savings from energy management so that they are ring-fenced to make the programme more self-sustaining.

**5.5.5 Action 5: Electric vehicle pilot**

*Purpose*

The purpose of this initiative is to work with key stakeholders and private partners to develop a pilot for electric vehicles in Wellington. Due to short commute distances, the city’s compact form, and growing inner city resident numbers, Wellington is well placed to take advantage and be an early adopter of electric vehicle technology. With further development of local and national renewable resources, Wellington becomes a very attractive place to own an electric vehicle with the potential for wind and marine energy to fuel Wellingtonians commuting, shopping or recreational transport needs.

*Benefits*

The most significant gains to be made with reducing emissions from the transport sector relate to changing vehicle technology, either through more

efficient engines or new fuels. Electric vehicles, hybrids and biofuels appear to be where most of the research and development is centred.

In New Zealand we use grid electricity that is mostly generated from renewable sources (60-70% depending on the year), so emissions benefits are far greater than for other countries.

Though significant uptake of electric vehicle technology will not be experienced until the end of the next decade<sup>9</sup>, the Council can develop partnerships and policies that provide an encouraging environment for businesses to switch their fleet to electric vehicles.

#### Relationship to existing or planned work

The private sector – vehicle manufacturers and electricity retailers – would be critical to any programmes involving electric vehicle imports into New Zealand. As such, the private sector is leading the way on the research and technology development in this area. A recent report commissioned by Meridian Energy and Contact Energy (*National Cost-benefit Assessment of the Early Uptake of Electric Vehicles in New Zealand*) contained the following findings:

- as electric vehicle prices drop below internal combustion engine vehicle prices, there is considerable benefit from purchasing electric vehicles
- accelerating electric vehicle uptake (over and above business as usual) contains a net financial benefit for the country
- production constraints and strong overseas incentives will mean that demand is likely to exceed supply in New Zealand until around 2030
- the key challenge for New Zealand is to create an environment where the supply of electric vehicles can keep up with demand so that benefits can be realised.

The Government (through the Ministry of Transport, EECA and MED), are also looking at policies in this area. The most recent development was the decision made in June 2009 to exclude electric vehicles from road user charges.

#### Timeframes and costs for this work

The Council and Wellington businesses can play a positive part in creating an encouraging environment for electric vehicle technology. This initiative looks at short or medium term opportunities to engage with private and public partners to facilitate the introduction of electric vehicles. It is estimated that \$50k for 2010/11 would be required with funding targeted at facilitating a pilot project in Wellington for possible features such as installing charging facilities, parking, signage and purchase or leasing of electric vehicles for the Council fleet. Visibility and commitment to low emission vehicle technology will help to position Wellington as a leader.

|       | <b>2010/11<br/>(\$000)</b> | <b>2011/12<br/>(\$000)</b> | <b>Total<br/>(\$000)</b> |
|-------|----------------------------|----------------------------|--------------------------|
| CAPEX | \$50                       | ---                        | \$50                     |

<sup>9</sup> Forecasted supply constraints mean that electric vehicles might only represent around 10% of new fleet entrants by 2020 (Source: *National Uptake of Electric Vehicles in New Zealand*, Meridian Energy, 2009)

## 5.6 Additional actions through existing resources

In addition to those initiatives outlined above there are a number of key actions which can be developed within existing resources. These will lead to climate change benefits, and involve engagement, internal policy development, leveraging from Government grant pools and partnerships.

As New Zealand's capital city Wellington is well placed to make full use of the networks available to maximise outcomes for all stakeholders. We already have a wide range of contact with other key players involved in climate change in Wellington. Examples include: Government agencies (MfE, EECA, MED, MAF); Research and Academic institutions (Victoria University, NIWA, GNS); Community groups (Sustainability Trust, WWF); Business and industry (Wellington International Airport (WIAL), Meridian Energy, NZX).

It is proposed that arrangements to enhance collaboration of climate change work across Wellington city are further developed, through:

- identifying areas of mutual strategic interest
- regular meetings and communication to share policy, goals and concerns in a transparent manner
- sharing of information, research and collaboration on specific projects
- exploring possibilities for secondments or internships.

We will seek to identify and develop partnership opportunities whereby funding is committed through a range of channels to help offset the costs of taking action, or to seek enhanced outcomes. Financial contributions may be through government or community grants, business sponsorship, or collaborative efforts across a range of stakeholders.

Reducing emissions and preparing for climate change impacts is not a task that the Council can achieve alone. It is also important that the Council advocates for measures which are seen as vital to ensuring successful action on climate change, but are out of the Council's direct control. This includes raising issues that we have identified as critical, but may not be apparent to others, such as central government agencies. This approach would involve establishing appropriate partnerships to implement the necessary policy, programmes or activities. An important success factor will be to develop strong relationships and support for actions across all stakeholders.

For a complete list of all new actions see **Appendix A**.

## 5.7 Council policy programme

There are several upcoming policy and project decisions scheduled for 2009-2012 that have a strong relationship to the Draft 2010 Climate Change Action Plan. Whilst these projects are not occurring for climate change reasons directly, they will have benefits in this area. Instead of including these decisions in the draft 2010 Climate Change Action Plan, the draft Plan has identified how upcoming policy decisions can (or will) deliver climate change benefits. Some

key pieces of upcoming policy and projects influencing the city and city services that have a significant relationship to climate change include:

- Wellington 2040
- Water conservation plan
- Waste Minimisation and Management Plan and applications to the waste levy funds
- Bus Priority, Walking and Cycling Measures
- District Plan Review
- Implementation Tools for Centres Plan.

A full list, with further detail is included in **Appendix C**.

## **5.8 Engagement and the 2012/20 LTCCP**

The proposals and rationale included in this paper have been developed through extensive internal and external engagement. Work on mitigation and adaptation is a cross-Council issue and as such, the development of the Draft 2010 Climate Change Action Plan has involved multiple directorates and business units. In addition to this, officers have engaged with several external stakeholders through workshops, meetings, reference groups, peer review and accessing relevant analysis and reports.

It is recommended that the new initiatives identified in the draft 2010 Climate Change Action Plan be considered as part of the 2010/11 Draft Annual Plan deliberations and formal consultation with the community and key stakeholders on the draft 2010 Climate Change Action Plan be undertaken in conjunction with the 2010/11 Draft Annual Plan. The consultation will focus on whether the Draft 2010 Climate Change Action Plan:

- meets the community's expectations regarding the priority given to reducing emissions and preparing for climate impacts (specifically relating to the new initiatives seeking funding)
- has appropriate emissions reduction targets
- is focusing on the right areas and actions.

## **5.9 The way forward**

The actions presented in this paper provide the foundation for a more ambitious programme when reviewed as part of the 2012/22 LTCCP. Work is already underway on reviewing the long-term strategic direction for Wellington – for both the 2012/22 LTCCP as well as longer-term direction as part of the *Wellington 2040* project. As part of this project, opportunities will be explored for transitioning Wellington toward a low-carbon economy.

## **6. Conclusion**

This paper presents the key actions to be included in the Draft 2010 Climate Change Action Plan. The actions are based on taking a pragmatic approach,

considering the economic environment, Council's role in influencing climate change outcomes and delivering on the city vision. The paper recommends that the Committee agree in principle:

- to the new initiatives seeking funding being included for consideration in the Draft Annual Plan (2010/11)
- that the new actions with no additional funding implications be included in the Draft 2010 Climate Change Action Plan
- that the Draft 2010 Climate Change Action Plan be considered by Council in March 2010 and consulted on in conjunction with the 2010/11 Draft Annual Plan.

Contact Officer: Chris Cameron, Principal 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 2010/11 Draft Annual Plan.*

### **3) Treaty of Waitangi considerations**

*Given the kaitiakitanga (guardianship) role of Maori, and likely climate change impacts on assets owned by Maori, there may be Treaty implications. These will be further explored through the consultation process.*

### **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 2010/11 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, the Urban Development Strategy and the 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 compact growth, waste minimisation and energy management planning.*



**Appendix A: Summary of all New Climate Change Actions**

| Category                                 | Mitigation  |   | Adaptation   |
|--|---|---|--|
| <b>Seeking funding (new initiatives)</b> | Buildings and Energy<br><br>Transport Council   | <ul style="list-style-type: none"> <li>✓ An enhanced Residential energy efficiency programme (\$200k OPEX over 2 yrs)</li> <li>✓ A business energy efficiency programme (\$50k OPEX over 2 yrs)</li> <li>✓ An electric vehicle pilot project (\$50k CAPEX in 2010/11)</li> <li>✓ An enhanced Council energy efficiency programme (\$200k CAPEX and \$50k OPEX over 2 yrs)</li> </ul>  | <ul style="list-style-type: none"> <li>✓ A vulnerability assessment for the city to the impacts of climate change (\$130k OPEX over 2 yrs)</li> </ul>  |
| <b>Within existing budgets</b>           | Buildings and Energy<br><br>Transport<br><br>Forest Sinks<br><br>Waste<br><br>Council<br><br>Aviation | <ul style="list-style-type: none"> <li>✓ Partner with the property sector to initiate voluntary energy efficiency retrofits.</li> <li>✓ Investigate policy options to improve building energy efficiency standards</li> <li>✓ Advocate for retention of a 90% renewable energy target nationally</li> <li>✓ Advocate for higher energy efficiency standards in the Building Code</li> <li>✓ Advocate for a national energy rating scheme for homes</li> <li>✓ Advocate for feed-in tariffs to encourage small scale renewable energy</li> <li>✓ Work with Greater Wellington Regional Council on financial mechanisms to encourage transport mode shift</li> <li>✓ Advocate for national vehicle fuel efficiency standards</li> <li>✓ Advocate for national incentives to support electric or biofuel vehicle technology</li> <li>✓ Advocate for enhanced regional and national public transport development</li> <li>✓ Facilitate development of forest sinks on private land through information and promotion</li> <li>✓ Investigate the impact of an enhanced pest management programme in council forests to increase carbon sequestration</li> <li>✓ Investigate opportunities to develop forest sinks with other councils to meet respective ETS obligations</li> <li>✓ Investigate further options for converting sewage sludge waste to energy</li> <li>✓ Advocate for enhanced national product stewardship schemes to reduce waste</li> <li>✓ Develop a collaborative regional approach to waste management</li> <li>✓ Enhance fleet management policies to reduce Council emissions</li> <li>✓ Investigate options for renewable energy projects on council land or facilities</li> <li>✓ Develop a policy to manage carbon credits and obligations</li> <li>✓ Investigate development tools that encourage energy efficiency, quality urban design and built environment</li> <li>✓ Facilitate community engagement on areas such as energy, waste, transport and water conservation, providing information and solutions</li> <li>✓ Develop an MoU on managing aviation emissions with WIAL</li> <li>✓ Advocate for WIAL and airlines to               <ul style="list-style-type: none"> <li>• use latest aircraft fuel efficiency technologies and alternative fuels</li> <li>• adopt efficient flight plans</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>✓ Improve preparation for more frequent extreme weather events and conditions</li> <li>✓ Enhance guidance for asset management on climate change risks</li> <li>✓ Encourage participation with communities in adapting to the impacts of climate change</li> <li>✓ Collaborate on adaptation approaches within the local government sector</li> <li>✓ Collaborate on adaptation approaches between local and central government</li> <li>✓ Investigate opportunities to “green” the roofs of council and city facilities and promote tree planting</li> </ul> |

## APPENDIX B

### Appendix B: Existing Council Projects with Climate Change Benefits

The following table outlines the status of projects, with direct or indirect climate change benefits. These projects are either underway or completed and some were included in the 2007 Climate Change Action Plan. Others have been agreed for delivery in the 2009-19 LTCCP.

| <b>Project</b>   | <b>Description</b>  |
|--|---|
| <b>Compact Growth</b>  | Intensify development in Adelaide Road, Kilbirnie, Johnsonville and the city centre and in the medium term expand to other strategic locations in the city  |
| <b>Travel demand management</b>  | Construct bus lanes in the central city area and key suburban routes to create a dedicated bus route through the central city, invest in walking and cycling improvements, undertake Ngauranga to Airport study and initiate travel plans for schools and businesses that facilitate mode-shift from private cars to public transport, walking and cycling  |
| <b>Retrofit Spicer Landfill</b>  | Spicer Landfill, managed under a Joint Venture by Wellington and Porirua City Councils', is expected to be retrofitted within the next two years with a collection system that converts methane to energy   |
| <b>Energy Management Programme</b>   | Delivering an Energy Management Programme that invests in capital and operational projects that reduce energy consumption in Council operations   |
| <b>Household insulation and heating retrofits</b>  | The Sustainability Trust has undertaken 850 insulation retrofits to date with Council support. The LTCCP 2009-2019 identified \$35,000 per annum over 3 years to further promote insulation and heating retrofits in Wellington. We have partnered with Government, the Regional Council and service providers to promote the Warm Up NZ campaign, provide additional incentives for low-income families, and agree on a regional targeted rate mechanism to assist home owners to pay for insulation and clean heating through their rates |
| <b>Forest Sinks: ETS and Permanent Forest Sink Initiative (PFSI) and other tree planting</b> | The Council has received 784 carbon credits under the ETS Forestry Scheme. The Council's Makara Peak PFSI application has been approved and we are now liaising with relevant parties to obtain signatures on the covenant document. The Makara Peak PFSI covenant is scheduled for SPC in April 2010 and other PFSI covenants are scheduled to come later in 2010. Permanent Forest Sink Covenants will be agreed with the   |

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|   | Government for key Council reserves that will accrue Kyoto carbon credits. Council is continuing with the programme to plant 100,000 tree and plants on Council reserves annually   |
| <b>Incentives and facilitation for sustainable energy</b> | District Plan changes have been notified that provide exemptions for resource consents for installation of solar energy technology and the Council also provides \$300 grants to homeowners that install sustainable energy features as part of the Building Consent process  |
| <b>Broadband</b>  | The Council has committed to facilitating the upgrade of the region's broadband infrastructure in partnership with Government, the private sector and the region, which will provide business and workforce benefits  |
| <b>Kai to Compost</b>                                     | A Council-run food waste collection service is in its fourth year of operation. Initially started as a trial, the Council collects around 1,000 tonnes of food waste a year from supermarkets, restaurants and cafes in the central city area. The food waste is mixed with green waste and turned into compost   |
| <b>Fleet Review and Staff Travel Programme</b>            | The Council is in the advanced stages of a fleet review with a view to make financial savings through smarter procurement policies and reduce fuel consumption over time. The initial focus is on the light fleet (cars, utes and vans), where a centralised online booking system is being trialled. This could facilitate a reduction in the number of vehicles over time. In addition, GPS technology is being used to ensure optimal utilisation of fleet |
| <b>Adaptation planning</b>                                | Council is partnering with NIWA and Victoria University on projects <sup>10</sup> to assess the impact of climate change on Wellington infrastructure/urban form and community health and cohesion. Initial analysis of the impacts of sea level rise on the city has been part of the Kilbirnie Town Centre work. The future security of the city's water supply is being addressed through development of a water demand management strategy                |
| <b>Centre of excellence for sustainable technology</b>    | Council is partnering with Grow Wellington to promote renewable energy development  |

<sup>10</sup> Both projects are in their early stages and are one part of a number of case-studies across New Zealand. The VUW project will examine the impact of water shortages on supply/demand issues. The NIWA project is to focus on slope stability issues resulting from more intense rainfall.

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| <p><b>District Plan incentives</b></p>                        | <p>Providing an encouraging regulatory environment has seen the development of Meridian's Project West Wind, a 140MW wind farm located within 7km of the city centre. Council has provided assistance (such as facilitating the planning process and minimising construction waste) to the development of green building sites (such as the Meridian Building and the Bank of New Zealand building). A Subdivision Design Guide has been developed with policies and objectives that encourage energy efficient building design. The District Plan Change 74 (notified) has removed barriers to installing solar arrays on roofs and provides encouraging policies for electric vehicles</p>   |
| <p><b>World Environment Day (WED)</b></p>                     | <p>Council co-ordinated Wellington's response to WED and to Earth Hour 2009</p>  |
| <p><b>Wellington Energy Advice Centre</b></p>                 | <p>The Wellington Home Energy Advice Centre (HEAC) was established in 2007 by the Sustainability Trust. The Council (along with EECA and the MfE) provided seed-funding for the Wellington HEAC and the Council continues to support this activity through an operational grant to the Sustainability Trust. The Wellington HEAC was the first of three centres developed around the country (the others are in Auckland and Christchurch). The Sustainability Trust and its national partners are now developing a proposal to be considered by Government for ongoing funding of the HEAC's</p>  |
| <p><b>Sustainable features in Council housing upgrade</b></p> | <p>Improved insulation is to be installed as part the upgrade. This includes replacing some windows with double-glazing and installing thermal curtains to all upgraded units. EECA has indicated in principle that they will provide \$500,000 over four years to assist with the costs of wall insulation. This funding agreement is still under discussion. Other initiatives such as water saving devices are included in the upgrade:</p> <ul style="list-style-type: none"> <li>• shower heads (low flow models)</li> <li>• toilet cisterns (dual flush, low volume)</li> <li>• taps (low flow models).</li> </ul> <p>Rain water collection tanks are being installed at Marshall Court and Hanson Court Flats. Some sites have landscaping (e.g. rainwater garden and bio-swale) that is designed to minimise stormwater run-Off. Solar hot water systems are being considered for Newtown Park Flats</p> |

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| <b>Renewable energy for council facilities</b> | <p>Solar power and solar hot water heating have been installed at Makara Cemetery and Evans Bay Marina respectively.</p> <p>A study into the feasibility of installing a micro-hydro turbine generator in the Moa Point outfall has been completed – agreement on implementation is yet to be reached with the operator.</p> <p>Opportunities are being explored for wind energy in Carey's Gully.</p> <p>The proposed trial of a plant at the landfill to convert recycled plastic and/or sewage sludge to energy is being considered as an option for utilisation of either the contestable or non-contestable waste levy funding</p> |
| <b>Landfill gas generation</b>                 | <p>This is removing 85% of landfill gas from the environment while supplying 8GWh of electricity annually to the national grid (equivalent to supplying 1,000 households)</p>   |
| <b>Organisational travel plan (OTP)</b>        | <p>A staff travel survey has been completed and will be considered in the development of the OTP by the newly appointed travel planner</p>  |
| <b>Kilbirnie Street Lighting Trial</b>         | <p>New streetlights have been installed and are being monitored for lighting quality and energy consumption. These lights are new generation streetlighting technology delivering energy savings and reduced maintenance requirements</p>   |

## APPENDIX C

### Appendix C: Forward Programme Policy Work with Climate Change Benefits

| Policy Work                           | Relationship to climate change   |
|---------------------------------------|--|
| <p><b>Wellington 2040</b></p>         | <p><b>Mitigation and Adaptation:</b> This work will review the long-term strategic direction for Wellington to 2040 in order to position the city as an affordable, vibrant, internationally competitive city and identify priority areas for action for the 2012-2022 LTCCP.</p> <p>A brief scan of cities in the Asia-Pacific region (Melbourne, Seoul, San Francisco, Vancouver, Portland) shows that these cities/regions are transforming their economies based on clean technology and a city commitment to sustainable living and business. They are also branding themselves as leaders in sustainability. Wellington is potentially well positioned to become a model city and innovator in sustainable practices with the compact city centre, high public transport patronage, development of local wind energy resources and recreational access to the natural environment including the green belts and wild South Coast. The Wellington 2040 project will look at medium and long-term opportunities and options for Wellington including in the area of climate change adaptation and innovation.</p>  |
| <p><b>Water Conservation Plan</b></p> | <p><b>Mitigation and Adaptation:</b> The water issues we face are not from lack of precipitation, they result from lack of storage capacity. With precipitation relatively consistent in the winter months, water supply problems are almost exclusively a summer issue, when reduced precipitation and demand pressures from higher temperatures (e.g. watering gardens) creates issues with maintaining supply to the four cities. The Water Conservation Plan overlaps with climate change work in two ways:</p> <ul style="list-style-type: none"> <li>• Responding to the increased water security risks that result from climate change impacts of higher average temperatures (0.9o C by 2040 and 2.1o C by 2090) – which will increase rates of evapotranspiration - and potential reductions in annual precipitation (coupled with increased demand from forecasted population growth)</li> <li>• Water conservation measures lead to reductions in the Council’s corporate emissions by reducing energy used for treating and pumping water.</li> </ul> <p>The 2010 Climate Change Action Plan will rely on the Water Conservation Plan for identifying the most effective measures for reducing water use in the short, medium and long-term.</p> |
| <p><b>Waste Minimisation and</b></p>  | <p><b>Mitigation:</b> Landfill waste will be brought into the ETS in 2013 under the current legislation. In the medium-term, the Waste Management and Minimisation Plan will</p>   |

## APPENDIX C

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| <p><b>Management Plan</b></p>                        | <p>develop programmes to reduce waste to landfill, which could have a corresponding link to managing the Council's landfill emissions.</p> <p>In the short-term, the Council has to develop options for utilising the waste levy funding as well as potential applications to the contestable fund that opens in December 2009. This options analysis will include projects that reduce organic waste, which results in reductions of waste going to landfill and reductions in landfill emissions. Of particular interest are options that involve reducing organic waste, which still represents the highest percentage of waste going to landfill.</p> |
| <p><b>District Plan Review</b></p>                   | <p><b>Mitigation and adaptation:</b> The District Plan review presents an opportunity to look at incentives and rules relating to promoting more energy efficient building design including orientation.</p> <p>There will also be opportunities to explore what types of rules and policies may need to be included in the District Plan to reflect areas vulnerable to climate change.</p>  |
| <p><b>Implementation Tools for Centres Plans</b></p> | <p><b>Mitigation and adaptation:</b> The Council can investigate tools that encourage the achievement of Council outcomes for new development including high quality design, more energy efficient buildings, optimal solar orientation and well designed street lay-outs. This may include tools such as the Code of Practice for Land Development, the District Plan etc.</p>   |