
Low Carbon Capital

A CLIMATE CHANGE ACTION PLAN FOR WELLINGTON 2016–2018



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Introduction by the Mayor

Climate change is the greatest challenge of our time.

“Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.” **Intergovernmental Panel on Climate Change’s fifth assessment report.**

In December 2015, 200 countries came together in Paris to set a pathway for collective action to reduce the amount of greenhouse gases entering the atmosphere and further mitigate impacts of climate change on the planet. These 200 countries signed up to mitigation goals aiming to limit warming across the climate system to 2 degrees Celsius or less by the end of the century. This agreement shows that acceptance that we need climate action is widespread among lay-people, scientists and politicians.

Cities have a strong role to play as the source of 70% of greenhouse emissions and with 90% vulnerable to coastal impacts. Wellington City has already positioned ourselves as a leader on climate change with the lowest per capita emissions in Australasia. Council has pioneered innovative programmes like the Smart Energy and Low Carbon Challenges and the Smart Buildings Challenge, as well as being one of the only cities in the southern hemisphere to host a Climathon in partnership with Europe’s Climate-KIC. We have promoted climate action between local government and partners in the private sector - with both entrepreneurial start-ups and large businesses. The city is home to two wind farms that provide enough electricity to power all our residential homes. We have the highest active and public transport use in the country, partly due to our compact urban form. In addition, we own substantial forestry holdings and are aiming to plant two million native trees across the city between 2002 and 2020.

As well as these outstanding features and efforts there is more that makes us a climate centre of action - we are a member of the Rockefeller Foundation’s 100 Resilient Cities Network, and have recently joined the global Compact of Mayors. The city, and region, is home to multiple universities and research institutes specialising in climate change including the Climate Change Research Institute at Victoria University



of Wellington, the New Zealand Centre for Sustainable Cities at Otago University, the New Zealand Meteorological Service and a number of Crown Research Institutes such as the National Institute for Water and Atmospheric Research (NIWA).

Climate change affects us all - increasing costs for infrastructure and insurance, vulnerability of fish stocks and agriculture, refugees from Pacific Islands, spread of disease and the devastating impacts of bigger storms, severe rainfall, floods and landslips. Thank you to all who recognised the importance of this matter and made submissions on the draft discussion document. The vast majority supported our plan, with many calling for tougher targets. However, given population increase and our existing goals, Council has reconfirmed the trajectory towards an 80% reduction in City-wide emissions by 2050.

Our response must be scientifically based, setting ambitious targets and identifying a pathway to meet them. This is what the 2016-2018 Low Carbon Capital plan aims to achieve. We have invested significantly in improving the information that underlies our action planning by updating our greenhouse gas inventory for the city, achieving Certified Emissions Management and Reduction Scheme (CEMARS) certification for the Council’s corporate emissions, and launching the Wellington 2050 Energy Calculator. Building on the 2010 and 2013 Climate Change Action Plans, Low Carbon Capital continues some programmes such as home insulation, while adding significant action in three key areas: greening Wellington’s growth; changing the way we move; and leading by example.

It is important to keep in mind that reducing emissions is just one reason to invest in carbon-friendly action. There are many co-benefits. Wellington consistently places high in quality of life measures, the highest in New Zealand by some surveys, partially because of its compact and liveable city centre. By investing in climate-friendly infrastructure, we can further promote compact, healthy, and liveable communities.

Meeting our ambitious goals will take a concerted effort of tailored investments and initiatives in partnership with the private sector and central government that promote our weightless knowledge economy while reining in our carbon output.

A handwritten signature in black ink, appearing to read 'Celia Wade-Brown'. The signature is stylized and fluid.

CELIA WADE-BROWN
Mayor of Wellington

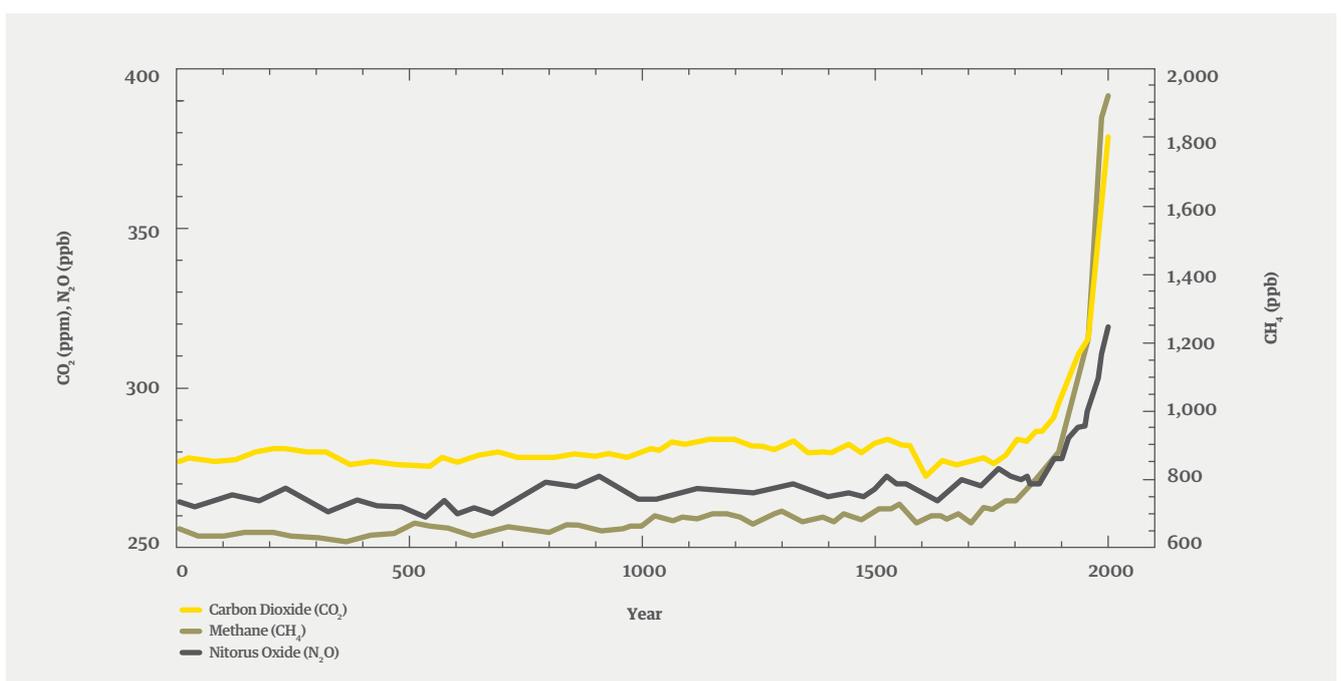
Background

Climate change is now a clear and present global threat. Globally significant and sustained changes to the climate system are being driven by human activities - such as farming, driving, burning fossil fuels for electricity, and deforestation - pumping greenhouse gases like carbon dioxide, methane, and nitrous oxide into the atmosphere, where they gather and trap heat. Since the industrial revolution we have seen significant increases in greenhouse gas emissions unseen in millennia.

With 90% of global cities on the coast, vulnerable to threats driven by climate change like sea level rise and increasingly severe storms, it is imperative that we act to limit the damage caused by climate change. Wellington City has already seen the recent impacts of severe storms with the destruction of the Island Bay sea wall, the disruption of roads along the south coast, and the impact of washouts on the rail corridor north, particularly in the June 2013 storms.

However as a city that emits just 5.32 tCO₂e per person, the lowest in Australasia, Wellington is starting from a strong base. We have windfarms at our doorstep which supply enough electricity to power all of Wellington City's residential homes. We have the highest rates of active and public transport in the country. We enjoy a compact, vibrant and liveable city centre. These existing assets provide a solid base that will act as a springboard to help us achieve our ambitious goals.

Action on climate change is not just good for mitigating emissions, or preventing negative impacts in the future. Acting to reduce emissions helps the city as a whole. Promoting a future-proofed knowledge economy to support the growth of the city and overall wellbeing; supporting the health and wellness benefits that come from active lifestyles and cleaner air; and promoting the vibrant liveable city centre that will result from a compact development profile are all examples of why climate change action is smart for the city.



The global context

Wellington City Council has led on climate change and resilience for many years. Now the Low Carbon Capital Plan, combined with membership in the 100 Resilient Cities network funded by the Rockefeller foundation, aims to solidify that leadership position. Wellington aims to be low carbon, liveable and fundamentally resilient to both the stresses and potential shocks that the city will face as a result of climate change.

Since our 2013-15 Climate Change Action Plan was released, the global context has seen a significant shift in its approach to a changing climate. The IPCC Fifth Assessment Report was released in late 2014, warning in the strongest terms:

“Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, and sea level has risen.”

“The Paris Agreement is a monumental triumph for people and our planet.”

– United Nations Secretary-General Ban Ki-Moon

In late 2015, countries met in Paris for the 21st Conference of the Parties (COP21). As a result nearly 200 countries signed a commitment, and many issued reduction pledges, to reduce emissions enough to limit global temperature increases to a maximum of 2 degrees Celsius by the end of the century. With large global emitters such as the United States and China pledging meaningful reduction targets the mood remains positive that we may finally be reaching a tipping point for concerted global action to address climate change.

Domestically central government is undertaking a major review of the Emissions Trading Scheme (ETS) and providing more support for initiatives such as electric vehicles (EVs), cycle ways, and public transport.

Why cities?

Globally cities consume two-thirds of the world’s energy and create over 70% of global greenhouse gas emissions. Over 90% of all urban areas are coastal, putting most cities on Earth at risk of flooding from rising sea levels and powerful storms. Ultimately, every city and state is responsible for contributing to climate mitigation if we are to meet the ambitious goals the world has set in the most recent climate summit. Cities emerged out of COP21 in Paris as the key non-state stakeholders in meeting our global carbon challenge.

“There is no single solution for solving global climate change, but cities have the ability, capacity and will to lead.”

– C40 Cities Initiative

Wellingtonians each contribute 5.32 tonnes of CO₂e each year. By lowering our carbon impact we contribute to the future-proofing of our city against the most negative impacts of climate change, whilst at the same time improving liveability and competitiveness by leveraging all the co-benefits that come with investing in climate-friendly policies, goods, and services. We also have an opportunity to show leadership in the reduction of our own corporate emissions.

We will continue to identify opportunities to partner with Central Government, the private sector, universities and research institutes, and NGOs in order to maximise our collective funding capability and ensure no duplication of efforts.

Wellington City has a proud history of commerce, culture, and innovation. We have the talent, the ideas, and the will to make a meaningful contribution to the global effort on climate change.

The current government response

The New Zealand Emissions Trading Scheme (ETS) is the country's key central government response to combat carbon emissions. The ETS creates a market incentive through pricing carbon. Emitters must surrender carbon credits to meet their greenhouse gas emissions liabilities while activities that remove carbon from the atmosphere, such as forestry, are awarded carbon credits. These credits can be freely traded. Most parts of the economy are covered by the ETS with the exception of agriculture which makes up nearly 50 percent of New Zealand's emissions. Trade-exposed industries are allocated free credits to help them transition into the scheme.

For most of the time since the ETS was implemented in 2008 the price of carbon has been so low that it has not made a meaningful difference in terms of driving low-carbon choices and behaviour. There is currently a review of the ETS underway and the Government's announcement of the total phase out of the "Two for One" surrender obligation subsidy by 2019 has already seen substantial increases in the price of carbon in a relatively short period of time.

Co-benefits of climate action

Climate action doesn't just benefit the environment it also benefits the economy and contributes to Wellington's liveability:

- Greater health and wellness, particularly from active transport
- A more livable city with vibrant centres, particularly from compact development
- More affordable and accessible housing due to more space-efficient development
- A more vibrant economy due to an emphasis on "weightless," knowledge-intensive businesses.
- Cleaner air, water and natural environment



The state of play

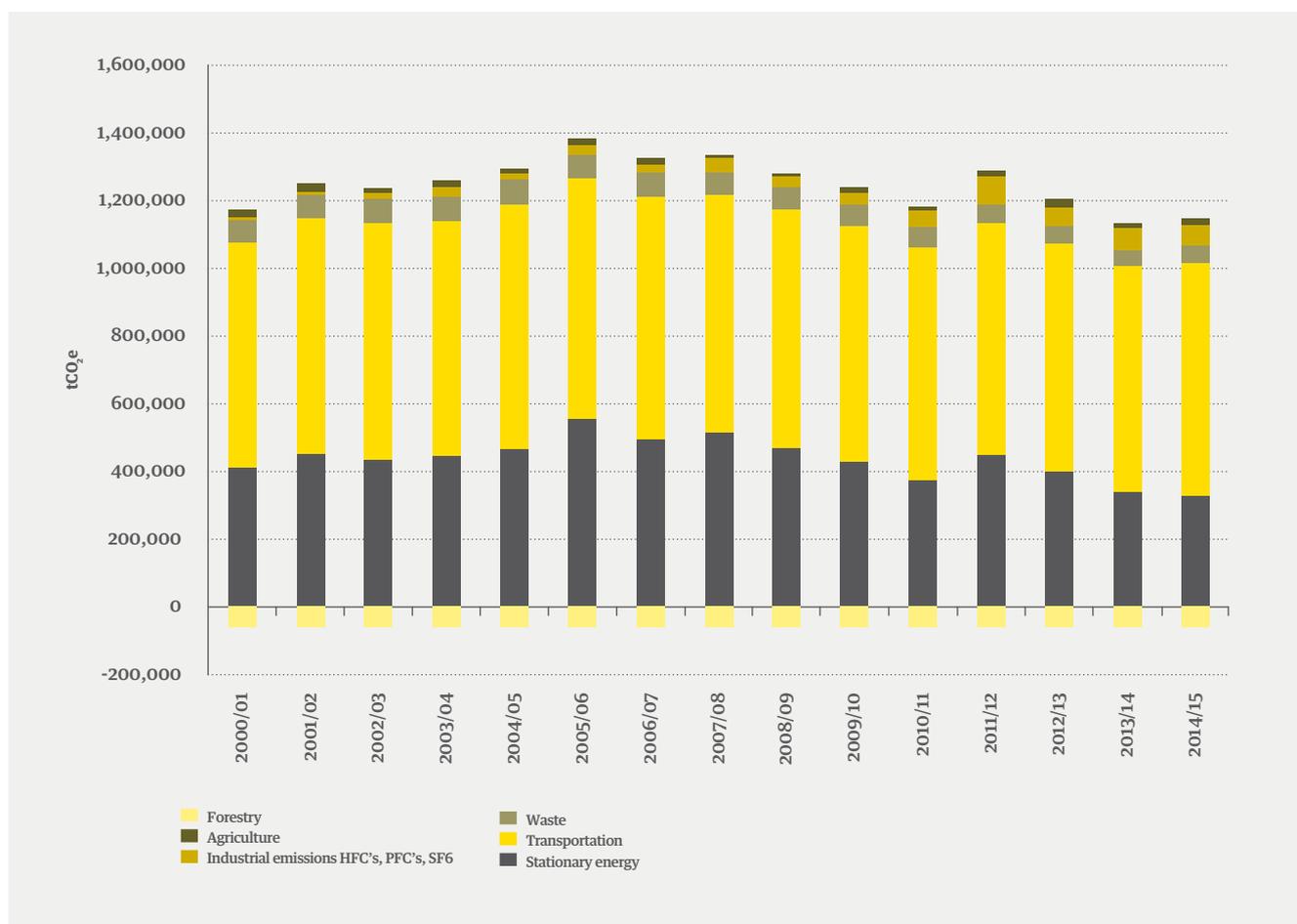
Wellington City's emissions profile

1,084,979

tonnes CO₂ equivalent

– Wellington's 2014/15 total net emissions

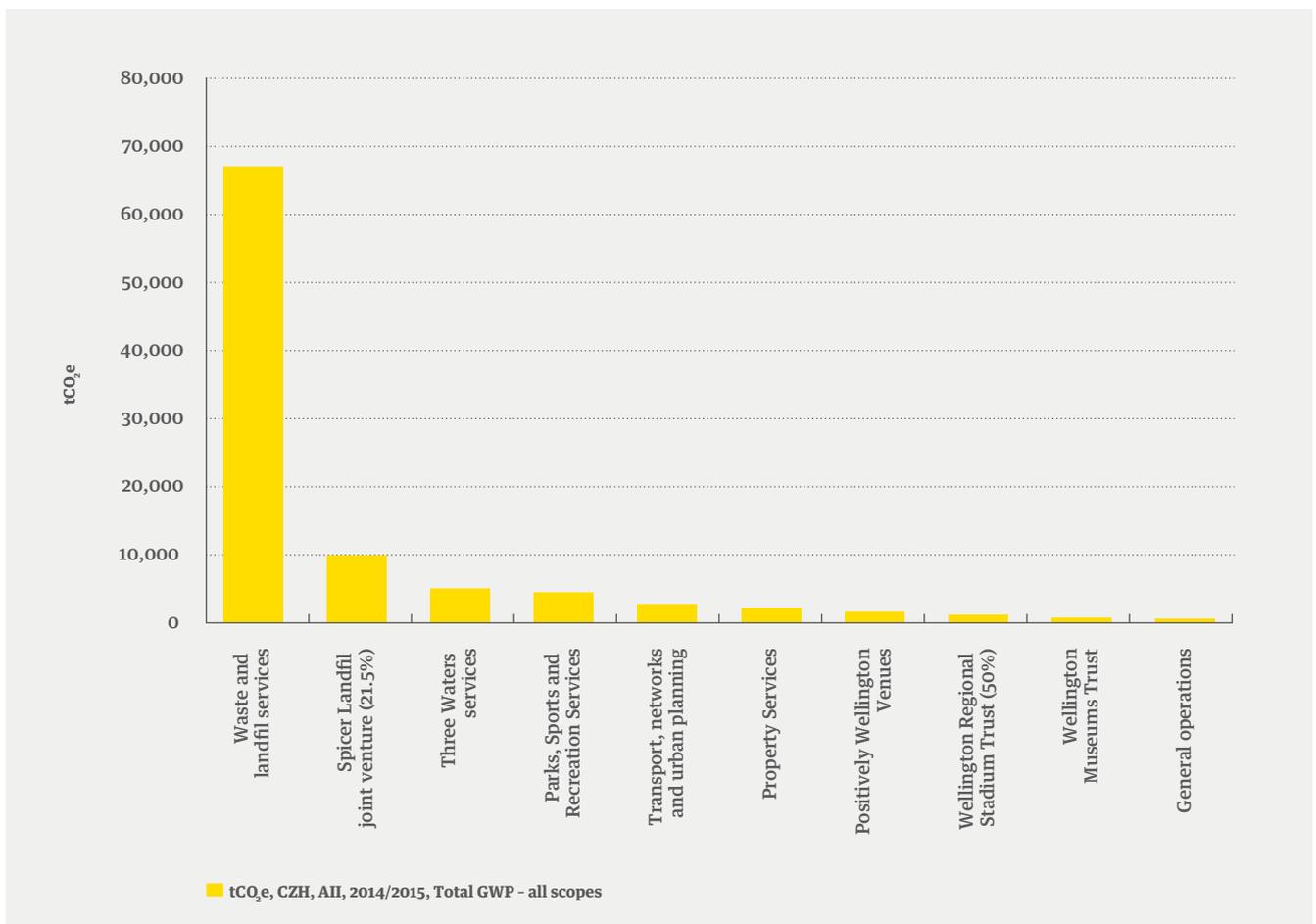
Wellington City's production emissions are dominated by two key sectors - transport and stationary energy, which combined account for more than 90% of the city's emissions.



Wellington's emissions profile does not contain substantial agricultural and forestry components as is the norm in most other parts of New Zealand. However Wellingtonians do consume significant amounts of agricultural products which add to demand for production elsewhere. On the other hand, we have a major international airport within the city limits, so we are credited with the emissions of nearly all of the region's domestic air travel. This creates multiple complex challenges - with less forestry we aren't able to offset as much; and with aviation being a substantial contributor to our transport emissions, greenhouse gas reductions will be driven by the availability of international solutions for aviation such as biofuels or gains in aircraft efficiency. That said there are many opportunities where we can make a difference today - mostly in building energy use and private transport.

Wellington City Council's Emissions Profile

Wellington City Council's recently-audited greenhouse gas emissions inventory is remarkably different from that of the city. As an organisation, waste deposited at our two landfills accounts for more than 80% of the organisation's overall emissions. This poses a challenge for the council, as much of the emissions come from private waste deposited at our publicly-operated landfills. Whilst waste dominates our emissions profile there are still significant gains that can be made across the rest of Council operations and CCOs.



The challenges so far

Linking targets to mitigation action

This is not a challenge unique to Wellington City. Governments, Councils, and businesses worldwide have been grappling with the difficulties of setting ambitious but realistic targets and then laying out clearly how they intend to achieve those targets.

Whilst we implemented or completed nearly every action point in the 2013-15 Climate Change Action Plan we still failed to meet our targets. This suggests that our targets were not sufficiently linked to the actions that were chosen, and we need better information to help us identify the actions with the greatest potential to achieve the emissions reductions required to meet our targets.

The development of the 2050 energy calculator and the tools now available to us through our CEMARS certification will assist us to better align targets with pathways to meet those targets.

30 out of 34

actions completed in the 2013-15
Climate Change Action Plan

The levers we have available to us are limited

Most of the available levers to really accelerate action on climate change mitigation lie with central government. The price of carbon, further greening of the national grid, and accelerating the production and uptake of biofuels are all examples of central government policies over which we have no control that could significantly impact our city and Council emissions. However we do have a strong role to play in advocating on behalf of our community for policies and initiatives which drive down emissions across the city and the country as a whole. This also provides an even greater incentive to make maximum use of the levers which are available to us.

Managing legacy infrastructure and climate change adaptation

Even if the world were to drastically reduce emissions overnight we are still locked into at least two degrees of warming by the end of the century. This will mean changes in weather patterns, temperature, and sea level rise.

One of the most challenging aspects of climate action is likely to be the management of legacy infrastructure. Much of the infrastructure with us today will still be in use fifty or even a hundred years from now, particularly housing, transport and water infrastructure. Managing this infrastructure in the face of rising seas, more severe storms and a significantly changing climate will be no small feat. Our membership in the 100 Resilient Cities network and the upcoming Resilience Plan will offer an opportunity to elucidate how we plan to manage this infrastructure over the coming years.

0.5 to 0.8m

Sea level rise local councils are asked to plan for by central government.

Mainstreaming climate change policy and action

Action on climate change mitigation and adaptation makes sense economically as well as environmentally. As such climate change policy shouldn't exist in a vacuum siloed away from all other areas of Council policy.

There are also many actions that might only result in small reductions in greenhouse gas emissions, but that have many other co-benefits which on balance make them worthy of support. An example of this would be home insulation, which also results in warmer healthier homes, or residential solar which with fast-developing battery technology increases resilience.

Setting our targets

Wellington City Council has historically adopted two separate target pathways out to 2050 - one for Council operations and the other for the city as a whole. The targets were set in 2007 and based on recommendations for cities from ICLEI (International Council for Local Environmental Initiatives) due to a lack of Wellington specific data at the time.

Since that time we have implemented and delivered three key projects.

- The first is a Greenhouse Gas Inventory for Wellington City. The inventory measures emissions generated directly and indirectly by the communities of Wellington City across a number of different sectors including transport, waste, stationary energy, agriculture and forestry. With the release of our latest Greenhouse Gas Inventory in early 2016 we are now able to assess our citywide performance against our targets.
- The second is a publically accessible city-wide energy calculator. The calculator allows users to explore how energy and transport choices shape Wellington city's carbon emissions footprint and discover which interventions would have the highest impact based on scientific data. Users can vary 31 'levers' that affect how energy is used and produced in the city- such as improving public transport or increasing the number of solar panel installations. The calculator has allowed Wellington City Council to prioritise areas with the highest potential for emission reductions and has informed the review of our city-wide targets.
- The third is the attainment of CEMARS (Certified Emissions Management and Reduction Scheme) certification for Wellington City Council - only the third Council in New Zealand to do so. Council achieved CEMARS certification in December 2015 following a two day audit of the energy and emissions data collected by Wellington City Council and CCOs. Certification means that we can now have confidence that the data we collect is accurate, comprehensive, and a precise measure of how we are performing. This enables us to start measuring our energy and greenhouse gas emissions reduction progress against this original audit or 'baseline' year and make more informed decisions about our energy management and emissions reduction work programmes. These work programmes will inform the setting of future interim targets for Council Operations.

"Our emissions profile will now be regularly audited and includes all city Council emissions to international certified standards. This is a significant step and puts emissions into a category as important as an accurate balance sheet."

— Mayor Celia Wade-Brown

So what did these tools tell us?

1.9% reduction in citywide net emissions between 2000/01 and 2014/15

10% target reduction by 2020

Based on the information in our updated Greenhouse Gas Inventory, Wellington City gross emissions have decreased by 2.1% between our base year of 2000/01 and 2014/15.

On reviewing our targets it is still possible, with a concerted and sustained effort, to meet our long-standing 2050 target of an 80% reduction in city-wide emissions relative to 2001. In doing so we acknowledge achieving our targets will require significant central and regional government support and action and will work collaboratively with our partners to achieve this. We also now have comprehensive information that was not available back in 2007 that have informed the setting of future targets and identified the interventions that will yield the greatest interim reductions in greenhouse gas emissions.

When it comes to the measurement and setting of targets for Wellington City Council's corporate emissions gaining CEMARS certification has given us a comprehensive standardised platform for our emissions reporting and management. As a result it is necessary to reset our base year from 2003 to 2014/15 - the first year for which we have a complete audited set of data right across Council and CCOs. It is important to note that this new baseline year relates only to Wellington City Council's emissions and the Wellington City baseline year remains unchanged at 2001.

As we work through the CEMARS programme and develop our Emissions Management and Reduction Plan we will be setting reduction targets across all aspects of Wellington City Council activities, which will then inform the setting of interim targets.

82.4% of Wellington City Corporate emissions come from Waste to landfill

— CEMARS audit

With this in mind, the following targets will be adopted for our Wellington City Council and citywide net emissions reductions.

Year	Wellington City Target	Wellington City Council Target
2020	10%	—
2030	40%	—
2040	65%	—
2050	80%	80%

KPIs will be developed in each of the Low Carbon Capital Plan areas to enable reporting on progress. Targets for Council's corporate emissions will be set in conjunction with the development of our CEMARS emissions management plan.

Adapting to a changing climate

There is enormous crossover between the climate change mitigation and adaption workstreams and officers continue to work closely together. After all, mitigation is first line of defence when it comes to adapting to a changing climate - if we don't stop creating the problem then our adaptation challenges become even more difficult. However this plan does not lay out a strategy for climate change adaptation for Wellington City. Climate change adaptation is one of the main focus areas for the Wellington Resilience strategy which is currently being developed as part of Wellington's membership of the Rockefeller Foundation's 100 Resilient Cities programme and will be consulted on separately although this does not preclude the two workstreams being integrated in the future. Climate change adaption is one of four focus areas for Wellington City Council's Wellington Resilience Strategy.



The three pillars of climate change action for Wellington

1. Greening Wellington's growth

70% of the infrastructure that will exist in cities by 2050 hasn't been built yet.

— Rockefeller Foundation 100 Resilient Cities Global Trends

Wellington City is widely recognised as a liveable city renowned for its high quality of life.

Wellington already has the country's highest proportion of people walking, cycling and using public transport for journeys to and from work. Wellington has a head start on the rest of New Zealand in responding to climate change, with a lower carbon footprint due to its compact urban form, high rates of public and active transport, access to significant renewable energy resources, and a growing creative and knowledge-based "weightless" economy.

Wellington City's population is conservatively expected to grow from the current 200,000 to approximately 250,000 over the next 30 years.

Wellington City's Urban Growth Plan aims to ensure that as the city's population increases, new houses, transport networks, infrastructure and services are developed sustainably and in areas that benefit the city the most so that residents continue to enjoy a world-class quality of life and:

- maintain the city's liveability - the features that support our high quality of life and the city's character
- keep the city compact, walkable and supported by an efficient transport network
- protect the city's natural setting - nestled between our green hills and coastline, contributing to our distinctive character
- make the city more resilient to natural hazards such as earthquakes and the effects of climate change.

To continue reducing our city-wide greenhouse gas emissions we will maintain the compactness of our city as our population grows; and invest in our public transport network, footpaths and cycleways to reduce the need for car use and car ownership and improve travel efficiency. We will continue to encourage low-emissions economic development, building efficiency, water conservation and waste reduction.

40.6% increase in population in Te Aro and Wellington Central between 2006 and 2013 censuses

Long term goals for urban growth:

- Our building stock is more energy efficient due to improvements such as better insulation in homes, and more efficient lighting, cooling and heating systems in residential and commercial buildings.
- An increasing proportion of the energy we use to power the city's homes, buildings and transport comes from local renewable sources - wind, solar, tidal and wave energy, as well as biomass energy from waste.

- The city has a comprehensive network of natural assets - parks, gardens, coastline, Town Belt and reserves. Wellington City Council also has investments in PFSI (Permanent Forest Sinks Initiative) and ETS (Emissions Trading Scheme) forests. These help to support biodiversity, absorb carbon emissions, and form part of Wellington's green infrastructure.
- We use water more efficiently and minimise waste production.
- We manage the risk of sea-level rise and extreme weather events through mitigation and adaptation, including ensuring infrastructure can cope with these effects.
- Our planning documents reflect the risks associated with climate change, for example, controlling housing and infrastructure development in places susceptible to flooding, and areas prone to slips or coastal erosion.

Implementation plan 2016-2018

Investigate phasing out the Minimum Parking Requirement (MPR)

MPRs are rules in District Plans that require developers to build a minimum number of off-street car parks with any new development - usually one or two parks per dwelling. While there is no MPR for developments within Wellington's CBD, MPRs do apply across the rest of the city.

Number of households with
2 or 3 or more cars has decreased
between the 2006 and 2013 censuses

We will explore phasing out the minimum parking requirement where it makes sense - starting in parts of the city where car ownership rates are already low and comparable to CBD levels.

Around 1 in every 7 Wellington households already lives without a car. More than 10,000 households in total have no car, and this number rose by more than 1100 households since the last census. The highest concentration of no-car households is in the CBD and surrounding suburbs. We would prioritise looking at removing MPRs for these suburbs and increasing the provision of alternative transport choices. For some places, for example the

northern suburbs, it is evident that the requirement is a necessity. But in places close to the CBD it may serve only to limit sustainable development potential which is undesirable given the city expects to add a minimum 50,000 more residents by 2043. It is also important to acknowledge the complex nature of MPRs and ensure that any decisions to remove them is done in full cognisance of the impact on other important transport modes such as public and active transport. For example MPRs may be necessary on arterial routes where parking competes for space with cycle lanes or bus lanes.

By phasing out this requirement we can enable greater transport choice and allow developers, both commercial and residential, to build parking as needed to meet demand rather than creating excess capacity with a compulsory regulation that incentivises car ownership over other transport choices. This has been the practice in Wellington's CBD for around 20 years, with positive development outcomes. Developers are already incentivised to provide adequate parking in order to maximise the value of their investment. However, with car ownership decreasing on a per-capita basis across the city, and with increasing numbers of Wellingtonians taking advantage of the growing range of alternative transport choices on offer, it makes sense to let the market define what the optimal use of any given space is; be it car parking or some alternate land use.

Continue the Low Carbon Challenge

Wellington City Council has been partnering with Enspirial and a range of other partners to deliver the Low Carbon Challenge (formally known as the Smart Energy Challenge). The Challenge brings to life emissions reduction projects that benefit Wellington and contribute to the city's liveability and sustainability. The challenge also engages Wellington's innovative social entrepreneurs and helps build capacity within the sector whilst at the same time providing practical support through dollar-for-dollar fund matching for successful projects.

Two challenges have been successfully run to date resulting in initiatives such as Mevo - an EV car-sharing scheme to be launched in 2016 - and the Wellington Smart Building Challenge (see page 17). A Climathon event was also run the winner of which was selected to present at the COP21 in Paris last year and placed second out of more than a hundred teams globally.

2nd place finish at COP21 for PoOol, the winner of the Wellington Climathon

We are working with Enspirial to deliver the 2016 Climathon to continue to cultivate our local entrepreneur community and support the three pillars of this Low Carbon Capital Plan.

Investigate incentives for sustainable building solutions

With Wellington City's population set to grow by at least 50,000 residents over the next 30 years, and a focus on growth in the CBD, we want to ensure that effective incentives are in place for new building developers, and owners of existing buildings, to provide facilities which add to the sustainability of that growth.

Over the next two years, we will investigate what incentives, financial or otherwise, could be effective in ensuring the provision of services including, but not limited to, recycling and food waste collection, electric vehicle charging infrastructure, green roofs and access to building car-share schemes.

Investigate alternatives for sewage sludge disposal

One of the practical challenges that a growing Wellington City will face is how to deal with accompanying increase in wastewater being treated and then sent to the Southern landfill as sewerage sludge.

15,000 tonnes of sewage sludge disposed of in the southern landfill – just under 20% of total waste

The amount of sewerage sludge going to landfill has climate change implications in two respects - the greenhouse gas effects of the sludge itself; and the potential impact on the landfill's emissions-reducing waste minimisation programmes given the requirement for every tonne of sludge to be mixed with four tonnes of municipal waste.

Wellington Water commissioned a Regional Biosolids Strategy in late 2015 to set a regional direction for management of the Biosolids generated by the four wastewater treatment plants that they manage. The Biosolids strategy considered a range of sludge treatment technology and potential end uses, in particular potential beneficial uses (such as disposal to land or energy recovery). In terms of timing any change in sewage sludge treatment at the Southern landfill would best line up with the expiry of the treatment plant operating contract in 2020. We will work with Wellington Water to discuss options for the treatment of sewage sludge to reduce landfill emissions.

Home Energy Saver

The Home Energy Saver scheme offers a free home energy audit to Wellington homeowners, landlords, and tenants. Following the audit participants are eligible for a 50% discount on certain energy saving products up to a cap in order to reduce their energy use and carbon footprint. Since 2011 more than 2000 homes have received upgrades through this program. We are currently working with Victoria University to carry out an evaluation of the scheme in order to ascertain its effectiveness in driving behaviour change when it comes to energy use.

Warm Up Wellington

Warm up Wellington is a subsidiary of the Government's Warm up New Zealand (WUNZ) scheme. WCC in partnership with EECA, Sustainability Trust, Capital and Coast District Health Board, and Hutt Mana Charitable Trust provides insulation services to low-income homes. WUNZ is a three-year programme with a target of insulating 46,000 homes across New Zealand.

1,400 retrofits through the Warm Up Wellington program since 2011

The programme targets households exhibiting, or at risk of developing, respiratory disease and other health conditions linked to poor housing.

Eligibility for the WUNZ programme is limited to households that:

- Householder or head tenant holds a Community Services Card and,
- someone living in the home is under 18 years of age or over 65, or
- someone living in the home has a housing-related health condition.

More than 1400 retrofits have been undertaken in Wellington City since 2011. Central government recently passed legislation requiring all rental properties to be insulated by mid-2019. As such the criteria for Central government funding, which up until now has provided the bulk of the subsidy via EECA, has changed and the scheme will only be available for rental properties. We will provide funding of \$80,000 for Warm up Wellington in the 2016/17 financial year.

Continue and evaluate the Smart Buildings Challenge

The Smart Buildings Challenge is a collaboration between Wellington City Council, EECA, Microsoft, Switch Automation, Vector AMS and the Energy Management Association of New Zealand to pilot an energy management tool for commercial building owners. The challenge aims to provide a user-friendly platform which enables building owners to manage and reduce their own energy costs whilst at the same time reducing the carbon footprint of Wellington's commercial building sector. We currently have 19 commercial buildings entered into the challenge including Wellington City Council's Central Library Building.

38% of emissions in the Wellington City Council boundaries are from stationary energy - for example the energy used to heat and cool commercial buildings

Challenge participants sign up to an aspirational goal of a 10% reduction in energy usage over the course of the challenge and work towards achieving NABERS NZ accreditation.

The Smart Buildings Challenge is a pilot and has funding through to the end of 2016 at which point we will evaluate the programme and investigate opportunities to make changes to and extend the programme to a larger number of building owners as well as their tenants.

Solar Power

Currently residential solar does not have a large impact on emission reductions given New Zealand's already high levels of renewable electricity generation currently sitting at around 80%. Solar is also at its most effective during the day when residential electricity demand is lower. However, battery storage technology is rapidly improving and as it improves the potential for solar installations to help reduce the City's greenhouse gas emissions increases.

There are also co-benefits of promoting solar in Wellington City. Homes and businesses are more resilient if they have the ability to generate and store their own electricity in the event of an outage.

We will look for opportunities to increase the uptake of solar in Wellington by working with solar providers and utilities in both residential and commercial contexts.

2. Changing the way we move

In order to meet Wellington's climate transport challenges we must make it easier for Wellington City residents to either not own a personal vehicle, or to own personal vehicles which operate on sustainable alternatives to fossil fuels.

Mobile emissions make up the largest segment of Wellington City's emissions profile. Having a high-quality diverse transport system is key to Wellington's economic, environmental and social success as well as meeting our climate change targets.

56% of emissions in the Wellington City Council boundaries are from transport

Wellington has many existing advantages. The city is compact, many people work in the CBD, and we have a comparatively young, educated population who have demonstrated they are open to change and new transport experiences. We have a good public transport system, and car ownership is relatively low by national standards. Walking as a transport mode is very high (17 percent of journeys to work) by national and international standards. There has also been a large recent rise in the number of people cycling despite a current lack of supporting infrastructure.

As a city we must recognise the important role our public transport system plays in moving people around the city and the wider region and increase availability and quality of service, foster the safe and convenient development of walking and cycling, and support the provision and uptake of car-share and ride-share services and disruptive technologies such as electric and autonomous vehicles.

Implementation Plan 2016 - 2018

Support car-share and electric vehicle charging

Over the next three years we will identify up to 100 car parks citywide, 30 in the CBD, 70 in the suburbs. These parks will be available based on demand for car-share operations, electric vehicle (EV) charging infrastructure, or any other service which reduces the need to own a car or makes it easier to shift to sustainable transport fuels. This kind of support is in line with support we already offer to other providers of valuable transport options with public transport and taxis enjoying substantial road space across the city, including in high-value areas. This will also be done in an integrated way being cognisant of the impact on other important transport modes such as walking, cycling, and public transport.

In accordance with Wellington City Council's car-share policy, these parks will only be provided where demand can be demonstrated. In the case of car-share adding car-share vehicles in the City could potentially free up parking space given recent research from Australia showing that for every car-share vehicle in operation an average of 10 private vehicles are removed from city streets¹. Research out of the USA shows as many as 15 can be removed.

We will also develop an EV policy to outline the conditions under which public spaces will be made available for EV charging infrastructure and the guiding principles for granting such access.

In addition to the policies, guidelines will be drawn up to identify the level of subsidy needed to grow and maintain EV charging infrastructure and car-share take-up, and the point at which subsidised Council car-parking is no longer required.

"The new blueprint is ... not anti-car.

It's pro-choice."

— Janette Sadik-Khan, Former NYC Transportation Department Head

¹ Philip Boyle & Associates, (2015), *The Impact of Car Share Services in Australia*, 7 January 2016

Car share

Council has supported car-share in one form or another since 2008. We will now look to accelerate that support to enable greater provision of car-share services across the city with a focus on the CBD. This will primarily be in the form of provision of parking spaces which will initially be free. It could also be through initiatives such as the Low Carbon Challenge. We will also work with other Councils to develop region-wide car-share capability.

Promote electric vehicle uptake

Increasing the number of electric vehicles as a proportion of Wellington's transport fleet would have a significant impact on the city's greenhouse gas emissions. EVs also make sense for New Zealand given 80% of our electricity is currently generated from renewable sources. Cost remains a barrier to the uptake of electric vehicles, however prices continue to fall with an increasing number of products being made available in the New Zealand market. As uptake of EVs increases so does the potential for a decent sized second-hand market at prices which rival those of conventional vehicles.

"Electric vehicles can drive us into a cleaner, more sustainable energy future. The IEA has shown that if global warming is to be limited to 2 degrees, at least a fifth of all vehicles on roads by 2030 should be electric."

— **Fatih Birol, Executive Director of the International Energy Agency**

The other barrier to uptake of EVs is the lack of charging infrastructure around the city, particularly in the CBD, and in neighbouring cities in the Wellington region. This exacerbates "range anxiety" which may deter otherwise motivated car owners from purchasing an EV. Wellington also has a higher than average number of residential properties without garages or off-street parking for overnight charging which makes provision of residential charging or charging near place of work a specific challenge for Wellington City.

As well as providing access to public spaces, including carparks, for the provision of EV charging infrastructure Council can also play a critical role in ensuring the consenting processes for the installation of chargers are as streamlined and affordable as possible. We are currently working with a number of private sector partners and key stakeholders to progress this work with a view to producing an easy to understand guide for those looking to install chargers on public and private land within Wellington City, from the standard three pin socket (slow-charger) to the 50kWh fast chargers.

We will investigate removing the requirement for a resource consent for EV charging infrastructure right across the city. In order to facilitate the uptake of EVs by those without access to a garage it will also be important to investigate options for suburban on-street slow-charging.

"Zero Emissions Vehicles will also reduce local air pollution in cities that is causing immense damage to health and the economy. The uptake of electric-mobility will be more feasible and also fruitful if cities adopt compact planning and measures to improve public transport."

— **Joan Clos, Executive Director UN-Habitat, UN Human Settlements Agency**

We will continue to work with Central Government, other councils, utilities providers, and other key stakeholders such as Drive Electric to progress the rollout of an integrated EV fast charging network across the country.

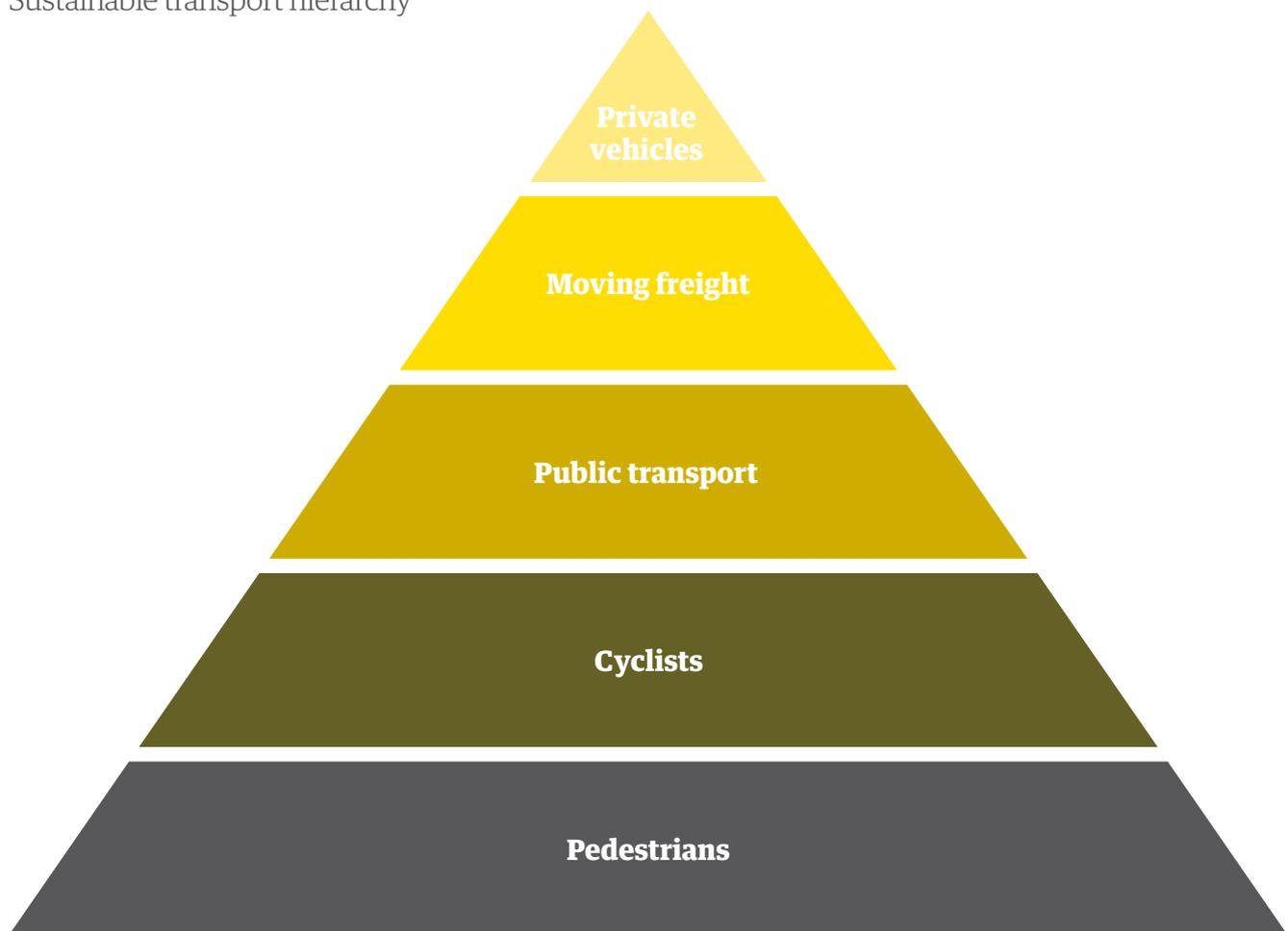
Invest in walking, cycling, and public transport modes

Wellington's Urban Growth Plan supports our sustainable transport hierarchy by encouraging walking, cycling and public transport over other modes of transport.

We will continue to support the objectives of the Wellington City Council's Walking Policy and look for opportunities to enhance the pedestrian experience in the City and have more commuter journeys taken by foot through initiatives such as improved signage.

Wellington City Council in partnership with the New Zealand Transport Agency and Greater Wellington Regional Council will also fund a significant expansion of our cycling and public transport network in the coming years. To make the most of the improved cycling network, we will explore opportunities to establish a bike share scheme and identify public spaces that could be used to support such a scheme.

Sustainable transport hierarchy



Advocating for lower fares and a fully electric public transport fleet

Wellington City Council is aware of the critical impact public transport has on creating a balanced, low carbon, well-functioning transport network. We are also aware that while we don't control the public transport network we have a strong advocacy role to play for our residents; especially vulnerable users who rely on public transport because they have no alternative. We view public transport fares as one of the key areas of action because while Auckland Council recover just 44% of their operating costs through public transport fares, and Environment Canterbury just 38%, Wellington recovers 57% of their operating costs through public transport fares. Greater Wellington Regional Council analysis indicates that while residents of other territorial authorities are paying between 10-40c/km, residents of Wellington City are paying as much as \$.60-1.80/km. Given this imbalance, we believe we have a strong role to play in advocating for more reasonable fares across the Wellington City public transport network. We can't deliver on lowering fares ourselves but will continue to work with Greater Wellington Regional Council to explore the possibilities through programmes like our discounted public transport fares piloted over the past Christmas period. Wellington City Council will also continue to advocate for a fully electric public transport fleet.

Advocate for greater support for the development of biofuels

New Zealand is uniquely placed to be able to produce ample sustainably produced bioenergy to begin replacing both solid and liquid fuels across the country. With adequate support from central government it could also create opportunities for greater carbon offsetting through forestry.

Recently biofuel production has been a source of contention globally with concerns raised around the displacement of food sources, impacts on biodiversity, and the carbon footprint of some forms of biofuel. New Zealand is in the fortunate position of having forestry and agricultural sectors which produce waste by-products which could be used for sustainable biofuel production, as well as substantial potential for planting new forests to supply a growing biofuel industry.

The private sector is beginning to act in this area in spite of little government support. Z Energy recently announced the construction of a biofuel plant that will run on beef tallow as a feedstock. Air New Zealand and Virgin Australia recently released a request for information to the market to try and support the creation of an Australasian biofuel market for jet fuel. This is a great start and greater central government support could progress the sector even further.

An effective price on carbon through the emissions trading scheme as well as regulatory or financial support from central government for greater biofuel production presents one of the greatest opportunities to make a meaningful difference in Wellington's emissions profile. Council will continue to advocate to Government for progress to be made in this area.

3. Leading by example

Wellington City Council owns, manages, and provides a range of services that directly or indirectly produce greenhouse gas emissions. The main sources of emissions for Council operations are landfills and the energy used in our offices, pools, water treatment and pumping, street lighting and vehicle fleets. Wellington City Council continues to deliver an energy data monitoring and energy management programme through our Energy Manager. In this Low Carbon Capital plan we will build on this work.

Wellington City Council currently has a target of an 80% reduction in emissions by 2050. We will set interim targets using the comprehensive data now available to us through our CEMARS certification.

Implementation Plan 2016 - 2018

CEMARS certification

Wellington City Council achieved CEMARS certification in December 2015. Certification means that we can now have confidence that the data we collect is accurate and comprehensive which for the first time gives us an exact measure of how we are performing as an organisation in reducing our greenhouse gas emissions.

“Council is showing what can be done and now has the opportunity to inspire and influence suppliers and other organisation’s to reduce their emissions.”

– Dr. Ann Smith, Chief Executive of Enviro-Mark Solutions (CEMARS)

Now that certification has been achieved we move to the next phase of CEMARS and will be setting emission reduction targets for the next five years across Council and CCOs for all major emission sources. These will be audited annually to monitor progress leading up to our next full audit in 2020. This enables us to start measuring our energy and greenhouse gas emissions reduction progress against this original audit or ‘baseline year’ and make more informed decisions about our energy management and emissions reduction work programmes.

Invest in energy savings across the business

Wellington City Council is fortunate to have strong energy management capability with savings already being made despite no dedicated budget. We will invest in energy savings across the business over the next three years to take this to the next level. Projects have been identified which could result in significant energy savings and greenhouse gas emission reductions with short payback times. We will develop a business case for an energy management budget that would allow these larger energy saving projects to proceed. In the meantime we have allocated \$75,000 for the 2016/17 financial year in order for work on these initiatives to begin.

14% potential energy savings identified since CEMARS certification through the energy management programme

We will also implement an Energy Management Strategy to reduce energy costs, optimise systems, and reduce emissions.

Council Vehicle Fleet

Wellington City Council currently has one fully electric vehicle in its fleet of 197 vehicles as well as four hybrid vehicles.

1 current number of fully electric vehicles in the Wellington City Council’s vehicle fleet

Council vehicles, on average, do not have extended driving profiles that would normally restrict the use of EV or alternate fuel vehicles. However, these vehicles currently attract an approximate 25% cost premium when compared to equivalent diesel or petrol cars, and whole life and residual value analysis is not readily available for these vehicles.

To lower its carbon footprint WCC has an ongoing commitment to electric vehicle (EV) and alternative fuel technologies. Alternative fuels and EV technology for its ‘Type 1 - small car’ and ‘Type 2 - large car’ vehicles will be considered as part of the current fleet review. Council’s Fleet Asset Manager will undertake analysis of existing vehicle usage patterns; distance travelled, fuel consumption, travel time and locations, in order to project Council’s EV requirements. This analysis will aid Council in determining the actual number of EVs that can effectively become part of the current fleet, meet our business demands and ensure that we have sufficient accessible charging infrastructure in place.

Once the projected numbers are known, and as budgets and business needs allow, Council will increase its central pool of EV light vehicles during 2016/2017. This incremental approach is recommended as it enables Council to take advantage of emerging EV technologies, vehicle availability, Government purchasing and transport incentives, as well as managing risks associated with charging infrastructure limitations and electricity price fluctuations. We will also be reducing the size of our light vehicle fleet and encouraging staff to walk, cycle, or take public transport.

We will also investigate over the coming year the potential for car-sharing to be incorporated into Council staff vehicle use.

Deliver “Love Food, Hate Waste” with national partners

The average New Zealand household throws away \$563 worth of food every year because they buy too much, do not store it properly or do not use it well. While some is composted, most of the food ends up as organic waste in landfills adding to our greenhouse gas emissions. Households are responsible for 61 per cent of the country’s food waste with supermarkets responsible for 7 per cent.

21% reduction in food waste in the United Kingdom since the introduction of “Love Food, Hate Waste”

WasteMINZ, the waste sector industry body, is set to formally launch an anti-food waste campaign “Love Food, Hate Waste” in 2016. Wellington City Council will be delivering this education programme along with 56 other councils around New Zealand.

A similar campaign in England has reduced household food waste by approximately 20 percent since its launch in 2007. Such a reduction would amount to thousands of tons less organic waste for Wellington City, and would reduce our corporate emissions.

We will also be looking for any opportunity to build off of the “Love Food, Hate Waste” campaign and further reduce the amount of food needlessly going to landfill.

Procurement

Wellington City Council’s Procurement Policy includes measures to support sustainable business practices and minimise adverse environmental impacts of procurement decisions.

Under standard templates, bidders are asked to supply information about their environmental/sustainability policies, strategies, and targets, including steps being taken to reduce greenhouse gas emissions.

The Council’s Travel Information Handbook for staff prescribe the purchase of offset units to cover emissions associated with international air travel outside of the European Union, as these emissions are not covered by either domestic or international emissions trading legislation. The cost of offsetting is treated as part of the overall trip costs.

We will look for further opportunities to green the Council’s supply chain by monitoring the best available information regarding the sustainability of goods and services being purchased and potentially using new tools available to us under CEMARS.

Driving staff behaviour change

The enormous challenge of addressing climate change can be overwhelming. Individuals often feel as though the problem is so huge that it can only be solved by governments or large organisations. However there is much we can all do in our day to day lives to reduce our own carbon footprints and collectively have a major impact on greenhouse gas emissions. What is currently lacking is simple and accessible information to inform those decisions.

We will develop an in-house education programme designed to challenge and inform Wellington City Council staff and drive behaviour change. As a part of this education programme we will investigate the development of an individual carbon calculator that would allow the user to calculate their personal carbon footprint and measure the impact of their behaviours and choices including diet and travel.

Our staff are also a potentially valuable resource for identifying wasteful practices and proposing energy-saving ideas. We will investigate ways to tap into this resource and develop mechanisms for feeding such information back to our Energy Manager.

Making maximum use of the levers we do have

Council has substantial legal powers in areas like encroachments and bylaws. Where possible, Council will investigate aligning these tools to our goals with respect to climate change. Of particular note are areas like road reserve encroachments for garages, where we can be more permissive with encroachments provided infrastructure like electric vehicle charging stations will be installed. Council will investigate where and how these tools can be best employed to drive emission reduction initiatives.

Carbon management policy and forestry

Wellington City Council produced a Carbon Management Policy in 2011 to guide management of the Council's greenhouse gas emission liabilities from landfill and holdings under the New Zealand Emissions Trading Scheme (ETS) and the Permanent Forest Sinks Initiative (PFSI).

35,000 emissions trading scheme units generated per year.

328,000 emissions trading scheme units banked.

With major changes to the NZ ETS being implemented over the next few years the price of carbon is likely to be highly volatile which will impact both the level of our liability and the value of the units we have earned through our forests or purchased to meet landfill obligations. An implementation plan for our Carbon Management Policy will guide decisions in respect of all carbon unit activity and manage any financial risks.

We will continue responsibly managing our forests to reduce fire risk and continue our work to control browsing pest animals (such as possums or goats) to enable increased native regeneration and therefore increased carbon sequestration.

Improving Consideration of Climate Issues

Currently, all policies, investments and actions that the Council takes must be evaluated to determine whether or not there are climate change implications. We will review this practice to ascertain its effectiveness and identify any difficulties or barriers to accessing the required information to accurately evaluate climate change implications and whether there is currently the adequate resourcing to do so.



Glossary

21st Conference of the Parties	The Conference Of the Parties (COP21) was the 21st annual meeting of international governments to address climate change held in Paris in December 2015.	Coastal impacts	The climate change impacts that are felt in coastal areas, including sea levels rising, saltwater intruding into water supplies, and damage to coastal infrastructure.
Base year	The year off which targeted reductions are based - the baseline year of emissions.	Compact of Mayors	A global agreement of mayors to mitigate the impacts of climate change by reducing their greenhouse gas emissions.
Carbon credits/units	Emission units are often referred to as carbon credits, allowances or offset credits. An emission unit can represent one metric tonne of carbon dioxide itself, or the equivalent of any other greenhouse gas (carbon dioxide equivalent or CO ₂ equivalent). The type of emission unit used in New Zealand to comply with the emissions trading scheme is called the New Zealand Unit or NZU.	Corporate emissions	Emissions released by Wellington City Council as an organisation rather than emissions released within the city's boundaries.
Carbon sequestration	Sequestration occurs when carbon is removed from the atmosphere either through natural (forest), preventative (carbon capture) or engineering means.	ETS (Emissions Trading Scheme)	A NZ Government mechanism which creates a trading market resulting in a price on carbon. Some participants are emitters (e.g. industry) and are therefore required to surrender units for their emissions. Others are producers (e.g. forestry) and sequester or remove carbon from the atmosphere. Wellington City Council is both an emitter and a producer.
Certified Emissions Management And Reduction Scheme (CEMARS)	An Enviro-Mark solutions scheme for measuring council or corporate emissions that audits emissions and holds participants accountable for meeting targets in greenhouse gas reductions.	Green roof	A roof sown with a number of plants for a variety of reasons ranging from water management to building heating and cooling.
Climate change adaptation	Actions that reduce or address the vulnerability to long term impacts of climate change increasing the ability to survive and thrive in the face of potential climate change impacts.	Greenhouse emissions	Greenhouse emissions are gases that when released into the atmosphere accumulate and trap heat raising the overall temperature.
Climate change mitigation	Actions that reduce the amount of overall greenhouse gas released in the atmosphere reducing the potential impact of climate change.	Greenhouse gas emissions inventory	An assessment of the total emissions released in the city or released by the council.
Climate-KIC (Knowledge Innovation Community)	A European-initiated public-private partnership created by the EU to develop climate mitigation and adaptation ideas.	Home energy audit	A two-hour session with an energy efficiency expert to assess a home for energy efficiency ranging from shower flow to lighting quality to window sealing.
Climathon	A Council-sponsored idea accelerator to develop climate-friendly initiatives run globally in concert with Climate-KIC climathons in other cities.	Intergovernmental Panel on Climate Change / IPCC	A multinational panel of scientists convened to study climate change by the United Nations at the request of member governments. Have recently released their fifth report on climate change.
		Mobile Emissions	A sector of emissions that are released from mobile sources such as cars, trucks, aircraft and ships.

MPR (Minimum Parking Requirement)	A requirement that developers of residential and commercial property include a certain amount of parking based on the number of dwellings or based on floor space.	Shocks and Stresses	<p>Acute Shocks - sudden, sharp events that threaten a city such as earthquakes, floods, disease outbreaks and terrorist attacks.</p> <p>Chronic Stresses - weaken the fabric of a city on a daily or cyclical basis such as high unemployment, food or water shortages, climate change.</p>
NABERS NZ accreditation	A building accreditation framework which certifies buildings for high performance in relation to energy efficiency.	Smart Buildings Challenge	A council-driven building energy efficiency challenge where commercial building owners sign up to data analysis tools and commit to reducing energy use by 10% over one year.
Offsetting	Emissions can either be reduced directly or offset. Offsetting is a practice whereby carbon sinks - such as forests - are planted to offset the impact of an emissions source.	Smart energy / Low carbon Challenge	A council-driven business idea accelerator to bring blue-sky climate ideas to Wellington using crowdfunding and mentoring.
PFSI (Permanent Forest Sinks Initiative)	A NZ Government programme to create permanent forests that then yield carbon credits by planting or re-planting land.	Stationary Energy	A sector of emissions that are released from buildings or other non-mobile sources - such as from heating, lighting or cooling buildings.
Range anxiety	Range anxiety describes one of the key barriers individuals have expressed to buying an electric car - worries driven by the fact that electric cars have a relatively short range before needing a recharge relative to their petrol-driven counterparts.	tCO₂e / Tonnes of CO₂ Equivalent	Either direct carbon dioxide emissions or emissions of another greenhouse gas expressed in equivalence to the impact of released carbon dioxide.
Rockefeller Foundation 100 Resilient Cities Network	A city membership network funded by the Rockefeller foundation. It aims to assess and increase resilience to shocks and stresses through funding resilience staff and initiatives in 100 member cities.	Wellington 2050 Energy Calculator	A tool developed by the council that allows individuals to develop emissions reduction pathways based on 31 variable actions in order to meet our 2050 emissions reduction target.

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