

## 9 Responding to climate change - He tīkapa ki te āhuarangi

*Ko te ua ki a Nuku,  
hei waiora mō te ao*

The raindrops that fall on Papatūānuku provide the life-giving waters to the world

### Introduction

The global impacts of climate change are already becoming evident and further change is inevitable due to greenhouse gases already in the atmosphere and which are continually being produced. Climate change will have a significant impact on our economy, environment and society. Auckland's two main challenges are:

- to move from a fossil fuel-dependent, high energy using society to one that uses a greater proportion of renewable energy, conserves energy and resources and therefore reduces emission which contribute to climate change.
- to develop resilience to the impacts of future climate change and position Auckland to take advantage of opportunities that arise from a changing climate.

Climate change is expected to increase the risk from natural hazards. Changes in the intensity of rainfall, increasing temperature variability and rising sea levels will mean that activities already at risk from natural hazards such as flooding, coastal inundation, and land instability will be affected more often. Some activities in locations that are not currently affected by these hazards will be at an increased risk of adverse effects. It is essential that climate change projections are included in all natural hazards and risk assessments so risk can be appropriately managed or avoided.

Climate change is expected to have significant impacts on biodiversity and ecosystems. For example, higher temperatures and more frequent droughts could increase the risk of wildfire in Auckland's ranges and forests, and increased sedimentation and turbidity of estuaries and the marine environment could reduce coastal biodiversity. The extent of change could cause some native species to become extinct and entire ecosystems may also be lost. New pests and diseases could be introduced and some introduced species could switch from being relatively benign to out competing or preying on native species.

Auckland must manage growth in a way that will increase efficiency of the end use of energy and therefore reduce greenhouse gas emissions. A more compact urban form will reduce reliance on energy intensive forms of private transport and increase the use of public transport, walking and cycling. Creating sustainable neighbourhoods and buildings will both increase resilience to the effects of climate change and minimise greenhouse gas emissions.

This section addresses both efforts to reduce greenhouse gas emissions (mitigation) and preparation for the impacts of a more variable climate (adaptation).

### Objectives

1. Auckland continually responds and adapts to the existing and future effects of climate change.
2. Auckland increases renewable energy use and maximises energy efficiency which will reduce emissions that contribute to the adverse effects of climate change.

### Policies

1. Increase energy efficiency, the use of renewable energy and carbon sinks to contribute to the mitigation of the adverse effects of climate change in Auckland by:
  - a. integrating land use and transport to enable an increase in the use of public transport networks and active modes such as walking and cycling.

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- b. requiring 5 or more new dwellings and office and industrial buildings over 5000m<sup>2</sup> to achieve best practice sustainable design
  - c. encouraging all development to incorporate energy efficient design through solar orientation of the building, location of windows and inclusion of appropriate insulation and thermal mass
  - d. enable the retrofit of existing buildings to improve their energy efficiency and where appropriate incorporate renewable energy generation
  - e. protecting existing carbon sinks and promoting new carbon sequestration opportunities
  - f. encouraging new neighbourhoods to be planned to incorporate community scale energy generation, waste management and water sensitive design along with public and active transport networks
  - g. waste minimisation initiatives to reduce the amount of waste going to landfills and energy consumption associated with transport of waste
  - h. enabling the development of renewable electricity generation activities including wind farms and solar photovoltaic generation
  - i. encouraging other activities which improve energy efficiency and reduce greenhouse gas emissions such as waste minimisation and local food production.
2. Increase the resilience of Auckland's communities and natural and physical resources to the anticipated effects of climate change, such as sea level rise, increased risk from natural hazards, more frequent and extreme weather events, and increased drought conditions, by:
- a. encouraging sustainable design in new development to increase water re-use and recycling which will lessen demands on the water infrastructure network design
  - b. preserving, protecting, and enhancing the extent and quality of areas with existing and potential indigenous ecological value, by developing an adaptive management response to climate change threats, such as pest and disease, as these become more evident
  - c. minimising the risk to urban development in areas vulnerable to sea level rise
  - d. ensuring development and associated infrastructure are designed and located taking into account most likely climate change predictions.

### Methods

#### Regulatory

##### Unitary Plan:

- Auckland-wide objectives, policies and rules for infrastructure, transport, network utilities and energy, natural hazards and flooding, air quality and sustainable design.
- Mapping of coastal inundation and flooding.

#### Non regulatory

##### Other strategies

- Waste minimisation strategy.

##### Advocacy and education

- Auckland Council will lead by example in its own operations and services as a catalyst for change
- Advocate adaptation and mitigation principles to Auckland communities.

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### Monitoring and information gathering

- Undertake research into natural hazards, including modelling the effects of climate change on areas susceptible to natural hazards
- Monitor identified areas susceptible to future coastal inundation.

### Explanation and reasons

The objectives, policies and associated methods recognise the need for an integrated approach across the Unitary Plan to managing the risks, uncertainties and challenges for Auckland regarding climate change.

Transport is a major contributor to carbon emissions. Integrating land use and transport through a compact urban form and well connected neighbourhoods will help decrease travel demand, and therefore fossil fuel use. Walking, cycling and public transport will become more attractive alternatives to the private car.

Our homes and workplaces are commonly inefficient, damp and difficult to heat. Sustainability principles, which prioritise passive design to maximise energy efficiency will minimise greenhouse gas emissions at the building scale by reducing energy consumption.

Carbon sequestration is a natural process of absorbing carbon dioxide from the atmosphere and storing it for long periods in plant material, such as growing trees. Deforestation is a major contributor to global climate change. However converting land to forest or wetlands, or riparian planting can provide significant carbon sequestration opportunities. Protecting and enhancing the extent and quality of indigenous habitat increases the ability of indigenous biodiversity to adapt to changing climatic conditions.

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