

Ku-ring-gai Council

Climate Change Policy

Version Number 2

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Climate Change Policy

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Related Policies (Council & Internal)	Water Sensitive City Policy (2016 - pending) Biodiversity Policy (2016 - pending) Sustainable Events Management Policy (2014)
Related Documents - Procedures, Guidelines, Forms, WHS Modules/PCD's, Risk Assessments, Work Method Statements, etc	Climate Change Adaptation Strategy (2016 - pending) Greenhouse Gas Reduction Action Plan (2015) Corporate Sustainability Action Plan (2015) Water Sensitive City \Strategy (2016 - pending) Hornsby Ku-ring-gai Bushfire Risk Management Plan Asset Management Strategy (2015/16-2024/25)

Version History

Version Number	Version Start Date	Version End Date	Author	Details and Comments
1	13/10/2009	24/11/2015	Peter Davies	First version
2	25/11/2015	(date version ceased to be in effect)	Marnie Kikken	Updated objectives and greenhouse gas emission reduction targets Updated implementation program

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Policy

Purpose and objectives

This policy responds to the observed and projected implications of climate change on Ku-ring-gai's natural and built environment, community and economy.

Objectives of this policy are:

- To reduce Council's greenhouse gas emissions (from fixed assets, street lighting and vehicles) to levels consistent with the international goal of limiting global warming to 2° C above pre-industrial levels, equating to a reduction in GHG emissions of 20% by 2020, 50% by 2030 and 100% by 2045, based on 2000 levels.
- To limit Council's 2013 - 2050 greenhouse gas emissions to 158,827 tonnes of CO₂ equivalent (CO₂-e), in order to achieve Council's greenhouse gas emission reduction targets.
- To deliver programs that enables a continued reduction in community energy use and greenhouse gas emissions.
- To reduce Council's, the community's and the natural and built environment's vulnerability and increase its resilience to the impacts of climate change.
- To continue to review Council's greenhouse gas emission reduction targets, emissions budget and climate change mitigation and adaptation activities based on international, regional and local climate science and modelling.

Scope

This policy applies to all sections of Council.

Responsibilities

Specific responsibility for the implementation of this policy lies with the following sections of Council:

- Environment and Sustainability
- Development and Assessment Services
- Integrated Planning, Property and Assets
- Projects Operations
- Strategic Projects
- Engineering Services
- Information Technology
- Community and Recreation Services
- Urban Planning and Heritage
- Procurement and Contracts
- Finance
- Open Space Operations
- Waste Operations
- People and Culture
- Library and Cultural Services
- Corporate Communications

Council's Manager Environment and Sustainability has overall responsibility for compliance with this Policy.

Policy Statement

Background

Our climate system is changing

“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 oceans have acidified, the amounts of snow and ice have diminished, and sea level has risen.” (IPCC 2014, p2)

Globally averaged combined land and ocean surface temperature show a warming of 0.85°C between 1880 and 2012 (IPCC 2014). Australia’s air and ocean temperatures are now, on average, 0.9°C warmer than they were in 1910, with most of the warming occurring since 1950. The frequency of very warm months in Australia has increased five-fold over the past 15 years, while the frequency of very cool months has declined by around a third, compared to 1951–1980. (BoM and CSIRO 2014)

Since 1970, there have been large increases in annual rainfall in Australia’s northwest and decreases in the southwest. Southeast Australia has experienced below average autumn and early winter rainfall since 1990. Natural variability continues to play the dominant role in extreme rainfall. (BoM and CSIRO 2014)

In Australia, mean sea level was 0.225m higher in 2012 than in 1880, the earliest year for which robust estimates are available. Rates of sea level rise in Australia are similar to global averages. Ocean acidity levels have increased since the 1800s due to increased CO₂ absorption from the atmosphere. (BoM and CSIRO 2014)

Anthropogenic greenhouse gas emissions are rising and are the dominant cause of warming

Human influence on the climate system is clear. Recent anthropogenic emissions of greenhouse gases are the highest in history, resulting in unprecedented levels of atmospheric concentrations of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) (IPCC, 2014). Since 1750, the concentration of CO₂ in the atmosphere has grown by 40 per cent, primarily from fossil fuel emissions and secondarily from net land use change emissions. Concentrations of methane have increased by 150 per cent and nitrous oxide by 20 per cent over the same period (IPCC 2013). Together with the effects of other anthropogenic drivers, these gases are extremely likely to have been the dominant cause of observed global warming since the mid-20th century (IPCC 2014).

Climate change projections

Global

“Future climate will depend on committed warming caused by past anthropogenic emissions, as well as future anthropogenic emissions and natural climate variability” (IPCC 2014, p10).

The IPCC uses four Representative Concentration Pathways (RCPs) to describe projected future emission scenarios. Relative to 1850-1900, global surface temperature is projected to increase by at least 1.5°C by the end of the 21st century (2081–2100) for all four scenarios. Warming is likely to exceed 2°C except where the most stringent mitigation efforts have been applied (IPCC 2013).

Australia

Australian temperatures are projected to continue to warm, with more hot days and warm nights and fewer cool days and cold nights. As with global projections, the degree of change will depend on future emission scenarios. Up to 2.5°C of warming this century is anticipated if we curb greenhouse emissions, but under high emission scenarios temperatures could increase from 2.2°C to 5.0°C by 2070 (BoM and CSIRO 2014). In the Sydney Metropolitan area warming, on average, is projected to be about 0.7°C in the near future (2020–2039) and 1.9°C in the far future (2060–2079) (OEH 2014).

Average rainfall in southern Australia is projected to decrease, with a likely increase in drought frequency and severity. An increase in the number and intensity of extreme rainfall events is projected for most regions (BoM and CSIRO 2014). Hotter, drier weather conditions will increase the number of extreme fire-weather days as well as fire severity and intensity in southern and eastern Australia.

Sea-level rise around the Australian coastline by 2100 is likely to be similar to the projected global rise of 0.28 to 0.61 metres for low emissions and 0.52 to 0.98 metres for high emissions, relative to 1986–2005. Higher levels are possible if there is a collapse of the Antarctic ice sheet. Ocean-acidity levels will continue to increase as the ocean absorbs anthropogenic CO₂ emissions (BoM and CSIRO 2014).

Ku-ring-gai

Regional data, incorporating the Ku-ring-gai Local Government Area, echoes Australian climate projections over the course of the century. These projections include: future increases in the intensity of extreme rainfall events and the time spent in drought; continued substantial increases in projected mean, maximum and minimum temperatures; increases in extreme temperatures, with a substantial increase in the temperature reached on hot days, the frequency of hot days, and the duration of warm spells; and harsher fire-weather. (CSIRO 2015a, CSIRO 2015b, OEH 2014)

Climate change impacts and risks

“The impacts of climate change will be accompanied by far-ranging economic, environmental and social costs that will increase over time with higher levels of warming.” (Climate Change Authority 2014, p40)

In recent decades, changes in climate have caused impacts on natural and human systems on all continents and across the oceans. In many regions, changing precipitation or melting snow and ice are altering hydrological systems, affecting water resources in terms of quantity and quality. The negative impacts of climate change on crop yields have been more common than positive impacts (IPCC 2014).

Many terrestrial, freshwater, and marine species have shifted their geographic ranges, seasonal activities, migration patterns, abundances, and species interactions in response to ongoing climate change. Some impacts of ocean acidification on marine organisms have been attributed to human influence. A large fraction of species faces increased extinction risk due to climate change during and beyond the 21st century, especially as climate change interacts with other stressors (IPCC 2014).

Climate change is projected to undermine food security, and to reduce renewable surface water and groundwater resources in most dry subtropical regions, intensifying competition for water among sectors (IPCC 2014).

In urban areas, climate change is projected to increase risks for people, assets, economies and ecosystems, including risks from heat stress, storms and extreme precipitation, inland and coastal flooding, landslides, air pollution, drought, water scarcity, sea-level rise, and storm surges. Impacts from recent climate-related extremes, such as heat waves, droughts, floods, cyclones, and wildfires, reveal significant vulnerability and exposure of some ecosystems and many human systems to current climate variability (IPCC 2014).

Projected impacts of climate change in the Sydney/Central Coast region include significantly more frequent and severe flooding, accelerated soil erosion, loss of or damage to middens and other Aboriginal coastal ceremonial sites and property damage from higher and extreme rainfall. Prolonged hot days are likely to increase the incidence of illness and death, particularly in the most vulnerable sectors of the community. The most fire-sensitive ecosystems are likely to contract because of more intense or extensive fires. Such fires will also increase the risk of loss of life and property in fire prone urban areas (DECCW 2010b).

A full summary of climate change observations, projections, impacts and risks at a global, national, state and regional level is attached to this policy as *Appendix 1: Climate Change: observations, projection, impacts and risks*.

What is an appropriate response?

While climate change is inevitable, limiting the degree of change through mitigation activities, together with adaptation, can reduce climate change risks (IPCC 2014). At the 2009 United Nations Climate Change Conference in Copenhagen it was agreed that holding any temperature increase to below 2°C above preindustrial levels was needed to prevent ‘dangerous’ climate change. “Warming above 2°C increases the likelihood that the world will cross irreversible ‘tipping points’ in the climate system that results in abrupt, highly disruptive and permanent changes” (Climate Change Authority 2014, p36).

Minimising climate change will require substantial and sustained reductions in greenhouse gas emissions. The magnitude of global temperature increases is not determined by emissions in one year but by the cumulative concentration of emissions in the atmosphere. Hence, limiting risks implies a limit to cumulative greenhouse gas emissions, where global net emissions of CO₂ eventually decrease to zero and annual emissions over the next few decades are constrained (IPCC 2014).

Achieving this goal is challenging but it is technically and economically feasible with immediate and strong international action. A global emissions budget sets out the total cumulative global emissions consistent with the aim of limiting warming to a specified temperature target, within a probability range.

The Climate Change Authority (2014) uses a global emissions budget of 1,700 Gt CO₂-e (Kyoto multi-gases) for the period 2000–2050 as a reference point to set a national recommended emissions budget for Australia for 2013-2050 of 10,100 Mt CO₂-e, to provide a likely chance of limiting global warming to less than 2°C.

This emissions budget is described by a trajectory and a set of targets, equating to a 19 per cent reduction in GHG emissions by 2020, a 40 to 60 per cent reduction by 2030, and a 100 per cent reduction by 2045 (relative to 2000 levels).

A Council emission budget of 158,827 t CO₂e for 2013–2050 has been determined, based on the targets and trajectories used by the Climate Change Authority. A corresponding set of GHG emission reduction targets form the objectives of this Policy.

Setting a budget for emissions through to 2050 highlights the trade-offs involved between actions taken now and those made necessary later. The *Stern Review on the Economics of Climate Change* (2006) detailed policy recommendations to effectively respond to the impacts of climate change and made clear that the benefits of strong, early action considerably outweigh the future costs of inaction. In short, weaker action now imposes a greater emissions reduction and adaptation task for future generations at a greater cost (Climate Change Authority 2014).

The IPCC (2014a) refers to climate resilient pathways, that is, sustainable development trajectories that combine adaptation and mitigation to reduce climate change and its impacts, as a means of ensuring that effective risk management can be implemented and sustained.

Implementation program

Ku-ring-gai Council, as a key asset owner, service provider and decision-maker, has a responsibility to its community to undertake activities that effectively mitigate against and adapt to the impacts of climate change.

Council’s 2000 baseline emissions were determined from electricity from fixed assets, street lighting and vehicles. To maintain consistency, Council’s 2020, 2030 and 2050 emission reduction targets focus on emissions from electricity from Council assets, street lighting and vehicles, which represents 97% of the emissions that Council can currently measure.

The importance of addressing climate change is demonstrated in the long-term objectives of Council’s Our Community Our Future - Community Strategic Plan 2030:

- An aware community able to prepare and respond to the risk to life and property from emergency events
- A community empowered with knowledge, learning and information that benefits the environment
- A community addressing and responding to the impacts of climate change and extreme weather events
- A community progressively reducing its consumption of resources and leading in recycling and reuse

Implementation framework

Council will adopt the Precautionary Principle in responding to climate change

Due to the levels of variability associated with the rate and magnitude of changes to the climatic system and its associated impacts under different modelling scenarios. Under the *NSW Local Government Act 1993*, councils are required to manage the local environment with consideration to the principles of Ecologically Sustainable Development (ESD), which incorporates the Precautionary Principle. Section 7e of the Act requires 'councils, Councillors and council employees to have regard to ESD principles in carrying out all of their responsibilities'.

Council will adopt an evidence-based approach in responding to climate change

Council will implement a GHG reduction and climate change adaptation program, for both Council and the community, to reduce the degree of climate change that may occur (mitigation) and to reduce the vulnerability of public and private built and natural assets to the risks associated with climate change, by increasing resilience to it (adaptation), in line with the level of response articulated in the scientific literature.

Council will adopt a shared responsibility management framework

Council will facilitate climate change mitigation and adaptation research and activities across all sectors of the community based on government, agency, university, industry, business and community partnerships.

Council will adopt an integrated management approach

Council will integrate climate change mitigation and adaptation planning into Council's business frameworks, including Council's risk management, financial management and asset management frameworks.

Implementation activities

To meet the objectives of this Policy, the following activities will be implemented across a number of sections of Council:

ACTIVITY AREA	RESPONSIBILITY AREA															
	Environment & Sustainability	Development & Assessment	Integrated Planning, Property & Assets	Projects Operations	Strategic Projects	Engineering Services	Information Technology	Community & Recreation Services	Library and Cultural Services	Procurement and contracts	Finance	Open Space Operations	Waste Operations	People & Culture	Urban Planning & Heritage	Corporate Communications
Staff behavioural change programs	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Energy efficiency and renewable energy works program for Council buildings and facilities	√					√										
Monitoring and maintenance of Council's water reuse systems	√					√						√				
Community / business climate change mitigation / education programs	√															√
Community / business climate change adaptation / education programs	√											√				√
Sustainability data management and reporting system	√					√		√								
Sustainability and climate resilience provisions in planning controls	√	√													√	
Sustainability and climate resilience building performance standards for new and refurbished assets	√		√			√		√								
Sustainable design and resource efficiency integrated into capital works program	√			√	√										√	
Sustainable design of parks, playgrounds and ovals	√			√	√							√				
Green infrastructure	√			√	√											
Flood risk management	√					√						√				
Energy efficient street lighting upgrades	√					√										
Energy efficient equipment / appliances / devices						√	√									
Software to enhance resource efficiency							√									
Sustainable event management	√							√	√	√						√
Sustainable design of town and neighbourhood centres	√														√	
Sustainable transport	√					√									√	

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Sustainable procurement	√										√						
Financing for energy reduction / efficiency projects												√					
Emergency and disaster resilience management	√												√				
Biodiversity resilience programs	√												√				
Fleet management													√				
Minimum performance standards for new or replacement outdoor lighting installations	√				√	√							√				
Community waste reduction and efficiency programs	√														√		
Council waste management programs															√		
Proactive engagement with State and Federal Government and other relevant agencies to influence policies and reforms that affect Council's climate change mitigation and adaptation program	√						√						√				

Activities that address climate change but do not directly relate to the objectives of this Policy are included in a number of related Council policies and strategies (please see Associated Documents section).

Monitoring and evaluation

Council will monitor and report against its Climate Change Policy as follows:

Item	Details	Timeframe
GHG emission reduction targets	Monitored through Council's sustainability data management and reporting (Envizi) system and reported against Council's Delivery Program and Operational Plan / Council's Annual Report	Quarterly / Annually
Mitigation and adaptation activities	Key activities reported against Council's Delivery Program and Operational Plan / Council's Annual Report	Quarterly / Annually
Impact of mitigation and adaptation activities (Council)	Monitored through Council's sustainability data management and reporting (Envizi) system and reported against Council's Delivery Program and Operational Plan / Council's Annual Report	Quarterly / Annually
Impact of mitigation and adaptation activities (community)	Measured through community surveys and project evaluation and reported against Council's Delivery Program and Operational Plan / Council's Annual Report	Quarterly / Annually

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Associated documents

This policy provides the basis for the planning, implementation and monitoring of Council's greenhouse gas emission reduction and climate change adaptation programs. Supporting this policy are Council's:

- Climate Change Adaptation Strategy (2016, pending)
- Greenhouse Gas Reduction Action Plan (2015)
- Corporate Sustainability Action Plan (2015)
- Water Sensitive City Policy and Strategy (2016, pending)
- Biodiversity Policy (2016, pending)
- Sustainable Events Management Policy (2014)
- Hornsby Ku-ring-gai Bushfire Risk Management Plan
- Asset Management Strategy (2015/16-2024/25)

Legislative framework

The following legislation affects this policy:

- *Environmental Planning & Assessment Act 1979*
- *Local Government Act 1993*
- *Local Government Amendment (Ecologically Sustainable Development) Act 1997 (NSW)*

Definitions

Term / Abbreviation	Definition
Carbon dioxide equivalent (CO₂e)	A quantity that describes, for a given mixture and amount of greenhouse gases, the amount of CO ₂ that would have the same global warming potential (GWP) when measured over a specified timescale.
Climate change	A long-term change in the earth's climate system, especially a change due to an increase in the average atmospheric temperature.
Climate change adaptation	Encompasses measures taken in response to the actual or expected changes in climate, to negate or reduce their impact. Adaptation measures aim to reduce vulnerability to climate change risks and impacts.
Climate change impact	An effect of climate change on a socio-bio-physical system.
Climate change risk	The risks associated with the socio-bio-physical impacts of climate change.
Climate change mitigation	Refers to efforts to reduce or prevent greenhouse gas emissions, aimed at reducing the potential extent of climate change or reducing the probability of reaching a certain level of climate change.
Climate resilience	The ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organising, and the capacity to adapt to stress and change.
Ecologically Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Emissions budget	Sets out the total amount of cumulative emissions consistent with an aim of limiting warming to a specific temperature target, within a probability range.
Climate vulnerability	The extent to which a system is susceptible to, or unable to cope with, the adverse impacts of climate change. It is influenced by its adaptive capacity.
Greenhouse gases	Any gaseous compound in the atmosphere (such as water vapour, carbon dioxide, tropospheric ozone, nitrous oxide, and methane) that is capable of absorbing infrared radiation, thereby trapping and holding heat in the atmosphere. By increasing the heat in the atmosphere, greenhouse gases are responsible for the greenhouse effect, which ultimately leads to global warming.
Precautionary principle	The precautionary principle states that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason of postponing cost-effective measures to prevent environmental degradation.
Representative Concentration Pathway (RCP)	Four greenhouse gas concentration (not emissions) trajectories adopted by the Intergovernmental Panel on Climate Change for its Fifth Assessment Report (AR5). The RCPs include a stringent mitigation scenario (RCP2.6), two intermediate scenarios (RCP4.5 and RCP6.0) and one scenario with very high GHG emissions (RCP8.5).

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