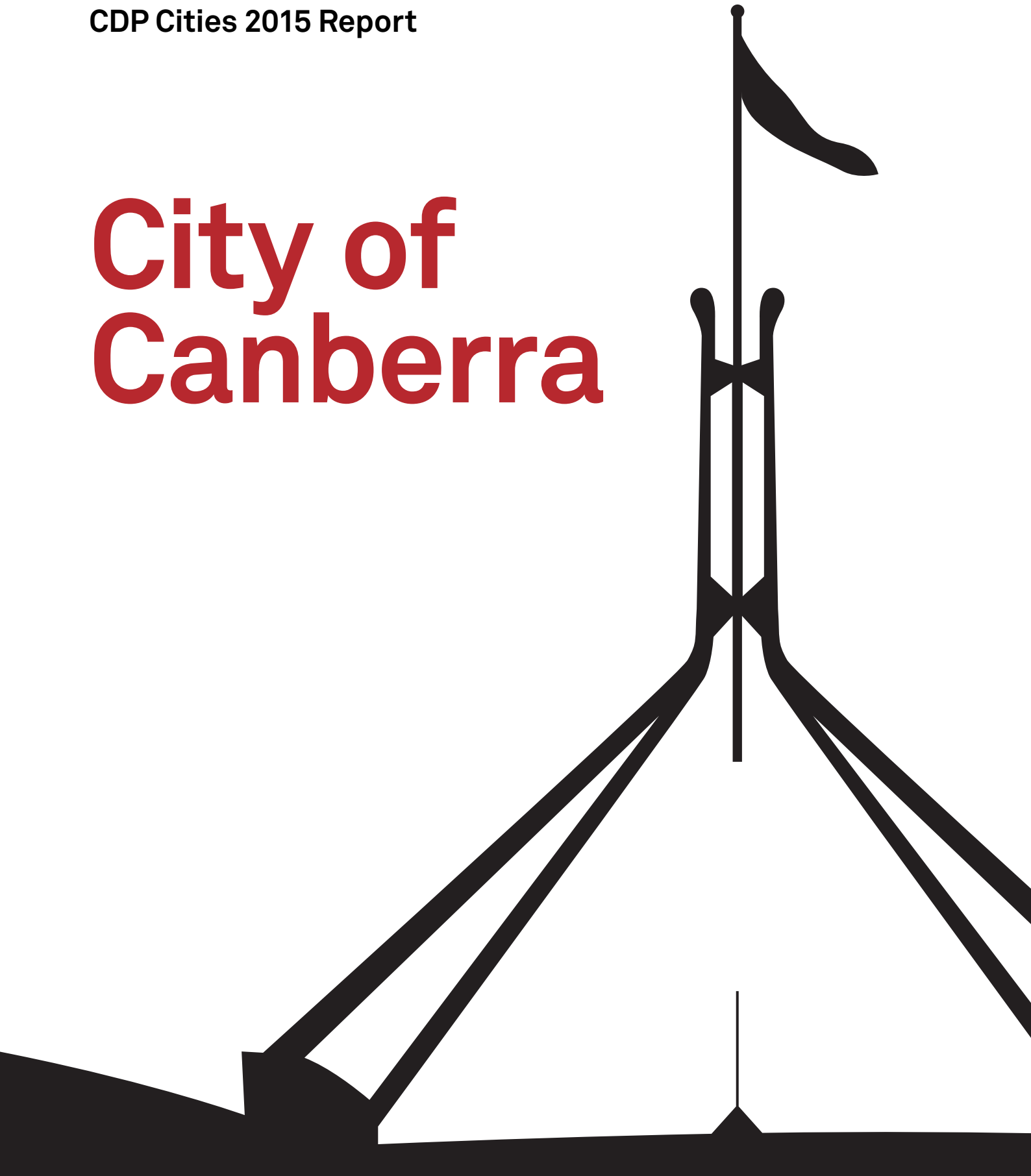


Data provided for the
CDP Cities 2015 Report

www.cdp.net

City of Canberra



Report analysis & information
design for CDP by

In partnership with



AECOM



**Bloomberg
Philanthropies**



Canberra in Context 04

Canberra in Focus 06

Introduction 08

Governance 10

Risks & Adaptation 16

Opportunities 26

Emissions - Local Government 30

Emissions – Community 38

Strategy 46

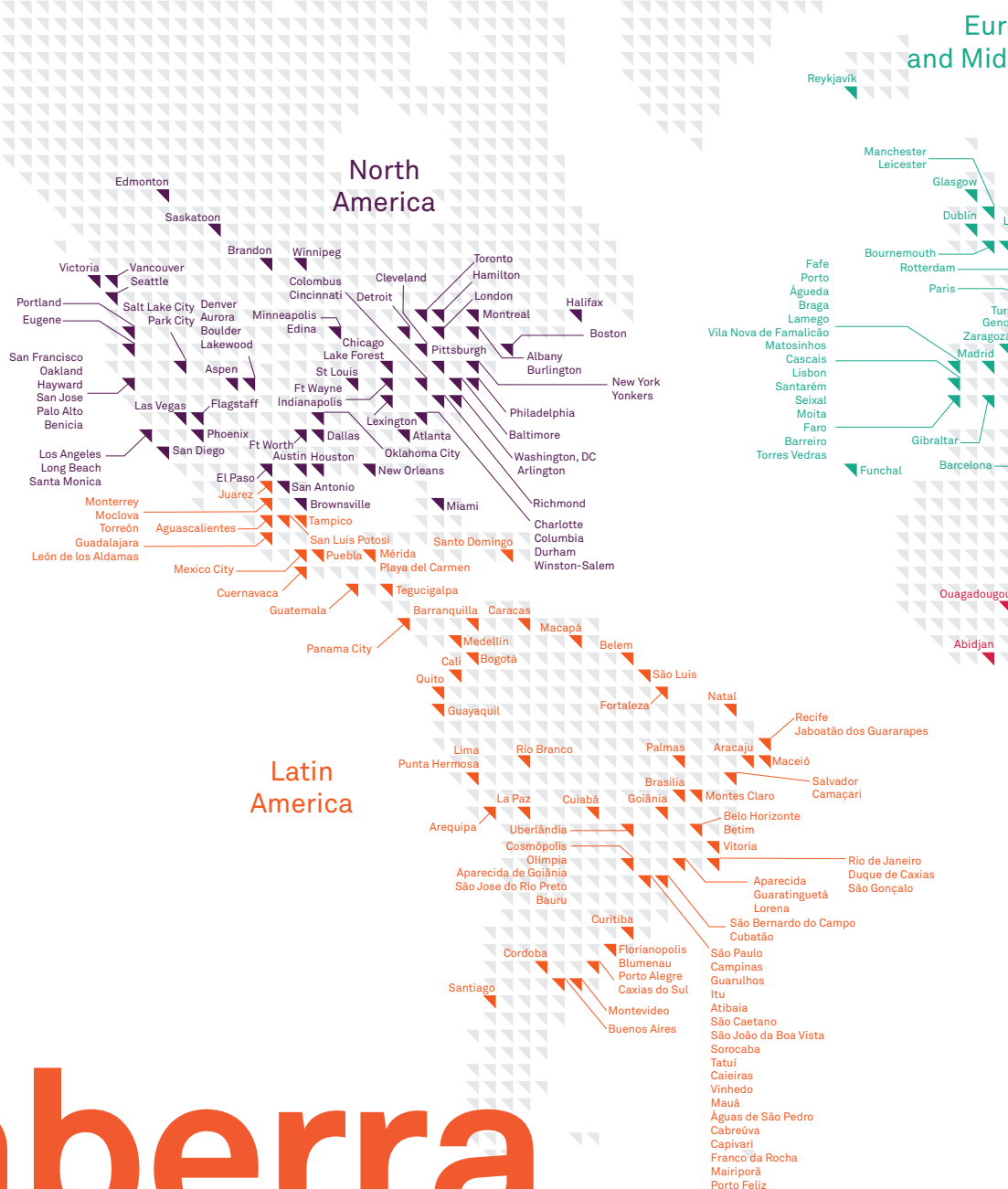
CDP, C40 and AECOM are proud to present results from our fifth consecutive year of climate change reporting for cities. It was an impressive year, with 308 cities reporting on their climate change data (six times more than the number that was reported in the surveys first year of 2011), making this the largest and most comprehensive survey of cities and climate change published to date by CDP. City governments from Helsinki to Canberra to La Paz participated, including over 90% of the membership of the C40 – a group of the world's largest cities dedicated to climate change leadership.

Approximately half of reporting cities measure city-wide emissions. Together, these cities account for 1.67 billion tonnes CO₂e, putting them on par with Japan and UK emissions combined. 60% of all reporting cities now have completed a climate change risk assessment. And cities reported over 3,000 individual actions designed to reduce emissions and adapt to a changing climate. CDP, C40 and AECOM salute the hard work and dedication of the world's city governments in measuring and reporting these important pieces of data. With this report, we provide city governments the information and insights that we hope will assist their work in tackling climate change.

This document contains the questionnaire data provided to CDP from Canberra as part of its 2015 CDP submission.

To see all of the results for all participating cities, visit <https://www.cdp.net/cities>.

The graphics in this document are from the 2015 CDP Cities infographic.



Canberra in context

Number of cities responding per year

48

2011

73

2012

110

2013

207

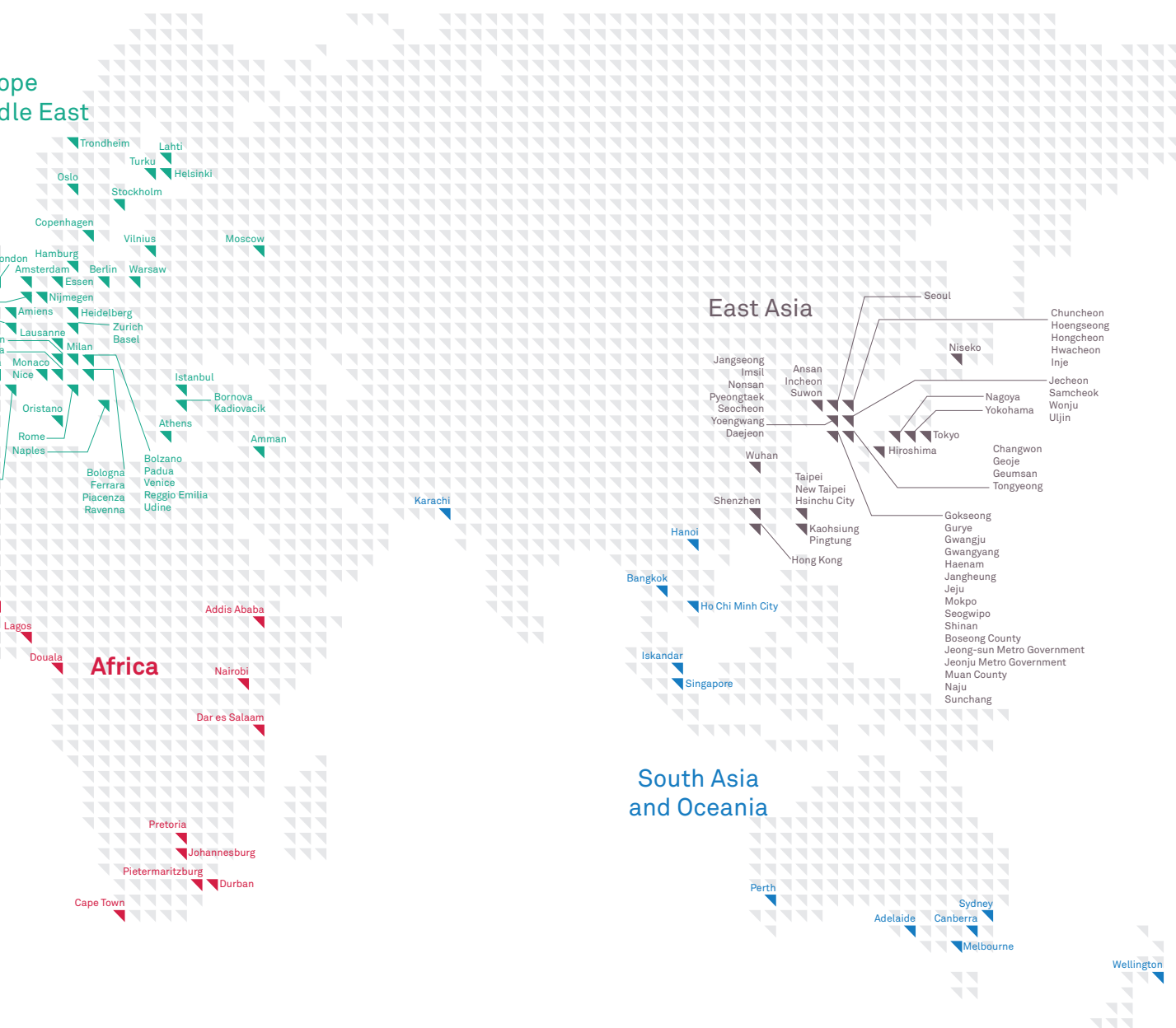
2014

308

2015



Canberra participation



Total population of cities responding in 2015

446,186,833

Canberra (city proper)

385,996

people

Where Canberra fits

171 small

<600k population

77 medium

600k-1.6m population

60 large

1.6m+ population

Year reported

2015

Area

2,358
km²

Population

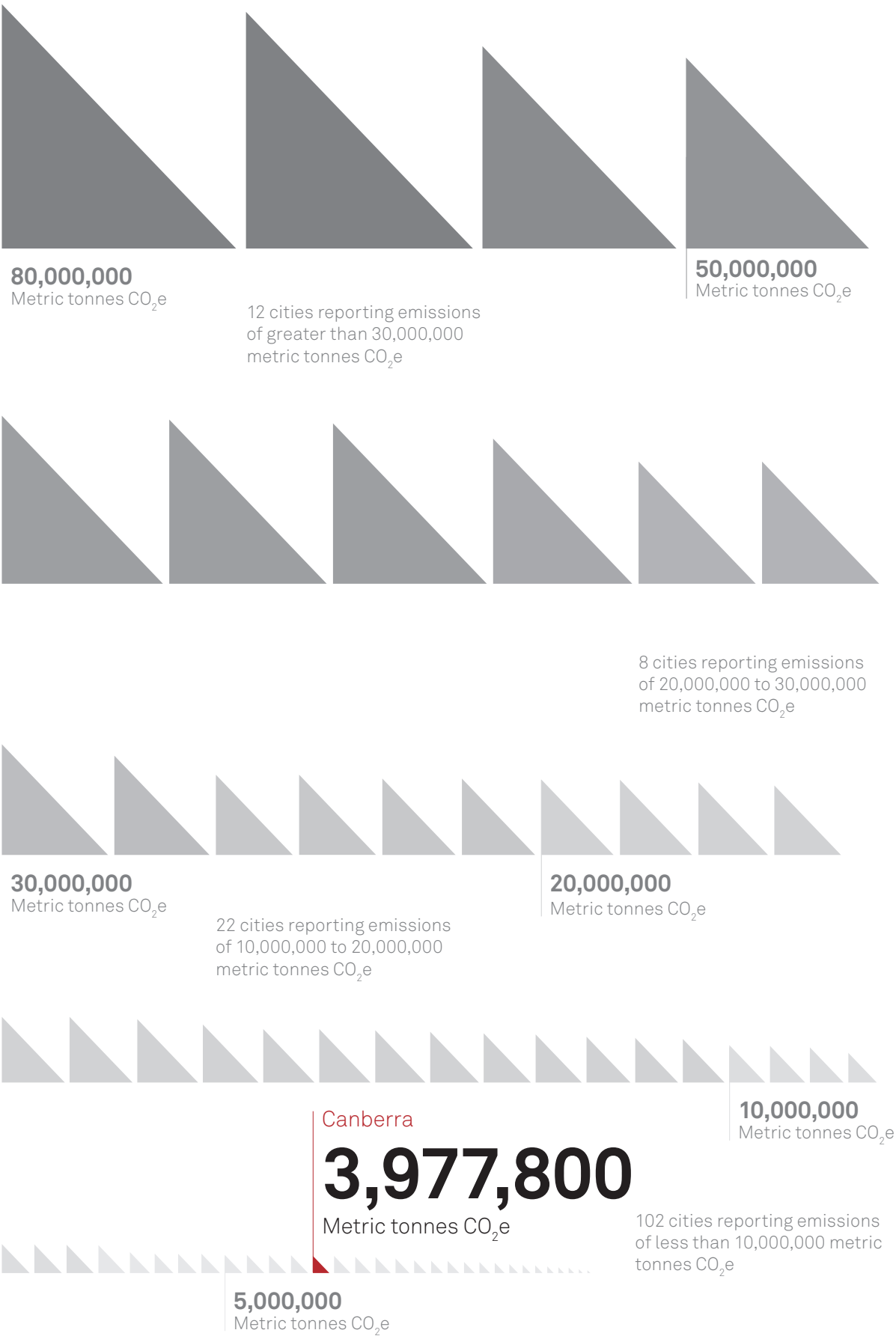
385,996

Canberra in focus

Inventory method

**2006 IPCC Guidelines for
National Greenhouse Gas Inventories**

144 cities reporting emissions in 2015



0 Introduction

Canberra is the national capital, located within the Australian Capital Territory (ACT) and the home of the Australian Parliament and other national institutions. The ACT Government is responsible for both state and local level government services, under the Federation of Australian states and territories.

Canberra, a planned city, is now in its second century. The city covers an area of approximately 800 square kilometres in the Territory's greater 2,358 square kilometres and has a population of approximately 400,000. Canberra serves as a regional hub for smaller regional cities, towns and villages in surrounding New South Wales (NSW). The population of Canberra and its surrounding region is approximately 600,000 including the nearby city of Queanbeyan.

Introduction



1.1 Governance

Canberra's process for managing progress and responsibility for climate action:

Emissions Reductions

The ACT response to climate change is outlined under the Climate Change and Greenhouse Gas Reduction Act 2010 and the climate change strategy and action plan AP2, 2012. The Act establishes the following targets for greenhouse gas reductions: zero net greenhouse gas emissions by 2060; peaking per capita emissions by 2013; 40 per cent of 1990 levels by 2020 and 80 per cent of 1990 levels by 2050. The Act also provides for ongoing emissions reporting and monitoring of the ACT's progress towards the targets. The ACT Government has released an annual inventory of greenhouse gases produced by the Territory since 1998, calculating emissions back to a 1990 base year. AP2 details the pathway and actions the ACT will take to achieve its greenhouse gas reduction targets.

Governance

Adaptation

A climate change adaptation strategy is currently under development. This will include measures for monitoring and reporting on progress.

Canberra has committed to adapting to climate change.

In 2014, the ACT Government committed to a Climate Change Adaptation Strategy for the ACT.

Canberra's plan that addresses climate change adaptation is in progress.

In 2014, the ACT Government committed to a Climate Change Adaptation Strategy for the ACT, including Canberra city. The Strategy takes a regional approach, involving collaboration with governments and communities across jurisdictional boundaries.

It is the ACT Government's intention to mainstream climate change adaptation into all aspects of daily life to allow for a stable and incremental transformation.

The ACT has adopted a sectoral pathway approach to adaptation, consistent with the Australian Government's policy framework of 2013 and advice from the ACT Climate Change Council.

The six sectors for the ACT's pathways are:

Community health and wellbeing: The health and wellbeing of the whole ACT community.

Disaster and emergency management: The emergency planning and response to extreme weather events and natural disasters in the ACT.

Water: The quantity and quality of water resources in the ACT and adjacent catchments.

Settlements and infrastructure: The physical infrastructure, social and economic components of Canberra and ACT settlements.

Natural resources and ecosystems: The species, ecosystems and natural resources in the ACT and region.

Agriculture: The regional food and fibre production in the ACT and region.

The ACT Government's pragmatic approach promotes working together to adapt to the impacts of climate change while increasing the resilience of our people, our city and our environment. It promotes lifestyle transformation so that future generations may continue to enjoy the same quality of life.

Canberra anticipates that national and/or regional climate change activities will have impacts on Canberra's own climate change activities.

Independent emissions modelling that underpinned the development of the ACT climate change strategy and action plan, AP2, was based on a range of assumptions regarding national climate change and energy policies. Central to these assumptions was:

- The introduction of a national carbon price (effective from July 2013); and
- A national renewable energy target (RET) of 20% by 2020 (initially estimated at 41,000 GWh).

However, in 2014 the Australian Commonwealth Government repealed the carbon price, with effect from 1 July 2014, and also initiated a review of the national RET. The review could potentially see the level of renewable energy facilitated by the RET reduced. These policy decisions will have direct implications for the Territory in reaching the emission reduction targets.

The ACT Government is currently undertaking a re-assessment of the business-as-usual projections for the Territory. The assessment will take into consideration changes to the carbon pricing policy, the potential reduction in the level of the RET and potential impacts of the new Federal Government policy, the Emissions Reduction Fund. In light of changes in national policy, the updated modelling will allow the ACT Government to determine the effectiveness of AP2 action in achieving the 2020 greenhouse gas reduction target. We will work to identify further opportunities to reduce emissions as necessary.

Canberra incorporates sustainability goals and targets into the master planning for the city.

The overarching statutory document, the Territory Plan, and strategic policy plans including the National Capital Plan and the ACT Planning Strategy all contain requirements for consideration of sustainability. The ACT Planning Strategy includes specific sustainability goals and targets. Each master plan is required to be consistent with these higher order plans.

Canberra has a climate change action plan for reducing GHG emissions.

AP2: A new climate change strategy and action plan for the Australian Capital Territory, 2012.



2.1 Physical risks

Current and/or anticipated effects of climate change present significant risks to Canberra.

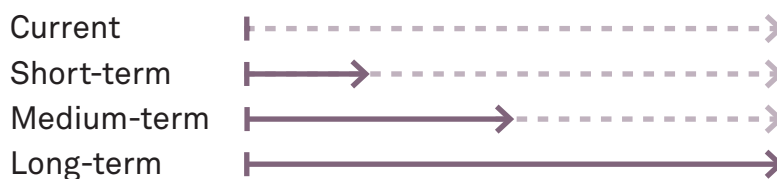
Seriousness

Less Serious !!!

Serious !!!

Extremely Serious !!!

Timescale



Risks & Adaptation

Temperature increase and more frequent heatwaves

Risk:  Timescale: 

Higher temperatures with fewer frosts and more frequent heatwaves, impacting on: natural environment ecosystems and species decline; farmlands and food / fibre production; and people vulnerable to heat stress.

More frequent droughts

Risk:  Timescale: 

A reduced reliability of rainfall with more frequent and prolonged droughts will impact on: potable water availability; non-potable water availability for city parks and household gardens, decreasing city liveability with consequent wellbeing impacts; decline in health of ecosystems in nature reserves; decline in productivity of farms.

Increased frequency of large storms

Risk:  Timescale: 

More intense rainfall with more frequent storms, damaging winds, and flash flooding will increase damage to public and private buildings and city infrastructure. This will increase living costs and insurance premiums.

Change in seasonality of rainfall

Risk:  Timescale: 

A longer summer and less rainfall will lead to a decline in productivity of farms.

Bushfire

Risk:  Timescale: 

An increase in severe fire weather days will lead to more frequent and more extreme bushfire events, threatening life and property in city and rural areas; ecosystems viability; farmland and productivity

Compounding factors may worsen the physical effects of climate change in Canberra.

The effects of climate change will be made worse with the compounding effect of multiple climate impacts occurring at the same time. This is not an uncommon occurrence under previous climate conditions but is projected to be more likely and more frequent in the future.

Compounding factors could include a drought with consequent higher bushfire risk, combined with water restrictions and increasingly dry fuel in urban areas, along with a greater frequency of summer heat waves and more intense storm events.

Canberra considers that the physical impacts of climate change could threaten the ability of businesses to operate successfully.

Bushfire, storms, heatwaves and drought will all directly impact the ACT.

The ACT Government takes a shared responsibility approach to natural disasters and extreme events (and has overtly done so since the 2003 firestorm). The climate change adaptation strategy will work to address the threats posed by climate change across six sectors. However, the private sector is encouraged to undertake its own risk assessment.

A climate change risk or vulnerability assessment has been undertaken for the Canberra area.

The Enabling Adaptation in the Australian Capital Territory (EnAACT) project report presents a synthesis of the findings from two participatory workshops. The aim of EnAACT is to build a shared understanding of the Australian Capital Territory's (ACT) vulnerability to climate change and to catalyse adaptation through responses that are sensitive to the reality of regional systems. The EnAACT project considers climate change impacts and adaptation to the year 2060, with the major focus on actions that are required within the timeframes of the ACT's Climate Adaptation Strategy. EnAACT synthesises the process and outcomes of a range of consultation activities conducted and is intended to provide an information base to identify responses and opportunities that assist ACT Directorates to enhance resilience and realise transformations in which the impacts of climate risks for the ACT are minimised.

2.2 Climate Hazards

Canberra currently experiences the following climate hazards:

Heat wave

Drought

Flash/surface flood

Drought

Land fire

Canberra expects the following hazards to affect the city in the future:

Rain storm

Severe wind

Electrical storm

Heat wave

Drought

Forest fire

Land fire

Flash/surface flood

Vector-borne disease

Insect infestation

2.3 Adaptation

Actions Canberra is taking to reduce risks to infrastructure, citizens, and businesses from climate change include the following:

Projects and policies targeted at those most vulnerable

Hazard: Extreme temperature

Heat waves will be more frequent, last longer and have higher temperatures, which will affect our environment and the most vulnerable people in our community. Climate extremes will impact those least resilient to stressors and shocks of any kind. Current health policies and programs target services to the most vulnerable, but plans are underway to expand on these. Through an assessment of the risks posed to specific sectors across the ACT and region, the ACT Government is developing a climate change adaptation strategy. The Strategy will outline pathways to adapt and transform each sector, minimising our community's vulnerability to the impacts of climate change. Existing projects under the ACT climate change strategy and action plan, AP2, work to support a fair society in a low-carbon economy. The Outreach Program is part of a range of ACT Government policies and programs to achieve ACT's greenhouse gas reduction targets while engaging the community on climate change and providing targeted assistance to those most vulnerable. The Outreach Energy and Water Efficiency Program has assisted over 4,500 low-income households since 2010 by providing home energy and water assessments, education, retrofits, and appliances. This has assisted the most vulnerable in our community to manage the cost of living pressures in the face of climate change.

Additional reservoirs and wells for water storage

Hazard: Water scarcity

The ACT has mitigated short to medium-term water supply security risks by recently completing two major construction projects: 1. Construction of an enlarged Cotter Dam, completed in October 2013 at a cost of AUD 410m, has increased the capacity of the Cotter Reservoir from 4 gigalitres (GL) to approximately 78GL. This project has increased the ACT's water storage capacity by 35%; and 2. Construction of the Murrumbidgee to Googong Water Transfer Pipeline, completed in September 2012 at a cost of AUD 140m. This project was

designed to counter the effects of longer and more severe droughts; in conjunction with water trading, the pipeline allows the transfer of up to 100 megalitres of water per day from the Murrumbidgee River through a 12 kilometre underground pipeline and along Burra Creek to Googong Reservoir.

Storm water capture systems

Hazard: Flood

The ACT, as part of its stormwater system, has a number of water sensitive urban design measures, such as wetlands and retarding basins, designed to mitigate flood risk by storing runoff temporarily and releasing it at a controlled rate. These systems work to reduce the peak flow in the downstream drainage system. The ACT also has a water sensitive urban design planning requirement for onsite detention, being the temporary storage and controlled release of stormwater runoff generated within a block. Onsite detention is also promoted for redevelopment sites ensuring that the capacity of the municipal stormwater system is not exceeded. Where on-site detention is required, the standard planning requirement is that the released peak flow rate does not exceed the pre-development peak flow rate for all storms between the one in two year and one in 100 year.

Water use restrictions and standards

Hazard: Water scarcity

Following the end of the Millenium Drought, the ACT has reverted its water management approach from implementing water restrictions to using permanent water conservation measures. Since 2010, water consumption across the ACT and Queanbeyan has been guided by permanent water conservation measures. These measures ensure that, even though the ACT no longer applies water restrictions, good day-to-day judgment by the Government and the water utility, ACTEW, is applied to water use. Prior to water conservation measures, Canberra's annual water consumption averaged between 60-65 GL. However, since these new water conservation measures have been put in place, overall water consumption figures dropped to 47.8 GL during 2012-13 representing a 39% saving in per capita demand relative to 1993-2002 levels. Additionally, during the Millenium Drought, the ACT Government implemented a number

of potable water substitution schemes such as stormwater harvesting for irrigation of urban green space, and offering subsidised rainwater tanks to landowners. Following the end of the Millennium Drought, the rainwater tank rebate scheme has been discontinued reflecting the improved water security and a relative shift in government priorities. However, the private installation of rainwater tanks remains a popular means to reduce water bills and provides ongoing benefits to water security and stormwater quantity and quality. The installation of rainwater tanks will also enable those landowners with tanks to maintain healthy more resilient gardens during future extended dry periods.

Public preparedness (including practice exercises/drills)

Hazard: Wildfire

The goal of bushfire management in the ACT, outlined under the Strategic Bushfire Management Plan, is to suppress bushfires and reduce their consequences on human life, property and the environment through the Government and the community working together. The Emergency Services Agency (ESA) currently informs and engages the community through public awareness and information campaigns, and the implementation of the Community Fire Unit Program. Each year the ESA prepares a Community Education Plan. Key community awareness and information initiatives undertaken by the ESA with respect to bushfire threats are the Bushfire Awareness campaign (Prepare. Act. Survive.); the Farm FireWise Program; and Community Fire Units. The Community Engagement Strategy on Climate Change also works to build an ongoing dialogue with the community on climate change, including preparing and responding to extreme weather events. In 2014, the updated version of the ACT Strategic Bushfire Management Plan was released. The Strategic Bushfire Management Plan recognises that climate change increases the effects of bushfires and provides management guidance to joint efforts of government and the community. The Strategic Bushfire Management Plan directs actions to suppress bushfires and to reduce their impacts on human life, property and the environment. Consequent to this, the Bushfire declared areas of the ACT have expanded with Bushfire Attack Levels (BALs) impacting building standards well into the metropolitan area.

2.4 Social risks

Canberra faces social risks as a result of climate change.

Increased incidence and prevalence of disease

Timescale: 

Likely increased occurrence experienced by the ACT community of particularly water borne and food borne diseases, during extreme weather events such as drought, bushfires and flooding. Increased pollution-related respiratory problems in urban areas from the interaction of air pollution and heat. Risk of mental health problems associated with exposure to extreme weather events, including the psychological impact of surviving an extreme weather event (such as floods, bushfires).

Cities are at risk from climate change



Increased demand for public services (including health)

Timescale: 

Likely greater demand for community facilities and services, particularly health services, to support ACT community members affected during extreme weather events and experiencing heat stress, including the negative effect of heat on pre-existing diseases.

Increased risk to already vulnerable populations

Timescale: 

Vulnerable people within the ACT community, such as the very young, older people and people with lower socio-economic status, are more likely to be affected during extreme weather events and may have limited resilience in coping with prolonged or repeated events, such as heat stress.

3.1 Opportunities

Climate change action presents economic opportunities for Canberra.

Opportunities

Canberra is positioning itself to take advantage of opportunities from taking climate change action.

Development of new business industries (e.g. clean tech)

Through the Renewable Energy Local Investment Framework, the ACT's large-scale renewable energy auctions are attracting renewable energy businesses and facilitating the generation of a renewables industry and research-based in the ACT.

Increased energy security

The ACT's large-scale solar and wind energy auctions have already secured 240MW of alternative energy supply, providing 33% of the ACT's electricity needs by 2020 and enough to power over 100,000 ACT homes.

Additional funding options

The recent 200MW wind auction secured the development of a AUD 1.2 million Renewable Energy Innovation Fund to invest in emerging renewable energy ventures in the ACT.

New business opportunities

ACT-based vendors will have full opportunity to tender on all work packages associated with the pre-construction phase of the 200MW wind auction.

Research, education & training leading to new jobs

The 200MW wind auction will also result in AUD 5.9 million being invested into the development and ongoing operation of a new Renewable Energy Skills Centre of Excellence at the Canberra Institute of Technology, and additional monies being put towards the design and delivery of a new Wind Energy Development Masters' program at the Australian National University.



Canberra is hoping to attract private sector involvement for the following climate-related projects:

The ACT Government is investigating a range of climate change related projects which, if implemented, will have the potential to accelerate the development and take-up of renewable technologies, and likely to attract private sector involvement.

Projects that have already commenced include:

- Capital Metro - Capital Metro is Canberra's light rail project. It aims to create a transport system that puts people first and links new development to investment in public transport.
- Renewables - By 2020, 90% of Canberra's electricity supply will be from large-scale renewables, making Canberra a centre for renewable energy innovation and investment.

96 CITIES

or 1/3 of cities that reported are taking action to de-carbonize their energy supply.

86%

of these cities see an **ECONOMIC OPPORTUNITY** in climate change.

4.1 Date and boundary

Canberra is reporting a GHG measurement inventory for a period of one year.

Mon 01 Jul 2013 – Mon 30 Jun 2014

Boundary typology used for Canberra's GHG emissions inventory:

Departments, entities or companies over which operational control is exercised.

Emissions – Local Government

4.2 GHG emissions data

The following major sources of emissions are included in Canberra's municipal GHG emissions inventory:

Buildings, buses, municipal vehicle fleet, street lighting and traffic signals.

Primary protocol, standard or methodology Canberra used to calculate GHG emissions:

Greenhouse Gas Protocol: Public Sector Standard.

Reporting aligns to national standard defined under the National Greenhouse and Energy Reporting Act 2007. Including: NGER (Measurement) Determination 2008 (effective 1 July 2014) and National Greenhouse Accounts (NGA) Factors July 2013.

Gases included in emissions inventory:

CO₂
CH₄
N₂O
HFCs

Landfill Emissions are counted in the 'city-wide' emissions inventory, and not the 'government operations' inventory for this report.

Total (Scope 1 + 2) emissions for Canberra:

179,231

Metric tonnes CO₂e

Breakdown of Canberra's GHG emissions by scope:

Scopes are a common categorisation method. Scope 1: All direct GHG emissions (with the exception of direct CO₂ emissions from biogenic sources). Scope 2: Indirect GHG emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling.

Total Scope 1 activity

54,663

Metric tonnes CO₂e

Total Scope 2 activity

124,568

Metric tonnes CO₂e

Total amount of fuel (direct/Scope 1 emissions) consumed in Canberra during the reporting year:

Buildings

362,544GJ

Natural Gas

Buses

2,671,146M3

Compressed Natural Gas

Municipal vehicle fleet

10,703,489L

Diesel/Gas oil

Street lighting and traffic signals

544,063L

Motor gasoline (petrol)

Electricity, heat, steam, and cooling (indirect/
Scope 2 emissions) purchased by Canberra
during the reporting year:

Buildings, Electricity

104,767,518kWh

Street lighting and traffic signals

40,079,500kWh

Canberra measures Scope 3 emissions.

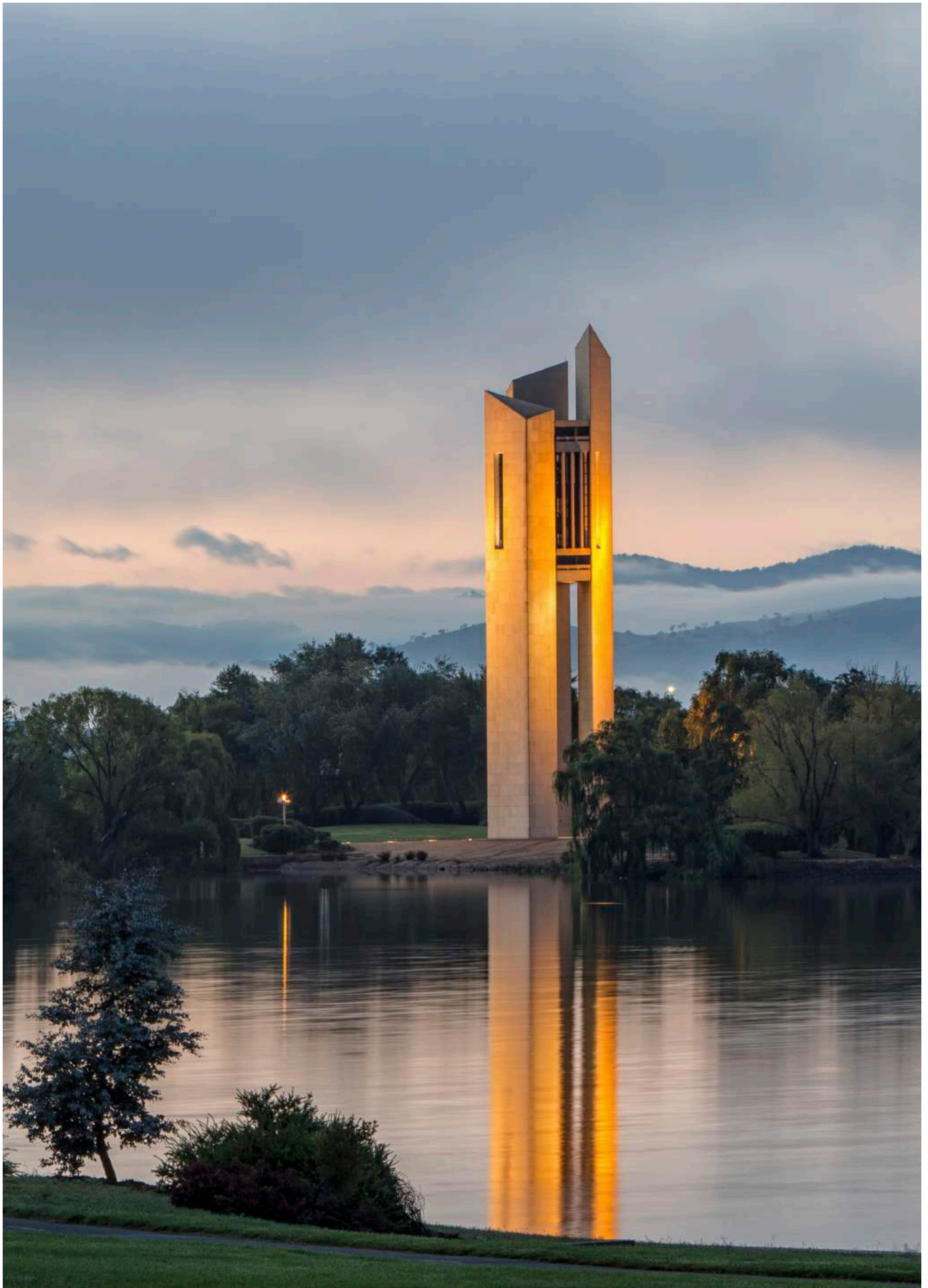
Fugitive emissions from the use of electricity, gas and transport fuels.

27,130

Metric tonnes CO₂e

Scope 3 emission from waste (transported to landfill) is inconsistently reported. The complexity of ACT Government has resulted in a focus on the Scope 1 and 2 emissions in the first instance. Landfill emissions are reported under Community emissions (not Government operations) at this time.

This is Canberra's first year calculating local government emissions.



4.3 External verification

Canberra's emissions have been not been externally verified.

The whole of Government data platform called the Enterprise Sustainability Platform (ESP) is in its establishment phase. It would be more prudent to engage a verification of annual greenhouse gas data once the ESP is fully established. This would encompass the complete historical data and represent the current ACT Government structure.



5.1 Date and boundary

Canberra is reporting a GHG measurement inventory for a period of one year.

Mon 01 Jul 2013 – Mon 30 Jun 2014

Boundary typology used for Canberra's GHG emissions inventory: **administrative boundary of a local government.**

Emissions – Community

5.2 GHG emissions data

Canberra has used 2006 IPCC Guidelines for National Greenhouse Gas Inventories.

The ACT Government receives disaggregated national data each year from the Australian Government which is consistent with the IPCC guidelines. However, the ACT Government is required to record its own electricity, gas and transport data as this is not provided by the national government at the ACT scale.

Gases included in emissions inventory:

CO₂

CH₄

N₂O

HFCs

SF₆

Total (Scope 1 + 2) emissions for Canberra:

3,977,800
Metric tonnes CO₂e

Breakdown of Canberra's
GHG emissions by scope:

Scopes are a common categorisation method. Scope 1: All direct GHG emissions (with the exception of direct CO₂ emissions from biogenic sources). Scope 2: Indirect GHG emissions associated with the consumption of purchased or acquired electricity, steam, heating, or cooling.

Total Scope 1 activity

1,600,400
Metric tonnes CO₂e

Total Scope 2 activity

2,377,400
Metric tonnes CO₂e

Scope 1 emissions excluding emissions
from grid-supplied energy generation

1,247,600
Metric tonnes CO₂e

Scope 1 emissions from grid-supplied
energy generation within a city boundary

352,800
Metric tonnes CO₂e

Breakdown of these emissions by end user, economic sector, IPCC sector, GHG or any other classification system used:

End user: buildings, water, waste, transport. Economic sector: residential, commercial, industrial, institutional. IPCC sector: stationary combustion, mobile combustion, industrial processes, waste. Greenhouse gas: CO₂, CH₄, N₂O etc.

Electricity – Scope 2

2,377,400

Metric tonnes CO₂e

Transport – Scope 1

1,001,000

Metric tonnes CO₂e

Natural Gas – Scope 1

352,800

Metric tonnes CO₂e

Industrial processes – Scope 1

139,100

Metric tonnes CO₂e

Waste – Scope 1

91,900

Metric tonnes CO₂e

Agriculture – Scope 1

23,700

Metric tonnes CO₂e

Wood Fuel – Scope 1

4,300

Metric tonnes CO₂e

Total amount of fuel (referring to Scope 1 emissions) consumed in Canberra during 2015:

Motor gasoline (petrol)

266,891,000L

Diesel/Gas oil

88,901,000L

Other: E10

50,520,000L

Liquefied Petroleum Gas (LPG)

15,275,000L

E85

147,000L

Kerosene

138,000L

Natural gas

6,873TJ

Wood or wood waste

229TJ

Total amount of electricity, heat, steam, and cooling (referring to Scope 2) consumed by Canberra during 2015:

Electricity

2,779GWh

Canberra measures Scope 3 emissions.

Transmission and distribution losses

17.2

Metric tonnes CO₂e

5.3 External verification

Canberra's emissions have been externally verified.

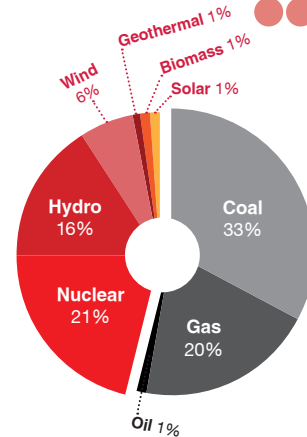
CAN CITIES QUIT FOSSIL FUELS?

162 CITIES REPORTED THEIR ENERGY MIX,

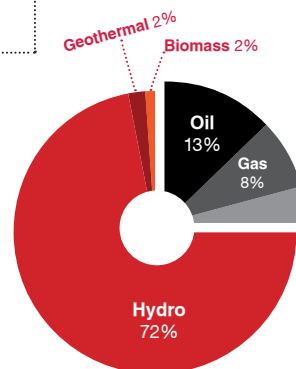
revealing a diversity of
responses, for cities large and
small across all regions.

THE RESULTS ARE DIVERSE.
REVEALING MIXES FROM 100%
NON-FOSSIL TO 100% CONTINUED
RELIANCE ON FOSSIL AND MANY
COMBINATIONS THEREOF.

55 NORTH AMERICAN CITIES

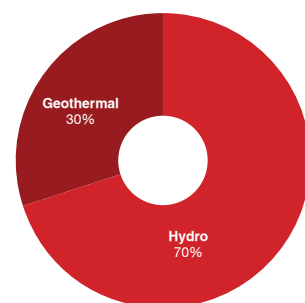


46 LATIN AMERICAN CITIES

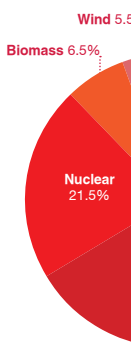


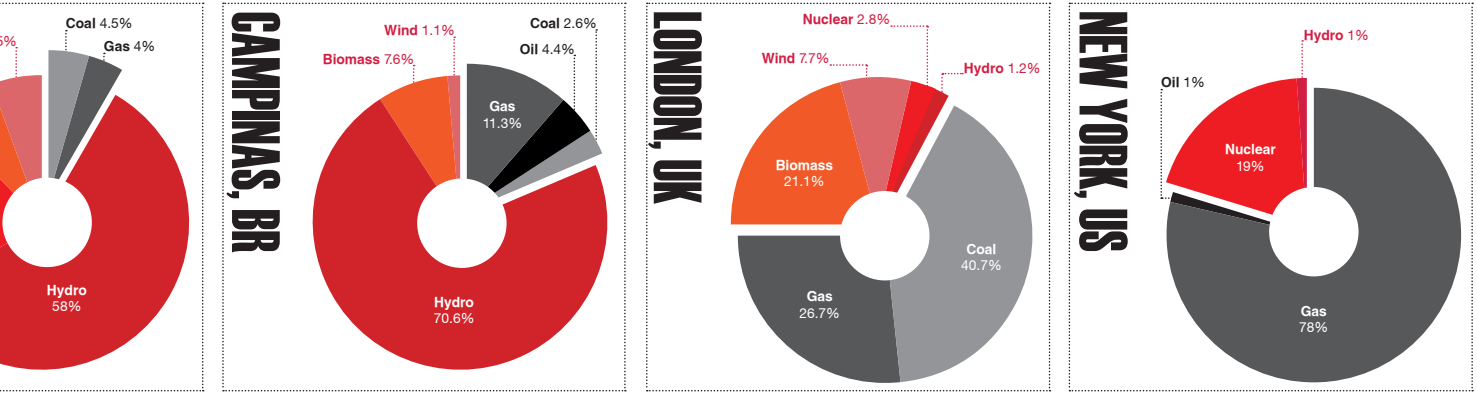
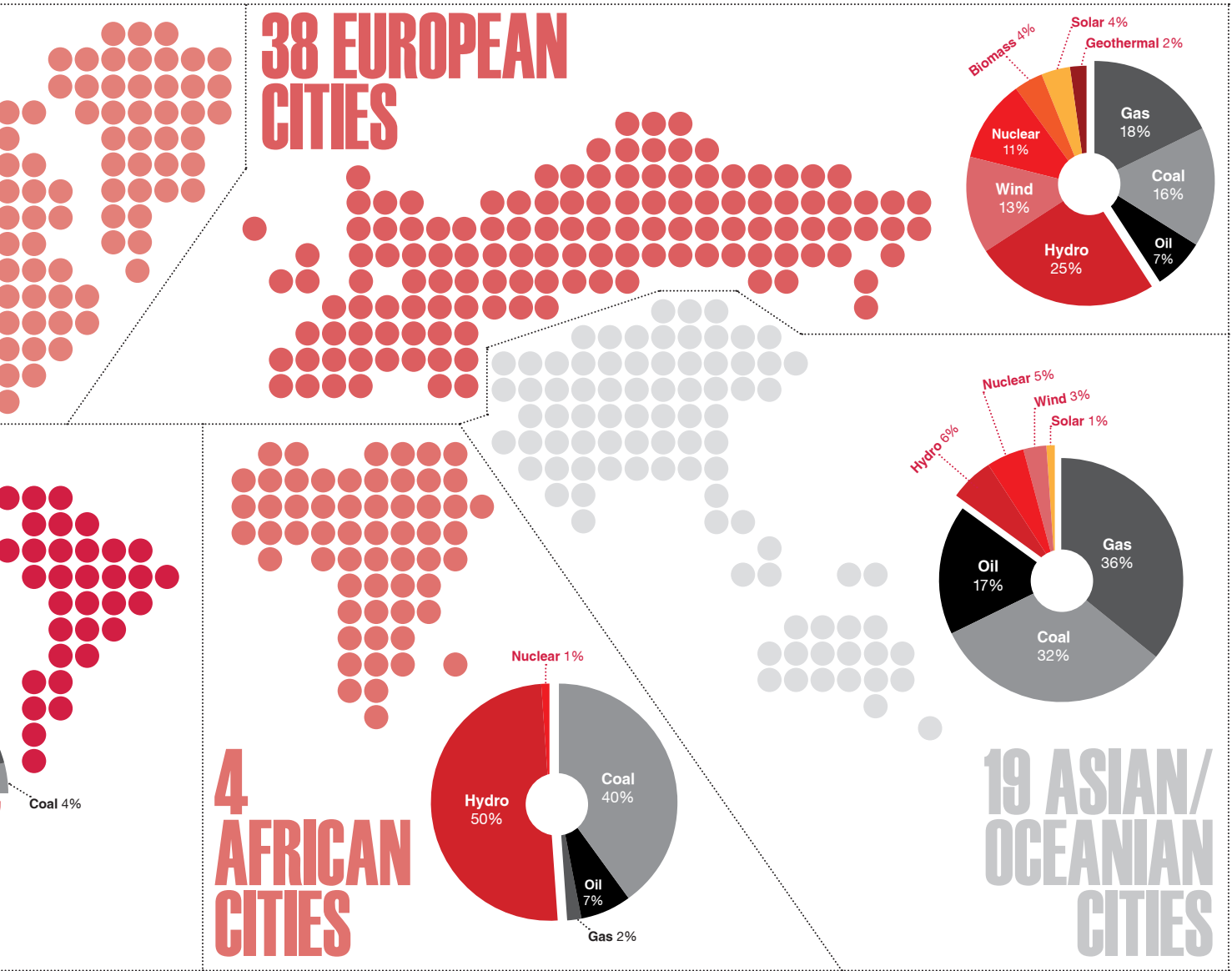
Energy mix by non-fossil %
76% 0%

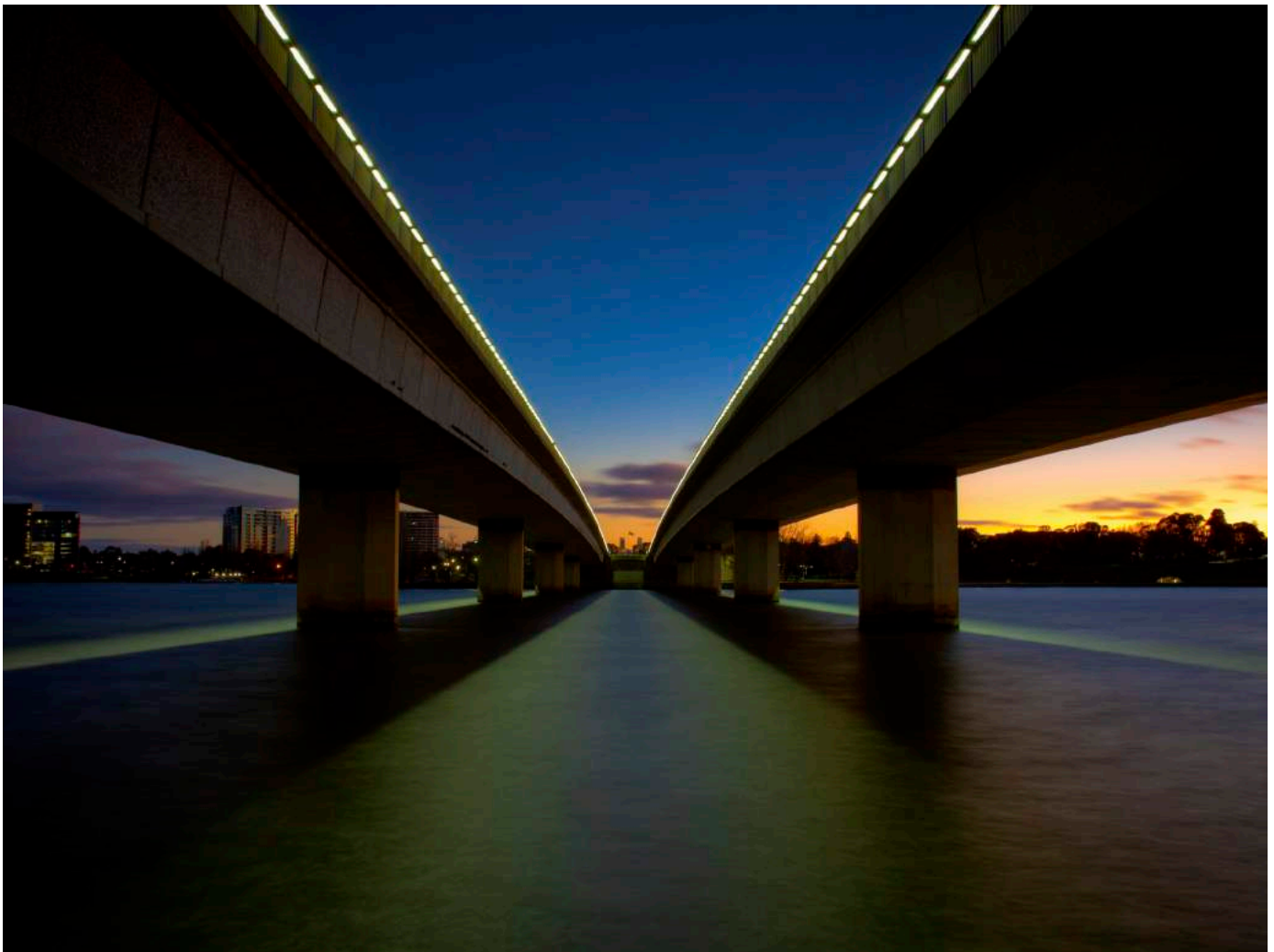
REYKJAVIK, IS



STOCKHOLM, SE







Strategy

6.1 Local government operations – GHG emissions reduction

Canberra has a GHG emissions reduction target in place for local government operations.

Canberra's local government operations
GHG emissions reduction target in detail:

Baseline year

2013

Baseline emissions

206,361

Metric tonnes CO₂e

Percentage reduction target per source

100%

Target date

2020

Carbon Neutral ACT Government Framework
(2012) policy

Actions undertaken to reduce Canberra's emissions in its government operations:

Energy Demand in Buildings

Energy efficiency/ retrofit measures

Anticipated total reduction: 8,622 metric tonnes CO₂e

The ACT Government is committed to achieving carbon neutrality in its own operations by 2020, demonstrating leadership in reducing greenhouse gas emissions and supporting the achievement of the Territory's legislated greenhouse gas reduction targets. In August 2012, the Government endorsed the Carbon Neutral ACT Government Framework. The purpose of the Framework is to enable and coordinate a whole-of-government approach to achieving carbon neutrality in a cost-effective manner by 2020. The Carbon Neutral Government Loan Fund provides support to ACT Government agencies to invest in efficiency projects that will reduce energy consumption, greenhouse gas emissions and minimise the impact of rising energy costs. The Framework is supported by a Carbon Neutral Government Implementation Committee, a series of green teams, and audit and advice services. Currently estimated at 8,622 tonnes CO₂ / year (using 0.99 factor for electricity) reduced by projects under the CNG Fund.

JUST A LITTLE CHANGE WILL GO FAR.

43 cities reported that they want private sector support to deliver community renewable projects. CDP data indicates that less than half of these projects are located in the global south.

\$57 TRILLION

will be invested in infrastructure through 2030. That means that less than 0.01% of this sum, or just

\$1 OF EVERY \$8K

spent is required to support delivery of renewable goals for all the CDP cities that report a target. At just over \$7 billion in total, this is still a large price tag and represents a considerable challenge for cities, but with global focus it can be achieved.

6.2 Community – GHG emissions reduction

Canberra has a GHG emissions reduction target in place for its community.

Canberra's community GHG emissions reduction target in detail:

1990

Baseline emissions

3,185,500

Metric tonnes CO²e

Percentage reduction target

40%

Target date

2020

Percentage reduction target

80%

Target date

2050

Percentage reduction target

100%

Target date

N/A

Actions currently being undertaken to reduce emissions city-wide:

Energy Supply

Low or zero carbon energy supply generation

Anticipated total reduction:

4,133,000 metric tonnes CO₂e

By 2020, 90% of Canberra's electricity supply will be from large-scale renewables, contributing to a 40% reduction in greenhouse gas emissions by 2020. Emissions savings from the 90% renewable energy target are cumulative projections to 2020, while emissions savings will continue past this date these have not been calculated.

Buildings

Energy efficiency/ retrofit measures

Anticipated total reduction:

1,772,000 metric tonnes CO₂e

The Energy Efficiency Improvement Scheme (EEIS) started on 1 January 2013. The EEIS sets a Territory-wide energy savings target and includes obligations for ACT electricity retailers to meet an individual Retailer Energy Savings Obligation. Emissions savings from the EEIS are cumulative projections to 2020, while emissions savings will continue past this date these have not been calculated.

Private Transport

Transportation demand management

**Anticipated total reduction:
501,000 metric tonnes CO₂e**

Transport for Canberra is the foundation for transport planning in the ACT. Transport for Canberra aims to reduce traffic congestion and greenhouse gas emissions while increasing the number of people using active travel and public transport. Emissions savings from transport are cumulative projections to 2020, while emissions savings will continue past this date these have not been calculated.

Waste

Waste prevention policies and programs

**Anticipated total reduction:
53,000 metric tonnes CO₂e**

The ACT Government has introduced a waste management strategy that will guide the ACT in reducing waste and recovering resources to achieve a sustainable, carbon-neutral Canberra. Emissions savings from waste are cumulative projections to 2020, while emissions savings will continue past this date these have not been calculated.

6.3 Planning

The city-wide energy mix for Canberra's electricity:

Coal

75%

Wind

13%

Gas

6%

Hydro

4%

Solar

2%

Canberra has a renewable energy target.

Details of renewable electricity targets and Canberra's plans to meet those targets:

Scale

City-wide

Total installed capacity of renewable electricity (in MW)

490

Proportion of total electricity from renewable energy sources

90%

Target date

2020

To meet the 90% renewable electricity target the ACT Government will require approximately: 91MW of solar capacity; 382MW of wind generation capacity and up to 20MW of energy from waste generation capacity. To date, the ACT Government has signed agreements with renewable electricity generators for the construction of 40MW of solar capacity and 200MW of wind capacity. 76% of the target will be achieved through the provision of feed-in tariffs for large and small renewable energy generating capacity. 22% of the target will be achieved through ACT participation in the national Renewable Energy Target scheme. 2% of the target will be achieved through voluntary purchases of renewable electricity (GreenPower) by ACT electricity consumers. The costs of all three parts are ultimately financed by ACT electricity consumers.

6.4 Water

Canberra foresees substantive risks to its water supply.

Increased water stress or scarcity

Risk:  Timescale: 

The water resources and water consumption of the ACT region are highly influenced by climate variability. The spatial and temporal variability of temperature, evaporation and rainfall largely determine the level of urban water supply security (i.e. reliability). Future climate scenarios are fundamental to the level of the ACT's future water security. This was evident when South-eastern Australia experienced 14 years of severe drought between 1996 and 2009. The duration and impacts of this "Millennium Drought" were unprecedented in the ACT's historical climatic record since 1871. Stream flows reduced by around 60%, water storages fell to low levels (approximately 30% of capacity), and severe water restrictions (Stage 3) were imposed for almost 4.5 years across the period 2003 to 2010. Additionally, the autumn rainfall has decreased significantly, with an almost 40% reduction observed over the period 1997 to 2010. Over the same period, spring and summer rainfalls have increased. This change continued through the 2010/2011 wet years. Considering the lessons from the Millennium Drought and the changing seasonality of rainfall, there are expected to remain medium to long-term water related risks as a result of increasing population growth combined with periods of reduced rainfall. If climate emerges drier than projected it will further compromise the ACT's water supply security. The likelihood to this scenario happening is 'Possible' and would lead to 'Major' to 'Severe' consequences, such as the water supply system not being able to meet the ACT's demand for water.

Actions (on the supply and demand side) that Canberra is taking to reduce risks to its water supply:

Increased water stress or scarcity

Diversifying water supply (including new sources)

The ACT has mitigated short to medium-term water supply security risks by recently completing two major construction projects: 1. Construction of an enlarged Cotter Dam, completed in October 2013 at a cost of AUD 410m, has increased the ACT's water storage capacity by 35%; and 2. Construction of the Murrumbidgee to Googong Water Transfer Pipeline, completed in September 2012 at a cost of AUD 140m. The inflows into the ACT's four in-stream dams and two river pump stations are managed through day-to-day permanent water conservation measures to ensure supply through extended dry periods. Prior to water conservation measures, Canberra's annual water consumption averaged between 60-65 GL. However, since these new water conservation measures have been put in place, overall water consumption figures dropped to 47.8 GL during 2012-13 representing a 39% saving in per capita demand relative to 1993-2002 levels. In very extended dry periods, when storage levels are low, water can be pumped from two pump stations located on the upper Murrumbidgee River.

For even more protracted dry periods, when the river's natural flows are low, extra water can be sourced through a combination of water trading and increased releases from Snowy Hydro's Tantangara Reservoir. Building supply system resilience is proposed as a risk management measure.

In this context, resilience includes the following:

1. A diverse range of independent water sources and demand management measures; such as accessing more reliable water catchments or less rainfall dependant sources, or implementing a range of unrelated but concurrent demand management measures.
2. System interconnectivity to take advantage of any excesses in the system; such as gridding of water sources (the Cotter Googong Bulk Water Transfer is one example of interconnectivity already in place).
3. Planning flexibility; allowing implementation of the responses best suited to actual emerging futures. There is an expectation that parallel severe drought contingency plans will be prepared. Drought contingency plans comprise more short-term emergency response plans that will ensure that basic water needs for a community can be met for the duration of a very severe drought. The drought contingency plans include short-term fast responses which may differ from more sustainable longer-term options that may be difficult to implement quickly.





CDP team

Conor Riffle
Director, Cities and Data
Product Innovation

Maia Kutner
Head of Cities

Andreia Banhe
Account Manager, Latin
America

Hanah Paik
Account Manager, Asia
Pacific

Katie Walsh
Account Manager, North
America

Juliette Daniels
Account Manager, Europe,
Middle East, and Africa

Sara Telahoun
Project Officer

Simeran Bachra
Data Analyst

CDP Board of Trustees

Chairman: Alan Brown
Wellcome Trust

Ben Goldsmith
WHEB Group

Chris Page
Rockefeller Philanthropy
Advisors

James Cameron
Overseas Development
Institute (ODI)

Jeremy Burke
Green Investment Bank

Jeremy Smith

Kate Hampton
Children's Investment Fund
Foundation

Martin Wise
Relationship Capital Partners

Takejiro Sueyoshi
Tessa Tennant

AECOM team

Claire Bonham-Carter
Principal

Ben Smith
Director of Sustainable
Development

Culley Thomas
Senior Strategic Planner

Christopher Pountney
Principal Engineer, Sustainability

Daniel Elsea
Creative Director

Contact
Claire Bonham-Carter
AECOM
+1 415 955 2800
claire.bonham-carter@aecom.com
www.aecom.com

C40 team

Seth Schultz
Head of Research,
Measurement and Planning

Michael Doust
Head of Measurement
and Planning

Brooke Russell
Head of Editorial and Content

Kathryn Vines
Head of Climate Change
Adaptation Research

Hanya Gartner
Manager, City Reporting

CDP
3rd Floor, Quadrant House,
4 Thomas More Square,
Thomas More Street,
London,
E1W 1YW
Tel: +44 (0) 20 3818 3900

www.cdp.net
cities@cdp.net
@CDP

Lead sponsors

AECOM