

# ZERO NET EMISSIONS BY 2020

## UPDATE 2014



**A COLLABORATIVE APPROACH TO  
THE NEXT FOUR YEARS OF ACTION**



**CITY OF MELBOURNE**



# AN ECO CITY

We provide solid foundations for the sustainability of Melbourne's communities. We embrace the unfamiliar if it helps us achieve our ambitions. We continue to encourage our community to take positive actions and we lead by example locally, nationally and globally.

# CONTENTS

	Strategy snapshot	<b>02</b>
	Our progress	<b>09</b>
	Strategy development and implementation	<b>10</b>
	Melbourne's emissions profile	<b>12</b>
	Council operations	<b>15</b>
	Commercial buildings and industry	<b>17</b>
	Residential buildings	<b>21</b>
	Stationary energy supply	<b>23</b>
	Transport and freight	<b>25</b>
	Waste management	<b>27</b>

To find out how you can participate in the decision-making process for City of Melbourne's current and future initiatives, visit [melbourne.vic.gov.au/getinvolved](https://melbourne.vic.gov.au/getinvolved)

# STRATEGY SNAPSHOT

**Zero Net Emissions by 2020 – update 2014 is our strategy for the next four years and beyond to become a carbon neutral city and create a bold and sustainable future for the municipality of Melbourne. It outlines a way forward for the municipality of Melbourne that has been developed by City of Melbourne in collaboration with key stakeholders. We recognise that we can't achieve such an ambitious goal working alone. Council operations make up less than one per cent of the greenhouse gas emissions of the municipality, so we have developed a plan for key stakeholders to work together towards this goal.**

This strategy is part of City of Melbourne's work to become one of the world's most sustainable cities. What we do now will have a crucial effect on the city we will leave for future generations.

Achieving zero net emissions will require substantial structural, economic and policy change in Melbourne to drive an increase in energy efficiency; decrease in use of carbon intensive fuel sources and finally offsetting any remaining emissions.

Some considerable outcomes have been achieved in the ten years since the release of the first *Zero Net Emissions* strategy in 2003. However, collective progress in certain areas has been slow, such as reducing Victoria's reliance on brown coal, our most emissions intensive electricity source. *Zero Net Emissions – Update 2008* was written with the assumption that Australia would put a price on carbon and international policy would be in place to drive significant emissions reductions.

## CARBON NEUTRALITY

**Being carbon neutral means that the net greenhouse gas emissions associated with an organisation's or city's, activities are equal to zero. It is achieved through a combination of measuring and reducing greenhouse gas emissions and purchasing of carbon offsets. The terms zero net emissions and carbon neutral can be used interchangeably.**

## Context

In 2011 Australia's Climate Commission defined 2011–20 as the 'Critical Decade'\* for changing the pathway we are on to seeing a greater than two degrees increase in global temperatures.

Without significant international movement to decrease emissions in the next few years we are predicted to experience a temperature increase of between 2°C–6.2°C by 2100 (Climate Commission, 2013), which exceeds what is now commonly accepted as the threshold for dangerous climate change, a 2°C increase.

By 2030 Melbourne is predicted to be significantly affected by warmer temperatures and heatwaves, lower rainfall, intense storm events and flash flooding (CSIRO 2007). By 2070 we are predicted to be experiencing more than double the number of heat waves, a more than 10 per cent reduction in rainfall and a significant increase in extreme storm events. These climate changes will impact business and the broader community.



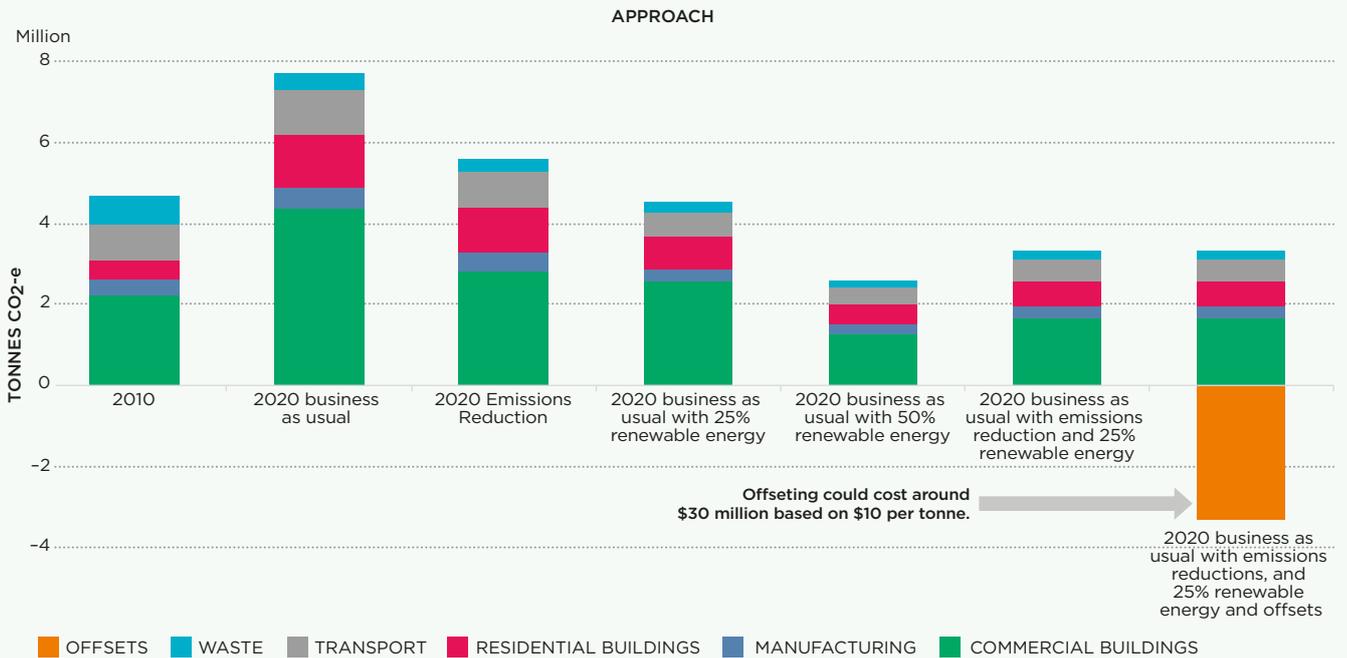
If the municipality of Melbourne continues on its current trajectory, forecasts reveal annual greenhouse gas emissions will grow to around 7.7 million tonnes by 2020 – a 60 per cent increase on 2010 emissions. If Melbourne were to implement all currently viable emissions reduction opportunities by 2020, our emissions profile will still exceed that of our 2010 emissions profile. For Melbourne to achieve zero net emissions by 2020, the actions outlined in this strategy need to be accompanied by fundamental changes to our energy supply which is subject to Australian and Victorian Government policy.

\* <https://cci.anu.edu.au/reports/>

## CARBON OFFSETS

**Carbon offsets are tradeable units that represent abatement of greenhouse gas emissions. Offsets represent the rights to a greenhouse gas reduction, and we retire the carbon offsets we purchase through a registered third party so they cannot be used by anyone else.**

## MELBOURNE'S 2010 EMISSIONS PROFILE AND POSSIBLE FUTURE EMISSIONS SCENARIOS



### HOW COULD WE GET TO A ZERO NET EMISSIONS CITY BY 2020?

#### What if 50 per cent of the municipality's electricity came from renewable sources?

What if we didn't waste the 10 per cent of energy that is lost in grid transmission and doesn't even make it to the end user?<sup>1</sup> And what if the electricity network made it easy to connect diverse renewable energy sources to the grid?

What if we reduce the city's buildings energy use by 40 per cent by having as standard practice that all buildings are upgraded regularly to ensure they are as energy efficient as possible? And all new buildings used leading technology, design and materials for improved sustainability outcomes.

What if each business and each individual took responsibility for their own activities being carbon neutral? What if the city assisted this process? Would it really cost that much? If we were to offset our emissions today it would cost an average of \$467 per resident per year, \$130 per worker or \$2,655 per business. Some of us are already doing it.

#### Could we get to zero? Is this future so unimaginable?

These are the big game changing ideas that are very difficult to achieve, but not impossible.

We can't do it alone, and neither can any individual, business, or government entity. But by working together it is achievable.

Over the next four years City of Melbourne will work to explore these possibilities, in collaboration with key organisations and sectors, through establishing effective networks to take action.

<sup>1</sup> <http://www.aemo.com.au/Electricity/Market-Operations/Loss-Factors-and-Regional-Boundaries>



Energy Matters, Federation Square

## Targets

Clear, ambitious objectives have been set for each of our focus areas:

Section	Strategy targets
<b>Council operations and leadership</b>	<ul style="list-style-type: none"><li>• Maintain carbon neutrality</li><li>• Reduce greenhouse gas emissions by 10 per cent by 2018 (baseline year 2010-11)</li></ul>
<b>Commercial buildings and industry</b>	Increase the average National Australian Built Environment Rating System (NABERS), or equivalent, rating of commercial buildings to 4 by 2018. This roughly equates to an average increase in energy efficiency of 40 per cent per building
<b>Residential buildings</b>	City of Melbourne will establish a baseline and develop a long-term target in the first year of the implementation plan
<b>Stationary energy supply</b>	25 per cent of electricity from renewable sources by 2018
<b>Transport and freight</b>	Increase the percentage of all trips using low emissions transport from 51 per cent in 2009 to 60 per cent in 2018
<b>Waste management</b>	Decrease waste to landfill per resident by 5 per cent by 2018 City of Melbourne to trial seven precinct waste solutions by 2018

## Leadership

At this point, fundamental change is required to ensure we minimise the impacts of our changing climate. With over 70 per cent of greenhouse gas emissions generated globally in cities, city governments have a leading role to play in addressing greenhouse gas emissions, driving cultural change and transitioning to a low carbon economy. This is exemplified by the emergence of organisations such as C40 Cities Climate Leadership Group, Local Governments for Sustainability (ICLEI), and Rockefeller Foundation 100 Resilient Cities Centennial Challenge.

The transition towards a low carbon economy is well underway. Significant investment is already being made in renewable energy, research and new technologies, and this is expected to grow. Nationally, more than \$14 billion has been invested in renewables since 2009, while employment in the sector has almost tripled to 9,000 jobs (ClimateWorks Australia – Tracking Progress – Power, July 2013). We are in a position now to take advantage of these emerging opportunities and position Melbourne as a leading city in the inevitable low carbon economy.

City of Melbourne's leadership activities include:

- City of Melbourne became a certified carbon neutral organisation for the first time in 2011-12.
- We are leading by example through trialling technologies and improving the environmental performance of our properties.

- We have set the municipal target of zero net emissions by 2020 and are now working closely with Victorian, Australian and local governments, businesses, partners and the people of Melbourne to achieve this.
- We are supporting others to act by ensuring that the city's residents, business owners, building owners and managers, workers and visitors have the information they need to reduce emissions.
- We are delivering innovative programs such as 1200 Buildings, Smart Blocks, City Switch and the Solar Program that provide information, solutions and address barriers to reducing emissions.
- City of Melbourne will continue to share its knowledge, approaches and challenges and learn from other cities through local networks such as the Northern Alliance for Greenhouse Action (NAGA) and the Inner Melbourne Action Plan (IMAP) and global networks such as C40 and the Rockefeller Foundation's 100 Resilient Cities Network. In particular it will act as the leadership city for the C40 Sustainable Urban Development Network.

## Focus areas

We are focussing on the six areas where we can achieve the most effective and viable greenhouse gas emissions reductions: council operations, commercial buildings and industry, residential buildings, stationary energy supply, transport and freight, and waste management.

In each sector, we are implementing viable initiatives to reduce emissions. We are also trialling innovative technologies and collaborating on research and future opportunities.

# Our shared path to a zero emissions future.

City of Melbourne has a goal to achieve zero net emissions for the municipality. To achieve this goal, the city's climate change mitigation strategy outlines the greenhouse gas emissions impact of the municipality, and creates a path to reduce these emissions.

Zero net emissions or being 'carbon neutral' means that the net greenhouse gas emissions, associated with the city's activities, are equal to zero. It is achieved through a combination of measuring and reducing carbon emissions along with the purchasing and cancelling of carbon offsets.

Achieving zero net emissions helps address the issue of climate change. Climate change is a change in the average pattern of weather over a long period of time. There is clear evidence that our climate is changing largely due to human activities. Human-induced climate change is caused by the release of greenhouse gases into the Earth's atmosphere.

The six main greenhouse gases are:

**CO2** carbon dioxide  
**CH4** methane  
**N2O** nitrous oxide  
**HFCs** hydro-fluorocarbons  
**PFCs** per-fluorocarbons  
**SF6** sulphur hexafluoride

**ZNE = Total emissions - emissions reductions - offsets**

## Climate change directly impacts Melbourne and Victoria



Currently...

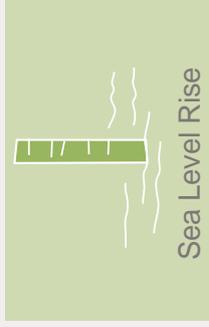
From 1998 to 2007, Victoria experienced rainfall

**14%** below average.

And in the future...

By 2070, annual average rainfall is expected to decrease by

**11%** but come in more intense bursts.



Every year since 1993, there has been average sea level rises in areas near Melbourne of up to

**2.8mm**



Flood risks exist in precincts near the Yarra and Maribyrnong rivers and Moonee Ponds Creek including Docklands, Southbank and Fishermans Bend. This is due to high tides and extreme rainfall events.



On average we experience

**9 very hot days** in Melbourne (temperature exceeds 35°C).

By 2070, we expect to experience

**26 very hot days** in Melbourne and increased frequency of heat waves (five or more consecutive days of temperatures exceeding 35°C).

## There are global policies in place to govern climate change.

**UNFCCC**

United Nations Framework Convention on Climate Change

International climate change treaty joined by countries around the world.

**COPENHAGEN ACCORD**

Recognises "the scientific view that the increase in global temperature should be below 2°C."

**KYOTO**

**PROTOCOL**

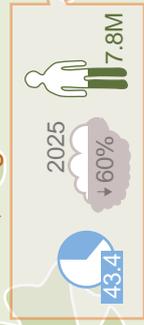
International agreement of the UNFCCC Parties, which set internationally binding emissions targets for 2008 - 2012.

# Climate change is a global issue.

Copenhagen, Denmark



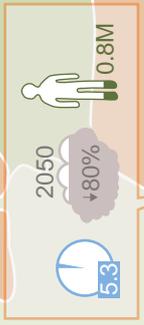
London, England



New York, USA



San Francisco, USA

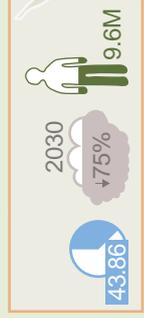


No matter where emissions are generated, the impacts of climate change are felt across the world. These impacts are only predicted to worsen if we do not take action. It is a global issue to which every country contributes, yet those countries that have the lowest impact are some of our most vulnerable.

Tokyo, Japan



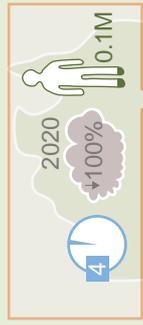
Jakarta, Indonesia



Rio de Janeiro, Brazil



Melbourne, Australia



Did you know that Australia is the **largest** emitter per capita in the developed world?

How does Melbourne compare?

Johannesburg, South Africa



Emissions (million tonnes of CO<sub>2</sub>e)



Emissions reduction target and by when



Population (millions of people)



Top 5 Emitters

- 1 China
- 2 USA
- 3 India
- 4 Russia
- 5 Japan

Most vulnerable regions

- South Asia
- South East Asia
- China
- East Africa

What will happen if there is a 2°C increase in global temperatures?



More heavy rain over land, increasing floods

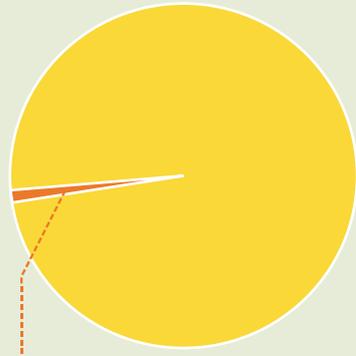


20% of species at risk of extinction



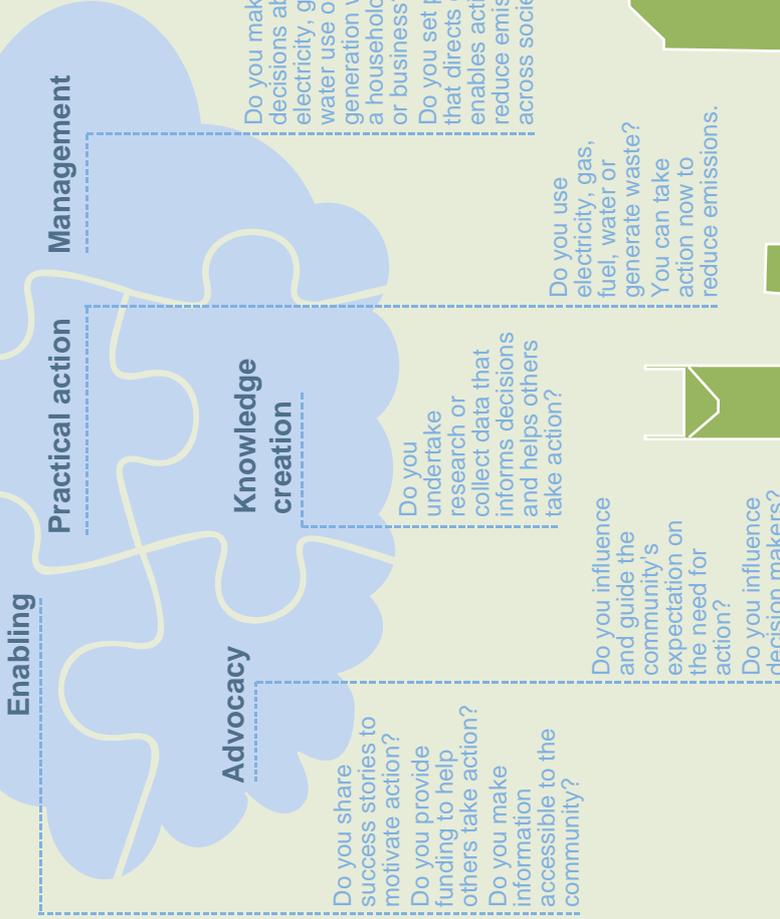
Arctic Sea Ice diminishing quickly

# This is what Melbourne's emissions profile looks like... and how you can contribute to achieving reductions.



Council operations within the municipality of Melbourne make up a small proportion of emissions. In order to reduce emissions within the municipality, we all need to work together.

Which piece of the puzzle are you?



How do you contribute to emissions?

Commercial and industrial gas and electricity 57.2%

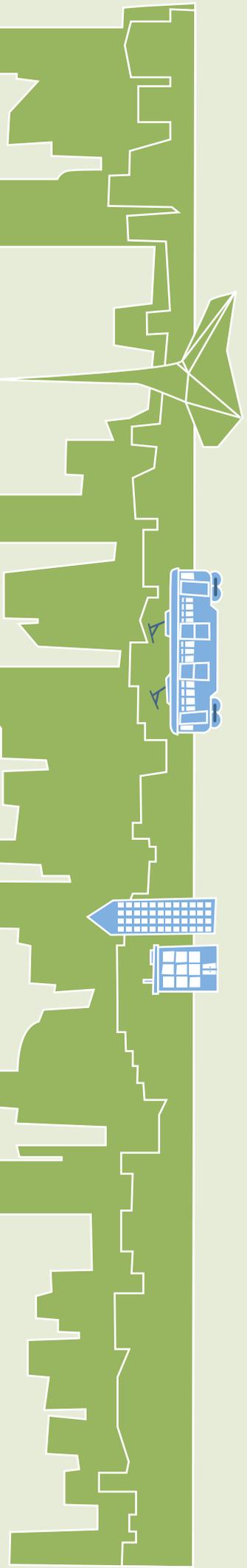
**Why is brown coal significant?**  
92% of Victoria's electricity is generated using brown coal. It produces more emissions than other energy sources such as natural gas.

Transport 24.3%

Residential gas and electricity 13.9%

Waste 3.6%

Mains water 1.1%



# Where are the opportunities to reduce emissions in Melbourne?

## Commercial buildings

- Efficient new buildings
- Base building and tenancy energy efficiency
- Local energy generation

## Key policies and legislation

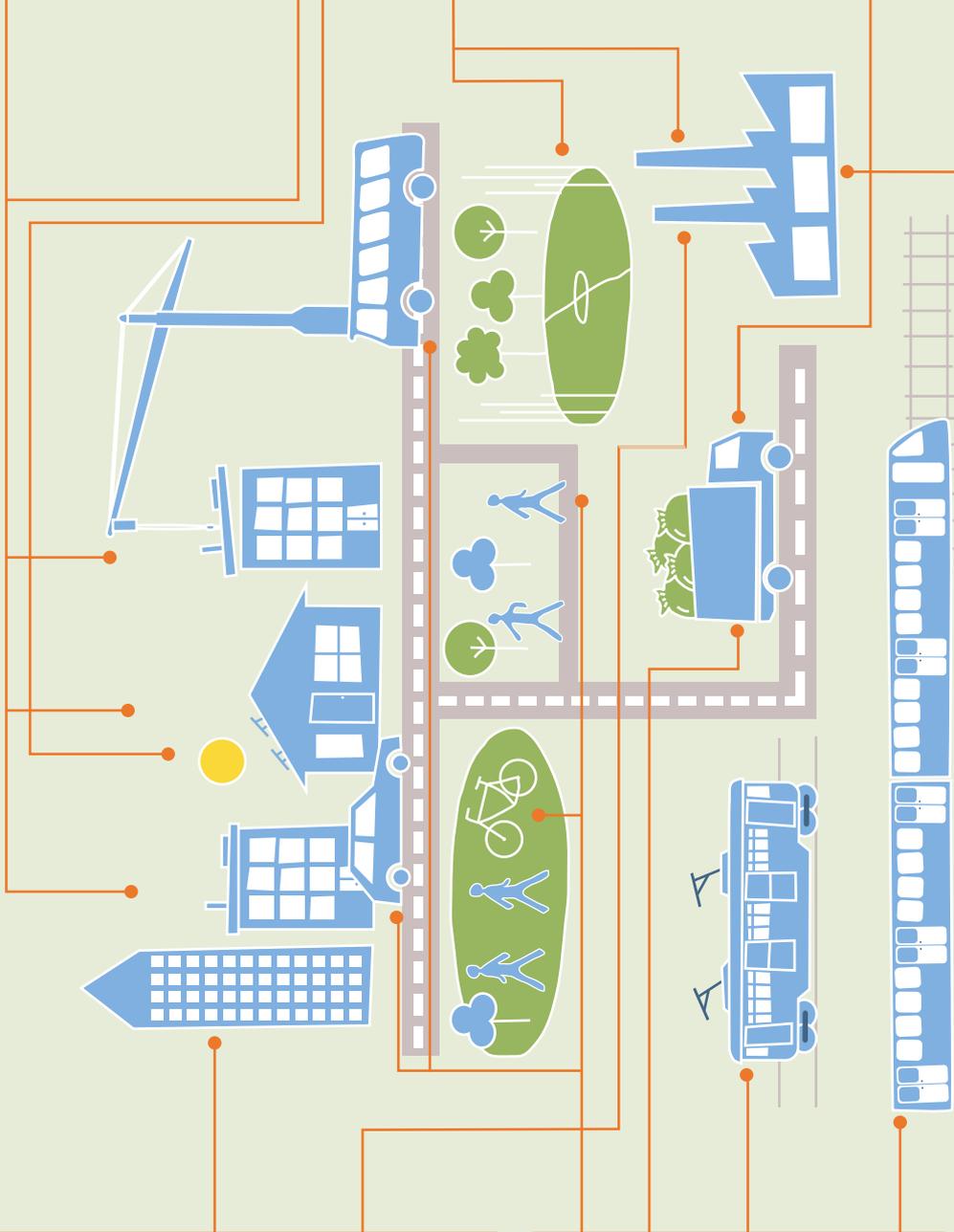
Melbourne Planning Scheme Amendment C187  
Victorian Energy Efficiency Target (VEET)  
Building Code of Australia  
National Greenhouse and Energy Reporting System (NGERS)  
Energy Efficiency Opportunities (EEO)  
National Australian Built Environment Rating System (NABERS)

## Transport and freight

- Efficient operation of public transport systems
- Shift to active and public transport
- Switch to more efficient cars, like hybrids and electric vehicles
- Car sharing
- Low emissions energy/fuel supply

## Key policies and legislation

National Greenhouse and Energy Reporting System (NGERS)  
Energy Efficiency Opportunities (EEO)



## Residential buildings

- Efficient new buildings
- Apartment common area energy efficiency
- Energy efficiency within houses and apartments
- Local energy generation

## Key policies and legislation

Melbourne Planning Scheme Amendment C187  
Victorian Energy Efficiency Target (VEET)

## Stationary energy supply

- Decentralised energy solutions
- Innovation and new technologies
- Renewable or lower emissions-intense energy supply

## Key policies and legislation

Renewable Energy Target (RET)

## Waste

- Waste-to-energy
- Local precinct solutions for businesses
- Waste reduction
- Increased recycling

## Key policies and legislation

Integrated Waste Management Program

## Industry

- Energy efficiency
  - Local energy generation
- Key policies and legislation  
National Greenhouse and Energy Reporting System (NGERS)  
Energy Efficiency Opportunities (EEO)

Sources

<http://www.melbourne.vic.gov.au/Sustainability/AdaptingClimateChange/Pages/AboutClimateChange.aspx>

[http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php)

[http://unfccc.int/essential\\_background/items/6031.php](http://unfccc.int/essential_background/items/6031.php)

<http://www.unep.org/publications/ebooks/emissionsgapreport/chapter1.asp>

[http://e360.yale.edu/images/digest/carbon\\_web.pdf](http://e360.yale.edu/images/digest/carbon_web.pdf)

<http://c40.org/c40cities>

[http://ipcc-wg2.gov/SREX/images/uploads/SREX-SPMbrochure\\_FINAL.pdf](http://ipcc-wg2.gov/SREX/images/uploads/SREX-SPMbrochure_FINAL.pdf)

[\(http://climatecommission.gov.au/basics/climate-change-basics/the-great-barrier-reef-threat/\)](http://climatecommission.gov.au/basics/climate-change-basics/the-great-barrier-reef-threat/)

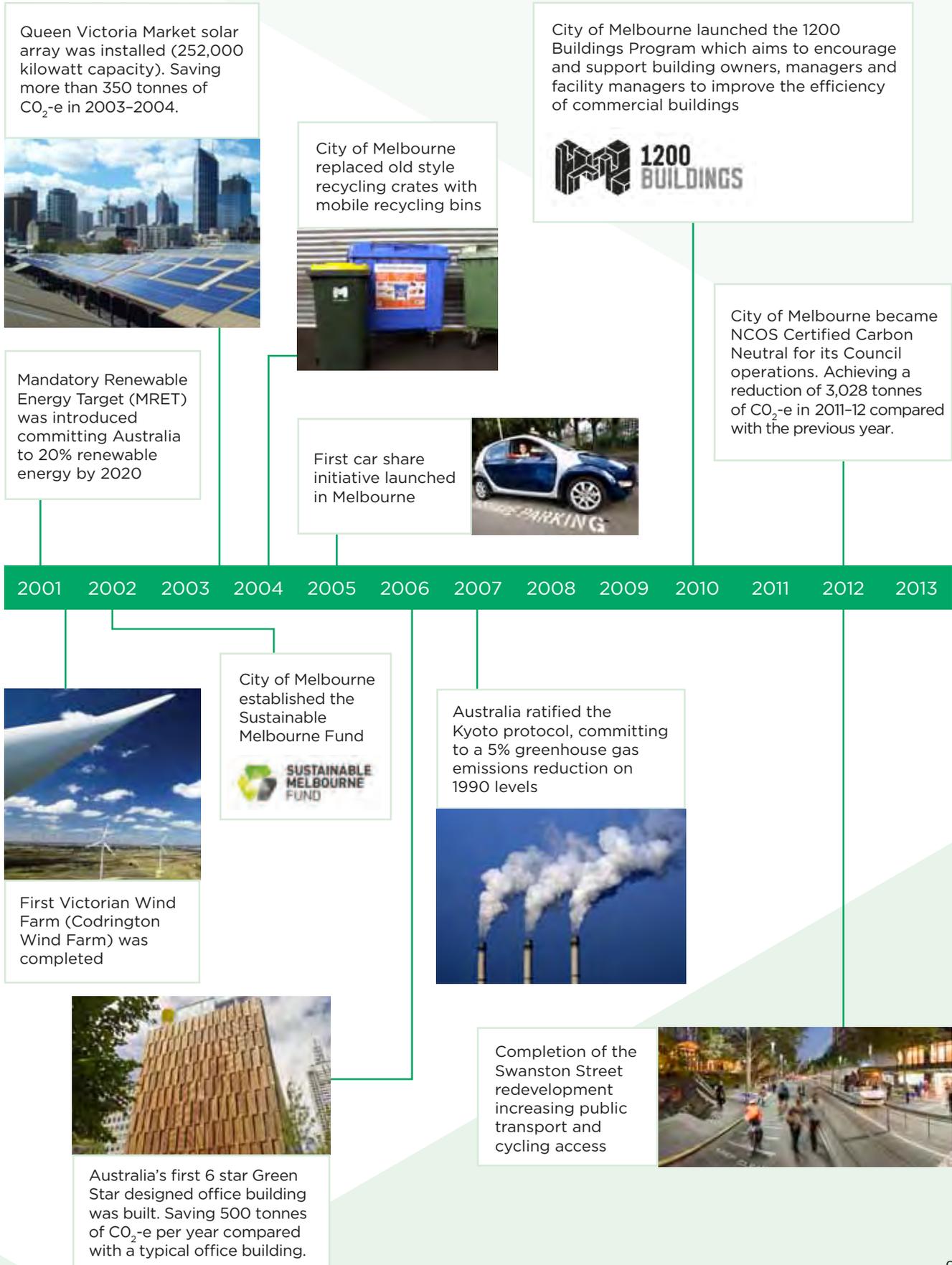
[\(http://msidc.org/arcticseaicenews/\)](http://msidc.org/arcticseaicenews/)

[http://www.ipcc.ch/publications\\_and\\_data/ar4/wg2/en/ch4s4-4-11.html](http://www.ipcc.ch/publications_and_data/ar4/wg2/en/ch4s4-4-11.html)

ClimateWorks Australia, City of Melbourne Roadmap to Zero Net Emissions May 2013

# OUR PROGRESS

IN 2003, CITY OF MELBOURNE SET AN AMBITIOUS GOAL OF BECOMING A ZERO NET EMISSIONS CITY BY 2020. WE HAVE MADE SIGNIFICANT PROGRESS OVER THE PAST DECADE.



# STRATEGY DEVELOPMENT AND IMPLEMENTATION

**This *Zero Net Emissions by 2020 - update 2014* builds on our strengths in delivering effective programs and on knowledge gained from implementing the 2003 and 2008 *Zero Net Emissions* strategies.**

A detailed four-year implementation program will accompany this strategy, setting out a clear timeline for action. The implementation plan will be produced by the end of 2014, and will be evaluated annually. The plan will contain more detail on project implementation, monitoring and reporting, timelines and collaborations with partner organisations.

The implementation plan will include an operational budget. Project costs will also be outlined in City of Melbourne's annual budget process, which is publicly available.

## Working together

Reducing Melbourne's greenhouse gas emissions and working to become a zero net emissions city requires collaboration from everyone in our community. A comprehensive, forward-thinking approach right now is crucial to implement the sustainable energy, infrastructure, transport and waste systems required to reduce our growing emissions.

The Victorian Government, business and research organisations have all been involved in creating this strategy and City of Melbourne will work with them in its implementation.

This strategy includes what we will do, what others will do and what else needs to happen to achieve zero net emissions by 2020. The actions identified as 'what others will do' are a representation of activities being undertaken by others in Melbourne based on what our stakeholders have told us and publicly available information. The actions identified as 'what else needs to happen' have not currently been committed to by an organisation, but are gaps that need to be filled to allow us to become a zero net emissions city. City of Melbourne will work to bring together key stakeholders to progress these actions.

## In implementing this strategy, City of Melbourne will:

- Develop a network of leading organisations to work with us to address key opportunities and barriers and annually review actions to ensure the strategy remains relevant.
- Create and strengthen partnerships with organisations to address barriers to reduce emissions.
- Work with the Australian, Victorian and local governments to improve coordination and governance.
- Explore delivering an offset service for community members to neutralise their greenhouse gas emissions.
- Opportunities will be prioritised based on the criteria outlined in the diagram on the following page.

## Zero Net Emissions strategy engagement process

- In developing this strategy we have collaborated with a broad range of partners including:
  - » Victorian Government departments
  - » Energy companies
  - » Regulators
  - » Property developers
  - » Transport providers
  - » Education institutions and researchers
  - » Non-government organisations
  - » Industry associations
  - » Other local councils.
- From the conception of the strategy, over 30 organisations helped to identify the focus areas, issues and challenges to be addressed. We then consulted further about the actions needed to achieve our objectives and targets.
- An external reference group of relevant leaders also provided input and guidance.
- We ran a six-week community consultation in 2013, during which community members had the opportunity to provide feedback on the draft document.

## PRINCIPLES FOR THE PRIORITISATION OF ACTIONS



# MELBOURNE'S EMISSIONS PROFILE

The latest greenhouse gas emissions data for the municipality of Melbourne shows that overall emissions are trending up, with significant increases in 2011-12 and 2012-13.

Non-residential electricity usage by commercial buildings and industry clearly has the biggest single impact, accounting for over 50 per cent of our emissions profile.

## Measuring our progress

### Municipality of Melbourne's Greenhouse gas emissions profile

#### Carbon footprint (kt CO<sub>2</sub>-e)

Carbon dioxide equivalent	2008/09	2009/10	2010/11	2011/12	2012/13
Water (residential)	11	11	11	10	11
Water (non-residential)	33	35	32	31	35
Electricity (residential)	316	521	448	262	292
Electricity (non-residential)	3,202	2,144	1,908	3,462	4,153
Gas (residential)	73	69	78	78 **	78 **
Gas (non-residential)	251	241	262	262 **	262 **
Residential waste	26	27	30	30	31
Industrial waste	107 *	107 *	107 *	107 *	107 *
Transport	923 *	923 *	923 *	923 *	1,025
<b>Total</b>	<b>4,943</b>	<b>4,079</b>	<b>3,799</b>	<b>5,164</b>	<b>5,994</b>

\* Once-off audit to obtain average annual estimate

\*\* 2010/11 data used as updated data was not available at time of printing

We have not compared our progress against the emissions profile in our previous strategies because we have changed our measurement approach.

Previously, greenhouse gas emissions were calculated based on a scaling-down of state and national data, using population and employment data.

We now have access to locally collected data such as electricity and gas consumption, provided by energy distribution companies operating within the municipality. This change gives a more accurate picture of the emissions impact of the city, but makes it difficult to track progress against figures reported in previous strategies.

Our data on transport and waste emissions has been obtained from an audit completed in 2008-09 and we will work with the transport and waste sector to improve the way we collect this data in the future.

Greenhouse gas emissions associated with refrigerant leakage cannot currently be quantified. We will work with the industry and others to quantify and reduce these emissions throughout the municipality.

#### WHAT IS A GREENHOUSE GAS?

Greenhouse gases are atmospheric gases that absorb and emit radiation. The additional greenhouse gases in the atmosphere due to human activities are causing climate change. The Kyoto Protocol lists six significant greenhouse gases - carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydro-fluorocarbons (HFCs), per-fluorocarbons (PFCs) and sulphur

## Opportunities to reduce emissions

City of Melbourne engaged ClimateWorks Australia to undertake an in-depth assessment of how Melbourne can unlock opportunities to significantly reduce the municipality's greenhouse gas emissions.

Through this research and technical analysis, City of Melbourne has identified evidence-based priorities, which optimise the size of emissions reduction and minimise cost. Commercial buildings represent the largest potential to reduce emissions. Residential buildings, manufacturing, transport, waste and energy supply are other key sectors where technologically feasible and commercially available opportunities to reduce emissions are evident. The data shows the financial benefits for Melbourne's economy from adapting to and embracing a low carbon future.

This research reaffirms the importance of many programs we have underway and shows the need for urgent change by business, residents, industry and the Victorian Government to reduce emissions.

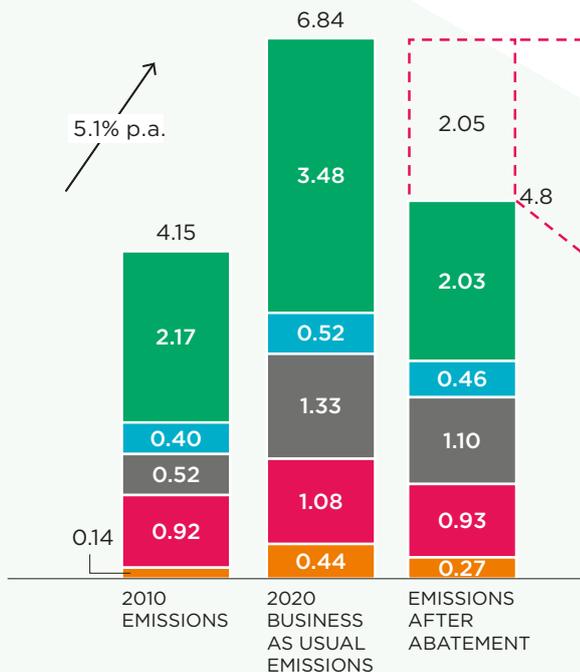
ClimateWorks research reveals that if we continue our current journey towards reducing Melbourne's carbon footprint, greenhouse gas emissions will grow to around 7.7 million tonnes by 2020 – a 60 percent increase on 2010 emissions.

By implementing the opportunities identified by ClimateWorks, the municipality could reduce greenhouse gas emissions by 2020 by approximately 2.2 million tonnes per year, or 28 per cent, which is approximately the same amount of emissions expected from growth over this time.

To achieve zero net emissions by 2020 City of Melbourne, government, businesses and the people of Melbourne need to work together to successfully implement these opportunities, enhance government policy and change our energy supply, as fast as possible.

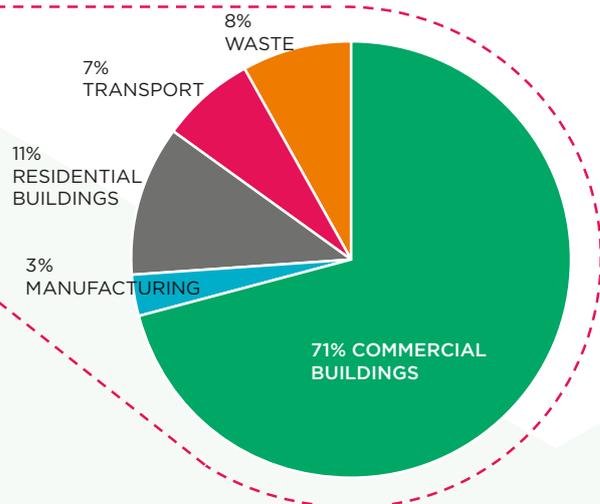
## PERCENTAGE OF EMISSIONS TOTAL, 2010-11 ESTIMATES

BUSINESS AS USUAL EMISSIONS AND ABATEMENT FOR THE CITY OF MELBOURNE\* (MtCO<sub>2</sub>-e, 2020 ESTIMATES)



BREAKDOWN OF OPPORTUNITY BY SECTOR (% OF TOTAL ABATEMENT OPPORTUNITY, 2020 ESTIMATES)

100% = 2,046 ktCO<sub>2</sub>-e



Source: ClimateWorks team analysis, City of Melbourne's 2010 Carbon inventory

## 2020 MARGINAL ABATEMENT COST CURVE

Cost and abatement potential of emissions reduction opportunities

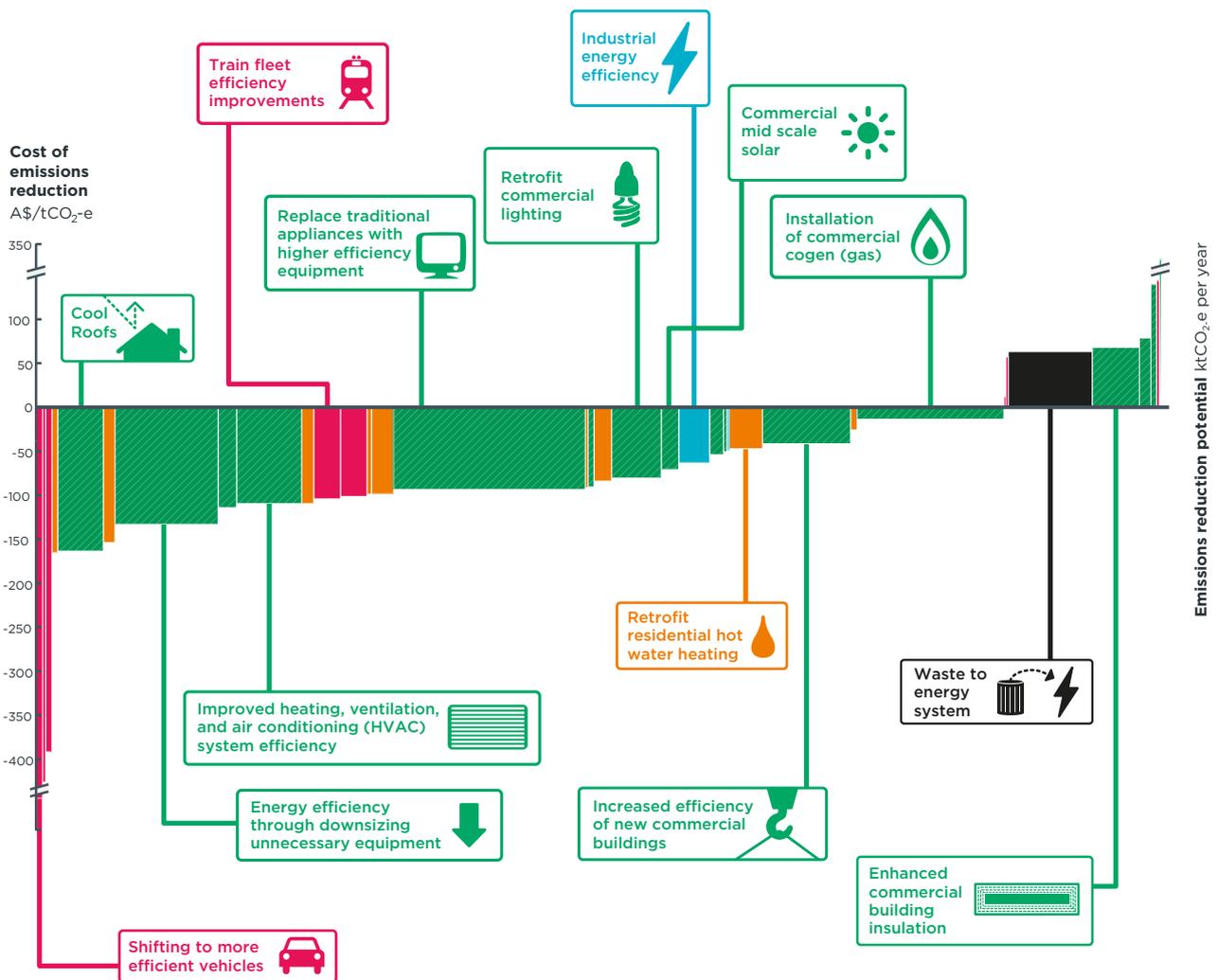
### KEY

Opportunities are sorted from left to right by increasing costs per tCO<sub>2</sub>-e ----->

Each box represents one emissions reduction opportunity

A ↑ A Estimated cost to reduce emissions in A\$/tCO<sub>2</sub>-e (in 2020\$)  
B ↓ B Cost and abatement potential of emissions reduction opportunities  
 ← B →

■ Waste   
 ■ Industry   
 ■ Transport   
 ■ Commercial buildings   
 ■ Residential buildings



# COUNCIL OPERATIONS

City of Melbourne will lead action across Melbourne to reduce emissions through meeting ambitious targets, implementing new technologies and supporting others to act.

## Targets

- Maintain carbon neutrality for council operations.
- Reduce greenhouse gas emissions by 10 per cent by 2018 (based on baseline year 2010-11).

## The challenge

In becoming carbon neutral, we have encountered some challenges in trying to improve the environmental performance of our assets.

For some of our older buildings, particularly the heritage listed Melbourne Town Hall; we face considerable challenges in trying to improve the environmental performance with reasonable payback periods.

We have learnt a lot from building and operating Council House 2, Australia's first six-star Green Star rated building. The complex technology has required new expertise and time to fine-tune the way it operates. To assist in identifying improvement opportunities, Council House 2 was recently tested under the National Australian Built Environment Rating System (NABERS) scheme, and received a 4 star whole building rating. Council is now implementing changes to improve the building's performance to its design potential and has allocated the appropriate budget necessary.

## Proposed approach

We will review and measure the effectiveness of the following emission reducing initiatives annually.

## Flagship projects

Over the next four years, City of Melbourne will:

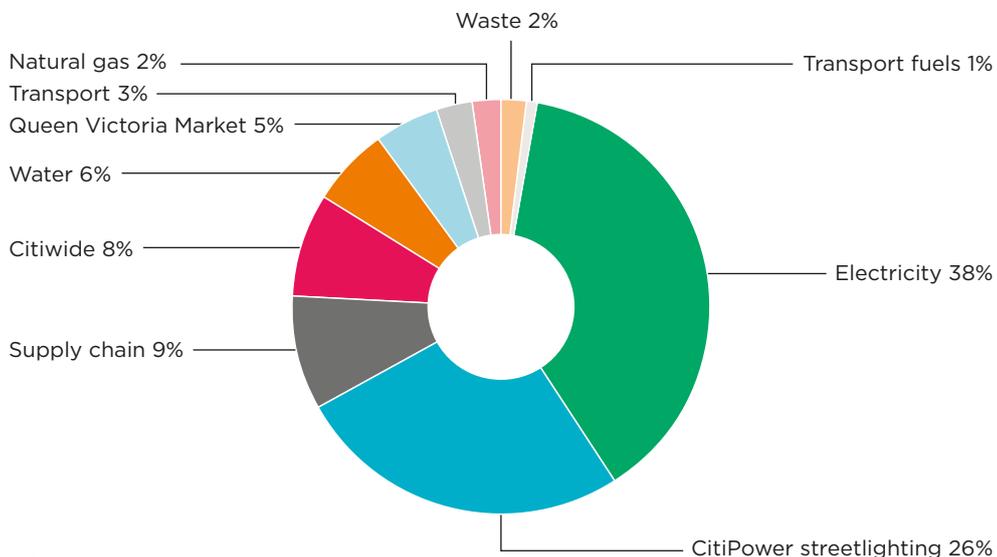
- Undertake a world-leading sustainable redevelopment of Queen Victoria Market.
- Lead by example with sustainable developments such as Docklands Library.
- Trial the Green Building Council's Green Star Performance Tool on our buildings including ArtPlay and East Melbourne Library.

## City of Melbourne will continue to:

### Energy

- Implement an Energy Performance Contract that includes the retrofit of 13 of the city's largest buildings. This contract, which began in 2010, guarantees emissions savings of 1,560 tonnes CO<sub>2</sub>-e (carbon dioxide equivalent) per year and will be achieved through appropriate energy efficiency measures at each site, including the Queen Victoria Market.
- Implement the 2013 *Public Lighting Strategy*, including a rollout of energy efficient street lighting technologies.
- Trial low emissions technologies on council buildings.

## CORPORATE GHG INVENTORY 2012-13



Source: City of Melbourne

- Upgrade existing buildings, as appropriate, to meet current environmental standards. This will include a range of passive energy control methods from insulation and ventilation through to solar hot water and photovoltaic panels.
- Investigate opportunities for precinct energy solutions for council facilities.
- Undertake NABERS ratings for council's largest buildings and make these ratings public.

#### Corporate travel

- Investigate procuring vehicles run on new and emerging sustainable technologies.
- Work with the Victorian Government on its electric vehicle trial by using electric vehicles in council's fleet and assessing their performance.
- Investigate opportunities to install renewable energy technologies for recharging council's electric vehicles.
- Encourage greater take-up of electric and low emission transport through staff engagement and education.

#### Waste

- Implement the waste management plan and conduct audits to track progress.

#### Supply chain

- Use sustainable building materials where possible. For example, we are using cross-laminated timber in our new Docklands Library.

#### Staff development

- Incentivise staff to reduce paper usage and waste.
- Train staff on council's sustainability commitments and programs and offer specialist training opportunities on how different business areas can contribute.

#### Urban Forest

- Implement City of Melbourne's *Urban Forest Strategy* to reduce the urban heat island effect and decrease cooling requirements for buildings.

### City of Melbourne will also:

#### Energy

- Release an energy reduction plan for our existing buildings outlining our approach for achieving significant emissions reductions. This will include investigating options for office accommodation and fit-outs that optimise energy and space efficiency.
- Develop minimum environmental design standards for new council buildings.

- Release a green information technology plan that explores opportunities to reduce energy used by information technology infrastructure.
- Enhance sustainable buildings knowledge and capacity within City of Melbourne to provide internal and external advice.
- Ensure all building projects achieve a rating of at least five star Green Star (or equivalent) where 50 percent or more of the building is being renovated.

#### Supply chain

- Undertake a review of opportunities to reduce the impacts associated with our supply chain and implement new initiatives.
- Require environmental reporting by providers of major impact services and products.
- Increase the number of major contracts with carbon neutral services.
- When our banking services contract is due for renewal, in accordance with our *Sustainable Procurement Policy*, we will seek information from tenderers about their sustainability commitments and investment strategy. (Council's current services are provided under a Victorian Government contract with Westpac until June 2016.)

#### Subsidiaries

- Work with our wholly owned subsidiary CityWide to implement viable energy, waste and water efficiency opportunities.



# COMMERCIAL BUILDINGS AND INDUSTRY

Reducing emissions from the commercial building sector is vital to achieving zero net emissions. City of Melbourne will work with building owners, managers and industry to implement effective and efficient solutions.

## Target

- Increase the average NABERS, or equivalent, rating of commercial buildings to 4 (this roughly equates to an average increase in energy efficiency of 40 per cent per building) by 2018.

## The challenge

This sector has the biggest single impact, with non-residential electricity usage by commercial buildings and industry accounting for over 50 per cent of the municipality's emissions profile.

The municipality of Melbourne has over 4.1 million square metres of office space and almost 400,000 people work in the central city area of Melbourne each weekday.

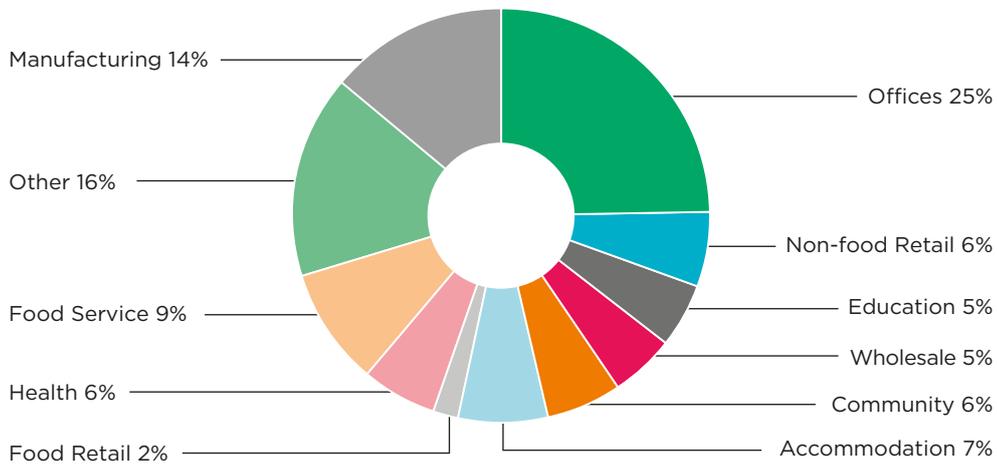
More than two-thirds of the opportunities identified through the ClimateWorks analysis are for commercial buildings. This equates to around 1.6 million tonnes of emissions reduction and around \$108 million tonnes of

annual energy cost saving per year by 2020. Based on this analysis the average cost of retrofitting commercial buildings is paid back in less than four years.

Many lower cost energy efficiency measures have already been implemented in commercial buildings owned by institutional investors, and private building owners are making progress at a reasonable rate. Barriers to action include access to suitable finance, conflicting priorities, disruption to tenants, lack of expertise and gaps in skills. Another barrier is split incentives, which arise when building owners lack financial motivation to implement energy saving upgrades because the tenants pay the energy bills.

## % OF TOTAL, 2010-11 ESTIMATES

100% = 2,827 ktCO<sub>2</sub>-e\*



\*Total estimated emissions in 2010-11 using ClimateWorks model (but City of Melbourne's emissions intensity for electricity), which differ slightly from City of Melbourne's estimates

## RESOURCES AND PROGRAMS FOR COMMERCIAL BUILDINGS

SERVICES	TARGET AUDIENCE			APPROACH	
	BUILDING TENANT (BUSINESS)	BUILDING OWNER (INSTITUTION/INDIVIDUAL)	GOVERNMENT	INFO/RESOURCE	FINANCE
<b>INFORMATION RESOURCES</b>					
1200 Buildings 		✓	✓	✓	✓
City Switch 	✓				
Sustainable Melbourne Fund 	✓	✓		✓	✓
Greener Government Buildings (Victorian Government)			✓		
Energy Saver Incentive Scheme (Victorian Energy Efficiency Target)	✓	✓			✓
Smarter Resources, Smarter Business Program (SV)		✓		✓	✓
Carbon Compass				✓	
National Carbon Offset Standard (Carbon Neutral Standard)			✓		

<b>REPORTING MECHANISM</b>	BUILDING TENANT (BUSINESS)	BUILDING OWNER (INSTITUTION/INDIVIDUAL)	GOVERNMENT	INFO/RESOURCE	FINANCE
Commercial Building Disclosure (>2000m <sup>2</sup> )	✓	✓	✓		
Energy Efficiency in Government Operations			✓		
National Australian Built Environment Rating System (NABERS)		✓	✓		

### KEY

\$ Finance incentive

Finance available

## Proposed approach

Over the next four years City of Melbourne will showcase the potential to create positive-energy buildings, which generate more energy than they use. We will facilitate opportunities to drive efficiency outcomes through the design, construction and performance of buildings. We will also facilitate ways to overcome the barriers currently preventing action to achieve high performing commercial buildings.

### City of Melbourne will continue to:

- Engage existing networks for Melburnians to share ideas on sustainable building solutions.

### New buildings

- Identify channels to engage with developers and building designers in the early stages of new projects.
- Implement the *Energy, Water and Waste Efficiency Planning Policy* to apply specific industry-recognised standards in new buildings.

### Building owners

Implement and enhance the 1200 Buildings Program that aims to encourage the environmental retrofit of the municipality's commercial building stock. The program will:

- Include more one-on-one engagement with private building owners.
- Promote positive-energy buildings.
- Focus on heating, ventilation and air conditioning information.
- Develop information and advice tailored to hotels and large retailers.
- Deliver a cool roofs education program to minimise heat absorption and help reduce the urban heat island effect.
- Explore an expansion of existing finance mechanisms offered to building owners.
- Communicate building environmental performance with government and the private sector.
- Work with Victorian and Australian governments to accelerate inclusion of green building standards into building codes and planning mechanisms.
- Support the financing of commercial building retrofits by providing Environmental Upgrade Agreement financing, administered by the Sustainable Melbourne Fund.
- Promote emerging initiatives such as the Green Building Council of Australia's Green Star Performance Rating Tool.

### Tenants

- Extend the CitySwitch program that helps commercial office tenants to improve energy efficiency through:
  - » Carrying out education on energy efficient appliances and addressing barriers to upgrades.
  - » Including resource recovery in office and building advice and support.
  - » Creating a targeted program for new tenants.
  - » Developing a cost effective model for walk-through energy advice services.

### City of Melbourne will also:

- Create and strengthen partnerships with key utility and manufacturing companies on energy efficiency and renewable energy opportunities.
- Expand City of Melbourne's business platforms to include resources and services that support hospitality and retail tenants.
- Through the implementation of our *Retail and Hospitality Strategy*, work with businesses to:
  - » Increase sustainable procurement, amenity of waste collection and resource recovery.
  - » Support energy efficient practices and a switch to sustainable energy sources.
  - » Promote successes around environmental sustainability.
  - » Develop options for improving freight efficiency in the central city.

### City of Melbourne will undertake research to:

- Enhance our understanding of the interests and influences of commercial building facilities managers and tenants.
- Update understanding of energy efficiency drivers and barriers for building owners and tenants.
- Explore incentives for improved environmental performance of office buildings.
- Gauge building retrofit activity and economic benefits.
- Quantify emissions associated with refrigerant leakage, in consultation with industry.
- Support research into sustainable building materials and incorporate findings into our programs.
- Explore the impact of sustainable buildings on the health and wellbeing of employees.

### What others will do:

- The Victorian Government will deliver the Greener Government Buildings program.
- The Victorian Energy Efficiency Target (VEET) scheme, promoted as the Energy Saver Incentive, will encourage the uptake of energy efficiency improvements in residential, business and other non-residential sectors.
- Sustainability Victoria will assist businesses to make demonstrable energy and material savings and to change inefficient practices through the Smarter Resources Smarter Business program.
- The Green Building Council of Australia will continue to rate, educate and advocate for the transformation of the built environment to more sustainable practices. With the release of the Green Star – Performance, the Green Star suite of rating tools will be expanded to address buildings in operation as well as the design and construction of buildings.
- The Energy Efficiency Council will implement the Integrated Energy Efficiency Retrofit Accreditation Scheme.
- The Australian Sustainable Built Environment Council will advocate for tax incentives for energy efficient building retrofits and a national white certificate scheme.
- Private building owners, such as Positive Energy Places, will showcase positive-energy building examples.
- Tertiary education institutions, including RMIT and the University of Melbourne will continue to take a leadership role to reduce emissions through innovative research, academic programs and significant infrastructure upgrades.
- Utility, corporate and manufacturing companies, including Melbourne Water, will implement best business practice to meet ambitious emissions reductions targets.

- Leading businesses, such as the National Australia Bank, will work towards or have already achieved carbon neutrality.
- Environment Victoria will work with others to measure precinct performance using the One Planet Living tool.

### What else needs to happen:

- More regulation and market mechanisms to overcome split incentives for new build, shared spaces and common property building retrofits.
- Energy efficiency performance levels to be mandatory for existing commercial buildings.
- NABERS to be mandatory for shared spaces and common property in smaller city commercial buildings, including reviews every two years.
- Government legislation that enables Victorian councils to deliver Environmental Upgrade Agreements that provide access to finance for building retrofits.
- An expansion of the Energy Saver Incentive Scheme to include large sites and also accredit heating, ventilation and cooling technologies.
- An expansion of the Commercial Building Disclosure Program to require disclosure by more sites.



# RESIDENTIAL BUILDINGS

As the city's population and density grows rapidly, City of Melbourne will offer cost effective and efficient solutions to reduce emissions in residential buildings across the municipality.

## Target

- City of Melbourne will establish a baseline and develop a long-term target in the first year of the implementation plan.

## The challenge

The municipality of Melbourne is currently experiencing rapid population growth, leading to a transformation of our residential sector. During the last two decades the population of the municipality has almost tripled, increasing from 35,000 in 1991 to over 100,000 in 2011. The city has also changed, shifting towards smaller households with one or two bedrooms, fewer children and higher incomes.

The apartment building boom has meant that 93 per cent of new homes built between 2006 and 2012 were apartments.

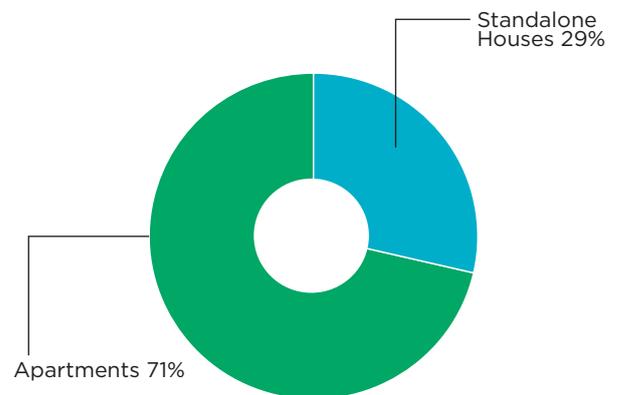
The environmental performance of many new homes built in the municipality of Melbourne has significant room for improvement, most notably in the high-rise apartment sector.

High-rise apartments have been shown to be the most energy intensive dwelling type, due in large part to the energy consumption of shared services and common property such as hallway and car park lighting, ventilation and pool and heating pumps. A key challenge is to achieve the largest reduction in emissions for the least cost by encouraging energy efficient retrofits in apartment building common areas as well as within the apartments themselves.

Making change within an apartment building's owners corporation can be complex and each building is unique in its physical and human elements. Apartment residents, managers and owners need tailored assistance and long lead times to create change. High upfront costs and limited access to finance for retrofits can impede change, as well as overcoming a split incentive between property owners and tenants.

## % OF TOTAL, 2010-11 ESTIMATES

100% = 620 ktCO<sub>2</sub>-e\*



\*Total estimated emissions in 2010-11 using ClimateWorks model (but City of Melbourne's emissions intensity for electricity), which differ slightly from City of Melbourne's estimates



## Proposed approach

**City of Melbourne will bring together multiple parties to develop convenient, affordable and accessible solutions for reducing emissions from people's homes.**

### City of Melbourne will continue to:

- Implement the *Energy, Water and Waste Efficiency Planning Policy* to apply specific industry-recognised standards in new buildings.
- Support the implementation of Smart Blocks, a national program helping apartment owners and their managers to improve the energy efficiency of common property in apartment buildings.
- Promote programs such as Positive Charge, a not-for-profit service which partners with local councils to provide expert advice to help both residents and businesses save energy. The service also offers access to discounted energy saving products, such as solar, LED lighting and insulation.

### City of Melbourne will also:

- Incorporate environmental design considerations into relevant urban planning guidelines, policies and provisions – including design strategies to reduce peak energy demand and greenhouse gas emissions and to support renewable energy systems.
- Explore incentives for the improved environmental performance of residential buildings.
- Develop communication strategies for residents and owners on the benefits of environmental retrofits.
- Embed waste management and resource recovery in our engagement programs for building owners and tenants.
- Conduct apartment building research to assist in the development of tools, like NABERS, to rate a building's environmental performance.
- Perform market research to identify opportunities to improve our sustainability services.

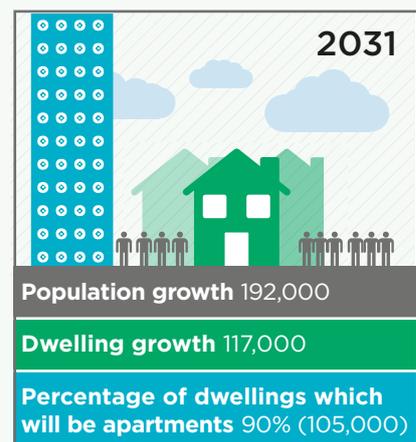
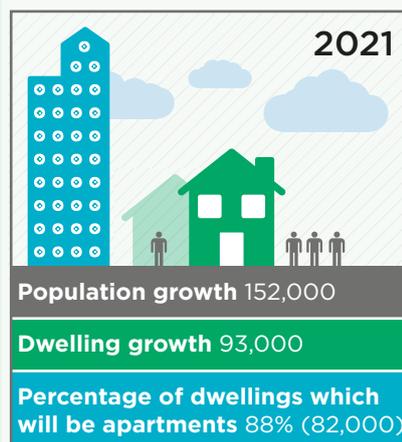
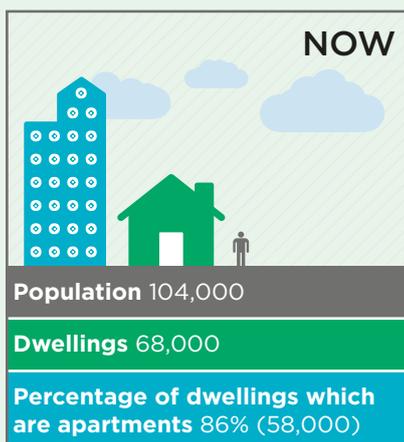
### What others will do:

- Real estate agents, such as LJ Hooker, will develop a training program on sustainability in buildings.
- The Sustainable Melbourne Fund will provide attractive financing to owners corporations to implement environmental improvements.
- Strata Community Australia and partners will evolve Smart Blocks to become commercially viable and more accessible.

### What else needs to happen:

- Amendments to legislation to incentivise owners corporations to support environmental initiatives.
- Development of a NABERS rating tool for apartment buildings.
- Implementation of a scheme mandating environmental performance ratings for large residential buildings.
- Improvements to Australian building codes to ensure all new construction meets a high standard.
- Development of a business case for consumer-led high-rise construction.
- Increased rebates for environmental products, including lighting.
- Development of solutions to overcome financial barriers to tenant investment in environmental retrofits.
- Residential owners corporation template rules to be developed with Consumer Affairs Victoria to support best practice energy efficiency.

## PROJECTED POPULATION AND DWELLING GROWTH FOR THE MUNICIPALITY OF MELBOURNE



\*BASED ON 2012 BASELINE

# STATIONARY ENERGY SUPPLY

**In order to achieve zero net emissions we must change the source of our stationary energy supply, ultimately using 100 per cent renewable energy within the municipality.**

## Target

- 25 per cent of electricity from renewable sources by 2018.

## The challenge

To become a zero net emissions city the carbon intensity of our electricity supply must be substantially decreased. The Victorian electricity grid currently provides electricity, primarily sourced from brown coal, to Melbourne's businesses and households. Victoria's grid supply is the most emissions intensive in Australia.

Research has shown that the municipality of Melbourne can achieve reductions by changing supply sources. By switching 25 per cent of our current grid supplied electricity to low or zero emissions energy sources we could achieve a 10 per cent emissions reduction. While we have set an objective to obtain 25 per cent of our electricity from renewable sources by 2018, we are committed to working with key partners to drive transformational change to our stationary energy supply up until 2018 and beyond.

Challenges impacting the uptake of environmentally friendly approaches to our stationary energy supply include substantial uncertainty around future economics including the price of carbon, natural gas and grid energy. Key barriers to adopting innovative energy solutions include the installation and capital costs of infrastructure and regulatory frameworks, including selling electricity across property boundaries. Lack of demand for renewable energy has meant that there are a large number of approved renewable energy facilities that are not being developed.

Distributed generation of energy ensures a more resilient and diversified system. In many circumstances, developing energy from low emissions sources for a district is more efficient than producing energy for a single building. District energy solutions will be part of Melbourne's journey to becoming a zero net emissions city.

**Stationary energy refers to all electricity and gas used for stationary purposes (non-transport) within the municipality.**

## Proposed approach

City of Melbourne will bring together multiple parties to develop solutions to barriers. Below are the actions that need to be undertaken to help make Melbourne a zero net emissions city.

## The electricity grid

### What City of Melbourne will do:

We will develop a collaborative relationship with CitiPower to design and deliver an energy management and supply system for the municipality of Melbourne that:

- Meets the community needs and expectations for energy supply.
- Is safe and secure.
- Is managed and delivered economically and environmentally efficiently.
- Minimises greenhouse gas emissions.
- Supports Melbourne as a prosperous city and premier business location
- Responds to future demands, challenges and changes.

### What others will do:

- Not-for-profit groups, such as Environment Victoria, will continue to advocate for the closure of coal-fired power stations and the creation of renewable energy plants.
- Companies will be driven by Australia's Renewable Energy Target of 20 per cent by 2020, to supply more renewable energy to Victoria's grid.

### What else needs to happen:

- Reduced Victorian reliance on brown coal as the primary source of emissions, through increased power plant efficiency and retirement of inefficient plants.
- Increased use of smart grids that use information technology to collect data on electricity use and supply in order to improve the efficiency of production and distribution.
- Improvements to the electricity grid to enable greater distributed generation capacity.

## Renewable energy

### City of Melbourne will deliver a renewable energy program that will:

- Promote solutions for commercial and residential renewable energy that increase accessibility and affordability.
- Provide guidance about navigating planning requirements for renewable energy installation.
- Explore financial models to encourage uptake of renewable energy.
- Facilitate community-owned solar projects on large commercial or institutional roofs.
- In partnership with the Sustainable Melbourne Fund, explore initiatives to increase the demand for the development of large-scale renewable facilities including wind and solar.
- Enable and encourage use of renewable energy through planning policies, strategies, structure plans and in new developments.

### What others will do:

- The solar industry companies, such as Ingenero and Energy Matters, will create attractive finance models, such as solar leasing, for commercial buildings.

### What else needs to happen:

- Removal of regulatory and process barriers for connecting renewable energy to the grid.
- A decrease in the cost of renewable energy to allow large-scale installations on commercial buildings.
- A revision of the planning scheme to simplify the approval process for installations.

## DISTRICT ENERGY

**District energy involves distributing locally generated energy to a defined district. It is used for residential, industrial and commercial requirements such as electricity, heating and water heating. A range of fuels including fossil fuels, renewables, or a combination of both can fuel district energy systems. City of Melbourne has a preference for encouraging district energy systems that are fuelled by renewable sources.**

## District or distributed energy solutions

### City of Melbourne will continue to:

- Develop an energy map that outlines the municipality's current usage and identifies opportunities for increased efficiency, distributed renewable and district energy systems.

### City of Melbourne will also:

- Develop and promote case studies on best practice for Melbourne businesses.
- In partnership with large property owners, facilitate communication within the energy sector about how to overcome barriers to increased use of renewable energy and decentralised supply.
- Explore waste-to-energy solutions, in partnership with key players and industry.

### What others will do:

- The Energy Efficiency Council will implement the Integrated Energy Efficiency Retrofit Accreditation Scheme.
- Energy services companies, such as Cofley Australia and Cogent Energy, will explore the opportunity for delivering district energy solutions.

### What else needs to happen:

- A review of building rating schemes to encourage cogeneration, district and distributed energy solutions.
- Property developers and building owners need to explore district energy solutions.
- Development of financial and regulatory incentives for district energy.
- Removal of barriers preventing electricity being sold across property boundaries.
- Regulations need to evolve to align with the new ways we use and source energy.

## Supporting new technologies

### City of Melbourne will continue to:

- Facilitate relationships between institutions to co-create and develop low carbon solutions.

### City of Melbourne will also:

- Develop and promote case studies on innovative new technologies.
- Facilitate peer-to-peer learning and collaboration between different stakeholders on projects.
- Work with others to support research into and development of innovative clean energy solutions.

## DISTRIBUTED GENERATION:

**Energy obtained from a collection of sources. Distributed energy systems can include a range of fuel sources including fossil fuels, renewables, or a combination of both. City of Melbourne has a preference for encouraging renewable sources.**

# TRANSPORT AND FREIGHT

Melbourne will have a well-designed, energy efficient freight and transport system. Public transport, walking and cycling will be the predominant local modes of inner urban travel.

**Target**

- Increase the percentage of all trips to and from the municipality of Melbourne using sustainable transport from 51 per cent in 2009 to 60 per cent by 2018.

## The challenge

Making our transport more environmentally sustainable is an important step towards zero net emissions.

Increasing the number of people using public transport, instead of driving private vehicles, is also vital to reducing the municipality's greenhouse gas emissions. Concerns about reliability, safety and the comfort of public transport are key barriers to be addressed.

Encouraging the uptake of new vehicles with improved environmental performance is another challenge, with research revealing that many vehicle purchasers often prioritise characteristics such as size and appearance over energy efficiency.

Improvements to air quality and reduced traffic congestion along with the associated health benefits of walking and cycling are key incentives for changing the way Melburnians currently use transport.

## Proposed approach

City of Melbourne will bring together multiple parties to develop solutions enabling people to move easily, safely and comfortably using environmentally sustainable transport, and to ensure the city's private transport network complements the public system.

### As part of our *Transport Strategy 2012* City of Melbourne will continue to:

#### Improve infrastructure

- Roll out green asphalt for road and footpath construction and investigate other sustainable options.
- Develop policies giving pedestrians priority in central city areas.

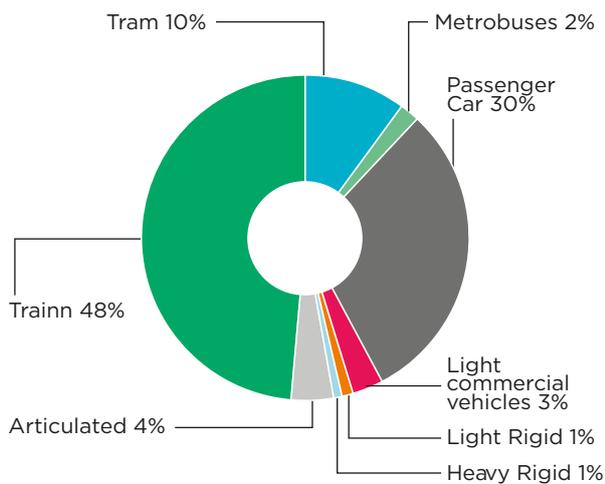
#### City of Melbourne will also:

#### Improve infrastructure

- Implement our *Bicycle Plan 2012-16* to deliver a connected cycling network, increase participation in cycling, and make cycling safer. We will also continue to build separated bike lanes in the central city.
- Develop a walking plan to improve the municipality's walking environment to and around current and future train, tram and bus stations and stops.

### % OF TOTAL, 2010-11 ESTIMATES

100% = 921 ktCO<sub>2</sub>-e



**Melbourne is Victoria's transport hub**  
Over 800,000 people travel to and around the central Melbourne city area each day.

### SUSTAINABLE TRANSPORT

Sustainable transport refers to use of public transport, walking and cycling.

### **Improve freight practices**

- Create incentives for Melburnians to grow, eat and consume locally in line with our *Food Policy 2012*.
- Work with others to develop options for improving freight efficiency in the central city area.
- Encourage low emissions delivery systems.

### **Support community**

- Partner with others to educate the community on the benefits of choosing sustainable transport.
- Develop and promote vehicle-sharing initiatives.

### **Research**

- Undertake research to better quantify and understand emissions associated with freight transport.
- Enhance the evidence base on optimum transport and movement approaches in growth areas to minimise greenhouse gas emissions.

### **Corporate fleet**

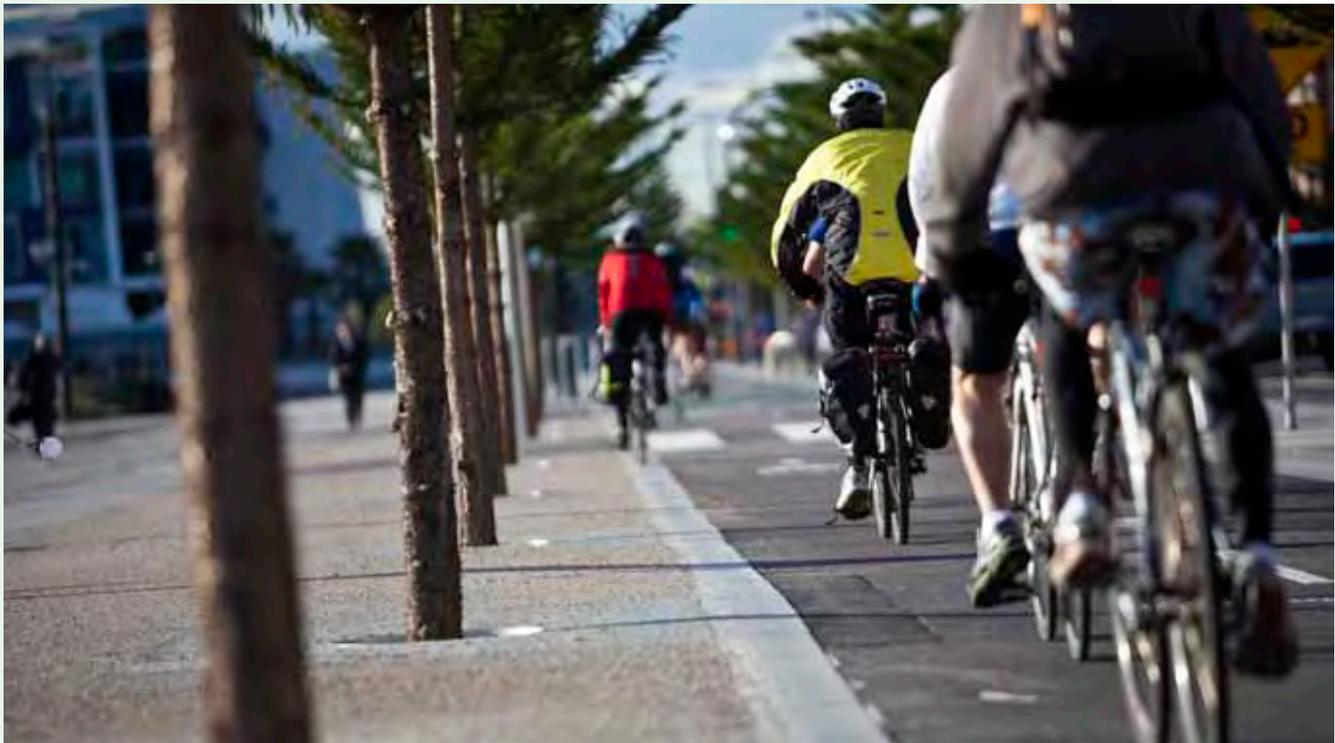
- Lead by example through incorporating more efficient vehicles into our fleet, and by investigating procuring vehicles run on new and emerging sustainable technologies

### **What others will do:**

- The Victorian Government will prioritise increasing the capacity for more rail trips into the central city area by implementing the Metro Rail Capacity Project. The project involves the construction of a nine-kilometre rail tunnel through inner Melbourne including five new underground stations.
- The Victorian Government will work to implement the findings from its electric vehicle trial.
- Metro Trains will continue to investigate energy efficiency opportunities to reduce emissions in the operation of the rail network.

### **What else needs to happen:**

- Public transport to be operated using renewable or no emissions energy sources.
- Preferential treatment to be given to low emissions taxis, cars and freight vehicles.
- Freight industry to transition to low emissions vehicles and fuels systems.
- Goods to be sourced from local producers where appropriate to minimise freight travel distance.



# WASTE MANAGEMENT

City of Melbourne will work to minimise the municipality's waste through planning and innovative solutions.

## Targets

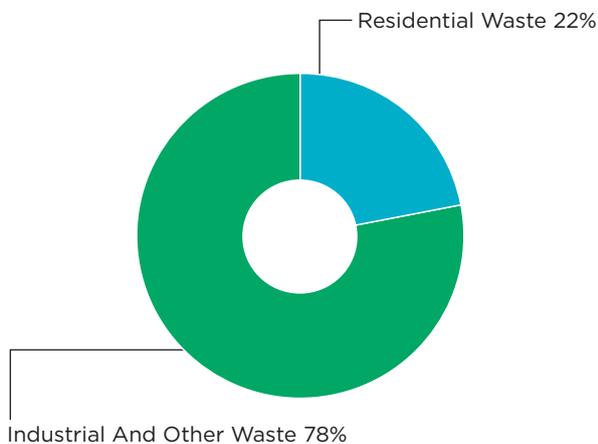
- Decrease waste to landfill per resident by 5 per cent by 2018.
- City of Melbourne to trial seven precinct waste solutions by 2018.

## The challenge

If current trends continue, the municipality of Melbourne is expected to send approximately 208,000 tonnes of waste to landfill by 2020 – 84,000 tonnes more than the city produces today.

## % OF TOTAL, 2010-11 ESTIMATES

100% = 137 ktCO<sub>2</sub>-e



Around 80 per cent of the municipality's waste comes from the commercial and industrial sector, with the remainder from households and street waste. When waste with any organic composition is sent to landfill, it creates methane emissions for decades as the material decomposes.

Commercial waste is a major challenge as its collection in the city is highly fragmented, with around 40 private waste collection businesses operating alongside municipal services. There is a significant lack of recycling and organic waste recovery as well as widespread illegal dumping.

In high-density living, the lack of shared composting facilities means that organic food waste often ends up in landfills. Increasing understanding within the community about how to separate waste for recycling is also an on-going challenge.

## Proposed approach

City of Melbourne will work with businesses, residents, government and the waste management sector to manage waste more efficiently.

City of Melbourne has already made improvements to commercial waste management collection and disposal through its precinct-based programs. These include the use of waste compactors, the Degraeves Street Recycling Facility and the Love your Laneway program.

### City of Melbourne will continue to:

- Review, update and implement our Integrated Waste Management Program, to maximise diversion of waste from landfill and reduce greenhouse gas emissions.

### Waste generation

- Work in partnership with the Victorian Government and businesses to enhance measurement and reporting of sustainable procurement, waste generation, composition and resource recovery trends.

### Waste separation and collection

- Trial local precinct solutions that improve resource recovery through behaviour change and technology.
- Improve waste separation and collection within council operations.
- Work with high-rise apartment owners and managers to provide appropriate on site recycling and waste management facilities.
- Collaborate with the Victorian Government and business to encourage the establishment of more efficient waste collection systems for existing, new and redevelopment areas.
- Increase support to programs that reduce the amount of waste going to landfill and improve commercial recycling rates.
- Trial incentive programs to improve residential recycling rates.

### Waste treatment

- Trial waste treatment technologies within local precincts and showcase alternatives.

### City of Melbourne will also:

#### Waste separation and collection

- Implement resource efficiency behaviour change programs targeting residents and the commercial sector.
- Identify optimum waste separation methodologies for residential and commercial sectors.

#### Waste treatment

- Work with the Metropolitan Waste Management Group, councils, developers and building owners to develop alternatives to landfill disposal.
- Explore waste-to-energy solutions, in partnership with key players and industry.

#### Research

- Research options to address commercial waste streams with no current recycling infrastructure available (for example office and retail tenancy fit-outs).
- Research the greenhouse impacts of different waste separation and treatment approaches for residential and commercial sectors.

### What others will do:

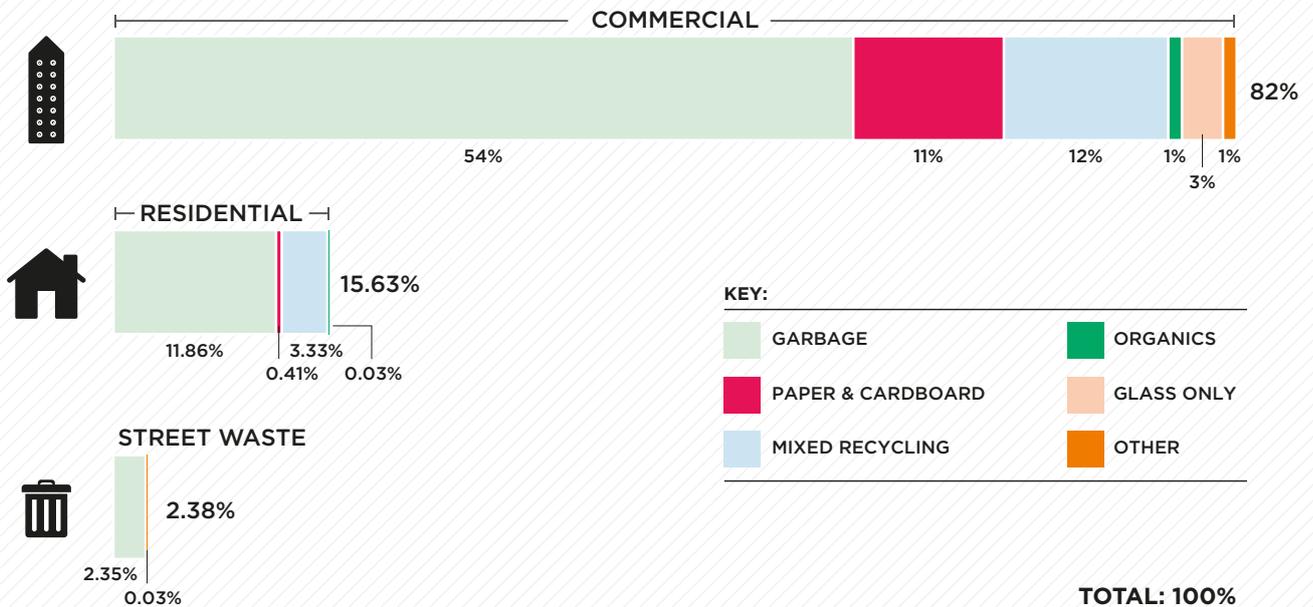
The Victorian Government has released *Getting Full Value: the Victorian Waste and Resource Recovery Policy 2013*, which sets a vision and approach to position Victoria as a national leader in resource recovery. The policy's vision is an integrated, statewide waste management and resource recovery system that provides an essential community service by protecting the environment and public health, maximising the productive value of resources and minimising long-term costs to households, industry and government.

The policy sets six key goals for Victoria to:

- Assist Victorians to reduce the waste they generate and save Victorian's money through efficient use of resources.
- Facilitate strong markets for recovered resources.
- Facilitate a Victorian waste and resource recovery system that maximises the economic value of waste.
- Reduce the environmental and public health impacts of waste.
- Reduce illegal dumping and littering.
- Reform and strengthen the way institutions work and are governed to effectively implement Victorian Government policy.



## 2012-13 LANDFILL AND RECYCLING COMPOSITION FOR THE MUNICIPALITY OF MELBOURNE (BROKEN DOWN BY WASTE STREAM)



### What else needs to happen:

#### Waste generation

- All members of the community need to significantly reduce the quantity of waste generated.
- Financial markets need to develop, resulting in all materials being recycled or reclaimed, and no waste being sent to landfill.
- Products need to be designed for reuse and recycling.

#### Waste separation and collection

- Low emissions collection systems need to be developed for existing and new developments.
- Organic waste to sewer to be further explored as an alternative to sending organic waste to landfill.
- Victorian Government to ban unprocessed organic waste being used as landfill.

#### Waste treatment

- Innovative technologies to treat waste need to be identified and adopted on an ongoing basis.

## How to contact the City of Melbourne

**Online:** [melbourne.vic.gov.au](http://melbourne.vic.gov.au)

**Telephone:** 03 9658 9658

7.30am to 6pm, Monday to Friday

(Public holidays excluded)

### Translation services

03 9280 0716	አማርኛ
03 9280 0717	廣東話
03 9280 0718	Ελληνικά
03 9280 0719	Bahasa Indonesia
03 9280 0720	Italiano
03 9280 0721	國語
03 9280 0722	Soomaali
03 9280 0723	Español
03 9280 0724	Türkçe
03 9280 0725	Việt Ngữ
03 9280 0726	All other languages

### National Relay Service:

If you are deaf, hearing impaired or speech impaired, call us via the National Relay Service:

Teletypewriter (TTY) users phone

1300 555 727 then ask for

03 9658 9658

9am to 5pm, Monday to Friday

(Public holidays excluded)

### In person

Melbourne Town Hall

Administration Building

120 Swanston Street, Melbourne

7.30am to 5pm, Monday to Friday

(Public holidays excluded)

### In writing

City of Melbourne

GPO Box 1603

Melbourne VIC 3001



**CITY OF MELBOURNE**