

Public Exhibition - Environmental Strategy 2021-2025

File No: X027797

Summary

This report recommends that Council endorse the Draft Environmental Strategy (the Strategy) to be placed on public exhibition for community comment. The Strategy sets the directions, actions and targets for the environmental performance of City of Sydney operations and for the local government area.

The previous strategy, Environmental Action 2016 - 2021 Strategy and Action Plan, was adopted by Council in March 2017 and has underpinned environmental action by the City for the last five years. This has led to reductions in carbon emission, water use and waste generation in City operations; and has contributed to improvements in environmental performance across the local government area. This update reflects changes over that time, documents our achievements and incorporates the latest research and data that supports the future strategic direction.

This new Strategy outlines the City's commitment to responding to the climate emergency and working in partnership with residents, businesses, and other levels of government to build a resilient, inclusive and regenerative city.

- (a) Direction 1 - Smart and resilient City operations
- (b) Direction 2 - Efficient, future-proof buildings and transport powered by renewable energy
- (c) Direction 3 - A regenerative and inclusive city
- (d) Direction 4 - Strong foundations for delivery

This report recommends that Council endorse the draft Environmental Strategy for public exhibition. Following the exhibition period, all public comments will be considered, and the Strategy will be presented to Council, with any required changes, for adoption.

Recommendation

It is resolved that Council:

- (A) approve the draft Environmental Strategy 2021 - 2025 (the Strategy), as shown at Attachment A to the subject report, for public exhibition;
- (B) approve the draft Environmental Sustainability Policy, as shown at Attachment B to the subject report, for public exhibition.
- (C) approve the extension of Making Sydney a Sustainable Destination from 2022 to 2025, as shown at Attachment C to the subject report; and
- (D) approve the extension of Sydney's Sustainable Office Buildings Plan from 2022 to 2025, as shown at Attachment D to the subject report.

Attachments

- Attachment A.** Draft Environmental Strategy 2021 - 2025
- Attachment B.** Draft Environmental Sustainability Policy
- Attachment C.** Making Sydney a Sustainable Destination
- Attachment D.** Sydney's Sustainable Office Buildings Plan

Background

1. Signatories to the Paris Agreement have agreed to halt warming to 1.5°C or well below 2°C above preindustrial levels. Yet global heating is already approaching 1.2°C above preindustrial levels and it is accelerating.
2. The Intergovernmental Panel on Climate Change says that to limit global warming to 1.5°C global emissions must be 45 per cent lower than 2005 levels by 2030. To date, commitments by countries around the world are nowhere close to being on track to limit global heating.
3. Climate change is projected to increase the magnitude and frequency of extreme weather events. These will affect urban infrastructure systems for energy, transportation, telecommunications, water and wastewater, solid waste and food production.
4. The economic benefits of emissions reduction far outweigh the costs of extreme weather events if nothing is done. A report by the Climate Council, Australia's leading independent climate change communications organisation, states that extreme weather events have cost Australia \$35 billion over the past decade, which is double the cost in the 1970s. By 2038, these events, as well as the impacts of rising sea levels, could cost the Australian economy \$100 billion every year.
5. Cities are major contributors to climate change. According to UNHabitat, cities consume 78 per cent of the world's energy. C40 Cities has calculated that urban areas produce more than 70 per cent of GHG emissions.
6. However, cities also have a vital role in managing climate change. Individually and collectively, cities can drive change, influence future policy and demonstrate the power of collaboration for communities and governments, addressing the impacts of climate change globally. The City of Sydney is part of a vanguard of global cities that are taking strong action on climate change and leading a green recovery from the COVID-19 pandemic.
7. The Strategy also responds to our community's demand for environmental action. Our extensive community engagement work to inform Sustainable Sydney 2050 revealed an overwhelming desire for a response to climate change. It is an important issue for people of all ages, genders, nationalities and socio-economic groups. In an online survey, 86 per cent of respondents agreed that the City should invest in and advocate for addressing climate change.

Environmental Strategy 2021 - 2025

8. The Strategy reinforces the important work the City has done and will continue to do in the areas of energy and emissions reductions, water management and use of alternate water sources, waste management and recycling, and climate adaptation. Our focus continues to be on asset management in our own operations, partnering with residents and businesses to reduce the environmental impact of buildings in our city, and undertaking advocacy for broader changes required to state and federal policy.
9. This Strategy also addresses some emerging topics: circular economy, inclusive climate action and the opportunity to work more closely with Aboriginal and Torres Strait Islander people on environmental action.

10. The concept of a circular economy is rapidly gaining traction with stakeholders in our city. While the systemic change required must be led by State and Federal governments, the City has an important role to play. We can utilise our significant procurement spend to drive circular economy outcomes, and we are supporting a number of circular economy initiatives through our grants program.
11. People already marginalised in our city are likely to suffer disproportionate impacts from climate change and urban hazards. As we create solutions to our challenges, we need to be inclusive. We must look at which groups are most affected by climate change, who benefits from our environmental programs, and how we can diversify the voices heard when shaping our environmental future.
12. The City acknowledges the importance of the living cultural practice of caring for Country. The Gadigal of the Eora Nation used resilient land management practices for thousands of generations. The City will enhance its environmental program by working with Aboriginal and Torres Strait Islander groups and investing in knowledge and practices that restore natural equilibrium by caring for Country. This will also contribute to the achievement of the City's Stretch Reconciliation Action Plan goals.
13. The Strategy outlines four directions, and 23 supporting actions:
 - (a) Direction 1 - Smart and resilient City operations
 - (i) Action 1 - Deliver energy, water and resilience outcomes through City asset design and management
 - (ii) Action 2 - Keep City parks green with water efficiency and alternate water sources
 - (iii) Action 3 - Regenerate the environment through the City's carbon-neutral commitment
 - (iv) Action 4 - Ensure the City's programs and services use resources efficiently
 - (v) Action 5 - Reduce the amount of operational waste sent to landfill through avoidance and resource recovery
 - (vi) Action 6 - Reduce embodied carbon in our supply chain and support circular economy outcomes
 - (vii) Action 7 - Manage environmental risks and issues
 - (b) Direction 2 - Efficient, future-proof buildings and transport powered by renewable energy
 - (i) Action 8 - Improve energy efficiency, water efficiency and waste management in existing buildings
 - (ii) Action 9 - Drive all new buildings to be resource-efficient and net zero energy
 - (iii) Action 10 - Support the transition to zero-emissions transport

- (iv) Action 11 - Encourage community uptake of renewable electricity and stimulate the green economy
 - (v) Action 12 - Support our residents to reduce utility costs and environmental impact
 - (vi) Action 13 - Help businesses to reduce utility bills and demonstrate environmental achievement
 - (c) Direction 3 - A regenerative and inclusive city
 - (i) Action 14 - Incorporate the perspectives of Aboriginal and Torres Strait Islander people in environmental action
 - (ii) Action 15 - Address equity issues related to climate change
 - (iii) Action 16 - Build community resilience and momentum on climate action
 - (iv) Action 17 - Support the development of circular economy systems
 - (v) Action 18 - Drought-proof the city by facilitating water recycling
 - (vi) Action 19 - Regenerate polluted waterways, air and land
 - (vii) Action 20 - Reduce the amount of residential waste sent to landfill through avoidance and resource recovery
 - (d) Direction 4 - Strong foundations for delivery
 - (i) Action - 21 Build staff capability to deliver environmental outcomes
 - (ii) Action 22 - Deliver high-quality internal and external environmental reporting and communications
 - (iii) Action 23 - Employ efficient and effective decision-making processes
14. The Strategy also includes carbon, water and waste targets for the City's operations and for the local government area. This includes an updated local government area target of net zero emissions by 2035.
15. In 2008 when the City set its target to reduce 2006 emissions by 70% by 2030 it was based on the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report. In the ensuing years, the climate science is showing that the rate of global heating is accelerating. The latest Fifth Assessment Report was completed in 2014 as the main scientific input to the Paris Agreement. Key inputs to the Sixth Assessment Report on climate science, mitigation, impacts and adaptation will be released this year in time for the 26th UN Climate Change Conference of the Parties (COP26) in Glasgow in November 2021. The Secretary General of the United Nations has made it clear that the world's current greenhouse reduction pledges are not enough to limit global warming to well below 2°C, the goal of the Paris Agreement.
16. A recent report, *Carbon Budgets for 1.5 and 2°C Briefing Note*, by the National Centre for Climate Restoration indicates that IPCC carbon budgets have underestimated current and future warming, with 1.5°C of average global heating likely by 2030 or earlier.

17. The recent Australian report, *Updating The Climate Change Authority's 2014 Emissions Reduction Targets* by the Climate Targets Panel (an independent group of Australia's most senior climate scientists and policymakers), has calculated that net zero by 2035 is Australia's 'fair share' for the world to stay below 1.5 degrees budget based on its contribution (0.97 per cent) to global emissions. It finds that to be consistent with the Paris Agreement goal of limiting global warming to 1.5°C, Australia's 2030 emissions reduction target must be 74% below 2005 levels, with net-zero emissions reached by 2035.
18. The City has commissioned modelling of a downscaled carbon budget for the local government area (based on ten years of 2017 level emissions). If emissions were to remain at 2017 levels, this would imply net zero emissions are needed by 2027 to remain within the carbon budget. However, emissions have been falling year on year and continued improvements in the energy efficiency of new and existing buildings, local renewable electricity, transport interventions and waste management are anticipated to make further significant reductions, as shown by the Chart 5 in the draft Strategy.
19. Modelling uses the step-change scenario of the 2020 Integrated System Plan (ISP) by the Australian Energy Market Operator (AEMO) to model greening of the grid. AEMO has begun working on the next version of the ISP which indicates that greening of the grid is occurring more rapidly than envisaged due to the low cost of renewable energy compared to coal and gas fired electricity. This is likely to see early closure of thermal plants (for example the recent announcement to close Yallourn four years ahead of schedule).
20. Whilst very ambitious, achieving net zero emissions by 2035 and remaining within a city carbon budget is deemed feasible, however it is likely to require the use of carbon credits via purchased reductions of emissions savings created elsewhere. It is estimated that between 350,000 to 1.12 million tonnes of offsets will be required, mostly depending on how rapidly the electricity grid becomes renewable.

Environmental Sustainability Policy

21. A policy statement is required to supplement the Strategy in order to:
 - (a) Strengthen the environmental management expectations of City partners including suppliers, grant participants and event organisers holding events in City spaces. City partners will be required to comply with specific requirements of the policy and supporting guidelines including Single-Use Guidelines and Sustainable Design Technical Guidelines.
 - (b) Enable the City's Environmental Management System (EMS) to be aligned to the ISO14001 standard. The standard states that the organisation must have an environmental policy.
 - (c) Bring the principles outlined in the City's 2020 Climate Emergency Response into a policy statement.
22. The Environmental Sustainability Policy will result in the Sustainable Events Management Policy being rescinded as it will include coverage of the same areas.

Sector Sustainability Plans

23. In 2018 Council endorsed two sector sustainability plans:
- (a) Making Sydney a Sustainable Destination - This plan addresses environmental sustainability challenges and opportunities in the city's accommodation and entertainment sector.
 - (b) Sydney's Sustainable Office Buildings Plan - This plan addresses environmental sustainability challenges and opportunities in the city's commercial office sector.
24. Both plans have a nominated revision date of 2022. The City is implementing the plans and is delivering dedicated programs to both sectors. However, given the disruption to each sector caused by Covid-19, it is proposed to delay the revision of the plans until 2025.
25. These two sector plans followed the 2014 endorsement of the Residential Apartment Sustainability Plan, which has a nominated review date of 2025.
26. Despite the severe impacts Covid-19 has had on the accommodation and entertainment sector, members of the City's Sustainable Destination Partnership retain their commitment to sustainability and want to continue to work with the City on environmental initiatives. It will take time for the sector to return to normal operations and for the impact of the sector plan, and any revisions needed, to be accurately assessed.
27. The commercial office sector has also experienced significant upheaval with many office staff continuing to work from home. The City anticipates that over the coming years there will be changes to way office space is used, and it would be appropriate to revise the sector plan when these changes are clearer.

Key Implications

Strategic Alignment - Sustainable Sydney 2030

28. Sustainable Sydney 2030 is a vision for the sustainable development of the City to 2030 and beyond. It includes 10 strategic directions to guide the future of the City, as well as 10 targets against which to measure progress. This Strategy is aligned with the following strategic directions and objectives:
- (a) Direction 1 - A Globally Competitive and Innovative City - Sydney is globally recognised for its environmental ambition and performance. The Strategy will enable the City to maintain and enhance this reputation.
 - (b) Direction 2 provides a road map for the City to become A Leading Environmental Performer - The Directions and actions areas proposed in the Strategy will help the City to lead by example in its own operations and contribute towards improved environmental performance in the LGA.
 - (c) Direction 3 - Integrated Transport for a Connected City - outlines the importance of moving to zero-emissions modes of transport to reduce the city's environmental impact.

- (d) Direction 4 - A City for Walking and Cycling - The Strategy reinforces the importance of shifting to active modes of transport to reduce the city's environmental impact.
- (e) Direction 6 - Vibrant Local Communities and Economies - The Strategy acknowledges that climate change disproportionately impacts vulnerable members of the community, and that action is needed to ensure the shift to a zero-carbon future is equitable and inclusive. The Strategy also highlights that the green economy is an area of growth for Sydney.
- (f) Direction 9 - Sustainable Development, Renewal and Design - The Strategy highlights the crucial role that sustainable design will play in achieving the environmental targets for the LGA.
- (g) Direction 10 - Implementation through Effective Governance and Partnerships - The Strategy outlines how collaboration with other levels of government, business and the community is essential for effective climate action.

Organisational Impact

- 29. In developing the Strategy, consultation was undertaken with relevant City staff. Actions and projects are being proposed in the budgets and business plans of responsible units.
- 30. Direction 4 - Strong foundations for delivery address the need to strengthen staff capability to ensure effective delivery of the Strategy.

Risks and Opportunities

- 31. The successful implementation of the Strategy is subject to risks arising outside the City's control, including:
 - (a) the lack of federal plan to transition to net zero emissions across electricity, gas, and vehicles;
 - (b) unsupportive State government regulatory framework, and higher fees imposed on utilities by the Independent Pricing and Regulatory Tribunal, deterring the uptake of recycled water schemes in urban renewal locations; and
 - (c) lack of direction and investment in waste infrastructure in the Sydney metropolitan region. The forthcoming NSW 20-Year Waste Strategy may address this risk.
- 32. The implementation may also be advanced through opportunities including:
 - (a) implementation of the NSW Government Electricity Infrastructure Roadmap and Renewable Energy Zones - leading to faster than anticipated greening of the grid;
 - (b) increasing private sector action by investors to divest from fossil fuels and to require companies to incorporate climate-related risks and opportunities into their risk management and strategic planning processes; and
 - (c) new technological solutions including opportunities to draw down carbon from the atmosphere.

Social / Cultural / Community

33. The Strategy specifically addresses the concept of inclusive climate action, which is a concept being promoted by C40 and many leading cities globally. We know that people already marginalised in our city are likely to suffer disproportionate impacts from climate change and urban hazards.
34. The City will engage with vulnerable groups in the community to gain a clearer understanding of how climate-related issues are affecting them. The City will also collaborate with other organisations to advocate for more equitable access to clean energy and resilient housing. As part of our emergency preparedness work, we will look at how we can provide more options for respite for vulnerable community members during extreme weather events.
35. The City acknowledges the importance of the living cultural practice of caring for Country. The Gadigal of the Eora Nation used resilient land management practices for thousands of generations. The City will enhance its environmental program by working with Aboriginal and Torres Strait Islander groups and investing in knowledge and practices that restore natural equilibrium by caring for Country. This will also contribute to the achievement of the City's Stretch Reconciliation Action Plan goals.

Environmental

36. This Strategy provides a focussed, realistic plan of action for the City to follow to improve environmental performance in its own operations and in the LGA over the next five years. Details of environmental targets and actions are outlined within the Strategy.

Economic

37. The Strategy emphasises the opportunity provided by the growth of the green economy. The green economy covers activities ranging from environmental law and sustainable goods and services to advocacy, education, regulation and advisory services.
38. Sydney is at the heart of Australia's financial and professional services sector, as many capital raising and management and support services are located here. There is an opportunity for the city to be the centre for carbon and other trading systems. Sydney's strengths in the finance and professional services sectors will play an important role in raising capital, redirecting financial systems, and providing the knowledge that will help NSW and Australia become renewable energy superpowers.
39. The city also has a dynamic entrepreneurial sector that is developing solutions to climate change and methods for building a circular economy.
40. The City's forthcoming Economic Strategy will explore further how the City can help develop the green economy.

Financial Implications

41. The draft Strategy includes actions that have capital and operational funding implications. These actions will be costed into individual capital project and operating budgets and incorporated into the City's approved Long Term Financial Plan which is subject to Council approval.

Relevant Legislation

42. Local Government Act 1993.

Critical Dates / Time Frames

Commencement of public exhibition period of 4 weeks	May 2021
Conclusion of public exhibition	June 2021
Final Strategy submitted to Council for endorsement	July 2021

Options

43. There are no alternative options as the City is required to have an Environmental Strategy in accordance with the Local Government Act 1993.
44. Urgent action on climate change is needed and not proceeding with the Strategy would impact the City's ability to deliver against our targets, build our community's resilience to climate impacts and play our part in the fight against climate change.

Public Consultation

45. The Strategy has been developed with regard to the findings of community consultation activities undertaken in preparation for the Sustainable Sydney 2050 plan.
46. Following endorsement by Council, the draft Strategy will be placed on public exhibition for four weeks.
47. Public exhibition will be undertaken through the Sydney Your Say web page and advertised via the City's communication channels.

KIM WOODBURY

Chief Operations Officer

Anna Mitchell, Acting Sustainability Director

Attachment A

Draft Environmental Strategy 2021-2025



Environmental Strategy 2021 - 2025 (Draft)

May 2021

Contents

1	Message from the Lord Mayor	5
2	Caring for Country	6
3	Executive summary	7
4	Our achievements since 2016	9
5	Our targets	11
6	Why we need to act	13
	A heating planet	13
	The cost of inaction and climate risk	14
	Green recovery – the benefits of action	15
	The role of cities	16
	What we heard from the community	17
7	Smart and resilient City operations	19
	Reducing our footprint	20
	A net-zero organisation	20
	Water-sensitive operations	23
	Reducing operational waste	25
	Climate resilience and risk management	26
	Socially responsible investments	26
	Actions	27
8	Efficient, future-proof buildings and transport powered by renewable energy	29
	Working together	30
	Energy efficient buildings	30
	Reducing transport emissions	31
	Choosing renewable energy	31
	Green economy growth	34
	Partnering with our key sectors	35
	Environmental grants and sponsorship program	39
	Actions	41

Contents

9	A regenerative and inclusive city	43
	Identifying solutions	44
	A regenerative city	44
	Our city is on Gadigal land	46
	Inclusive environmental action	47
	Reducing embodied carbon	47
	Urban heat mitigation	48
	Monitoring air quality	48
	A water-sensitive city	49
	Managing waste and resources	51
	A circular economy	54
	Actions	55
<hr/>		
10	Strong foundations for delivery	57
	Background	58
	Actions	58
<hr/>		
11	Implementing the Strategy	59
<hr/>		
12	Strategy context	60
<hr/>		

Message from the Lord Mayor

In 2007 Sydney was the first Australian city to become carbon neutral and this year we met our 2008 goal of 70 per cent emissions reduction by 2030 – nine years early.

It's a great case of the City leading by example to take action on accelerating global warming.

In that time, we've worked to reduce the impact of our operations, buildings, people and transport on our local area and beyond. Organisationally, we're now proudly powered by 100 per cent renewable electricity, we've set up water reuse schemes in multiple parks, and increased recycling in our buildings by more than 40 per cent.

Similarly, we're working to improve the environmental performance of our local government area. We've planted more than 15,000 trees since 2005, given 11,000 households access to a food scraps collection service, and worked with the Better Buildings Partnership, City Switch and Sustainable Destinations Partnership. Across the local area, emissions have been reduced by 22 per cent.

But we know the world is not on track to meet the Paris Agreement targets and avert catastrophic climate change, and that we need to do more. We declared a climate emergency in 2019, together with 85 Australian councils representing 7.4 million people. As we plan the next four years of action, we need to collaborate more closely - with councils, all levels of government and business. We will increase our focus on addressing the impacts of climate change on vulnerable communities and collaborate with our First Nations' communities to care for Country.

The Covid and climate crises have affected our economies and communities. The actions we need to take to combat the former and to protect the latter are closely aligned. The pandemic has shown us that swift action is possible. It has also shown us that by aligning actions globally – underpinning global decision-making with the goal of protecting both people and planet – we create opportunities for a sustainable economic future.



Clover Moore
Lord Mayor



Caring for Country



For thousands of years, Aboriginal and Torres Strait Islander people lived sustainably on the land we now call Sydney. It was part of their Lore, the coming together of ecology and religion. It provided rules on how to interact with the land and community. Every generation had to understand how to maintain this.

However, since 1788, the landscape dramatically changed due to the built environment and expansive urban development. This resulted in the breakdown of the natural ecological systems and the loss of traditional and sustainable forms of land management.

Today, as we face the challenge of climate change and pandemics, there is the urgent need to review our relationship with the land and how we face those challenges.

Community consultation to inform The City of Sydney's Sustainable Sydney 2050 plan, shows overwhelmingly that the wider community wants a response to climate change and at the First Peoples of Australia Dialogue Forum in 2019, participants stated that 'Sustainability, carbon neutrality, water positive and global warming action' were priority aspirations for Sydney's future.

The City's Environmental Strategy 2021-2025 responds to those community concerns but we must make sure that this is a living document and that actions are implemented.

The priorities and concerns of the community are in sync with Aboriginal and Torres Strait Islander peoples' perspectives. 'Caring for Country' means to participate in activities on land and in water with the objective of sustaining ecological, spiritual and human health.

By drawing on Aboriginal and Torres Strait Islander peoples' experience and knowledge there is an opportunity for all of us in the community to integrate those perspectives in urban policies. Integration in policy areas of land use planning, design and natural resource management can encourage sustainable practices and reduce socio-spatial disadvantage which is primarily driven by the market and not just a result of government policies.

Sustainable land management is the use of land to meet changing human needs while ensuring long-term socioeconomic and ecological functions of the land.

Aboriginal and Torres Strait Islander people believe that there is a balance in everything and that is the challenge for every one of us to identify and understand. What does the balance actually look like and how do we achieve it?

The Environmental Strategy 2021 – 2025 is an opportunity for us as a community to rise to the challenges ahead of us and to reach a balance in the way we live.

Sydney is an amazing place to live, play and work. We want to make sure that future generations can enjoy it too.

Cathy Craigie

Writer, Gamilaray woman and
City of Sydney resident

Image: Bangala, a public artwork by Jonathan Jones and Aboriginal Elder Aunty Julie Freeman, is at Green Square's Gunyama Park Aquatic and Recreational Centre. The work provides close links to the area's history and traditional culture and represents Eora bark water carriers.
Photographer: Silversalt Photography

Executive summary

The world is heating up – and it's happening faster in Australia. The Paris Agreement aims to halt warming to 1.5°C or well within 2°C above pre-industrial levels. But the world is already close to 1.2°C above pre-industrial levels, and the speed of heating is accelerating.¹

Climate change will increase the scale and frequency of extreme weather events, and it will affect the health of people – and of the natural and built environment – as well as the liveability of the city. Infrastructure for energy, water, transport, telecommunications and food production will come under increasing pressure.

Cities contribute to climate change. According to UN Habitat, they consume 78 per cent of the world's energy.² So inaction comes at a high price, motivating the City of Sydney to want to be a global leader in tackling the environmental and economic effects of climate change.

We have already worked hard to develop sophisticated strategies with ambitious targets to make our city resilient; protect our residents, workers, visitors and businesses; and restore the natural environment. We are making strong progress toward our targets of reducing carbon emissions in the local area by 70 per cent by 2030 and getting to net zero emissions by 2035.

Our operational achievements include improving our energy and water efficiency and waste management, making deep cuts in our operational emissions, and expanding the sustainability of our transport fleet. We have also contributed to green measures for our local area, ranging from helping to reduce greenhouse gas (GHG) emissions, to allocating \$3.8 million in environmental grants since 2016.

This Strategy has four directions and 23 actions, and outlines the most important measures to help make Sydney a sustainable and resilient city. Key operational measures include phasing out natural gas from our operations, and using alternative water sources to keep our parks green. We will also look for opportunities to reduce embodied carbon in our supply chain, electrify our fleet, and support the growth of a circular economy.

The City is committed to growing the number of net zero emissions buildings. We have advocated for better performance standards for new buildings; now we will focus on opportunities to make existing buildings more energy- and water-efficient, with improved waste management.

Transport is a major source of air pollution. In 2017–18, the sector contributed 16 per cent of emissions in Sydney. The City can't control many aspects of transport, which is overseen by the NSW Government, but we can advocate for more walking, cycling and public transport, and for the transition to zero emissions fuel sources.

We will also continue to work on initiatives that mitigate the urban heat island effect, improve air quality and contribute to a water-sensitive city that protects biodiversity, green spaces and waterways. Our Draft Greening Sydney Strategy outlines how we will work towards increasing overall green cover to 40 per cent of the local area, including at least 27 per cent tree canopy, by 2050.

We must act urgently to create a city that is more resilient, inclusive and regenerative.

¹ <http://www.climaterealitycheck.net/>

² <https://www.un.org/en/climatechange/climate-solutions/cities-pollution>

Direction 1

Smart and resilient City operations

- 1 Deliver energy, water and resilience outcomes through City asset design and management
- 2 Keep City parks green with water efficiency and alternate water sources
- 3 Regenerate the environment through the City's carbon-neutral commitment
- 4 Ensure the City's programs and services use resources efficiently
- 5 Reduce the amount of operational waste sent to landfill through avoidance and resource recovery
- 6 Reduce embodied carbon in our supply chain and support circular economy outcomes
- 7 Manage environmental risks and issues

Direction 2

Efficient, future-proof buildings and transport powered by renewable energy

- 8 Improve energy efficiency, water efficiency and waste management in existing buildings
- 9 Drive all new buildings to be resource-efficient and net zero energy
- 10 Support the transition to zero-emissions transport
- 11 Encourage community uptake of renewable electricity and stimulate the green economy
- 12 Support our residents to reduce utility costs and environmental impact
- 13 Help businesses to reduce utility bills and demonstrate environmental achievement

Direction 3

Regenerative and inclusive city

- 14 Incorporate the perspectives of Aboriginal and Torres Strait Islander people in environmental action
- 15 Address equity issues related to climate change
- 16 Build community resilience and momentum on climate action
- 17 Support the development of circular economy systems
- 18 Drought-proof the city by facilitating water recycling
- 19 Regenerate polluted waterways, air and land
- 20 Reduce the amount of residential waste sent to landfill through avoidance and resource recovery

Direction 4

Strong foundations for delivery

- 21 Build staff capability to deliver environmental outcomes
- 22 Deliver high-quality internal and external environmental reporting and communications
- 23 Employ efficient and effective decision-making processes

Our achievements since 2016

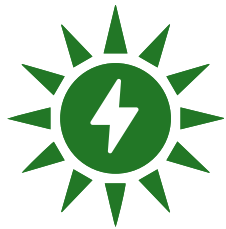
City operations



Reduced emissions by estimated

76%

including 31 per cent through energy efficiency and on-site solar



Installed **2MW of onsite solar photovoltaic panels** on our properties



Installed a grid-scale battery at our Alexandra Canal depot in 2018

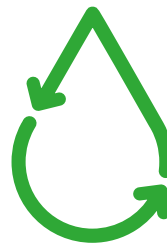


Composted 7 tonnes of food waste a month from City properties



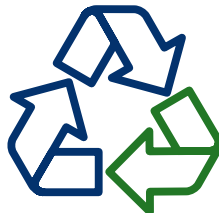
Set up water reuse schemes in twenty parks, providing

80,000 litres of non-potable water per day in summer



Established a precinct-scale recycled water scheme at Green Square

Increased recycling in our buildings from 28 per cent in 2018 to 42 per cent in 2020



Introduced guidelines for reducing single-use items to help staff and event managers avoid waste and increase recycling



Developed Sustainable Design Technical Guidelines for our assets

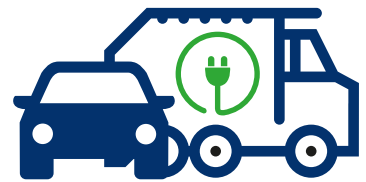


Introduced a Sustainable Procurement Policy



100%

renewable electricity from July 2020



City fleet has 19 electric cars, 40 hybrid cars, 70 hybrid trucks and one fully electric truck

Local Area



Emissions reduced by

22%

to June 2019



Worked with NSW Government to install an air quality monitoring station



Over **3,000** street lights converted to LED



Owners corporations in **172 apartment buildings** saved over \$4 million reducing emissions by 20,000t and water by 697ML

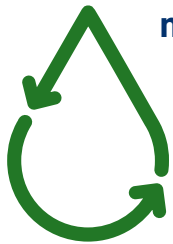
Established the Sustainable Destination Partnership, which has

46 members

75% **zero**

of Better Buildings Partnership members committed to net zero emissions

Signed up more than 30 leaders from the hospitality, events and property sectors to the Sydney single-use pledge



Laid a recycled water pipeline in George Street in the city centre

Advocated for a National Australian Built Environment Rating System (NABERS) tool for apartment buildings, with **89** buildings rated



11,000 households have access to a food scraps collection service



Made e-waste recycling collections available to all residents

Installed **10.19** kms of separated cycleways



Allocated over \$3.8 million in environmental grants



Created

11.5ha

of new green space since 2009

Increased canopy cover from **15.5%** in 2008 to **19.2%** in 2020



Achieved 6 Star Green Star – Communities rating for the Green Square town centre



Planted **15,052** street trees since 2005



Established Sydney City Farm

Our targets

City operations

Targets	Latest data
Carbon	
80% reduction in emissions generation by end June 2025, from 2006 baseline	31% reduction (June 2020) Estimated 76% reduction by June 2021
Maintain emissions from the City's fleet below 2014 levels, and aim to achieve zero fleet emissions by 2035 or sooner	40% reduction (June 2020)
Water	
Zero increase in potable water use annually until 2025, from 2006 baseline	4% reduction (June 2020)
Waste	
90% diversion from landfill, with 50% source separated recycling, from City-managed properties by end June 2025	92% landfill diversion (September 2020) 42% recycling (December 2020)
15% reduction in total waste generated from City-managed properties by end of June 2025, from 2019 baseline	945 tonnes (2019 baseline)
70% resource recovery of waste from office strip out and fit out by end of June 2025 ⁴	Data not yet available
90% resource recovery of construction and demolition waste generated and managed by City operations by end June 2025	89% (June 2020)
50% resource recovery of waste from City parks, streets and public places by end June 2025	46% (June 2020)

⁴ This is a new target and data is not yet available. The City will establish a measurement process later in 2021

Local area

Targets	Latest data
Carbon	
70% reduction in greenhouse gas emissions by 2030, from 2006 baseline	22% reduction (June 2019)
Net zero emissions by 2035	
50% of electricity demand met by renewable sources by 2030 ⁵	17.7% (NSW average, December 2020)
Water	
Reduce residential potable water use to 170 litres per person per day by 2030	223 litres/person/day (June 2019)
10% reduction in non-residential potable water use per m ² by 2030, from 2019 baseline	2.32 litres/sqm/day (June 2019)
50% reduction in the annual solid pollution load discharged to waterways via stormwater by 2030 ⁶	Data not yet available
15% reduction in the annual nutrient load discharged to waterways via stormwater by 2030 ⁷	Data not yet available
Greening	
Increase overall green cover to 40% across the local area, including 27% tree canopy by 2050	33% green cover (2020) 19.2% tree canopy (2020)
Waste	
90% diversion from landfill of residential waste, with 35% as source-separated recycling by 2030	45% diversion, 27% source-separated recycling (June 2020)
90% diversion from landfill of commercial and industrial waste by 2030 ⁸	56% diversion (estimate, June 2016)
90% diversion from landfill of construction and demolition waste by 2030 ⁹	77% diversion (NSW average, June 2018)
15% reduction in residential waste generation per capita by 2030, from a 2015 baseline	12% per capita reduction in waste since 2015 (June)

5 Comprehensive data on renewable electricity use for our local area is not available. Therefore the City uses data from OpenNEM that measures the average amount of renewable electricity in the NSW grid.

6 The City anticipates it will be able to report against this target later in 2021.

7 The City anticipates it will be able to report against this target later in 2021.

8 The City does not have jurisdiction over commercial and industrial waste collection. Data on landfill diversion rates for commercial and industrial waste is not available at a local area level. In 2016 the City undertook a survey to establish an estimated landfill diversion figure. The City will repeat this survey in 2021 to enable an updated figure to be reported.

9 The City does not have jurisdiction over construction and demolition waste collection. Data on landfill diversion rates for construction and demolition waste is not available at a local area level. Therefore the City uses the NSW average landfill diversion figure for this waste stream, supplied by the EPA.

Why we need to act

A heating planet

Signatories to the Paris Agreement have agreed to halt warming to 1.5°C or well below 2°C above pre-industrial levels. Yet global heating is already approaching 1.2°C above pre-industrial levels¹⁰ and it is accelerating.

The Intergovernmental Panel on Climate Change¹¹ says that to limit global warming to 1.5°C global emissions must be 45 per cent lower than 2005 levels by 2030. To date, commitments by countries around the world are nowhere close to being on track to limit global heating.

Global heating is occurring faster in Australia, where the average surface air temperature has already increased by more than 1.4°C since 1910.¹² The CSIRO/Bureau of Meteorology *State of the Climate 2020* report identified 2019 as Australia's hottest year on record – and this would be an average year in a 1.5°C warmer world.¹³ High temperatures exacerbated the Black Summer bushfires and widespread drought¹⁴.

The Bureau of Meteorology recently gave evidence to the Senate Standing Committee on the Environment and Energy that shows Australia is on track for 4.4°C of warming this century.¹⁵ This would be catastrophic for our health, economy and environment. Many areas would be unliveable and mass extinctions would take place.

Climate change is projected to increase the magnitude and frequency of extreme weather events. These will affect urban infrastructure systems for energy, transportation, telecommunications, water and wastewater, solid waste and food production.¹⁶

In January 2021, the Climate Targets Panel, an independent group of Australia's most senior climate scientists and policymakers, said in a report that to comply with its commitment to reduce warming by 2°C, Australia would need to reduce its emissions to 74 per cent below 2005 levels by 2030, and reach net zero emissions by 2045.¹⁷ To achieve a 1.5°C target, it would need to cut emissions by 74 per cent by 2030 and reach net zero emissions by 2035.

Australia's emissions fell 4.4 per cent in the year to September 2020, due to the continued rise in renewable electricity production and the impact of COVID-19 restrictions.¹⁸ However, Australia needs to increase its annual emissions reductions.

For this reason, the City of Sydney joins international leaders, the scientific community, major business groups, and all state and territory governments in setting and working towards a net-zero target.



Images (Above): Storm in Sydney 2020.
© City of Sydney. (Below): George Street during the black summer bushfires in 2019.

© VirtualWolf

10 <http://www.climatecheck.net/>

11 <https://www.ipcc.ch/sr15/chapter/spm/>

12 <https://www.climatechangeinaustralia.gov.au/en/changing-climate/climate-trends/australian-trends/>

13 <http://www.bom.gov.au/state-of-the-climate/>

14 <https://theconversation.com/yes-australia-is-a-land-of-flooding-rains-but-climate-change-could-be-making-it-worse-157586>

15 https://www.aph.gov.au/Parliamentary_Business/Hansard/Hansard_Display?bid=committees/commrep/5ca35f98-9c86-4d68-bd04-327e34cfef3e/&sid=0002

16 <https://resourcecentre.c40.org/resources/assessing-risks-in-cities>

17 <https://www.climatecollege.unimelb.edu.au/australias-paris-agreement-pathways>

18 <https://www.industry.gov.au/data-and-publications/national-greenhouse-gas-inventory-quarterly-updates>

The cost of inaction and climate risk

The economic benefits of emissions reduction far outweigh the costs of extreme weather events if nothing is done.

A Climate Council report states that extreme weather events have cost Australia \$35 billion over the past decade, which is double the cost in the 1970s.¹⁹ By 2038, these events, as well as the impacts of rising sea levels, could cost the Australian economy \$100 billion every year.

The University of Melbourne recently estimated that not meeting the Paris Accord target from now to 2050 could cost Australia \$1.19 trillion.²⁰ This is due to infrastructure damage (\$611 billion from lost property values), agricultural and labour productivity losses (\$211 billion), and the effects on biodiversity and human health (\$368 billion).

Sixty of the world's central banks, including the Reserve Bank of Australia, have warned that without action on climate change, global gross domestic product (GDP) could fall by 25 per cent by 2100.²¹ This would be reduced to 4 per cent if global heating is limited to 2°C.

Business responses

The Australian Prudential Regulation Authority (APRA) has been advising large financial institutions about the financial risks posed by climate change and the possibility of future lawsuits if no action is taken.²²

According to APRA, banks and insurers are preparing for worsening bushfire seasons and more extreme weather events.²³ This will push up the cost of insurance premiums and lead to millions of people being uninsured, with resulting pressure on the financial system.

In response, institutions are moving away from investing in or lending to climate-damaging projects and shifting towards technologies for efficient and clean energy, sustainable farming and carbon drawdown - processes that draw carbon out of the atmosphere and lock it away such as in soils.

To date, more than 135 globally significant banks – including Australia's Big Four – and insurers have announced they will divest from coal mining and/or coal-fired power plants.²⁴

Recognition of climate risk

To help investors make informed decisions about which companies will endure and prosper as the climate changes, the Financial Stability Board established the Task Force on Climate-related Financial Disclosures (TCFD).²⁵ This requires companies to incorporate climate-related risks and opportunities into their risk management and strategic planning processes.

At November 2020, 58 of Australia's top 100 companies were following the TCFD and 78 per cent of S&P/ASX 100 companies had acknowledged climate change as a financial risk to their business.²⁶

19 <https://www.climatecouncil.org.au/resources/hitting-home-compounding-costs-climate-inaction/>

20 <https://sustainable.unimelb.edu.au/news/what-are-the-full-economic-costs-to-australia-from-climate-change>

21 <https://www.theguardian.com/australia-news/2020/jun/26/reserve-bank-warns-of-25-gdp-loss-by-2100-unless-action-taken-on-climate-change>

22 <https://www.theguardian.com/australia-news/2021/mar/02/climate-change-could-put-insurance-out-of-reach-for-many-australians>

23 <https://www.theguardian.com/australia-news/2021/mar/02/climate-change-could-put-insurance-out-of-reach-for-many-australians>

24 <https://ieefa.org/finance-exiting-coal/>

25 <https://www.fsb-tcfd.org/about/>

26 <https://home.kpmg/au/en/home/media/press-releases/2020/11/asx100-companies-ahead-of-global-firms-in-acknowledging-climate-risks-20-november-2020.html>



Green recovery – the benefits of action

Around the world, cities have been at the forefront of responding to the COVID-19 crisis. Measures to help economies and communities recover from the pandemic focus on building an equitable and sustainable ‘new normal’. This means being able to contain future pandemics, and addressing the immediate and longer-term impacts of climate change on our economies, ecosystems and populations.

A green recovery embeds a sustainable vision for business, for equity across our populations, and for greener, healthier living spaces.

As outlined by the Organisation for Economic Co-operation and Development, cleaner air, healthier water, effective waste management and enhanced biodiversity protection help make communities more resilient and less vulnerable to

pandemics.²⁷ This has the potential to boost economic activity, generate income, create jobs and reduce inequalities.

ClimateWorks Australia’s *Decarbonisation Futures* report found that if governments directed stimulus spending to climate solutions, Australians could use available technologies to reach net zero emissions by 2035.²⁸

Examples include photovoltaic technology for homes and commercial buildings; large-scale renewable energy and storage; electric vehicle charging; recycling in supply chains; and planting and protecting trees to sequester carbon.

This would also create more jobs. Every \$10 million invested in the renewable energy sector creates 75 jobs, and energy efficiency 77 jobs, compared to 27 jobs for every \$10 million invested in fossil fuel industries.²⁹

Image: Sydney park wetlands. © City of Sydney

²⁷ <http://www.oecd.org/coronavirus/en/themes/green-recovery>

²⁸ <https://www.climateworksaustralia.org/resource/decarbonisation-futures-solutions-actions-and-benchmarks-for-a-net-zero-emissions-australia/>

²⁹ <https://www.mckinsey.com/featured-insights/coronavirus-leading-through-the-crisis/charting-the-path-to-the-next-normal/can-a-low-carbon-recovery-agenda-create-jobs-and-help-the-economy>



As a centre for finance, investment, insurance and innovation, Sydney is well placed to support a green recovery by providing capital, knowledge and services to renewable new industries. The NSW Government wants to establish Sydney as a world-leading carbon services hub by 2030, as part of the state's Net Zero Plan.³⁰

The City has called on the NSW and Australian governments to establish a 'just transition' authority, to secure workers' rights and livelihoods by diversifying jobs and investing in communities that depend on fossil fuels. Government investment is needed to develop new industries and employment opportunities in communities that will be affected by decarbonisation.

The role of cities

Cities are major contributors to climate change. According to UN-Habitat, cities consume 78 per cent of the world's energy.³¹ C40 Cities has calculated that urban areas produce more than 70 per cent of GHG emissions.³²

However, cities also have a vital role in managing climate change. Individually and collectively, cities can drive change, influence future policy and demonstrate the power of collaboration for communities and governments, addressing the impacts of climate change globally.

C40 Cities

The City of Sydney is part of C40 Cities, a network of 97 megacities, representing more than 700 million (one in 12) of the world's citizens and a quarter of the global economy. C40 Cities members collaborate, share knowledge and drive meaningful, measurable and sustainable action on climate change.

The City's Environmental Strategy 2021-2025 delivers on a C40 Cities requirement to develop an inclusive and equitable climate action plan that meets the aims of the Paris Agreement and commits to a green recovery from COVID-19.

Image: The Sydney CBD viewed from Pyrmont.
© City of Sydney

³⁰ <https://www.environment.nsw.gov.au/topics/climate-change/net-zero-plan>

³¹ <https://www.un.org/en/climatechange/climate-solutions/cities-pollution>

³² <https://www.c40.org/ending-climate-change-begins-in-the-city>



What we heard from the community

Our extensive community engagement work to inform Sustainable Sydney 2050 revealed an overwhelming desire for a response to climate change.³³

It is an important issue for people of all ages, genders, nationalities and socio-economic groups. In an online survey, 86 per cent of respondents agreed that the City should invest in and advocate for addressing climate change. How we manage our environment and climate change is a top priority for high school and primary school students, who want their voices heard because Sydney in 2050 is their future.

Residents at community sessions emphasised that they wanted better waste management, with more recycling, reuse and waste reduction, especially of plastic.

Many participants want more education programs and initiatives that encourage people to reduce their waste, and for the City to use new technologies to manage waste and recycling more efficiently.

Business owners acknowledge that a sustainable environment is essential for the City's future and are already preparing for changing consumer behaviours.

Citizens' jury

In August 2019, a citizens' jury of 43 randomly selected Sydneysiders came together over three months to imagine the city in 30 years' time. Those who were living in Sydney 30 years ago recognised that it has changed dramatically in that time and will continue to change over the next three decades.

The jury envisioned the city as a leader in reversing climate change and restoring the natural environment. It wants space to be maximised for the greater community good (such as more spaces for trees and less for cars); buildings to be made of materials that support the environment, not degrade it; and people to transform their waste into materials that feed back into the economy.

The jury produced a vision for Sydney that bridges the past to the future.³⁴ It concluded by saying: "Our hope for Sydney in 2050 is that it is a sustainable, inclusive, diverse city that is welcoming and embraces people from all walks of life. A city where people want to live."

Image: The City hosted summits with children and young people as part of planning for Sydney 2050.
© City of Sydney

³³ https://www.cityofsydney.nsw.gov.au/-/media/corporate/files/2020-07-migrated/files_f/final-community-insights-low-rez-web.pdf

³⁴ https://www.cityofsydney.nsw.gov.au/-/media/corporate/files/2020-07-migrated/files_c/citizens-jury-concepts-report.pdf



01

Smart and resilient City operations



Reducing our footprint

The City has worked on minimising our environmental footprint for more than a decade. This has involved introducing programs to save water and energy, and minimise waste. Where possible, we have also switched to renewable power sources to reduce our emissions. While it is

incumbent on us to reduce our own environmental footprint, it is by seeking transformative environmental performance that we also positively influence change in the operations of our service providers, businesses and communities and establish Sydney as a global exemplar in environmental performance.

A net-zero organisation

At June 2020, efficiency projects and generation of renewable electricity on our properties had reduced the City's operational emissions to 31 per cent below 2006 levels. From July 2020, we began using 100 per cent renewable electricity sources, and we expect our emissions to drop to more than 76 per cent below 2006 levels by the end of June 2021.

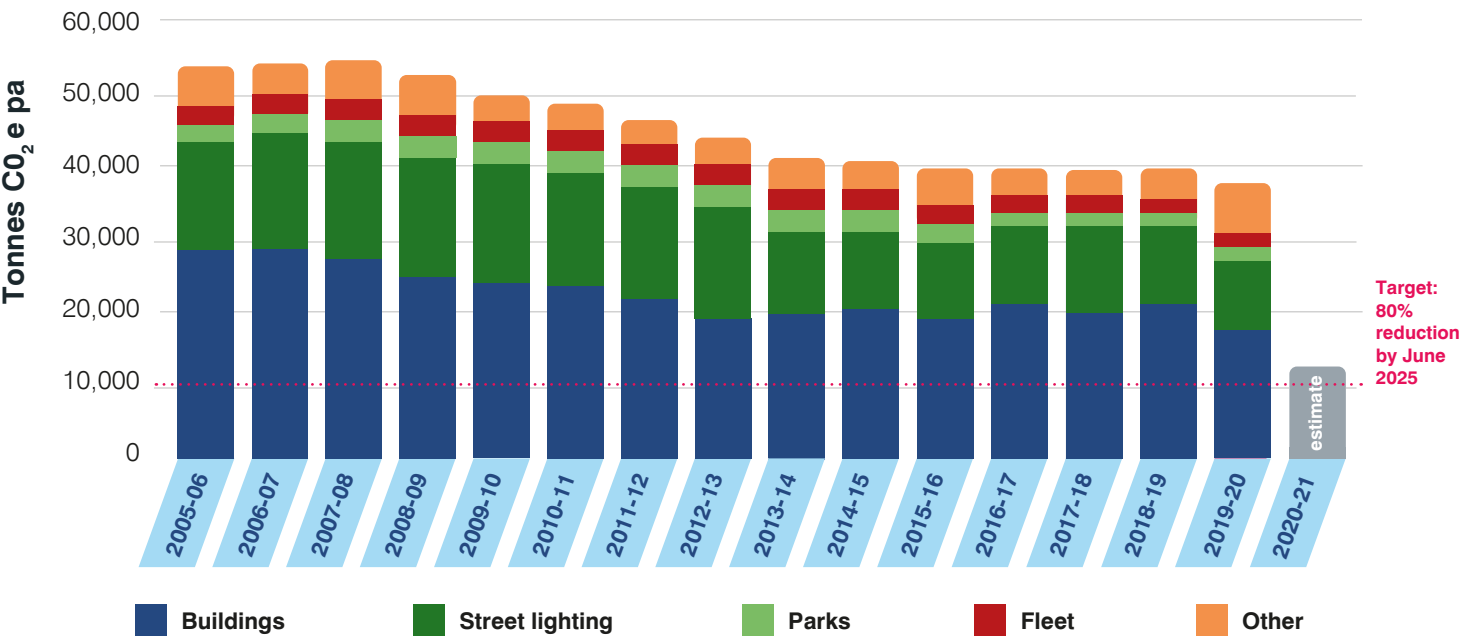
The City has been certified as a carbon-neutral organisation under the Australian Government's Climate Active program since 2011. We achieved energy savings through significant projects like our Major Properties Efficiency Project to improve lighting, heating and cooling systems.

We have been working with Ausgrid to install LED street lights, which improve lighting quality and reduce energy consumption and bills. Installation is due to be completed in 2022.

Better monitoring of energy consumption and other utilities in our properties and parks has also led to better detection and response times when problems are detected.

In July 2020, the City began a 10-year 100 per cent renewable electricity contract for power from the Sapphire Wind Farm in New England, the Bomen Solar Farm near Wagga Wagga and the community-owned Repower Shoalhaven solar farm. This will reduce our annual emissions by around 24,000 tonnes initially, based on 2019–20 levels.

Chart 1: Operational emissions history



At December 2020, the City had installed over 2MW of onsite solar PV panels on our properties. Onsite renewable electricity generation is important as it provides the energy directly where it is used, avoiding system losses and the need for costly electricity network infrastructure. Also, it pays for itself by saving on energy bills.

The City has also installed over 2MW of trigeneration and cogeneration, reducing grid electricity demand by around 6,000 MWh a year, avoiding 5,340 tCO₂e of grid electricity emissions.

In partnership with the transmission operator TransGrid, we have also installed a grid-scale battery at our Alexandra Canal Depot, which in conjunction with 1665 rooftop solar panels enables the site to generate more electricity than it consumes.

We have also been transitioning to electric and hybrid vehicles, and have introduced eco-driving strategies.

Since 2020, we have been buying nature-based offsets, which remove carbon from the atmosphere. In 2021, we sourced our offsets from a Tiwi Island traditional land management cultural burn project in northern Australia. This is an important partnership that also delivers toward the City's Aboriginal and Torres Strait Islander economic development plan. The City will also continue to purchase carbon offsets to remain a certified Carbon Neutral organisation under the Climate Active program with an increasing share of higher quality, nature-based carbon offsets.

Over the next four years the City will focus on leveraging its investment in efficiency measures, management systems and low emissions technology.

The City has made significant emissions reductions through energy efficiency and the use of renewable electricity. The next major opportunity to meeting our corporate target of 80 per cent reduction in emissions generation by end June 2025 on 2006 levels will be to procure renewable gas.

Renewable gas can be generated from composted food or the nutrients in wastewater, through an anaerobic digestion facility. Gas is then injected back into the gas grid to supply home and business gas needs, as natural gas does, but with a much lower carbon footprint. There is an emerging renewable gas market in NSW. An accreditation scheme will need to be established to enable gas customers, like the City, to purchase renewable gas credits, in a similar way to how renewable electricity from off-site sources is procured.

Image: © Bomen solar farm

City of Sydney goes 100 per cent renewable



The City of Sydney began using 100 per cent renewables to meet its grid electricity needs in July 2020. The renewables commitment will see the City's operations initially saving around 24,000 tonnes a year – equivalent to the power consumption of around 4,000 households.

The City's 2019–20 emissions were 31 per cent below our 2006 baseline, and our 2020–21 emissions are expected to be around 76 per cent below 2006 levels by using 100 per cent renewable electricity. Using 100 per cent renewable electricity is essential to achieve our commitment to reduce organisational emissions by 80 per cent.

The City purchases renewable power from Sapphire Wind Farm in the New England area, Bomen Solar Farm near Wagga Wagga, and the community-owned Repower Shoalhaven solar farm.

The shift to renewable energy in the broader electricity sector is happening much faster than anyone imagined as the cost of new renewable energy continues to fall. The NSW Government's *Electricity Infrastructure Investment Act 2020* now provides significant support to assist with the renewable energy transition.

The City estimates it may save up to \$500,000 a year in electricity costs by sourcing its grid electricity from a renewable energy provider.

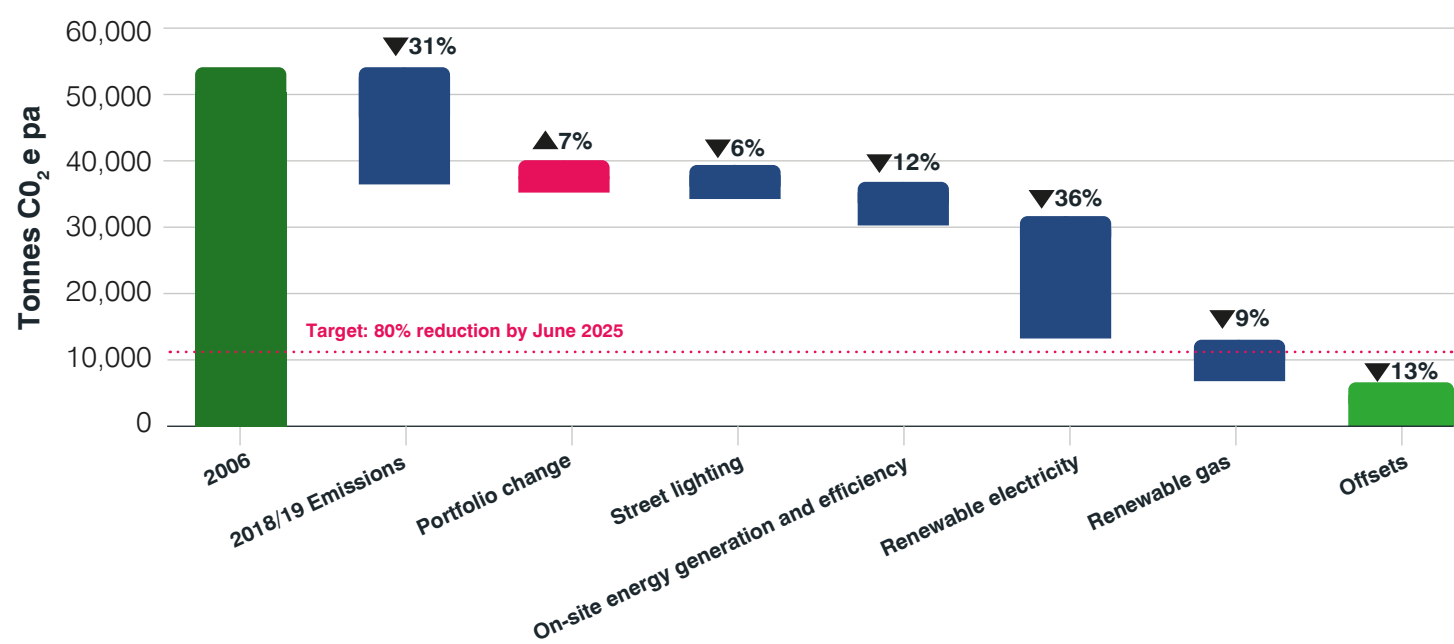


This chart shows potential emissions reductions from opportunities identified by the City and may be subject to change. For example, if more energy efficiency is deployed, the City would require less renewable electricity, and vice versa. Likewise, the City will

continue to purchase additional high-quality carbon offsets to remain carbon neutral until renewable gas becomes available. Ultimately, the mix of energy efficiency measures the City deploys will be based on what is most feasible and cost-effective.

Image (Left): An electric truck, part of the City of Sydney fleet. © City of Sydney. (Right): Tiwi Island Carbon Project staff and Indigenous rangers. © Aboriginal Carbon Foundation

Chart 2: Operational emissions to 2025





Water-sensitive operations

The City aims to keep potable water use below 2006 levels, but this has been challenging because the area of parks and open spaces requiring irrigation has since increased by more than 50 per cent, and we have also grown our property portfolio.

To help drought-proof our parks, we have implemented water reuse schemes at twenty parks, established a real-time irrigation monitoring and control system, embedded sustainability key performance indicators into our service contracts and optimised performance of our water recycling schemes, water features and irrigation systems.

We are also installing water-efficient fixtures and fittings in our properties and training our staff and contractors to make sure they are proactively identifying, reporting and fixing leaks.

Chart 3 shows the City's operational water use since the baseline year of 2016. In 2019-20 we exceeded our target for the first time in a decade. Savings are due to the measures described above, with a portion of savings also attributed to increased rainfall and COVID-19 related closures of water intensive City sites such as aquatic centres and public buildings.

The City has contributed to minimising local flood risk and enhancing greening and urban cooling by retrofitting the stormwater management network with raingardens, wetlands, swales and traps that reduce stormwater pollution.



Image (Above): Most of Harold Park's irrigation needs are met by an extensive stormwater harvesting and treatment scheme.
© City of Sydney. (Below): © City of Sydney.



Chart 3: Operational water use history

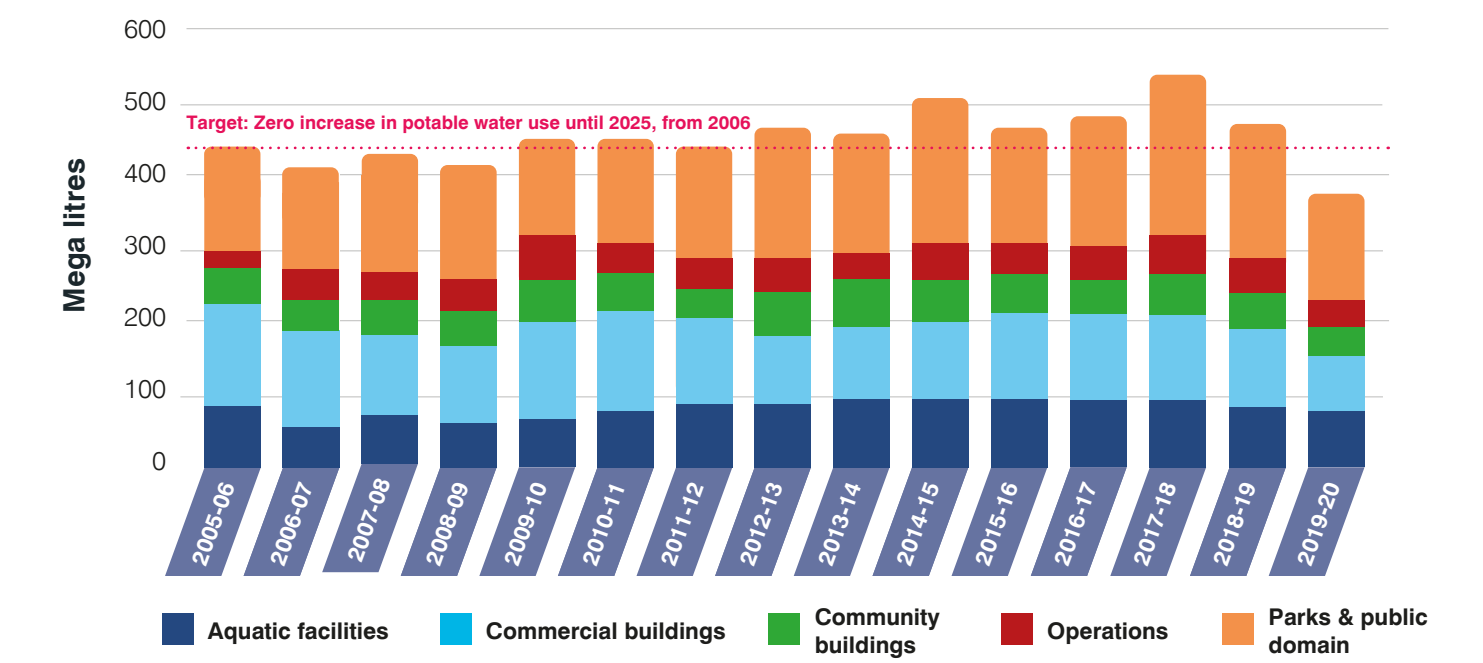


Image: Monitoring water reuse at Harold Park.
© City of Sydney

Reducing operational waste

We strive to show leadership in sustainability through our own management of waste and resources. As part of this effort, we created a digital platform to improve the accuracy and transparency of data on how we collect, report on and verify recycling and landfill from our operations. This also helps us better monitor our performance against our targets, and react more quickly to changes in waste types or volumes.

Recycling from City-owned buildings has increased from 28 per cent in 2018 to 42 per cent in 2020. We achieved this by introducing a separate food waste collection service and improving our education programs. Garbage that previously went to landfill is now sent to a processing facility where it is used to create fuel that displaces coal in a local brick kiln.

In 2019, the City also pledged to dramatically reduce single-use plastics by phasing out bottled water, straws, serveware, utensils and cups at our buildings and venues, and at events in our area.



Image (Above): Battery, mobile phone and light bulb recycling stations located at Green Square Library, one of the City's ten recycling stations.
© City of Sydney. (Below): Getty Images.

Paving the way to better glass recycling



Around 14 per cent of glass collected from recycling bins during kerbside garbage collections can't be recycled and is instead stockpiled or sent to landfill.

To reduce the amount of materials going to landfill, the City supported and promoted the Paving the Way program, as a member of the South Sydney Regional Organisation of Councils (SSROC). The program focuses on using glass fines (crushed glass) instead of virgin sand for building roads and footpaths. This will increase the amount of collected glass that can be recycled from 65 per cent to 79 per cent, the equivalent of nearly 100 million glass containers each year. This Sydney-based initiative also reduces the transport of glass interstate and provides long-term markets for what was previously considered a waste product.

The program demonstrates collaboration on circular economy principles in procurement between local, regional and state governments. It is the first project under the Procure Recycled memorandum of understanding (MoU), signed by SSROC members in November 2019, to promote the procurement of recycled materials.

Climate resilience and risk management

The effects of climate change – such as increasing temperatures, changing rainfall patterns, flooding and rising sea levels – pose risks for the City's \$5.3 billion portfolio of assets. The cost of not proactively managing these risks could be extremely high, so the City is diligent about ensuring climate resilience.

Managing risk begins with asset design. The Sustainable Design Technical Guidelines define the sustainability requirements for all our capital works and upgrade projects. This tool addresses all aspects of sustainability – from ecology to energy intensity and construction management practices.

We use our environmental management system (EMS) to comply with relevant legislation and apply a risk based approach to improve environmental processes. The scope of the EMS includes construction works, operations, property management, depots, libraries, community centres, aquatic centres, parks, events, and the purchase of goods and services.

We are strengthening processes related to management of contaminated land, implementing the Sustainable Procurement Policy, piloting materials with low embodied emissions in construction works and developing climate risk assessments for projects. The City has also implemented staff sustainability training, focusing on the foundations of environmental sustainability and embedding outcomes into work processes and behaviour.



Socially responsible investments

We avoid investments that are harmful to the environment and work with financial institutions and investment advisors to investigate suitable products that support positive environmental performance and meet our financial risk and return outcomes. Following market feedback, including from the City of Sydney, Westpac developed a new sustainable investment product known as a Green Tailored Deposit. The City was the first council to invest in Green Tailored Deposits, in late 2018. These deposits are associated with a defined pool of eligible assets which meet the Climate Bond Standard criteria including renewable energy, low carbon transport, low carbon intensity emitting buildings, waste and water products and are independently certified annually.

The Commonwealth Bank subsequently launched a similar product, with the City placing its first investment in early 2020. At February 2021, the City held \$85 million across thirteen tranches with Westpac's Green Tailored deposit, \$5 million in a Floating Rate Note (FRN) / Sustainability Bond issued by Bank Australia and \$95 million (sixteen tranches) in Climate Bond-certified Green Term Deposits with the Commonwealth Bank of Australia.

Image: Glebe Library © City of Sydney

Actions



Action 1

Deliver energy, water and resilience outcomes through City asset design and management

The City will continue to electrify its fleet to achieve zero emissions before 2035. We aim to trial an electric version of most vehicle and plant types while expanding our electric passenger fleet. Our ongoing driver behaviour program both improves safety and reduces emissions.

We will continue to power many of our facilities with onsite renewable electricity. Building on the 2MW already installed, we will add solar to new properties that present a strong business case. Because local power sources improve grid resilience, we will install batteries on our properties where this contributes to energy and cost savings.

The City aims to phase out natural gas from our operations. We will develop a plan to electrify gas-using assets and in the interim we will seek to purchase renewable gas to provide all our gas needs by 2025.

In the next four years, we will also focus on continuously improving the sustainability performance of our properties. As part of this, we will invest in metering and monitoring to address anomalies, which can significantly improve energy efficiency.

The City will continue to improve the Sustainable Design Technical Guidelines that define the sustainability requirements for our capital works and upgrade projects. An update of the guidelines in 2021 will streamline these requirements, particularly for small works and asset renewal programs and projects. Other codes and guides will also be updated to embed environmental requirements into asset design.

Keeping our city cool and resilient against extreme weather events will become increasingly important, so we will actively integrate climate risk assessments into asset design and management.

Action 2

Keep City parks green with water efficiency and alternate water sources

The CBD recycled water scheme will provide non-potable water for keeping parks green, as well as enabling City-owned and privately held buildings to connect to an alternate water source.

We will investigate and implement alternative water sources for priority parks. Some of them could be connected to the CBD recycled water scheme while others will require individual solutions. In addition, the City will analyse irrigation data to set a new target for parks irrigation, supported by efficiency plans.

Action 3

Regenerate the environment through the City's carbon-neutral commitment

The City is committed to maintaining carbon-neutral operations in perpetuity. Over the next four years, we aim to transition away from purchasing overseas offsets and instead use 100 per cent high-quality Australian regenerative offsets. We will also work with other offset purchasers and Indigenous organisations to help strengthen the local regenerative offset market and support expansion of traditional land management practices by providing and selling nature-based Australian carbon credit units.

Action 4

Ensure the City's programs and services use resources efficiently

We will strengthen the environmental performance of City-run events, venue management, external events on City land and grant-funded projects, ensuring they align with our Environmental Sustainability Policy.

Action 5

Reduce the amount of operational waste sent to landfill through avoidance and resource recovery

The City will collect more food waste from our largest commercial food service areas and our busiest buildings. Increasing awareness among staff and visitors about waste avoidance and what can be recycled is another priority. We will also improve resource recovery from our own construction and demolition projects and office strip-outs.



Action 6

Reduce embodied carbon in our supply chain and support circular economy outcomes

We will evaluate our supply chain for opportunities to reduce embodied emissions and deliver circular economy outcomes. Where those opportunities are identified, the City can specify increased use of recycled content in major contracts and collaborate with other local governments to establish standards for sustainable content in procured products.

Action 7

Effectively manage environmental risk and issues

The Environmental Management System (EMS) is a vital tool for managing environmental risks associated with our operations and services. We will continue to implement the EMS to improve the processes for managing and monitoring capital works programs, operational environmental impacts, and works on Council-owned contaminated land and provide relevant environmental controls training for staff.

Image (Previous page): Solar panels on the roof at Gunyama Park Aquatic and Recreation Centre
© City of Sydney, Paul Patterson (This page):
Monitoring building efficiency © City of Sydney,
Jessica Lindsay

02

Efficient, future-proof buildings and transport powered by renewable energy



Working together

Opportunities abound in our local area to reduce emissions and move to a zero carbon economy

We partner with key commercial sectors in our local area to facilitate the transition to renewable energy sources by building owners, residents and commuters.

Through consistently providing up-to-date information to the public, establishing and facilitating business and community programs, and mechanisms such as environmental grants and sponsorship programs we influence environmental resilience in decision making. In addition, a dynamic entrepreneurial sector harnesses opportunity for a competitive, green economy through innovative new technologies and services, backed by a strong professional services sector.

Energy efficient buildings

The move toward net-zero-emissions buildings is gaining momentum, with key groups such as the Australian Sustainable Built Environment Council, private developers and the Property Council of Australia making significant contributions.

The minimum energy performance standards for new buildings and major retrofits of existing buildings are defined in the National Construction Code. This is updated every three years, and the 2019 update demanded significantly improved performance for new commercial buildings. The next review will focus on residential buildings.



Closer to home, the City has been working with developers, the NSW Government and other local councils to establish performance standards for new buildings, including multi-unit residential and commercial buildings, shopping centres and hotels. The standards cover energy efficiency, onsite renewable energy and offsite renewable energy recognised in the planning system. Importantly, these standards are tailored to the Sydney climate and are designed to be used by other councils across metropolitan Sydney.

New buildings are only part of the story. The performance of existing buildings presents the biggest opportunity to reduce energy and emissions, improve the comfort and resilience of occupants, and reduce costs.

Australia has the world-leading National Australian Built Environment Rating System (NABERS) scheme, which rates the performance of many building classes. As NABERS

tools are developed and adopted voluntarily, there is potential to introduce mandatory disclosure so that tenants and owners are better informed about the performance of a building, especially when making purchasing decisions. We also have the Green Star sustainability rating and certification system. Under this system, buildings must be net-zero (fully electric, fossil-fuel free and 100 per cent powered by renewables) to achieve the highest possible 6 Star rating.

New technologies are helping more buildings meet their heating, cooling and cooking needs with electricity rather than natural gas, which is a fossil fuel. Our research shows that any increase in the use of natural gas would result in the city exceeding its carbon budget in decades to come due to the long

Image (Previous page): Fleetview building, a participant of the Smart Green Apartments program. © City of Sydney, Jessica Lindsay.
(This page): Businesses in Sydney increasingly choose GreenPower. © City of Sydney, Jessica Lindsay

life of gas assets. The gas grid is likely to transition to renewable energy sources more slowly than the rate of greening underway for the electricity grid. This supports the case for electrification of new buildings. Existing buildings with gas connections should procure renewable gas as it becomes available for the remaining life of gas assets.

Reducing transport emissions

The transport sector produces emissions, through either petrol-fuelled vehicles or electricity generation to power transport systems and vehicles. In Sydney – especially in the city centre – poor air quality caused by vehicle emissions has been an issue for decades.

In 2017–18, the transport sector contributed 16 per cent of Sydney's carbon emissions, which are increasing every year. As at September 2020, transport emissions accounted for 17.6 per cent of Australia's total emissions ³⁵.

With a growing population, the City is increasingly focused on the best use of public space. This means a shift is needed away from private vehicles, which have high emissions and take up space, to modes of transport with lower emissions that need less space - public transport, walking and cycling. This also reduces congestion and noise, improves air quality and leaves more space for greening.

The City does not control many aspects relating to transport sector emissions or the uptake of low- or zero-emissions vehicles. We are responsible for planning and development; working with residents and businesses to achieve sustainability outcomes; and implementing changes to roads (such as adding new cycleways) if the NSW Government approves.

We can help to reduce emissions from transport by partnering with the Australian and NSW Governments. The NSW Government is already committed to net zero emissions by 2050 and is developing programs to accelerate the uptake of zero-emissions technologies. It is best placed, for example, to facilitate the rollout of a network of electric vehicle charging stations.

To achieve our net zero by 2035 target, significant changes will be required to the transport system in our city: reducing and eliminating emissions at the point source; speeding up the shift from private cars to walking, cycling and public transport; transitioning public transport and private vehicle fleets to zero-emissions fuel sources and supporting off-street charging for electric vehicles.

Choosing renewable energy

In the year to March 2021, the National Energy Market delivered 27.6 per cent renewable energy, with 6.8 per cent from rooftop solar. ³⁶ However, the NSW grid, which still relies on coal-fired power stations, delivered just 18.8 per cent renewable energy. About 5.7 per cent of electricity consumption in this state comes from rooftop solar.

The Australian Energy Market Operator (AEMO) has been modelling scenarios for the energy transition currently underway. ³⁷ Its most ambitious scenario envisages a grid that is nearly 100 per cent renewable by 2040. The next iteration of the AEMO plan, to be released in 2022, will model renewable energy generation in excess of 100 per cent, to allow for renewable energy exports.

The NSW Government has passed the *Electricity Infrastructure Investment Act 2020* and released a roadmap to provide support and investment certainty for Renewable

Energy Zones across the state. This is expected to deliver a NSW grid that is 60 per cent renewable by 2030. ³⁸

Renewable energy from wind and solar is now the cheapest form of new electricity generation in most areas of the world. The International Energy Agency notes that “solar PV is consistently cheaper than new coal- or gas-fired power plants in most countries, and solar projects now offer some of the lowest-cost electricity ever seen”. ³⁹

Australia has one of the highest rates of rooftop solar PV installations in the world. At June 2020, more than 2.5 million units had been installed, with a combined capacity of almost 12 gigawatts – equivalent to six small coal-fired power stations.

But fewer buildings in the city have rooftop solar due to their small roof areas and height, and the complex decision-making in strata properties. The City estimates that there is approximately 400 megawatts of potential rooftop solar capacity in the local area. So far, 14 megawatts of rooftop solar has been installed, and at current installation rates, the City projects the local area will reach 50 megawatts by 2030.

Despite this, the number of significant installations is increasing, including on apartment buildings. In 2021, amendments to the *Strata Schemes Management Act 2015* (NSW) make it easier to install renewable energy in strata buildings, partly due to advocacy by the City.

³⁵ <https://www.industry.gov.au/data-and-publications/national-greenhouse-gas-inventory-quarterly-updates>

³⁶ <https://opennem.org.au/energy/nem>

³⁷ <https://aemo.com.au/en/energy-systems/major-publications/integrated-system-plan-isp>

³⁸ <https://www.theguardian.com/australia-news/2020/nov/09/nsw-unveils-32bn-renewable-energy-plan-with-focus-on-pumped-hydro>

³⁹ <https://www.iea.org/reports/world-energy-outlook-2020>

Encouraging residents and businesses to switch to renewable electricity

We've heard from residents and businesses that they overwhelmingly want a response to climate change and to reduce emissions⁴⁰. At a national level, since the devastating Black Summer bushfires in January 2020, 82 per cent of Australians are concerned that climate change will result in more bushfires, up from 76 per cent in 2019⁴¹.

In response to this concern, the City has been supporting residents and businesses to switch to offsite renewable electricity, through a rolling program of communication and online education. Targeting renters and residents in apartments, a range of resources and marketing content promoting GreenPower have been shared online through the Renewable Energy Help Centre, social media, City of Sydney News and media partnerships.

Starting with the promotion of our own power purchase agreement, the City developed a range of resources to educate businesses about offsite renewable electricity options, including PPAs and GreenPower.



Image © City of Sydney, Jessica Lindsay

40 City of Sydney, Community Engagement Insights Report, 2020

41 The Australia Institute, Climate of the Nation report, 2020

Chart 4: Local area emissions history

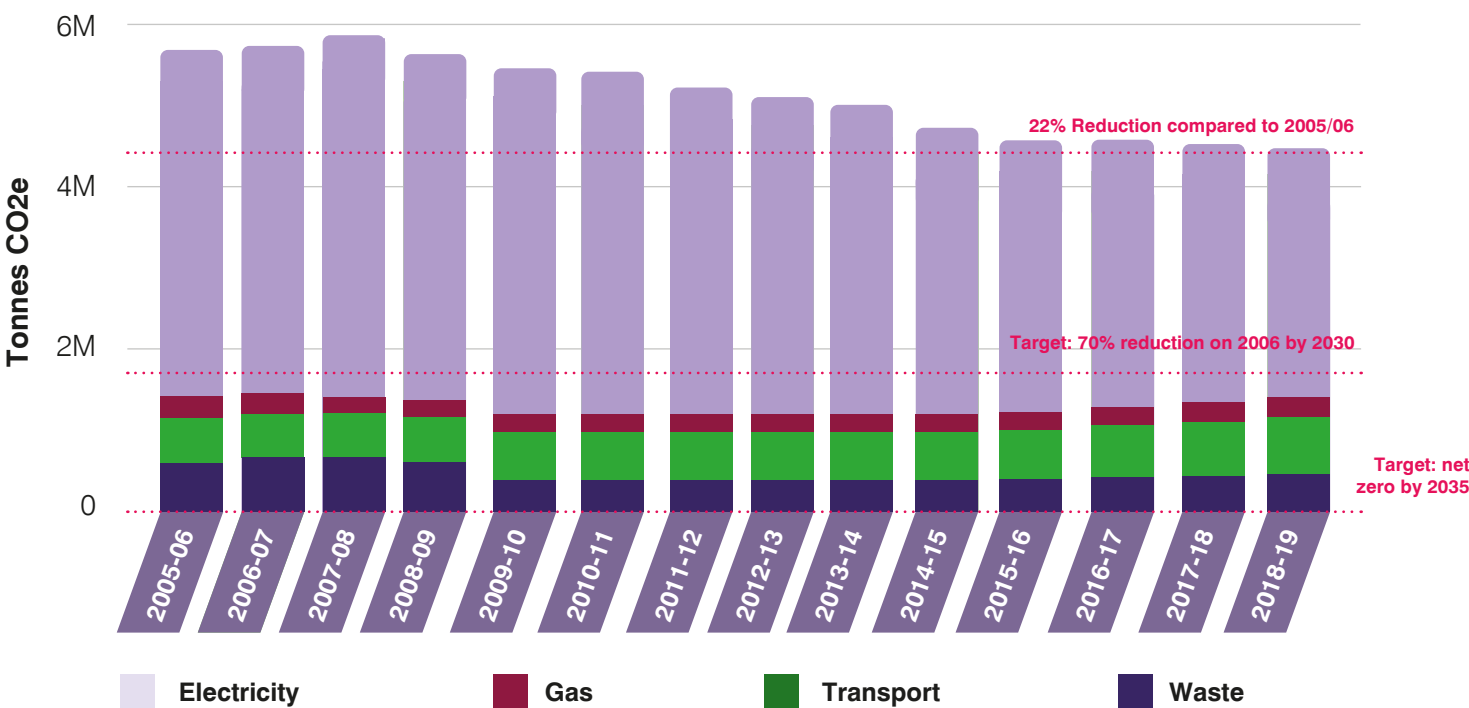
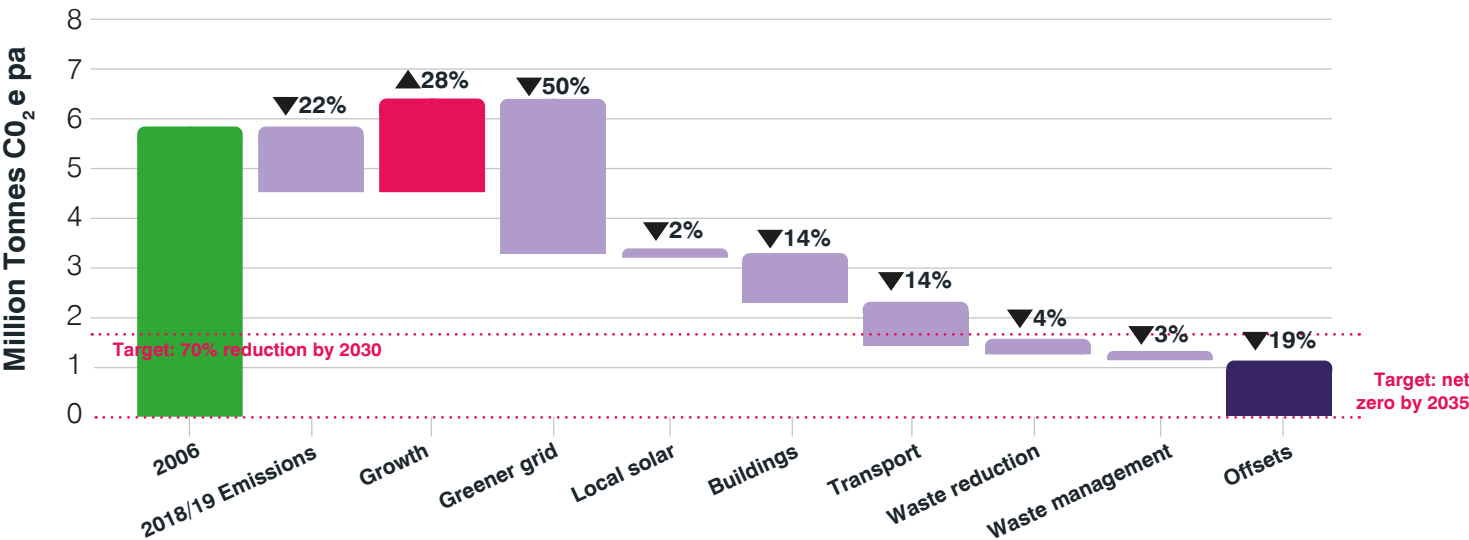


Chart 5: Local area emissions in 2035

The renewable energy transition is well underway in Australia. By 2035, increasing use of renewable energy in the electricity grid will help reduce GHG emissions. The greening of the grid is happening fast -

whilst this chart shows emissions reduction of 50 per cent, it may be 70 per cent or more by 2035. The energy performance of new and existing buildings and the transport sector should have also improved, along with waste avoidance and management.



Green economy growth

The green economy covers activities ranging from environmental law and sustainable goods and services to advocacy, education, regulation and advisory services. This is particularly important for the City's economy, which is based on professional services and education rather than manufacturing.

In 2019, we studied the green economy in our local area and found that it was robust and fast growing. Based on 2018 figures, it:

- accounted for 16,000 workers (2.5 per cent to 3 per cent of employment), half of them employed in environmental law, advocacy, and research and development
- added \$2.4 billion in gross value to the local economy
- generated \$400 million in economic value in the sustainable finance sector
- provided strong connections to state and national green economies – for example, waste streams from the local area create around 500 processing jobs elsewhere
- created growing demand for green skills in occupations such as law, sales and marketing
- showed a doubling in employment compared to overall jobs growth, but lagged behind international peers.

This shows a robust base for growth in our green financial and professional services industries.

Sydney is at the heart of Australia's financial and professional services sector, as many capital raising and management and support services are located here. There is an opportunity for the city to be the

centre for carbon and other trading systems. Sydney's strengths in the finance and professional services sectors will play an important role in raising capital, redirecting financial systems, and providing the knowledge that will help NSW and Australia become renewable energy superpowers.

The city also has a dynamic entrepreneurial sector that is developing solutions to climate change and methods for building a circular economy.

The City's forthcoming Economic Strategy will explore further how we can help develop the green economy.

CleanTech knowledge sharing grows Australia's green economy



One of the key programs under the City of Sydney's Tech Startup Action Plan is the Visiting Entrepreneur Program (VEP). Since its November 2017 launch, the VEP has brought high-profile international entrepreneurs to Sydney to share their expertise and knowledge with the local

tech startup community. The program has delivered 74 events for over 6,500 founders, and in doing so, helped to foster a culture of entrepreneurship and innovation and raise awareness of Sydney's tech startup ecosystem globally.

The 2020 CleanTech program was disrupted by COVID-19 restrictions. However, due to the importance of the content, amount of planning that was already complete and the need to support this vulnerable part of the tech startup ecosystem, we decided to adapt the program and run a virtual event series.

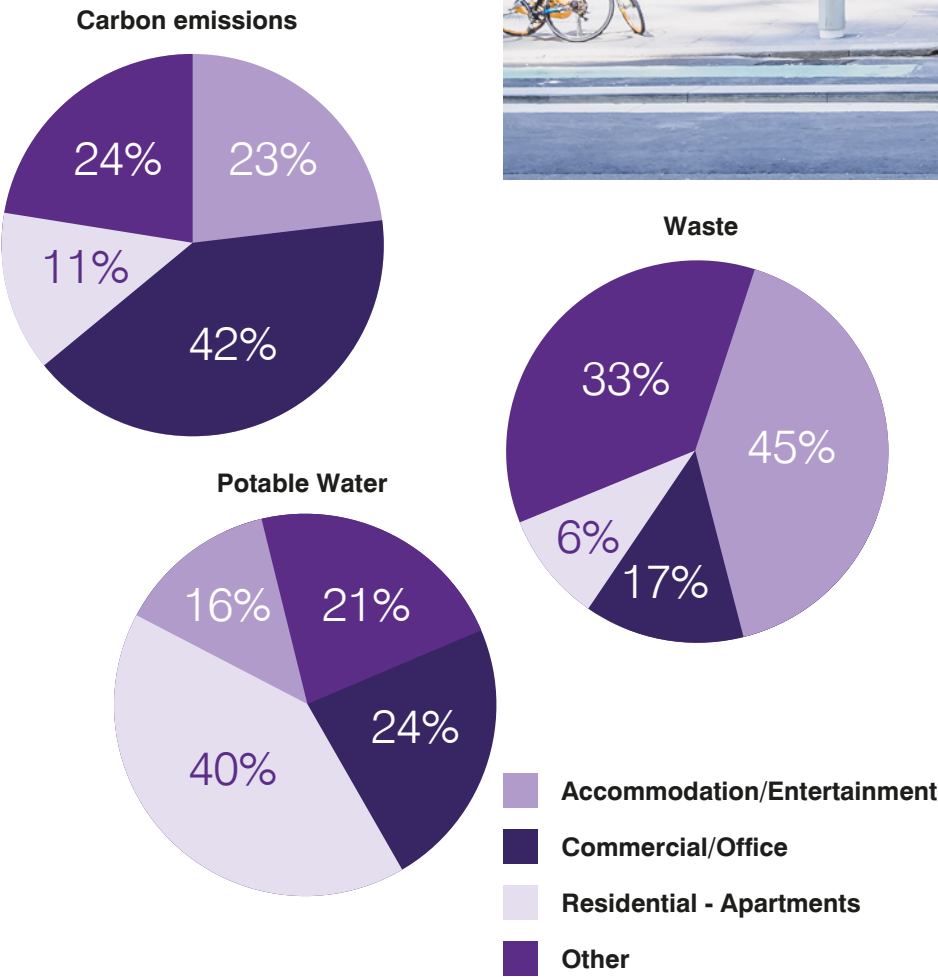
There were strong indications pre-pandemic of a shift towards a green economy. Now, as the economy restarts, a clean energy transition will be more vital than ever. As a hub of knowledge, capital exchange and innovation, Sydney has a key role to play in enabling and facilitating Australia's transition to green.

The program with our three virtual visiting entrepreneurs live streamed discussions to over 1,100 viewers where the CleanTech conversations focussed on the intersection of technology, environmental sustainability goals and the growth of the green economy. Technology has an important role in the transition to sustainable energy, particularly as we rebuild from the pandemic. Australia is well placed to export goods, services and technology locally in Asia's clean energy transition. Food and agritech entrepreneurs are reimagining the food system to meet the needs of a growing global population, whilst also committing to sustainable growth.

Partnering with our key sectors

The City works closely with the sectors that have the greatest environmental impact in our local area. The commercial office sector is responsible for 42 per cent of the city’s emissions; the accommodation and entertainment sector contributes 45 per cent of waste sent to landfill; and residential apartment buildings use 40 per cent of the city’s potable water. Through programs like Smart Green Apartments, the Better Building Partnership (BBP), CitySwitch Green Office and the Sustainable Destination Partnership, we partner with owners and operators to reduce these impacts.

Chart 6: Local area environmental footprint by sector



Residential apartments sector

Around three-quarters of our residents live in apartment buildings. The City of Sydney has the highest residential density on any local government area in Australia. Between 2020 and 2030, the population is forecast to increase by more than 29 per cent, to around 319,000, and about 80 per cent of residents will live in apartments. At least 90 per cent of new buildings will be six or more storeys high.

Image: Barrack Place, 420 George Street, Sydney by Investa. © Investa

There is significant energy and water efficiency potential within residential apartment buildings. Increasingly complex centralised plant, equipment and services coupled with rising energy and water costs mean efficiency and good asset management is an increasing priority for city residents. Occupants of high-rise apartment buildings are responsible for more carbon emissions than people in houses. This is a result of the high energy consumption of centralised equipment systems on common property, which increases with building height.

The Smart Green Apartments program is a key initiative of our Residential Apartments Sustainability Plan. We work with strata communities to improve environmental performance and a building's liveability and value, while reducing operating and maintenance costs for owners.

The environmental performance of buildings is unlikely to improve without intervention and assistance. The collective ownership model of strata and unique governance structures require tailored support and information to better operate and upgrade buildings and precincts. Barriers for existing buildings include access to independent and accurate information; lack of time, expertise and support; and the long, complex decision-making processes in strata buildings. For new buildings, improving performance standards could significantly lower environmental footprints from the start.

We aim to work with the sector to raise the bar on environmental performance, build capacity for environmental decision-making and empower communities to make green living choices.

Achievements

- The Smart Green Apartments program currently includes 172 buildings, with 13,876 apartments that are home to more than 27,000 people.
 - The program has reduced GHG emissions by an average of 30 per cent per strata community.
 - It has also cut energy use by 31 per cent, saving \$2.89 million on power bills.
 - WaterFix® Strata, a partnership with Sydney Water, has reduced consumption of potable water by almost 700 kilolitres, saving \$1.30 million in water bills.
-

Environmental grant enables building owners to cut electricity use by 85 per cent



With an exceptionally low monthly electricity bill for powering its common areas (\$14.71!) and an impressive 6 Star NABERS energy rating, it is worth taking a closer look at the environmental achievements of Zinc, a 45-lot apartment building in Alexandria.

Using an environmental grant from the City, the owners corporation engaged an independent consultant to conduct an energy efficiency assessment, solar feasibility study and NABERS rating. Nathan Hage, strata committee representative, credits the City's environmental performance grants program with gaining the participation of all owners in the building – and results that followed.

“Having the initial energy efficiency assessment and NABERS rating fully funded by the City was key to our success. It would have been much harder for a relatively small building like ours to sell it to the owners,” Nathan said.

Work started with an upgrade of common-area lighting, which was soon followed by the installation of a 27 kilowatt-hour rooftop solar system. Next up, the owners switched to an electricity provider offering a renewable and carbon-neutral product, to cover the emissions from their grid-sourced electricity. The results? An 85 per cent reduction in common area electricity use, with a corresponding 99 per cent cost saving.

The owners are now looking to invest in solar sharing technology and battery storage to supply power to individual apartments.



Commercial office sector

Commercial office buildings and their tenants contribute 44 per cent of the city's carbon emissions, making it vital to reduce this impact. The City's long-running BBP and CitySwitch programs have helped reduce GHG emissions and water consumption, improve energy efficiency, and increase use of renewable electricity and recovery of materials from waste.

Sydney is home to Australia's largest commercial property cluster, and the City through the BBP has provided a forum for sharing knowledge and grappling with the market transformations required to meet our environmental goals and deliver a sustainable city. In addition to environmental outcomes both BBP and CitySwitch deliver unique intellectual and social capital through the networking and capacity building that arises from collaborating and networking on common sustainability problems.

The benefits of these programs extend beyond Sydney. All BBP portfolio owners are implementing sustainability initiatives in their other property types across Australia. By design, CitySwitch is a national program that engages tenants and businesses in other local government areas.

In addition to these programs facilitated by the City other factors have also contributed to the excellent sustainability performance of the commercial office sector in Sydney. These include, mandatory NABERS ratings, international reporting requirements of the Task Force on Climate-related Financial Disclosures and the Global Environmental, Social and Governance Benchmark for Real Assets. There is also an investor-led desire for green investment options and tenants who want sustainable work and retail spaces driving environmental improvements in this sector.

Achievements

- We engage with 59 per cent of commercial landlords in the city through the BBP. These landlords reduced carbon emissions by 61 per cent and water use by 39 per cent in 2019–20, compared to 2006. (The city has six net-zero commercial office buildings, and another 18 committed to achieving net-zero targets.)
 - The BBP has delivered sector-wide change, particularly in waste management, which is embedded in NABERS Waste and Good Environmental Choice Australia certification of waste service providers. The program has also established best practices in energy demand management, the circular economy, cooling tower management and pathways to net-zero buildings.
 - Through CitySwitch, we engage with 221 office tenants (27 per cent of commercial tenants). The average carbon emissions reduction of these tenants is 26.4 per cent, and 29 have been certified as carbon-neutral by Climate Active.
-

Image: EY Centre at 200 George Street, Sydney, by Mirvac. © City of Sydney

Accommodation and entertainment sector

Sydney's accommodation and entertainment sector has a large environmental footprint. Accommodation needs lights, air conditioning and ventilation 24 hours a day. Entertainment venues use energy-intensive stage lights, sound systems and air conditioning. Food and beverage outlets have high energy and water consumption, and they generate large amounts of waste.

Industry members wanting to improve their performance have signed up to the SDP, a collaboration of 46 property owners, managers and key influencers. The International Convention Centre, Sydney Opera House, Art Gallery of NSW and iconic hotels are among the 72 buildings represented by these property owners.

Before the COVID-19 pandemic, Sydney had more than 10 million annual visitors. This number fell dramatically in 2020 due to COVID-19, with an extreme slowdown in business. Despite this, more hotels sought a NABERS rating; more SDP members identified water leaks in empty buildings and worked on their sustainability strategies; and more staff used the downtime to train in food waste avoidance through Love Food Sydney, a City partnership with the NSW Government.

Many opportunities exist to lessen the environmental impact of the sector; for example, energy and water-efficiency, minimising waste, increasing sustainable procurement, and raising the energy performance standards for new buildings and major refurbishments, including 4 Star NABERS Commitment Agreements for new hotels. These measures would also provide long-term economic benefits.

The City's support includes providing grants for environmental ratings and assessments, and promoting actions to improve environmental performance.

Sydney awarded for its innovative sustainability initiatives



Sustainability is big business in Sydney – or should we say, big in business. So much so that Sydney has ranked 8th in the world for hosting sustainable business events, in the Global Destination Sustainability Index (GDS-Index).

The GDS-Index rates the business events industries of more than 50 cities globally against benchmarks for social and environmental performance.

In 2019, Sydney's Sustainable Destination Partnership (SDP) won the GDS-Index's Innovation in Sustainability award at the International Congress and Convention Association's annual conference, in Houston, in the US. The award recognised outstanding collaboration in environmental footprinting with ambitious targets.

"Sustainability is becoming an important requirement for our global client base when choosing a host destination, and the City of Sydney's approach in creating a collaborative framework for our whole industry to work with them is truly visionary," said Business Events Sydney CEO and SDP Associate Member, Lyn Lewis-Smith.

The City established the SDP to work in partnership with major hotels and tourist attractions to help reduce their environmental impacts and combat climate change. Sydney Lord Mayor Clover Moore said, "This award recognises their success in becoming more sustainable and working to address the most pressing issue of our time. I hope it encourages more businesses and organisations to become involved."

Achievements

– Emissions have been reduced by 19 per cent, compared to the target of 10 per cent from the 2017–18 baseline. Use of potable water has been cut by 21 per cent against a target of zero increase on the 2017–18. Currently, 74 per cent of partners report waste data, edging closer to the target of 100 per cent reporting. A total of 37 per cent of waste is diverted from landfill against a target of 75 per cent. (These figures are

based on 2018–19 results, with data for 2019–20 delayed due to COVID-19).

- In 2019, the SDP won the Global Destination Sustainability Index award for innovation in collaboration.
- Since 2018, the SDP has launched the single-use pledge, developed a roadmap to halve food waste by 2026, worked with Sydney Water to research water-saving opportunities, and tested NABERS waste in City-owned buildings.

Image: © Australian National Maritime Museum.



Environmental grants and sponsorship program

Our grants and sponsorship program supports initiatives and projects that build the social, cultural, environmental and economic life of the city. We partner with the community and businesses to meet the targets set by Sustainable Sydney 2030.

The environmental grants and sponsorship program offers a powerful incentive for residents and businesses to improve their environmental performance. It provides funding for innovation; energy, water and waste management projects; and ratings and assessments. It also aims to address barriers to action.

Since 2016 the City has awarded \$3.8 million in environmental grants in response to 330 applications from 198 individual organisations.

- 248 Environmental performance grants - assisting building owners and managers better understand their environmental impact by undertaking ratings and assessments, and to initiate projects to improve the environmental performance of their buildings. A comprehensive profile of environmental grants can be found here.
- 46 Innovation grants – supporting testing or use of new technologies or processes that are not being implemented in the local market and could be used at scale in the local area. These are technologies that have the potential to support

greenhouse gas emission reductions, climate adaptation efforts, resource efficiencies, sustainable transport or greening initiatives.

- 20 Knowledge Exchange Sponsorships with environmental outcomes - supporting programs or events that promote the sustainable development of cities; tools or guides to communicate best practice and build skills and expertise; and networking events that bring people together to learn from each other.
- 16 Matching Grants with environmental outcomes - supporting grassroots and local projects that contribute to vibrant sustainable communities and economies by matching contributions towards a project.

Image: City farm, Sydney Park.
© City of Sydney

Innovation grant helps demonstrate the value of integrated green roofs

The City is proud to support a flagship green roof project through its environmental performance innovation grants program. The project involves a partnership between University of Technology Sydney (UTS), Lendlease and Junglefy to compare two rooftops on two identical buildings in Barangaroo: one made of concrete with a solar PV system, and the other comprising a solar PV system integrated with a green roof.

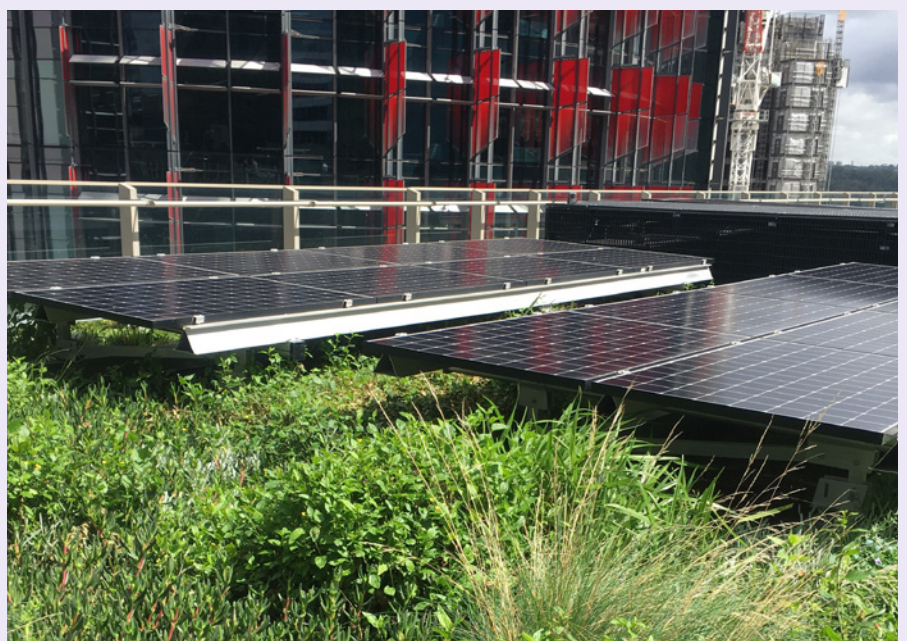
The research project is one of the longest and most complete studies of its kind in Australia. It will provide the City with empirical evidence and data on the benefits of integrated green roofs in Sydney, and the results to date are compelling.

Integrated green roofs appear cooler on average by 5.5°C. The green roof remains at a steady 25°C throughout the day, compared to the usual swings of 20–60°C on a typical city roof. A green roof cools the roof, resulting in more power from the solar panels.

An integrated green roof stores and ‘polishes’ rainwater. It slows discharge to the stormwater system in high rainfall events to 7 litres/second, compared to 634 litres per second on the concrete roof. The green roof’s plant species provide an added benefit through their biological processes, which work to increase air quality.

Green roofs encourage biodiversity in city spaces. Whereas a typical non-green roof might host four species of fauna, more than 30 species have been observed on the project’s green roof, including native bees, insects and birds.

There is huge potential across the city for more integrated and co-located solar green roofs.



Actions



Action 8

Improve energy efficiency, water efficiency and waste management in existing buildings

The City will advocate for stronger requirements for mandatory disclosure of environmental performance. Through our partnerships and grants programs, we will support building owners, operators and tenants to implement efficiency measures, use renewable electricity and transition from gas to electricity.

Action 9

Drive all new buildings to be resource-efficient and net-zero energy

We will implement net-zero performance standards in our planning controls, and look for opportunities to develop controls to reduce the impact of urban heat.

The City will continue to advocate for higher environmental design standards, including in the National Construction Code and the Building Sustainability Index (BASIX).

Where the City can comment on State Significant Developments, we will advocate for ambitious environmental goals, including alignment with the NSW Government's target of net-zero emissions by 2050.

Action 10

Support the transition to zero-emissions transport

Our transport priorities can be delivered via direct actions, partner actions and advocacy. We will advocate that the Australian Government develop a national plan for transitioning vehicle fleets to zero emissions by 2035. One key element will be transitioning existing service stations to become zero emissions fuelling stations, creating the backbone of the urban charging network.

The City will advocate for public transport projects, partnering with the NSW Government to build a bicycle network and reallocate road and kerb space for walking, cycling and public transport. We will also advocate for a low-emissions zone in the city centre.

Image: Cycling through Green Square.
© City of Sydney

We will also advocate for public transport powered by renewable energy and the uptake of zero emissions vehicles for point-to-point operators, ridesharing, and last-mile delivery and servicing systems.

We will support charging for electric vehicles in off-street parking through City planning instruments and advocacy to the NSW Government.

Action 11

Encourage community uptake of renewable electricity and stimulate the green economy

Through our partnership programs, we will provide advice and support to increase the use of onsite and offsite renewable energy. We will also look for opportunities to help local businesses to aggregate their purchasing power for renewable electricity, which can create economic opportunities within NSW.

Action 12

Support our residents to reduce utility costs and environmental impact

We will continue to encourage residential apartment building owners to improve the energy and water efficiency of their buildings. The City will also keep advocating for capacity building in relation to strata legislation and management, to help residents manage their buildings.

Action 13

Help business to reduce utility bills and demonstrate environmental achievement

The City will provide ongoing support for the BBP, strengthening its contribution to a sustainable city, and embedding best-practice standards and tools. Focus areas in the next four years will include the circular economy, shifting from gas to electricity, and whole-of-building performance.

Through the CitySwitch Sydney program, we will support office tenants in their work with building owners to improve environmental performance. We will use the CitySwitch national program to support collective action, including in relation to mandatory tenant disclosures.

As the accommodation and entertainment sector recovers from the devastating impact of COVID-19, the City will help members of the sector make their operations more efficient while also positioning Sydney as a safe and sustainable destination.

Innovative technology enables metropolitan-wide decision making on environmental performance



The Resilient Sydney Platform is a collaboration between Resilient Sydney, City of Sydney, Kinesis and the local councils of metropolitan Sydney. This award winning platform provides previously disparate datasets to the 33 metropolitan councils across Sydney so they can measure and understand how the local community is contributing to carbon emissions, using energy and water and generating waste. By providing councils with a standardised, metropolitan-wide process for measuring and reporting on environmental performance, the Platform supports more strategic and evidence based planning and decision making.

In September 2019, the Resilient Sydney Platform was acknowledged as an important innovation to support collaboration, joint action and advocacy across the Sydney area, receiving two awards at the Smart City Awards 2019: the 'Data as an Enabler' category award and the overall award for the Best Smart City Project.

This is the first time a robust, accessible, environmental data platform has been available for every local government area (LGA) of Sydney.

Over 200 strategic planners, environmental managers and general managers representing all the 33 councils of metropolitan Sydney are now using the platform in their Local Strategic Planning Statements.

03

A regenerative and inclusive city





A regenerative city

A city that is future-proof and resilient contributes to regenerating the natural resources it consumes. This starts with pursuing efficient use of resources and local circular initiatives, and minimising the pressure the city is placing on global ecological and social systems.

Our citizens' jury, run during the Sustainable Sydney 2050 consultation, identified the concept of the city as a 'regenerative ecosystem'. The jury recognised that there are finite natural and financial resources, and that air and water pollution, and water scarcity, must all be addressed if we are to achieve a healthy city. Buildings must not contribute to the degradation of the city, and waste must be transformed to feed back into the economy. Over the next four years, the City will explore how to bring this concept to life.

Globally, we need to stop burning carbon as much as possible, as soon as possible. We also need to draw down carbon from the atmosphere in significant quantities. This is achieved through reforestation, agroforestry, garden cities, regenerative agriculture, blue carbon (kelp and other seaweed growth), and direct CO₂ capture from the air.

Nature-based climate solutions reduce emissions from the atmosphere while restoring the biosphere – the land, air and water. It is estimated that conservation, restoration, and management of forests, grasslands and wetlands can deliver a third of the emission reductions needed globally by 2030.⁴²

Identifying solutions

Increasingly, councils are recognising that the knowledge and cultural practices of Aboriginal and Torres Strait Islander people can make an important contribution in this area, playing a central part in strengthening the sustainability of our cities.

Environmental action will need to include establishing a strong circular economy to reduce and manage waste, regenerating natural resources such as waterways, and using nature-based solutions to reduce emissions.

Image (Previous page): The South Eveleigh community building rooftop garden.

© Community Rooftop Garden, Mirvac. (This page): St Helens community garden provides locals the ability to grow their own fresh produce
© City of Sydney, Katherine Griffiths

⁴² <https://www.nature.org/en-us/what-we-do/our-insights/perspectives/natural-climate-solutions/>

Indigenous land management practices have enormous potential to reduce emissions and sequester carbon. Sustainable funding models, such as carbon credits, can help support Indigenous businesses and communities to expand their traditional practices, including cultural burns.

Local and state governments share responsibility for regenerating the waterways within our city. We are working with other councils on catchment management plans for the Cooks River and Sydney Harbour. These include plans to protect and enhance biodiversity, preserve Aboriginal and Torres Strait Islander culture and artefacts, improve water quality and adapt to climate change.

Sydney Park delivers for the environment and for the community



For nearly 100 years, there was no wildlife to speak of on the site that is now Sydney Park. A former brick pit and rubbish tip have given way to a regenerative oasis of thriving wetlands and green open space, with the help of stormwater harvesting and multi-award-winning design.

The 44-hectare park has four wetland areas that not only clean stormwater, manage floods and reduce urban heat but also attract wildlife to this urban area. The plantings of native grasses surrounding the wetlands form bioretention swales, which help filter stormwater runoff and reduce contaminants flowing downstream into Botany Bay.

The wetlands are also an important habitat for native wildlife during dry periods. A wide variety of birds, frogs and turtles are attracted to the area, including migratory birds that visit the park.

Before the City established stormwater harvesting in the park, the wetlands did not have enough water to regenerate fully on their own. Each year, the park harvests 850 million litres of stormwater, which is used to top up the wetlands, for irrigation and to supply the nearby City of Sydney depot. In 2021, the park received the Jury Award in the Architecture + Water category of the 2020 Architizer A+Awards in New York.

Harvesting stormwater in this way helps the City achieve our 2030 target to reduce sediments and nutrients from stormwater runoff and will also help us meet 10 per cent of water demand through local water capture and reuse.

The park is also home to Sydney City Farm, a place for people to learn about urban agriculture and sustainable food production. The farm uses organic growing principles to produce nearly half a tonne of fresh food annually, and is run with the help of more than 300 volunteers. It donates produce to local food banks.



Our city is on Gadigal land

The City acknowledges that this place we now call Sydney is, was and always will be an Aboriginal place. We also acknowledge the importance of the living cultural practice of caring for Country. The Gadigal of the Eora Nation have used resilient land management practices for thousands of generations. Aboriginal people know that if we care for Country, it will care for us.

'Eora' means 'the people' in the Gadigal language, so the City's Eora Journey is 'the people's journey'. We're working with Aboriginal and Torres Strait Islander artists to create seven major public art projects symbolising the Eora Journey. We currently provide support for a range of events that celebrate Aboriginal and Torres Strait Islander arts and culture, from the Yabun festival held on 26 January in Victoria Park each year to local NAIDOC Week events. We have developed our first

economic action plan to focus on Aboriginal and Torres Strait Islander communities, and in 2018 we purchased the former Redfern Post Office for use as a local Aboriginal and Torres Strait Islander culture and knowledge centre.

A body of work is evolving around the country to increase cities' involvement of Aboriginal and Torres Strait Islander people and cultural knowledge in urban planning and decision-making, to improve sustainability and resilience.

Research by the Clean Air and Urban Landscapes Hub explores the concept of cities as Indigenous places.⁴³ It reinforces the importance of giving Aboriginal and Torres Strait Islander people meaningful roles at all levels of decision-making that relates to our cities.

The NSW Government Architect has published the Connecting with Country Draft Framework to inform the planning, design and delivery

of built environment projects in NSW.⁴⁴ It provides guidance for the community, government and developers on how to support the wellbeing of Country; value and respect Aboriginal and Torres Strait Islander knowledge; and ultimately reduce the impact of natural disasters through sustainable land and water management practices.

The City will enhance its environmental program by working with Aboriginal and Torres Strait Islander groups and investing in knowledge and practices that restore natural equilibrium by caring for Country.

Image: Aunty Margaret Campbell starts her educational walking tours at these large fig trees in Circular Quay which she refers to as great grandmother trees. © City of Sydney, Katherine Griffiths

⁴³ <https://nespurban.edu.au/wp-content/uploads/2020/11/Cities-for-People-and-Nature.pdf>

⁴⁴ <https://www.governmentarchitect.nsw.gov.au/projects/designing-with-country>

Inclusive environmental action

People already marginalised in our city are likely to suffer disproportionate impacts from climate change and urban hazards. As we create solutions to our challenges, we need to be inclusive. We must look at which groups are most affected by climate change, who benefits from our environmental programs, and how we can diversify the voices heard when shaping our environmental future.

Our research to establish an Equality Indicator Framework revealed serious inequalities within our community. Aboriginal and Torres Strait Islander people, those on low incomes and people with disability experience clear inequalities in relation to employment, skills and education, housing, health, transport, and access to and involvement in public life.

Climate impacts can worsen these inequalities. For people with disability, it can be difficult to get around during floods or storms, or to find information about extreme weather events. While some homeowners can afford solar panels and other energy-efficient measures, people on low incomes can struggle to pay electricity bills, going cold in winter and sweltering in summer.

Many people in these disadvantaged groups are among the 75 per cent of those who rent in the city. When it comes to managing the impacts of climate change, renters are disadvantaged; for example, they can't install insulation to protect against extreme heat.

Access to affordable clean energy remains a key issue. Low-income and disadvantaged households pay a higher proportion of their incomes on essential services, and have less choice and control to reduce costs. Currently, GreenPower is more expensive than standard grid electricity, putting access to clean energy out of reach for many residents.

The City's Draft Greening Sydney Strategy acknowledges the importance of equity. Having access to cool green spaces close to home contributes to residents' ability to deal with extreme heat and to their mental wellbeing. While our overall canopy cover has increased, it is not evenly distributed. We will analyse its distribution as we plan future investment in greening, to improve access for everyone.

Reducing embodied carbon

Embodied carbon refers to the GHG emissions produced during the extraction, manufacture and transport of materials used day to day and in buildings and streetscapes. Reducing embodied carbon would significantly cut global emissions.

The City is part of the Materials Embodied Carbon Leaders' Alliance, which is working to grow the local market for low-emissions concrete, and green steel and aluminium.

The embodied carbon of materials is not counted in the current carbon footprint of a local area because these emissions are difficult to quantify and are attributed to the areas where they originate. However, University of New South Wales (UNSW) research has found that the carbon footprint of Greater Sydney would be approximately double if the supply-side emissions of goods and services consumed were taken into account.

Reusing materials and using recycled materials, avoiding the demolition of buildings (by reusing and retrofitting buildings) and other circular economy principles are the simplest and most cost-effective way to reduce embodied carbon. Meeting the Paris Agreement targets will require new zero- and negative-emissions products made using renewable energy, and many jurisdictions and businesses are working on this.

Urban heat mitigation

The urban heat island effect exacerbates warming in cities. Materials such as pavements and buildings absorb and radiate significant amounts of heat, raising temperatures significantly.

The Resilient Sydney Strategy identifies extreme heat as a big challenge for Greater Sydney.⁴⁵ More frequent hot days and nights – and longer and hotter days and nights – have a significant impact on human health and the liveability of our city. Addressing this requires collaborative action and policy.

In 2019, the City commissioned UNSW to develop an urban heat reduction guideline: the Cooling Sydney Strategy.⁴⁶ Its recommendations have the potential to decrease peak ambient temperatures by 2–3°C, which would cut energy demand for cooling and reduce heat-related mortality and morbidity.

Increasing the canopy cover and other forms of greening in our city is one of the most effective mechanisms to reduce urban heat. Our revised Greening Sydney Strategy reaffirms our commitment to initiatives that will help achieve a greener, cooler, calmer and more resilient Sydney.

Other techniques for cooling the urban environment include:

- cool pavements
- water features and evaporative cooling
- external shade structures
- integrated shading devices
- heat refuges.



Image: Sustainable building design curbs the effects of urban heat. © Stable Group

⁴⁵ <https://www.cityofsydney.nsw.gov.au/governance-decision-making/resilient-sydney>

⁴⁶ <http://www.lowcarbonlivingcra.com.au/resources/cra-publications/cra-clc-project-reports/sp0012u3-cooling-sydney-strategy>

Monitoring air quality

In addition to GHG emissions, communities are increasingly concerned about the effect of air pollution on health. Vehicles that run on fossil fuels are a significant source of air pollution in Sydney.

The NSW Government is largely responsible for measuring and regulating air quality in Sydney. It is developing the NSW Clean Air Strategy 2021–30 to reduce the effects of air pollution, especially during extreme events like the 2019–20 bushfires.

The NSW Strategy targets better preparedness for pollution events, cleaner industry, transport, engines and fuels, and healthier households and places. The NSW Government also plans to electrify the state's bus fleet.

Within the City of Sydney area, the NSW Government has installed ambient air quality monitoring at Cook & Phillip Park with plans to expand to other sites in our area. This station measures ozone, nitrogen dioxide, visibility, carbon monoxide, sulfur dioxide and airborne particles.

People can access real time air quality classifications from the NSW Government website. The site in the City is consistently classified as 'good' which means there are no changes needed to normal outdoor activities, even for sensitive groups.

The City is focused on local monitoring, and communicating information about air pollution to increase community support for zero-emissions transport and greening. It is deploying 21 low-cost sensors in the local area to measure air quality as well as noise and temperature. These sensors will complement NSW Government monitoring efforts.

A water-sensitive city

A water-sensitive city meets water needs and enhances liveability and resilience, including through biodiversity, public green spaces, healthy waterways and connected communities.⁴⁷ As the City of Sydney local area grows and the climate changes, more water will be needed for consumption, to green the city and combat the effects of climate change.

Greater Sydney's water storage dams have experienced severe drought in recent years, which is predicted to occur with growing frequency and longer duration because of climate change.

Since 2005–06, water use in our local area has increased 14 per cent while overall floorspace has grown 11 per cent. This is partly due to growth in high-water-use sectors (for example, apartments) and reduction of low-water-use sectors (such as industrial production).

Existing recycled water schemes are estimated to supply 0.2 per cent of total water demand across the local area. This low rate is largely attributed to:

- the low cost of water compared to other building costs, meaning that the low financial return from reducing consumption doesn't justify the capital expenditure required for water efficiency or reuse
- an unsupportive regulatory framework for recycled water
- higher fees imposed on utilities by the Independent Pricing and Regulatory Tribunal, which have challenged the financial viability of recycled water schemes in urban renewal locations.



Chart 7: Local area potable water usage history

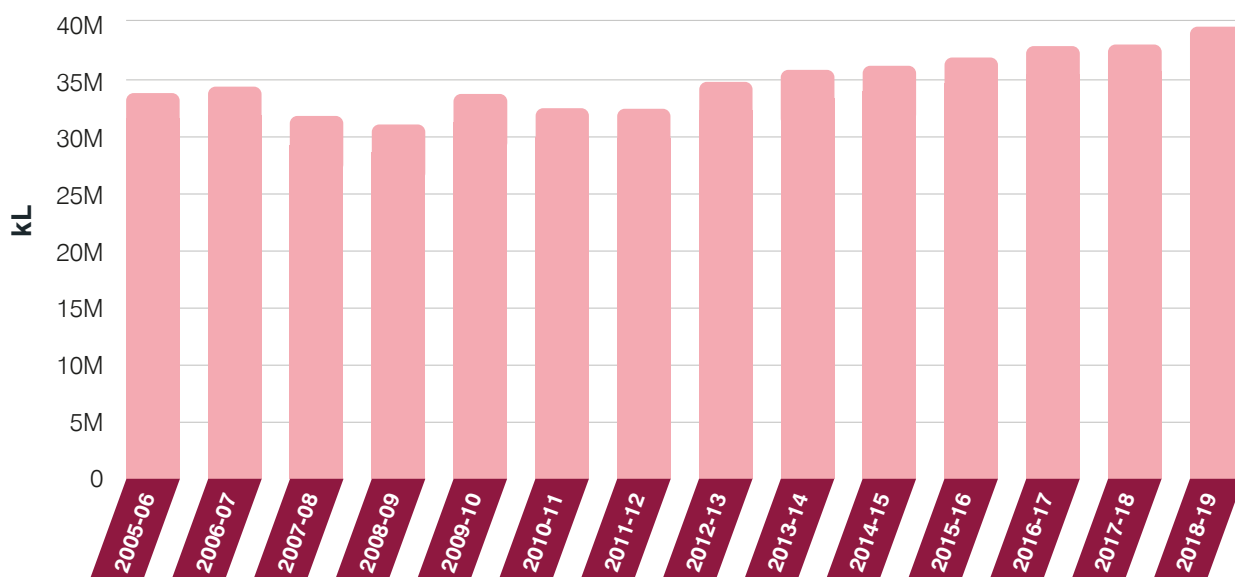


Image: Pirrama Park © City of Sydney

⁴⁷ https://watersensitivecities.org.au/wp-content/uploads/2016/05/TMR_A4-1_MovingTowardWSC.pdf

The NSW Government is developing a 20-year statewide water strategy to improve the resilience of water resources, including in response to climate change.⁴⁸ It is also working on the Greater Sydney Water Strategy which is due for public exhibition in late 2021. Sydney Water is developing the Eastern Sydney Regional Master Plan. The Masterplan, anticipated to be made public in mid-2021, will present options for the future drinking water balance including how reliant the Eastern Region will be on desalinated water and recycled water.

The City recognises that decentralised recycled water schemes can contribute to managing the impacts of climate change and keeping the city green and cool. Such schemes will have a role to play in the future, but the delivery model may change. If the NSW Government introduces recycled water for drinking into Sydney's potable water supply, local recycled water systems will become less important for a resilient and drought-proof water supply.

Over the next four years, the City will continue working to deliver a greater mix of recycled water to the network. Interventions at the planning stage will ensure new developments use water efficiently. The George Street recycled water pipeline will facilitate use of recycled water in new developments along the corridor, retrofitting cooling towers and delivering drought-proof water to key public open spaces across the local area.

The City is establishing two new targets to track the local area's water use:

- Reduce residential potable water use to 170 litres per person per day person by 2030
- 10% reduction in non-residential potable water use per m2 by 2030, from 2019 baseline

Water-saving program helps businesses cut water bills

The Water Savings Partnership program started in June 2019 in collaboration with Sydney Water to help businesses use water more efficiently, with water savings measured over two years.

Despite building access restrictions due to the COVID-19 pandemic, the program is delivering well against targets. This demonstrates the demand and opportunities for water savings in the business sector.

As part of the program, a water efficiency assessment for a major shopping centre identified opportunities to save 63 kilolitres of water each day. The centre has so far implemented changes to save an estimated 22 kilolitres each day.

The program is currently focusing on helping small to medium-sized businesses such as cafes, restaurants, childcare centres and gyms reduce their water bills. Forty-seven participants involved to date have identified 567 kilolitres of water savings, and have achieved 110 kilolitres to date.



Image: © City of Sydney

48 <https://www.industry.nsw.gov.au/water/plans-programs/strategy/about>

Food scraps recycling trial diverts tonnes of waste from landfill



The largest single waste stream in City residents' red-lid rubbish bin is food waste. It typically accounts for one-third or more of a bin's contents. Recycling food waste saves landfill space, reduces greenhouse gas emissions, creates compost and fertiliser, and with the right processing can generate green energy.

We committed to investigating solutions to the food waste problem by starting a food waste collection and recycling trial for residents in July 2019, with support from the NSW Government. The trial now covers 1,019 houses and 132 apartment buildings across the city, comprising almost 11,000 households. Preliminary results are very encouraging, with good participation from those who have signed up for collections. We are recovering a high percentage of food waste from households, with very low rates of contamination.

The food scraps are collected by the City's Cleansing Operations team and checked for contamination. They are then processed at the EarthPower anaerobic digestion facility, which produces green electricity and fertiliser. By the end of March 2021, more than 460 tonnes of food scraps had been collected for recycling, with a contamination rate of just 1 per cent.

Phase II of the trial is now underway and will see the availability of the service increase to around 21,000 households by the end of September 2021.

Managing waste and resources

Managing waste and resources from residences, parks, public spaces, neighbourhood centres and our own operations is one of our core services.

The City of Sydney area produces more than 5,500 tonnes of waste every day and contributes to approximately 8 per cent of the city's total GHG emissions. This is made up of waste generated at home, at work, by the city's many venues and events, and during the construction of new buildings and transport infrastructure. Around 69 per cent of this waste is already recycled, but more than 2,000 tonnes still goes to landfill each day.

Residential and City buildings waste

Each year, the City collects and manages around 65,000 tonnes of waste from more than 120,000 households, and about 11,000 tonnes from our own assets, parks and public places. By 2030, this is forecast to grow to more than 100,000 tonnes of waste.

Commercial and industrial waste

Commercial and industrial waste is all non-residential waste produced by businesses and institutions. It is largely organic or biodegradable, and accounts for around 700,000 tonnes – more than 90 per cent of the city's total waste – each year. By 2030, this is forecast to grow to more than 800,000 tonnes a year.⁴⁹

It also generates a significant proportion of the emissions created by landfill. And although the City does not collect or manage this waste, we need to identify ways to reduce it.



Construction and demolition waste

Each year, construction and demolition of new buildings and major infrastructure such as roads creates more than 1 million tonnes of waste in the city.⁵⁰ This waste is largely inorganic or inert, meaning it does not decompose or generate GHGs. Recovering and reusing this waste would reduce GHG emissions by cutting back on the extraction of resources.

Image: Recycle It Saturday - free recycling dropoff event © City of Sydney

⁵⁰ Edge Environment Pty Ltd. City of Sydney Commercial Waste Data Review. Sydney: (unpublished), 2017.

⁵¹ <https://www.cityofsydney.nsw.gov.au/strategic-land-use-plans/local-housing-strategy>

⁵² <https://www.cityofsydney.nsw.gov.au/vision-setting/planning-sydney-2050-what-we-heard>

⁵³ https://www.wto.org/english/news_e/news17_e/impl_03oct17_e.htm

Challenges

Residential apartments account for more than 75 per cent of households in the city, and this number is predicted to rise to 80 per cent by 2036.⁵¹ Many of these households have competing demands for space, particularly for storing waste and recycling, which contributes to illegal dumping on footpaths and in public spaces. Where no storage is available, bins are also often left on footpaths. These both cause obstructions, create bad odours and feed perceptions of an area as being unclean or unsafe. Putting non recyclable rubbish in recycling bins causes contamination leading to recyclable materials being sent to landfill.

During community engagement for the City's Sustainable Sydney 2050 strategic plan, 86 per cent of residents said they want to preference recycling over landfill.⁵² However, our residential recycling rate has remained at below 28 per cent since 2016. Reasons for

this include confusion about what can be recycled, lack of access to recycling infrastructure in buildings and more complex packaging materials. Increasing demand for electronic and electrical items that are hard to repair or quickly become obsolete has added to the amount and types of waste.

China's ban on importing waste

In 2017, China notified the World Trade Organization that it was banning imports of 24 kinds of solid waste, including plastics from household sources, unsorted scrap paper, discarded textiles and mixed paper.⁵³ In 2016–17, Australia exported 1.4 million tonnes of paper and cardboard to other countries for recycling, and 63 per cent of that went to China. Of the 182,000 tonnes of plastics exported for recycling, 68 per cent also went to China. The ban has affected the City because about half of the recycling we collect is paper and plastics.

Waste data

It is difficult to track and accurately report on waste quantities and recycling rates once waste is moved, particularly if it is sent interstate or overseas. Waste from the commercial and industrial sectors is especially hard to track because it is managed by many different independent operators.

Textiles

Textiles, which make up around 6 per cent of waste in red bins in the City of Sydney, are a growing issue. Only about 1 per cent of textiles are recycled in Australia, while clothing consumption has approximately doubled in the last 15 years.⁵⁴ Globally, the textiles and clothing industry accounted for 92 million tons of waste (in addition to using 79 billion cubic metres of water and generating 1,715 million tons of CO₂ emissions) in 2015. It is estimated this figure will increase by at least 50 per cent by 2030.⁵⁵

Food

Significant opportunities exist to separate and treat food waste, especially through anaerobic digestion facilities that can produce biofertiliser and biogas, a renewable energy source. But councils would need to invest heavily in new collection services and bins, and educate residents about separating food waste. This outcome would need to be supported by NSW Government as part of a metropolitan wide plan for waste treatment facilities.

State and Commonwealth Government action

- National Waste Policy Action Plan - The Commonwealth Government published its National Waste Policy Action Plan in 2019. It set targets for reducing and recovering waste, increasing the use of recycled content and improving data. It also banned the export of waste materials.
- National Plastics Plan - The plan addresses Target 5 of the National Waste Policy Action Plan. It focuses on five key areas: phasing out problem plastics; increasing recycling; educating consumers; reducing plastics in oceans and waterways; and researching plastics recycling technology.
- 20-Year Waste Strategy for NSW - This is designed to be a whole-of-government initiative that provides a long-term strategic direction for communities, industry and all levels of government to work together to build resilient services and markets for waste resources. The City is advocating for a strategy that will provide regulatory and investment certainty, and appropriate levels of funding. The draft strategy is expected to be released in 2021.

Implications for the City

Our residents understand the need to better manage our resources through waste avoidance and increased recycling. They willingly participate in initiatives such as a food scraps trial and e-waste collections. But continuing changes to products and packaging make it difficult for us to provide the infrastructure for collecting and processing waste. We struggle to get our kerbside recycling rate above 28 per cent, which is short of our 35 per cent target. The recycling industry's inconsistent information about what is and isn't recyclable has also resulted in confusion for residents and businesses. Ongoing engagement and education is needed to rebuild the community's confidence in waste and resource management.

Collaboration at the federal, state and regional levels is needed to overcome challenges and create opportunities to improve the management of waste and recycled materials. Industry support and investment in innovation is needed across the entire materials supply chain.

The City already supports innovation through our environmental grants to incubators. At the commercial level, our procurement processes send appropriate demand signals to the market. And we will continue to engage with businesses and our communities on the circular economy and waste avoidance.

54 https://www.ellenmacarthurfoundation.org/assets/downloads/publications/A-New-Textiles-Economy_Full-Report.pdf

55 [https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/633143/EPRS_BRI\(2019\)633143_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2019/633143/EPRS_BRI(2019)633143_EN.pdf)

A circular economy

The economic system is linear: take, make, waste. Resources are extracted to be transformed into products, which are used and then discarded. Our approach to consumption must change.

The circular economy has three principles: designing out waste and pollution; keeping products and materials at their highest value for as long as possible; and regenerating natural and social systems.

Raw material use must be minimised through design, use of recycled materials, share-economy initiatives, and changes in consumer behaviour and producer responsibility. This will extend product lifecycles and keep disposal to an absolute minimum.

To change behaviour, it is important that the full environmental impact of all products is clear, including embodied emissions.

Although the circular economy is rapidly gaining traction globally, there isn't a blueprint for this transition. It is an emerging concept that requires learning by doing. City governments are interpreting and advancing a circular economy in different ways, depending on their unique strengths, challenges and aspirations.

The NSW Government released its Circular Economy Policy Statement in 2019⁵⁶. It focuses on seven key principles: sustainable management of resources; valuing resource productivity; designing out waste and pollution; maintaining the value of products and materials; innovative new solutions for resource efficiency; creating new circular economy jobs; and fostering behaviour change through education and engagement. The policy is also to form the basis of the forthcoming NSW 20-Year Waste Strategy.



The City supports this approach and has advocated for change in government organisation and levels of funding, and for the establishment of a new coordination body and strong governance frameworks.

We have already undertaken initiatives that align with the circular economy; however, these are often isolated and have been motivated by objectives such as better waste management or social outcomes. To achieve a fully circular approach, we will need to move from reactive and isolated initiatives towards deliberate and scalable implementation of the circular economy.

This will also allow us to capitalise on the significant economic opportunities it will bring. New jobs and businesses can be created that are regenerative by design and decouple growth from the consumption of finite resources.

Image: Sustainable commercial interiors use resources many times over © Profile of Design
56 <https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/recycling/19p1379-circular-economy-policy-final.pdf?la=en&hash=F80151EA9C2C3E27BA889D15D18041CDF7A4D25A>

Actions



Action 14

Incorporate the perspectives of Aboriginal and Torres Strait Islander people in environmental action

The City will work with Aboriginal and Torres Strait Islander groups and invest in knowledge and practices that restore natural equilibrium by caring for country. We can use our partnership networks to raise awareness of reconciliation objectives. We will explore ways to celebrate Aboriginal and Torres Strait Islander peoples' living culture in our designs and management of places in the city.

Action 15

Address equity issues related to climate change

We will engage with vulnerable groups in the community to gain a clearer understanding of how climate-related issues are affecting them. The City will also collaborate with other organisations to advocate for more equitable access to clean energy and resilient housing. As part of our emergency preparedness work, we will look at how we can provide more options for respite for vulnerable community members during extreme weather events.

Action 16

Build community resilience and momentum on climate action

Our collaboration with other local governments to push for national action on climate change will continue via Climate Emergency Australia. We will advocate on key climate emergency issues, including the need for an inclusive economic diversification plan for a zero-carbon economy, driven by a national carbon price and an emissions target that aligns with the Paris Agreement.

The City will also further embed the directions of our Resilient Sydney Strategy⁵⁷ in our local area.

Image: Crete Reserve Playground, Rosebery.
© City of Sydney, Katherine Griffiths

⁵⁷ <https://www.cityofsydney.nsw.gov.au/-/media/corporate/files/focus/governance-decision-making/resilient-city/resilient-sydney-a-strategy-for-city-resilience-2018-part-3.pdf?download=true>

Action 17

Support the development of circular economy systems

We will partner with the NSW Government, other local governments and industry on circular economy initiatives and on creating a local market for low-embodied-energy materials.

Action 18

Drought-proof the city by facilitating water recycling

The City will deliver the CBD recycled water network, establishing an alternative source of non-potable water that can help keep the city green. We will continue to advocate for policies and regulations that support a water-sensitive city.

Action 19

Regenerate polluted waterways, air and land

In partnership with other councils and the NSW Government, the City will develop catchment management plans for the Cooks River and Greater Sydney Harbour. We will strengthen water quality measurement and reporting, and our approach to stormwater asset management. We will also look at how we can strengthen our planning controls to improve water-sensitive urban designs.

We will finish installing our low-cost air quality sensor network, and continue working with the NSW Government to establish additional Environment Protection Authority air quality monitoring stations across the city.

Action 20

Reduce the amount of residential waste sent to landfill through avoidance and resource recovery

The City will increase its focus on reducing waste, improving kerbside resource recovery through education, collecting a wider range of items for recycling, and promoting the City's waste services. We will expand the current food scraps recycling trial so the service is available to all our residents.

We will need to collaborate with other councils and the NSW Government to address the longer-term challenges relating to waste data, regional infrastructure and treatment solutions.



Image: Glebe. © City of Sydney, Katherine Griffiths

04

Strong foundations for delivery



Background

We aspire to outstanding environmental performance in our operations and local area. The City wants to be a leader globally in tackling climate change with ambitious, focused and collaborative approaches.

This Strategy sets out the specific directions and actions we aim to achieve. However, strong organisational foundations are needed to succeed.

COVID-19 has had a significant financial impact on the City. We anticipate having tighter financial constraints for the term of the Strategy, and we will need to make sure we have strong key organisational processes and systems to ensure we meet our goals. We will need to prioritise our actions and use our financial and human resources efficiently.

Consideration of the climate emergency needs to be integrated into key decision-making processes in the City. This includes strategy development, major projects and tenders, delivery of services, asset management, investment and the establishment of new programs and services. Engagement with staff has told us that our people are highly motivated to take environmental action and make a difference.

Action 21

Build staff capability to deliver environmental outcomes

We will retain a cohort of environment experts and we will continue to strengthen the environmental competencies of a broader range of staff.

Actions



Action 22

Deliver high-quality internal and external environmental reporting and communications

Develop a robust internal communications program to help to increase staff capability. We will leverage the City's powerful network of external communications channels to ensure members of our community understand our goals and actions, and how they can play their part. We will continue to provide a annual environmental report to Council and the community and benchmark the City's performance through the CDP-C40 global reporting program. The City will also use our improved data analytics capability to provide better reporting on progress against environmental targets and goals.

Action 23

Employ efficient and effective decision-making processes

Consideration of the climate emergency will be integrated into key decision-making processes, and we will review our current governance model to ensure there is appropriate oversight on the actions in this Strategy.

Image: (Previous page): Pirrama Park
© City of Sydney. (Above): Victoria Park
© City of Sydney

Implementing the Strategy

Multiple City departments will help to implement this Strategy. The City will report outcomes against all targets annually, both to Council and to our community.

Climate science, climate change impacts, economic circumstances and responses to the COVID-19 pandemic are continually evolving. Developments in national and state policy can also allow us to take advantage of new initiatives, or respond with further advocacy and collaboration when change is not fast enough.

Implementing an effective response that addresses the environmental challenges faced by our city requires collaboration from all parts of our community. We look forward to implementing this Strategy in partnership with our residents, the business community, and the NSW and Commonwealth governments.

Image: © City of Sydney



Strategy context



A holistic approach

The City has a range of strategies and initiatives to promote a green and liveable city, and to mitigate or adapt to the effects of climate change.

Sustainable Sydney 2030

After more than 10 years of implementing Sustainable Sydney 2030 – our vision and strategic plan for making our city green, global and connected – we are reviewing our progress and targets. At the same time, we are preparing for our 2050 vision, consulting with people who live, work, study, do business and seek entertainment in our local area. Like our first plan, Sustainable Sydney 2050 will be a long-term strategy, with measurable targets for a more sustainable, prosperous and liveable city.

Local Strategic Planning Statement

Our Local Strategic Planning Statement sets out a 20-year land use vision, balancing the need for housing and economic activities with protecting and enhancing local character, heritage, public places and spaces. It links state and local strategic plans with our planning controls to guide development, and includes measures to protect and enhance the natural environment. This is achieved by maximising the efficient use and reuse of water, energy and waste in new buildings and precincts, and improving the resilience of our natural and built environment to protect people from natural and urban hazards. It also outlines the key transport system changes to facilitate high quality growth and a connected community, with increased use of public transport, walking and cycling.



Environmental Policy

Our Environmental Policy is key to reducing our environmental footprint in response to the climate emergency. It lays out our commitments for transforming our own operations and establishes expectations for our environmental performance and that of our stakeholders – from employees and volunteers to service providers and customers.

Climate Emergency Response

The City of Sydney is taking bold steps to reduce our environmental footprint and promote fair and inclusive energy production, resource consumption, water use and climate adaptation.

We set science-based targets to reduce our own operational carbon emissions, and to support and empower our communities to reduce their carbon impacts, water use and waste.

Adapting for Climate Change

Adapting for Climate Change addresses the effects of climate change on our city, and what the City of Sydney, businesses and residents must do in response, while maintaining wellbeing and prosperity for all.

Leave Nothing to Waste

Our strategy is designed to manage Sydney's resources to 2030. This includes achieving our zero-waste target by focusing on waste avoidance and reuse, and improved recycling.

Residential Apartments Sustainability Plan

This plan includes practical actions for increasing sustainability and resilience in new and existing apartment buildings by reducing carbon emissions, water and waste.

Sydney's Sustainable Office Buildings Plan

This plan helps commercial building owners and tenants to reduce their environmental impact by achieving environmental ratings, adopting renewable energy, reducing water consumption and waste.

Making Sydney a Sustainable Destination Plan

The entertainment and accommodation sector has significant scope for saving resources and reducing waste. This plan focuses on environmental sustainability to reduce costs, attract more customers and engage employees throughout the sector.

Image: Living colour display City of Sydney.
© City of Sydney



Whether it is for managing heat – or for addressing mental health issues, happiness levels, physical activity, or reduced incidence of disease and illness – an increase in canopy cover, green space and nature provides many benefits for the community.

Image: Green Square © City of Sydney

Greening Sydney Strategy

Research shows that green infrastructure is vital for human health and for tackling climate challenges. We developed our first Greening Sydney Plan in 2012, which included programs and measures to increase canopy cover, biodiversity and nature in our city, and to expand and improve our open spaces and streetscapes. Our key achievements include increasing canopy cover from 15.5 per cent in 2008 to 19.2 per cent in 2020.

Our revised Greening Sydney Strategy reaffirms our commitment to initiatives that will help achieve a greener, cooler, calmer and more resilient Sydney.

Based on the latest research, we aim to increase overall green cover to 40 per cent of the local area, including at least 27 per cent tree canopy, by 2050.

We have exhausted most of the opportunities for easy greening and tree planting. So we will need to use a more focused, multidisciplinary approach that involves the entire Council and the community. We also need to continue to address the complex challenges posed by climate change and the growing population. These include competition for space for new developments; growing pressure on transport infrastructure; the effects of heat, drought and air pollution on the health and biodiversity of our local ecosystem; and collaboration with government and other agency stakeholders, as well as residents and business owners.

To achieve our vision, for a cool, calm and resilient city, the revised Greening Sydney Strategy outlines six directions, and 20 supporting actions through to 2050. It will be next reviewed in 2031.

Direction 1 – Turn grey to green
 Direction 2 – Greening for all
 Direction 3 – Cool and calm spaces
 Direction 4 – Greener buildings
 Direction 5 – Nature in the city
 Direction 6 - Greening together





Attachment B

Draft Environmental Sustainability Policy

Environmental Sustainability Policy

Purpose

The City of Sydney declared a climate emergency in June 2019, stating that climate change is a risk to the people of Sydney. The declaration followed a decade where we demonstrated environmental leadership through strong and effective action in response to climate change.

We respond to the climate emergency by taking bold steps to reduce our environmental footprint and promote an ethical and equitable transition to a zero-carbon and regenerative economy. We plan for the sustainable growth of our city. We promote the move to clean energy and transport and reduce resource consumption in an equitable and inclusive way with no-one being left behind or bearing an unfair burden because of long-term structural change to jobs and industries. This policy supports the implementation of the forthcoming Environmental Strategy 2021-2025.

Scope

The policy applies to City employees, contractors, service providers, suppliers, leasers, customers, grant recipients and volunteers working with us or on our land.

This policy is to be implemented across all council functions, activities and decision making.

Definitions

Term	Meaning
Circular economy	Economic activity that is decoupled from the consumption of finite resources. A circular economy aims to keep resources in the economic system for as long as possible and phase waste out of the system. Circular economy initiatives can protect natural resources, clean the air that citizens breathe and the water they drink, whilst also making cities more efficient, prosperous and competitive.
City employees	Any person engaged in work for the City of Sydney in any of the following capacities: full-time, part-time, casual, temporary and fixed term employees, agency staff, volunteers, students on placement, and for the purposes of this policy, Councillors
Net zero	Carbon emissions are balanced by an equivalent amount of carbon offsets from projects that reduce emissions or draw down emissions from the atmosphere through sequestration. The priority is to reduce emissions first through efficiency, use of renewable energy and avoiding pollution. Any residual emissions should be offset through projects with multiple co-benefits like bush and land regeneration.
Regenerative economy	Designed so development increases the size, health and resilience of natural systems, while improving human health and life quality.
Sustainability	Meeting the social, environmental and economic needs of the present without compromising the ability of future generations to meet their own needs, through robust governance.
Sustainability impacts	Include: <ul style="list-style-type: none">• climate change impacts• depletion of natural resources• land health• biodiversity• water quality• air quality

Term	Meaning
	<ul style="list-style-type: none">• social inclusion• diversity and equality• economic or social benefits for our communities

Policy statement

We respond to the climate emergency within our own operations by:

- ensuring City actions are inclusive, ethical and equitable in the transition to a zero-carbon and regenerative economy
- working with Aboriginal and Torres Strait Islander groups and investing in knowledge and practices that restore natural equilibrium by caring for Country
- integrating climate emergency assessment into our decision making to build resilience into our functions, activities and asset management
- minimising environmental lifecycle impacts through procurement including prioritising low or zero carbon products, services and assets
- ongoing commitment to remain a carbon neutral organisation certified by the Climate Active program
- ensuring everyone who works for or with the City has a strong awareness of this policy and are empowered to act on these commitments.

We embed climate emergency principles into our engagement with our community and our stewardship of our local area by:

- committing to a water sensitive city by increasing the use of recycled water, managing potable water use, improving the quality of waterways and reducing local flood risk
- championing a circular economy to eliminate waste, minimise raw material use and treat waste as a valuable resource to regenerate natural systems
- reducing emissions by changing the way people travel, with less private vehicle travel and more use of walking, bicycle riding, public transport and ride share. We also promote and facilitate zero emissions transport
- increasing canopy cover on public and private land to enhance greening and urban cooling
- improving the city's urban ecological value by preserving and reinstating Indigenous plants and promoting biodiversity
- respecting and caring for the natural environment, taking a no harm approach that ensures compliance with legislative requirements, demonstrates best practice and continual improvement of environmental performance
- communicating the latest reliable climate science and projections, being transparent about our environmental performance and sharing our successes to demonstrate environmental leadership
- partner with our communities, businesses, state and federal government agencies to take positive climate action.

Responsibilities

All employees will:

- comply with the policy

Managers or supervisor/team leaders will:

- be responsible for implementing this policy within their units
- ensure that employees have a strong awareness of and comply with this policy.
- ensure that appropriate activities and responsibilities are set out in the relevant position descriptions, to deliver on the policy and relevant strategies and action plans.

The Sustainability Director will:

- maintain this policy
- provide appropriate and regular training to staff to empower and support them to apply the policy
- ensure business unit managers are aware of their responsibilities

Consultation

The units consulted were:

- City Projects and Properties
- City Services
- City Life
- City Planning, Development and Transport
- People, Performance and Technology
- Finance
- Legal and Governance.

References**Laws and Standards**

- Local Government Act 1993 (NSW)
- Commonwealth Procurement Rules 2012
- NSW Procurement Policy Framework (2015)
- Environment Protection and Biodiversity Conservation Act 1999 (Cth)
- Coastal Management Act 2016 (CM Act)
- Contaminated Land Management Act 1997
- Water Management Act 2000 (NSW)
- Product Stewardship Act 2011
- Recycling and Waste Reduction Act 2020
- Waste Avoidance and Resource Recovery Act 2001 No 58
- Protection of the Environment Operations (Waste) Regulation 2014
- NSW Electricity Supply Act 1995
- NSW Electricity Supply (General) Regulation 2014
- NSW Energy Savings Scheme Rule 2009
- NSW Electricity Infrastructure Investment Act 2020
- NSW State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004
- NSW State Environmental Planning Policy (Design and Place)
- NSW Draft Clean Air Strategy 2021
- ISO14001 Environmental Management System

Policies and Procedures

- Environmental Strategy and Action Plan 2021-2025
- Climate Emergency Response
- Stretch Reconciliation Action Plan 2020-2023
- Sustainable Event Guidelines
- Sustainable Procurement Policy
- Sustainable Procurement Guidelines

Laws and Standards
<ul style="list-style-type: none">Sustainable Design Technical Guidelines

Review period

This policy will be reviewed every 4 years.

Approval Status

The City of Sydney Council approved this policy XX/XX/2021.

Approval History

Stage	Date	Comment	TRIM
Original Policy	[] May 2021	Policy developed to support the implementation of the Environmental Strategy 2021-2025.	<u>2021/082271</u>
Commence Review Date	[] September 2024		
Approval Due Date	[] May 2025		

Ownership and approval

Responsibility	Role
Author	Manager Environmental Projects
Owner	Sustainability Director
Endorser	City of Sydney Executive
Approver	City of Sydney Council

Attachment C

Making Sydney a Sustainable Destination

Making Sydney a Sustainable Destination

August 2018



A plan for environmental sustainability
in the accommodation and entertainment sector





Contents

01	Executive summary	4
02	Our vision for Sydney as a sustainable destination	12
03	About the sector	13
04	Environmental performance in the sector	15
05	Challenges	19
06	Opportunities	21
07	Industry action – and support from the City	24
08	Plan development and reporting	33
09	Appendix A: Carbon reduction measures, assumptions and actions	35

01 Executive Summary

Together we can build Sydney's reputation as a leading sustainable destination for tourist and business travellers.

In creating Sustainable Sydney 2030, Sydney's community members – residents, visitors, workers and businesses – established their vision of a sustainable future. To support achieving this vision, the City of Sydney has set bold targets including a 70 per cent emissions reduction for the local government area from a 2006 baseline, and net zero emissions by 2050. These targets are in line with the historic 2015 Paris Climate Agreement, which commits over 130 parties, including Australia, to pursue efforts to limit the global temperature increase to less than 1.5 degrees.

The city's accommodation and entertainment sector has a crucial role to play in helping to achieve these targets and in doing so can leverage significant economic opportunities.

Environmental sustainability in Sydney's accommodation and entertainment venues can lead to long-term economic savings of up to \$32 million by 2030, and new market opportunities that in turn boost visitor numbers and local employment figures.¹

The landscape in which the city's accommodation and entertainment venues operate is changing. By 2025, the millennial generation will represent 75 per cent of the global workforce. This generation expects businesses to be active citizens and demands that those businesses help them live sustainably. A study by Nielsen revealed that about 72 per cent of millennial respondents were willing to pay extra for sustainable offerings.

¹ Interim (2022) and 2030 Abatement Potentials: Final Report, Strategy. Policy.Research., 2017



Chinese New Year festivities in Darling Harbour, February 2017. Photographer Damain Shaw / City of Sydney

The market for business meetings and events is worth billions globally and sustainability in business events is a global growth market. This is driven by the rise of corporate social responsibility (CSR) and the growth of the green economy.²

This plan supports accommodation and entertainment businesses owners and operators to reduce their environmental impact, in turn saving money, engaging staff and improving guest experience. By responding to this changing demand, businesses will not only remain competitive, but will likely win more of the growing market for sustainable goods and services.

The accommodation and entertainment sector has substantial environmental impacts and in 2015/16 was responsible for 21 per cent of the city's total greenhouse gas emissions, 14 per cent of potable water consumption and 47 per cent of the city's commercial waste, only 50 per cent of which is recycled .

The plan identifies actions for industry to lesson this environmental impact and realise business benefits, including: resource-efficiency upgrades, better waste minimisation processes, higher energy performance standards for new buildings and major refurbishments, including making 6 Star NABERS Commitment Agreements for new hotels. These measures will provide long term economic savings.

The City is dedicating resources to support the sector in taking action. We will provide grants for environmental ratings and assessments. We will promote ways in which the sector can improve its environmental performance, focusing on the business benefits of investing in environmental upgrades. To attract more business events we will work with industry to promote Sydney's environmental performance. And to reinforce the business case for this change, we will advocate that corporations and government agencies preference accommodation and entertainment venues with environmental performance ratings.

These initiatives need to be matched by a substantial increase in renewable energy supply in order for the sector to be on track for net zero emissions.

The City will work with State and Federal government to increase the share of renewable energy into the grid. Stakeholders in the accommodation and entertainment sector can contribute by purchasing GreenPower and investing in onsite solar PV installations where practical.

² "Sustainable Destination Management Trends and Insights: A Path to a Brighter Future", MCI Sustainability Services

³ Environmental Sustainability Platform, City of Sydney 2017

Making Sydney a Sustainable Destination

Sector emissions reductions and measures

Between 2005/06 and 2015/16, emissions from the sector fell 37 per cent.

If the below policy measures are implemented through delivery of the actions in this plan, sector emissions could:

- Reduce by 47 per cent by 2021/22 (from 2006 levels)
- Reduce by 61 per cent by 2029/30 (from 2006 levels)

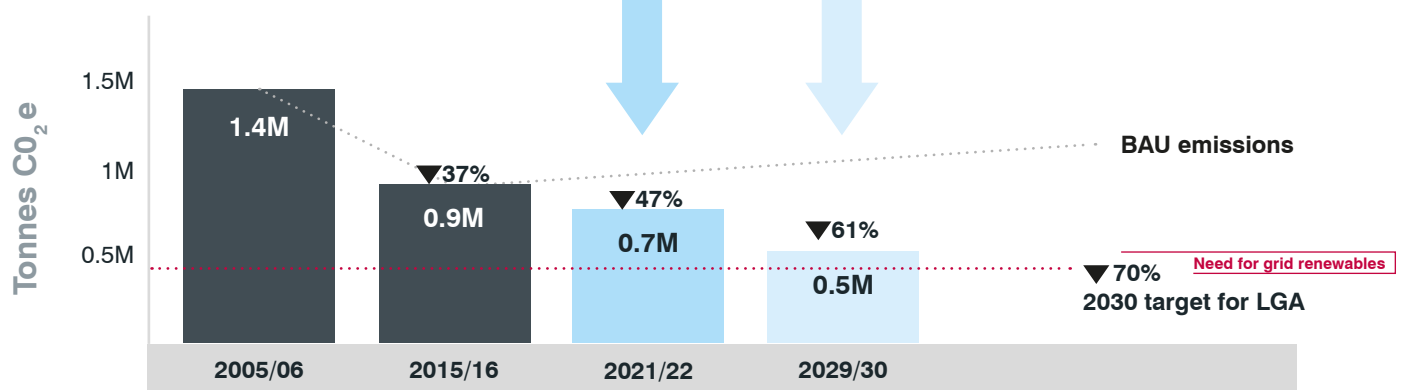
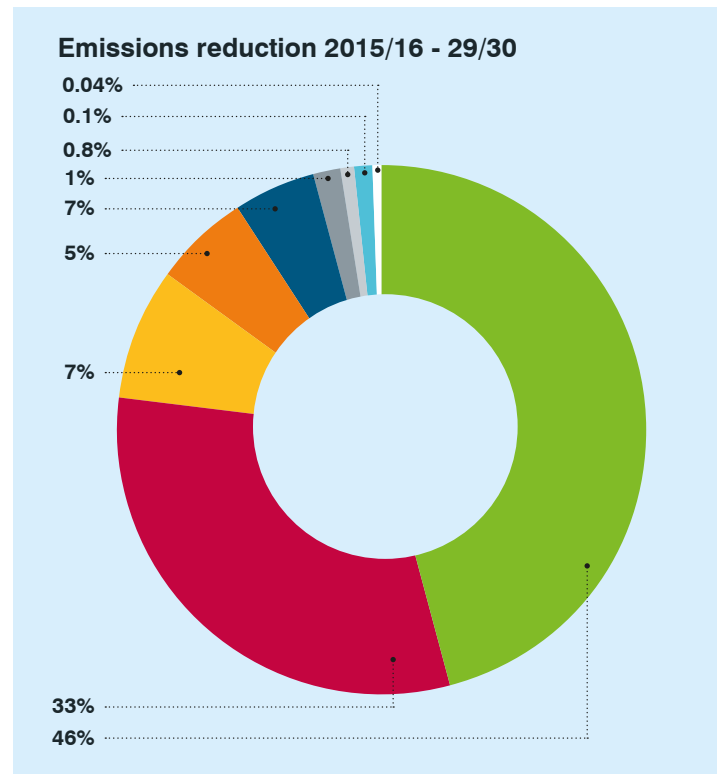
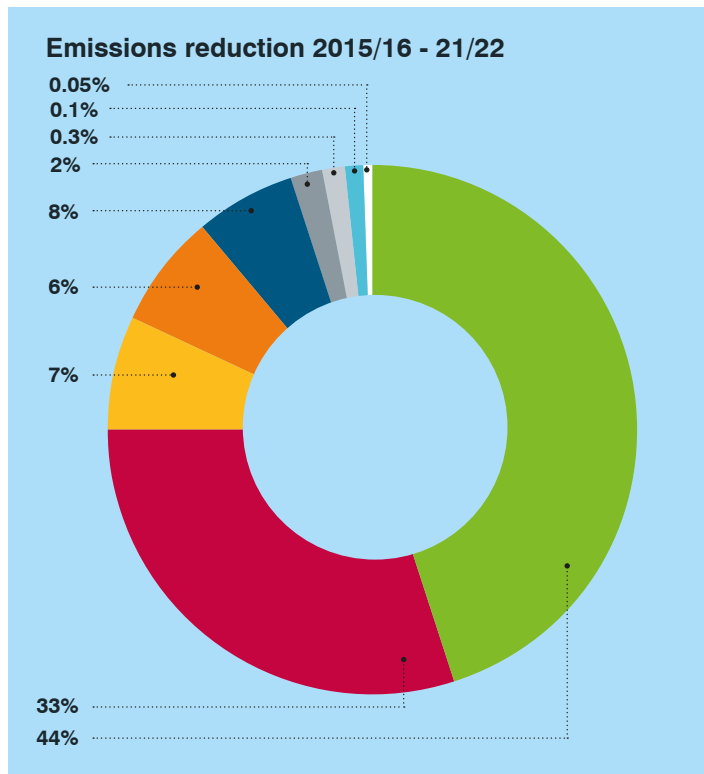
However, there is still a significant gap before the sector's emissions reach the level that the City is aiming for across the local government area - 70 per cent reduction by 2030 from 2006 levels. And an even greater gap exists to the net zero by 2050 target. This gap must be filled by a large increase in renewable energy in the grid, and potentially other energy efficiency measures not yet identified.

More detail on the assumptions behind each measure is available in Appendix A. Please note that this set of measures is not exhaustive and the City anticipates that additional reduction opportunities will be identified.

Carbon emissions reductions

- Commitment to net zero
- Enhanced waste recovery
- Higher standards for new building work
- Building tune ups
- Building retrofits

- On-site solar PV (not including large scale RECs)
- 6 Star Commitment Agreement
- Restaurants - Lighting Upgrades
- Restaurants - Water Upgrades



* Emissions numbers include electricity, gas, waste but not transport



Sydney Opera House

Under business as usual conditions, continuation of current trends in energy efficiency and policy drivers would deliver a reduction in emissions intensity, however this would be offset by projected growth in the sector's floor space. Without implementation of the actions in this plan, emissions for the sector are predicted to increase to 7 per cent above 2015/16 levels by 2029/30.

The actions in this plan can also enable the sector to deliver:

- Zero increase in potable water use from 2006 baseline by 2021/22; and a 9 per cent reduction by 2029/20, achieved through water efficiency and recycled water
- An increase in resource recovery to divert 70 per cent of waste from landfill by 2021/22; and up to 90 per cent by 2029/30.

Actions

This plan outlines opportunities and areas of action for:

- Sector leaders - owners and operators
- Accommodation owners and operators
- Entertainment owners and operators
- Event organisers and their clients
- Building developers
- Government organisations
- Visitors and delegates
- Restaurants, bars and other businesses

The following table summarises these actions and also the ways in which the City will provide support.

Industry action and City support

Sector leaders – owners and operators

- Show commitment to environmental leadership
- Undertake building retrofits to achieve environmental outcomes, where cost effective
- Collaborate on best practice models
- Advocate for increased minimum standards and policy reform to reward environmental performance

City support

- Encourage and support collaboration between sector leaders to facilitate building retrofits, recognising best practice, showcasing business benefits and supporting advocacy for policy reform to affect sector-wide change
- Proactively work with the operators of City-owned properties to influence positive environmental outcomes

Accommodation owners and operators

- Use environmental performance ratings to benchmark and identify opportunities for improvement; and publicly report ratings
- Commit to achieving net zero emissions from your building and develop a pathway to get there, including, but not limited to, purchasing renewable energy
- Install on-site solar where possible
- Require better waste data and management solutions from contractors
- Encourage staff and guests to use active transport, promoting the City's bike maps, free route planning service, and bike hire companies servicing the city area
- Provide incentives to guests to reduce their impact
- Use recycled water for cooling tower use where possible

Entertainment owners and operators

Privately owned entertainment venues can:

- Use environmental performance ratings to benchmark and identify opportunities for improvement; and publicly report ratings
- Commit to achieving net zero emissions from your building and develop a pathway to get there, including, but not limited to, purchasing renewable energy
- Install on-site solar where possible
- Promote accommodation with environmental performance ratings to clients and visitors
- Encourage visitors to walk, cycle and use public transport options where possible
- Require better waste data and management solutions from contractors

In addition, government-owned entertainment venues can:

- Access support to achieve the Government Resource Efficiency Policy (GREP) targets from the Sustainable Government Team, which provides support to meet policy obligations

Tenants and production companies can:

- Request venue owners and operators to improve environmental performance and take short-term steps such as asking for energy and water-intensity data, what efficiency measures have been implemented by the venue, and if sub-metering is in place

City support

- Provide grants for independent ratings and assessments
- Support environmental innovation through the provision of grants and the sharing of success and knowledge
- Assess the barriers to recycled water uptake and identify solutions
- Develop and deliver a tune-up program supporting owners and operators to improve the environmental performance of their buildings
- Encourage and support collaboration between sector leaders to facilitate building retrofits, recognising best practice, showcasing business benefits and supporting advocacy for policy reform to affect sector-wide change
- Distribute wayfinding maps and signage, and information on cycling and walking in the city
- Collect a suite of sustainable tools with business value and disseminate through industry association newsletters, conferences and workshops promoting business benefits
- Promote the use of the updated Guidelines for Waste Management in New Developments
- Influence private sector companies to institute a policy for staff and events to use hotels/venues with independent environmental performance ratings
- Support the identification of skills and training gaps as the sector progresses to deeper environmental upgrades and work with industry to address these
- Collect energy, water and waste-intensity data to track industry progress
- Identify priority waste streams, investigate opportunities, and disseminate proven solutions through industry channels
- Support owners/operators to pilot new waste technology and innovations
- Support the development of waste education, engagement and incentives tailored for hotel housekeeping systems and staff
- Advocate for state government agencies to standardise waste data collection definitions and processes and reinstate annual reporting

Event organisers and their clients

- Actively promote Sydney's sustainability credentials
- Incorporate environmental performance ratings on supplier listings
- Ensure procurement policies and events criteria give preference to service providers demonstrating environmental performance
- Implement best practice event waste management practices
- Require better waste data and management solutions from contractors
- Provide bike valet parking at events

City support

- Publish a list of accommodation providers with recognised environmental ratings to assist event organisers and corporate and government clients to evaluate the environmental performance of providers
- Work with online booking agents to incorporate environmental performance ratings in their listings
- Assist with bids for major events by providing information on Sydney's sustainability, the city's environmentally rated hotels and venues, walking and cycling paths, and sustainable events, experiences and/or tours
- Work with Business Events Sydney and Destination NSW to improve Sydney's listing on the Global Destination Sustainability Index as part of a broader campaign to promote Sydney as a sustainable event destination
- Partner with media and industry associations to profile business benefits gained by the sector from improving environmental performance
- Distribute wayfinding maps and signage, and information on cycling and walking in the city
- Identify priority waste streams, investigate opportunities, and disseminate proven solutions through industry channels
- Measure the environmental impacts of City events, improve performance and report outcomes

Industry action and City support

Developers

- Commit to the highest NABERS energy Commitment Agreement, (and other NABERS CAs as they become available)
- Install on-site solar where possible
- Install the highest standard WELLS rating water fixtures for water efficiency
- Look to be dual-plumbed for recycled water use, where there will be a source of recycled water
- Provide suitable waste management infrastructure for maximum resource recovery as per the City's Waste Management in New Development Guidelines.
- Provide ample, well located bike parking for staff and visitors

City support

- Provide grants for independent environmental ratings and assessments
- Encourage the design, construction and operation of net zero hotels, both new and existing
- Investigate the inclusion of planning control provisions that introduce NABERS Energy Commitment Agreements, for new hotels and major refurbishments.

Visitors and delegates

- Choose environmentally rated accommodation, engage with sustainability initiatives such as walking, cycling and using public transport wherever possible
- Ask for information on the City's Culture Walks app, bike maps, free route planning service, and bike hire companies servicing the city area, from traditional bike tours to electric bicycles

City support

- Investigate options for the best way to provide city-wide public domain wifi
- Distribute wayfinding maps and signage, and info on cycling and walking in Sydney
- Support the advocacy of industry associations for:
 - The removal of airport station access fees
 - Train travel to be promoted by event and conference organisers
 - Event and conference organisers recommending hotels with environmental ratings

Government

Australian Government

- Increase National Construction Code (NCC) minimum environmental performance standards for building and refurbishments (Responsibility of the Council of Australian Government's Australian Building Codes Board)
- Increase compliance with NCC minimum environmental performance standards for building and refurbishments (Responsibility of the Council of Australian Government's Australian Building Codes Board)
- Consider green depreciation for building owners undertaking refurbishments as part of the potential Commonwealth tax reforms
- Promote the National Carbon Offset Standard for Carbon Neutral Buildings to building owners; and develop programs to encourage certification

NSW Government

- Commit to achieving net zero emissions from government buildings and develop a pathway to get there, including, but not limited to, purchasing renewable energy
- Adopt policies to procure accommodation and event venues with environmental performance ratings, moving to minimum ratings when capacity has been built in the market
- Develop case studies on how to include environmental credentials of hotels in procurement policies
- Deliver waste market reform to incentivise resource recovery

City support

- Advocate for increased minimum environmental performance standards in building codes and appliances
- Advocate for government agencies to adopt policies to procure accommodation and event venues with independent environmental performance ratings

Restaurants, bars and other businesses

- Upgrade to energy-efficient lighting and water-efficient fixtures
- Improve recycling and waste management by undertaking a waste audit and talking to neighbours and building owners about better waste management
- Request on-street visitor bike parking from the City
- Explore partnerships and services to reduce environmental impact

City support

- Collect a suite of sustainable tools with business value and disseminate through industry association newsletters, conferences and workshops promoting business benefits
- Provide practical information on money-saving measures when the City's environmental health officers visit to complete compliance checks
- Provide on-street visitor bike parking (subject to space availability)
- Identify priority waste streams, investigate opportunities, and disseminate proven solutions through industry channels

02 Our vision for Sydney as a sustainable destination

Accommodation and entertainment providers with high environmental performance ratings will benefit from the growing demand for sustainable venues and experiences

By 2030, the sector can reduce its emissions by 61 per cent and potable water use by approximately 9 per cent. The sector can also aim to increase its resource recovery to 90 per cent, in line with the City's target for the whole commercial sector.

Vision for the sector in 2030:

- New developments are designed and constructed to the highest level of sustainability performance available
- Existing accommodation and entertainment venues continuously improve resource efficiency and disclose their environmental performance with the aim to be net zero by 2050
- Government and corporate business procurement policies specify minimum environmental ratings for suppliers of accommodation and venues
- Sector leaders collaborate on best practice environmental performance and access to renewable energy supply
- Tools and resources are available to address barriers to resource efficiency and continuous improvement
- Businesses have the skills and capacity to design, develop, measure and manage environmental performance in buildings
- Visitors seek out businesses that help them enjoy Sydney sustainably and prioritise active and public transport options
- Disclosure of rating data and information on environmental performance allows the City to recognise leadership and results.

03 About the sector

Over 14 million visitors come to Sydney each year

The accommodation and entertainment sector makes a significant contribution to the local economy. Over 14 million visitors came to Sydney in 2017, making Sydney Australia's largest accommodation market. Accommodation buildings in City of Sydney are worth about \$7.8 billion⁴. Visitors contributed over \$16.7 billion to metropolitan Sydney's economy in 2017.⁵

The City's 2015 Visitor Accommodation Action Plan⁶ encourages new and diverse hotel developments to accommodate a growing number of visitors. Currently, 15 hotels and 5 serviced apartments are expected to be built within our local government area over the next 5 years. Online platforms such as Airbnb and Stayz have also contributed to new tourist accommodation supply through people sharing their homes. This growth will build on the city's current hotels to help Sydney remain Australia's premier destination.

There are 45 major entertainment venues in the City's area. These include convention, sporting, exhibition and conference venues, from the Sydney Opera House, International Convention Centre, Sea Life Sydney Aquarium and the Sydney Cricket Ground to the Entertainment Quarter and Fox Studios.

Industry associations that represent the sector are key to influencing industry. Providers of event services, booking agents and government agencies that promote tourism to Sydney and organise events and exhibitions are also important.

The city's accommodation is made up of:



20,000
hotel rooms



5,500
serviced apartment
rooms



7,000
backpacker
hostel beds



6,000+
short term letting
listings



Hotels account for **70%**
of the floor space dedicated
to visitor accommodation.

⁴ As of September 2013 and based on 23,128 rooms as per Jones Lang LaSalle (JLL), Sydney Hotels Supply & Demand Study: Stage 1, November 2013, p. 63

⁵ 'Destination NSW Travel to Sydney 2017 Report'

⁶ http://www.cityofsydney.nsw.gov.au/_data/assets/pdf_file/0003/238422/Visitor-Accommodation-Action-Plan.pdf

Making Sydney a Sustainable Destination

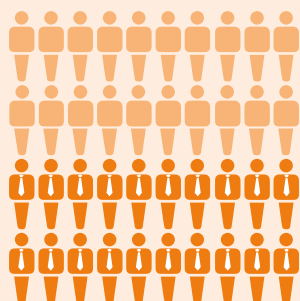


Chinese New year festivities, Circular Quay, January 2017. Photographer Jessica Lindsay

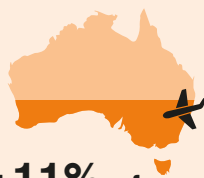


Visitors contributed:
\$16.7 billion
to metropolitan Sydney's
economy in 2017.

Over 14 million
visitors come to Sydney
each year



33% of domestic



and 11% of international visitors come for business⁷



⁷ 'Destination NSW Travel to Sydney 2017 Report'

04 Environmental performance in the sector

More accommodation and entertainment providers could take the opportunity to improve their environmental impact, report their performance and gain business benefits

This sector has substantial environmental impacts. Accommodation needs lights, air conditioning and ventilation 24 hours a day. Entertainment venues also use energy-intensive stage lights, sound systems and air conditioning.

Food and beverage services significantly add to energy and water consumption and waste generation. Up to one-third of commercial waste is food; greenhouse emissions from food waste are 20 times that of carbon dioxide emissions. Paper and plastic are the two other major components of commercial waste; these resources can be recycled.

This sector has substantial environmental impacts and is currently responsible for:



21% of the city's total GHG emissions

14% of potable water consumption



47% of the city's commercial waste



of which only **50%** is recycled



Sydney Opera House, December 2015. Photographer Brett Hemmings / City of Sydney / Getty Images

4.1 Existing buildings

Many accommodation and entertainment providers have taken up popular initiatives such as recycling, energy-efficient lighting retrofits and water-saving projects⁸, but more can be done.

Less than 30 per cent of Sydney's accommodation and entertainment venues rate their environmental performance through recognised ratings. Ratings provide various benefits, from improving asset value, operational efficiency, benchmarking performance, guest experience and/or staff satisfaction.⁹

The low uptake of environmental ratings is likely due to a low level of awareness by owners and operators of such ratings and perceived lack of demand by the market.³ Some businesses without ratings may have made environmental improvements, but it is difficult for the market to compare and reward businesses that do not disclose their performance.

Over the last 3 years, the City's Smart Green Business program has worked with over 230 businesses in the accommodation and entertainment sector on improving their environmental performance. Each business has cut operational costs by an average of \$15,940 per annum, through average reductions of 3.7 million litres of potable water, 39 tonnes of waste to landfill and 56 tonnes of carbon emissions.

Schwartz hotels reduce impact

The Schwartz Family Group implemented Smart Green Business' resource efficiency recommendations, reducing water use by 17 megalitres per annum across the portfolio, leading to energy-related hot water savings of over 830,000 megajoules per annum. The Group is also diverting 374 tonnes of materials from landfill each year. The combined projects achieve a total greenhouse gas emissions reduction of 487 tonnes per annum and reduced operating costs are estimated to be \$124,000 year on year.

Schwartz hotels participating in Smart Green Business include Mercure, IBIS World Square and IBIS King Street Wharf.

Sydney Opera House upgrades

The Sydney Opera House has invested in environmental performance upgrades and is using the Green Star tool to benchmark performance. The Sydney Opera House was awarded a 4 Star Green Star 'performance rating' in 2015 by the Green Building Council of Australia. Upgrading the lighting systems in the Concert Hall reduced electricity consumption from lighting by 75 per cent, and resulted in annual savings of \$70,000 per year. The Sydney Opera House is also EarthCheck certified and in 2016 released their Environmental Sustainability Plan. The plan outlines long term goals for the Opera House including carbon neutrality, a 5 Star Green Star 'performance rating' and 14 per cent energy savings.

⁸ Accommodation & Entertainment Sector Survey prepared for the City of Sydney by Woolcott Research and Engagement – June 2016

⁹ City of Sydney Accommodation and Entertainment Stakeholder Engagement



Town Hall House solar panels, October 2010. Photographer: Paul Patterson

4.2 New buildings

Sydney has had a shortage of accommodation supply, particularly in 3 star hotels. In recent years, there has been strong growth in the supply of short-term holiday letting by online providers.¹⁰ There are now 20 new accommodation developments in the planning pipeline, which will provide 3,000 new rooms in the next 5 years.¹¹

While these new developments must comply with the National Construction Code (NCC), the NCC's efficiency requirements fall short of securing environmental performance in operations. Unfortunately, at present only 36 per cent of these new developments showed some level of commitment beyond the minimum NCC compliance standards. Only 20 per cent are committing to environmental ratings in design and construction.¹²

In relation to water fixtures, approximately one-half committed beyond the minimum NCC compliance standards and 34 per cent have committed to installing the highest performing Water Efficiency Labelling and Standards Scheme (WELS) water appliances currently available.

Owners and operators are increasingly aware of the asset and operational value of sustainable high performance buildings, but are often not involved in the planning of infrastructure and services in design and construction. More often than not properties are bought and management rights contracted after the property is designed and constructed. This misses the most cost-effective opportunity to secure resource efficiency in operations – in the process of design and construction.

In some cases, new developments need to balance heritage issues as well as sustainability. The Sydney Opera House lighting upgrade and Sydney Town Hall solar photovoltaic installation are good examples of how environmental sustainability can be incorporated without compromising heritage value. Owners and operators stand to benefit from investments in design, amenity and environmental sustainability that respect heritage value.

Our surveys¹³ show the sector is willing to adopt further environmental practices and ratings, particularly where financial advantage and a point of difference can be gained.

Low levels of awareness and knowledge may be inhibiting further uptake of environmental sustainability. There may be a need to promote environmental rating tools and ways in which the sector can improve its environmental performance, focusing on the business benefits of investing in environmental upgrades.

¹⁰ City of Sydney Visitor Accommodation Action Plan 2015

¹¹ City of Sydney Visitor Accommodation Monitor

¹² City of Sydney review of ESD commitments in development applications

¹³ City of Sydney Accommodation and Entertainment Stakeholder Engagement



International Convention Centre, Darling Harbour. Photo: ICC Sydney

International Convention Centre

The International Convention Centre Sydney (ICC Sydney), is part of the Darling Harbour precinct. The precinct was successfully awarded a 6 Star Green Star Communities v1 rating from the Green Building Council of Australia. The Convention Centre is also set to achieve a Gold Certification in Leadership in Energy and Environmental Design from the US Green Building Council.

The ICC Sydney is home to the first community-funded solar energy project. The 520kW array powers approximately 5 per cent of the baseline energy for the ICC. The not-for-profit provider of the community solar project was supported with an innovation grant from the City.

The ICC Sydney recycled 91 per cent of total construction waste and has systems in place to meet its target of diverting 75 per cent of its operational waste from landfill. A rainwater harvesting system will meet 100 per cent of irrigation and 63 per cent of toilet flushing demands. Design targets for the building include 20 per cent less greenhouse gas emissions, 25 per cent less energy and 14 per cent less potable water than minimum requirements¹⁴.

Only about 20 per cent of hotels currently in planning and development stages in the City are committing to environmental ratings in design and construction.

¹⁴ <http://www.iccsydney.com.au/social-responsibility>

05 Challenges

Accommodation and entertainment venues can be twice as energy intensive as office buildings and three times that of residential apartments.

Operations round the clock, commercial kitchens, on-site laundry services and conferencing facilities in hotels, and the heating and cooling of large open spaces in entertainment theatres and museums, all use vast amounts of energy. Showers, baths, pools and gardens mean these venues are also water intensive. Commercial food and beverage services also require water and generate significant levels of waste.¹⁵

5.1 Competing business priorities and split incentives

With a shortage of supply, Sydney hotels have enjoyed high occupancy and room rates in recent years.¹⁶ Investment in sustainability in new hotel developments and upgrades to existing visitor accommodation can be hard to warrant when business is good.

Looking at the building life cycle, the majority of a building's impact is in operations, but the most cost-effective time to secure environmental performance is in design and construction. Therefore for new developments, the incentive to invest in environmental performance is split. The costs are borne by the developer but the benefits go to the final owner and operator.

Ideally, collaboration would be encouraged between the developer, the owner and the operator to maximise the sustainability of design and infrastructure to secure environmental performance in operation.

Developers will only prioritise the integration of sustainability design and construction when there is broad demand for accommodation with environmental performance from owners, operators and visitors.

While operators understand the business case for environmental performance, with benefits in lower costs and increased revenue, capital constraints are a significant barrier for existing buildings to improve performance. Energy use is often controlled by the operator, while investment in the building and its infrastructure is controlled by the owner. Operators are driven by profit and loss, owners by investment return and low overheads. Essentially, efficiency is advantageous to both parties in profit share and asset value, but currently, environmental projects compete with 'front of house' priorities.

¹⁵ Accommodation & Entertainment Sector Emission Modelling Final Foundation Report, Pitt & Sherry 2016

¹⁶ JLL Sydney Hotels market report



Cafe Sydney, Customs House, July 2015. Photographer: Josef Nalevansky

5.2 Low minimum standards

All new buildings need to comply with the mandatory provisions of the National Construction Code, but these fall short of securing sustainability in operation.

The City's Development Control Plan encourages applicants to implement the principles of ecologically sustainable development but these are guidelines rather than requirements.

5.3 Perception that environmental sustainability compromises luxury

Quality upgrades contribute to and secure guest experience and amenity now and in the future. Environmental sustainability does not compromise luxury, but rather secures the potential to experience luxury, for future generations.

Smart Green Business participants have seen the benefits of environmental sustainability, for example, having implemented water-efficiency retrofits with no guest complaints. To the contrary, guests and staff welcome environmental initiatives.

5.4 Awareness and information

The broader industry is less aware of the business benefits of sustainability and the available information, resources and incentives. Specialist advice is often required and time-constrained building engineers often rely on product and service providers for information, who may not provide independent advice on environmental performance options.

“The market is not dictating that we have to be green. If guests are not demanding it, there is no interest in larger upgrades. When they start demanding sustainability, upgrades will happen promptly”

Hotel operator

This type of information has in the past been disseminated through industry associations, but industry focus on the issue fell away with the abolition of the carbon tax. Proactive individuals can access information through a proliferation of membership organisations, sustainability programs and environmental rating schemes.¹⁷

5.5 Lack of incentives

Ultimately, the major challenge is the lack of incentive to invest when there is a shortage of supply and high occupancy rates. While some government and corporate bodies specify sustainability as a condition for their staff accommodation and events, for the majority, availability, price and location take precedence.

06 Opportunities

Stronger environmental standards, coordinated advocacy, and partnerships could create many more business opportunities

6.1 New developments

The City of Sydney and the NSW government have committed to achieving net zero emissions by 2050. New developments are important opportunities to ensure new buildings don't lock in increased emissions and poor resource efficiency.

New accommodation and entertainment developments have the opportunity to design to the highest level of environmental rating for performance, operational efficiency and long-term asset value.

Strengthening the minimum standard through the National Construction Code will happen in time, but owners and developers can now envision what hotels should look like in 2050 to secure premium hotels with best practice in sustainability.

New hotels can anticipate accommodating the growing market of sustainable business events; government departments and corporations with sustainability policies; and the luxury leisure visitor looking to have an impact-free, guilt-free stay.

Designing to the highest sustainability standard, new developments would be future-proofed for a more discerning market, meeting more than the current minimum standards and avoiding the future need for costly retrofits.

The NSW Office of Environment and Heritage has recently developed a NABERS Energy Commitment Agreement tool for hotels. Analysis undertaken for this plan determined that significant emissions savings can be achieved if new hotel developments make high rating NABERS Energy Commitment Agreements. This could be achieved by amending the City's planning controls to specify minimum standards, which would require the support of the state government. The City will investigate the inclusion of planning control provisions that require new hotel developments or major refurbishments to make minimum NABERS Energy Commitment Agreements.

6.2 Resource efficiency

As noted earlier, buildings designed for leisure and entertainment tend to be resource intensive. For example, hotels are twice as energy and water-intensive than office buildings in impact per square metre. This intensity can mean that efficiency measures can result in greater environmental and economic savings on a per site basis. Also, equipment in this sector tends to be less frequently replaced, and older centralised plant and management systems can be less efficient.

Financial savings are a significant driver for environmental upgrades, to both owners and operators. Capital is the greatest hurdle. In the City of Sydney, 75 per cent of accommodation is hotels, the majority operated under Hotel Management Agreements. Hotel Management Agreements tend to be long-term, sometimes 10 to 25 years, so are a good platform for collaboration between owners and operators.

Hotels are typically valued on a net revenue multiplier; therefore, any reduction in costs should have a positive impact on valuation. For example, a new chiller for a hotel property that is set to decrease energy costs by \$50,000 may not represent big savings, but the overall impact on value of the asset could be as much as \$500,000-\$600,000, depending on the yield applied.

The greatest cost for hotel operators is staff. Turnover is high compared to other sectors, so engaged employees can save recruitment and training costs and drive performance. Operators noted that resource efficiency initiatives are often very effective in engaging and ultimately retaining staff.

“Our guests are very happy with the quality and feel of the low flow showers. No one has suggested they are not luxurious.”

Hotel operator

6.3 Demand for sustainable events and business travel

Sustainability is a growth area in the global events industry.¹⁸ New industries in renewable energy, electric cars and ecological design, as well as the rise of corporate social responsibility, are leading to sustainability considerations being integrated into the governance and decision-making of major corporate clients. Government and industry associations are updating procurement policies to secure supplier standards that go beyond safety – to sustainability.

Good sustainability policy and practice is a competitive advantage in business events and meetings. The majority of international event clients now cite sustainability in their specifications and criteria. These specifications are increasingly part of a comprehensive sustainability strategy, rather than a one-off event requirement.

Environmental sustainability can now be key to winning contracts for these major clients. And organisers can access resources, standards and rating tools to assist them to meet client requirements, integrate sustainability and choose suppliers who demonstrate sustainability.

The new International Convention Centre Sydney lifts Sydney's sustainable event credentials. Business Events Sydney, experts in winning international events, welcome Sydney's listing on the Global Destination Sustainability Index (GDS-Index).

Global Destination Sustainability Index (GDS-Index)

The GDS-Index is a collaborative business initiative created to help destinations, convention bureaux, event planners and suppliers drive the adoption, promotion and recognition of responsible practices in the business tourism and events industry. The GDS-Index does this by measuring and comparing the social and environmental sustainability strategies, policies and performance of participating destinations and by sharing best practice from around the world. In 2017 Sydney was ranked joint 15th.

<http://gds-index.com/>

6.4 Enhanced waste recovery

Food waste is estimated to represent up to one third¹⁹ of waste generated by this sector. For many businesses food waste is sent directly to landfill. This presents an opportunity to improve the environmental performance of the A&E sector through waste avoidance and recycling. Waste avoidance can deliver reduced energy consumption, water use, cost and less waste being sent to landfill. Food waste that does occur has the potential to be diverted from landfill to create other products, fertilisers, animal feed and energy.

¹⁸ GDS-Index Sustainable Destination Management Trends and Insights, 2016

¹⁹ <https://www.epa.nsw.gov.au/~media/EPA/Corporate%20Site/resources/managewaste/150464-love-food-hate-waste-study.ashx>



Barangaroo Reserve, March 2017. Photographer: Katherine Griffiths

Reducing food waste at Hilton Sydney

In 2017, Hilton Sydney conducted three food waste studies as an initial step towards reducing waste and increasing diversion from landfill. The audits and follow-up actions were supported by the World-Wide Fund for Nature (WWF) and the NSW Environmental Protection Authority, as part of their 'Love Food Hate Waste' program.

As a result, Hilton Sydney introduced several innovations to reduce food waste, including:

- New waste bins and waste bin procedures to separate organic waste (mainly food) from general waste and recyclables
- A full review of recipes within food and beverage outlets, and of ordering guidelines
- Adjusting menus and reducing meals to smarter portion sizes
- Increasing donations of edible food surplus to charity:
 - 5,448 meals went to OzHarvest in 2017
 - Partnering with Addison Road Community Centre, who collect on average 40 meals per day from Hilton Sydney's breakfast buffet in glass brasserie
- Installing a Pulp Master machine which captures and transforms food and organic waste into reusable pulp, this is then sent to a biogas facility to be transformed into a renewable energy source.

In combination, the food waste initiatives have resulted in significant savings in waste disposal costs and reduced the volume of food waste by around 15 percent annually. As a result of these improvements, the overall landfill diversion rates have increased from 25 per cent to over 50 per cent.

6.5 Environmental ratings

Office buildings in Australia have been benchmarking and disclosing energy ratings since 1999. This has resulted in improvements in performance with resource efficiency upgrades in order to attract premium tenants. Environmental ratings allow businesses to understand their impact, identify opportunities and improve performance.

Public reporting can improve reputation and attract and retain new business. Owners and operators of accommodation who have implemented environmental upgrades say they have saved money, engaged staff and increased asset value. But many are not obtaining independent environmental certification to gain recognition and tap into the growing demand for sustainability services.

Scandinavian cities have high levels of third-party certification. Only 30 per cent of Sydney accommodation has environmental performance ratings, whereas in Stockholm, 80 per cent of hotels and 85 per cent of venues have independent certification.

A key requirement for the GDS-Index is the number of accommodation and venue providers with third-party certification within walking distance from sustainable venues.

6.6 Encouraging visitors to walk, cycle and use public transport

Sydney suffers traffic congestion. If a visitor's first impression of Sydney is in a taxi from the airport stuck in standstill traffic, they will not experience Sydney as a sustainable destination. Whether visitors come for business or pleasure, travel agents, event organisers and accommodation providers can encourage visitors to use the airport train and public transport, hire a bike and walk to enhance their experience and avoid traffic.

07 Industry action – and support from the City

Each part of the sector can act to improve environmental performance and enhance its offering

To seize opportunities, the sector needs to act boldly and quickly. Leaders can collaborate with each other, owners can look to invest in building upgrades, operators can rate and improve performance, organisers can foster sustainability partnerships, and clients and visitors can then reward these businesses with bookings and good reviews. It is important that all levels of government update their policies to foster businesses that contribute to environmental sustainability.

The following proposed actions have been informed by research, stakeholder consultation and emissions modelling.

7.1 Sector leaders – owners and operators

The International Convention Centre, Sydney Opera House and one-third of hotels use recognised ratings to demonstrate their environmental performance. Others take action on sustainability without using environmental ratings. These leaders report similar challenges and barriers to performance improvement and a desire to collaborate on solutions and advocacy for policy reform for sustainability.

Sector stakeholders communicated key concerns related to environmental sustainability: traffic congestion, being penalised with increased energy tariffs for efforts in energy efficiency, and the challenges of waste management contracts and data collection.

Leading owners and operators can:

- Showcase their commitment to environmental leadership
- Undertake building retrofits to achieve environmental outcomes, where cost effective
- Collaborate on best practice models and tools to address barriers to improved environmental performance
- Advocate for increased minimum standards and policy reform to incentivise and reward environmental performance.

The City will:

- Encourage and support collaboration between sector leaders to facilitate building retrofits, recognising best practice, showcasing business benefits and supporting advocacy for policy reform to affect sector-wide change.
- Proactively work with the operators of its own properties to influence positive environmental outcomes.



Vibe Hotel, Rushcutters Bay. Photo supplied by TFE Hotels

7.2 Accommodation owners and operators

Over 50 per cent of the sector's greenhouse gas emissions in 2015/16 were attributed to accommodation: hotels (42 per cent), backpackers (10 per cent) and serviced apartments (1 per cent).

Accommodation contributes 66 per cent of the sector's water consumption: over 50 per cent by hotels, 16 per cent by serviced apartments and 2 per cent by backpacker accommodation. These figures are somewhat conservative, as they do not include water consumption from restaurants and catering services.

Whereas accommodation generates relatively less waste proportional to entertainment venues, both are responsible for significant amounts of food waste and recyclables going to landfill.

However, accommodation providers reported that the business case for environmental performance retrofits is often outweighed by front-of-house upgrades. Winning business clients and better guest satisfaction as a result of environmental performance could help prioritise environmental improvements.

Sector stakeholders communicated key concerns related to environmental sustainability: traffic congestion, being penalised with increased energy tariffs for efforts in energy efficiency, and the challenges of waste management contracts and data collection.

Efficiency at TFE Group

Thirteen city hotels from the TFE Group, including Vibe, Adina and Travelodge properties, have implemented a range of resource efficiency recommendations which have resulted in positive environmental and economic outcomes. Water efficiency measures have achieved a total water reduction of 46 megalitres per annum across the portfolio. Additionally, this has led to energy-related hot water savings of 194,065 megajoules per annum. Lighting upgrades across the portfolio resulted in total energy reductions of over 115 megawatt hours per annum. Adjustments to recycling systems to maximise the capture and collection of paper/cardboard and co-mingled materials has seen their portfolio divert 259 tonnes of materials away from landfill each year.

These projects, recommended by the City's Smart Green Business Program, have delivered a total greenhouse gas emissions reduction of 477 tonnes per annum and an estimated \$185,000 in reduced annual operating costs.

Government-owned entertainment venues can access support to achieve environmental targets from the NSW Sustainable Government Team.

TripAdvisor's GreenLeaders program already provides a platform for hotels and B&Bs with environmental practices to connect with travellers seeking to reduce their environmental footprint. While this will not necessarily convince all users, making this type of information available can support sustainability; as accommodation supply increases, it allows customers to distinguish between different accommodation providers.

Owners and operators can:

- Use environmental performance ratings to benchmark and identify opportunities for improvement; and publicly report ratings
- Commit to achieving net zero emissions from your building and develop a pathway to get there, including, but not limited to, purchasing renewable energy
- Install on-site solar where possible
- Require better waste data and management solutions from contractors
- Use recycled water for cooling tower use where possible
- Encourage staff and guests to use active transport, promoting the City's bike maps, free route planning service, and bike hire companies servicing the city area
- Provide incentives to guests to reduce their impact.

The City will:

- Provide grants for independent ratings and assessments
- Support environmental innovation through the provision of grants and the sharing of success and knowledge
- Assess the barriers to recycled water uptake and develop solutions

- Develop and deliver a tune-up program supporting owners and operators to improve the environmental performance of their buildings
- Encourage and support collaboration between owners and operators to facilitate building retrofits, recognising best practice, showcasing business benefits and supporting advocacy for policy reform to affect sector-wide change
- Distribute wayfinding maps and signage, and information on cycling and walking in the city
- Collect a suite of sustainable tools with business value and disseminate through industry association newsletters, conferences and workshops promoting business benefits
- Influence private sector companies to institute a policy for staff and events to use hotels/venues with independent environmental performance ratings
- Support the identification of skills and training gaps that become apparent as the sector progresses to deeper environmental upgrades and work with industry to address these
- Collect energy, water and waste-intensity data to track industry progress
- Promote the use of the updated Guidelines for Waste Management in New Developments
- Identify priority waste streams, investigate opportunities, and disseminate proven solutions through industry channels
- Support owners/operators to pilot new waste technology and innovations
- Support the development of waste education, engagement and incentives tailored for hotel housekeeping systems and staff
- Advocate for state government agencies to standardise waste data collection definitions and processes and reinstate annual reporting.



Town Hall, February 2017. Photographer: Katherine Griffiths

7.3 Entertainment

Entertainment venues are responsible for 17 per cent of the sector's emissions, 13 per cent of water and over 20 per cent of the sector's waste.

Entertainment venues often upgrade their operational efficiency as part of continual improvement or refurbishment programs.

Venues and theatres often pass on utility costs in venue hire charges to production companies, shows or event managers. As a result, the incentive for investing in energy efficiency to benefit from lower operating costs is largely removed.

Venues do compete for shows and events, but the cost of utilities is not considered to be a significant determinant of whether a venue is chosen or not. Estimates of energy and water consumption can often be used in place of actual data when reporting. Where costs are recognised as a major expense, sub-metering should be in place.

Approximately 50 per cent of entertainment venues in the City of Sydney are government-owned and required under the NSW Government Resource Efficiency Policy (GREP) to reduce their operating costs and ensure they provide leadership in resource productivity.

Privately owned entertainment venues can:

- Use environmental performance ratings to benchmark and identify opportunities for improvement; and publicly report ratings
- Commit to achieving net zero emissions from your building and develop a pathway to get there, including, but not limited to, purchasing renewable energy
- Install on-site solar where possible

- Promote accommodation with environmental performance ratings to clients and visitors
- Encourage visitors to walk, cycle and use public transport options where possible
- Require better waste data and management solutions from contractors.

Tenants and production companies can:

- Request venue owners and operators to improve environmental performance and take short-term steps such as asking for energy and water-intensity data, what efficiency measures have been implemented by the venue, and if sub-metering is in place

How the City can help:

- Provide grants for independent ratings and assessments
- Support environmental innovation through the provision of grants and the sharing of success and knowledge
- Distribute wayfinding maps and signage, and information on cycling and walking in the city
- Collect energy, water and waste-intensity data to track industry progress
- Promote the use of the updated Guidelines for Waste Management in New Developments
- Support owners/operators to pilot new waste technology and innovations
- Support the development of waste education, engagement and incentives tailored for hotel housekeeping systems and staff
- Advocate for state government agencies to standardise waste data collection definitions and processes and reinstate annual reporting.



Vivid Sydney, Circular Quay, May 2015. Photographer: Paul Patterson

City of Sydney – leading by example:

The City owns or manages several entertainment venues including Sydney Town Hall, the City Recital Hall, the Eternity Playhouse, the Capitol Theatre and Customs House. In some cases, these venues are under long-term lease, and as a result the City has limited control over operations. Where the City has operational control over capital or maintenance, it has invested in refurbishments including lighting and heating, ventilation and air conditioning upgrades. Sydney Town Hall is now being supplied electricity from solar panels on its roof, and electricity, heating and cooling are generated by a low-carbon trigeneration system. Sydney Town Hall and Customs House are also undergoing major energy, water and waste audits to assess further opportunities for improvement. Solar power is generated on 35 City-owned properties. The City's operations are carbon neutral and we were the first government in Australia to be certified as such in 2011.

7.4 Event organisers and their clients

The City will act to reduce the environmental impact of events it approves and manages. The City's Sustainable Event Management Policy and Guidelines encourage, and in some cases require, that events authorised by the City minimise waste generation, reduce energy and water consumption, maximise recycling and the use of renewable energy, and promote principles of sustainability. The sustainability practices of contractors are also considered in the procurement process of all major projects.

In 2016, Destination NSW engaged the Banksia Foundation as the sustainability partner for Vivid Sydney. This resulted in GreenPower accreditation for the Vivid Light Walk and offsetting airline travel and accommodation for a range of artists. EarthCheck was engaged to benchmark and improve the energy, waste and transport impacts of this major international event. Vivid Sydney is just one example of an opportunity to showcase Sydney's sustainability. Vivid Sydney attracted 38,000 people for business events, a 40 per cent increase from last year, and used 60 venues within and outside Sydney.

Business Events Sydney is taking part in the Global Destination Sustainability Index (GDS-Index). Initiated by the Scandinavian chapter of the International Congress and Convention Association and the company MCI, the GDS-Index benchmarks the sustainability performance of worldwide event destinations. So far, Scandinavian cities have been leading the charge and reaping the rewards through hosting some of the most prestigious environmental sustainability meetings in the world. Sydney was first listed on the index in 2016.

Sydney has a great environmental track record and outstanding plans for the future, which Business Events Sydney plans to showcase to the business events industry through the GDS-Index.

Event organisers and their clients can:

- Actively promote Sydney's sustainability credentials (Destination NSW and Business Events Sydney, and conference and event organisers)
- Incorporate environmental performance ratings on supplier listings (booking agents)
- Ensure procurement policies and events criteria give preference to service providers demonstrating environmental performance (event organisers, and corporate and government clients)



Chinese New Year wayfinding signage, Circular Quay, January 2017. Photographer Jessica Lindsay

- Implement best practice event waste management practices
- Require better waste data and management solutions from contractors
- Provide bike valet parking at events to encourage patrons to use active transport.

The City will:

- Publish a list of accommodation providers with recognised environmental ratings to assist event organisers and corporate and government clients looking to evaluate the environmental performance of providers
- Assist with bids for major events by providing information on Sydney's sustainability, the city's environmentally rated hotels and venues, walking and cycling paths, and sustainable events, experiences and/or tours
- Work with Business Events Sydney and Destination NSW to improve Sydney's listing on the Global Destination Sustainability Index as part of a broader campaign to promote Sydney as a sustainable event destination
- Partner with media and industry associations to profile business benefits gained by the sector from improving environmental performance
- Work with online booking agents to incorporate environmental performance ratings in their listings
- Distribute wayfinding maps and signage, and information on cycling and walking in the city.
- Identify priority waste streams, investigate opportunities, and disseminate proven solutions through industry channels
- Measure the environmental impacts of City events, improve performance and report outcomes.

7.5 Developers

Design for environmental performance in operations

All new developments and refurbishments can seize the most cost-effective opportunity to integrate sustainability, in the design and infrastructure of accommodation and entertainment venues in order to secure resource efficiency in operations. This is particularly important given the immediate growth in development in hotels and serviced apartments.

To do this, there are various tools available to developers. Developments like the International Convention Centre Sydney often use international standards such as Leadership in Energy and Environmental Design (LEED). Green Star, NABERS and EarthCheck are the locally relevant tools in Australia. NABERS is often preferred by hotel owners and portfolio managers as a benchmark of operational energy efficiency across building types.

The City's emissions modelling shows that incorporating higher environmental performance standards in new buildings and refurbishments is the most effective mechanism in the sector for the reduction of greenhouse gases.

Recycled water opportunities

As part of the CBD and South East Light Rail project, recycled water pipelines are expected to be constructed by the NSW state government along George Street between Circular Quay and Central Station by 2018. It is the City's role to facilitate the delivery of a recycled water scheme that utilises this pipeline. Buildings close to George Street will be able to access recycled water for all non-potable uses including cooling tower use, toilets, laundry and irrigation.

Initially, existing buildings will be able to connect cooling towers to recycled water, while future buildings



Bourke Street cycleway, July 2010. Photographer: Richard Birch

or buildings undergoing major refurbishments will be able to connect to recycled water for all non-potable uses. It is important to ensure that new development is future-proofed through the inclusion of dual plumbing for recycled water where it will be available.

The City is looking to connect its own water-intensive assets, including Hyde Park, Town Hall and other buildings in the George Street corridor, to recycled water, in line with its target of a zero increase in potable water use by 2030 from the 2006 baseline.

For all new accommodation and entertainment developments and refurbishments, developers can:

- Commit to the highest NABERS energy Commitment Agreement, (and other NABERS CAs as they become available)
- Install the highest standard WELLS rating water fixtures for water efficiency
- Look to be dual plumbed for recycled water use where there will be a source of recycled water
- Provide suitable waste management infrastructure for maximum resource recovery as per the City's Waste Management in New Development Guidelines
- Provide ample, well-located bike parking for staff and visitors to encourage active transport.

The City will:

- Provide grants for independent environmental ratings and assessments
- Encourage the design, construction and operation of net zero hotels, both new and existing
- Investigate the inclusion of planning control provisions that introduce NABERS Energy Commitment Agreements, for new hotels and major refurbishments.

7.6 Government

Many stakeholders argued for the need for stronger regulation and minimum standards to improve energy efficiency and environmental sustainability, similar to European standards and policies.

The City commissioned independent research that showed the most effective policy to encourage better performance in buildings is to increase minimum energy and water efficiency requirements for new buildings and refurbishments.

Government agencies can:

Australian Government

- Increase National Construction Code (NCC) minimum environmental performance standards for building and refurbishments (Responsibility of the Council of Australian Government's Australian Building Codes Board)
- Increase compliance with NCC minimum environmental performance standards for building and refurbishments (Responsibility of the Council of Australian Government's Australian Building Codes Board)
- Consider green depreciation for building owners undertaking refurbishments as part of the potential Commonwealth tax reforms
- Promote the National Carbon Offset Standard for Carbon Neutral Buildings to building owners; and develop programs to encourage certification



Darling Harbour, October 2011. Photographer: Paul Patterson

NSW Government

- Commit to achieving net zero emissions from government buildings and develop a pathway to get there, including, but not limited to, purchasing renewable energy
- Adopt policies to procure accommodation and event venues with environmental performance ratings, moving to minimum ratings when capacity has been built in the market
- Develop case studies on how to include environmental credentials of hotels in procurement policies
- Deliver waste market reform to incentivise resource recovery

The City will:

- Advocate for increased minimum environmental performance standards in building codes and appliances
- Update its own procurement policies, advocate to government agencies to update their policies.

7.7 Visitors and delegates

Visitors and delegates can make choices about their own behaviour to lessen their environmental impact. They can choose accommodation with environmental ratings, opt to not have sheets and towels replaced every day and where possible walk, cycle and use public transport.

It is recognised that visitors are often keen to explore Sydney on foot or by bicycle, taking in all of the sites and having an authentic experience. However, accessing service providers and finding your way is not always easy in an unfamiliar city.

Environmental ratings make finding information on environmental performance easier and more credible. However, many smaller boutique hotels and pub and clubs are also making genuine efforts, and their efforts shouldn't be discounted.

Accommodation concierges can:

- Promote the City's Culture Walks app, bike map for route planning, and receiving expert advice through the free route planning service
- Promote bike hire companies servicing the city area, from traditional bike tours to electric bicycles.



Finger Wharf, Woolloomooloo, April 2017. Photographer Katherine Griffiths

How the City can help:

- Distribute wayfinding maps and signage, and info on cycling and walking in Sydney
- Support the advocacy of industry associations for:
 - The removal of airport station access fees
 - Train travel to be promoted by event and conference organisers
 - Event and conference organisers recommending hotels with environmental ratings
- Investigate options for the best way to provide city-wide public domain wifi

7.8 Restaurants, bars and other businesses

Everyone can contribute to making Sydney a sustainable destination in a way that suits their business model. Restaurants, cafes, pubs and small businesses providing goods and services to the city's visitors can benefit from upgrading resource efficiency.

Small businesses can:

- Upgrade to energy-efficient lighting and water-efficient fixtures
- Complete a waste audit to improve recycling and talk to neighbours and building owners about better waste management
- Explore partnerships and services to reduce environmental impact
- Request on-street visitor bike parking from the City.

The City will:

- Collect a suite of sustainable tools with business value and disseminate through industry association newsletters, conferences and workshops promoting business benefits
- Provide practical information on money-saving measures when the City's environmental health officers visit to complete compliance checks
- Provide on-street visitor bike parking (subject to space availability).
- Identify priority waste streams, investigate opportunities, and disseminate proven solutions through industry channels.

08 Plan development and reporting

The City of Sydney is dedicated to building a culture of sustainability to achieve the objectives of Sustainable Sydney 2030. This plan aims to engage the sector to build awareness and the capacity to act on environmental sustainability opportunities.

8.1 Plan development

The City of Sydney's research identified accommodation and entertainment as a priority sector. This is because of its relative resource intensity, the growth in its development and the fact that environmental improvements generate business benefit as well as contribute to sustainability targets.

Over the last few years, the City's Smart Green Business program has supported accommodation and entertainment providers to reduce their water consumption and waste generation. Participating businesses have saved money, become aware of their environmental impact, and achieved positive outcomes for their customers and staff.

Targeted engagement was undertaken to gain insights across the City of Sydney's accommodation and entertainment sector, with the aim to test the City's assumptions on the barriers to and incentives for environmental sustainability. An External Reference Group was convened to provide the City with strategic, technical and policy advice and influence the development and delivery of the plan.

The Reference Group consisted of representatives from a number of key government and private organisations, which included: the NSW Government Office of Environment and Heritage; the NSW Government Department of Planning and Environment; UrbanGrowth NSW; the NSW Department of Industry; Transport for NSW; the Green Building Council of Australia; the Property Council of Australia; the Better Buildings Partnership; the Energy Efficiency Council; the Facility Management Association of Australia; Engineers Australia; Sydney Water; and Jemena.

The City also met with representatives of industry associations, and accommodation, events and entertainment providers. There was support and interest across the board for the development of the plan and there was an overall consensus on the drivers for and barriers to environmental improvements within the sector.

A number of opportunities identified in these meetings are included in the suite of actions in this plan. Feedback during consultation also reinforced the need and desire for continued engagement with sector stakeholders.



Ombretta Cafe, Glebe, 2015. Photographer: Adam Hollingworth

An industry survey was commissioned to gain insights more broadly across the sector: 99 respondents were asked about environmental practices, plans and priorities; awareness and use of sustainability ratings; and barriers and motivators for improving environmental performance. Further research was undertaken to better understand management structures and access to capital.

The City also commissioned detailed greenhouse gas modelling to understand the most cost-effective emissions reduction opportunities for businesses in the sector and the most effective environmental policy measures available to all levels of government.

8.2 Reporting

A monitoring and evaluation plan will be prepared to enable the City to track progress towards the outcomes stated in this plan. Progress will be reported annually as part of the City's environmental reporting. The plan will be reviewed in 2022, and adapted as required to support the sector's progress towards 2030 goals.

Appendix A: Carbon reduction measures, assumptions and actions

These actions are a sub-set of those outlined earlier in this plan, which also included actions to reduce water use and waste generation, as well enabling actions that don't provide a direct carbon reduction but which are essential to creating change in the industry.

Carbon emissions include electricity, gas and waste but not transport.

Commitment to net zero			
Abatement to 2022	Reduction from 2022 BAU scenario (t CO ₂ -e)	71,700	% of 2015/16 - 21/22 abatement 44%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO ₂ -e)	178,000	% of 2015/16 - 29/30 abatement 46%
Key assumptions	Description: <ul style="list-style-type: none"> Voluntary uptake of renewable energy and/or carbon offsets to achieve net zero emissions Take up rates (% floorspace): <ul style="list-style-type: none"> Hotels: 2022 - 20%; 2030 - 40% Serviced apartments: 2022 - 2.5%; 2030 - 5% Convention Conference Event centres: 2022 - 0%; 2030 - 100% Entertainment Venues – large: 2022 - 10%; 2030 - 70% Savings rate: <ul style="list-style-type: none"> Buildings committed to net zero emissions will achieve a 100% emissions saving 		
City actions	<ul style="list-style-type: none"> Encourage the design, construction and operation of net zero hotels, both new and existing Encourage and support collaboration between sector leaders to facilitate building retrofits, recognising best practice, showcasing business benefits and supporting advocacy for policy reform to affect sector-wide change Support environmental innovation through the provision of grants and the sharing of success and knowledge Advocate for government agencies to adopt policies to procure accommodation and event venues with independent environmental performance ratings Influence private sector companies to institute a policy for staff and events to use hotels/venues with independent environmental performance ratings. Work with online booking agents to incorporate environmental performance ratings in their listings 		
Industry actions	Accommodation and entertainment owners & operators: <ul style="list-style-type: none"> Commit to achieving net zero emissions from your building and develop a pathway to get there, including, but not limited to, purchasing renewable energy Government: <ul style="list-style-type: none"> Promote the National Carbon Offset Standard for Carbon Neutral Buildings to building owners; and develop programs to encourage certification Commit to achieving net zero emissions from your building and develop a pathway to get there, including, but not limited to, purchasing renewable energy 		

Enhanced waste recovery

Abatement to 2022	Reduction from 2022 BAU scenario (t CO2-e)	53,200	% of 2015/16 - 21/22 abatement	33%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO2-e)	128,600	% of 2015/16 - 29/30 abatement	33%
Key assumptions	<p>Description:</p> <ul style="list-style-type: none"> An increase in the diversion of waste from landfill. <p>Diversion rates:</p> <ul style="list-style-type: none"> Hotels: 2022 - 70%; 2030 - 90% Backpackers: 2022 - 40%; 2030 - 50% Serviced apartments: 2022 - 70%; 2030 - 80% Convention/Conference/Event centres: 2022 - 70%; 2030 - 90% Entertainment Venues – large: 2022 - 75%; 2030 - 90% Entertainment Venues – other: 2022 - 40%; 2030 - 50% Restaurant/Eating: 2022 - 60%; 2030 - 75% Pubs/Clubs: 2022 - 60%; 2030 - 70% 			
City actions	<ul style="list-style-type: none"> Identify priority waste streams, investigate opportunities, and disseminate proven solutions through industry channels Promote the use of the updated Guidelines for Waste Management in New Developments Support owners/operators to pilot new waste technology and innovations Support the development of waste education, engagement and incentives tailored for hotel housekeeping systems and staff Advocate for state government agencies to standardise waste data collection definitions and processes and reinstate annual reporting 			
Industry actions	<p>Accommodation owners & operators</p> <ul style="list-style-type: none"> Work with product and service contractors to implement innovative ideas to minimise waste generation on site and to encourage the uptake of re-usable or recyclable materials Require better waste data and management solutions from contractors <p>Entertainment owners and operators</p> <ul style="list-style-type: none"> Require better waste data and management solutions from contractors <p>Event organisers and their clients</p> <ul style="list-style-type: none"> Implement best practice event waste management practices Require better waste data and management solutions from contractors <p>Developers</p> <ul style="list-style-type: none"> Provide suitable waste management infrastructure for maximum resource recovery as per the City's Waste Management in New Development Guidelines. <p>Government</p> <ul style="list-style-type: none"> Deliver waste market reform to incentivise resource recovery <p>Restaurants, bars and other businesses</p> <ul style="list-style-type: none"> Improve recycling and waste management by undertaking a waste audit and talking to neighbours and building owners about better waste management 			

Higher standards for new building work

Abatement to 2022	Reduction from 2022 BAU scenario (t CO2-e)	11,800	% of 2015/16 - 21/22 abatement	7%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO2-e)	28,700	% of 2015/16 - 29/30 abatement	7%
Key assumptions	<p>Description: An increase to the energy efficiency standards in Section J of the National Construction Code that will take effect July 2019. Prior to this, we assume that new floorspace performs better than the average floorspace in 2015-16. This reflects both a higher standard for building work and better compliance to the standard</p> <p>Take up rates (% floorspace):</p> <ul style="list-style-type: none"> Hotels: 100% Backpackers: 100% Serviced apartments: 100% Convention/Conference/Event centres: 100% Entertainment Venues - large: 100% Entertainment Venues - other: 100% Restaurant/Eating: 100% Pubs/Clubs: 100% <p>Savings rate: From 2016-17 to 2018-19</p> <ul style="list-style-type: none"> Electricity: a 10% reduction Gas: a 2.5% reduction <p>From 2019-20</p> <ul style="list-style-type: none"> Electricity A 20% reduction Gas: A 5% reduction 			
City actions	<ul style="list-style-type: none"> Advocate for increased minimum environmental performance standards in building codes and appliances 			
Industry actions	<p>Sector leaders – owner & operators</p> <ul style="list-style-type: none"> Advocate for increased minimum standards and policy reform to reward environmental performance <p>Developers</p> <ul style="list-style-type: none"> Ensure compliance with NCC as standards increase <p>Government</p> <ul style="list-style-type: none"> Increase National Construction Code (NCC) minimum environmental performance standards for building and refurbishments (Responsibility of the Council of Australian Government's Australian Building Codes Board) Increase compliance with NCC minimum environmental performance standards for building and refurbishments (Responsibility of the Council of Australian Government's Australian Building Codes Board) 			

Building tune ups

Abatement to 2022	Reduction from 2022 BAU scenario (t CO2-e)	10,000	% of 2015/16 - 21/22 abatement	6%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO2-e)	18,000	% of 2015/16 - 29/30 abatement	5%
Key assumptions	<p>Description: Tune-up initiatives such as building management system optimisation, retro-commissioning, minor works and power factor correction.</p> <p>Take up rates (% floorspace):</p> <ul style="list-style-type: none"> Hotels: 2022 - 46%; 2030 - 75% Backpackers: 2022 - 15%; 2030 - 38% Serviced apartments: 2022 - 15%; 2030 - 38% Convention/Conference/Event centres: 2022 - 46%; 2030 - 75% Entertainment Venues – large: 2022 - 46%; 2030 - 75% Entertainment Venues – other: 2022 - 46%; 2030 - 75% <p>Savings rate:</p> <ul style="list-style-type: none"> Electricity : A 10% reduction Gas: A 0.65% reduction 			
City actions	<ul style="list-style-type: none"> Develop and deliver a tune-up program supporting owners and operators to improve the environmental performance of their building 			
Industry actions	<p>Accommodation owners & operators</p> <ul style="list-style-type: none"> Upgrade energy and water efficiency and waste practices Provide incentives to guests to reduce their impact Measure and manage environmental impact using environmental performance ratings and publically disclose these <p>Entertainment owners and operators</p> <ul style="list-style-type: none"> Privately owned entertainment venues can: <ul style="list-style-type: none"> Measure and manage environmental impact using environmental performance ratings and publically disclose these Tenants and production companies can: <ul style="list-style-type: none"> Request venue owners and operators to improve environmental performance and take short-term steps such as asking for energy and water-intensity data, what efficiency measures have been implemented by the venue, and if sub-metering is in place <p>Government</p> <ul style="list-style-type: none"> Upgrade energy and water efficiency and waste practices Access support to achieve the Government Resource Efficiency Policy (GREP) targets for government-owned buildings 			

Building retrofits				
Abatement to 2022	Reduction from 2022 BAU scenario (t CO2-e)	13,300	% of 2015/16 - 21/22 abatement	8%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO2-e)	25,200	% of 2015/16 - 29/30 abatement	7%
Key assumptions	<p>Description:</p> <ul style="list-style-type: none"> Retrofit options such as installing new lighting, new HVAC system, new chiller etc. Covering large buildings and hotels, retrofit is considered to require a reasonable change or upgrade in building fitout/technology. <p>Take up rates (% floorspace):</p> <ul style="list-style-type: none"> Hotels: 2022 - 46%; 2030 - 75% Backpackers: 2022 - 15%; 2030 - 38% Serviced apartments: 2022 - 15%; 2030 - 38% Convention/Conference/Event centres: 2022 - 46%; 2030 - 75% Entertainment Venues – large: 2022 - 46%; 2030 - 75% Entertainment Venues – other: 2022 - 46%; 2030 - 75% <p>Savings rate:</p> <ul style="list-style-type: none"> Electricity: A 12.7% reduction Gas: A 5% reduction 			
City actions	<ul style="list-style-type: none"> Encourage and support collaboration between sector leaders to facilitate building retrofits, recognising best practice, showcasing business benefits and supporting advocacy for policy reform to affect sector-wide change Work with the operators of City-owned properties to facilitate building retrofits Collect a suite of sustainable tools with business value and disseminate through industry association newsletters, conferences and workshops promoting business benefits 			
Industry actions	<p>Accommodation owners & operators</p> <ul style="list-style-type: none"> Undertake building retrofits to achieve environmental outcomes, where cost effective <p>Entertainment owners and operators</p> <ul style="list-style-type: none"> Undertake building retrofits to achieve environmental outcomes, where cost effective <p>Government</p> <ul style="list-style-type: none"> Consider green depreciation for building owners undertaking refurbishments as part of the potential Commonwealth tax reforms 			

On-site Solar PV (not including large scale RECs)

Abatement to 2022	Reduction from 2022 BAU scenario (t CO2-e)	3,200	% of 2015/16 - 21/22 abatement	2%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO2-e)	3,000	% of 2015/16 - 29/30 abatement	1%
Key assumptions	<p>Description:</p> <ul style="list-style-type: none"> Cover eligible roofspace in solar panels, assuming 25% of roofspace is currently free. <p>Take up rates (% floorspace):</p> <ul style="list-style-type: none"> Hotels: 2022 - 10%; 2030 - 10% Backpackers: 2022 - 10%; 2030 - 10% Serviced apartments: 2022 - 10%; 2030 - 10% Convention/Conference/Event centres: 2022 - 10%; 2030 - 10% Entertainment Venues - large: 2022 - 10%; 2030 - 10% <p>Savings rate:</p> <ul style="list-style-type: none"> Variable depending upon ratio of roof to floorspace assumed for each sub-sector 			
City actions	<ul style="list-style-type: none"> Work with sector leaders to facilitate uptake of on-site solar 			
Industry actions	<p>Accommodation owners & operators, entertainment owners and operators, developers, government</p> <ul style="list-style-type: none"> Install on-site solar where possible 			

6 Star Commitment Agreements (Hotels)

Abatement to 2022	Reduction from 2022 BAU scenario (t CO2-e)	400	% of 2015/16 - 21/22 abatement	0.3%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO2-e)	3,900	% of 2015/16 - 29/30 abatement	0.9%
Key assumptions	<p>Description:</p> <ul style="list-style-type: none"> Commitment for 6 star NABERS energy rating. <p>Take up rates (% floorspace):</p> <ul style="list-style-type: none"> Hotels: 2022 - 3%; 2030 - 25% <p>Savings rate:</p> <ul style="list-style-type: none"> Electricity: A 64% reduction Gas: A 64% reduction 			
City actions	<ul style="list-style-type: none"> Investigate the inclusion of planning control provisions that introduce NABERS Energy Commitment Agreements, or equivalent, for new hotels and major refurbishments. 			
Industry actions	<p>Accommodation owners & operators</p> <ul style="list-style-type: none"> Commit to the highest NABERS energy Commitment Agreement, or equivalent, when undertaking major renovations <p>Developers</p> <ul style="list-style-type: none"> Commit to the highest NABERS energy Commitment Agreement, or equivalent <p>Government</p> <ul style="list-style-type: none"> Adopt policies to procure accommodation and event venues with environmental performance ratings 			

Restaurants - Lighting Upgrades

Abatement to 2022	Reduction from 2022 BAU scenario (t CO ₂ -e)	200	% of 2015/16 - 21/22 abatement	0.1%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO ₂ -e)	400	% of 2015/16 - 29/30 abatement	0.1%
Key assumptions	<p>Description:</p> <ul style="list-style-type: none"> Retrofit lighting to LED where possible. Additional to major refurbishment which would be covered by higher standards for new building work. <p>Take up rates (% floorspace):</p> <ul style="list-style-type: none"> Restaurant/Eating: 2022 – 11%, 2030 – 20% <p>Savings rate:</p> <ul style="list-style-type: none"> Electricity: 30% reduction in lighting 			
City actions	<ul style="list-style-type: none"> Provide grants for independent ratings and assessments Provide practical information on money-saving measures when the City's environmental health officers visit to complete compliance checks 			
Industry actions	<p>Restaurants, bars and other businesses</p> <ul style="list-style-type: none"> Upgrade to energy-efficient lighting 			

Restaurants - Water Upgrades

Abatement to 2022	Reduction from 2022 BAU scenario (t CO ₂ -e)	100	% of 2015/16 - 21/22 abatement	0.05%
Abatement to 2030	Reduction from 2030 BAU scenario (t CO ₂ -e)	200	% of 2015/16 - 29/30 abatement	0.04%
Key assumptions	<p>Description:</p> <ul style="list-style-type: none"> Installation of flow restrictors to reduce water use. The reduction of hot water use will lead to an energy saving. <p>Take up rates (% floorspace):</p> <ul style="list-style-type: none"> Restaurant/Eating: 2022 – 11%, 2030 – 20% <p>Savings rate:</p> <ul style="list-style-type: none"> Electricity: 30% reduction in hot water Gas: 30% reduction in hot water 			
City actions	<ul style="list-style-type: none"> Provide grants for independent ratings and assessments Provide practical information on money-saving measures when the City's environmental health officers visit to complete compliance checks 			
Industry actions	<p>Restaurants, bars and other businesses</p> <ul style="list-style-type: none"> Improve water management by undertaking an audit and talking to neighbours and building owners about better water management 			







Help shape the future of Sydney.
Have your say at
SydneyYourSay.com.au

Attachment D

Sydney's Sustainable Office Buildings Plan

Sydney's Sustainable Office Buildings Plan

August 2018



A plan for efficient office buildings running on renewable energy



Sydney2030 / Green / Global / Connected



Contents

01	Executive summary	4
02	Our vision for Sydney's sustainable offices	11
03	Net zero emissions buildings	12
04	Renewable energy	14
05	About the office sector	15
06	Challenges	21
07	Opportunities	26
08	Industry action and support from the City of Sydney	32
09	Existing policies and programs	39
10	Plan development and reporting	40
11	Appendix A: Measures, assumptions and actions	41

01 Executive summary

Together we can accelerate the number of net zero emissions buildings and harness economic and social benefits

In creating Sustainable Sydney 2030, Sydney's community members – residents, visitors, workers and businesses – established their vision of a sustainable future. To support achieving this vision, the City of Sydney has set bold targets including a 70 per cent emissions reduction for the local government area from a 2006 baseline, and net zero emissions by 2050. These targets are in line with the historic 2015 Paris Climate Agreement, which commits over 130 parties, including Australia, to pursue efforts to limit the global temperature increase to less than 1.5 degrees.

The City has also set targets for 50 per cent renewable energy by 2030, 70 per cent commercial waste recovery by 2021 and no increase in potable water consumption by 2030 from a 2006 baseline.

We cannot meet these targets through the City's actions alone. This plan calls on the whole office sector: government agencies, building owners, tenant companies, their employees, building managers and developers to act together to improve environmental performance for the benefit of all.

A number of property companies and office based organisations are already demonstrating international excellence in sustainability action¹ and the City's current policies and voluntary programs have so far motivated some leading organisations in the office sector to reduce consumption². However, substantial cost effective opportunities for emissions reduction and water and waste efficiency³ remain in the sector.

Office buildings and their occupants were responsible for 45 per cent of carbon emissions, 20 per cent of commercial waste and 27 per cent of water consumption in our local government area in 2015/16.

Reducing overall energy and water consumption levels in the sector will go a long way towards meeting the environmental targets we set out in Sustainable Sydney 2030. Improving the environmental performance in office buildings will also: reduce costs through lower energy use and overheads; increase asset value; support employee wellbeing and productivity⁴; manage corporate risk and address directors' fiduciary obligations.⁵

The City of Sydney has an international reputation as a leader on sustainable buildings. Through this and other plans, we support leaders to accelerate towards net zero emissions buildings and support wider government policies that secure renewable energy to power these buildings. We will encourage innovation and leadership and continue to raise the bar on voluntary practice. We also support policies to create new buildings that do not generate new emissions.

For those yet to take action, this plan will stimulate activity by advocating for higher minimum standards for new build and refurbishment work and mandatory disclosure of NABERS Energy ratings for tenancies in office buildings. For the rest of the sector, we will continue our business support programs and to call for market signals and incentives to create market pressure. We will support accelerated uptake of renewable energy for all through advocacy, government partnerships and direct investment.

1 [CDP 2016](#) – NAB, Westpac; [2016 GRESB Report](#) – Lendlease, DEXUS; [Dow Jones Sustainability Index 2016 Components List](#) – Stockland, Mirvac, GPT, DEXUS, Westpac,

2 [CitySwitch Program Report 2016](#), [BBP Annual Report 15/16](#)

3 [Pitt & Sherry Office Sector Emission Modelling Final Foundation Report 2016](#)

4 [Why Choose a High Performing Building](#), CitySwitch

5 [Australian Institute of Company Directors](#), 2016



World Square / City of Sydney

A substantial increase in renewable energy supply is key to this strategy. NSW's current renewable energy supply is 14 per cent⁶ and Australia's supply is 17 per cent⁷.

The federal government's 2020 Renewable Energy Target aims to increase the supply to 23 to 24 per cent of the total electricity demand. However, this is insufficient to achieve the Sustainable Sydney 2030 environmental targets or make an equitable contribution to international

efforts to limit global warming to 1.5 degrees. The City will work with State and Federal government to increase the share of renewable energy into the grid.

The office sector already leads progress towards Sydney's sustainable future. The sector needs to maintain this leadership position and be the first to build and operate net zero buildings.

Each of us has a role



Developer

- Design and construct for highest environmental performance



Building Owner

- Rate and disclose base building environmental performance
- Invest in renewables
- Use green leases to collaborate with tenants



Building Manager

- Implement environmental upgrades
- Measure and share savings
- Consider full lifecycle of equipment



Building Tenant

- Choose a high-performance building
- Rate and disclose environmental performance
- Engage staff and collaborate with building owner

Government support

City - Support through programs, grants and advocacy

State - Drive innovation, build capacity and provide infrastructure

Commonwealth - Increase renewable energy supply and elevate minimum standards



⁶ NSW Renewable Energy Action Plan Annual Report 2016

⁷ Clean Energy Australia Report 2016

Sector emissions reductions and measures

Between 2005/06 and 2015/16, emissions from the sector fell 14 per cent.

If the below policy measures are implemented through delivery of the actions in this plan, sector emissions could:

- Reduce by 26 per cent by 2021/22 (from 2005/06 levels)
- Reduce by 46 per cent by 2029/30 (from 2005/06 levels)

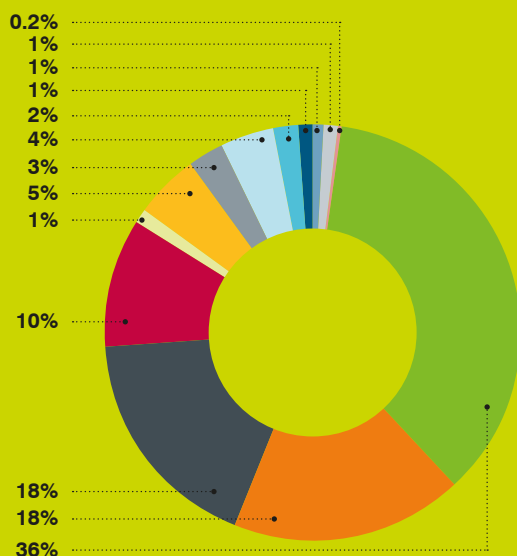
However, there is still a significant gap before the sector's emissions reach the City's target for the local government area - 70 per cent reduction by 2030 from 2006 levels. And an even greater gap exists to the net zero by 2050 target. This gap must be filled by a large increase in renewable energy in the grid, and potentially other energy efficiency measures not yet identified.

More detail on the assumptions behind each measure is available in Appendix A.

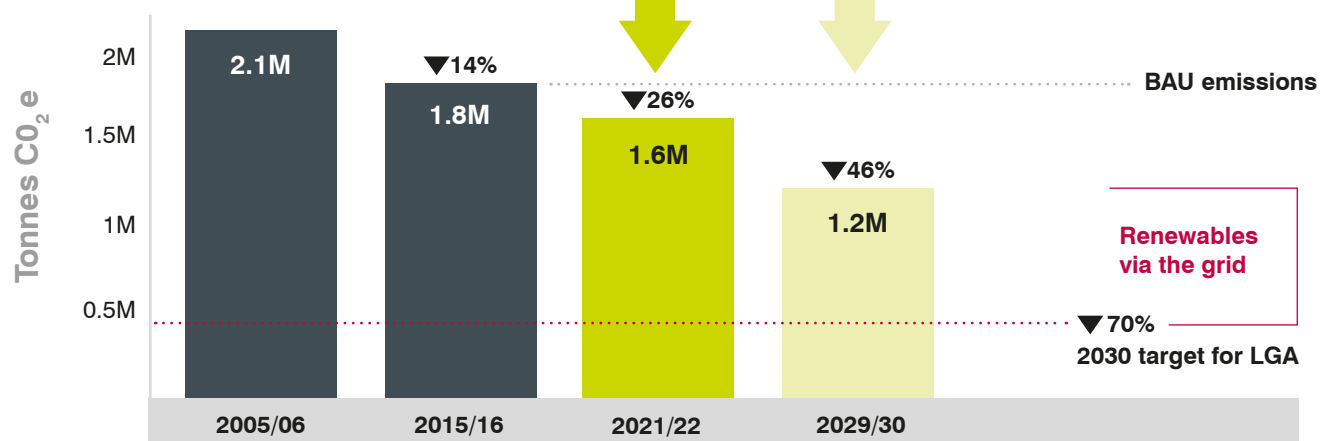
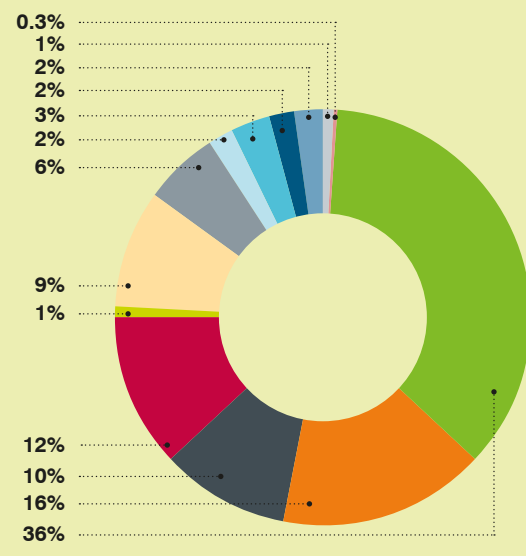
Carbon emissions reductions

- Renewable energy campaign
- Expansion of Commercial Building Disclosure Scheme
- NABERS Commitment Agreements
- Higher energy standards in National Construction Code
- Increased compliance with National Construction Code
- Enhanced Minimum Energy Performance Standards
- CitySwitch Growth
- NSW Government Leasing requirement for 6 stars NABERS energy
- National financial incentives
- Data driven campaigns
- Voluntary best practice standards
- Environmental grants and building tune-up program
- Waste Strategy Implementation

Emissions reduction 2015/16 - 21/22



Emissions reduction 2015/16 - 29/30



* Emissions numbers include electricity, gas, waste but not transport



Photographer: Jamie Williams / City of Sydney

Actions

This plan outlines opportunities and areas of action for:

- Building owners
- Office building tenants
- Building managers
- Developers
- Government

The table on page 8-10 summarises these actions and also the ways in which the City will provide support.

Without implementation of the actions in this plan, emissions for the sector are predicted to remain at 2015/16 levels until 2030. Under business as usual conditions, continuation of current trends in energy efficiency and policy drivers would deliver a reduction in emissions intensity, however this would be offset by projected growth in the sector's floor space.

These actions would also help Sydney achieve net zero emissions by 2050 – a goal adopted by the Greater Sydney Commission, the NSW state government, and many countries, states and organisations, such as Mirvac, Investa and AMP Capital.

The actions in this plan can also enable the sector to deliver:

- Zero increase in potable water use from 2006 baseline by 2021/22; and a 9 per cent reduction by 2029/30, achieved through water efficiency and recycled water
- An increase in resource recovery to divert 70 per cent of waste from landfill by 2021/22; and up to 90 per cent by 2029/30.

Industry actions and City support

Owners

Energy and emissions

- Implement environmental upgrades
- Rate and disclose NABERS Energy performance ratings for base building, combined and whole building in collaboration with tenants
- Support energy performance disclosure and improvement by their tenants
- Upgrade all general lighting systems within tenancies
- Use green leases to enable collaboration with tenants
- Maximise on-site and off-site renewable energy supply options

Waste

- Provide source-separated waste management services for recyclable materials, including organic waste where appropriate
- Use industry best practice to manage and report on waste generation in offices via the NABERS Waste tool to improve industry insights and identify new opportunities for resource recovery
- Work with product and service contractors to implement innovative ideas to minimise waste generation on site and to encourage the re-use and replacement of non-recyclable materials with re-usable or recyclable materials
- Seek non-landfill solutions when establishing waste contracts

Water

- Undertake and disclose NABERS Water whole building ratings
- Install sub-meters to detect and rectify leaks and drive water-efficient behaviour in tenants
- Optimise cooling tower water efficiency
- Regularly check for leaks and upgrade water fixtures to improve efficiency
- Investigate recycled water supply to cooling towers and other non-potable water consumption and connect when access becomes available

Transport

- Provide ample bike parking and end-of-trip facilities

Office building tenants

Energy and emissions

- Rate and disclose environmental performance
- Upgrade to energy-efficient lighting and appliances
- Maximise renewable energy options
- Demand high-performing buildings
- Engage with building owners on base building performance improvements, including owner-provided general lighting systems in the tenancy
- Collaborate on whole-building performance

Waste

- Request better waste services and reporting from owners
- Engage staff to recycle correctly
- Introduce print on demand software to reduce paper wastage

Water

- Assess water efficiency and contract management to upgrade water fixtures and install sub-meters

Transport

- Encourage cycling, walking and public transport

Building managers

- Implement environmental upgrades
- Measure and present the savings to owners and tenants
- Develop business cases for major upgrades
- Preference the replacement of end of life equipment with the highest efficiency option rather than like for like – considering the life cycle costs and benefits rather than simple cash up front

City support

- Advocate for regulatory reform to facilitate increased investment in, and use of, renewable energy
- Advocate for increased minimum environmental performance standards in building codes, equipment and appliances
- Provide support for whole-building data disclosure and NABERS Energy Ratings
- Continue to deliver the CitySwitch Green Office Sydney program to office-based businesses
- Continue to deliver the Better Buildings Partnership program for leading property owners in the local government area
- Support environmental innovation through the provision of grants and the sharing of success and knowledge
- Encourage private owners to take action with information, disclosure and campaigns
- Promote green leasing to enable upgrade activity
- Support the cost effective uptake of renewable energy with information and campaigns
- Encourage the design, construction and operation of net zero office buildings, both new and existing
- Deliver a tune-up program to support privately-owned buildings to make environmental performance upgrades
- Encourage and support buildings to connect to recycled water

City support continued...

- Provide guidelines to assist the business community with operational and contract waste management templates to achieve improved sustainability outcomes and value for money
- Support improved commercial waste data collection and verification
- Educate the business community about available non-landfill, alternative waste treatment solutions for operational waste management
- Continue to deliver the Liveable Green Network, providing connected walking routes across the city
- Advocate for and develop an integrated bike lane network and distribute cycling and walking maps

Developers

- Design and construct new buildings to the highest level of sustainability performance available
- Utilise the highest available NABERS Energy Commitment Agreement
- Comply with the City of Sydney's Waste Management Local Approvals Policy and Guidelines for Waste Management in New Developments
- Include dual plumbing in planning proposals where there are opportunities to connect to a recycled water scheme
- Ensure highest available Water Efficiency Labelling Standard (WELS) for taps, toilets and urinals, and dishwashers.
- Minimise water wastage from fire protection systems testing
- Provide bike parking and facilities
- Minimise general car parking and provide car share vehicle spaces and dedicated charging stations for electric vehicles where possible and appropriate

City support

- Advocate for increases to the National Construction Code (NCC) minimum environmental performance standards for building and refurbishments, and increased compliance with the NCC
- Continue to promote the Section J compliance checklist through industry partners
- Advocate for regulatory reform to facilitate increased investment in and use of renewable energy
- Investigate the inclusion of planning control provisions that introduce NABERS Energy Commitment Agreements for new commercial office buildings and major commercial office refurbishments over 500 sqm or 1000 sqm.
- Promote the use of the updated Guidelines for Waste Management in New Developments
- Develop a pathway for the City's current planning controls to be strengthened over time to deliver net zero building standards
- Encourage the design, construction and operation of net zero buildings, both new and existing
- Encourage and support buildings to connect to recycled water
- Investigate how dual plumbing could be mandated in areas where recycled water is available

Industry actions and City support

Australian and New South Wales government

Australian Government

- Establish a price on carbon and increase the mandatory renewable energy target providing policy certainty to the energy market
- Remove energy market barriers for decentralised energy and affordable off-site renewable energy access
- Implement regular mandatory disclosure of NABERS tenancy and whole-building ratings, as opposed to at the time of sale or lease and investigate the opportunity for retro-commissioning of existing buildings to minimum standards
- Increase minimum standards in the National Construction Code
- Increase Minimum Energy Performance requirements (MEPS) and accelerate uptake of energy efficient appliance standards under the national Greenhouse and Energy Minimum Standards (GEMS) program
- Promote the National Carbon Neutral Offset Standard for Carbon Neutral Buildings
- Develop financial incentives for high environmental performance in buildings

New South Wales government

- Increase the Government Resource Efficiency Policy (GREP) to specify that agencies need to occupy buildings with minimum 5.5 - 6 star NABERS Energy rating and ultimately net zero buildings
- Rate and disclose the energy and water performance of government owned buildings
- Collaborate with industry associations to build capacity and deliver targeted information, resources and training to private owners
- Deliver waste market reform to incentivise resource recovery (avoiding waste, recycling, alternative waste treatment, and transparent waste reporting on volume, weight, composition and diversion from landfill)
- Deliver a recycled water pipeline along George Street between Circular Quay Station and Central Station by 2018
- Fund, and where appropriate deliver, an integrated bicycle network to encourage the further take up of cycling
- Deliver key components of an integrated and safe walking network, including road crossings and links through Government lands and developments

City support

- Advocate for increased minimum environmental performance standards in building codes, equipment and appliances
- Advocate for the Government Resource Efficiency Policy (GREP) to specify that agencies need to occupy buildings with minimum 5.5 - 6 star NABERS Energy rating and ultimately net zero buildings
- Advocate for the mandatory regular disclosure of tenancy ratings and retro-commissioning to above minimum standards, including tax incentives for action
- Provide support for whole-building data disclosure and NABERS Energy Ratings
- Share waste generation data to assist with monitoring recycling performance and identify opportunities for increased resource recovery
- Advocate for water pricing that reflects resource value and promotes innovative water-sensitive solutions including recycled water
- Advocate for regulatory reform to facilitate increased investment in, and use of, renewable energy

02 Our vision for Sydney's sustainable offices

Efficient buildings running on renewable energy will be in high demand across all parts of the office sector

The City of Sydney will continue to lead, advocate and support our businesses to take action. But without strong state and federal policies, the vision of a sustainable Sydney will not be achieved. This plan encourages everyone in the office sector to act and collaborate to achieve even greater business and community benefit for all.

This plan targets the following outcomes by 2030

- Mainstream demand for net zero office space and buildings
- Owners and tenants from all office segments are leveraging targeted resources, support and incentives and are taking action
- Continuous improvement of environmental performance in existing buildings
- A supportive policy and regulatory environment
- New developments are designed and constructed to the highest level of sustainability performance available
- Significant increase in renewable energy demand and supply leading to 50 per cent renewable electricity consumption
- Property owners and office-based businesses are demonstrating process and technology leadership
- Improved waste management, monitoring, reporting and verification leading to 90 per cent resource recovery
- Improved water efficiency and access to recycled water for non-potable water use.

03 Net zero emissions

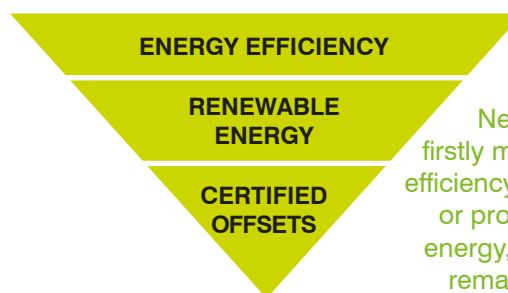
Buildings represent the greatest opportunity for reducing greenhouse gas emissions in Sydney

Net zero emissions buildings are run on renewable energy and offset any remaining emissions. They maximise resource efficiency and ideally take into account building envelope⁹. They use passive design, which maximises the use of natural light, heating and cooling through building orientation, windows, glazing and natural ventilation to reduce the need for additional cooling or heating.

For example, a western façade that receives the strongest sun at the hottest part of the day could be designed to reduce the need for energy for cooling and in turn reduce water consumption. Water efficiency reduces the energy needed for pumping water.

New buildings will need to be designed with passive design, the highest available efficiency, and building management systems for maximising environmental performance in operations. Existing buildings will need deep retrofits: from lighting to chillers and building envelope upgrades. Both new and existing buildings will require access to on-site and off-site renewable energy.

Net zero building actions



Net zero buildings firstly maximise energy efficiency, then generate or procure renewable energy, then offset any remaining emissions

In 2017, the federal government developed a National Carbon Offset Standard for carbon neutral buildings⁹. The standard provides an opportunity for carbon neutral certification of either base buildings or whole buildings. The whole building certification will require building owners to collaborate with tenants to meet the requirements of certification. Tenants generally use about 40-50 per cent of the energy required for the whole building. The use of the whole building standard is an important part of moving industry towards net zero buildings and the City encourages the adoption of this standard. The City also recognises that the achievement of this for all buildings is currently challenging and is committed to supporting industry to overcome these challenges.

Businesses that occupy net zero buildings will be able to report to staff and customers that their building has little or no environmental impact during operation. Occupants will be more comfortable with better indoor air quality, levels of productivity, and health and wellbeing¹⁰.

⁹ [National Carbon Offset Standard for Buildings, Australian Government Department of the Environment and Energy](#)

¹⁰ [Health, Wellbeing & Productivity in Offices – The next chapter for green building, WGBC](#)



King George V recreation Centre, The Rocks, May 2014 / City of Sydney

There are already many local and international examples of net-positive and net zero buildings found in cities from Sydney to New York City. The City of Vancouver has recently approved its Zero Emissions Building Plan and Singapore's Building Construction Authority is aiming for positive-energy low-rise, zero-energy medium-rise, and super low-energy high-rise buildings.

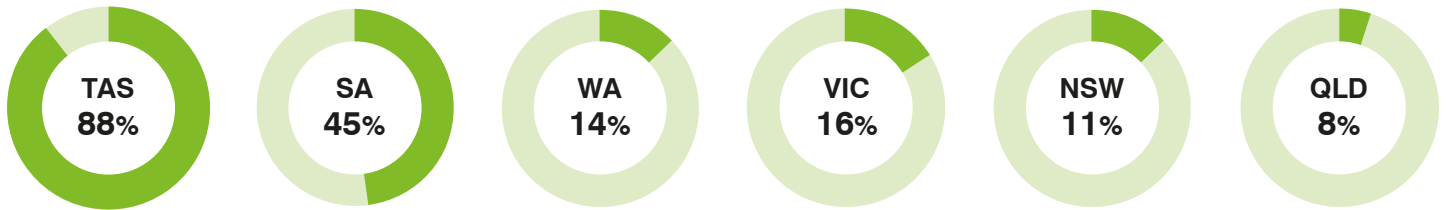
In Australia, realisation of net zero buildings at scale will require collaboration across all three levels of government. The City looks forward to more action by the Australian Government on renewable energy supply and implementation of its National Energy Productivity Plan; as well as collaborating with the New South Wales Government on its target to achieve net zero emissions by 2050.

Policies to incentivise and accelerate action are needed at the national level. Delaying the implementation of opportunities could cost the country \$24 billion over five years.¹¹

¹¹ Low Carbon High Performance – How buildings can make a major contribution to Australia's emissions and productivity goals, ASBEC, 2016

04 Renewable energy

Renewable Energy Penetration – state by state in 2017¹²



Net zero emissions will require large scale renewable energy commitments from the office sector

Australia's coal-fired electricity has high carbon emissions – a major contributor to climate change. Renewable energy, such as solar power, produces no emissions and the price is decreasing relative to coal-fired power. NSW's current renewable electricity supply is 11 per cent and Australia's supply is 17 per cent¹². The federal government's 2020 Renewable Energy Target (RET) provides incentives for 23-24 per cent renewable energy.

This plan indicates that the office sector can reduce its 2006-level emissions by 46 per cent by 2030 through efficiency and the voluntary uptake of renewables.

The remaining 24 per cent reduction to get to the net zero target will need to be made up from offsets, a material increase in voluntary renewables purchasing and/or the greening of the grid supplied energy.

The City of Sydney is working with the Council of Capital City Lord Mayors and industry bodies to advocate for changes to state and federal policy that would accelerate the adoption of clean energy. This includes national electricity market rule changes that would unlock the potential for locally generated energy to be more appropriately priced by the market¹³.

GreenPower purchase and other procurement models including corporate power purchase agreements offer possible solutions to assist organisations to manage climate risk exposure and mitigate against electricity market price volatility¹⁴.

Analysis by sector stakeholders has found that a NABERS Energy five star rated building using green power is cheaper to run than a four star rated building using black power¹⁵.

¹² Clean Energy Australia Report 2018

¹³ City of Sydney Rule Change Submission to AEMC

¹⁴ Energetics – [The Outlook for Energy and Carbon Management, Energetics, 2017](#)

¹⁵ Bruce Precious, National Manager, Sustainability & Property Services, The GPT Group

05 About the office sector

All players in the office sector have a role in creating a market that values efficiency and productivity

Businesses are playing a key role in the transition to a global low-carbon economy and they have a particular role in relation to the office buildings that they own, lease and occupy. The City has been actively working for over ten years with owners and tenants of office buildings who are taking the lead on sustainability.

There are currently around 800 buildings within the City of Sydney for which the primary purpose is office activities, meaning that at least 50 per cent of the net lettable area (NLA) is for office purposes. These offices comprised almost 12 million square metres in 2015/16, with 7.8 million square metres being net lettable area. Almost 5 million square metres of that space is located within Sydney's central business district. By 2030, the total office floor area is expected to grow to around 9.6 million square metres of NLA.

This plan segments buildings by ownership groups. Implementation pathways for improved environmental performance differ greatly depending upon the type of entity that owns a particular building. Each of the following ownership groups has different challenges and opportunities.

- Institutional owners: Real estate investment trusts
- Property groups: Trusts that hold diverse portfolios of buildings
- Private owners: Private individuals and family trusts
- Owner occupiers: Usually government organisations or medium sized businesses.

Most buildings contain a mix of large, medium and small tenants who can play two important roles: managing their own environmental performance within their tenancy; and creating market demand for landlords to improve the performance of the buildings that they occupy.

In 2015/16, the office sector in the City of Sydney was responsible for an estimated 1.8 million tonnes of greenhouse gas emissions, over 45 per cent of the city's total emissions.

Breaking down these emissions across different ownership types shows the substantial impact of the many and diverse buildings that are privately owned. Privately owned buildings and their occupants have the greatest impact at 44 per cent of the sector's emissions. Arguably this group of buildings represents the greatest opportunity for energy efficiency gains. The institutional owners, after achieving significant emissions reductions to date through energy efficiency upgrades, are responsible for 39 per cent and have the most capacity to innovate, test and de-risk new energy efficiency technologies, and to secure renewable energy supply to demonstrate pathways to net zero emissions. Property groups and owner occupiers contribute 8 per cent and 9 per cent respectively and will have varying levels of opportunity and capacity.



Institutional owners¹⁶

Large premium grade buildings with building management and a dedicated sustainability resource; premium corporate tenants. Less energy intensive building with efficient base building equipment and lighting.

Share of net lettable area¹⁷

39%

Share of sector emissions

41%

Property groups

Diverse, typically smaller more energy intensive buildings, corporate and government tenants. Some sustainability and building management resources.

Share of net lettable area

9%

Share of sector emissions

8%

Owner occupiers

Variable levels of building and sustainability management, few buildings with NABERS ratings. 50% government owned.

Share of net lettable area

8%

Share of sector emissions

8%

Private owners

Older, smaller and lower grade buildings, without dedicated building management. Inefficient lighting, equipment and controls, SME tenants. No sustainability resource.

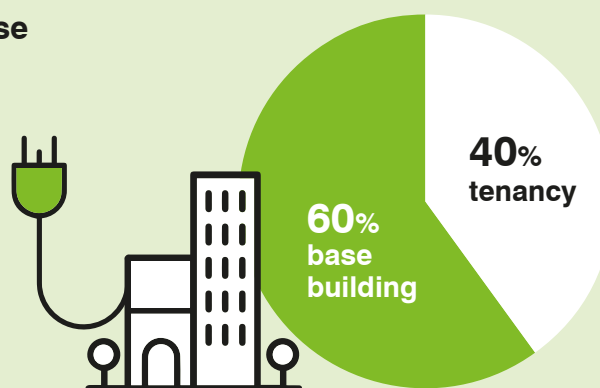
Share of net lettable area

44%

Share of sector emissions

43%

Office building energy use



¹⁶ Interim (2022) and 2030 Abatement Potentials: Final Report, Strategy. PolicyResearch., 2017

¹⁷ The figures for NLA and emissions are estimated, based on 2012 floorspace data and 2014/15 emissions.

Note: the above percentages are estimates only, based on City of Sydney analysis of available data on building ownership.



Photographer: Richard Glover / City of Sydney

The Commercial Building Energy Efficiency Disclosure scheme was introduced in 2010, requiring mandatory reporting of energy performance (using the NABERS rating tool) of base buildings when spaces of 2000 sqm or more are sold or leased. As of July 2017, this requirement applies to the sale or lease of spaces of 1000 sqm or above. Currently, 211 office buildings in the City of Sydney have accredited NABERS ratings, 54 have a Green Star rating (Design, As Built or Interiors) and 133 offices¹⁸ are voluntarily participating in the CitySwitch program.

But current policies and voluntary programs for improving sustainability are motivating only a small segment of the office sector; in 2015/16 there were only 70 NABERS Office Energy for tenancy ratings undertaken in NSW.¹⁹

Given the efficiency gains made by the leaders, the greatest opportunity for energy efficiency now lies in privately owned buildings and with tenants in all buildings. All office market segments can make even further emissions reductions with renewable energy options.

4.1 Institutional owners

Institutional landlords own around 39 per cent of the city's office space – which tends to be large premium and A-grade buildings with building management and a dedicated sustainability resource. These landlords are mostly real estate investment trusts whose investors require strong governance and transparency. Due to the need to attract global investment flows with expectations of corporate social responsibility and accountability, some owners are global leaders in sustainability, ranking highly on global investor indices like the Global Real Estate Sustainability Benchmark (GRESB) and the Dow Jones Sustainability Index (DJSI).

Since 2011, the City of Sydney has worked with the leading landlords of commercial property, forming the Better Buildings Partnership (BBP), to improve the environmental performance of Sydney's top-tier institutionally and publicly owned commercial buildings and to engage and transfer knowledge to property groups in the broader building and property sector. The BBP had 12 reporting portfolios in 2016/17, covering almost 2.7 million square metres of space within 101 office buildings, which is over half of the office space located in the central city (or about 30 per cent of the office space across the entire local government area).

In 2016/17, BBP members collectively reduced their emissions by 52 per cent from their 2006 baseline and saved \$33 million p.a. in avoided electricity costs whilst increasing their floor space by 10 per cent since 2006. As BBP members maximise base building efficiency, other than upgrading major equipment that is not at the end of its life, the move to renewable energy is their natural next step towards net zero offices.

This sub-sector frequently sets new benchmarks for sustainable buildings, such as Lendlease's Barangaroo South development, which aims to be the first climate-positive and water-positive precinct in the world by using locally generated and off-site renewable energy.

Other leading property owners are also making public commitments: Mirvac, Investa, and AMP's Wholesale Office Property Fund have committed to achieving net zero emissions.

¹⁸ Green Report June – December 2016, City of Sydney

¹⁹ NABERS Annual report 2015-16



Eureka Funds Engagement, CitySwitch Green Office signatory, April 2015. Photographer: Jamie Williams, City of Sydney

4.2 Property groups

Property groups are generally trusts that hold more diverse portfolios of buildings. Property groups currently own around 9 per cent of the total office space in the local government area.

Property groups typically own smaller buildings than institutionally owned buildings which are, on average, more energy intensive B and C grade assets²⁰. There is, however, a wide spread of both low- and high-performing buildings.

Similar to institutional owners, property groups generally have good capacity for assessing and investing in improving building performance. But fewer have comprehensive sustainability strategies and transparent reporting, and they have fewer listings on sustainability indices like GRESB and DJSI.

4.3 Tenants – or office-based business

Office based businesses have much to gain from managing their environmental impact. These benefits include reduced costs on electricity and rental outgoings, better managed carbon risk and exposure²¹, corporate reputational benefits with customers, staff and investors, and improved productivity and well-being for staff.

Office space with high NABERS and/or Green Star ratings, good amenity and facilities for health and wellbeing helps attract and retain talented employees and can lead to substantial productivity improvements whose bottom line benefits overshadow savings from direct electricity costs²².

Office based businesses have two clear roles in this sector strategy; to optimise their own business' environmental performance within their tenancy space and to drive demand for high performing office buildings from their landlord.

Tenant demand and collaboration with owners is key to unlocking net zero workplaces. But tenant engagement with landlords on environmental performance varies within each building.

Institutionally owned buildings tend to offer premium office space, attracting business tenants that demand, and can afford, superior facilities and high-performance office space. The large floor plates of premium buildings are more likely to be occupied by large companies with global branding and/or corporate social responsibility policies. These large organisations are more likely to employ a tenant representative to negotiate their ongoing needs as building occupants. They are more likely to receive information and feedback from building owners on the performance of their buildings and subsequent opportunities to improve it.

Tenants in buildings with strong base building performance still need to address energy and resource consumption within their own tenancies.

Larger businesses are slightly more likely to conduct their own NABERS Office Energy for tenancies ratings, although there is substantial opportunity to increase this across the board.

For over 12 years, CitySwitch Green Office has fostered collaboration and leadership among a growing network of large and small businesses across Australia. These office-based tenants have improved their performance by an average of 26 per cent through participating in a program that offers them resources, support and recognition of achievement.

²⁰ As defined by the Property Council of Australia Guide to Office Building Quality, 2012

²¹ Australian Institute of Company Directors, 2016

²² Why choose a high performing building. City Switch



Photographer: Richard Glover / City of Sydney

4.4 Private owners

Private individuals and family trusts own around 44 per cent of office space in the City of Sydney.

This ownership group is often referred to by industry as ‘mid-tier’, which describes office buildings other than Premium and A-Grade assets as defined by the Property Council of Australia. This plan focuses on private owners of what are generally the ‘mid-tier’ building type to better understand this diverse group, ranging from high net worth individuals to average-income “mum and dad” investors. Property ownership is often not the core business for this group, meaning that there is less active asset management and different decision-making structures across a diverse set of buildings.

Many studies and pilot projects have shown it is challenging to gain access to these owners because there are so many, and few have the time or resources to dedicate to upgrading their buildings. Nor do they have shareholders or tenants who demand better performance and transparency.

Collectively, private individuals own a larger share of the City’s office floor space than institutional owners. These buildings tend to be older, smaller and lower grade, operating without dedicated building management. The buildings tend to have higher vacancy rates and shorter lease terms. Many of them have inefficient lighting and building management controls that are out of date. Buildings over 20 years old will often have major equipment such as chillers that are nearing the end of their operational life.²³

The results and benefits of upgrading buildings have been clear in institutionally owned buildings. But this is not filtering down to the private individual owners. Voluntary sustainability programs in both New South Wales and Victoria have proven the opportunities are abundant but are not being realised by these owners, probably due to the diversity and varying capability level of building owners and managers.²⁴ Without mandatory levers to upgrade buildings these owners stand to miss out on cost savings, investment opportunity, increased asset value, improved tenant retention and rental return.

In 2014, the City conducted a survey of tenants in privately owned buildings to identify their needs, barriers and motivations in relation to sustainability²⁵. While these businesses reported caring about the environment, they do not act unless there is no cost or little effort involved. Their priority is a low-cost office space; they are not engaging owners on efficiency upgrades as it is perceived that this will result in higher rent. Instead, these businesses choose to focus on day-to-day business.

²³ Mid-Tier Commercial Office Buildings in Australia: A national pathway to improving energy productivity. Green Building Council of Australia, 2015

²⁴ Energy Efficient Office Buildings – Transforming the mid-tier sector, Sustainability Victoria, 2016

²⁵ Mid-tier tenant engagement survey, City of Sydney, 2014



Image courtesy of Stockland

4.5 Owner-occupiers

Owner-occupiers hold about 8 per cent of total office space in the local government area. Government bodies are an important owner-occupier, owning some 43 per cent of this office space.

In theory, owner-occupiers have the strongest incentives for resource efficiency due to the absence of a split incentive between tenant and landlord. In practice, however, there is very little data on the resource efficiency of owner-occupied buildings. Very few are rated under programs like NABERS, perhaps because they are less likely to be sold or leased and therefore are not required under the Commercial Building Disclosure Program to disclose energy performance.

Compared to more professionally managed buildings, owner-occupiers may have less internal expertise in sustainability and energy management. And any priority placed on environmental upgrades will largely be driven by the internal policies of the owners, not tenants, building managers or clients.

4.6 Building managers, contractors and intermediaries

Property and facility managers, on-site building managers, equipment and maintenance contractors, accountants, procurement managers and lawyers play an important role in improving the environmental performance of buildings²⁶. A well managed building can increase up to 1.3 NABERS energy stars through good building management²⁷.

Building managers and contractors are often the intermediary between owners and tenants and provide technical knowledge to manage, maintain and upgrade buildings. The inclusion of environmental performance management obligations in their duties and their level of expertise varies.

Professional management firms are often contracted by institutional owners and property groups to proactively identify and implement no-cost and low-cost opportunities, optimise key equipment and systems and develop asset management plans, presenting business cases and reporting results to owners.

Private owners may specify that building services provide a low-cost service to maintain the building, leaving little capacity to act on environmental performance opportunities. Many owners may not contract dedicated building or facilities management at all; contractors simply maintain key equipment and respond to tenants' complaints.

Accountants and lawyers also influence key decisions on lease agreements, building management and capital spend. There are economic opportunities in upskilling managers, contractors and intermediaries enabling them to identify and mitigate risk, access capital and upgrade the assets that they manage.

²⁶ Building Retrofit Toolkit Scoping Study Final Report, Energy Efficiency Council & Property Council of Australia

²⁷ Warren Centre, 2009

06 Challenges

Strong policy measures are needed to overcome barriers to investment in environmental performance

The City is committed to leading Sydney's ambitious but achievable and necessary goal of net zero by 2050. But we can't do it alone. To develop this plan, the City spoke to the owners, managers and tenants of office buildings about environmental performance opportunities, the barriers and benefits of action, and what would help them act on these opportunities.

Overwhelmingly, they pointed to the need for strong policies that address barriers to investment in environmental performance. These barriers include: unpriced carbon emissions, the centralised energy supply, unengaged owners and tenants, split incentives between building owners and tenants, and, in many cases, limited information, management decision-making time and access to investment capital.

5.1 Policy and regulation

Policies such as carbon taxes and emission trading schemes have been successful in Australia, other countries and other cities²⁸. However, the Australian Government repealed the carbon tax and continues to debate the mandatory renewable energy target. Investors want policy certainty on how markets will operate over the long term.

Energy market reform and increased minimum performance standards are crucial, overdue and the most cost-effective way to improve energy productivity, maximise efficiency and progress to net zero emissions.

The City works with other progressive organisations to promote an updated National Electricity Objective. Climate change should be added to existing considerations like total system cost and security of supply.

Allowing buildings to share power and accessing off-site renewable energy is particularly important to the institutional and property group owners to maximise efficiency and progress to net zero emissions.

While energy efficiency incentives and current mandatory disclosure requirements under the Commercial Building Disclosure (CBD) Program have reduced emissions in the office sector, this is not sufficient to secure the City's environmental targets, the community benefits of Sustainable Sydney 2030, or the Paris agreement.

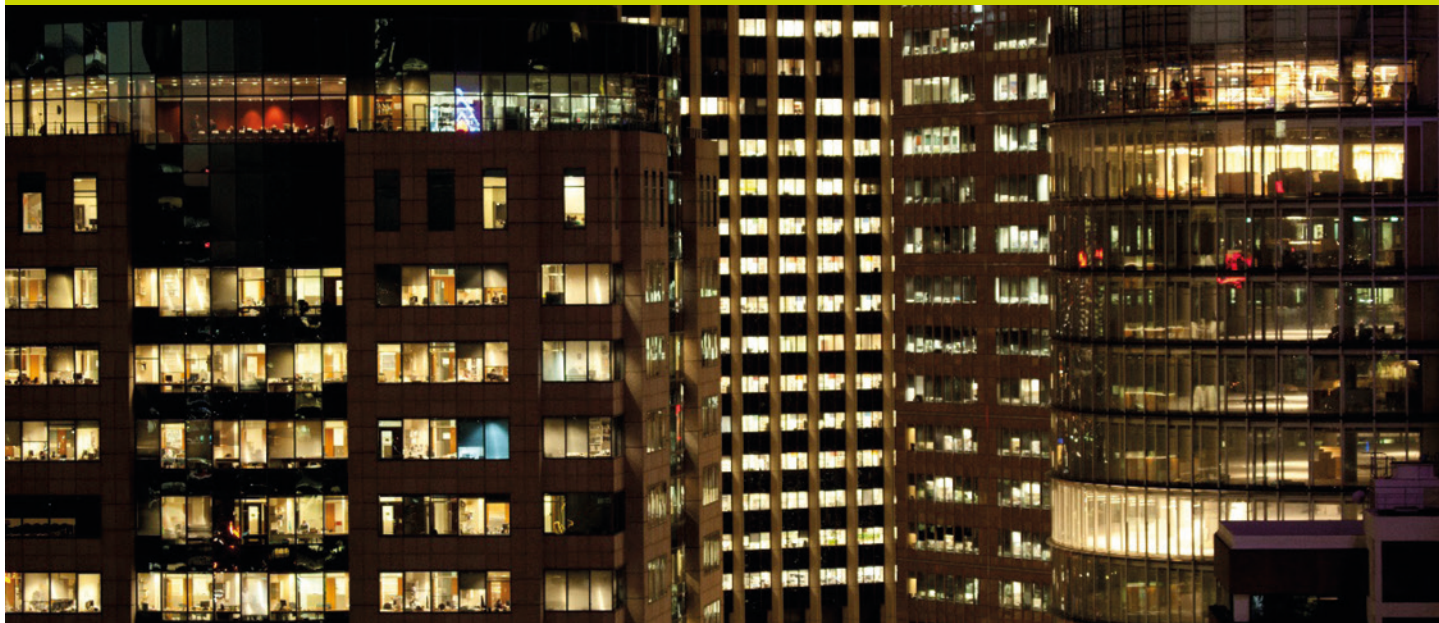
Mandatory disclosure of base building energy performance on sale or lease improves performance. However, privately owned buildings are sold less often, leased by less discerning and empowered tenants, and owned and managed by individuals with less skills and capacity to act on energy performance. Even with the reduced disclosure threshold of 1000 square metres, many will not be required to report in the next five years.

Sustainability Victoria has identified that private owners are responsive when replacing end-of-life equipment or broken assets. But replacements are often unplanned and therefore tend to be 'like for like' rather than upgraded to higher efficiency equipment, because energy consumption and maintenance savings were not considered.²⁹

Regular mandatory reporting by all building owners and tenants would ensure that energy performance was regularly reviewed and enable a more planned response to end-of-life equipment replacement.

²⁸ Alternative building emission-reduction measure: outcomes from the Tokyo Cap-and-Trade Program

²⁹ Energy Efficient Office Buildings – Transforming the mid-tier sector, Sustainability Victoria, 2016



Photographer: Jamie Williams / City of Sydney

5.2 The limits of voluntary action

The current demand for environmental performance in buildings is voluntary. Driven by corporate social responsibility and sustainability policies and targets, corporate tenants are choosing high performing buildings to attract employee talent and support productive staff. Energy performance has benefits of comfort, health and wellbeing, translating to higher productivity and lower absenteeism.³⁰

Corporate tenants tend to publicly report the environmental rating of the base building they occupy but much less so the rating of their own tenancy space. Stakeholder consultation indicated many rely on building owners to act on sustainability. Base building NABERS ratings are being used in corporate reporting without the corporation taking the initiative of rating their own tenancy.

While some tenants, particularly in premium institutionally owned buildings, are aware of these benefits, many perceive that as tenants they have little control or influence over energy costs and environmental performance. Many tenants are not aware of the environmental performance of their office space, the benefits they may be missing out on, and that they can rate and improve tenant performance.

In terms of moving to net zero emissions, the institutional and property group owners are concerned about the lack of engagement of tenants and access to renewables. The Better Buildings Partnership has committed to achieve the City's vision and environmental targets. To achieve this and keep up with international best practice, owners and tenants must work together to maximise whole-building efficiency and secure renewable energy.

Tenants of low-grade buildings prioritise affordable office space close to clients and suppliers. They generally do not query building performance in lease agreements, nor question owners when hit with high energy bills. Owners of these buildings prioritise low maintenance costs and overheads. Generally, the relationship between owners and tenants is managed by contractors who manage multiple buildings and are time-poor.

5.3 Energy data for whole building performance

To maximise whole-building efficiency and benefits from cost savings to comfort levels, it's important to understand not just the energy used by base building plant and equipment but also the energy used in the tenanted spaces.

The Commercial Building Disclosure Program has provided much-needed understanding of base building performance and improvement. There is, however, very limited information on the performance of tenanted office space, given that the scheme specifies it is the obligation of the owner to disclose base building performance and the efficiency of tenant lighting systems only at the point of sale or lease.

To inform this plan, NABERS and CitySwitch data was aggregated to indicate whole-building performance across the ownership profiles. While insufficient data was available to establish energy intensities by subsector, analysis showed that the estimated energy intensities are higher than previously understood, and only marginally lower in institutionally-owned buildings.

³⁰ The Benefits of Benchmarking Building Performance, IMT 2015



Photographer: Jamie Williams / City of Sydney

In New South Wales, owners cannot easily access tenant energy data to measure and manage whole-building performance. Solving this problem is key to effective collaboration. Typically, whole-building energy use is split about 60:40, where 60 per cent is attributed to the base building of which its energy use is owner-controlled and 40 per cent is attributed as the share of tenants.

However, if the energy consumed by the tenant lighting systems that are owned by the building owner is attributed to the building owner then the energy use split may be 70:30 or higher.

In 2017 a NABERS Co-assess tool pilot explored methods for base building and tenancy data to be collected together, but to provide back separate ratings for each participating party. This streamlined method of data collection will enable building owners to offer tenant ratings as a value add service which could result in substantially more disclosed ratings and improved collaboration on the subsequent findings.

Better data disclosure and sharing between parties is important to identify, incentivise and target tailored support to buildings, foster collaboration and accelerate the implementation of upgrades³¹. Green leases provide an industry recognised mechanism to support these outcomes, whilst protecting the needs of individual parties³².

5.4 Incentives for high-performance buildings

The BBP have upgraded their buildings to maximise base building efficiency, achieving a 52 per cent reduction in emissions since 2006. Sustainability Victoria's Energy Efficiency Office buildings program identified no-cost and low-cost efficiency upgrades resulting in an average savings of 29 per cent in energy costs for privately owned buildings.³³

Unlocking no-cost and low-cost upgrades in these buildings would secure:

- Lower energy bills and better comfort for tenants
- Reduced tenant complaints and contractor call-out fees
- Improved performance, better asset value and tenant retention.

But there is little incentive for owners and tenants to collaborate to maximise mutual benefit. This is important in all ownership categories, except perhaps the owner-occupiers.

Lighting upgrades are proven and cost effective. The Commercial Building Disclosure (CBD) Program regards 7 watts per square meter as best practice, but technology is already improving that benchmark. The industry must overcome the split incentive to prioritise lighting efficiency as the highest impact, lowest cost upgrade. Owners can support tenants to upgrade lighting to best practice as defined under the CBD Program.

31 NABERS annual report, 2016

32 BBP Leasing Standard

33 Energy Efficient Office Buildings – Transforming the mid-tier sector, Sustainability Victoria, 2016



WWF Australia, CitySwitch Green Office signatory. Photographer: Ute Wegmann Photography

Further emissions reductions often require investment in larger capital upgrade projects such as replacing chillers, on-site renewables or retrofits to the building envelope. Engaging tenants on whole-building performance has also proven to be resource-intensive.

Privately owned older buildings have old chillers with refrigerants that are being phased out. These upgrades afford long-term savings but need greater capital investment than lighting and heating, ventilation and air conditioning optimisation. However, investing in energy efficiency is not perceived to yield a return, and is seen as potentially disrupting tenants during upgrades.

Financial incentives are important to accelerate investment in major upgrades in all office subsectors. The NSW Energy Savings Scheme and introduction of climate bonds provide assistance in reducing project investment costs.

Additional incentives for institutional and property groups should focus on innovation, securing renewable energy and working towards net zero emissions, whereas incentives for private owners should focus on incentivising high-efficiency upgrades over 'like for like' replacements.

5.5 Demand for high-performing, net zero office space

Owners reported a willingness to invest if there was greater demand for net zero emission buildings. In the past, federal and NSW state policies have preferred occupation in buildings with high NABERS ratings, and this increased demand was met by the market. Government and business procurement policies could be used to catalyse base building upgrades and improved design standards. The Government Resource Efficiency Policy sets the minimum requirement for government office space at 4.5 stars. The City has started to investigate the inclusion of minimum environmental performance in the Development Control Plan.

Making information on utility bills and indoor environmental quality available at point of sale or lease is important for informed consumer choice. Base building performance ratings are mandated to be disclosed on sale or lease, not tenancy ratings. While a well-performing base building can improve tenancy performance, this does not secure efficient productive tenant space.

To achieve net zero emissions buildings, tenants need to rate their office space, improve their ratings, secure and promote the benefits of environmental performance in buildings, buy GreenPower and allowable offsets, and collaborate with fellow tenants and the building owners.



Business waste recycling at Liberty Place. February 2017 / Photographer: Jamie Williams

5.6 Low resource recovery from office waste stream

The office sector generates around 135,000 tonnes of waste a year, or 20 per cent of the city's total commercial waste.

Office tenancies nominally recycle just less than 50 per cent by weight, but contamination of recycling streams can be high and the amount subsequently rejected at the waste recycling facility is unknown.

While procurement of services for recycling for paper and plastic is common in offices, the separate collection of food waste is less common. Food waste, which can be up to 30 per cent of the non-recycled waste stream, can be recovered for energy and to be made into a high-quality fertiliser.

Significant opportunities exist to improve resource recovery through improved material collection systems and data consistency. Collaboration with other tenants, building managers and owners is key to success within the building. It will also be key to work with both ends of the supply chain to maximise waste avoidance and improve resource recovery at end of life.

In view of increasing waste volumes and the greenhouse gas impacts caused by waste in landfills, state policy reform is needed to incentivise waste avoidance, recycling and alternative waste treatment and the reporting of waste weight, volume and composition.

5.7 Increasing potable water consumption

In 2015/16, commercial office buildings consumed over 9,900 megalitres of water, or 27 per cent of total city consumption. Annual consumption for the office sector has been steadily increasing over recent years.

While office buildings use relatively less water than residential apartments or visitor accommodation, every drop of water is precious. In view of increasing high heat days and prolonged droughts, it is everyone's obligation to save water wherever possible. Water-efficiency measures are extremely cost-effective, but limited metering and poor feedback mechanisms prevent improvements, such as simple maintenance to detect and rectify leaks and upgrading ageing fixtures to improve efficiency.

Currently, potable water is used for many non-potable purposes in office buildings, such as toilet flushing and air-conditioning cooling towers. Connecting to alternative sources of water for non-potable uses would be beneficial. It would reduce demand on the centralised water supply and could reduce the future need for major water and wastewater network investment to meet increased demand.

07 Opportunities

Solutions like optimising lighting, heating and cooling are cost-effective and available. But without policy measures to support them, they will continue to be ignored by tenants, private owners and owner-occupiers.

Analysis by C40 Cities shows the greatest impact within the buildings sector can be made by establishing data reporting and codes affecting new and existing buildings and driving energy efficiency improvements for existing buildings.³⁴

The City commissioned detailed emissions modelling to understand the most effective technical and policy initiatives to overcome barriers and reduce emissions in City of Sydney office buildings. Ideas and feedback from the owners, managers and workers of office buildings were included. The following initiatives are the most effective opportunities for emissions reductions; all of them provide net economic gains for the city and businesses:

- Increased renewable energy uptake
- Mandatory disclosure of NABERS ratings and use of NABERS Energy Commitment Agreements
- Higher minimum standards for new build and refurbishment work
- New developments committing to net zero and 6 star NABERS agreements.

All measures except off-site renewable energy supply could potentially improve the quality and performance of office buildings. Improvements in heating, ventilation and air conditioning, and quality efficient lighting can positively impact the health and wellbeing of office occupants, which in turn can boost cost savings from upgrades, with further financial gains in employee productivity and lower absenteeism.³⁵

Benefits from improving sustainability in office buildings are:

- Cost savings – no need to maintain inefficient lighting and equipment
- Comfort – efficient buildings deliver comfortable conditions for tenants and reduce complaints while saving energy
- Productivity – better design and comfort makes workers healthier, happier and more productive
- Value – rating and improving building performance can attract and retain tenants, reduce overheads and increase asset value
- Recognition – staff, investors, clients and customers positively recognise efforts.

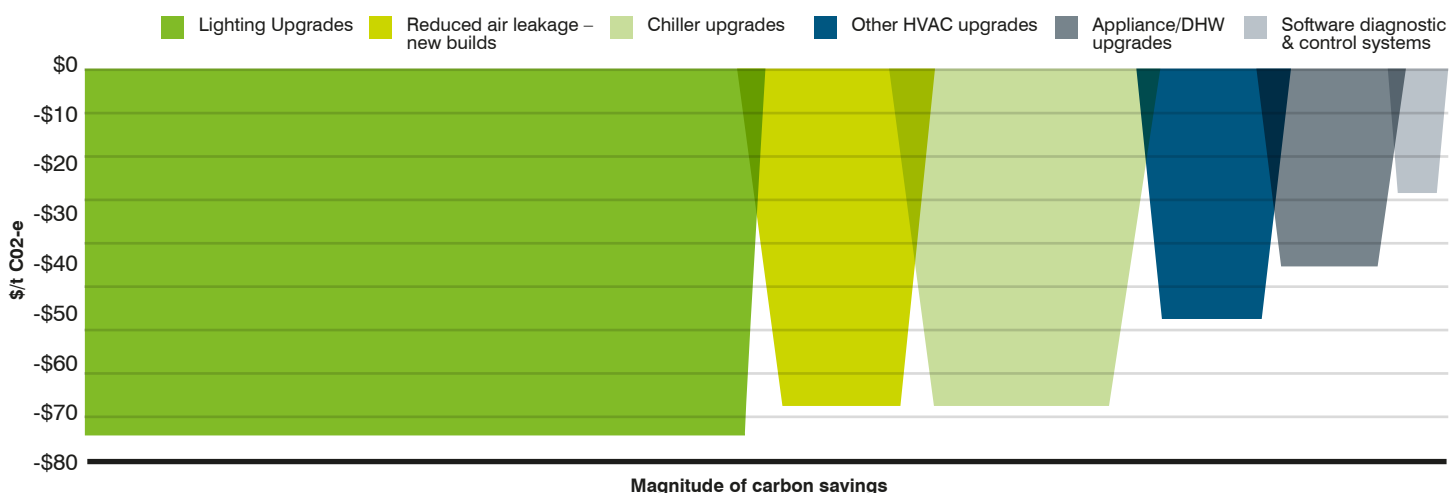
Staff costs are the greatest expense for many office-based businesses. Therefore, productivity gains from improving the comfort and wellbeing of staff are valuable benefits derived alongside upgrading the environmental performance of buildings. This will be increasingly important during prolonged heat waves, when efficient and effective heating and cooling systems will maintain comfort levels for building occupants and reduce the energy load on the grid.

These benefits may not be enough to motivate owners to upgrade their buildings. The City will continue working with industry to advocate for compliance-driven policy and mechanisms to unlock retrofit investment in privately owned buildings.

³⁴ Deadline 2020 – [How cities will get the job done](#), C40 & ARUP, 2016

³⁵ [Health, Wellbeing & Productivity in Offices – The next chapter for green building](#), WGBC

Cost effective upgrades for offices³⁷



Many cities require buildings to undertake periodic auditing and/or retro-commissioning every few years, often mandated along with reporting and benchmarking schemes. Across C40 cities, these mandates are mainly for large commercial buildings; some exclusively focus on building cooling systems and others on whole-building performance, including tenant and base building areas.³⁶

How could similar mandates be applied in Australia? It may involve incremental steps for the office sector to make the transition to net zero emissions by 2050. The first step is the voluntary take up of combined NABERS energy ratings by industry. The City will advocate for the mandatory disclosure of tenancy ratings. This would effectively allow the transition to whole-building ratings to inform the need for minimum requirements and provide better understanding of opportunities for improved performance and improvement.

Requirements for net zero new buildings would follow, and by 2050 all buildings would be operating at net zero emissions.

City governments can also lead by example in their own municipal buildings. Cities often disclose their own building energy performance data, require environmental performance in construction and refurbishments, and test innovative technologies and pilot initiatives in municipal buildings, before demonstrating and promoting outcomes.

6.1 Cost effective upgrades

Research commissioned by the City identifies that many cost effective upgrades are available to the market.³⁷ The chart above identifies the most cost-effective energy efficiency upgrades for offices, all of which provide a positive return on investment. Energy efficiency is now well established and provides a rapid return on investment for all sub-sectors of landlords and tenant. Any economically rational property owner or business could consider a costed plan for tackling these opportunities over time.

Lighting consistently shows as the greatest area of opportunity, but may sometimes lack action due to the split incentive, where the equipment is owned by the building owner, but operated (and paid for via electricity bills) by the tenant.

Given the expertise for property management sits with the owner and their agents, and not with the tenant, this strategy suggests that the landlord assume responsibility for upgrading all general lighting to best practice.

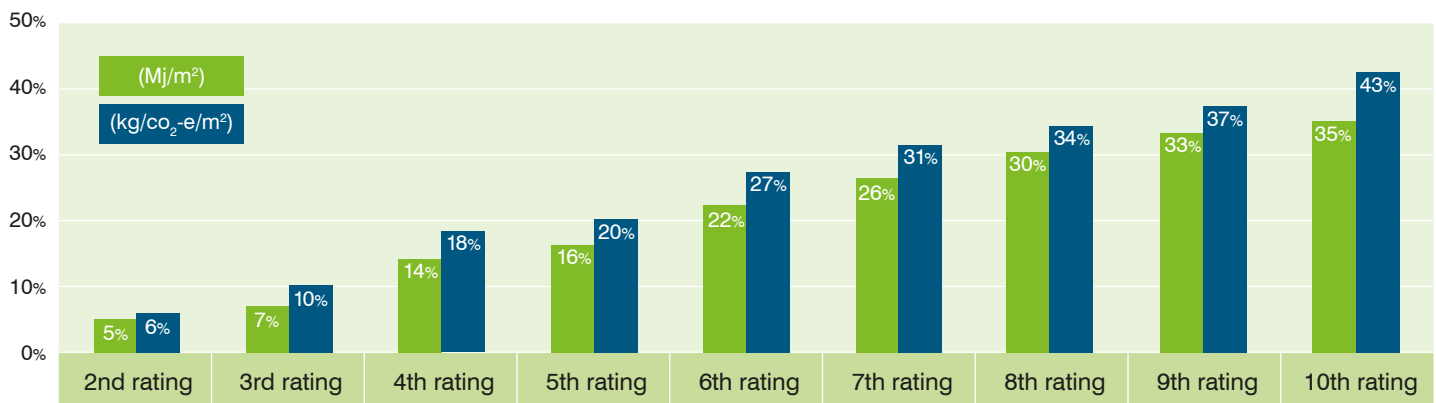
A number of financial mechanisms and schemes including the NSW Energy Savings Scheme (ESS) are available to reduce upfront costs of replacement. There is an opportunity for landlords to come to arrangements with tenants whereby the tenant contributes to the upfront replacement cost in exchange for enjoying the operating costs savings over the longer term.

³⁶ Urban Efficiency – a global survey of buildings energy efficiency policies in cities, C40, 2015

³⁷ Interim (2022) and 2030 Abatement Potentials: Final Report, Strategy. Policy.Research., 2017

Average reduction in energy use after multiple ratings³⁸

NABERS ENERGY FOR OFFICES (Base and Whole Buildings)



6.2 Mandatory disclosure of tenancy or whole-building NABERS energy ratings

Strong evidence suggests that what gets measured gets managed; multiple NABERS Energy ratings are correlated with increased performance of more than 30 per cent.

Most NABERS Energy ratings and improvements have been on base buildings. Analysis of data from the NABERS website shows that only 32 tenancy ratings were undertaken during 2014-15 in the City of Sydney - a tiny proportion of the thousands of office tenancies in the city. Incentives for improving energy efficiency by tenants are weaker. Building owners aiming for very high building performance often struggle to engage tenants.

Mandating the regular disclosure of tenant ratings would trigger tenants to recognise their impact, and their contribution to whole-building energy performance. This may motivate businesses to improve performance, upgrade lighting and appliances, and collaborate on whole-of-building performance.

Tenants could be supported in identifying low-cost upgrades or with information to find better-rated office space to reduce energy costs over the term of the lease.

³⁸ NABERS annual report, 2016, <https://nabers.gov.au/AnnualReport/2015-2016/life-of-program-statistics.html>



International Womens Day Park / Katherine Griffiths

6.3 Market signals, incentives and support for high-performing buildings aiming for net zero emissions

Tenants have the power to influence building energy efficiency with their operational and purchasing decisions. For example, a procurement target set by government leaseholders to occupy net zero emission office space would send an important signal to the market. Although government is not the largest tenant in terms of space in the city, it is a valuable and reliable tenant; building owners would be motivated to upgrade buildings to meet government requirements.

Targeted campaigns to raise awareness of the value and benefit of net zero emission buildings, focusing on whole-building performance and collaboration between tenants and owners are also important to support further emissions reduction.

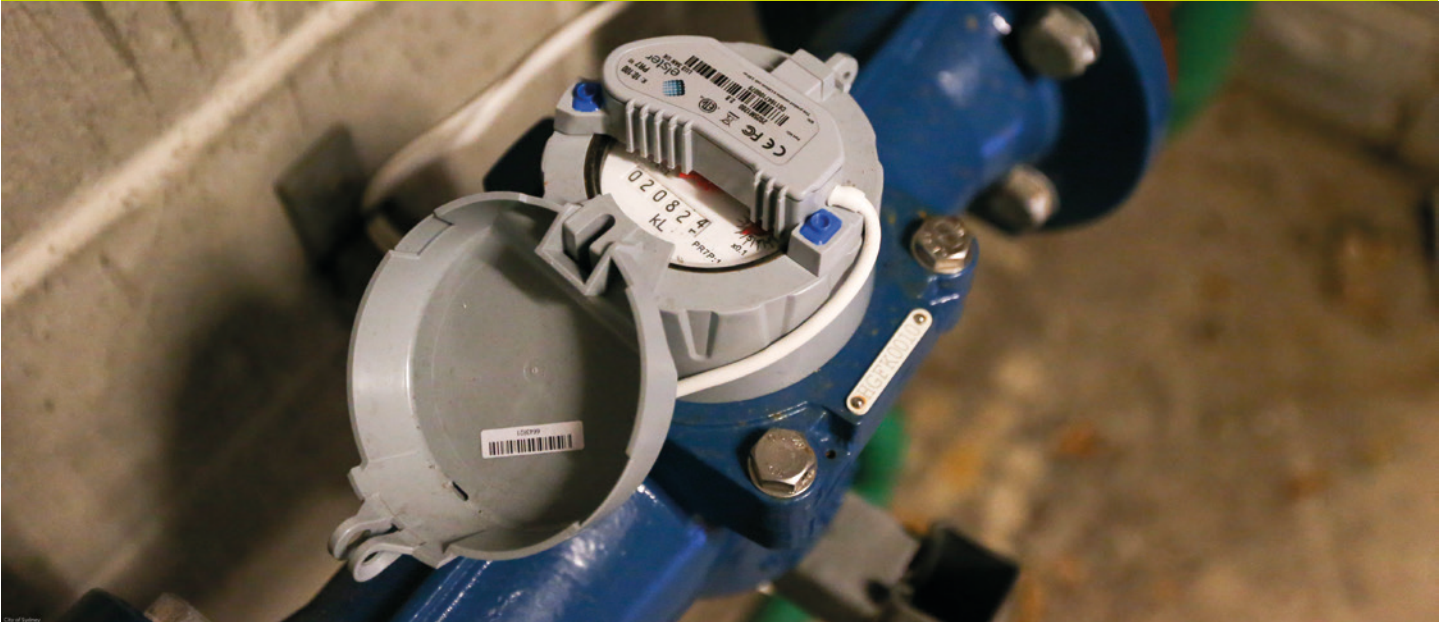
If the National Energy Productivity Plan, the NSW climate change policy framework, market demand and government procurement targets are not enough to motivate emissions reductions, minimum energy performance standards for existing buildings would be justified.

6.4 Improved resource recovery

Building owners and tenants can use their power as customers and consumers to seek out alternative waste solutions, better waste management, and better data and reporting.

CitySwitch has a guide and audit tool for tenants. BBP has produced waste management guidelines that assist owners to procure and manage waste contracts to maximise resource recovery. Office owners and tenants can use the NABERS Waste tool to benchmark their performance.

Building owners can use these tools and guidelines to work with tenants, waste contractors and facilities to encourage meaningful recovery of waste resources.



Water metre/City of Sydney

6.5 Reduced potable water consumption

Building owners can implement water-efficiency measures such as installing smart meters to detect leaks and more efficient fixtures and fittings. This applies to base building equipment such as cooling towers and to office space through collaboration with tenants to maintain water-efficient fixtures.

As part of the CBD and South East Light Rail project, recycled water pipelines are expected to be constructed by the NSW State Government along George Street between Circular Quay Station and Central Station by 2018. It is the City's role to facilitate the delivery of a recycled water scheme that utilises this pipeline. Once a recycled water scheme is developed, buildings close to George Street will be able to access recycled water for all non-potable uses including cooling tower use, toilets, laundry and irrigation.

Initially, existing buildings may choose to connect cooling towers to recycled water, while future buildings or buildings undergoing major refurbishments could connect for all non-potable uses. It is important to ensure that new development is future-proofed through the inclusion of dual plumbing for recycled water where it will be available.

6.6 Off-site renewable energy supply

The energy market is complex, outdated and needs reform to encourage renewable energy investment both in buildings and in supply to the energy grid. Progressive businesses are achieving great results from local and community renewable energy generation projects. However, onsite renewable energy generation is insufficient to reach our city's renewable energy target.

The City is advocating for regulatory changes to the National Electricity Rules to improve financial returns for local generators. The change would have a positive effect on taking up renewable energy generation across Australia in buildings and at the district level.

The City is also exploring opportunities to facilitate renewable energy generation projects outside our city to help achieve the 50 per cent renewable electricity target for the local government area. This type of project would be additional to the amount of renewable energy supplied through the Australian Government's renewable energy target. Opportunities may include aggregated power purchase agreements, encouraging the use of GreenPower, and direct investment in projects.



International Towers, Barangaroo, part of the Climate Positive Precinct. Photo courtesy of Barangaroo Delivery Authority

6.7 Higher minimum standards for new build and refurbishment work

The biggest opportunity for both carbon emission reduction and energy efficiency gains is to increase the minimum standards set in the National Construction Code (NCC) and ensure compliance with these higher standards.

Australia's minimum construction standards for commercial buildings are far behind international best practice.³⁹ The National Construction Code is due to be updated in 2019 – advocacy is needed immediately to ensure that long-term, cost-effective building efficiency and emissions reductions are in line with international best practice standards in both new buildings and major refurbishments.

A study of C40 cities has shown that many cities develop their own codes for new buildings and major renovations that are broader or more stringent than national or state codes.⁴⁰ Recognising the importance of immediate action to avoid locking in new emissions, the City will explore amendments to the Local Environment Plan (LEP) and Development Control Plan (DCP) to secure net zero emission developments.

6.8 New developments delivering net zero and 6 star NABERS agreements

New buildings are not being built to maximum efficiency. This means that further carbon impact and the need to retrofit in the future are locked in. While the majority of environmental impact is in the operation of buildings, the most cost-effective time to secure efficiency is in building design and construction rather than subsequent retrofits.

Analysis undertaken by the City determined that significant emissions savings can be achieved through use of 5.5 star NABERS Energy Commitment Agreements for new commercial office buildings. The City will investigate the inclusion of planning control provisions that introduce NABERS Energy Commitment Agreements for new commercial office buildings or major refurbishments over 500 sqm or 1000 sqm.

³⁹ Low Carbon High Performance – How buildings can make a major contribution to Australia's emissions and productivity goals, ASBEC 2016

⁴⁰ Urban Efficiency – a global survey of buildings energy efficiency policies in cities, C40, 2015

08 Industry action and support from the City of Sydney

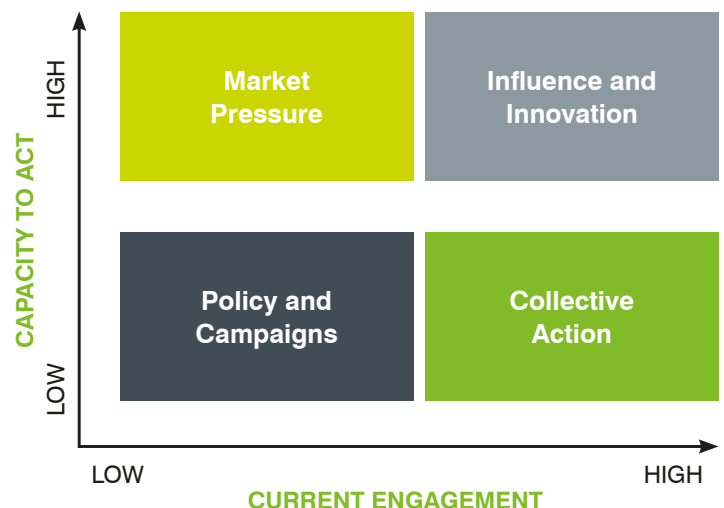
Governments, owners, tenants, managers and developers need to take action towards net zero, showcase its benefits and collaborate to achieve the best outcomes at the lowest cost.

This plan proposes a range of techniques to stimulate activity. It will seek both to raise the bar on minimum compliance expectations for those with low engagement, and to offer support and leadership opportunities to those with high engagement.

It will increase the whole sector's capacity to act with targeted support programs and incentives.

Depending on the level of capacity and engagement, sector players have different roles to play. For example, given the engagement and capacity of the BBP, they are well placed to innovate and influence tenants and peers. Private individual owners may need policy and support to help them act. Corporate tenants without a NABERS rating can request a tenancy rating and engage their building owner on efficiency upgrades. Engaged tenants and managers could access programs like CitySwitch to amplify their action with the support of their peers through collective action.

Sector engagement and relevant actions



All building owners stand to benefit from taking action to improve the environmental performance of buildings.

7.1 Owners

All building owners, from individuals to institutional, stand to benefit from taking action to improve the environmental performance of buildings. Private owners are currently losing money maintaining old equipment, reacting to tenant complaints and paying contractors for band-aid solutions that are not long-lasting. Replacing old equipment with high-efficiency equipment and optimising building management systems should be the priority of private owners to deliver lower costs, reduce tenant complaints and achieve higher asset value.

Action to complete energy assessments and develop long-term asset plans will prepare buildings for policies and regulation that mandate minimum performance standards.

The City will work with government and industry associations and membership groups to engage private owners and provide relevant information at critical decision-making points such as lease expiry, changes to regulation and during the equipment lifecycle.

The City will also continue to work with the BBP and CitySwitch to engage tenants, secure renewable energy and demonstrate to others the benefits of moving to net zero emissions.

Institutional owners and the BBP can focus on collaborating with the City to secure affordable off-site renewable energy and advocate for mandatory disclosure of tenancy ratings.

Actions for all owners

Energy and emissions

- Implement environmental upgrades
- Rate and disclose NABERS Energy performance ratings for base building, combined and whole building in collaboration with tenants
- Support energy performance disclosure and improvement by their tenants
- Upgrade all general lighting systems within tenancies
- Use green leases to enable collaboration with tenants
- Maximise on-site and off-site renewable energy supply options

Waste

- Provide source-separated waste management services for recyclable materials, including organic waste where appropriate
- Use industry best practice⁴¹ to manage and report on waste generation in offices via the NABERS Waste tool to improve industry insights and identify new opportunities for resource recovery
- Work with product and service contractors to implement innovative ideas to minimise waste generation on site and to encourage the re-use and replacement of non-recyclable materials with re-usable or recyclable materials
- Seek non-landfill solutions when establishing waste contracts

41 Better Buildings Partnership Guidelines for Operational Waste



Photographer: Katherine Griffiths / City of Sydney

Water

- Undertake and disclose NABERS Water whole building ratings
- Install sub-meters to detect and rectify leaks and drive water-efficient behaviour in tenants
- Optimise cooling tower water efficiency
- Regularly check for leaks and upgrade water fixtures to improve efficiency
- Investigate recycled water supply to cooling towers and other non-potable water consumption and connect when access becomes available

Transport

- Provide ample bike parking and end-of-trip facilities

7.2 Tenants

Office tenants, as the customer, have a high degree of influence over others in the property supply chain. They need to exercise their purchasing power by choosing high-performance buildings. They need to understand their own environmental impact and its influence on whole-building performance.

Tenants potentially lose money and pay higher energy bills due to low building performance. By conducting a NABERS Energy and/or indoor air quality rating tenants can identify energy efficiency opportunities to lower bills and improve staff comfort levels and productivity.

Environmental initiatives can engage staff and customers by showing examples of business values and responsibility to reduce impact. Independent third-party recognition of these efforts is important to validate, motivate and lead further change.

Many companies across the City of Sydney have publicly stated sustainability targets. To build a shared community commitment to net zero and establish pathways to achieve it, the City will recognise and showcase leading companies and share their experiences for others to follow.



CBRE, CitySwitch signatory. Photographer: Marcus Clinton Photography

Actions for all office tenants

Energy and emissions

- Rate and disclose environmental performance
- Upgrade to energy-efficient lighting and appliances
- Maximise renewable energy options
- Demand high-performing buildings
- Engage with building owners on base building performance improvements, including owner-provided general lighting systems in the tenancy
- Collaborate on whole-building performance

Waste

- Request better waste services and reporting from owners
- Engage staff to recycle correctly
- Introduce print on demand software to reduce paper wastage

Water

- Assess water efficiency and contract management to upgrade water fixtures and install sub-meters

Transport

- Encourage cycling, walking and public transport

7.3 Building managers

Building managers and contractors play a crucial role. It is their responsibility to implement upgrades. They often encourage collaboration between owners and tenants. Many have the authority and resources to implement optimisation with no-cost and low-cost upgrades. Many have done so already, and could access the City's grants for ratings and assessments to explore bigger upgrades, present opportunities to owners and tenants, implement and measure performance improvement and report the results.

Actions for building managers

- Implement environmental upgrades
- Measure and present the savings to owners and tenants
- Develop business cases for major upgrades
- Preference the replacement of end of life equipment with the highest efficiency option rather than like for like – considering the life cycle costs and benefits rather than simple cash up front



Pedestrian access to International Towers, Barangaroo. Image courtesy of Barangaroo Delivery Authority

7.4 Developers

All new developments and refurbishments can seize the most cost-effective opportunity to integrate sustainability, at the design and construction stages. Incorporating higher environmental performance standards in new buildings and refurbishments is the most cost effective mechanism in the sector for the reduction of greenhouse gases.

Actions for developers

- Design and construct new buildings to the highest level of sustainability performance available
- Utilise the highest available NABERS Energy Commitment Agreement
- Comply with the City of Sydney's Waste Management Local Approvals Policy and Guidelines for Waste Management in New Developments
- Include dual plumbing in planning proposals where there are opportunities to connect to a recycled water scheme
- Ensure highest available Water Efficiency Labelling Standard (WELS) for taps, toilets and urinals, and dishwashers.
- Minimise water wastage from fire protection systems testing
- Provide bike parking and facilities
- Minimise general car parking and provide car share vehicle spaces and dedicated charging stations for electric vehicles where possible and appropriate

7.5 Australian and New South Wales governments

Many stakeholders argued for the need for stronger policies and regulations to improve the environmental performance of buildings, specifically the need to raise minimum standards, reform the energy market to secure further efficiency and more renewable energy and direct the market to net zero emission buildings by engaging the unengaged sectors.

Key actions for Australian and New South Wales government:

Australian Government

- Establish a price on carbon and increase the mandatory renewable energy target providing policy certainty to the energy market
- Remove energy market barriers for decentralised energy and affordable off-site renewable energy access
- Implement regular mandatory disclosure of NABERS tenancy and whole-building ratings, as opposed to at the time of sale or lease and investigate the opportunity for retro-commissioning of existing buildings to minimum standards
- Increase minimum standards in the National Construction Code
- Increase Minimum Energy Performance requirements (MEPS) and accelerate uptake of energy efficient appliance standards under the national Greenhouse and Energy Minimum Standards (GEMS) program
- Promote the National Carbon Neutral Offset Standard for Carbon Neutral Buildings
- Develop financial incentives for high environmental performance in buildings



NSW and ACT City Switch Awards, Sydney, November 2014 / City of Sydney

New South Wales government

- Increase the Government Resource Efficiency Policy (GREP) to specify that agencies need to occupy buildings with minimum 5.5 - 6 star NABERS Energy rating and ultimately net zero buildings
- Rate and disclose the energy and water performance of government owned buildings
- Collaborate with industry associations to build capacity and deliver targeted information, resources and training to private owners
- Deliver waste market reform to incentivise resource recovery (avoiding waste, recycling, alternative waste treatment, and transparent waste reporting on volume, weight, composition and diversion from landfill)
- Deliver a recycled water pipeline along George Street between Circular Quay Station and Central Station by 2018
- Fund, and where appropriate deliver, an integrated bicycle network to encourage the further take up of cycling
- Deliver key components of an integrated and safe walking network, including road crossings and links through Government lands and developments

7.6 The City's actions

The City will demonstrate leadership in its own office buildings. Engaging tenants, piloting and testing initiatives to improve environmental performance, demonstrating the value of whole-of-building ratings and working towards net zero emissions.

Other actions the City will take:

- Advocate for regulatory reform to facilitate increased investment in, and use of, renewable energy
- Advocate for increased minimum environmental performance standards in building codes, equipment and appliances
- Advocate for water pricing that reflects resource value and promotes innovative water-sensitive solutions including recycled water
- Advocate for increases to the NCC minimum environmental performance standards for building and refurbishments, and increased compliance with the NCC
- Continue to promote the Section J compliance checklist through industry partners
- Advocate for the Government Resource Efficiency Policy (GREP) to specify that agencies need to occupy buildings with minimum 5.5 - 6 star NABERS Energy rating and ultimately net zero buildings
- Advocate for the mandatory regular disclosure of tenancy ratings and retro-commissioning to above minimum standards
- Provide support for whole-building data disclosure and NABERS Energy Ratings



Photographer Jamie Williams/City of Sydney

- Continue to deliver the CitySwitch Green Office Sydney program to office-based businesses
- Continue to deliver the Better Buildings Partnership program for leading property owners in the local government area
- Support environmental innovation through the provision of grants and the sharing of success and knowledge
- Encourage private owners to take action with information, disclosure and campaigns
- Promote green leasing to enable upgrade activity
- Support the cost effective uptake of renewable energy with information and campaigns
- Encourage the design, construction and operation of net zero buildings, both new and existing
- Deliver a tune-up program to support privately-owned buildings to make environmental performance upgrades
- Investigate the inclusion of planning control provisions that introduce NABERS Energy Commitment Agreements for new commercial office buildings and major commercial office refurbishments over 500 sqm or 1000 sqm.
- Promote the use of the updated Guidelines for Waste Management in New Developments
- Develop a pathway for the City's current planning controls to be strengthened over time to deliver net zero building standards
- Encourage and support buildings to connect to recycled water

The City will increase the whole sector's capacity to act with targeted support programs and incentives.

- Investigate how dual plumbing could be mandated in areas where recycled water is available
- Provide guidelines to assist the business community with operational and contract waste management templates to achieve improved sustainability outcomes and value for money
- Support improved commercial waste data collection and verification
- Educate the business community about available non-landfill, alternative waste treatment solutions for operational waste management
- Share waste generation data to assist with monitoring recycling performance and identify opportunities for increased resource recovery
- Continue to deliver the Liveable Green Network, providing connected walking routes across the city
- Advocate for and develop an integrated bike lane network and distribute cycling and walking maps

09 Existing policies and programs

This plan builds on existing policies, programs and support towards net zero emissions in office buildings.

Better Buildings Partnership

The Better Buildings Partnership (BBP) is a program for Sydney-based institutional owners and property groups to collectively improve their impact. BBP establishes best practice standards for use by owners and their representatives including green leasing, operational and strip-out waste management guidelines.

CitySwitch

CitySwitch supports office-based businesses to improve their day-to-day energy and waste efficiency, increase productivity, reduce operational costs and create value for employees. It includes a resource hub, engagement campaign templates, and industry briefings and events.

National Australian Built Environment Rating System (NABERS)

NABERS is an Australian government initiative that measures and rates the environmental performance of Australian buildings and tenancies.

Commercial Building Disclosure (CBD) program

CBD is a federal government scheme that requires the disclosure of base building NABERS energy ratings and tenancy lighting assessments for spaces of 1000 square metres and above, at the point of sale or lease.

Training for private owners of mid-tier buildings

The NSW Office of Environment and Heritage provides training for facilities managers of privately owned buildings, focusing on simple maintenance, tuning and upgrade opportunities.

Energy Saver

Energy Saver is a NSW government program providing guidance and calculators for upgrading HVAC and lighting, considering net zero impact, and more.

Sustainability Advantage

Sustainability Advantage is a NSW government program that assists organisations across New South Wales to achieve increased competitiveness and improved bottom lines through better environmental practices.

Energy Savings Scheme (ESS)

The Energy Savings Scheme is a NSW government program which creates financial incentives to invest in energy savings activities and improves the rate of return on upgrade projects by creating tradable carbon abatement certificates that can be sold to liable energy generators.

Environmental Upgrade Agreements

Environmental Upgrade Agreements is a NSW government finance mechanism for building owners to access finance for upgrade works of existing buildings that result in energy, water and other environmental savings.

Environmental Grants

The City of Sydney provides grants that incentivise action and innovation in environmental performance.

Cycling in the city

The City is building a bike network which includes dedicated bike paths separating riders from traffic and pedestrians. The City's Sydney Rides events offer expert advice on everything from route planning to buying a new bike. The City also offers courses and bike care and maintenance at the Sydney Park Cycling Centre.

10 Plan development and reporting

The City of Sydney is dedicated to building a culture of sustainability to achieve the objectives of Sustainable Sydney 2030. This plan aims to engage the office sector to act on environmental performance opportunities and lead the city to net zero emissions.

9.1 Plan development

The office sector was prioritised as key to achieving the net zero goal, given the success and leadership of the Better Buildings Partnership and CitySwitch members, the untapped opportunity in the rest of the sector, and the fact that commercial office buildings make up the majority of the floor space in the City of Sydney area.

Targeted engagement was undertaken to gain ideas and insights from office sector stakeholders within the city and test the City's assumptions on the barriers and motivators to environmental sustainability. An external technical and policy Reference Group was convened to provide the City with strategic advice and influence the development and delivery of the plan.

The Reference Group consisted of representatives from a number of key government and private organisations, which included: NSW Office of Environment and Heritage; NSW Department of Planning and Environment; Urban Growth NSW; NSW Department of Trade and Investment; Transport for NSW; Green Building Council Australia; Property Council Australia; Better Buildings Partnership; Energy Efficiency Council; Facilities Management Australia; Engineering Association Australia; Sydney Water; and Jemena.

The City met with the Better Buildings Partnership to understand how the City can further support their leadership. Across the board, there was support and interest for the development of the plan and an overall consensus on the next focal areas for the sector: renewable energy, tenant engagement and privately owned offices.

The City commissioned detailed carbon emission modelling to understand the most effective opportunities for the sector to reduce emissions and conducted targeted engagement to gain insights from office sector stakeholders.

Over 40 stakeholders attended tailored briefings for owners, managers and tenants. The City then held a follow-up session to report back how stakeholder feedback had been incorporated in the plan.

Opportunities identified in these meetings and briefings are included in this plan's suite of actions. Feedback during the consultation also reinforced the need and desire for continued engagement with industry stakeholders.

9.2 Reporting

A monitoring and evaluation plan will be prepared to enable the City to track progress towards the outcomes stated in this plan. Progress will be reported annually as part of the City's environmental reporting. The plan will be reviewed in 2022, and adapted as required to support the sector's progress towards 2030 goals.

Appendix A: Measures, assumptions and actions

The table below details the assumptions behind each carbon reduction measure and how the City and industry actions will deliver on the measures. These actions are a sub-set of those outlined earlier in this plan, which also included actions to reduce water use and waste generation, as well enabling actions that don't provide a direct carbon reduction but which are essential to creating change in the industry.

Renewable energy campaign			
Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	93,700	% of 2014/15 - 21/22 abatement 36%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	250,700	% of 2014/15 - 29/30 abatement 36%
Key assumptions	Campaigns to encourage voluntary uptake of renewable energy are assumed to lift 100% renewable energy take up to the following levels by 2030: 100% of BBP base buildings; 25% of BBP tenants and of other institutional base buildings and tenants; 12% of property group and owner occupiers (base and tenancy); with no take-up by private owners (base or tenancy).		
City actions	<ul style="list-style-type: none"> • Encourage the design, construction and operation of net zero buildings, both new and existing • Support the cost effective uptake of renewable energy with information and campaigns • Promote green leasing to enable upgrade activity • Advocate for regulatory reform to facilitate increased investment in and use of renewable energy 		
Industry actions	<p>Owners:</p> <ul style="list-style-type: none"> • Maximise on-site and off-site renewable energy supply options <p>Tenants:</p> <ul style="list-style-type: none"> • Maximise renewable energy options • Collaborate on whole-building performance <p>Government:</p> <ul style="list-style-type: none"> • Establish a price on carbon and increase the mandatory renewable energy target providing policy certainty to the energy market • Remove energy market barriers for decentralised energy and affordable off-site renewable energy access • Promote the National Carbon Neutral Offset Standard for Carbon Neutral Buildings 		

Expansion of Commercial Building Disclosure scheme

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	47,200	% of 2014/15 - 21/22 abatement	18%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	111,400	% of 2014/15 - 29/30 abatement	16%
Key assumptions	Assumes Commercial Building Disclosure scheme applies to all buildings and tenancies greater than 500 sqm as at June 2018, and requires disclosure every four years (where not triggered by sale or lease). Also assumes that the current exemption for buildings with less than 75% office space no longer applies. Assumes energy use reductions in line with that reported by NABERS annual report 2016 (see page 27 of this plan).			
City actions	<ul style="list-style-type: none"> • Advocate for the mandatory regular disclosure of tenancy ratings and retro-commissioning to above minimum standards, including tax incentives for action • Develop a pathway for the City's current planning controls to be strengthened over time to deliver net zero building standards 			
Industry actions	<p>Owners:</p> <ul style="list-style-type: none"> • Rate and disclose NABERS Energy performance ratings for base building, combined and whole building in collaboration with tenants • Use green leases to enable collaboration with tenants <p>Tenants:</p> <ul style="list-style-type: none"> • Rate and disclose environmental performance, engage in cost-effective upgrades <p>Government:</p> <ul style="list-style-type: none"> • Implement regular mandatory disclosure of NABERS tenancy and whole-building ratings, as well as at the time of sale or lease and investigate the opportunity for retro-commissioning of existing buildings to minimum standards • Rate and disclose the energy and water performance of government-owned buildings 			

NABERS Commitment Agreements

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	46,400	% of 2014/15 - 21/22 abatement	18%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	69,300	% of 2014/15 - 29/30 abatement	10%
Key assumptions	<ul style="list-style-type: none"> • Assumes 5.5 star NABERS commitment agreements (CAs) for buildings outside the CBD and 6 star for whole buildings in CBD (with height incentives). Savings are initially high, at around 50% compared to National Construction Code minimums, but fall back to around 25% after the Code is assumed to be lifted in 2019 to 5.5 star. • Assumes institutional and property groups adopt 6 star CAs with height incentives, other building categories don't. • Assumed to apply to the following proportions of floor space per annum: institutional base buildings & tenants 3%; property groups base building 3%; property groups tenants 2%; Private/foreign-owned base building & tenants 1.5%; owner occupied base building & tenants: 1%. 			
City actions	<ul style="list-style-type: none"> • Investigate the inclusion of planning control provisions that introduce NABERS Energy Commitment Agreements for new commercial office buildings and major commercial office refurbishments over 500 sqm or 1000 sqm. 			
Industry actions	<p>Developers:</p> <ul style="list-style-type: none"> • Utilise the highest available NABERS Energy Commitment Agreement 			

Higher energy standards in National Construction Code

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	27,200	% of 2014/15 - 21/22 abatement	10%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	87,700	% of 2014/15 - 29/30 abatement	12%
Key assumptions	Applies to new buildings and major refurbishments in all sub-sectors. Assumes National Construction Code Section J energy performance requirements are lifted in 2019 by around 38% - savings are assumed to be lower for institutional owners, as they tend to build above Code minimums already – although assumes 10% of the potential savings are lost through under-compliance.			
City actions	<ul style="list-style-type: none"> Advocate for increases to the National Construction Code (NCC) minimum environmental performance standards for building and refurbishments, and increased compliance with the NCC 			
Industry actions	Government: <ul style="list-style-type: none"> Increase minimum standards in the National Construction Code 			

Increased compliance with National Construction Code

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	3,000	% of 2014/15 - 21/22 abatement	1%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	9,700	% of 2014/15 - 29/30 abatement	1%
Key assumptions	The measure is a program to enhance compliance with existing minimum mandatory standards in the National Construction Code (NCC), both in the case of new builds and major refurbishments. For modelling purposes, we assume that the energy savings available through such a measure would be similar to those associated with a building tune-up, as poor commissioning is understood to be one of the most common sources of under-performing commercial buildings. Improved Code compliance is assumed to recover 10% of the potential savings from Code upgrades.			
City actions	<ul style="list-style-type: none"> Advocate for increases to the National Construction Code (NCC) minimum environmental performance standards for building and refurbishments, and increased compliance with the NCC Continue to promote the Section J compliance checklist through industry partners 			
Industry actions				

Enhanced Minimum Energy Performance Standards

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	12,200	% of 2014/15 - 21/22 abatement	5%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	61,500	% of 2014/15 - 29/30 abatement	9%
Key assumptions	Assumes Minimum Energy Performance Standards on equipment and appliances are 10% higher than would otherwise be the case.			
City actions	<ul style="list-style-type: none"> Advocate for increased minimum environmental performance standards in building codes, equipment and appliances 			
Industry actions	Government: <ul style="list-style-type: none"> Increase Minimum Energy Performance requirements (MEPS) and accelerate uptake of energy efficient appliance standards under the national Greenhouse and Energy Minimum Standards (GEMS) program 			

CitySwitch Growth

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	7,600	% of 2014/15 - 21/22 abatement	3%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	39,500	% of 2014/15 - 29/30 abatement	6%
Key assumptions	In 2014/15 there was 8 million sqm of office floor space in office buildings growing at 1.2% a year. CitySwitch members currently represent 1 million sqm of this floor space. Measure assumes an additional 3.3% of office floor space in office buildings will join CitySwitch each year until 2022 (5% institutional, property group and owner-occupied tenancy floor space, 1% of private owners = 3.3% of total sqm). The CitySwitch participation rate would also grow in line with an assumed sector growth rate of 1.2% p.a. Savings rate is assumed to be up to 15% savings for new members over the 5 years.			
City actions	<ul style="list-style-type: none"> Continue to deliver the CitySwitch Green Office Sydney program to office-based businesses 			
Industry actions	Tenants: <ul style="list-style-type: none"> Demand high-performing buildings Office tenants join the CitySwitch program and retrofit/upgrade their tenancies 			

NSW Government Leasing requirement for 6 star NABERS Energy

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	9,300	% of 2014/15 - 21/22 abatement	4%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	14,600	% of 2014/15 - 29/30 abatement	2%
Key assumptions	Assumes that NSW Government agencies are required to lease 6 star NABERS Energy rating buildings. This would represent a significant (up to 50%) saving over current practice, but the impact is assumed to be modest due to the small share of NSW government leased space. Assumed to apply from mid-2018.			
City actions	<ul style="list-style-type: none"> Advocate for the Government Resource Efficiency Policy (GREP) to specify that agencies need to occupy buildings with minimum 5.5 - 6 star NABERS Energy rating and ultimately net zero buildings 			
Industry actions	Government: <ul style="list-style-type: none"> Increase the Government Resource Efficiency Policy (GREP) to specify that agencies need to occupy buildings with minimum 5.5 - 6 star NABERS Energy rating and ultimately net zero buildings 			

National financial incentives

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	4,900	% of 2014/15 - 21/22 abatement	2%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	24,600	% of 2014/15 - 29/30 abatement	3%
Key assumptions	<p>A set of financial incentives in the form of tax breaks, accelerated depreciation and low cost finance etc aimed at the private owners and owner occupiers has been modelled.</p> <p>These incentives support annual savings of 10% on average, for those who do respond, but this is only assumed to be a small share of the floor area annually (2%).</p>			
City actions	<ul style="list-style-type: none"> Advocate for the mandatory regular disclosure of tenancy ratings and retro-commissioning to above minimum standards, including tax incentives for action 			
Industry actions	Government: <ul style="list-style-type: none"> Develop financial incentives for high environmental performance in buildings 			

Data driven campaigns

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	2,200	% of 2014/15 - 21/22 abatement	0.85%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	12,200	% of 2014/15 - 29/30 abatement	1.73%
Key assumptions	Data driven campaigns target owner-occupiers and private owners only, and are assumed to achieve savings of 5%, on average, for those who do respond, but assumes that only 3% of private owners and 5% of owner occupiers (who have a stronger incentive) do so each year.			
City actions	<ul style="list-style-type: none"> Provide support for whole-building data disclosure and NABERS Energy Ratings 			
Industry actions	Government: <ul style="list-style-type: none"> Collaborate with industry associations to build capacity and deliver targeted information, resources and training to private owners 			

Voluntary best practice standards

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	2,100	% of 2014/15 - 21/22 abatement	0.81%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	11,200	% of 2014/15 - 29/30 abatement	1.60%
Key assumptions	Voluntary uptake by property groups of Better Buildings Partnership best practice standards. Assumes that around 5% of the floor area (base and tenants) responds each year, and achieves 20% savings on average.			
City actions	<ul style="list-style-type: none"> Continue to deliver the Better Buildings Partnership program for leading property owners in the local government area 			
Industry actions	Developers: <ul style="list-style-type: none"> Design and construct new buildings to the highest level of sustainability performance available 			

Environmental grants and building tune-up program

Abatement to 2022	Reduction from 15/16 emissions (t CO ₂ -e)	1,800	% of 2014/15 - 21/22 abatement	0.69%
Abatement to 2030	Reduction from 15/16 emissions (t CO ₂ -e)	9,400	% of 2014/15 - 29/30 abatement	1.33%
Key assumptions	Environmental grants offered by the City and a building tune up program offered by the City are assumed to induce savings of around 5% on average, but with limited take-up varying between 0% and 3% of the floor area annually, depending upon the ownership class.			
City actions	<ul style="list-style-type: none"> • Support environmental innovation through the provision of grants and the sharing of success and knowledge • Deliver a tune-up program to support privately-owned buildings to make environmental performance upgrades 			
Industry actions	<p>Owners:</p> <ul style="list-style-type: none"> • Implement environmental upgrades • Upgrade all general lighting systems within tenancies <p>Tenants:</p> <ul style="list-style-type: none"> • Upgrade to energy-efficient lighting and appliances • Engage with building owners on base building performance improvements, including owner-provided general lighting systems in the tenancy <p>Building managers:</p> <ul style="list-style-type: none"> • Implement environmental upgrades • Measure and present the savings to owners and tenants • Develop business cases for major upgrades • Preference the replacement of end of life equipment with the highest efficiency option rather than like for like – considering the life cycle costs and benefits rather than simple cash up front • Seek out support and training 			





Help shape the future of Sydney.
Have your say at
SydneyYourSay.com.au