

An aerial photograph of a park area. A river flows through the center, bordered by a paved walkway and a wooden bridge. The park is lush with green grass, numerous trees, and some playground equipment. A white car is parked on a path near the bridge. The overall scene is bright and sunny.

Sydney
WATER



**Our path to
net carbon zero
and beyond**



Acknowledgement of Country

Sydney Water respectfully acknowledges Aboriginal people as the traditional custodians of the land and waters on which we work, live and learn. Their lore, traditions and customs nurtured and continue to nurture the waters (bulingang or saltwater and muulii ngadyuung or sweetwater) in our operating area, creating well-being for all.

We pay our deepest respect to Elders, past and present. We acknowledge their deep connections to land and waters. In the spirit of reconciliation, we remain committed to working in partnership with local communities to ensure their ongoing contribution to the future of the water management landscape, learning from traditional and contemporary approaches, while maintaining and respecting their cultural and spiritual connections.



Through naturalisation projects like Johnstons Creek, Sydney Water is improving waterway health, restoring urban ecology and creating a better life for our customers.



Every day, Sydney Water provides high-quality drinking water to 5,257,000 people. Our water and waterways are world-class and support thriving, liveable and sustainable cities.

For 135 years, this has been our goal – ensuring the people of Greater Sydney, the Blue Mountains and the Illawarra have a safe, reliable water supply. As the population grows and temperatures rise, we are responding to meet the changing needs of our communities now and into the future.

We do this in ways which align with the traditional custodians of the land and waterways in which we live, work, play and connect. We embrace the Caring for Country approach practised by First Nations people, and we embrace efforts to restore our connections with water, land and each other.

As custodians of wastewater, recycled water and some stormwater services, engaging with our customers and evolving to meet and exceed their changing needs is in our culture. We need to use energy efficiently, generate renewable energy, diversify our water sources and implement circular economy principles across our operations.

Climate variability, combined with population growth and finite water supply, were the key drivers in the development of the Greater Sydney Water Strategy. The strategy provides the framework for delivering resilient and reliable water supply for the foreseeable future, a comprehensive water conservation program and upgrades to our network to support the resilience and reliability of our services.

All of these strategies, and more, support our commitment to achieve net zero carbon emissions across our business by 2030 and across our supply chain by 2040.

We are moving closer to our net zero emissions target through renewable energy projects, decarbonising our infrastructure and championing circular economy principles – particularly resource recovery in the form of energy, agricultural nutrients and much more.

Our plan supports our ambition to reduce our impacts on the environment, while collaborating with our current and future customers to deliver the outcomes they expect and deserve.

A handwritten signature in black ink, appearing to read 'Roch Cheroux', written over a horizontal line.

Roch Cheroux
Managing Director

What is the challenge?

From hot summers to severe and extended dry periods and droughts, through to heavy downpours, variations in climate have a direct impact on our customers, our network and our services.

Sydney Water is responding to climate change, adopting adaptation and abatement initiatives to help us sustain a reliable and resilient water supply and ensure our waterways are healthy for the future while delivering thriving, liveable and sustainable cities.

It is anticipated that climate change will increase the frequency and severity of natural hazards, including bushfires, storms, floods, heatwaves, king tides and rising sea levels across our region – and we recognise we need to adapt. We are investing now to improve our preparedness for future conditions, in line with our customer values.

We use industry-leading climate models to project future climate changes and use this information to inform decision-making on our infrastructure and organisational readiness for climate change.

Sydney Water is one of 14 Australian and New Zealand water utilities to become signatories to the United Nations-led Race to Zero carbon emissions campaign.

Our target is net zero carbon emissions across our business by 2030 and across our supply chain by 2040.

We are achieving this goal by implementing sustainable technologies, renewable energy projects and circular economy principles, realised through collaborations with our utility partners, industry, government, private sector, universities, research sector, suppliers and our customers.

As we better understand and respect the interconnectedness of our environment, our economy and our communities, we recognise that cooperation matters just as much as competition. If we work together, across industries, we can create a better life for our customers.



Potential risks of a changing climate

- Greater variability in customer demand for water
- Increased risk of severe bushfires affecting water catchments and our people
- Increased risk of pipe corrosion and odours
- More extreme storms that push our water resource recovery facilities over capacity
- Higher sea levels and more storms that threaten our low-lying coastal assets
- Increased pipe failures due to changes in soil structure and stability
- Large-scale disruptions to electricity supplies and supply chain.

Our approach to climate change will help us achieve net zero

Our climate change action plan is divided into two parts: abatement and adaptation.



Abatement

Actions we're taking to address the causes of climate change and prevent further impacts.



Adaptation

Actions we're taking to address the actual or expected impacts of climate change.

In other words, we are addressing the existing effects of the problem and trying to solve it by taking targeted action as quickly as possible.

Our commitment

- We will achieve a net carbon zero emissions target for our own operations by 2030, and across our supply chain by 2040.
- We will ensure our services are climate resilient, protecting our customers from disruption even as the effects of climate change intensify.
- We will support our customers to reduce their emissions and build resilience from the impacts of extreme weather.
- We will collaborate with our utility partners and suppliers to implement sustainable technologies and renewable energy projects.
- We will create a roadmap to address our key climate risks and continue to monitor and adapt our services.
- We will use climate science to inform our work and support the development of leading practice tools and processes.
- We will continuously improve the health of rivers and beaches making water accessible to more communities across our cities.
- We will keep resources in use at their highest value and economically design out waste and pollution.
- We will champion the regenerative processes at the heart of First Nations traditions.
- We will change the way we plan to make sure everything we build and operate is ready for the most likely climate future, aligned to global emission pledges.

Where are we now?

Delivering water and wastewater services is an energy-intensive process. We've been working to reduce our carbon emissions for many years, and we are making good progress through innovative partnerships and projects.

Australia's first biomethane-to-gas project at our Malabar Water Resource Recovery Facility



In partnership with Jemena, and with support from the Australian Renewable Energy Agency, the project will generate zero-carbon emission, high-quality biomethane gas from the wastewater treatment process and inject it into the gas grid for cooking, heating and hot water. The project will be operational at the end of 2022 and will remove 5000 to 6000 tonnes of carbon emissions each year and potentially 11,000 tonnes if scaled to its full potential.

An Australian-first approach to waterways and stormwater management in the Mamre Road and Aerotropolis precincts in Western Sydney

Stormwater will be diverted into natural water channels and wetlands instead of relying on buried concrete pipes or drains. The stormwater will then be collected, treated and harvested as recycled water to support greening and cooling in the local area.



Beach to bush initiative

During the wastewater treatment process, Sydney Water captures organic solids and processes them into a safe, stable, nutrient-rich fertilisers called biosolids. We produce over 180,000 tonnes each year, and since 2003, we have beneficially used 100 per cent of them – keeping them out of the ocean and landfill. The biosolids product is applied to agricultural soils in cropping and livestock farms, as well as forestry and mine rehabilitation sites. Sydney Water has also reduced its pressure on the electricity grid, with the renewable energy by-product from biosolids powering up to 30 per cent of our wastewater business and cutting greenhouse gas emissions by over 50,000 tonnes each year.



Pilots to assess non-traditional infrastructure such as our macro-algae trial with Pacific Bio and wetlands trial at our Picton Water Resource Recovery Facility

The trials use macro-algae and plants to polish nutrients from wastewater before discharging to the environment. If successful, the trials can be delivered at scale to potentially treat all wastewater onsite rather than investing in large infrastructure.



The Advanced Water Recycling Centre provides a unique opportunity to work with our partners, customers and investors to build a world class circular economy precinct to manage organic waste.



Co-digestion of food waste

Co-digestion will increase biogas production and self-generation of energy will contribute to reducing carbon emissions in the future. Planning is underway to activate a circular economy hub at our planned Advanced Water Recycling Centre in Western Sydney for the management of water, energy and bioresources. Co-digesting food waste at this facility is predicted to reduce cumulative emissions from the area by 140,000 tonnes by 2036 and generate enough electricity for an extra 10,000 – 20,000 homes.



Solar power partnerships



As part of a partnership with Origin Energy, we have installed solar panels with a capacity of 0.8MW, reducing carbon emissions by about 900 tonnes annually. Additional, suitable solar sites will be investigated during FY 22/23.

Cost of Carbon Abatement Tool



We want to make sure that every dollar we invest in carbon reduction is cost-effective for our customers. To help us, we developed the Cost of Carbon Abatement Tool. We use the tool to compare projects based on their carbon-reduction potential and the marginal cost of carbon abatement, progress the projects that deliver carbon and financial savings that are greater than the cost to deliver the project and optimise a program of work that delivers the greatest value to customers.

Lower South Creek Treatment Program



Lower South Creek is a \$550 million program, which will provide new and upgraded wastewater infrastructure. This program has reduced embodied emissions, will reduce grid energy demand by 75% and is set to achieve a 42% reduction in whole of life greenhouse gas emissions. The program has received the highest rating ever achieved for an Australian water infrastructure project from the Infrastructure Sustainability Council (ISC).

Recycled concrete

We are developing technical specifications for recycled concrete to ensure that we can move towards concrete that has higher recycled content while meeting our asset standards.





Tracking our progress



Sydney Water continues to seek out best-practice sustainability measures and assess our progress. We have started the process of improving the quality and consistency of sustainability reporting by reviewing our practice against the standards of the Global Reporting Initiative, a universal standard of sustainability reporting.

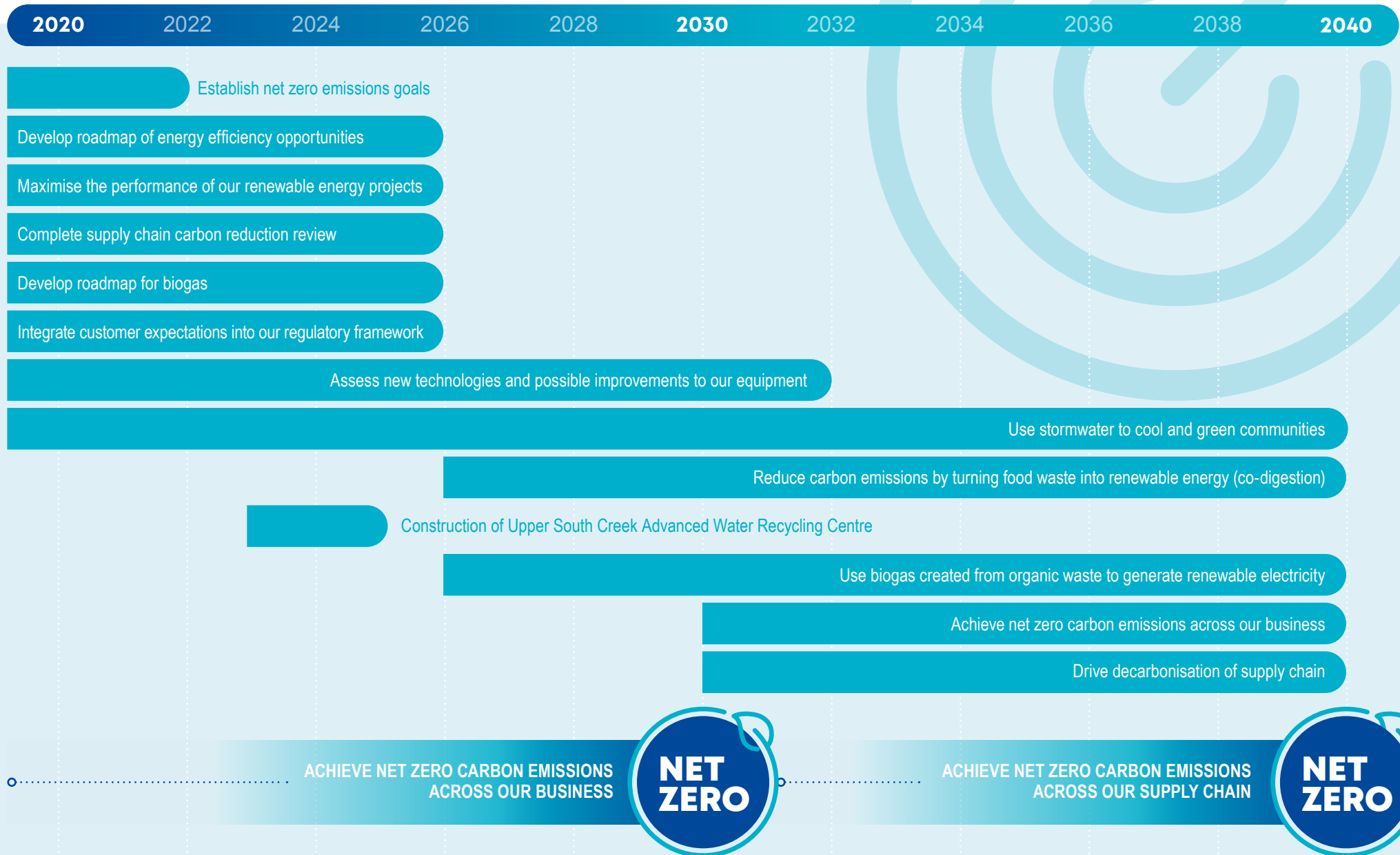
We also took part in the UN Global Compact's Early Adopter Programme to trial a new reporting system for their Communication on Progress to be launched in 2023.

Rigorous reporting helps us develop a better understanding of the sustainability of our business and practices, as well as our impact on future generations.



Sydney Water is at the forefront of integrating environmental and social values into waterway renewals and creating financially feasible naturalised assets which vastly extended the life of stormwater channels.

Our pathway



What are we doing?



Renewable sources

We generate about 20% of our energy needs from our own renewable sources, such as solar, hydro and biogas (co-generation). That's enough to power over 15,000 homes each year.



Powering change

Buying electricity from the grid adds to our indirect greenhouse gas emissions and our carbon footprint. We're reducing energy use by improving the energy efficiency of our processes – we've completed over 40 energy-efficiency projects so far.



Valuable partnerships

Through a process known as co-generation, we turn waste methane gas (biogas) into electricity and heat. This helps power some of our water resource recovery facilities and will be used as a renewable natural gas through our partnership with Jemena.



Recycled water for industry

The Wollongong Water Recycling Plant is one of 30 water recycling treatment and wastewater treatment plants in our operating area. 99% of the water used for steel manufacturing by BlueScope Steel in Port Kembla comes from either recycled water or salt water.



Building a sustainable supply chain

Our research has shown only a small percentage of our suppliers already measure their emissions and/or have their own net zero plan in place. We are engaging with our partners to advance planning and adaptability across the industry.



Unlocking our resources

The Upper South Creek Advanced Water Recycling Centre is our largest investment – \$1.1 billion – in water resilience in a decade. The centre presents a unique opportunity to activate a broader circular economy hub – a biorefinery – for the management of water, energy, bioresources, skills and jobs in the Western Parkland City.



Cooling and greening with stormwater

Sydney Water owns and operates more than 450 km of stormwater channels and pipes across Greater Sydney. We work closely with local councils to improve the health of our waterways and provide opportunities for stormwater reuse such as irrigation.



Building knowledge

To help build understanding and knowledge of the water cycle and future supply options including purified recycled water (PRW), we are building a PRW Demonstration Plant and Customer Experience Centre at Quakers Hill.



Visit SydneyWaterTV to take a virtual walk through the plant



Pioneering projects

Together with Jemena, Sydney Water is pioneering Australia's first biomethane-to-gas-pipeline project at Malabar.

This project will lay the groundwork for an Australian-first renewable gas certification scheme allowing consumers to purchase verified and accredited zero-emission gas.



Open to new opportunities

Sydney Water is working closely with our customers and partners to achieve our net zero ambitions while delivering a sustainable and resilient water supply for our city. We are open to partnerships and looking for new ways to nurture our water and the environment.

For further information or to discuss partnership opportunities, please email StakeholderEngagement@sydneywater.com.au

This edition of *Our path to net carbon zero and beyond* was created in November 2022. It is a living document that will continue to evolve and we will update our progress in our Annual Report and on our website.

© Sydney Water. All rights reserved | SW 24 11/22

Sydney
WATER

