NSW GOVERNMENT

Department of Planning, Industry and Environment

Net Zero Plan Stage 1: 2020–2030 Implementation Update

environment.nsw.gov.au

Minister's foreword

The Hon. Matt Kean, MP

Minister for Energy and Environment

Climate change will define our century.

The way we approach climate change says a lot about the sort of people we are and the values we hold – about whether we embrace science and evidence over fear and myth; whether we honour our obligations to future generations; about whether we believe that human ingenuity and determination can solve the biggest problems of our time; and about whether we believe that our best days lie in the future or in the past.

Climate change is already making an impact – over the last three years, NSW farmers have struggled through the worst drought on record; regional communities have had to have water trucked in because their dams were dry; Sydney-siders have choked on smoke for weeks; and Australians have had to run to the beach – not to enjoy summer, but to escape bushfires.

Recently, the IPCC highlighted that these changes are going to worsen dramatically if we do not take decisive and responsible action to reduce our emissions.

Doing this and getting to net zero by 2050 is not going to be easy – it is going to require the complete re-engineering of the global economy. How we generate electricity, the fuels we use, the way money flows in our financial system, the technologies we have in our homes and our heavy industry are all going to need change.

But addressing the hardest of challenges is how we achieve the greatest of things.

I believe that the challenge of taking action on climate change is not only a challenge NSW is up to, it is a challenge we can lead on. We have a proud history in taking action on climate change – we were one of the earliest jurisdictions in the world to commit to reaching net zero emissions by 2050. Last year, we launched our Net Zero Plan Stage 1: 2020-2030, which was forecast to deliver a 35% emission reduction by 2030 compared to 2005 levels and we legislated the most ambitious renewable energy policy in the Australia's history. This year's budget saw us lead the country on electric vehicles.

We have some of the best renewable energy resources in the world, our farmers are some of the most sustainable and our businesses and households are already embracing the new technologies needed to reduce emissions. We have every reason to succeed in a net zero carbon economy, to help the world reduce its emissions and set us up as an economic and energy superpower.

Taking action on climate change does not come at a price to our prosperity - the fact is our State's fortunes are tied to the fortunes of our planet. The Net Zero Plan is a recognition of this fact and a promise to act accordingly. It's a promise to take the necessary steps to safeguard our prosperity and protect our way of life. Ultimately, it's a promise to take custodianship of our State and ensure that those who come after us inherit a stronger, fairer and more prosperous NSW.

No generation owns our planet, our country or our State – we simply hold it for generations yet to come – and the way each generation is judged is whether we leave things better than we found them. Our commitment to halve our emissions by 2030 while growing our economy shows our generation has everything it needs to be judged well.

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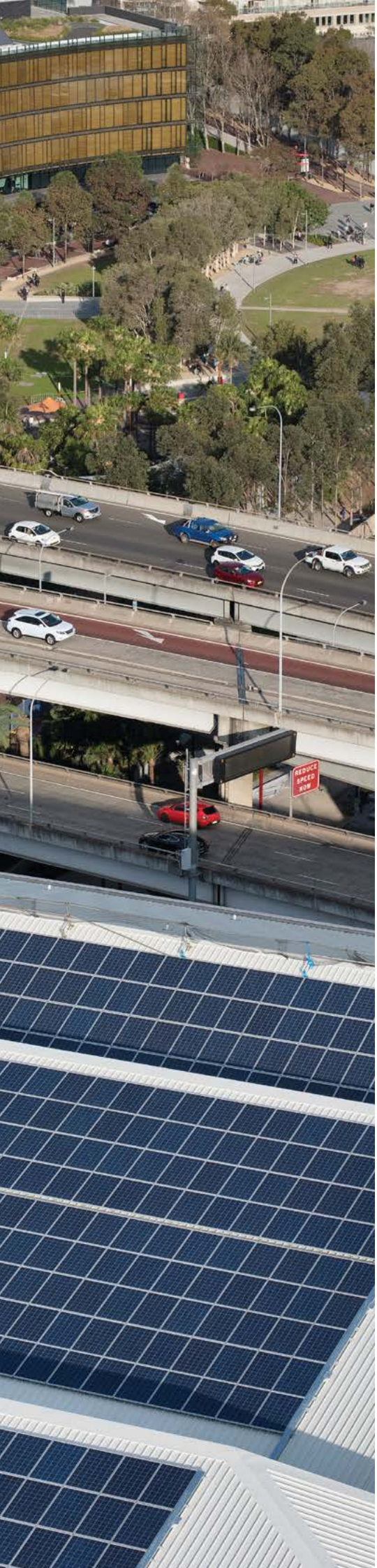


Introduction

In March 2020, the NSW Government announced its Net Zero Plan Stage 1: 2020–2030 (the Plan). The Plan laid the foundation for NSW's action on climate change in this decade to reach its goal of net zero emissions by 2050.[1]

The Plan sets out four priorities:

1. drive the uptake of emissions reduction technologies that also support economic growth, or reduce cost of living or doing business
2. empower consumers and businesses to make sustainable choices
3. invest in the next wave of emissions reduction innovation to ensure economic prosperity from decarbonisation beyond 2030
4. ensure the NSW Government leads by example.

The Plan sets out a range of initiatives under these priorities that will grow the economy, create employment opportunities and reduce greenhouse gas emissions over the decade to 2030. This also sets the State up to meet its 2050 net zero emissions objective. The Plan's initiatives span a range of sectors including energy, electric vehicles, hydrogen, primary industries, organic waste and carbon financing.

This document provides a detailed implementation update on these and other key achievements of the NSW Government under the Plan.

Since the launch of the Plan, the NSW Government has made significant progress in the pursuit of its priorities, including the launch of the most ambitious renewable energy, electric vehicle and industry decarbonisation policies in Australia. The Plan is forecast to reduce the State's annual emissions by 28.6–37.3 million tonnes of carbon dioxide equivalent by 2030. This means the State's annual emissions are projected to reduce to 47–52% below 2005 levels by 2030.

Taking into account the emissions reductions projected to be delivered by the Plan and broader decarbonisation trends, the NSW Government is aligning its 2030 emissions reduction objective to this projection and updating its objective to reduce emissions by 50% below 2005 levels by 2030. The Plan and related policies are expected to attract up to $37 billion in private investment in the State and support more than 9000 jobs, as well as lower household electricity bills by $130 per year.

The Plan is also:

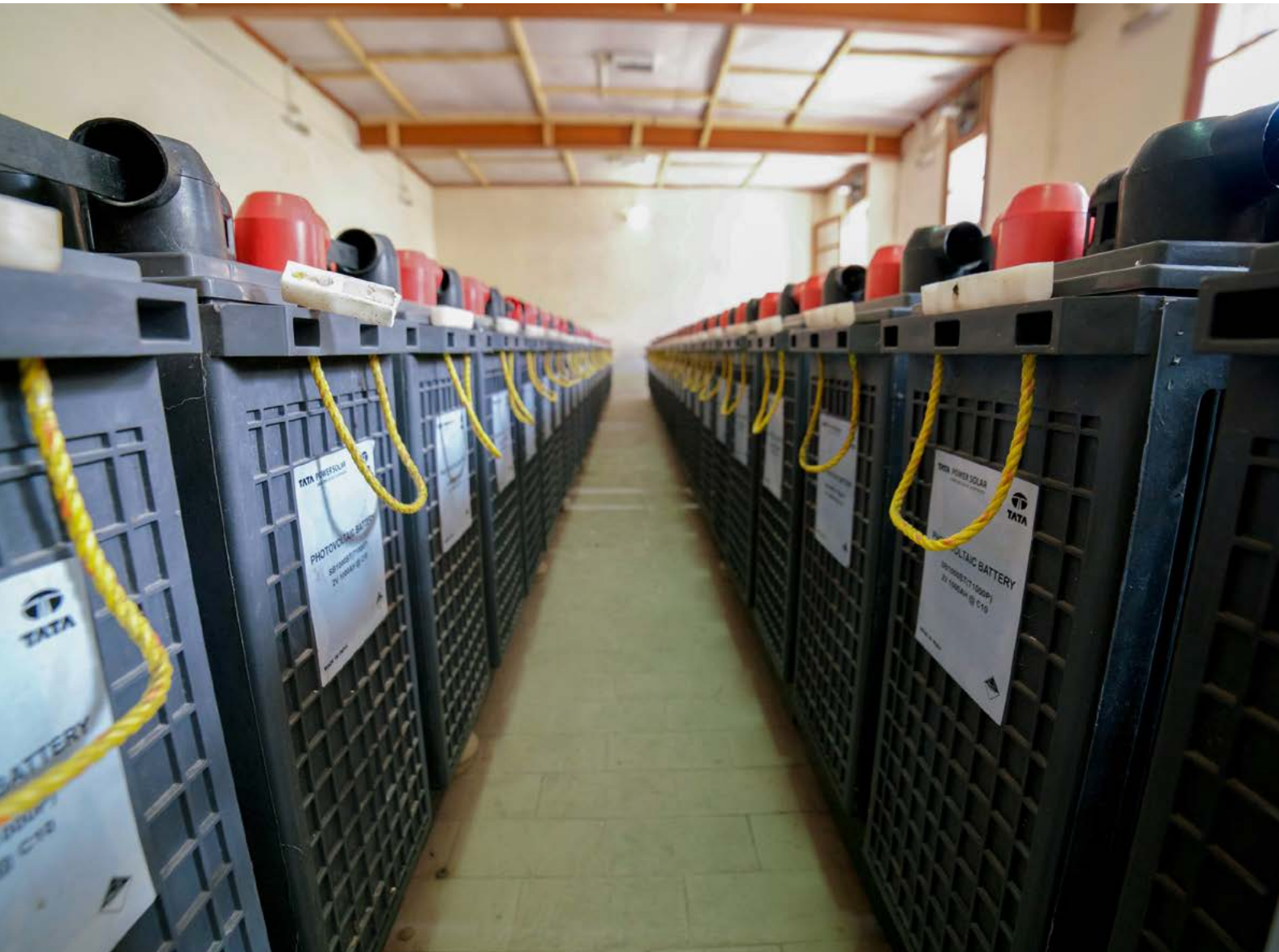
1. positioning NSW industries to take advantage of the growing demand for low carbon products in global markets
2. supporting NSW businesses in attracting low cost finance from investors in sustainable assets
3. helping NSW businesses reduce their climate related financial risks.

It has New South Wales well-positioned to achieve net zero emissions by 2050, and to increase its prosperity as an energy and economic superpower in the low carbon international economy.

The Plan is the NSW Government's overarching strategy to reduce emissions and mitigate the impacts of climate change. The NSW Government will also develop and publish a biennial climate change impacts, risks and adaptation statement which will set out the economic, financial and physical impacts, risks and opportunities of climate change on the State across various climate scenarios. The statement will be consistent with the framework established by the Task Force on Climate-Related Financial Disclosures[2] (TCFD) and other relevant international guidance or standards, which will be peer reviewed by an appropriately qualified person, such as an auditor.

The statement will be prepared on a whole of Government basis to address the impacts, risks and opportunities of climate change on the NSW Government and the State as a whole, however the NSW Government will pilot entity-specific TCFD statements for the National Parks and Wildlife Service, Environment Protection Authority and Essential Energy.

The NSW Government will also develop an adaptation strategy that sets out the NSW Government's strategic approach to preparing NSW to manage the impacts of climate variability on the State.



Key highlights

November 2019
NSW Electricity Strategy published, introducing the Energy Security Safeguard, a regulatory scheme to achieve greater energy efficiency and peak demand reductions.

March 2020
The Net Zero Plan Stage 1: 2020-2030 is launched.

November 2020
Electricity Infrastructure Roadmap announced, presenting a coordinated approach to deliver a modern energy system that will drive low electricity prices and unlock billions of dollars in investment in renewable energy.

December 2020
NSW Parliament passes the Electricity Infrastructure Investment Act 2020.

March 2021
Net Zero Industry and Innovation Program unveiled, detailing strategies to help develop clean technologies, drive the decarbonisation of high emitting industries and position NSW to prosper in a low-carbon international economy.

June 2021
NSW Waste and Sustainable Materials Strategy 2041 – Stage 1: 2021 - 2027 released, outlining policies, opportunities and priorities that will reduce carbon emissions through better waste and materials management.

June 2021
NSW Electric Vehicle Strategy published with nation-leading policies and initiatives to incentivise the uptake of zero-emissions vehicles.

Context of the Net Zero Plan

Governments are making ambitious decarbonisation commitments

Governments around the world are increasingly prioritising the decarbonisation of their economies. This trend has accelerated since the 2015 Paris Agreement, which saw 196 countries, including Australia, commit to limiting global warming to well below 2°C above pre-industrial levels and pursue efforts to limit the temperature increase to 1.5°C.[3] The Agreement's 'ratchet mechanism', which requires each signatory to set progressively more ambitious national goals every five years, ensures progress will continue. It is expected the Conference of the Parties meeting in late 2021 in Glasgow will further accelerate action under the Paris Agreement.

On 9 August 2021, the Intergovernmental Panel on Climate Change Sixth Assessment Report (IPCC Report) was released, setting out the scientific basis for climate change resulting from human activities.[4] The IPCC Report found that unless deep reductions in greenhouse gas emissions occur, global warming of 1.5°C and 2°C will be exceeded during the 21st century.

Internationally, over 120 countries have set a goal of reaching net zero emissions around mid-century.[5] Many of the world's largest economies and Australia's trading partners have also announced ambitious interim emissions reduction targets:

- the United Kingdom has set an interim target of 78% emissions reduction by 2035[6]
- the United States aims to reduce its emissions by 50–52% by 2030[7]
- Japan aims to cut its emissions by 46% by 2030[8]
- Germany has announced goals of a 65% reduction by 2030 and an 88% reduction by 2040[9]
- Canada has a target of reducing its emissions by 40–45% on 2005 levels[10]
- the European Union has set a 55% emissions reduction target by 2030.[11]

Countries, cities and regions that collectively account for more than two-thirds of global gross domestic product (GDP) have now adopted net zero emissions targets.[12] With the United States having committed to a net zero target under the Biden Administration, more than 70% of Australia's two-way trade is now conducted with countries dedicated to reaching net zero emissions, and 68% of our overseas based capital is from such jurisdictions.[13]

Governments across Australia have also made decarbonisation commitments:

- at a federal level, Australia is committed to making a 26–28% reduction in its emissions below 2005 levels by 2030 and achieving net zero emissions preferably by 2050[14]
- all Australian states and territories have committed to achieving net zero greenhouse gas emissions by 2050 or earlier, and many have interim targets, for example:
    - the Australian Capital Territory has an interim target of 65–75% emissions reduction on 1990 levels by 2030[15]
    - South Australia has an interim target to reduce emissions by more than 50% below 2005 levels by 2030[16]
    - Victoria has an interim target of 45–50% emissions reduction on 2005 levels by 2030.[17]

The private sector is responding to this push

The world's largest corporations and financial institutions are increasingly committing to reduce their emissions, influencing the direction of the global economy.

More than 1500 companies with a collective revenue of over US$12.5 trillion have now set or pledged to commit to net zero targets.[18] Following are some notable commitments from the private sector:

- Microsoft aims to be carbon negative by 2030 and remove its historical carbon by 2050.[19]
- Unilever aims to achieve net zero emissions across their products from sourcing to point of sale by 2039.[20]
- BHP has committed to net zero emissions from operations and energy use by 2050 and to reduce operational emissions by at least 30% by FY2030 (on FY2020 levels).[21]
- Rio Tinto has set an ambition of reaching net zero emissions from its operations by 2050 and is targeting a 15% reduction in absolute emissions by 2030. It has committed to spend $1 billion on climate related projects in 2020–24.[22]
- Shell has committed to be a net zero emissions business by 2050.[23]
- BP is targeting net zero emissions by 2050 from its operations (on an absolute basis) and to halve the carbon intensity of its products.[24]
- Qantas has committed to capping its net CO_2 emissions at 2019 levels and reaching net zero emissions by 2050.[25]
- BlueScope has set a goal of net zero emissions across its global operations by 2050. It will allocate up to $150 million over the next five years to near-term action on climate change.[26]

Financial institutions are also directing capital to low carbon investments and making commitments to decarbonise their operations and portfolios. Globally, new investment in the energy transition grew from US$109 billion in 2006 to US$501 billion in 2020.[27] It is expected that approximately US$2.4 trillion will need to be invested globally in the energy system each year for the next 15 years to limit global temperature rises to 1.5°C.[28] Following are some notable commitments from the financial sector:

- BlackRock is the world's largest fund manager with $11.23 trillion in assets under management. It has advised CEOs of the 1000 most carbon intensive companies engaging its services that 'insufficient preparation for the net zero transition' and giving a 'low reception to our investment stewardship engagement' will result in removal from BlackRock's management.[29]
- NAB, which achieved carbon neutrality from its operations in 2010, is aiming to reduce its scope 1 and 2 emissions by 51% by 2025 (against its 2015 baseline). It will also provide $70 billion of financing to low carbon activities by 2025. NAB has also committed to align its lending portfolio to a net zero economy by 2050.[30]
- Commonwealth Bank of Australia is committed to decreasing the emissions intensity of its business lending and reducing its own emissions. It has pledged to finance $15 billion of low carbon projects by 2025.[31]
- ANZ will fund and facilitate at least $50 billion by 2025 to help its customers lower their carbon emissions. It has pledged to lower the carbon intensity of its electricity generation lending portfolio by only directly financing low carbon gas and renewables by 2030.[32]
- Westpac is committed to reducing its scope 1 and 2 emissions by 85% by 2025 and 90% by 2030 against a 2016 baseline. It will also reduce its scope 3 supply chain emissions by 35% by 2030 and provide $15 billion in lending to climate change solutions by 2030.[33]
- Goldman Sachs will reduce carbon emissions from its operations to net zero and deploy US$750 billion in investing, financing and advisory activities to help its clients decarbonise their operations by 2030.[34]
- Wells Fargo has committed to ensuring all its operations, including projects and companies it finances, will achieve net zero carbon emissions by 2050.[35]
- JPMorgan Chase aims to facilitate over US$2.5 trillion over the next 10 years to address climate change and contribute to sustainable development, as well as continuing to maintain carbon neutral operations, which it began in 2020.[36]
- HSBC is committed to reduce the financed emissions from its portfolio of customers to net zero by 2050 or sooner and will provide between US$750 billion and US$1 trillion of finance and investment by 2030 to help achieve that goal.[37]

Low carbon technologies are coming down the cost curve

As governments, businesses and financial institutions invest in decarbonisation, the cost of low emissions technologies continues to fall. Many of the sharpest cost reductions have been achieved in renewable energy technologies. Over the past 10 years, governments, businesses and households have invested at least US$2.5 trillion in this area.[38] In those 10 years, the cost of generating electricity from wind has fallen by around 50% and the cost of electricity produced by solar photovoltaic has dropped by about 85%.[39] The cost of Li-ion battery packs declined more than 85% between 2010 and 2020, one of the biggest drops of any generation or storage technology.[40] This is one of the factors that caused the Australian Energy Market Operator to announce in its 2020 Integrated System Plan that the least-cost electricity system is now one that is powered by renewable generation supported with dispatchable firming resources.

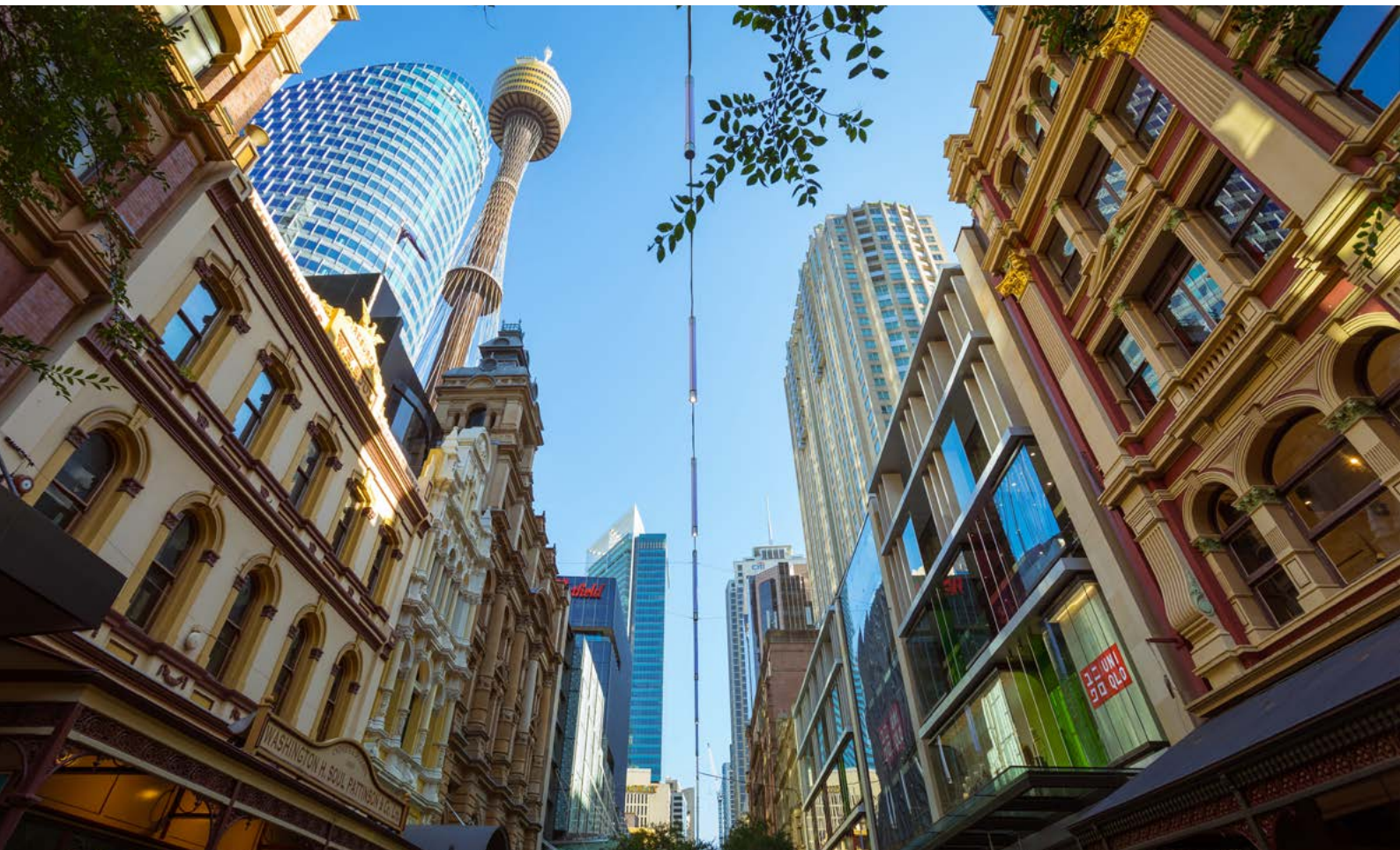
Other clean technologies are also becoming more affordable. Electric vehicle battery prices have fallen by more than 85% since 2010[41] per kWh of stored energy, and the cost of producing a hydrogen fuel cell has fallen by about 60% since 2006.[42] As the prices of low carbon technologies such as these continue to fall, they have the potential to outcompete their emissions intensive alternatives.

Globally, businesses are having to disclose and manage their climate related financial risk

As part of the Paris Agreement, the Taskforce on Climate-related Financial Disclosures (TCFD), chaired by Michael Bloomberg, created a framework for the disclosure of climate related financial risks.[43] Those risks include: transition risk – the risk arising to businesses from the decarbonisation of the economy; physical risks – the risk of damage to infrastructure or demand as a result of more extreme weather events; and litigation risk – the risk of stakeholder litigation and regulatory action arising from climate change.

Globally and in Australia, financial regulators are moving to require the standardised disclosure of climate related financial risks in line with the TCFD framework. The Australian Prudential Regulatory Authority is stress testing the banks on their exposure to climate risk. This follows a series of opinions from Noel Hutley SC and Sebastian Davis that, under Corporations Law, Australian company directors should be managing their firms' climate related risks.[44]

Practically, the requirement on financial institutions to disclose and manage their climate related financial risks, means businesses that are reducing their emissions or have plans to reduce their emissions can access low cost capital, because they represent a lower risk investment opportunity and also align with investor sustainability preferences. This has already been seen with lower loan prices being linked to sustainability outcomes in a loan the Commonwealth Bank recently issued to agricultural firm, Stockyard.[45]



The NSW economy can grow and prosper if we take advantage of these trends

New South Wales is ideally placed to enhance its wealth and prosperity under these emerging economic realities. Our State's highly skilled workforce and internationally renowned research institutions have the chance to develop, deploy and distribute cutting-edge clean technologies. The cheap and abundant renewable energy resources the State enjoys can provide its electricity-intensive industries with some of the cleanest and most cost-competitive electricity in the world.

Similarly, our world-leading agricultural sector is in pole position to take advantage of global trends and grow its businesses and prosperity by selling low carbon produce into overseas markets.

Economic benefits of the Net Zero Plan

The Plan and its related polices are expected to have significant economic benefits for New South Wales. These benefits include supporting more than 9000 jobs and attracting up to $37 billion worth of private investment. A significant part of this investment is expected to be spent in regional areas; for example, through the development of Renewable Energy Zones (REZs), hydrogen hubs in the Hunter and Illawarra, and carbon and biodiversity projects.

The Plan provides NSW businesses with the policy, regulatory and financial support they need to capitalise on the opportunities and mitigate the risks of the global shift to net zero emissions. By reducing barriers to the adoption of low emissions business models, activities under the Plan allow NSW businesses to develop their climate credentials and improve their competitiveness as global demand for low emissions goods and services increases. The Plan also supports businesses to continue to access capital markets that are essential for business growth and are increasingly prioritising investments aligned with the goals of the Paris Agreement.

Grasping the opportunities from the global drive towards a decarbonised economy requires a coordinated approach that brings together and accelerates the actions of the NSW Government, businesses, councils and local communities to reach net zero emissions. The Net Zero Plan is the NSW Government's plan to do just that.

PRIORITY 1

Drive uptake of proven emissions reduction technologies

The NSW Government's first priority is to provide a pathway to deploy at scale those low emissions technologies that grow the economy and create jobs. Doing so will be critical to the Government's commitment to deliver net zero emissions, strengthen the State's prosperity, and reduce the cost of living.

The NSW Government is engaged in a process of creating new markets for low emissions technologies, removing unnecessary barriers to their uptake and making co-investments to address early mover costs, ultimately ensuring the long-term deployment of these technologies. This section outlines highlights under this priority.

Decarbonising energy

Electricity Infrastructure Roadmap

In November 2020, the NSW Government announced its Electricity Infrastructure Roadmap. The Roadmap is expected to coordinate $32 billion of private investment in electricity infrastructure by 2030. It is the largest renewable energy policy in the country's history and takes a world-leading holistic approach to modernising the electricity system including by coordinating the rollout of renewable energy generation with development of deep energy storage and electricity transmission infrastructure.

By offering long-term option contracts with infrastructure projects, the Roadmap will provide investors with the financial certainty needed to ensure the delivery of large-scale renewable generation, storage and transmission projects. The Roadmap will ensure the reliability, security and affordability of the NSW electricity system will not be compromised, even as four of the State's coal fired power stations, which provide three-quarters of current supply, reach the end of their technical lives within the next 15 years.

Much of this electricity infrastructure will be delivered in five dedicated Renewable Energy Zones (REZs). REZs are energy rich areas where multiple sources of renewable generation, such as wind and solar, can be connected along with storage and network infrastructure. This coordinated development of grid infrastructure can unlock economies of scale to significantly reduce the cost of electricity generation. The Roadmap will see REZs in the Central West Orana, Hunter–Central Coast, Illawarra, New England and South West regions, driving investment in rural New South Wales.

The Roadmap will unlock significant economic opportunities for New South Wales. The billions of dollars of private investment under the Roadmap will support an estimated 6300 construction jobs and 2800 ongoing jobs, mostly in regional New South Wales, as well as $1.5 billion in lease payments to regional landholders by 2042.

Most importantly, the Roadmap will significantly reduce the price of electricity in New South Wales. Cheaper household electricity bills will increase disposable income and business investment to a level forecast to support an increase of 23,600 jobs from 2032–2037.

Electricity prices for heavy industry could fall to US$84 per megawatt hour by 2030, which would place New South Wales in the top 10% of the OECD. As well as providing existing industry with a significant reduction in costs, this would position our State to be a leader in emerging energy-intensive industries such as green metals, chemicals, fertilisers and synthetic fuels. The Roadmap provides the clean electricity supply needed to power these industries.

The Roadmap's implementation is supported by $380 million in funding from the NSW Government to develop REZs and to establish institutions that will administer and implement the framework. It is also supported by the Government's $50 million pumped hydro recoverable grants program, which will help create a pipeline of shovel ready pumped hydro projects to compete for Roadmap support of long duration storage agreements.

Energy Security Safeguard

The NSW Government announced the Energy Security Safeguard in 2019. There are two parts to the Safeguard. First, the existing Energy Savings Scheme has been expanded and extended to 2050. This scheme provides a financial incentive for households and businesses to become more energy efficient by reducing their electricity and gas usage. The Safeguard expanded the range of activities covered by the scheme to also include fuel switching activities that reduce the consumption of grid connected and non-grid connected energy. This includes switching from grid connected gas and electricity, or onsite fuels such as diesel, to alternatives like biogas, green hydrogen or solar thermal. Energy saving or fuel switching activities generate energy savings certificates, which can be sold to energy retailers to meet a regulatory obligation. The scheme aims to meet energy savings targets that increase gradually from 8.5% in 2021 to 13% by 2030.

Second, the Safeguard introduced a new Peak Demand Reduction Scheme, which will commence in late 2022. This is a similar market-based certificate scheme to encourage the uptake of appliances and equipment with the capacity to reduce the demand of the electricity system at times of peak demand. It will target reductions in the projected one-in-ten year maximum demand, commencing at 0.5% in 2022 before gradually increasing to 10% by 2030.

The Safeguard in its existing form as the Energy Savings Scheme already supports over 1600 jobs for those employed in the installation of energy saving appliances and the equipment industry. The expanded Safeguard will continue to support those jobs, as well as give all households and businesses the opportunity to switch to energy efficient and smart technology that reduces their power bills. The Safeguard also helps lower energy prices across New South Wales by reducing the overall demand for electricity. By driving efficiencies in the use of the electricity grid, the scheme makes a significant contribution to the State's emissions reduction goals.

The NSW Government will fast track and streamline implementation of the Safeguard. This work will help support industry to get ready

for the Peak Demand Reduction Scheme and expand into new energy saving activities. It will also streamline systems and processes through digitalisation and simplifying measurement and verification methods to make it easier and cost less to participate in the Safeguard.

Renewable gases

The NSW Government is supporting the increased use of renewable gases, such as biogas and green hydrogen, to enable the scaled decarbonisation of energy systems that rely on molecules.

The NSW Waste and Sustainable Materials Strategy 2041 sets out actions to incentivise the creation of biogas from the State's waste streams to support the decarbonisation of the NSW gas system. These actions include the investigation of a new regulatory framework to incentivise anaerobic digestion facilities and biogas production, and funding to support biogas recovery from waste.

The State is also developing the NSW Hydrogen Strategy, which is expected to be launched in late 2021.

Decarbonising industry

Net Zero Industry and Innovation Program

In March 2021, the NSW Government announced the $750 million Net Zero Industry and Innovation Program as its plan to accelerate decarbonisation across high emitting industries and their supply chains, and clean technology development. This will help NSW industry reduce emissions and take advantage of the emerging international demand for low emissions products and services. New South Wales has the potential to position itself as a world leader in low emissions exports. The Government's support for high emitting industry to achieve lower carbon emissions will be crucial in helping the State realise that potential. The program will support the creation of new, future-fit jobs and leverage co-investment from the private sector to ensure local and regional communities benefit from a low carbon economy.

The Industry and Innovation Program includes two streams to support the deployment of mature low carbon technologies:

- New Low Carbon Industry Foundations ($175 million) – laying the foundations for new low emissions industries by building enabling infrastructure and boosting the capability of supply chains. This will include investing $70 million for hydrogen hubs in the Illawarra and Hunter regions.
- High Emitting Industries ($380 million) – deploying proven low emissions technologies and infrastructure to shift existing high emitting industrial facilities to clean industrial processes. This will accelerate capital upgrades of plant and equipment needed to decarbonise those facilities.

A confidential registration of interest process under the Net Zero Industry and Innovation Program closed in April 2021. It achieved high engagement with over 400 submissions from a range of researchers, industry groups, entrepreneurs, investors and businesses.

Business decarbonisation support

The NSW Government will support businesses to make operational improvements, prepare projects and plan their decarbonisation pathways. This initiative focuses on building the energy and carbon abatement services sector and improving its capability to support businesses to decarbonise. This will provide strategic support for businesses to decarbonise that entails:

- upgrading energy measurement and management systems
- establishing plans to decarbonise based on real data
- accessing technical services offers for systems and technologies most critical to reaching net zero emissions.

Decarbonising transport

In June 2021, the NSW Government announced its $490 million Electric Vehicle Strategy to ensure more than 50% of new car sales are electric vehicles (EVs) by 2030.

Reducing upfront costs

Under the Strategy, EV buyers are able to receive rebates of $3000 for the first 25,000 eligible EVs sold for under $68,750 and stamp duty has been removed for EVs under $78,000. From July 2027, or when EVs make up at least 30% of new car sales, stamp duty will also be removed for all other eligible EVs and plug-in hybrid cars, at which time a road user charge will be introduced.

Electric fleets

The NSW Government is also developing a competitive funding program that will support private and local council fleets to purchase battery EVs, as previously committed under the Plan. The incentives will be offered through a reverse auction process for vehicle fleet buyers such as businesses, not-for-profit organisations, car hire companies and local councils.

World-class charging network

The NSW Government is investing $171 million to construct a widespread EV charging station network across New South Wales to ensure EV drivers can be confident driving their vehicles anywhere, anytime throughout the State. EV Tourist Drives are being rolled out across regional New South Wales, with the Government co-investing in ultra-fast chargers at 100 kilometre intervals across all major highways in the State, and providing grants to regional businesses to install charging points for their guests to encourage EV tourism.

The NSW Government is also developing relevant regulations, including as part of the upcoming Design and Place State Environmental Planning Policy, to require new residential and commercial buildings to have the electrical infrastructure appropriate to install electric vehicle chargers in carparks.

For a limited time, EV drivers will also be allowed to use T2 and T3 transit lanes.

Decarbonising waste

Increased diversion of organics from landfill and processing technologies like composting and anaerobic digestion can substantially reduce emissions.

The NSW Government is committed to reducing the State's emissions from its waste and resource recovery system as part of its NSW Waste and Sustainable Materials Strategy 2041 (the Waste Strategy). The Waste Strategy pledges to achieve net zero emissions from organic waste to landfill and halve the amount of organic waste sent to landfill by 2030.

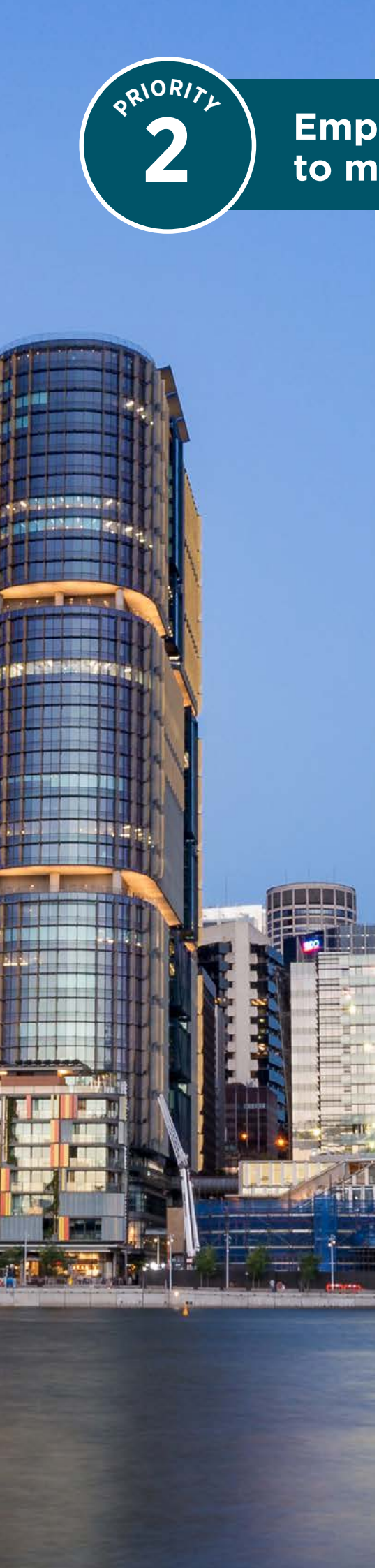
The Government will require landfills over a certain size, and all expanded or new landfills, to have gas capture technology, and will invest $7.5 million to support the installation of this important emissions abatement technology. These initiatives will help ensure the emissions produced by organic waste decomposing in landfill can be minimised.

The Waste Strategy will require the separate collection of food and garden organics from all NSW households by 2030 and food waste from targeted businesses including large supermarkets and hospitality businesses from 2025. The Government has committed $65 million to support the rollout of new collection services, processing capacity and a State-wide education campaign to help households adjust to the changes and improve their recycling habits.

In addition, the $37 million Carbon Recycling and Abatement Fund will support innovative circular economy approaches that manage waste and materials more efficiently and reduce emissions. This will include supporting the innovative use of low carbon recycled materials, incentivising the production of biogas from waste materials and promoting circular practices for the development of buildings, infrastructure and precincts.

Other work underway

The NSW Government is continuing to develop other initiatives under the Net Zero Plan needed to support emissions reduction across the economy. These include a primary industries program, to support landowners and farming businesses to take advantage of emerging low emissions technologies and processes.



PRIORITY 2

Empower consumers and businesses to make sustainable choices

The NSW Government is committed to providing individuals and businesses with more information about the emissions associated with the products they use on a day-to-day basis and providing them opportunities to reduce their emissions footprint. This includes increasing transparency around the price, quality and sustainability of goods and services to ensure consumers are informed, and businesses are motivated to compete for the demand for low emissions products.

Energy

Electricity

The NSW Government is committed to improving the transparency in the electricity retail market and empowering customers who wish to consider environmental factors when selecting an energy provider or plan. The NSW Government is working closely with the Australian Energy Regulator to provide further information to consumers about retailers' emissions profiles, and the calculations behind the profiles, in a simple, easy to understand format by late 2022, including on the Energy Made Easy comparison website.

Gas

The NSW Government has launched Australia's first renewable gas certification scheme to provide consumers with more options to buy renewable gas with confidence. The scheme is being piloted at the Malabar Biomethane Injection Project, Australia's first wastewater biomethane facility. The new facility will convert raw biogas into biomethane, which will then be injected back into the NSW gas distribution network.

Buildings

The NSW Government has committed more than $9 million to accelerate transformation of the built environment towards net zero emissions. Under Net Zero Buildings, the NSW Government is:

- developing a world-leading framework for measuring, benchmarking and certifying the embodied emissions of construction and building materials. The framework is intended to be integrated into the National Australian Built Environment Rating System (NABERS), to ensure world-class robustness as well as national availability across a wide range of buildings
- working with industry to grow the emerging market for low emissions construction materials. The Materials and Embodied Carbon Leaders' Alliance, an industry–government leadership alliance, has secured commitments to reduce emissions embodied from more than 80 founding member companies and other influential bodies. These organisations range from federal and state agencies to international materials suppliers and construction firms including Lendlease, Boral, Holcim Lafarge and BlueScope
- designing a world-leading sustainable finance standard based on NABERS ratings, to significantly scale up the impact of green bonds and green loans in reducing emissions in NSW buildings. This will allow consumers to access low cost public and private upgrade capital to make buildings more sustainable
- continuing the NSW Building Sustainability Index (BASIX), which aims to deliver cost-effective, low emissions residential buildings. BASIX requirements for potable water savings, emissions reductions and thermal performance apply to all residential dwelling types and are part of the development application process for new developments and major renovations in New South Wales
- working with the Commonwealth and other jurisdictions to deliver the National Trajectory for low-energy buildings. Residential initiatives under the Trajectory include developing home energy ratings and disclosure at the point of sale and lease to better support consumer decision-making. The NSW Government is engaging with the finance and social housing sectors to make sure those policies lead to market transformation, as well as collaborating with industry partners to support the mass market to value and deliver sustainable homes.

Transport

The NSW Government is developing a platform to allow NSW drivers to offset their vehicle emissions at the point of registration. This voluntary scheme will be embedded into the NSW vehicle registration process. Drivers will be able to purchase Australian Carbon Credit Units across a diversity of projects that will deliver social, economic and environmental co-benefits in New South Wales.

Other information resources are also being prepared for consumers and fleet managers to better understand the benefits and opportunities with low and zero emissions vehicles. A series of EV test drive days have been commissioned to raise awareness of battery EVs and encourage fleet and private vehicle owners to consider them as an option for their next vehicle purchase. A vehicle emissions star rating scheme is undergoing industry consultation and customer testing which will allow car buyers to easily compare the emissions between car models.

Waste

Under the Waste Strategy, new regulations, funding and education for consumers and businesses will improve materials efficiency by encouraging the reuse and repair of products, recycling of materials and recirculation of the gas and energy generated by waste back through the economy.

The Strategy will encourage surplus food donation by requiring large supermarkets to report on their surplus food donations to food rescue organisations, supported by $4 million in funding for donation infrastructure and equipment.

PRIORITY 3

Invest in the next wave of emissions reduction innovation

The NSW Government is working to ensure emerging technologies needed to decarbonise hard-to-abate sectors of the economy are given the necessary support to become scalable, replicable and cost-effective. Targeted investment to fast track the research, development and commercialisation of low emissions technologies will help safeguard NSW economic prosperity and propel the State's movement towards net zero emissions.

Clean technology innovation

As part of its Net Zero Industry and Innovation Program, the NSW Government is committed to supporting the continued development and innovation of emerging clean technologies. Clean Technology Innovation is one of three focus areas of the Net Zero Industry and Innovation Program. (More information on the other focus areas of the program can be found in the Priority 1 section of this document.) Under the Clean Technology Innovation focus area, the program aims to enable knowledge sharing, capacity building and collaboration between researchers, industry and government. The NSW Government has allocated $195 million in support of this goal. This will be used to establish a NSW Decarbonisation Innovation Hub, to fund:

- research, development and commercialisation infrastructure
- research and development grants
- grants for commercialisation and pilots
- delivery of low emissions standards
- unlocking of sustainable finance.

Priority technologies include but are not limited to electrification and energy systems, land and primary industries, and powerfuels including hydrogen. Ensuring New South Wales can develop scalable, commercial technologies is crucial in decarbonising hard-to-abate sectors of the economy and positioning our State as an economic power in the emerging global low carbon economy.

Hydrogen and other future industries

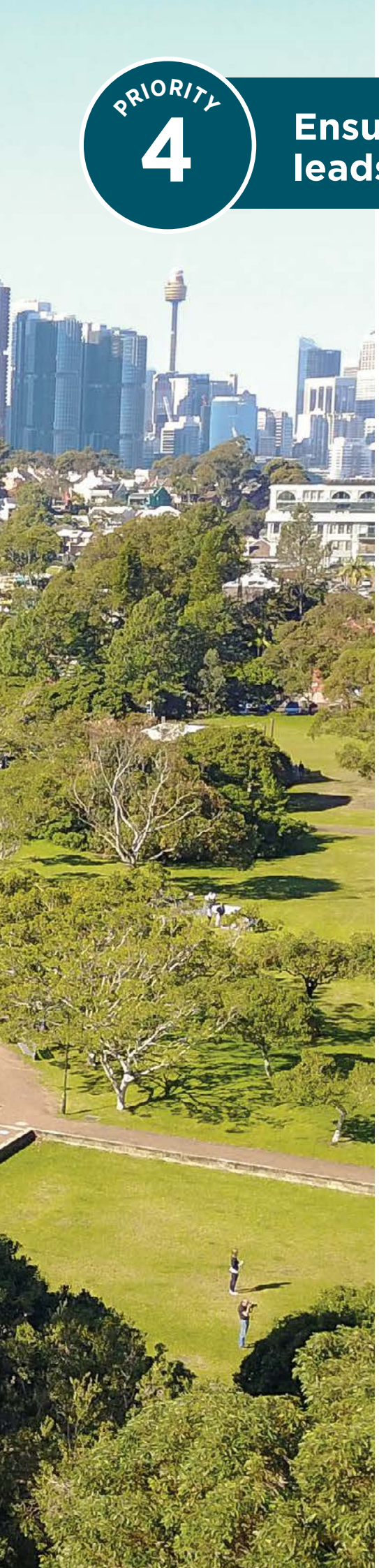
The NSW Government has committed $175 million to lay the foundations for new low carbon industries to be developed in the State. This includes $70 million to create at least two hydrogen hubs in the Hunter and Illawarra. Hydrogen hubs provide groups of hydrogen users with common infrastructure for the production, use and distribution of hydrogen, reducing costs by delivering hydrogen in a coordinated fashion. The funding and hydrogen hub development will form part of the State's Hydrogen Strategy, to be released in late 2021.

Hydrogen presents significant opportunities for employment and growth across New South Wales. By 2050 green hydrogen has the potential to drive $350 billion in investment across Australia in current dollars and up to $26 billion per year in additional GDP, supporting the emergence of new decarbonised industries such as green steel and ammonia. Acting now to position New South Wales at the forefront of the new hydrogen economy will support the State's economic prosperity into the future.

Circular economy innovation

Incorporation of recycled materials into new products reduces emissions associated with the extraction and production of raw materials. The NSW Government will support research into new technologies and uses for recycled materials and provide opportunities to pilot them in government projects, through a $13 million Circular Innovation Fund under the Waste Strategy. The standards that government develops through this process will also be available for local governments to adopt, providing them with more confidence to use recycled content in their own procurement.

As part of the NSW Plastics Action Plan, the NSW Government will also establish a $10 million Circular Materials Fund that will provide a financial incentive for producers to design out or replace carbon emissions-intensive virgin plastic with lower carbon-intensity recycled materials. This will help improve materials efficiency, increase use of recycled content and deliver a measurable carbon dividend for NSW.



PRIORITY 4

Ensure the NSW Government leads by example

The NSW Government purchases around $20 billion of goods and services each year, employs 10% of the State's workforce and manages approximately 15% of all NSW land. The Government's fourth priority is to play a leading role by being an early adopter of sustainable goods, services and practices, and maximising the environmental value of the assets it oversees.

In 2020, 20 NSW Government agencies started net zero plans for their operations. Government agencies have also been implementing energy efficiency measures at their buildings to help reduce energy-related carbon emissions and energy costs. Since 2012, government agencies have reported over 1100 energy efficiency projects, which have delivered over 500 million kilowatt hours in energy savings, $80 million in energy cost savings and reduced carbon emissions by over 400,000 tonnes.

Some of the highlights are outlined below.

Energy

In May 2021, the NSW Government announced a 100 megawatt big battery would be built in the Riverina region by Edify Energy as part of our new $3.2 billion contract with Shell Energy to supply the energy needs of the NSW Government services. This procurement is an example of the NSW Government using its purchasing power to leverage more large-scale storage energy projects in the State, driving investment in infrastructure and supporting more renewable energy to enter the grid.

Under the Smart Batteries for Key Government Buildings program, pilot battery projects are being trialled by the Ministry of Health, Department of Education and Property NSW. These projects are intended to demonstrate the value of battery storage in government facilities, and will generate useful case studies to inform the future uptake of battery energy storage solutions across the wider government portfolio.

The NSW Government has also increased its solar on government buildings target to achieve 126,000 megawatt hours a year of solar generation by 2024. To date, the NSW Government has installed over 30,000 megawatt hours of rooftop solar generation capacity across a range of government buildings including schools, hospitals, museums and public housing.

Under the NSW Government Resource Efficiency Policy, offices and data centres owned or leased by the NSW Government and above a given size are required to achieve a specified NABERS energy rating of at least 5 stars (metropolitan) or at least 4.5 stars (regional or data centres). Property NSW reported an overall portfolio result across 21 owned metropolitan and regional buildings of 4.7 stars for NABERS energy, representing an improvement of 1.1 stars on energy efficiency over 12 months.

Waste

Under the Waste Strategy, all NSW Government owned and leased buildings over 1000 square metres will need to obtain and publish a NABERS waste rating by 2026. This will drive waste avoidance and recycling in government operations.

The NSW Government is also using its purchasing power to stimulate circular economy innovation and demand for recycled content and low emissions building products. Under the Strategy, the NSW Government will preference products that contain recycled content where there is no significant additional cost or negative impacts on performance and the environment.

Transport

As part of its Electric Vehicle Strategy, the NSW Government has committed to using its bulk purchasing power to increase the range of EV models available for sale in New South Wales. The NSW Government has set a target of electrifying all Government passenger fleet procurement by 2030, with an interim target of 50% EV procurement by 2026. NSW Government fleet vehicles are typically resold on the second-hand market after three to five years, which will mean a higher number of second-hand light EVs will be available to NSW drivers.

The NSW Government is also accelerating its public transport system to net zero emissions as part of its Future Energy Strategy. Transport for NSW has released its Zero Emission Bus Transition Strategy to respond to the challenge of transitioning the bus fleet to zero emissions. The NSW Government will source all operational electricity for the rail, light rail and metro train networks from renewable energy by 2025. The NSW Government is also exploring the potential for battery electric ferries on Sydney Harbour.

Local government

NSW councils play a key role in supporting decarbonisation as local leaders and through their connection to local communities. By reducing emissions, local councils can help increase the resilience of their communities and act as a catalyst for New South Wales to meet its net zero emissions objective.

The NSW Government is delivering, in partnership with Local Government NSW, the NSW Councils Net Zero Emissions Program. This includes a Research and Innovation Fund, which provides seed funding to local councils to sponsor research, policy development and innovation around net zero for the advancement of local government.

The NSW Government has also committed $16 million towards a new joint procurement facilitation service to make it easier for local governments to collectively procure waste services. Helping local governments jointly procure waste services at scale will underpin investment in new infrastructure, remove barriers to entry for investors, increase competition in the waste services sector and put downward pressure on costs for councils and households. This will allow the State's waste to be processed more efficiently and reduce emissions from landfill.

National parks estate

Increasing the State's national parks estate will protect land in New South Wales that is currently a carbon sink, create opportunities for additional carbon sequestration activities, support biodiversity outcomes and boost tourism and job opportunities in regional economies.

Since March 2020, the NSW Government has added 226,088 hectares to the national parks estate, bringing the total estate to around 7.45 million hectares or 9.3% of the State, and surpassing the initial target set out in the Net Zero Plan to increase the estate by 200,000 hectares by 2021. The NSW Government has now doubled its initial target, with a revised goal to have added 400,000 hectares in total to the State's national parks estate by the end of 2022.

NSW emissions and abatement to be delivered by the Plan

Modelling of NSW emissions

The Department of Planning, Industry and Environment (DPIE) undertakes economy-wide emissions modelling to track and report on the progress New South Wales is making towards meeting its net zero objectives, and to assess the impact of NSW Government action on the State's emissions. Base case emissions, excluding the Plan, are updated based on the latest data and methods and considering external factors affecting NSW emissions such as global and local technology, energy and market trends; climate impacts; land-use management changes; social and sector trends; economic growth forecasts; and changes to the international and national policy context.

Updating of base case emissions

In 2019, DPIE projected base case NSW emissions to be about 139 million tonnes of carbon dioxide equivalent (Mt CO_2-e) in 2030, which was 13% below published 2005 levels at the time (Figure 1). A range of factors have contributed to the downward revision of the NSW emissions trajectory including: more rapid growth in the share of renewables within the technology mix of the National Electricity Market, driven in part by the high take-up rate of rooftop solar; changes in agricultural production patterns; upgraded base case EV uptake rates and changes in the outlook of global energy markets.

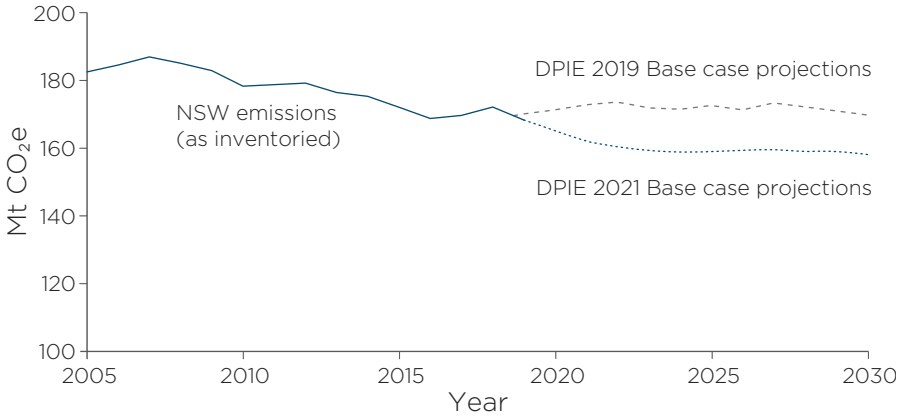


Figure 1 Comparison of 2019 and 2021 base case projections for NSW emissions (projected emissions without the Net Zero Plan).

Emissions reductions projected to 2030

When it was launched, the Plan was forecast to deliver an emissions reduction of 35.8 Mt CO_2-e, with total NSW emissions forecast to reduce to 35% below 2005 levels by 2030. Since the publication of the Plan further modelling and analysis has been done on trends in NSW emissions and on the impact of the Plan on the State's emissions.

Total NSW emissions have reduced to date with 2019 emissions being 28.4 Mt CO_2-e or 17% lower than in 2005 levels. Base case trends in NSW emissions, excluding the impact of the Plan, are projected to result in a further 20.4 Mt CO_2-e reduction in annual 2030 emissions (Figure 2). As a result of these trends NSW base case emissions are projected to reduce to 116.2 Mt CO_2-e by 2030, which is 30% below 2005 levels.

The initiatives in the Plan are projected to deliver further reductions in annual NSW emissions of 28.6–37.3 Mt CO_2-e in 2030. Accounting for base case trends and NSW Government initiatives under the Plan, total annual NSW emissions are projected to reduce to 78.9–87.6 Mt CO_2-e in 2030, which is 47–52% lower than 2005 levels (Figure 2).

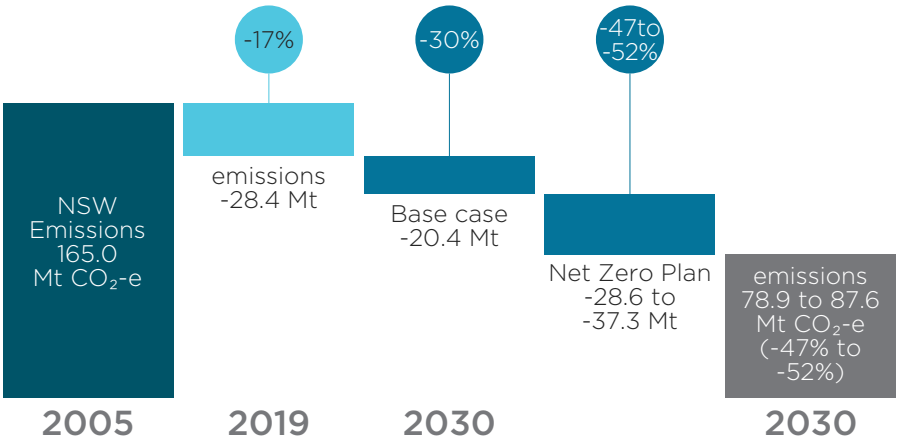


Figure 2 Projections for annual NSW emissions in 2030.

Annual emissions reductions to be delivered by the Plan are projected to increase over the next decade as initiatives are implemented (Figure 3). This includes as renewable energy generation ramps up; the share of EVs on the road increases; carbon markets expand supporting greater carbon sequestration by the land sector; technologies for abating agricultural, industrial and mining emissions mature; more organic waste is diverted from landfill; and a growing number of households and businesses reduce their electricity and gas usage under the expanded Energy Security Safeguard.

The Plan will put New South Wales on the path to achieving net zero emissions with further action and investment in decarbonisation initiatives needed to reach net zero emissions by 2050 (Figure 4). Stages 2 and 3 of the Net Zero Plan will be developed ahead of 2030 and 2040 to address this challenge.

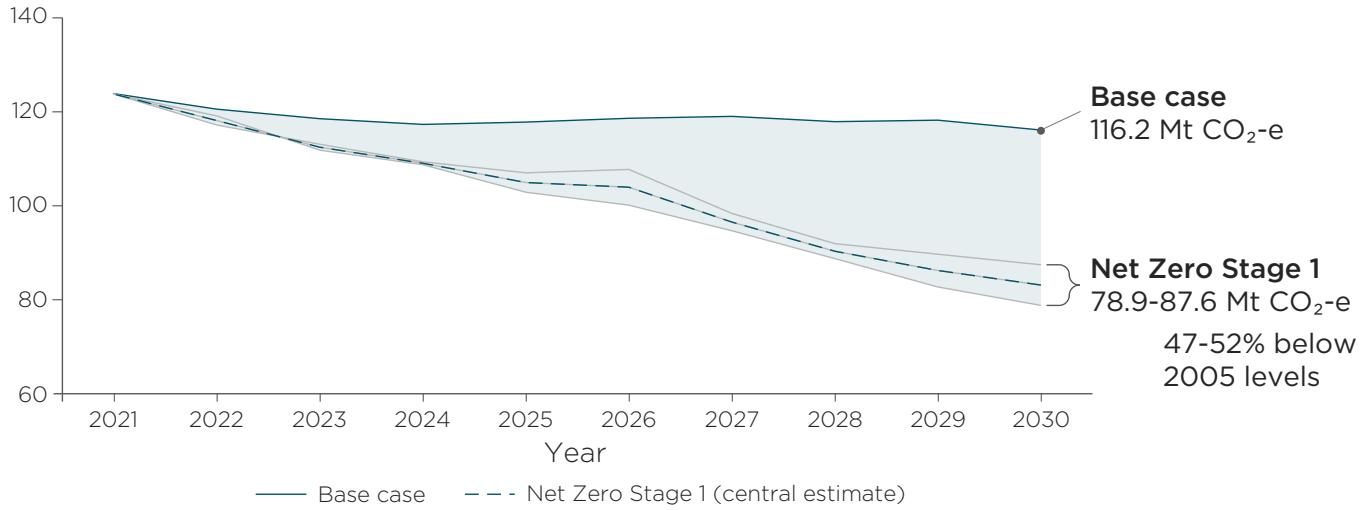


Figure 3 Projected reduction in NSW emissions between 2021 and 2030 due to initiatives under the Plan.

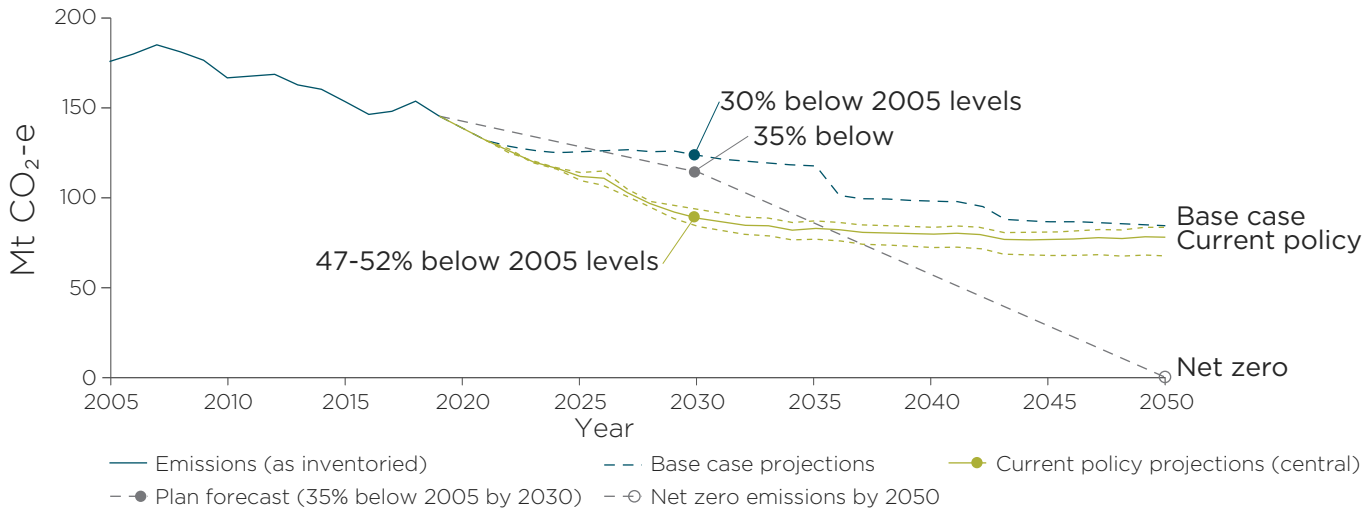


Figure 4 Projected total NSW emissions to 2050 under base case and current policy scenarios.

The emissions reduction projections do not assume, and the NSW Government does not intend, that all sectors of the NSW economy will abate at the same rate. The NSW Government's projections also find that the State is on track to achieve this objective on current policy settings. In light of this, the NSW Government policy is that the NSW Government's objective set out in this Plan, to reduce emissions by 50% below 2005 levels by 2030, is not to be considered in the assessment or determination of development and infrastructure applications under the *Environmental Planning and Assessment Act 1979*.

Governance

Net Zero Emissions and Clean Economy Board

The NSW Government has established the Net Zero Emissions and Clean Economy Board to provide strategic advice on ongoing development and implementation of the Plan, including by recommending funding decisions under the Plan. The Board will be made up of cross-sector representatives drawn from the electricity, powerfuels, transport and primary industries sectors, as well as figures in science, technology and innovation, public policy and finance. The Board will help the NSW Government pursue actions to grow the economy, create employment opportunities and support industry to develop low emissions technologies to modernise industrial processes.

State of the Environment reports

The NSW Environment Protection Authority (EPA) is the primary environmental regulator for New South Wales. The EPA partners with business, government and the community to reduce pollution and waste, protect human health and prevent degradation of the natural environment. Established in 1991, the EPA is responsible for issuing environment protection licences, monitoring compliance and prosecuting organisations and individuals that break the law. The EPA also helps develop and inform environmental programs and policy, and provides technical support and expertise to other Government agencies.

The EPA will play an important role in the implementation of the Plan by reporting on the progress made under the Plan including on the forecast emissions reductions for New South Wales. Pursuant to a direction from the Minister, as part of its State of the Environment reports released every three years, the EPA will include: a description of the status of the policies set out in the Plan; the State's projected emissions reductions for 2030 on 2005 levels; and an assessment of the emissions reductions that are attributable to the impact of the Plan and other government policies. The State of the Environment report will also provide an analysis of the economic and other environmental impacts of the Plan, and comment on the extent to which the Plan is setting the State up to achieve its objective of net zero emissions by 2050.

NSW Chief Scientist and Engineer reports

In August 2020, the Office of the NSW Chief Scientist and Engineer released its first Decarbonisation Innovation Study. This report is the first in a series of reports to be released every second year on the emerging technologies that can support the dual decarbonisation and prosperity of the NSW economy.

Endnotes

1 NSW Government, March 2020, Net Zero Plan Stage 1: 2020-2030.

2 Task Force on Climate-related Financial Disclosures, June 2017, Recommendations of the Task Force on Climate-related Financial Disclosures.

3 Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015.

4 IPCC, 2021, Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change

5 Energy & Climate Intelligence Unit and Oxford Net Zero, March 2021, Taking stock: A global assessment of net zero targets

6 UK Department for Business, Energy & Industrial Strategy, April 2021, Press Release: UK enshrines new target in law to slash emissions by 78% by 2035

7 The White House Briefing Room, April 2021, President Biden Sets 2030 Greenhouse Gas Pollution Reduction Target Aimed at Creating Good-Paying Union Jobs and Securing U.S. Leadership on Clean Energy Technologies

8 Reuters, April 2021, Japan vows deeper emission cuts as Biden holds climate summit

9 German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, National Climate Policy

10 Government of Canada, Environment and Climate Change Canada, July 2021, Government of Canada confirms ambitious new greenhouse gas emissions reduction target

11 European Commission, accessed 2021, 2030 Climate Target Plan

12 Energy & Climate Intelligence Unit and Oxford Net Zero, March 2021, Taking stock: A global assessment of net zero targets

13 ABC News, May 2021, Kevin Rudd and Malcolm Turnbull said 70 per cent of our trade is with nations committed to net-zero emissions. Is that correct?

14 Australian Government, Department of Industry, Science, Energy and Resources, June 2021, International Climate Change Commitments

15 ACT Government, Environment, Planning and Sustainable Development Directorate, accessed 2021, Emission Reduction Targets

16 Government of South Australia, Department of Environment and Water, Climate Smart South Australia, South Australia's greenhouse gas emissions

17 Government of Victoria, Department of Environment, Land, Water and Planning, accessed 2021, Victoria's greenhouse gas emissions reduction targets

18 NewClimate Institute & DataDriven EnviroLab (2020) Navigating the Nuances of Net-Zero Targets

19 Microsoft, January 2020, Microsoft will be Carbon Negative by 2030.

20 Unilever, 2020, Creating Net Zero Carbon Products

21 BHP, accessed 2021, Operational Decarbonisation

22 Rio Tinto, accessed 2021, Climate Change

23 Shell, accessed 2021, Our Climate Target

24 BP, February 2020, BP Sets Ambition for Net Zero by 2050, Fundamentally Changing Organisation to Deliver

25 Qantas, Our Planet

26 Bluescope, 2021, Bluescope Climate Action Report Summary for Policymakers.

27 Bloomberg New Energy Finance, 2021, Energy Transition Investment Hit $500 Billion in 2020 – For First Time

28 IPCC, Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change, Summary for Policy Makers

29 Blackrock, 2021, Net zero: a fiduciary approach

30 National Australia Bank, 2020, Sustainability Report 2020

31 Commonwealth Bank of Australia, 2020, CDP Disclosure 2020

32 Australia and New Zealand Banking Group Limited, accessed 2021, Environmental Sustainability

33 Westpac, accessed 2021, Climate Change and Environmental Issues

34 Goldman Sachs, accessed 2021, Sustainable Finance

35 Wells Fargo, accessed 2021, Advancing Environmental Sustainability

36 JPMorgan Chase & Co, accessed 2021, Sustainability

37 Hongkong and Shanghai Banking Corporation Limited, accessed 2021, Our Climate Strategy

38 Frankfurt School-UNEP Centre/BNEF, 2019, Global Trends in Renewable Energy Investment

39 International Renewable Energy Agency, June 2021, Renewable Power Generation Costs in 2020

40 Bloomberg New Energy Finance, 2020, Battery Pack Prices Cited Below $100/kWh for the First Time in 2020, While Market Average Sits at $137/kWh

Photo credits

Cover photo: Solar panels at Moree Solar Farm, NSW (Neil Fenelon);
Page 2-3: Wind farm at Blaynew, NSW (Steve Back/NSW Government);
Page 4: Darling Harbour rooftops and cityscape, showing solar panels on the rooftops (Lisa Madden/DPIE);
Page 5: Farmer cotton crop (Quentin Jones/DPIE); Rows of photovoltaic batteries (Energy NSW);
Page 7: Gum tree, Copeland Tops State Conservation Area (John Spencer/DPIE);
Page 8: Cityscape from Mort Bay Park, Balmain, Sydney (Salty Dingo);
Page 9: Power poles at Ropes Creek Corridor, Sydney (Salty Dingo);
Page 10: Eveleigh St house with solar panels, Sydney CBD NSW (Salty Dingo); Rouse Hill station (Justin Sanson);
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Page 18: Sydney city office buildings behind Darling Harbour (Olga Kashubin/iStock);
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Page 23: Cityscape from Mort Bay Park, Balmain, Sydney (Salty Dingo);
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Page 26: Kellyville station (Justin Sanson);
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