



MAKING IT HAPPEN

CLIMATE CHANGE FUND

DRAFT STRATEGIC PLAN

2017 to 2022





Have your say

We want your feedback on this draft strategic plan and the potential actions we have suggested to achieve those priorities.

The potential actions we've listed here represent the NSW Government's view on the kinds of actions that could be taken to achieve the plan's priorities. They are provided to stimulate discussion. There may be other ideas you have, and we're keen to hear those ideas.

You can participate in briefings and provide input via written submission. Please complete submissions using the submission form provided. Further information on the process and how to get involved is available on the [Have your say website](#).

The government is interested in your feedback on:

- » whether and how we should refine and deliver the potential actions identified
- » whether there are other actions that should be considered to deliver the government's priority investment areas.

The feedback obtained from the public consultation process will be considered in the development of action plans for each of the three priority investment areas:

- » Accelerating advanced energy
- » National leadership in energy efficiency
- » Preparing for a changing climate.

You can visit our [Have your say website](#) to make a submission.

Submissions close at 5pm on 16 December 2016.

Please note the government has also released a Plan to Save NSW Energy and Money for public comment. We will share your comments on this strategic plan as feedback on the other document where relevant, and vice versa.

FOREWORD

Since 2007, the Climate Change Fund has been helping the people of New South Wales save energy and reduce electricity bills, expand the use of renewable energy and better prepare for climate change.

The Climate Change Fund has funded programs that have provided a wealth of benefits:

- » households, businesses, community groups and government have saved \$197 million a year on energy and water bills from savings actions to date
- » the Home Power Savings Program helped 220,000 low income households to reduce their energy use, with over half of these households from outside Sydney
- » Australia's biggest solar power station was built at Nyngan and the third largest built at Broken Hill.

Programs funded by the Climate Change Fund have been found to be effective, efficient and equitable in formal reviews. In particular, energy savings programs:

- » saved energy effectively and efficiently, resulting in net economic benefits
- » contributed to downward pressure on electricity prices for all energy users and delivered bill savings to households, businesses, community groups and government agencies
- » improved access to energy efficiency for low income households and small businesses.

With the world now taking stronger action on climate change, the New South Wales Government has released a Climate Change Policy Framework. It sets our aspirational objective for New South Wales to achieve net-zero emissions by 2050. At the same time, new jobs and investment will flow as the world responds to climate change, and we will help our state make the most of these opportunities. We will lead the community in preparing for the impacts of a changing climate and secure the prosperity of the state.

New South Wales can be a powerhouse for jobs, growth and productivity through energy efficiency and renewable energy. The government makes a priority of improving people's quality of life as we address climate change. That includes reducing impacts on the cost of living, using energy efficiency and renewable energy to tackle energy poverty and vulnerability, and helping to improve amenity.

Our location and climate present particular opportunities and challenges. We feel the impacts of climate change through bushfire, drought, and extreme weather. But our economy and our natural resources mean that we can also deliver the jobs and investment in clean, efficient energy to minimise these impacts and create a more prosperous future.

This strategic plan sets out priority investment areas and potential actions using \$500 million of new funding from the \$1.4 billion Climate Change Fund over the next five years. Investment in these areas will help New South Wales make the transition to a net zero emissions future and adapt to a changing climate.

Most of the potential actions rely on strong partnerships between state government and the private sector to be successful, particularly the energy, primary industries, property and transport sectors. The success of the strategic plan also depends on a close working relationship with local councils, and through them, with local communities across the state. It is also important that New South Wales continues to work in partnership with the Commonwealth Government who has primary responsibility for setting and achieving Australia's emission reduction targets.

We are now looking for your feedback on these potential actions, as well as your ideas on how New South Wales can best achieve these investment priorities. We'll use this feedback to develop action plans that will help New South Wales make the transition to a net zero emissions future and adapt to a changing climate.



Mike Baird MP
NSW Premier



Mark Speakman MP
Minister for the Environment

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1

A STRATEGIC PLAN FOR THE NSW CLIMATE CHANGE FUND

1.1 The NSW Climate Change Fund

New South Wales is the only state in Australia to have a fund dedicated to support climate change activities.

The NSW Climate Change Fund is made possible through contributions from all NSW electricity consumers. Each year, all NSW electricity distribution businesses are required to pay contributions to the fund, and these in turn are passed through to electricity consumers. The purposes of the fund include to support activities that reduce greenhouse gas emissions and the impacts of climate change, to stimulate investment in innovative energy savings measures and to raise public awareness about climate change.

Through the shared investments made by the Climate Change Fund, New South Wales can respond in a flexible and innovative way to new developments in national and international climate change policy, and to emerging knowledge about the changes occurring in the climate, and can work to reduce the state's greenhouse gas emissions.

Over the next five years, the Climate Change Fund will support \$1.4 billion of activity in New South Wales. This will include \$900 million allocated to ongoing priorities such as:

- » conserving private land to reduce the vulnerability of ecosystems to climate change
- » building the capacity of land management agencies to enhance bushfire management
- » supporting councils to reduce exposure to coastal hazards
- » future proofing Warragamba Dam
- » delivering successful on-going adaptation programs to assist our regions to adapt to climate change
- » delivering sustainability programs to improve our use of water, energy and land
- » delivering programs to understand and plan for climate extremes of flooding and storms.

This strategic plan describes potential actions proposed to be funded through the remaining \$500 million over the next five years. It describes new programs, partnerships and other actions to build on what we have put in place, to spark innovation across the

economy and to speed up change in the sectors that need it most. The strategic plan describes the high level outcomes these actions could achieve.

These potential actions were developed following a series of workshops with independent energy and climate change experts, including members of the NSW Climate Change Council. The workshops examined the role of the NSW Government in managing climate change impacts, and energy as it relates to climate change. The outputs from these workshops were worked up into potential actions and tested against criteria such as:

- » addressing a market or other barrier not otherwise addressed
- » benefits likely to outweigh costs
- » appropriate role for the NSW Government
- » effective policy mechanisms available
- » alignment with other NSW Government priorities
- » alignment with the purposes of the Climate Change Fund.

The potential actions and the benefits they could generate are all indicative at this stage. They are included to show the scale of what may be possible through new actions funded under the Climate Change Fund. The costs of the actions and their benefits will be confirmed through further analysis as we prepare the detailed action plans.

We want your views on these potential actions, including how they could be implemented and whether there are other actions we haven't considered.

Your feedback will inform action plans that the government will release in 2017 and implement over the next five years.

1.2 The NSW Climate Change Policy Framework

The NSW Government has released a climate change policy framework to demonstrate our commitment to action on climate change and guide future policy and programs.

The framework sets aspirational objectives for New South Wales in relation to climate change.



NSW aspirational objectives

- » Achieve net-zero emissions by 2050
- » NSW is more resilient to a changing climate

The framework sets out the role of NSW Government in emissions savings and climate change adaptation, across policy, operations and advocacy.

NSW Government role in emissions reduction

Government policy

Implement emissions savings policies that are consistent with achieving the Commonwealth Government's interim and long-term emissions saving objectives and are fair, efficient and in the public interest

Government operations

Lead by example to reduce emissions in government operations

Government advocacy

Advocate for Commonwealth, COAG and international action consistent with the Paris Agreement

NSW Government role in impacts and adaptation

Government policy

Implement policies to plan for climate risks and provide targeted support for households, communities and businesses that is fair, efficient and in the public interest

Government operations

Assess and effectively manage climate change risk to government assets and services

Government advocacy

Advocate for Commonwealth, COAG and international action to support effective adaptation

Duffer Creek Gibraltar Range National Park
(credit: R Cleary Seen/OEH)

Policy directions

The NSW climate change policy framework sets out seven policy directions for the NSW Government to respond to climate change.

NSW Government policy directions

1. Create a certain investment environment by working with the Commonwealth to manage transition
2. Boost energy productivity, put downward pressure on household and business energy bills
3. Capture co-benefits and manage unintended impacts of external policies
4. Take advantage of opportunities to grow new industries in New South Wales
5. Reduce risks and damage to public and private assets in New South Wales arising from climate change
6. Reduce climate change impacts on health and wellbeing
7. Manage impacts on natural resources, ecosystems and communities.

These policy directions have informed the themes and objectives outlined in this strategic plan and will be pursued through the development of future action plans.

More details of the NSW Government's Climate Change Policy Framework can be found at www.environment.nsw.gov.au.

1.3 Delivering the policy framework

This strategic plan is an important first step to implementing the policy framework. The strategic plan organises potential actions into three priority investment areas that will form the basis of future action plans:

- » Accelerating advanced energy (up to \$200m)
- » National leadership in energy efficiency (up to \$200m)

- » Preparing for a changing climate (up to \$100m). This would supplement the existing funding for adaptation referred to in section 1.1.

Table 1 shows how the potential actions in the strategic plan reflect the role of the NSW Government in policy, operations and in advocacy.

Accelerating advanced energy

The advanced energy priority area focuses on supporting the transition to a net-zero emissions economy by providing greater investment certainty for the private sector, accelerating new technology to reduce future costs, and helping the community and industry make informed decisions about a net-zero emissions future.

The potential actions use government purchasing power to achieve these goals and include advocating for the Commonwealth and the COAG Energy Council to provide stable regulatory frameworks that support our economic transition.

These actions are consistent with, and will reduce the costs of meeting Australia's renewable energy and emissions reduction objectives.

National leadership in energy efficiency

The energy efficiency priority area focuses on building energy productivity and putting downward pressure on energy prices.

The NSW Government is committed to remaining a national leader in energy efficiency and to achieving our ambitious energy savings target to achieve 16,000 gigawatt hours of annual energy savings by 2020. The potential actions in this priority area will support the delivery of this target. More details about this strategy can be found in *A Draft Plan to Save NSW Energy and Money*, available at on the [Have your say](#) website

The potential actions address market barriers that have not yet been addressed, enhance existing national and state regulation, use government purchasing power and ensure that all energy consumers have the opportunity to benefit from energy efficiency.

These actions will reduce New South Wales greenhouse gas emissions, will help meet Australia's emissions reduction objectives, and will deliver a net benefit to the New South Wales economy.

Preparing for a changing climate

The potential actions in this priority area aim to reduce costs to public and private assets arising from climate change, reduce the impacts of climate change on health and well being, particularly in vulnerable communities, and manage the impacts of climate change on natural resources, ecosystems and communities.

These actions include providing information about climate change impacts and best-practice approaches to adaptation, and encouraging and supporting private action to prepare for climate change.



Have your say

We want your views on the potential actions in the Climate Change Fund Strategic Plan including how they could be implemented and whether there are others we haven't considered.

Your feedback will inform action plans that the government will release in 2017 and implement over the next five years.

Details on how to provide your feedback are provided inside the front cover of this plan.

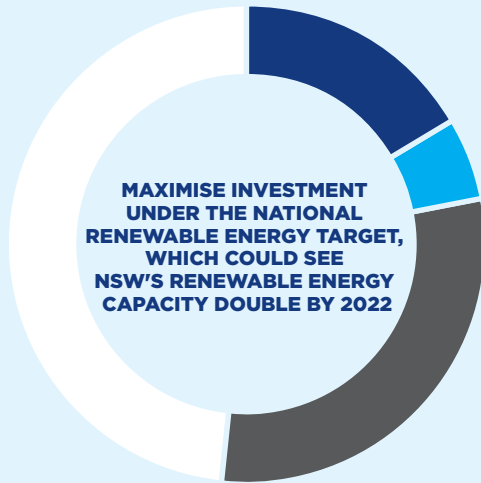
Table 1: Potential actions for investigation under the three priority investment areas

	Policy	Operations	Advocacy
Accelerating advanced energy: Attract investment in advanced energy and save emissions			
Maximise investment under the national Renewable Energy Target	■	■	
Attract investment in advanced energy demonstration projects	■		
Provide start-up funding to accelerate innovation in advanced energy	■		
Identify low-emissions pathways for emissions intensive sectors	■		
Put the New South Wales vehicle fleet on the path to doubling energy productivity	■	■	■
Build capacity of local communities to deliver and own renewable energy	■		■
Reduce emissions in NSW to support achievement of Commonwealth objectives	■		■
Make Sydney the Asia-Pacific's carbon market hub	■		■
Identify cost-effective pathways to achieve net-zero emissions	■	■	■
National leadership in energy efficiency: Grow the economy and reduce energy bills			
Expand investment under the Government Resource Efficiency Policy		■	
Improve energy productivity for households and businesses	■		■
Support industry to realise cost-effective energy productivity opportunities	■		
Reduce peak demand through battery storage and other demand management measures	■		■
Steward the energy savings market to help households and businesses save energy and save money	■		■
Drive clean energy upgrades for rental households	■		■
Support vulnerable households to reduce their energy bills	■		
Support small businesses to increase their energy productivity	■		
Ensure that 40% of participants in the NSW Government clean energy program are in regional New South Wales	■		
Identify energy efficiency measures that could double New South Wales' energy productivity	■		■
Preparing for a changing climate: Minimise impacts of climate change in New South Wales			
Increase awareness of climate change risks in industry sectors and local governments	■		
Ensure 100% of NSW Government agencies are taking action to manage their climate change risks		■	
Grow the adaptation services market	■		■
Assist local communities to reduce their exposure to natural hazards	■		
Invest in private land conservation	■	■	
Increase canopy coverage in heat exposed suburbs and regional towns	■	■	
Improve understanding of climate change impacts in priority sectors	■	■	

SNAPSHOT

Accelerating advanced energy

Up to **\$200 million** to be invested under the Climate Change Fund



- Market driven - small scale
- NSW program support
- Market driven - large scale
- Existing capacity

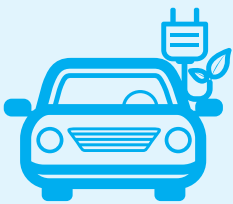
Potential actions



regional
communities deliver and own renewable energy

Carbon market hub

Make **Sydney** the carbon market hub for the Asia-Pacific region



On the path to

double

the energy productivity of the NSW vehicle fleet by 2040

Start-up

funding to accelerate innovation in advanced energy

Estimated benefits

Up to
\$1.1 billion
in private investment

Up to
1100
construction jobs

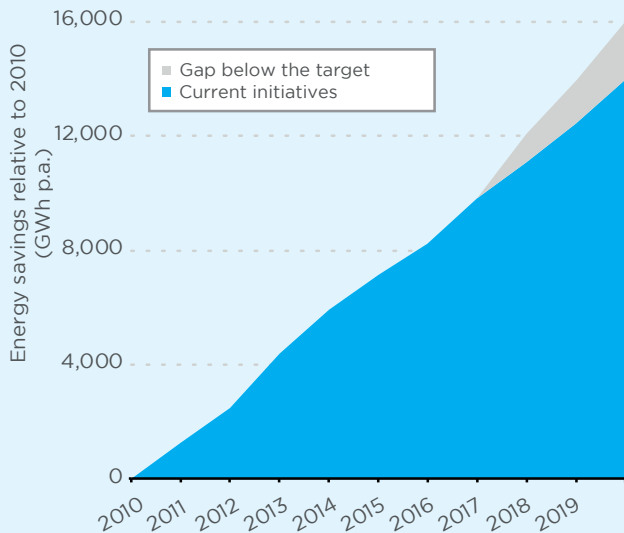
Up to
540 MW
of renewable energy capacity

SNAPSHOT

National leadership in energy efficiency

Up to **\$200 million** to be invested under the Climate Change Fund

Achieving the energy savings target of 16,000 GWh by 2020



Potential actions



Help

high-emission industries to save energy and reduce power bills

Clean energy

upgrades for rental households to reduce power bills



Reduce

power bills for vulnerable households

Increase energy productivity in

small businesses

Estimated benefits

Up to
870
jobs in the energy services market

Up to
\$17 billion
in power bill savings by 2050

Up to
\$1.9 billion
in private investment

SNAPSHOT

Preparing for a changing climate

Up to **\$100 million** in new funding to be invested under the Climate Change Fund

Projected changes in climate and extreme events



Potential actions

\$240 million

of confirmed funding to help landholders and land managers reduce the impacts of climate change on natural ecosystems

\$63 million

of confirmed funding to help vulnerable coastal communities manage the risks of coastal hazards

 **100 years**
of high-resolution climate modelling developed with NARCIIM

 **Increase**
canopy coverage in heat-exposed suburbs and regional towns

Continue treating an average of over
135,000
hectares per year in hazard reduction activities

Enhance
adaptation in primary industries

2

ACCELERATING ADVANCED ENERGY

The advanced energy sector is a global growth industry. Global investment in the sector hit a record of US\$329 billion in 2015, led by China, the United States and Latin America. The movement to net-zero emissions represents a \$12 trillion global financing task and an incredible economic opportunity.

Focussing our industrial development on this growing sector makes good business sense. It is also a sector where New South Wales has a great expertise, a good track record and natural advantages in wind and sunshine. By focussing our efforts on this thriving sector we can create new job opportunities, particularly in our regions. We can avoid burdening the community with facilities and infrastructure that become liabilities, or 'stranded assets'. And we can lower the cost of delivering Australia's renewable energy and emissions reduction objectives.

New technology is changing energy markets, products and services. These changes are leading to more dynamic consumer behaviour that will ease the long-term transition to net-zero emissions.

This long-term transition is underway. Leading energy companies are signalling closure dates for existing assets. For example, AGL Energy has stated that the Liddell Power Station will close in 2022 and the Bayswater Power Station will close in 2035. An orderly transition will deliver reliable, affordable energy into the future while avoiding bill shocks for households and businesses.

The Climate Change Fund will be used to build confidence for the private sector to invest and grow jobs in the new advanced energy economy. This will reduce emissions and air pollution, improve public health, and make New South Wales more competitive.

Some potential actions in this plan complement proposed actions in the *Clean Air for NSW* consultation paper. If implemented, they would improve health outcomes through reducing air pollution.

Nyngan Solar Plant (courtesy of AGL Energy Limited)



The NSW Government will develop an action plan for accelerating advanced energy that will update the *NSW Renewable Energy Action Plan*. It will:

- » manage the transition and increase investment certainty to grow the economy
- » capture co-benefits and manage unintended impacts of external policies
- » take advantage of opportunities to grow new industries in New South Wales.

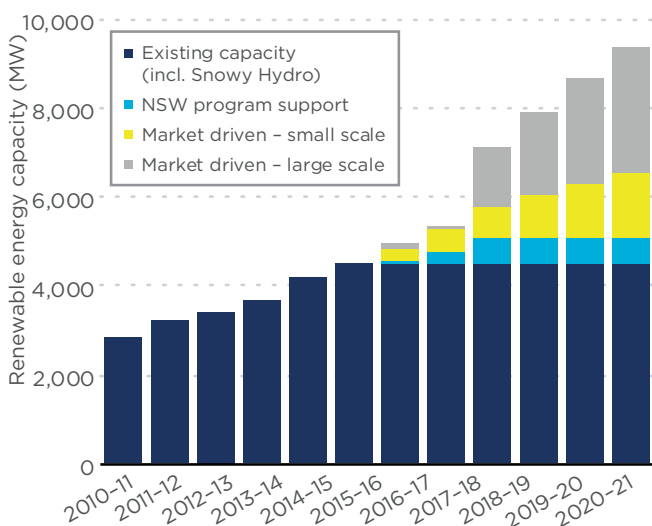
2.1 Unlock investment under the Renewable Energy Target

There is significant uncertainty around electricity demand and wholesale market prices over the next decade. New renewable energy projects may not be built fast enough to meet the national Renewable Energy Target in 2020.

NSW is working via the COAG Energy Council to assess future energy supply scenarios and the impacts this will have on the National Electricity Market’s ability to continue to provide reliable, affordable and sustainable electricity to consumers.

By providing programs that increase certainty for a number of new renewable energy projects, we can build the investment momentum of the broader renewable energy sector. In this way we could capture a fair share of the national target, potentially

Figure 1: A potential scenario for increased renewable energy capacity in New South Wales



attracting more than \$7 billion of investment and significantly increasing renewable energy capacity in New South Wales as shown in Figure 1.

This would grow jobs in the renewable energy sector, help meet the national target and reduce the environmental impacts of energy generation.

Maximise investment under the national Renewable Energy Target

The NSW Government supports the achievement of the national Renewable Energy Target and will maximise investment in new renewable energy projects in New South Wales.

Potential actions include:

- » investigate a competitive ‘contracts for difference’ funding model to guarantee a minimum price for output from up to 250 MW of new large scale renewable energy, providing benefits to local communities
- » build on the New South Wales 50 MW solar power purchase agreement (PPA) to expand PPAs to cover all of the renewable energy procurement commitment under the Government Resource Efficiency Policy
- » support initiatives to make it easier for businesses, institutions and local government to buy electricity from renewable energy projects in New South Wales, such as WWF’s ‘Renewable Energy Buyers Forum’
- » work with the COAG Energy Council to investigate minimum emissions performance standards for new power stations and the role of government in managing an orderly exit of the existing power station fleet
- » advocate for stability and certainty in Commonwealth Government renewable energy policy
- » sponsor energy market reforms to improve network connection processes.

2.2 Accelerate advanced energy technologies

Renewable energy will play an increasingly important role in reducing greenhouse gas emissions in New South Wales.

Emerging technologies such as biomass, solar thermal, pumped hydro and large scale battery storage can complement the cheapest renewable technologies that are currently available, such as solar photovoltaic and wind power, to deliver our future energy needs.

Supporting a diverse range of advanced energy technologies can help ensure that our future energy supply is reliable and flexible enough to meet demand.

Demonstrating these advanced energy technologies in the physical and regulatory environment of New South Wales will build our local capacity and reduce the local costs of applying this technology at scale in the future. In this way we can take advantage of the state's renewable resources, increase our energy security and accelerate an advanced energy future.

Renewable energy projects may help to diversify the economies for landholders in regional and rural areas.

Attract investment in advanced energy demonstration projects

The NSW Government will unlock opportunities for emerging renewable energy technologies and lower the cost of applying these technologies in New South Wales. Potential actions include to:

- » support research and demonstration projects for emerging advanced energy technologies that could provide flexible electricity generation
- » support research and demonstration projects for renewable alternatives to natural gas and transport fuels in industrial applications, including concentrated solar thermal, biomass, electrification and hydrogen.

2.3 Make New South Wales the centre for advanced energy innovation

New South Wales already has a strong record in renewable energy innovation. We have natural advantages in terms of wind and sunshine.

We can build on our competitive advantages and encourage innovation so that advanced energy technologies move beyond the research and development stage to commercialisation. These technologies can assist in providing additional reliable capacity during the transition to advanced energy.

Innovation initiatives have proven successful in both Europe (Climate KIC) and California (California Clean Energy Fund). By supporting innovation, improving our understanding of new energy opportunities in industry, and helping to establish stronger industry networks, we can help the private sector deliver better services for New South Wales and capture new export opportunities.

Provide start-up funding to accelerate innovation in advanced energy

The NSW Government will partner with investors, industry and institutions to facilitate information sharing and commercialisation of advanced energy technologies. Potential actions include:

- » work with established business incubators to provide dedicated programs for entrepreneurs and start-ups developing, demonstrating and deploying clean energy and supporting technologies and services
- » sponsor energy innovation events to facilitate collaboration among universities, industry, government and investors
- » develop tools to share information, connect collaborators and promote energy innovation in New South Wales
- » monitor the development of technologies, community attitudes, price signals and share information to encourage investment and support market growth.

2.4 Accelerate the transition to a 21st century transport fleet

The energy used by road transport in New South Wales is growing. This is increasing greenhouse gas emissions, affecting the local environment and human health, and placing pressure on the cost of living and doing business in our state.

The energy productivity of the New South Wales vehicle fleet is falling behind those of our competitors overseas. Changing the course of the New South Wales vehicle fleet takes a long time because passenger and commercial vehicles have long lives of 20 years or more.

Developing better benchmarks to measure vehicle 'on road' performance will help fleet managers and consumers with purchasing decisions.

By complementing national vehicle standards with better information and incentives, we can reduce fuel bills, reduce health impacts, increase our energy security and make advanced vehicle technology available to more consumers in New South Wales.

Put the New South Wales vehicle fleet on the path to doubling energy productivity

The NSW Government will develop a New South Wales electric vehicles strategy to increase the uptake of low emission and electric vehicles by individual and business consumers. Potential actions include:

- » advocate for higher national fuel efficiency standards
- » investigate appropriate incentives to encourage the purchase of fuel efficient light vehicles and to retire inefficient vehicles, including through stamp duty and registration charges
- » provide the right 'real-world' information so that businesses and individuals can choose fuel efficient light and heavy vehicles
- » work with vehicle suppliers and clean energy providers to make zero emission and flexible fuel vehicles available to the New South Wales vehicle market
- » investigate and consider how the government could best invest in a fleet of electric vehicles, including for public transport, and charging infrastructure at government sites
- » investigate the case for public investment in electric vehicle charging infrastructure and the requirements for renewable energy power supply
- » review and extend the Green Truck Partnership approach to demonstrate new technologies for low-emissions light vehicles and freight (road, rail and other).

2.5 Empower local communities to adopt renewable energy

Strong community support for clean energy can lower the costs of new advanced energy projects and encourage investment in New South Wales.

Communities can directly participate in projects through mechanisms such as community ownership, co-ownership with a developer, and payments to community organisations and landowners.

However, many community groups don't have access to the information, skills and funds needed to understand these opportunities, and our regulatory frameworks may not make these opportunities easy to access.

By empowering local communities to make decisions on their own clean, affordable and secure energy supplies, we can unlock investment and build community support for advanced energy technologies in New South Wales.

There are opportunities for landholders to benefit from renewable energy projects and investment in New South Wales through community and co-ownership of assets. These opportunities may provide primary producers access to new income streams.

Build capacity of local communities to deliver and own renewable energy

The NSW Government will work with local communities to deliver renewable energy. Potential actions include:

- » build capacity in councils in regional areas to provide advice to their communities on advanced energy
- » sponsor energy market and financial regulation reforms through COAG to make it easier for community scale projects to connect to the grid and share their benefits
- » help community energy groups to share knowledge and experience with financing and delivery models to get community energy projects off the ground
- » deliver connection guides and business case guides for sustainable energy community and residential projects
- » investigate the best ways to encourage developers to share the benefits of renewable energy projects with the local community.

Nyngan Solar Plant (courtesy of AGL Energy Limited)



2.6 Support heavy industry to plan for a low-emissions economy

As the world seeks to limit greenhouse gas emissions, heavy industries in New South Wales may need to adopt new technologies and processes to compete with overseas rivals.

These heavy industries have long investment cycles and need time to plan for equipment or process upgrades that could save emissions. The scale and timing of this transition can also influence other sectors of the economy.

By helping to coordinate industry-wide research and emissions-reduction strategies, we can encourage investment in New South Wales businesses and grow skilled jobs.

Identify low-emissions pathways for emissions intensive sectors

The NSW Government will create opportunities for heavy industries to invest in new emissions saving technology and improve their competitiveness. Potential actions include:

- » partner with researchers and industry to identify and assess the potential for heavy industrial sites to save emissions
- » work with industry to share knowledge of emissions saving technologies and practices based on a 'learning by doing' approach.

2.7 Save emissions and maximise the benefits in New South Wales

The NSW Government is committed to supporting the Commonwealth Government to achieve Australia's interim and long term emission reduction objectives. Emissions saving programs and schemes are likely to grow to reach Australia's commitments to the Paris Agreement on climate change. This presents a great opportunity for New South Wales, as a strong participant in these programs to date.

Emissions saving programs often have other benefits, such as improved air quality or biodiversity conservation. By encouraging projects that offer both emissions saving and other benefits, New South Wales will be better off.

Reduce emissions in NSW to support achievement of interim and long term Commonwealth objectives

The NSW Government can reduce emissions in New South Wales to support the achievement of interim and long-term Commonwealth objectives. Potential actions include:

- » Coal Innovation NSW continuing to support research into low emissions coal technologies and encouraging the development and implementation of these technologies, including investigating ways for coal mines to reduce their fugitive emissions, including via the Commonwealth Government's Emissions Reduction Fund
- » strengthen emissions-performance requirements and monitoring in land-use planning and major project planning approvals processes
- » advocate for Commonwealth, COAG and international action consistent with the Paris Agreement
- » advocate for improvements to Commonwealth policy and programs to address key emissions sources in New South Wales such as agricultural production systems and transport
- » support primary industries, including farmers to save emissions or enhance carbon sequestration and attract funding from the Commonwealth Emission Reduction Fund.

The Commonwealth Emissions Reduction Fund and other carbon markets in the Asia-Pacific region are creating emissions savings opportunities and a demand for carbon services.

The opportunity for our state is not only to reduce emissions, but also to be the centre of carbon markets in the Asia-Pacific region. NSW businesses can provide carbon market services to this growing region. By growing a thriving carbon market to reduce emissions, we can grow jobs in the new energy economy, improve health and our local environment, and make New South Wales more competitive with our major trading partners.

Make Sydney the Asia-Pacific's carbon market hub

The NSW Government can grow the carbon market in New South Wales. Potential actions include:

- » seek to make Sydney the Asia-Pacific's carbon market hub by extending Sydney's financial and business infrastructure, scaling-up Sydney's carbon market workforce and encouraging international businesses to headquarter in Sydney.

2.8 Find cost-effective pathways to reduce emissions

There are a number of different pathways to reducing emissions, involving different combinations of action on advanced energy, energy efficiency, carbon sequestration and emissions savings from agriculture and land use. For New South Wales to contribute to Australia's international commitments while growing our economy, we need to understand which pathways have the greatest benefit.

By understanding these cost-effective pathways, New South Wales will be able to plan ahead effectively.

Identify cost-effective pathways to achieve net-zero emissions

The NSW Government will establish the means to understand and monitor the impact of its policies on achieving the state's climate change objectives. Potential actions include:

- » model emissions pathways and their economic impacts taking account of national and international carbon constraints and trends in both government policies and private sector action
- » monitor and predict the impact of current and new policy initiatives on the state's emissions performance
- » develop a plan for New South Wales to achieve net-zero emissions.

2.9 Benefits by sector

Power sector

This plan will support New South Wales' energy sector to transition to a net-zero emissions future and improve local environments for everyone.

Through this plan we will attract private investment in renewable energy projects and will attract and grow expertise in advanced energy in New South Wales. Our plan will build on the approximately 4000 jobs already in the renewable energy sector and create jobs in supporting industries.

Investing in advanced energy will support economic growth and enable us to meet our future energy needs.

This plan will also identify long-term pathways for an orderly transition to net-zero emissions, and work with the private sector and the Commonwealth Government to provide greater certainty.

Solar panel installation (credit: Shutterstock)



Primary industries

This plan will support primary industries to reduce emissions by means such as adopting more efficient production practices, carbon farming and the marketing of carbon offsets, and the application of new technologies such as biomass production for bioenergy.

Our efforts will help to identify pathways to low emissions in the agriculture sector and to investigate more efficient production practices that can deliver strong production and environmental outcomes.

The agriculture sector will benefit through long-term sustainability of production systems and improved access to markets. Farmers who adopt carbon farming practices can capture the benefits to their businesses through reduced soil erosion, increased soil health, improved long-term crop and livestock productivity, and biodiversity co-benefits.

Cattle farm (credit: Matt Lauder/OEH)



Emissions-intensive industries

By identifying pathways to low emissions and supporting demonstration projects, this plan will support emissions-intensive industries to reduce their emissions by switching to cleaner fuels and adopting new production processes.

Communities will also benefit through less local air pollution and improved health and wellbeing.

Steelworks, Port Kembla (credit: Rosie Nicolai)



Transport

This plan will accelerate New South Wales' transition to a lower emission transport fleet.

This plan will investigate incentives and provide information and tools for businesses and consumers to make the switch to cleaner vehicles. Businesses can boost their overall productivity by switching to low-emission and electric vehicles. Consumers making the switch can also save money through lower fuel costs over the life of their vehicles.

Doing this will help reduce our greenhouse gas emissions, while delivering health benefits from reduced air pollution across Sydney and other major centres.

Electric car charging (credit: Shutterstock)



Carbon services market

The Commonwealth Emissions Reduction Fund and other carbon markets in the Asia-Pacific region are creating emissions savings opportunities and a demand for carbon services.

Through this plan we will help make Sydney the Asia-Pacific's carbon market hub. This will encourage carbon businesses to headquarter in Sydney and will help scale up the carbon services workforce, creating jobs and attracting investment into New South Wales.

Our efforts will also support farmers, businesses, industry and local councils to access the benefits of carbon markets. This can attract investment into New South Wales and help us to reduce our emissions. Our efforts will also target carbon abatement projects that deliver health or biodiversity co-benefits.

Tree plantings (courtesy of Western Sydney Parklands Trust)



Have your say

- » Do you have any comments on the actions we propose to fund through the Climate Change Fund to support our advanced energy transition?
- » Are there particular issues we need to consider to ensure these actions are effective?
- » Are there other opportunities for advanced energy we should be encouraging?

3

NATIONAL LEADERSHIP IN ENERGY EFFICIENCY

New South Wales has had great success in using energy more efficiently, and we are the nation's clear leader in this area. It makes sense to use less energy where we can without compromising lifestyles or productivity. Energy efficiency means lower costs, lower emissions, greater community wellbeing and a healthier economy. In the longer term, if we are using energy efficiently the shift to net-zero emissions will be easier.

In 2011, the NSW Government committed to a target of helping NSW households and businesses realise 16,000 gigawatt hours of annual energy savings by 2020. While there has been significant progress towards that energy savings target, more action is needed to close the gap on meeting that target (Figure 2).

The government has released a public consultation paper, *A Draft Plan to Save New South Wales Energy and Money*. This plan outlines options for achieving the state's energy savings target, and these actions are also included in the strategic plan. These actions are to:

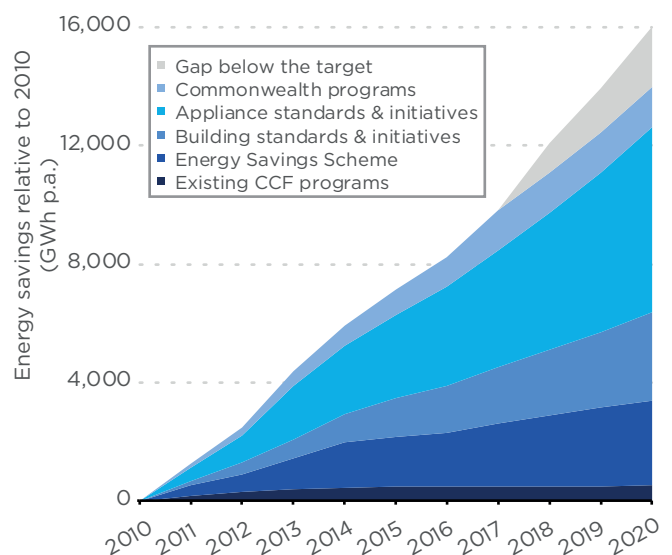
- » support councils to upgrade public lighting and adopt the Government Resource Efficiency Policy
- » accelerate energy efficient appliance standards under the national Greenhouse and Energy Minimum Standards program
- » consult on increasing future NSW Building and Sustainability Index (BASIX) targets for new homes to encourage industry innovation and best practice, and reduce energy bills
- » improve energy standards for new commercial buildings by advocating for new standards
- » investigate the introduction of energy standards for retail tenancies and common areas in apartment buildings
- » support large energy users to investigate energy savings opportunities
- » provide ratings for homes at the point of sale or lease to help renters and buyers know which properties would be cheaper to run and more comfortable to live in
- » improve energy performance of tenanted homes to make them more affordable and liveable for renters
- » upgrade social housing by reviewing and expanding the Home Energy Action program, strengthening partnerships and developing innovative financing mechanisms

- » invest in market capacity to deliver innovative energy efficiency products and services to small businesses and collect data to inform the Energy Savings Scheme.

These actions from *A Draft Plan to Save NSW Energy and Money* are shown in italics below.

The Climate Change Fund will support achievement of the 16,000 gigawatt hour energy savings target and will free up funds for households and businesses, reduce pressure on energy prices, reduce impacts on the environment and health, improve living standards, and grow our economy. Some additional actions are included in the strategic plan, which extend beyond or don't directly contribute to the target.

Figure 2: Pathway to achieving the 16,000 gigawatt hours energy savings target



Following consultation on the Draft Climate Change Fund Strategic Plan and *A Draft Plan to Save New South Wales Energy and Money*, the NSW Government will develop an action plan for national leadership in energy efficiency that will update the NSW Energy Efficiency Action Plan. It will:

- » deliver our 16,000 gigawatt hour energy savings target
- » boost energy productivity and put downward pressure on energy bills
- » capture co-benefits and manage unintended impacts of external policies
- » make the most of opportunities to grow new industries in New South Wales.

3.1 Government to lead by example to lower energy costs

Government investment in innovative energy efficient products and services can lower costs for all consumers, making energy efficiency more affordable for the whole community.

The NSW Government Resource Efficiency Policy (GREP) is working to drive down energy use by government agencies and increase advanced energy, but there remains untapped potential to lower energy bills and increase renewable energy use by the NSW Government and local government, and to free up valuable funds for frontline services such as education and health.

There are new technologies available that aren't yet commonly used across New South Wales, such as highly efficient public lighting.

Expand investment under the Government Resource Efficiency Policy

The NSW Government will improve energy efficiency in government services. A potential action in *A Draft Plan to Save NSW Energy and Money* includes:

- » support councils to upgrade public lighting and adopt the Government Resource Efficiency Policy.

Additional actions include:

- » implement government energy management and reporting systems to help agencies understand where and how to make energy savings
- » develop clean energy standards for new government funded infrastructure projects and investigate the best way to implement them.

3.2 Reduce energy costs for households and businesses

Embedding energy efficiency into products and dwellings can save households and businesses energy and money.

Many households and businesses don't choose energy efficient options when making purchasing decisions, because they don't know about them, can't access them or have other priorities. This saddles households and businesses with higher running costs over the lifetime of a product or dwelling.

By promoting disclosure and improving standards, we can encourage the market to make low-cost improvements that unlock long-term energy savings.

Improve energy productivity for households and businesses

The NSW Government will make it easier for households and businesses to save energy and reduce their electricity and gas bills. Potential actions in *A Draft Plan to Save NSW Energy and Money* include:

- » *accelerate energy efficient appliance standards under the national Greenhouse and Energy Minimum Standards program*
- » *consult on increasing future NSW Building and Sustainability Index (BASIX) targets for new homes to encourage industry innovation and best practice, and reduce energy bills*
- » *improve energy standards for new commercial buildings by advocating for new standards*
- » *investigate the introduction of energy standards for retail tenancies and common areas in apartment buildings.*

An additional action includes:

- » partner with supply chains to improve the efficiency of the products available to end consumers.

3.3 Promote energy productivity in industry

Energy may represent a major ongoing cost for industry in New South Wales. Industrial energy users can lower their electricity and gas costs by implementing energy efficiency upgrades, and this in turn will boost productivity and competitiveness.

The Energy Saver Program has provided tools, training and case studies for industrial businesses, such as food manufacturers and plastic and chemical plants. Evaluation of the program has found that it effectively delivered energy savings and also identified major opportunities to unlock further savings in the industrial sector. However, many of these opportunities risk going unrealised, as industry may lack the capacity or expertise to implement energy savings measures.

By helping large industrial energy users to identify and implement cost-effective energy savings opportunities, we can reduce cost pressures and ensure that our state's industry remains competitive into the future.

Support industry to realise cost-effective energy productivity opportunities

The NSW Government will encourage industry to use energy more efficiently. A potential action in *A Draft Plan to Save NSW Energy and Money* includes:

- » *support large energy users to investigate energy savings opportunities.*

An additional action includes:

- » support industry sectors to adopt best practice energy management practices.

3.4 Make homes more liveable and affordable for renters

Around one third of households in New South Wales are rental households. Energy-efficient products, such as solar hot water, high efficiency windows or lighting, can improve living standards by cutting energy bills by up to a third and making homes more comfortable on the hottest and coldest days.

As these amenities are attached to the property, renters can't invest in them themselves. Landlords don't pay for energy so they have little incentive to invest in these products.

If we encourage landlords to invest in the energy productivity of their properties, we can reduce energy costs in rental properties to improve living standards for renters.

Drive clean energy upgrades for rental households

The NSW Government will encourage landlords to invest in energy productivity and improve living standards for renters. Potential actions in *A Draft Plan to Save NSW Energy and Money* include:

- » *provide ratings for homes at the point of sale or lease to help renters and buyers know which properties would be cheaper to run and more comfortable to live in*
- » *improve energy performance of tenanted homes to make them more affordable and liveable for renters.*

Additional actions include:

- » investigate opportunities to work with other jurisdictions on common approaches to energy efficiency in rental properties.

3.5 Support vulnerable communities to access energy efficiency

Social, economic or geographic disadvantage means that not everyone can enjoy the benefits of energy efficient products. Some of the more vulnerable members of our community don't have the financial capacity to invest in energy efficiency. They may also lack access to the information they need to reduce their energy costs.

As the energy market changes, it may become harder for these vulnerable communities to adjust. By co-investing with them and providing better information, we can reduce the energy bills and improve the health and living standards for those most vulnerable in our society.

Support vulnerable households to reduce their energy bills

The NSW Government will work with vulnerable households to reduce their energy costs and increase living standards. Potential actions in *A Draft Plan to Save NSW Energy and Money* include:

- » *upgrade social housing by reviewing and expanding the Home Energy Action program, strengthening partnerships and developing innovative financing mechanisms*

Additional actions include:

- » as part of a review of energy concessions, the government will investigate the use of energy rebates and other innovative mechanisms to fund energy efficiency upgrades, taking account of community views
- » provide bill reduction advice that is tailored to the needs of vulnerable customers identified through better information.

3.6 Support small businesses to access energy efficiency

Small businesses that don't own their own premises can also face disproportionate costs for energy upgrades relative to savings.

By encouraging investment in energy efficiency, we can lower input costs, helping small businesses to free up funds to capture new opportunities and grow jobs.

Support small businesses to increase their energy productivity

The NSW Government will support small business to access the Energy Savings Scheme and invest in energy efficiency upgrades. A potential action in *A Draft Plan to Save NSW Energy and Money* includes:

- » *invest in market capacity to deliver innovative energy efficiency products and services to small businesses and collect data to inform the Energy Savings Scheme*

Additional actions include:

- » continue to provide energy efficiency training to general business advisers.

Regional and remote communities pay more for energy than their city counterparts, and they often miss out on opportunities for energy upgrades and local jobs from energy efficient businesses.

By helping regional communities save money from clean energy opportunities, we can free up funds in regional New South Wales to be reinvested in local economies to grow jobs and improve living standards.

Ensure that 40% of participants in the NSW Government clean energy program are in regional NSW

The NSW Government will help regional communities take up clean energy opportunities and participate in NSW Government clean energy programs. Potential actions include:

- » provide information on the business proposition for energy efficiency service providers in regional New South Wales such as a map of known energy efficiency opportunities.

3.7 Reduce peak demand through battery storage and energy efficiency

If the demand for electricity can be spread more evenly through the day through measures such as battery storage and energy efficiency, less network infrastructure is needed and the cost of electricity for all New South Wales households and businesses should come down. At present, however, there is no clear market for demand management services in New South Wales.

By addressing market and regulatory barriers and jump starting a demand management market, we can encourage businesses to grow jobs and invest in advanced energy and reduce pressure on energy prices. Deploying battery technology and other demand management measures can assist in providing additional reliability to an energy market in transition.

Reduce peak demand through battery storage and other demand management measures

The NSW Government will support a strong demand management market to reduce infrastructure costs and greenhouse gas emissions. Potential actions include:

- » engage with the COAG Energy Council to reform the National Electricity Rules to reduce barriers to broad-based demand management
- » advocate to the Australian Energy Regulator for greater implementation of demand management by network businesses
- » jump start the demand management market during the current regulatory cycle with reverse auctions to reduce peak demand through technologies such as appliance demand response and battery storage
- » work with network businesses and energy efficiency service providers to coordinate information required to target energy savings at grid constrained areas.

3.8 Boost the energy efficiency market

The NSW Energy Savings Scheme has already helped to save around 15,000 gigawatt hours of energy and more than \$2 billion off bills over the next decade. Even more is possible. There is also potential for property owners to use Environmental Upgrade Agreements (private finance to upgrade buildings) or energy performance contracts to further reduce energy costs.

New mechanisms for financing environmental upgrades are also emerging in Australia such as green bonds.

By improving and expanding these programs, we can encourage more households and businesses to invest in energy efficiency, reduce their costs and make New South Wales more prosperous.

Steward the energy savings market to help households and businesses save energy and save money

The NSW Government will improve and expand the Energy Savings Scheme to drive greater electricity and gas bill savings for our state’s households and businesses. Potential actions include:

- » align the Energy Savings Scheme with those in other states and territories
- » continuously improve the Energy Savings Scheme Rule and targets to provide new opportunities for households and businesses to save energy
- » improve contracts and business cases for Environmental Upgrade Agreements and other mechanisms in consultation with industry and the multi-unit residential sector
- » expand innovative financing models including rates-based financing and green bonds.

Identify energy efficiency measures that could double New South Wales’ energy productivity

The NSW Government will partner with industry to provide comprehensive information on energy efficiency for innovators and decision makers. Potential actions include:

- » establish an Energy and Resource Efficiency Research Hub in collaboration with the research sector to build expertise in energy efficiency and support innovators to assess the performance of new products
- » monitor and publish New South Wales energy use, energy savings and energy efficiency sales data in collaboration with the energy services sector and the COAG Energy Council
- » research the design of programs that are more effective in influencing consumers and suppliers to save energy
- » provide funding to measure and verify energy savings in targeted industry sectors and technologies
- » investigate the introduction of an energy productivity target for New South Wales and the form that it could take.

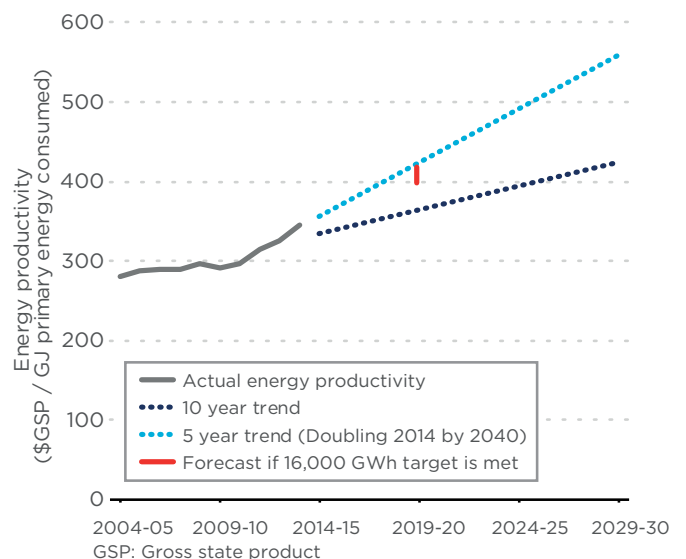
3.9 Drive innovation and build confidence about energy efficiency

Innovations in products and services will continue to provide new ways for households and businesses to save energy and money. Industry, researchers, innovators, investors and government need baseline information and data so that they can understand the needs of energy consumers and develop new ways to save energy.

New South Wales’ energy productivity has improved in recent years (Figure 3). Accelerating these trends could yield benefits for our state’s economy.

By backing independent measurement and research into new forms of energy efficiency, and by coordinating market information, we can help energy service providers to make credible claims and gain the confidence of their consumers to invest in energy efficiency.

Figure 3: Recent trends in energy productivity in NSW and possible future trends



3.10 Benefits by sector

Households

This plan will help to reduce cost of living pressures for households across New South Wales by helping households save on their energy bills.

Home buyers and renters will have access to energy efficiency rating information before they buy or lease a property. Renters will benefit from improved energy efficiency and all households will benefit from greater access to high energy efficiency appliances.

Extra support will be provided to support energy efficiency upgrades for vulnerable households.

Family with a high-efficiency refrigerator (credit: OEH)



Businesses

This plan will help unlock the energy productivity potential for businesses.

Businesses will have improved access to highly energy efficient appliances and access to the information and tools to undertake energy efficiency upgrades, allowing them to save money on energy bills. These savings will help free up money for businesses to expand and create jobs.

Businesses will also benefit from improved energy standards in new commercial buildings.

Our efforts will target priority sectors and focus on building market capacity to deliver savings for both large and small businesses.

Improving productivity with computer to plate technology (credit: Impress Photography/OEH)



Energy services market

The NSW Government administers the Energy Savings Scheme, BASIX, the National Australian Built Environment Rating System (NABERS) and Environmental Upgrade Agreements, all of which support broad-scale uptake of energy efficiency products and services. These programs have created a robust energy services market in New South Wales.

This plan will facilitate further growth in the energy services market while keeping it accessible and affordable and providing quality services. Our efforts will also create a market for demand management services.

By supporting these markets we will create jobs in the energy efficiency industry and growth in our economy. We can build on the strength of Sydney as a financial services hub to advance our leadership in innovative financing arrangements.

Upgrading a heating, ventilation and air conditioning system
(credit: OEH, AIRAH, ThinkStock & iStock)



Regional communities

This plan will help regional households and businesses to capture energy saving benefits just as households and businesses in Sydney and other major centres can.

NSW energy savings programs will be targeted in regional areas, and this plan seeks to attract more energy efficiency businesses to regional towns.

Our plan will seek to create local jobs in the energy efficiency industry, while freeing up funds to be invested back into regional economies.

Field irrigation is a significant energy saving opportunity
(credit: Peter Robey/OEH)



Have your say

- » Do you have any comments on the actions we propose to fund through the Climate Change Fund to drive energy efficiency?
- » Are there particular issues we need to consider to ensure these actions are effective?
- » Are there particular communities or industry sectors we should be targeting to improve energy efficiency?
- » Are there other opportunities for energy efficiency we should be encouraging?

4

PREPARING FOR A CHANGING CLIMATE

Despite our best efforts to reduce emissions, climate change is now inevitable. In most cases, the cost of being prepared is lower than the cost of recovery. By anticipating change and being well prepared, we can avoid unnecessary economic, environmental and social costs or disruption, and ensure that the New South Wales community is well prepared for climate change.

More than that, we can share our expertise with others, creating opportunities for new industries in climate adaptation services and products.

Actions funded under the Climate Change Fund will help New South Wales adjust to a changing climate, avoid potentially significant future costs, and protect those most vulnerable in our society from the worst impacts of climate change.

The NSW Government will develop an action plan for preparing for climate change that will:

- » make the most of opportunities to grow new industries in New South Wales
- » reduce costs to public and private assets in New South Wales arising from climate change
- » reduce climate change impacts on health and wellbeing
- » manage impacts on natural resources, ecosystems and communities.

Controlled burn by National Parks and Wildlife Service and NSW Rural Fire Service (credit: David Croft/OEH)



4.1 Manage the risks of climate change to public assets and services

The NSW Government provides services such as education and health, and we manage around \$300 billion worth of physical assets, with more than half of this value in infrastructure such as roads and railway lines. With the patterns of floods, storms and extreme heat already changing and predicted to worsen, we can expect new kinds of impacts on public assets and services.

With careful planning and preparation by government, we can reduce the impacts of climate change on the value of public assets and the delivery of services.

Ensure 100% of NSW Government agencies are taking action to manage their climate change risks

The NSW Government will minimise the impacts of climate change on services and assets.

Potential actions include:

- » prepare best-practice guides, tools and targeted training to help government agencies identify and manage climate change risks
- » support government agencies to meet their requirement to undertake initial climate risk assessments and develop appropriate responses
- » develop a framework for reporting government agencies' adaptation initiatives to foster best practice
- » build the capacity of land management agencies to enhance bushfire management and prevention.

Coastal erosion monitoring, Wollongong beach (credit: Peter Robey/OEH)



4.2 Support industry sectors and local communities to respond

Climate change will be experienced differently and poses different risks in distinct locations and communities. Households, businesses and local councils will benefit from climate change information that is relevant to them and in a form they can use.

While the government already provides local information on climate change and its impacts, it is not always tailored to people's needs.

By making climate change information more accessible and relevant to each sector of the New South Wales community, we can position households, businesses and local councils to adapt to climate change and respond to its impacts.

Increase awareness of climate change risks in industry sectors and local governments

The NSW Government will support households, businesses, industries and councils to better understand and respond to climate risks and opportunities. Potential actions include:

- » help the primary industries, energy and infrastructure sectors understand how they can respond to climate change risks and capture opportunities
- » build capacity in coastal councils to respond to climate change risks
- » build capacity in local councils and joint organisations to understand and coordinate local responses to climate change impacts
- » provide tailored information resources and updated climate change projections, including expanding the AdaptNSW website, on practical cost-effective ways to reduce risks for local councils and communities.

4.3 Build the adaptation services market in New South Wales

Households, businesses and government will benefit from professional services to properly assess, manage and respond to the risks of climate change.

Most adaptation services are currently provided by risk assessment and planning specialists in consulting and professional service firms. Adaptation services may not be widely available in the building, design or construction sectors, nor in agriculture or energy supply.

Many households and businesses are not aware of the existence or benefits of these services, and they can't easily tell which providers will best meet their needs.

By facilitating a more innovative and robust adaptation services market, we can help businesses to innovate and create jobs.

Grow the adaptation services market

The NSW Government will help to establish an innovative and robust adaptation services market in New South Wales. Potential actions include:

- » establish an adaptation innovation fund to support innovation and entrepreneurialism that could protect our local communities and provide export opportunities
- » investigate the need for accreditation schemes and information hubs for professional services involved in climate change adaptation such as agriculture, emergency preparedness and health
- » improve building standards and planning requirements to take into account the impacts of climate change
- » investigate and develop rating systems to assess the climate resilience of residential and commercial properties and infrastructure.

4.4 Unlock funds for local communities to respond to climate change

Some groups are more exposed than the rest of the community to climate change, as they have less capacity to invest in responses. Infrastructure and social services in local communities may need to adapt to ensure that these communities are not further disadvantaged.

Local infrastructure, buildings and services may need to be upgraded or improved to make sure they are fit for the future climate in New South Wales.

Private finance can reduce the cost of these upgrades and support households, businesses and local councils adapt to climate change.

There are also opportunities to build upon work undertaken under the Home Energy Action program to enhance the energy efficiency and thermal comfort of vulnerable low income households.

Assist local communities to reduce their exposure to natural hazards

The NSW Government will support local and disadvantaged communities to adapt to climate change and will help unlock private funds to invest in adaptation.

Funding has been announced to support local councils in implementing equitable and cost-effective actions that reduce exposure to coastal hazards, such as beach erosion, coastal inundation and cliff instability.

Further potential actions include:

- » minimise the impacts of climate change on socially and economically disadvantaged urban, regional and remote communities through social impact investment for actions such as upgrading homes, community facilities and infrastructure
- » assist in making private finance, such as resilience bonds, available for households and businesses to adapt to climate change through partnerships with the finance and insurance sectors
- » support innovative pilot projects that demonstrate best practice adaptation and can be replicated in other regional communities or local government areas.

Increase canopy coverage in heat exposed suburbs and regional towns

The NSW Government will support effective use of our ecosystems to reduce the effects of climate change. Potential actions include:

- » implement a program of information, tools and funds for demonstration projects to improve green cover in our cities and regional towns
- » investigate how to encourage the use of natural ecosystems to reduce the effects of climate change on people, communities and infrastructure, for example through flood mitigation and preventing coastal erosion.

4.6 Improve information on local climate change impacts

Communities and businesses have the best chance of adapting to climate change if they have quality information on the risks involved and how to effectively adapt to or manage these risks.

The NSW Government already has valuable information on climate change in New South Wales. We have produced state-wide climate projections (NSW and ACT Regional Climate Modelling: NARClIM), established adaptation research hubs to build local expertise, and undertaken research on the impacts of climate change in industry sectors most exposed to climate change.

Bush regeneration (credit: N Cubbin/OEH)



However, more detailed information is needed on how climate change will influence extreme events such as droughts, floods or storms. The risks to critical public infrastructure and essential public services are not yet clear. Little is known about how projected changes will affect different sectors of the community, such as vulnerable households. Exposed sectors like agriculture need information targeted to their needs to form viable adaptation pathways.

By generating high-quality information with the help of agencies, industry, and academic researchers, we can identify the best steps to adapt to climate change, and keep New South Wales communities, infrastructure and services reliable and secure into the future.

Improve understanding of climate change impacts in priority sectors

The NSW Government will improve and build on the climate change information currently available. Potential actions include:

- » update and enhance the state-wide climate projections developed with NARClIM, including projections for longer time periods and under different emissions scenarios
- » produce hazard maps and reports for key hazards, such as flood, bushfire, drought and heat, to help decision makers understand risks
- » co-fund new research on extreme climatic events, such as extreme rainfall or wind, to understand future risks as part of the NSW Adaptation Research Hub
- » co-fund new research into climate change risks and adaptation options for priority sectors, such as primary industries, health, water security and vulnerable communities, as part of the Adaptation Research Hub
- » identify risks to critical public infrastructure, such as energy, water, transport and health infrastructure and options to manage these future risks.

4.7 Benefits by sector

Infrastructure

Every year homes, buildings and transport infrastructure are damaged by floods, bushfires and storms, causing millions of dollars in damage. Climate change will increase the risks to our urban and regional infrastructure from natural disasters.

Through this plan we will investigate how to improve the consideration of climate change in building standards and planning requirements. This plan will also help make homes and other infrastructure more climate resilient. Doing this can reduce the cost to households, businesses and government for repair and recovery from natural disasters, while also reducing energy bills and insurance premiums.

This plan aims to spark a robust market for adaptation services, creating jobs in a new adaptation services industry.

Central Park, Sydney, 2014 International Green Infrastructure Award Winner (credit: Lisa Madden/OEH)



Water security

Our seasonal rainfall trends are already shifting, and may affect water availability and security in many parts of New South Wales.

This plan will support updated climate change projections and research to identify impacts and risks to our water supply, which will inform future investment decisions in water infrastructure. This information will help private individuals and state and local government authorities to manage water supplies for immediate needs and for long-term economic and environmental sustainability.

Lake Burragorang, Warragamba Catchment Nattai National Park (credit: John Spencer/OEH)



Emergency management

Natural disasters such as floods, bushfires and storms affect peoples' lives. The NSW Government and local councils are responsible for preventing, preparing for and responding to natural disasters.

Climate change is increasing the frequency and intensity of natural disaster events.

NSW Government provides a range of programs to assist communities prepare for natural disasters. Examples of programs to protect the community from bushfires include bushfire risk management plans, community protection plans, asset protection zone guidance, neighbourhood safer places, the Enhanced Bushfire Management Program and Planning for Bushfire Protection.

This plan will provide better research and information to support emergency management agencies and local councils to plan, prepare and respond to natural disasters. Land management agencies will be better equipped to mitigate the risk of bushfires. Local communities will be better prepared for floods, bushfires and storms.

Being prepared can save lives and reduce the social and economic costs of natural disasters to families, businesses, local communities and government.

Murrumbucca fire near Cooma (credit: Sean Parry/OEH)



Primary industries

Primary industries make a significant contribution to our economy and employ many people in regional areas. Climate underpins production and our ability to meet the demands of domestic and export markets.

Climate change poses important risks to these industries through rising temperatures, projected changes in rainfall and drought frequency, extreme weather events, and changes in ocean temperature and acidity.

Our efforts will support primary industries by identifying climate change impacts and risks. We will partner with research agencies and industry to develop and implement viable adaptation options and improve the resilience of production systems to climate change. This means that key sectors like agriculture will be able to better plan and respond to a changing climate by adopting new practices or technologies. This will help ensure continued economic prosperity in regional towns and food security for all of New South Wales.

Vineyard near Dubbo (credit: Peter Robey/OEH)



Coasts

Our coastline and beautiful beaches hold enormous economic, cultural, social and environmental significance. A large portion of the population also lives in coastal communities.

Climate change will significantly increase the risks of coastal flooding and erosion in coastal communities.

This plan will help build the resilience of coastal communities to cope with climate change. Local councils will be better equipped to assess, plan and manage risks to public infrastructure and services, and to private properties where there is public benefit.

By enhancing the resilience of coastal communities we can reduce the economic costs when disasters strike, while also reducing insurance premiums for some asset owners.

Park Beach and Coffs Creek Solitary Islands Coastal Walk
(credit: R Cleary Seen Australia/OEH)



Vulnerable communities

Vulnerable communities are less likely to have the capacity to cope with the impacts of climate change. For example, heat stress will have greater impacts on aged people, people with disabilities or chronic illness and people who are homeless or live in poor quality housing. Isolated communities have reduced access to the services and information that underpin adaptation.

This plan seeks to support vulnerable groups to cope with heat waves and other extreme weather events, through social impact investments for actions such as upgrading homes and community facilities.

These investments will reduce the costs to the most vulnerable in our society and will improve the liveability of social and public housing.

Multicultural Communities Council of Illawarra friendship garden (credit: Sylvia Liber)



Natural ecosystems

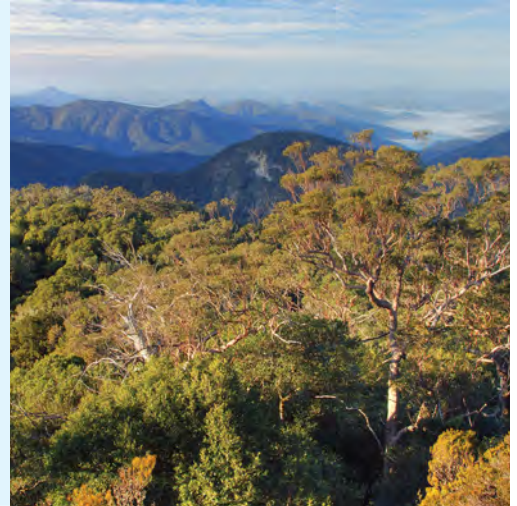
The NSW Government is responsible for ensuring public lands and our marine environments remain healthy and resilient. It also plays an important role in supporting conservation on private land.

Climate change will affect natural ecosystems and biodiversity in complex and often unpredictable ways.

This plan will support significant investment in land management and restoration to increase the resilience of natural ecosystems to deal with climate change.

Investing in land management activities will also support jobs in regional areas and new carbon abatement opportunities.

Point Lookout Gondwana Rainforests of Australia World Heritage Area
New England National Park (credit: Shane Ruming)



Have your say

- » Do you have any comments on the actions we propose to fund through the Climate Change Fund to prepare New South Wales for the impacts of climate change?
- » Are there particular issues we need to consider to ensure these actions are effective?
- » Are there positive opportunities from climate change we should be targeting?

5

DELIVERING THE STRATEGIC PLAN

5.1 Planning

The Climate Change Fund is administered in accordance with the *Energy and Utilities Administration Act 1987*. The Act outlines the processes for making contributions into and payments out of the fund.

Develop action plans

The NSW Government will develop action plans in 2017 to deliver on our investment priorities and achieve outcomes through to 2022. Action plans will be developed for the three priority investment areas:

- » accelerating advanced energy
- » national leadership on energy efficiency
- » preparing for a changing climate.

Wherever possible, actions will be coordinated across all three priority investment areas to make it easier for stakeholders to engage with programs and make government service delivery more efficient.

These action plans will describe specific actions, whether from this strategic plan or arising from public consultation, that have been found to be efficient, effective and deliver a net benefit to New South Wales.

Set program principles

Program principles will guide the design and delivery of Climate Change Fund programs.

The principles are based on the *NSW Commission of Audit on Government Expenditure*, the *NSW Better Regulation Principles* and the *COAG Complementarity Principles*. The principles are:

Transitional: Programs will be designed to focus on enabling more permanent solutions such as private and community delivery of climate mitigation and adaptation products and services.

Complementarity: Programs will target market failures that are not adequately addressed by Commonwealth programs.

Competition and devolution: Programs will foster competition and the growth of markets. Program delivery will be devolved to service providers so that outcomes are determined by their success in influencing end users.

Continuous improvement and open government: Programs will be trialled, monitored and evaluated to enable continuous improvement. Programs will be modified and adapted in response to performance and as market conditions change. Independent evaluation reports will be publicly available to enable broad understanding of program actions, progress and expenditure.

Partnerships and co-design: Programs will focus on customer needs so as to provide targeted interventions that maximise co-benefits for end users and the New South Wales public. Programs will be co-designed where possible and will be delivered through partnerships between public, private and community sectors.

Identify the best delivery mechanisms

The Climate Change Fund will support a range of mechanisms to deliver program outcomes. Mechanisms will be tailored to deliver cost-effective and scalable results across energy efficiency, advanced energy, and climate adaptation investment areas.

Tools and structures for market delivery: Tools to enable the private sector to take up opportunities include business-case guides, standardised financial contracts and tools for measuring and verifying opportunities.

Climate Change Fund programs will build and improve on the success of existing market mechanisms and provide new targeted mechanisms to enhance private sector participation in advanced energy and adaptation markets.

Collaborative research and demonstration:

Programs will promote collaboration among industry, community and academic institutions to advance research and demonstrate new technologies and services. The Climate Change Fund will fund collaborative research models to attract additional investment and expand on initial government investment.

Impact investment: Impact investment encourages innovative, cost-effective ways to deliver social and environmental outcomes and incorporates a variety of mechanisms including outcome-focused grants, payment-by-results contracts and social impact bonds.

The government will invite the business, academic, and not-for profit sectors to respond to tenders to achieve goals through least-cost program delivery. Payment by results contracts will pay a provider to deliver a service based on the results achieved.

Capacity building: Climate Change Fund programs will develop the capacity of the private, community and government sectors to expand their skills and expertise to deliver climate mitigation and adaptation products and services.

Programs will include online and face-to-face training for industry professionals to better understand clean technology and energy efficiency alternatives and opportunities, as well as initiatives aimed at enhancing resilience to climate change pressures.

Targeted financial incentives: The Climate Change Fund may be used to provide incentives through a range of innovative models. One model being explored is revolving loans, where the Fund would provide loans to eligible projects, and these loans would then be paid back to the fund by the proponent. Recirculating funding through loans would give greater value for money for the NSW Government and ensure that greater numbers of eligible projects can benefit from available funding.

5.2 Continuous improvement

Set key performance indicators

The forthcoming action plans will identify target outcomes and key performance indicators to measure progress. Indicators will be:

- » specific: target a specific barrier
- » measureable: quantify an indicator of progress
- » achievable: be attainable with realistic actions
- » relevant: align with government priorities
- » time-bound: have a target completion date.

Figure 5: Implementation schedule for the Climate Change Fund Strategic Plan

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Action Plan	●					
Contribution orders		●	●	●	●	●
Annual report		●	●	●	●	●
Independent evaluation report				●		●
Strategic Plan (2022-27)						●

Embed independent evaluation into program delivery

Independent evaluation of Climate Change Fund programs will be embedded into program delivery and will be conducted in line with the NSW Government Evaluation Framework. This practice is applied by the government to current energy efficiency and renewable energy programs.

Full program evaluations will occur at three year intervals: in 2019-20 and in 2021-22.

Independent evaluations will support and influence future decision making for the fund. All program evaluations will be published online to give stakeholders and the NSW public an understanding of Climate Change Fund performance.

Enhance annual reporting and performance data

All Climate Change Fund projects will report on program activities, program expenditure and progress on program goals.

Program monitoring and evaluation plans will be created at project inception.

Climate Change Fund annual reports will be tabled in Parliament and published online. Annual reports will include:

- » progress towards key performance indicators and outcomes
- » benchmarking of program performance (effectiveness, efficiency and equity) against similar international and national best practice
- » the impacts of contributions to the Climate Change Fund on customers' energy bills
- » evaluation frameworks to be considered in the program design and evaluation
- » program allocations and expenditure.

Designated funding for strategic research and evaluation

Funding will be designated for strategic research and evaluation to guide the continuous improvement of programs funded under the Climate Change Fund.

Comprehensive risk management, compliance and assurance systems

Climate Change Fund decisions will be based on evaluations of the associated risks.

All project plans will identify possible risks, the likelihood of risks occurring, the impacts of those risks and actions to mitigate risks.

5.3 Clear oversight

The government will implement governance arrangements to ensure transparency and accountability in the use and administration of the fund.

Role of Minister for the Environment

The Act sets out the Minister for the Environment's Climate Change Fund responsibilities. The Minister:

- » may require state water agencies or electricity distribution network service providers to make contributions to the Climate Change Fund
- » may approve payments from the Climate Change Fund if satisfied that projects promote a purpose outlined in the *Energy and Utilities Administration Act 1987*
- » must produce an annual report detailing fund allocations and programs and anticipated benefits
- » may establish standing or advisory committees to advise on functions under the Act.

Role of the NSW Climate Change Council

The NSW Climate Change Council advises the Minister for the Environment and the Office of Environment and Heritage on the NSW Government response to climate change and related policy issues. The NSW Climate Change Council includes independent experts from business, industry, science and research and the environment and regional communities.

The role of the NSW Climate Change Council will be to advise on strategic priorities for the Climate Change Fund.

Role of the Office of Environment and Heritage

The Office of Environment and Heritage will manage and report on Climate Change Fund expenditure and preparing annual reports. It will also coordinate Climate Change Fund strategic and action plans.

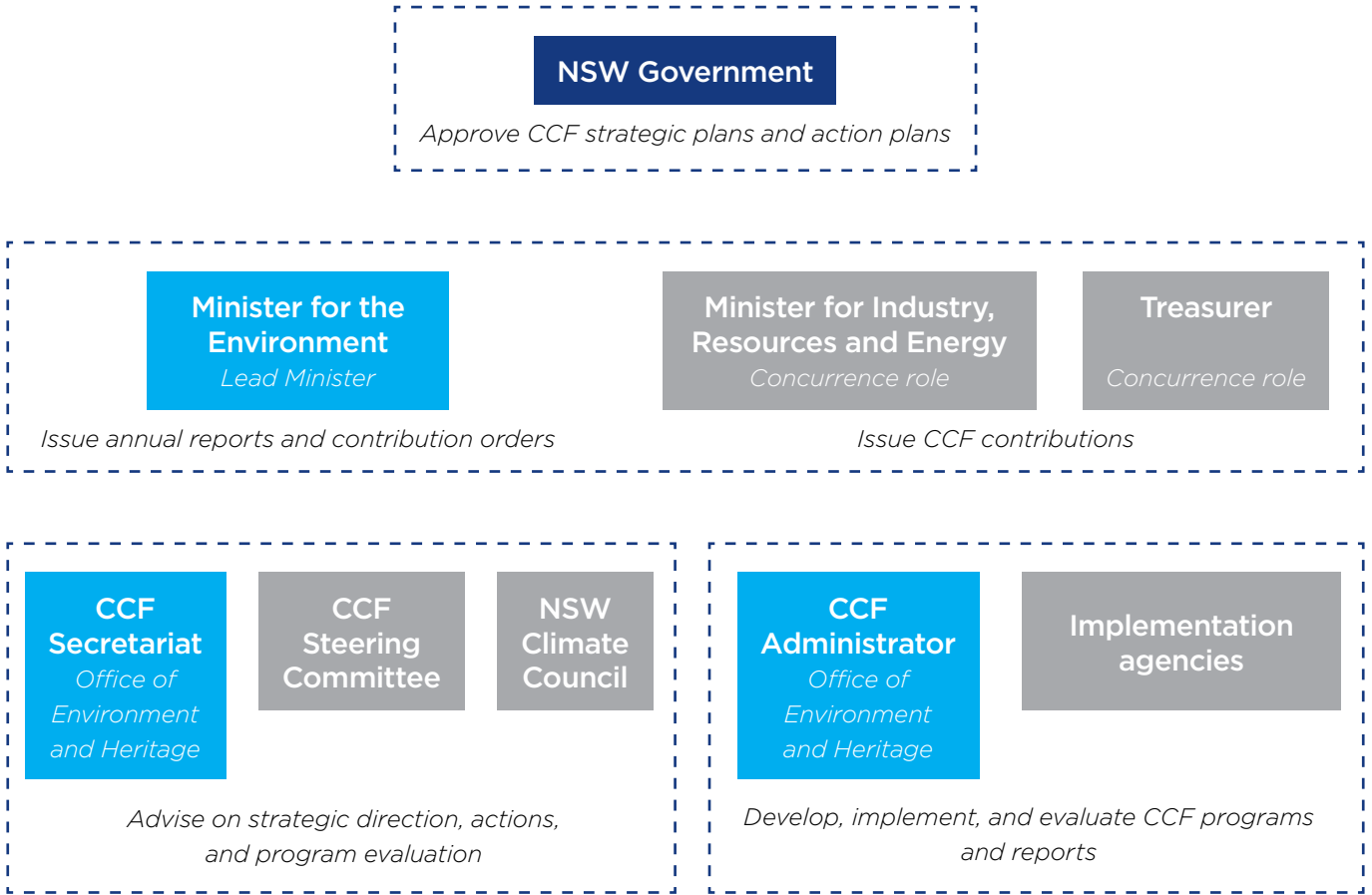
Role of government agencies

Representatives from the NSW Treasury, Department of Premier and Cabinet, Department of Industry, the Department of Primary Industries, Office of Environment and Heritage, NSW Health and other delivery agencies are represented on a Climate Change Fund Steering Committee.

The role of the Climate Change Fund Steering Committee is to:

- » provide input on the strategic direction and prioritisation of climate change fund activities in the development of the action plans
- » advise on major changes to the strategic direction of Climate Change Fund activities during the strategic plan period; for example as a result of major changes to national climate change policy
- » consider annual reports and evaluation results.

Figure 6: Oversight of the Climate Change Fund Strategic Plan and actions plans



Surfers on beach (credit: D Finnegan/OEH)



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Back cover: Bonnie Vale coastline Bundeena, Royal National Park (credit: Simone Cottrell/OEH)

