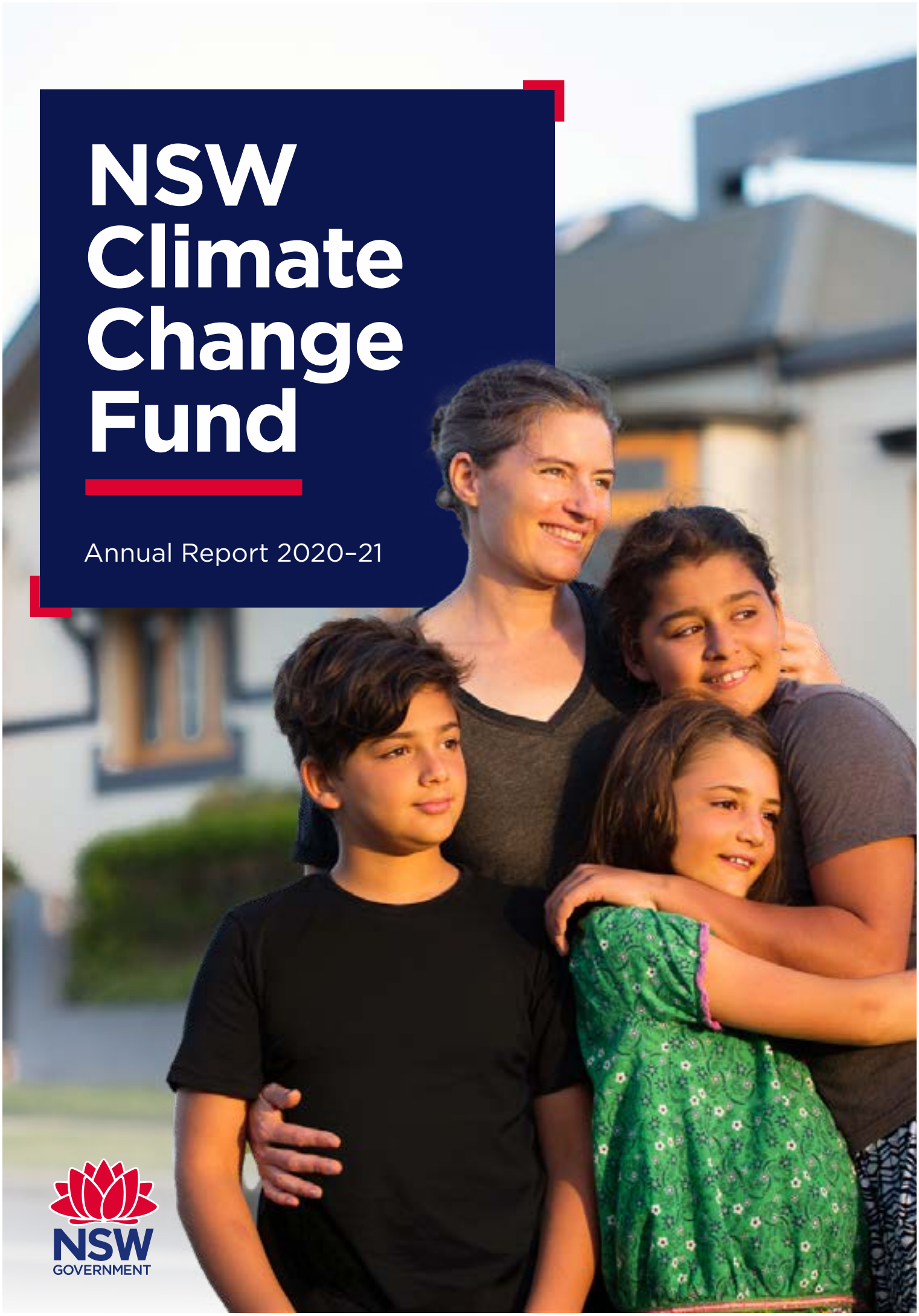
NSW Climate Change Fund

Annual Report 2020–21



NSW GOVERNMENT

The NSW Climate Change Fund invests in initiatives to reduce carbon emissions, generate clean energy, lower energy bills and make NSW communities more resilient to the impacts of climate change.

Credit: DPIE

Contents

Cover image — Credit: Edwina Richards/Department of Planning, Industry and Environment (DPIE)

Minister's foreword

The NSW Government is taking decisive and responsible action to secure the state's economic prosperity for decades to come, while adapting to a changing climate.

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. That's why we, like so many countries and companies around the world, have committed to a goal of achieving net zero emissions by the year 2050.

The Climate Change Fund (CCF) is a critical part of achieving that ambition.

Through CCF programs, the NSW Government supports communities, businesses and governments to reduce emissions and adapt to the impacts of climate change. Its programs are continuing to help families and businesses save energy and money, and help communities adapt to a changing climate.

In 2020-21, we invested more than $224 million on programs to help communities become more resilient to climate change, $13.3 million on programs that help households, businesses and communities benefit from clean energy, and $38.6 million on programs which provide energy bill relief for households and businesses by promoting energy efficiency. The CCF's spend of $304 million in 2020-21 was $75 million more than the 2019-20 total spend of $229 million, despite the ongoing impacts of COVID-19.

Reducing the effects of climate change means reducing carbon emissions. In 2020-21, I am proud to say we made significant progress by delivering ambitious new strategies and launching new initiatives that will fast track NSW's shift to a prosperous and low carbon economy. By supporting businesses to make renewable and low-emissions technology more readily available in NSW, we'll make significant progress in achieving our net zero emissions target.

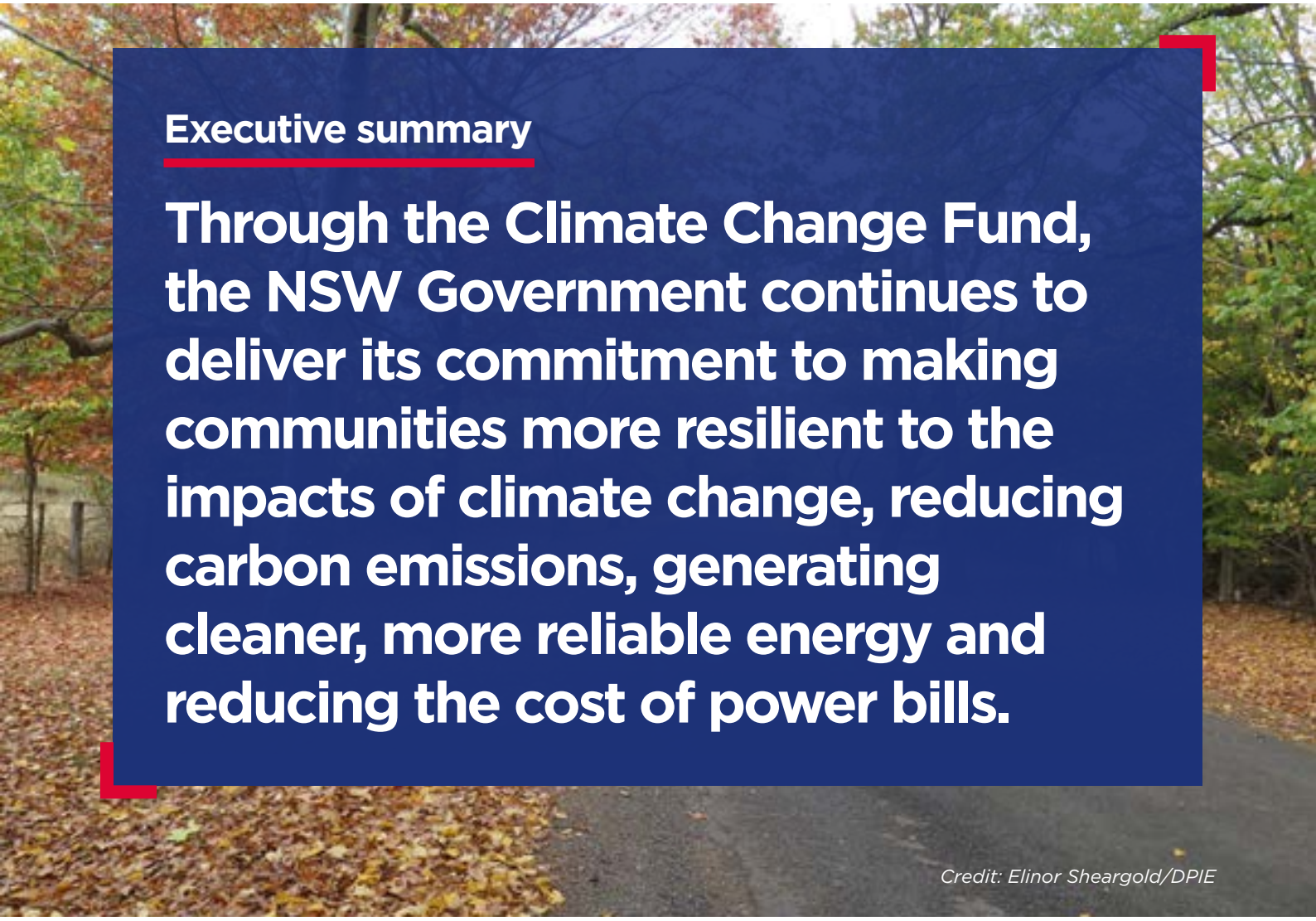
From the Electricity Infrastructure Roadmap, to making progress in delivering five Renewable Energy Zones, we continue to focus on developing and delivering energy that is cheaper, cleaner and more reliable.

Failing to act on addressing and adapting to climate change is not an option in NSW – doing so would damage our economy and put our communities at risk.

Through the CCF, we are leading the way nationally in supporting technologies and programs that will deliver a safer, cleaner and cheaper future for communities and businesses around the state.

The Hon Matt Kean MP

Treasurer, and Minister for Energy and Environment



Executive summary

Through the Climate Change Fund, the NSW Government continues to deliver its commitment to making communities more resilient to the impacts of climate change, reducing carbon emissions, generating cleaner, more reliable energy and reducing the cost of power bills.

Credit: Elinor Sheargold/DPIE

In 2020-21, it was more important than ever to provide financial help in a time of need. Despite the challenges of the COVID-19 pandemic, CCF programs achieved major milestones supporting families, businesses and communities across the state.

By focussing on innovative delivery, working together and leading by example, the NSW Government delivered $304 million of economic benefit through the CCF. These funds support programs that help NSW address and adapt to the impacts of climate change.

They support households, businesses and communities to make more sustainable choices and help drive investment and innovation. They also ensure our approaches to achieving net zero by 2050 are in partnership with, and responsive to, the changing needs of the people, businesses and environment of NSW.

The CCF paves the way for a sustainable and resilient future for our state and our environment.

Credit: DPIE

2020-21 highlights

2020-21 was a year of big vision, commitments, delivery and impacts.

Here are some of this year's highlights achieved with support from the CCF.

We've supported our environment and biodiversity by:

- planting and registering more than 274,000 trees, passing the halfway mark for reaching the Premier's Priority target of planting one million trees in Greater Sydney by 2022
- protecting 129,000 hectares of the state's unique ecological landscapes in new agreements with private landholders through the Biodiversity Conservation Trust (BCT)
- saving 18,000 - 24,000 litres (L) of water per year for every property serviced through WaterFix
- completing 2,111 hazard reduction activities, including 143 hazard reduction burns and 1,968 mechanical activities through enhanced bushfire management
- providing technical advice, guidance and support to local councils, preparing more than 40 new coastal management plans.

Credit: Edwina Richards/DPIE

We've supported our community to:

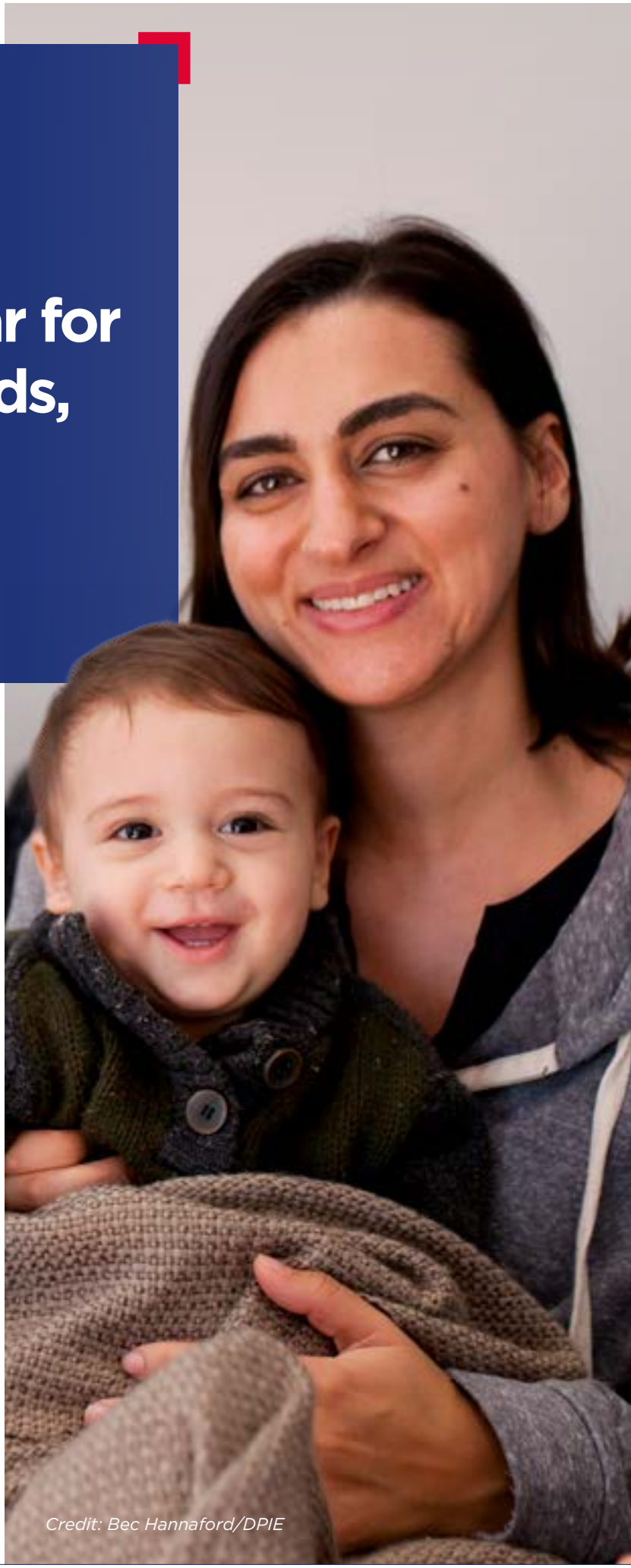
- save households at least $5.6 million on annual energy bills and 17,332 tonnes of carbon emissions (tCO_2e), nearly twice the emissions from street lights for the whole of Sydney (2018-19)
- reduce energy bills for pensioners and veterans by installing 717 solar PV (photovoltaic) systems in low income households
- commence installation of 297 solar PV systems and upgrade the electrical systems of 197 schools to support solar technology and create cooler classrooms
- deliver more than $1.2 million in grants to communities and councils to increase their resilience to climate change.

We've supported businesses and government by:

- awarding $2.1 million of funding contracts to help manufacturing businesses save energy and money by delivering efficiencies in manufacturing
- helping 20 NSW government agencies commence net-zero activities, supporting the Government's own transition to net-zero
- replacing 23,734 streetlights, saving 6,404 megawatt hours (MWh) in energy and 4,611 tCO_2e by providing more energy efficient street lighting which is equivalent to more than 250 acres of forest storing carbon for one year
- mitigating flood risks by awarding $5.4 million in funding to 26 local government projects to deliver integrated floodplain management.

Financial support at a time of need

2020-21 was a challenging year for many households, businesses and communities across NSW.



Credit: Bec Hannaford/DPIE

The CCF provided much needed and essential financial support to improve the comfort of our residents while saving them energy and water and reducing emissions.

This included helping households install solar panels and more energy efficient appliances, saving them hundreds on their energy and water bills and keeping homes cool in summer and warm in winter.

We've put a spotlight on some of the brightest examples of how the CCF has helped benefit households and communities across NSW this year.

Page 42 in our Achievements section provides further information on how the CCF has delivered financial support at a time of need. Read on to find out more.

Home Energy Action

Low income and disadvantaged households are particularly vulnerable to energy stress, and subsequently financial stress. Home Energy Action delivers energy saving appliances and upgrades to these households to help them reduce emissions while saving energy and money.

Since 2017, the program has made more than 74,000 NSW homes more energy efficient. It has also helped low income households save more than $18.2 million dollars on bills per year at 2017 prices. These households are saving an estimated 80 gigawatt hours (GWh), equivalent to taking around 63 cars off the road and at least 59,500 tCO_2e per year, which is nearly 3 times the carbon emissions of Sydney Opera House in 2019.

More than 73,000 appliances have been replaced, and at least 17,600 social housing and energy hardship upgrades have been delivered since 2017.

The program provides vulnerable households with subsidies to replace old televisions and fridges with more energy efficient models. It also gives social housing residents access to solar panels, ceiling insulation, draught proofing, LED lighting, heat-pump hot water systems and split system air-conditioning installed in their homes.

Home Energy Action is a partnership between the NSW Government, community housing providers, the community service sector and the energy retail industry.

Key achievements

- Replaced 26,637 appliances with more energy efficient models
- Partnered with social housing providers to deliver 5,015 home upgrades for tenants
- Saved participants at least $5.6 million in total on annual energy bills
- Saved 24,073 MWh of energy, equivalent to the energy required to run more than 60 high schools
- Saved 17,332 tCO_2e which equals nearly twice the emissions from all the street lights of Sydney in 2018-19
- Delivered an energy literacy training pilot for 20 social housing tenant support staff and asset managers, which will be made available online
- Supported Aboriginal community group Murdi Paaki Services to provide upgrades including solar PV and air conditioning to 21 Local Aboriginal Land Councils
- Upgraded over 10,500 social housing homes through this program. That's about 7% of the total social housing stock in NSW.

Spotlight on supporting remote First Nations communities in NSW

Energy poverty is a long-standing concern for Aboriginal Australians living in remote communities.

Being unable to access or pay for reliable energy can mean these communities are more vulnerable to poor health and wellbeing, lower life expectancy and fewer opportunities for work and education.

Through Home Energy Action, the NSW Government partners with Aboriginal community group Murdi Paaki Services to tackle energy poverty for this vulnerable group of people.

Murdi Paaki represents Aboriginal and Torres Strait Islander people in 16 communities across far Northern and Western NSW, spreading from Collarenebri to Wentworth.

First Nations people living in more than 630 properties will benefit from $2.8 million from Home Energy Action to co-fund energy efficiency upgrades to housing.

The funding supports solar PV installation, split system air conditioning, LED lighting, draught proofing and other bundled low-cost upgrades.

The Murdi Paaki region typically experiences more hot days each year on average than other areas of NSW, with many residents relying on inefficient appliances to stay cool.

The number of people living in each house in these communities is often higher than average households in NSW. Household bills of $3,000 per year and more are not uncommon and are challenging for households on low, fixed incomes.

Social housing in these areas is rarely constructed with energy efficiency in mind, meaning homes can cost more to heat or cool.

The upgrades being delivered through Home Energy Action, managed by Murdi Paaki Services, will:

- reduce energy costs through the installation of solar technology and other energy efficiency measures
- enable lower income households to reduce their carbon emissions
- support tenants to maximise energy efficiencies in their own homes through delivery of an education program and ongoing support
- help protect residents from extreme heat events due to climate change, by increasing the comfort of their homes.

Home Energy Action worked with Essential Energy to ensure solar feed-ins are captured appropriately. They engaged the Energy and Water Ombudsman (EWON) to ensure tenants learn how to get the most out of the upgrades in their properties.

Home Energy Action also partners with Origin Energy to provide solar to the Dareton and Toomelah Local Aboriginal Land Councils.

Credit: Sylvia Liber/DPIE

Solar for Low Income Households

Pensioners and veterans on low incomes are supported to reduce their energy bills through the Solar for Low Income Households trial.

Homeowners can save up to $600 a year on electricity bills and reduce their carbon emissions by having a free 3 kilowatt (kW) solar system installed on their home.

Solar for Low Income Households is currently available for up to 3,000 households in selected regions of NSW.

Key achievement

> Installed 717 systems, with a total solar capacity of over 3.1 megawatts (MW)

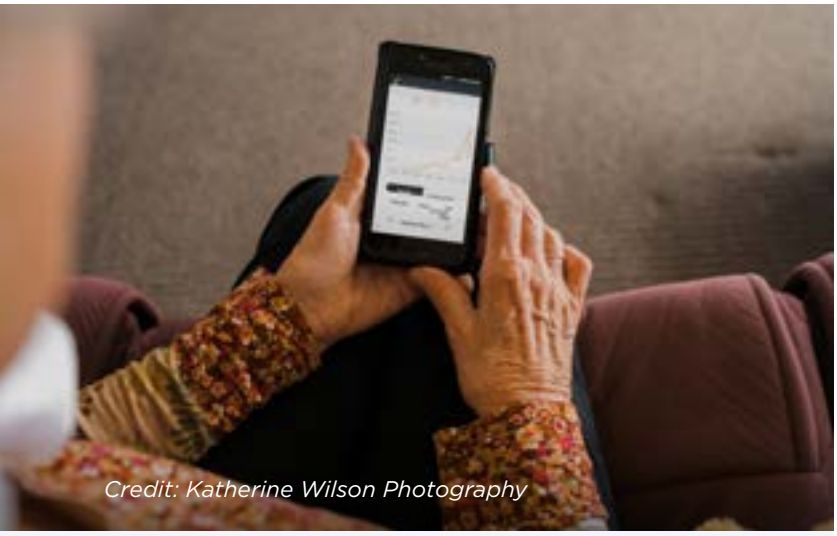
Key data

Estimated annual energy savings from installations is approximately

3,300 MWh,

roughly a 2,700 tCO_2e reduction each year[1]

1. Installed capacity includes the three kW solar panel provided under the trial and households that pay to upsize their system.



Credit: Katherine Wilson Photography

Spotlight on our customer's feedback

"I am an aged pensioner and have just had the low income household solar system installed, through the Department of Planning, Industry and Environment.

I am writing to say a huge thank you. Without this scheme I would not have been able to afford solar.

I live in Lismore and it's 32 degrees today. I am using my air conditioning today for the first time in about five years, as I have not been able to afford it given the ever-increasing power costs. The application process for the scheme was easy for an old fella like me and the group that installed the system was just terrific. So again, my heartfelt thanks to you."

Ray, Solar for Low Income Households participant

WaterFix

Households around NSW are saving water and on average $200 each by participating in WaterFix.

With support from the CCF, subsidised plumbing services have been available to help households save water and reduce bills by fixing leaks and installing water efficient devices.

Despite the service being interrupted by the COVID-19 pandemic, the program exceeded its 2020-21 target, exhausting its CCF funding allocation.

To enable the water saving service to continue running, a $33 callout fee was introduced from 1 February 2021. The program remained popular, with customers taking advantage of having their homes checked for leaks and with most minor leaks fixed for the price of the callout fee.

Key achievements

- Completed 12,919 customer appointments by the end of June 2021 (7,763 under CCF), exceeding its 2020-21 target
- Saved approximately 18,000 - 24,000L of water per year for every property serviced.

Key data[1]

- 10,915 tap leak repairs completed
- 4,569 leaking outdoor taps replaced
- 5,488 4-star water efficient showerheads installed
- 2,136 toilet leak repairs completed.

1. Program funded by CCF up until February 2021.

Did you know a 4-star water efficient showerhead can save around 47L of water on average per day for a household of 2.75 occupants?

Credit: John W Banagan/Getty Images

The NSW Government is leading by example

The NSW Government is leading the way to deliver on the NSW Climate Change Policy Framework objectives of net zero emissions by 2050 and making NSW more resilient to a changing climate.

Credit: DPIE

Credit: DPIE

We invested in battery storage on government buildings, including their addition to schools and hospitals with rooftop solar systems.

We are helping government agencies achieve a 50% reduction in their emissions by 2030 and reduce their energy use by 10% by 2024. We are also tackling urban heat and increasing resilience to climate change by planting millions of trees in Greater Sydney by 2030.

This year we're adding a spotlight on a few of the shining examples that show how the NSW Government is leading by example.

Page 44 in our Achievements section provides further information on how the CCF has enabled the NSW Government to lead by example on climate change. Read on to find out more.


Credit: DPIE

Five Million Trees for Greater Sydney

By planting millions of trees in the Greater Sydney region by 2030, the NSW Government's ambitions are to increase the city's resilience to climate change and reduce urban heat.

Five Million Trees for Greater Sydney supports a range of tree planting initiatives. This includes the Greening our City Premier's Priority, which aims to improve liveability by planting one million trees in Greater Sydney by 2022.

Increasing the tree canopy in our parks, streets and neighbourhoods will improve resilience to climate change. It will also provide much needed shade and shelter from heat, improve our air and water quality, and improve health and wellbeing of our citizens.

The total number of trees registered as part of the program at 30 June 2021 was more than 570,000. That means the program is on track to meet its Premier's Priority target of 1 Million Trees for Greater Sydney by 2022 .

The Free Tree Giveaway was the recipient of the 2021 Premier's Award for Well Connected Communities with Quality Local Environments.

Key achievements

- Passed the halfway mark in the Premier's Priority target of planting one million trees in Greater Sydney by 2022, with over 500,000 trees planted since inception
- Planted and registered 274,673 trees in 2020-21
- Awarded more than $20 million in funding through Greening our City grants
- Gave away 33,900 trees to Greater Sydney residents to plant on private land in partnership with Bunnings and IndigiGrow, an Aboriginal-owned and run nursery specialising in native tree species
- Launched Greening the Great West Walk, providing almost $1 million to three councils to plant more than 10,000 trees along sections of a 65 km walking trail in Western Sydney
- Supported policy reforms embedding improved tree planting and retention settings in the planning system, including in the proposed NSW Design and Place State Environmental Planning Policy.

Spotlight on NSW residents' love for free trees

Planting five million trees by 2030 is an ambitious goal.

It's a goal that doesn't just require support from councils and organisations such as Landcare and Greening Australia; it relies on support and involvement from the NSW public.

The Five Million Trees team ran the first free tree giveaway in 2020-21 and discovered just how supportive residents of NSW are when it comes to greening Greater Sydney.

To ensure the free trees were widely and easily accessible to the general public, the program partnered with Bunnings Warehouse.

It also partnered with Sydney-based Aboriginal Social Enterprise IndigiGrow, which specialises in both edible and non-edible native trees.

Aboriginal communities have well managed tree canopy and green cover for tens of thousands of years. Partnering with an Aboriginal organisation has helped to embed this knowledge in Greening our City.

Within 12 months, residents of Greater Sydney had snapped up 33,900 free trees to plant on private land.

Feedback on the free tree program was overwhelmingly positive, with participants saying the process was easy and the quality of trees was excellent.

- "This was one of the best initiatives from the government I have seen. Since then I have planted a whole garden. Thank you!"
- "It was a great process and the quality of tree received was beyond expectations!"
- "This is a great initiative to encourage people to plant trees and great for the environment."

Did you know planting ten trees can save 2 tCO_2e a year? That's equivalent to the emissions generated from powering a home for a whole year.

Credit: DPIE

Smart Batteries for Key Government Buildings

Smart Batteries for Key Government Buildings supports battery storage installation at schools, hospitals and other government buildings with rooftop solar systems.

The program is funding pilot projects to help various NSW government agencies better understand how they can use energy in smarter and more efficient ways. This includes reducing peak energy demand and maximising the benefits from solar PV.

The pilot projects are being implemented in partnership with Property NSW, NSW Health and the Department of Education.

Key achievements

- Installed 355 kilowatt hours (kWh) of battery storage in seven schools, in collaboration with the Department of Education's Cooler Classrooms initiative providing students with comfortable learning environments
- Partnered with NSW Health to tender for the installation of a 1.6 MWh battery at Port Macquarie Hospital (Australia's Evo Power manufactures the energy storage system selected for this project)
- Commenced procurement of 14 solar battery systems to be installed at Property NSW sites across regional areas.

Credit: Quentin Jones/DPIE

Credit: JohnnyGreig/Getty Images

Spotlight on NSW schools becoming mini power plants

A number of regional NSW schools are saving energy and money after installing smart battery and storage systems through the Smart Batteries for Key Government Buildings program.

Schools in Lake Wyangan, Stockinbingal, Beckom and Tharbogang in Southern NSW were turned into mini power plants as battery storage systems were installed to support new energy efficient air conditioning, fresh air ventilation and solar PV systems.

Total grant funding for the four schools was $277,000 to install smart battery systems, which saves the four schools $460,000 in network upgrades.

The solar systems installed could help them save more than $23,000 in electricity costs in the first year following installation.

With the new battery systems, solar power can be stored and delivered as needed, and the need for expensive high voltage power upgrades for these remote schools is eliminated.

The projects were a collaboration between the NSW Government's Cooler Classrooms and Smart Batteries for Key Government Buildings programs.

They're being trialled to better understand the potential energy and money-saving benefits of smart batteries and solar, while also contributing to the NSW Government's Net Zero target.

The NSW Department of Education is now trialling solar, battery and Virtual Power Plant technology in an additional 50 schools to help test the most effective way that solar energy can be safely generated, stored and consumed on site at the schools.

Sustainable Net Zero Government

One of the NSW Government's key priorities is transitioning to net zero emissions by 2050.

Sustainable Net Zero Government helps government agencies lead the way by supporting them to achieve a 50% reduction in carbon emissions by 2030. It's also supporting agencies to reduce energy use by 10% by 2024.

It's doing this by increasing the amount of solar generation on government buildings, improving energy efficiency, and reducing waste.

The program is focused on improving the National Australian Built Environment Rating System (NABERS) rating of government buildings and stimulating circular economy initiatives, in line with the NSW Waste and Sustainable Materials Strategy 2041.

Key achievements

- Assessed 213 sites for solar PV suitability
- Installed around 12,500 MWh/yr of energy generation. This is equal to the average annual energy consumption of more than 600 small businesses in NSW
- Developed a mapping portal to identify high-level wind, solar and pumped hydro infrastructure opportunities across NSW government-owned land
- Helped 20 government agencies commence activities that will support their shift to net-zero emissions.

Key data[1]

- Delivered more than $65 million of energy efficiency and solar projects
- Delivered 30,000 MWh/yr of renewable energy, which is equivalent to twice the annual consumption of electricity of Sydney Olympic park
- Reduced carbon emissions by about 24,000 tonnes which is equal to electricity use to run 6,300 homes annually
- Established the high-level renewable energy potential of around 125,000 sites.

1. Since inception

Credit: Macquarie Energy

Spotlight on the sprint to a net zero precinct

The Sydney Olympic Park Authority (SOPA) is tasked with looking after the development that hosted the iconic Sydney 2000 Olympic and Paralympic Games.

The now-suburb includes a vibrant community, 430 hectares of parklands and seven sporting venues, which host hundreds of events every year.

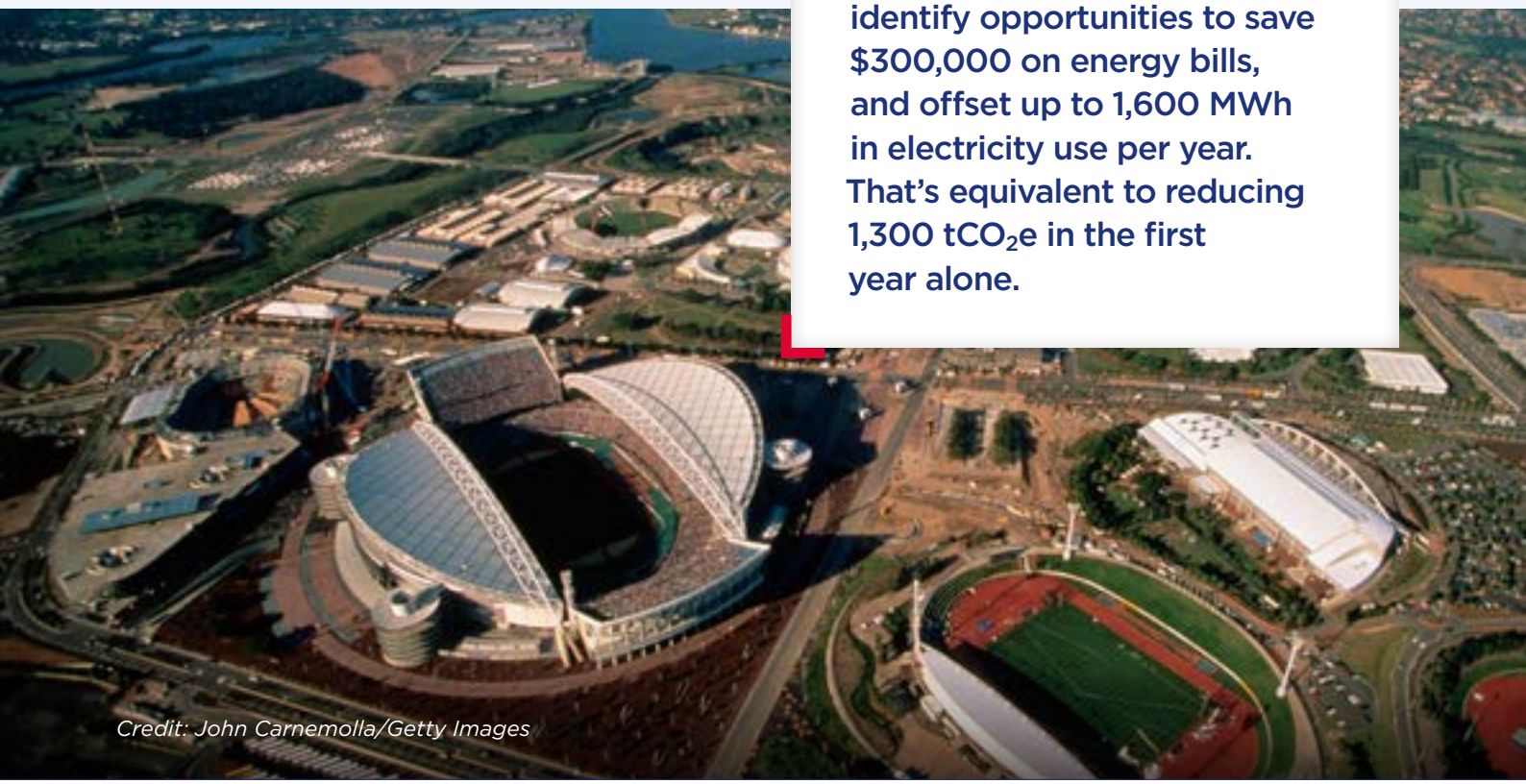
The objective was to help the suburb's venues achieve a precinct-wide carbon reduction target. The approach included SOPA developing an energy master plan and engaging the Sustainable Net Zero Government team to identify solar PV projects.

Seven sites were shortlisted as potential venues. These included the aquatic centre, athletics centre, quay centre, car parks and a water treatment plant.

After a successful tender, installation works commenced in the third quarter of 2020-21, with a 99 kW solar PV system installed on the athletics centre.

While works on the 1,456 kW system on the Aquatic Centre had commenced, COVID-19 restrictions delayed the completion of the project to 2021-22. The third project, an 81 kW solar system on the water treatment plant, is scheduled to begin soon.

Across three projects alone, the team was able to identify opportunities to save $300,000 on energy bills, and offset up to 1,600 MWh in electricity use per year. That's equivalent to reducing 1,300 tCO_2e in the first year alone.



Credit: John Carnemolla/Getty Images


Credit: Quentin Jones/DPIE

Building better together

The CCF delivers programs that are responsive to the needs of citizens and local communities, our businesses, and industries, to build a better future for NSW.

With support from the CCF, the hottest schools in the state can optimise learning outcomes for each student.

Hundreds of manufacturing businesses are supported to save energy and money through technology upgrades.

Local councils are supported with expertise to help them reduce their emissions, seize sustainability opportunities and save energy and money.

Citizens can access a greater supply of homes that are more energy efficient, climate resilient and help reduce the overall emissions from residential buildings.

We've shone a spotlight on some of the brightest examples where the CCF is helping to build a better future for NSW. Read on to find out more.

Page 56 in the Achievements section also provides further information on how the CCF is responsive to the needs of citizens and local communities.

Local councils are supported with expertise to help them reduce their emissions, seize sustainability opportunities and save energy and money.

Credit: DPIE

Cooler Classrooms

The Cooler Classrooms program improves thermal comfort and air quality for students and teachers around the state, through a $500 million investment from the NSW Government. The CCF helps to fund the School Infrastructure NSW (SINSW) initiative.

The five-year program delivers sustainable air conditioning, heating, fresh air ventilation systems, solar PV and battery storage to up to 922 existing schools.

Cooler Classrooms is helping create better learning environments for students and teachers in the hottest schools in the state, helping to improve each student's education.

The systems are energy neutral, with solar PV and batteries installed alongside an air conditioner or fresh air ventilation system, offsetting annual energy use.

Importantly, the program includes strong educational elements, which helps NSW students become more aware of their environment and the need to adapt to a changing climate.

Key achievements

- Commenced work to deliver systems to the remaining 19 schools in the program
- 105 solar PV systems installed as a part of the program with a further 392 installations currently commenced
- Upgraded the electrical systems of 197 schools to support solar PV technology
- Installed storage batteries in seven pilot schools
- Reduced energy costs for a number of schools
- Delivered the Cool Controller Competition and supporting resources to encourage engagement and learning
- Provided work experience opportunities to regional students with SINSW partnerships.

Key data

- 890 of the 922 schools have either had air conditioning systems installed, are part way through delivery or have been assessed as having fit-for-purpose air-conditioning systems in all eligible learning spaces and libraries
- 4,112 learning spaces and 283 libraries have new air-conditioning systems installed
- Over 1,469.1 kW of Solar PV installed
- 2,375 unflued gas heaters removed
- $14.7 million in cost avoidance by challenging power authority upgrade recommendations
- 1,995 inefficient and non-operating units (including split systems, ducted systems, evaporative coolers and electric heaters) have been removed.

Spotlight on NSW's cool kids

To help students and teachers increase their understanding of energy efficiency, the Cooler Classrooms team developed a fun and educational competition.

The Cool Controller Competition was open to Science Technology Engineering and Mathematics (STEM) students in Years 3-6 around NSW.

Students were encouraged to think like entrepreneurs to completely redesign an improved 'Smart' control unit for the Cooler Classroom air conditioning and fresh air ventilation units. The design solution had to focus on sustainable practices for improved thermal comfort and air quality.

The competition was met with an enthusiastic response. The team received more than 126 entries from around the state, and the teaching materials were downloaded by hundreds of teachers in NSW, as well as universities and education establishments in Australia and abroad.

It was a close race, with first place being awarded jointly to teams from Ashfield Public School in Sydney's Inner West and Dudley Public School on the state's Central Coast.

Two highly commended awards went to the teams from Quakers Hill Public School. A showcase of the competition is available to view here.

Credit: JohnnyGreig/Getty Images

Iron bark creek flood gates, Hunter Valley Flood Mitigation Scheme — Credit: John Spencer/DPIE

Hunter Valley Flood Mitigation

Almost 300,000 people live in the Hunter River valley, with many living beside or close to waterways that stem from the Hunter, Paterson and Williams rivers.

As one of the largest coastal catchments in NSW, the Hunter Valley has always experienced flooding, and it will continue to experience these natural hazards.

The Hunter Valley Flood Mitigation Scheme (HVFMS) aims to reduce the impact of flooding on communities and ecosystems.

The scheme is valued at $862 million and involves over 830 individual assets such as levees, floodgates and drains throughout the Hunter Valley's rivers and floodplains. It reduces potential damage to properties by controlling the velocity, direction and depth of floodwaters.

A recent, detailed cost benefit analysis found that every dollar spent on the scheme delivers a new benefit to the community of $1.90, by reducing significant risk and improving health and wellbeing.

As the effects of climate change increase, it's predicted that so too will the frequency and intensity of flooding across NSW, with scientific modelling finding one in 100-year flood events (and other lesser events) may become more frequent.

Flood mitigation plays a critical role in helping the Hunter Valley communities and ecosystems adapt to the changing climate.

Key achievements

- Responded to the March 2021 floods, which were declared a natural disaster
- Commenced work associated with damaged assets from those floods
- Recorded 14 new Aboriginal sites into Aboriginal Heritage Information Management System (AHIMS), 11 of which were in the Lower Hunter and three which were in the Upper Hunter
- Remediated 13 sites and re-vegetated 22 sites in the Upper Hunter
- Delivered training to the Inaugural Hunter Aboriginal River Keeper Team
- Prepared a draft catchment study for Four Mile Creek as part of the heritage floodgate assessment
- Commenced stage two of the tidal floodgate assessment of inundation risk and opportunities
- Continued working with the Saving our Species team on protecting River Red Gums and Microbats
- Conducted a review of the scheme to identify success and investigate opportunities for improvement.

Key data

- 258 floodgates, 184 km of levee, 4.5 km of spillway and 168 km of drainage channels received preventative maintenance as part of the Scheme's annual Lower Hunter maintenance program
- 12 major flood pipes were repaired
- There were four emergency response work orders and a further 347 minor repairs.

Credit: Lisa Madden/DPIE

Spotlight on Aboriginal sites in the Hunter Valley

A series of Aboriginal sites have been identified during surveys of riverbanks in the Hunter Valley region.

While water levels were low from recent drought in the region, members of the Worimi, Awabakal and Mindaribba communities joined the Hunter Valley Flood Mitigation Scheme to survey sites that were previously inundated.

The team found 14 grinding groove sites on the banks of the Hunter, Paterson and Williamson Rivers in the Lower and Upper Hunter. Grinding grooves are made when Aboriginal people shape and sharpen stone axes by grinding them against stone.

They're often found next to or near water sources, because water was used to wet the rock surface.

The Scheme's Manager of Major Projects Andrew McIntyre said each of the sites was recorded into Aboriginal Heritage Information Management System, and the finds have helped improve cultural knowledge for the Scheme.

"Finding these grinding grooves means we can now plan around culturally significant sites when working on the Scheme, ensuring we can avoid disrupting these areas," Mr McIntyre said.

"The added benefit of these surveys was that we were able to build relationships and trust with local Aboriginal communities and develop future collaborations."

The team also worked with multiple Elders to develop an oral history film, recording Aboriginal storytelling of flooding in the Hunter.

The film includes interviews with multiple Elders who have lived through various floods in the Hunter, included the devastating 1955 flood.

CSR Compressed Air — Credit: Quentin Jones/DPIE

Manufacturing Efficiency Funding

Manufacturing Efficiency Funding (MEF) helps up to 250 manufacturing businesses save energy and money by providing co-funding for technology upgrades.

It covers up to half of the total cost of implementing metering and process optimisation projects, and energy efficient equipment upgrades.

Key achievements

- Delivered a second round of funding for manufacturers to apply for metering and process optimisation and equipment upgrades offers
- Awarded 56 funding contracts worth over $2.1 million during the second round of funding
- Completed compressed air and steam services offers, including the newly awarded 71 contracts worth more than $520,000
- Commissioned the Australian Alliance for Energy Productivity to analyse program data, resulting in the Compressed air systems: Sealing up a productive manufacturing future for NSW report.

Key data

- Over $6.75 million of funding awarded to business to date via 293 contracts
- 67 Round 1 and 2 contracts completed to date
- 146 contracts completed under the compressed air and steam services offers
- The successful Round 2 projects to date are expected to save:
  - 7,766 MWh of electricity which is equivalent to over 400 times the average annual energy consumption of Australian industrial cool rooms and freezers
  - 27,513 gigajoules (GJ) of gas
  - at least 7,265 tCO2e, equivalent to running more than 3,000 passenger vehicles for a year
  - $1.4 million in energy bills each year.

Manufacturing Eff Funding CSR Compressed Air — Credit: Quentin Jones/DPIE

Spotlight on turning air leaks into money (and increasing your green credentials)

Australian industrial company CSR has ambitions to reduce its energy use by 20% by 2030.

To reach that target, it has already started making major updates to its energy-intensive machinery.

One of the industrial building products CSR produces at its Wetherill Park site in Western Sydney is Cemintel, a flexible fibre cement product requiring compressed air machinery to make it.

Compressed Air Systems are energy intensive. They use at least 10% of Australia's industrial electricity use, but most of that energy is wasted through inefficient equipment and leaks.

This means there's great potential for energy savings, which would lead to reductions in both emissions and cost.

In June 2020, CSR accessed the NSW Government's Manufacturing Efficiency Funding program, which provided funding to support a review of its Compressed Air System.

Through the review, the CSR team found significant air leaks, and that the system wasn't being operated as efficiently as possible.

The audits identified about $83,000 in energy saving opportunities simply by updating compressor controls and fixing air leaks.

CSR is expecting that in the future, it'll be able to run the site with just one efficient compressor, rather than the two it currently uses.

Turning the second compressor off will save $100,000 a year in energy costs.

As a result of the project, CSR Cemintel has hit its three sustainability targets early, meaning its on track to achieve its goal of cutting energy use by 20% by 2030.

Sustainable Councils

Increasing the amount of emissions reduction technologies and empowering consumers and businesses to make sustainable choices are two key priorities in the Net Zero Plan Stage 1: 2020-2030.

Sustainable Councils helps local councils achieve these two priorities while also delivering significant savings to participating councils and their communities.

The program helps resource-constrained councils with support and advice to develop investment-ready business cases. This allows local governments to implement projects that save energy, money and emissions.

Sustainable Councils has identified potential energy cost savings for local government of $2.5 million per annum and potential greenhouse gas reduction of nearly 8,400 tCO_2e per annum.

To achieve impact at scale, Sustainable Councils partners with cluster groups of councils, which has enabled the success and growth of the program.

Key achievements

- Expanded the Sustainable Councils and Communities pilot program to extend its reach, increasing the number of councils supported from 21 to 43
- Delivered 14 strategic energy plans, helping councils, their local businesses and residents save energy and money
- Completed a mid-term evaluation, which found the program is well-conceived, well-managed and likely to be highly effective in meeting its aims.

Credit: Monty Rakusen/Getty Images

Spotlight on our customers' feedback:

Here's just a few of the comments we've received from program participants this year.

- "Councils need a strategy but don't have the expertise. The program bridges that resource gap."
- "We've gained a lot of experience in evaluating tenders – that won't be a blockage in future."
- "The team understands the barriers we face and the assistance we need with procurement."
- "It was very individualised. We can pick and choose what we want to do, what will work for us. The program lets us progress our own needs at our own pace."
- "As a model, it demonstrates the value of providing really practical support to councils."
- "The SCC team has gone in and done the nuts and bolts of energy and solar analysis. It comes with a lot of interaction and knowledge of the sites. It's a critical service that SCC provides."

Innovative delivery

The CCF has continued to deliver strong outcomes and impact during the challenges of 2020-21, including the COVID-19 pandemic and floods, through innovative delivery.

The CCF has protected 129,000 hectares of land through new conservation agreements on private land, supporting the management of our national parks to conduct critical research to reduce the risk of bushfire impacts.

This year, our Sustainable Homes program has been recognised for its innovative approach, taking out the Good Design Award – Best in Class for Service Design: Public Sector Services for their pilot program 'Renovate or Rebuild'. The CCF's work helping communities recover from the floods in the Hawkesbury-Nepean region has also received recognition winning a prestigious industry award.

We're putting a spotlight on some of the brightest examples where the CCF is helping to build a better future for NSW.

More information can be found on page 58 in the Achievements section on how the CCF has continued to deliver strong outcomes and impact during the challenges of 2020-21. Read on to find out more.

NPWS hazard reduction burn in a Strategic Fire Advantage Zone in Garby Nature Reserve behind properties in the coastal community of Mullaway on the NSW North Coast. — Credit: Judd Finlay/Member of the public

The CCF has protected

129,000 hectares

of land through new conservation agreements

Koala Phascolarctos cinereus — Credit: Dan Lunney/DPIE

Roads underwater and debris, upstream of Windsor Bridge (March 2021) — Credit: Adam Hollingworth

Hawkesbury-Nepean Valley Flood Risk Management Strategy

More than 140,000 people live and work in the Hawkesbury-Nepean floodplain – a region with the highest flood exposure in NSW. With growth and the effects of climate change, flood risk in the valley will increase over the coming decades.

Flood risk management is helping the Hawkesbury-Nepean Valley community reduce the impact of floods on people's lives, livelihoods and homes. The strategy's aim is to prepare for, respond to and recover from floods in the most effective ways possible.

The strategy is a long-term plan for NSW Government agencies, local councils, businesses and the community to work together to manage the risk posed by regional flooding. Infrastructure NSW oversees delivery of the strategy, which commenced in 2017.

Of note in 2020-21 was major flooding in the Hawkesbury-Nepean Valley after a significant rainfall event in March 2021. Floodwater severely impacted over 600 homes, over 30 caravan parks, and hundreds of farms. Transport routes and essential services such as electricity were affected. The estimated damage bill was several hundred million dollars.

Key achievements

- Won the prestigious industry award, 2021 Floodplain Management Australia NRMA Insurance Flood Risk Management Project of the Year
- Led consultation and development of the Hawkesbury-Nepean River March 2021 Flood Review
- Continued work on an updated Hawkesbury Nepean-River Flood Study, which used the March 2021 flood as a verification event
- Continued delivering the Community Resilience program, which raises flood awareness, preparedness and reduces risk to the most vulnerable floodplain communities
- Developed 15 new videos as part of the 'Animal Ready Community in the Hawkesbury-Nepean Valley' project, which helps and encourages animal owners prepare for floods
- Delivered second and third phases of flood awareness campaign, 'Floods. The Risk is Real', in partnership with the NSW State Emergency Service
- Launched the 'Water in the Valley' primary school educational resource, which supports the geography syllabus and educates students about flood risk.

Spotlight on helping vulnerable community members get ready for floods

When it comes to floods, residents of the Hawkesbury-Nepean Valley who live in social housing are particularly vulnerable.

There are about 1,600 social housing properties at risk of flooding in the valley.

As is the case around Australia in natural disasters, people who have existing social or physical vulnerabilities are at a higher risk during emergencies.

Work undertaken as part of the Hawkesbury-Nepean Valley Flood Risk Management Strategy identified that many social housing tenants may struggle to leave their homes when directed, causing potentially life-threatening issues for this community.

To ensure these tenants are supported, educated and prepared for the flood risk in the Valley, the Strategy is delivering the 'Get Ready for Flood: Social Housing' project.

It's delivered in partnership with Inner Sydney Voice and the University of Sydney and collaborates with social housing providers and tenants.

The program includes briefings and workshops exploring the risks people face, and the skills and networking needed to better survive natural disasters.

In 2020-21, the program trained 81 staff and volunteers from housing providers, community organisations, and tenant representatives.

Executive Officer of community organisation Peppercorn Services, Jessica Innes, said the training helped the organisation take a more proactive approach to emergency preparedness.

"Our capacity to prepare, respond and then recover from the March 2021 flood was as a result of training our workforce to better prepare themselves, our service and our clients for floods and other natural disasters," Ms Innes said.

"Without the engagement and support of Infrastructure NSW, we wouldn't have had the knowledge or resources to support the community as we did.

"Our engagement with Infrastructure NSW resulted in greater connections with local and state emergency services such as the State Emergency Service, Fire and Rescue, Hawkesbury Police and Hawkesbury City Council's Emergency Management team."

Floodwaters nearing homes in Regentville close to flood peak (March 2021) — Credit: Adam Hollingworth

Biodiversity Conservation Trust Private Land Conservation

With more than 70% of biodiversity in NSW located on private property, private land conservation has a critical role in creating a healthy and resilient environment.

The Biodiversity Conservation Trust (BCT) encourages landholders to conserve biodiversity, and supports them with agreements in-perpetuity, grants, advice and information.

The BCT also promotes and provides education about private land conservation in NSW, and delivers a biodiversity offsetting service.

So far under the BCT's private land conservation (PLC) programs, 285 landholders have signed or plan to sign a conservation agreement with the BCT, creating conservation areas across 129,000 hectares.

Key achievements

- Completed three conservation tenders and two rounds of fixed price offers
- Over 31,150 hectares in new agreements through an additional 50 partnership conservation agreements or wildlife refuge agreements, as well as 17 funded conservation agreements
- Sold three revolving fund properties to buyers willing to conserve a total of 1,380 hectares with high biodiversity value under conservation agreements
- Paid $1.5 million in grants to holders of partnership conservation agreements across 60,100 hectares of conservation areas investing in privately-owned land with high biodiversity values
- Delivered 23 information sessions for landholders around NSW ensuring biodiversity conservation
- Conducted 1,092 site visits and had 7,781 interactions with BCT landholders.

Spotlight on protecting koala habitat in the Southern Highlands

In 1978, five families banded together to purchase a 100-hectare bush property near Mittagong, in the Southern Highlands.

Now, more than 40 years later, three generations of landholders are protecting and enjoying its biodiversity.

The five families formed a company when they purchased the land, and in 2020, they bid in the Biodiversity Conservation Trust's Southern Highlands Koala Habitat conservation tender.

The NSW Government identified the Southern Highlands koala population as a high priority because it represents the largest known population of koalas in Southern NSW, and is about 10% of the total NSW koala population.

Koalas in the Southern Highlands have experienced habitat loss due to urban development and vegetation clearing, and small populations have struggled to connect.

The objective of the Southern Highlands Koala Habitat conservation tender was to create a network of conservation areas on private land that would be protected to provide safe havens for koalas to shelter, forage and move between.

The Mittagong group of families were thrilled to learn they were one of the seven successful bid winners for funded conservation agreements.

The win means precious habitat for koalas and threatened species, including the yellow-bellied glider, spotted-tailed quoll, scarlet robin and glossy black-cockatoo, is protected in perpetuity by a conservation agreement registered on the title of the land.

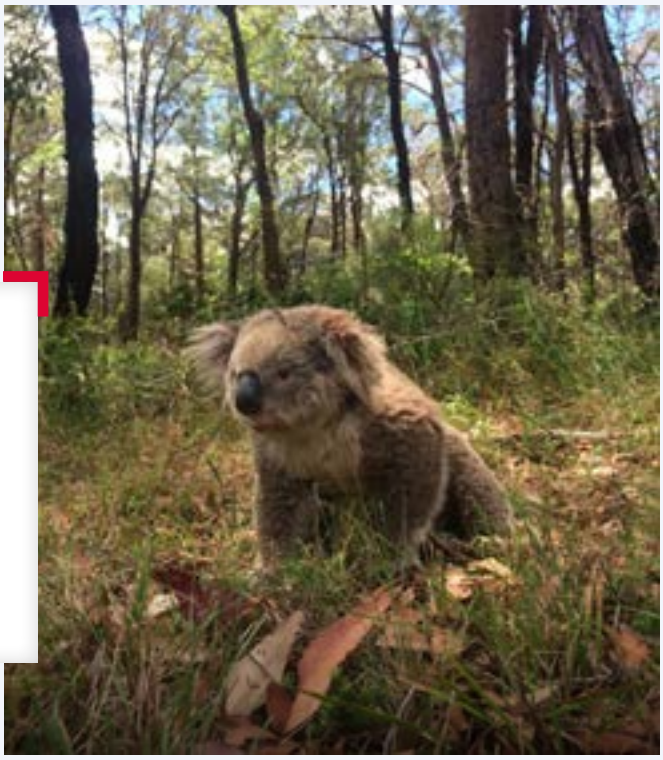
The agreement also comes with annual management payments, which will be used to fix fencing, control weeds, address feral animal problems and support other land management activities.

Through the seven agreements, the NSW Government is protecting 2,579 hectares of koala habitat. By investing $28.7 million in annual conservation payments to landholders, this vital habitat will be retained and managed in perpetuity.

NSW Government is protecting

2,579 hectares

of koala habitat; investing $28.7 million in annual conservation payments to landholders



Southern Highlands koala — Credit: Lachlan Wilmott

Credit: Greg Kirby/NPWS

Bushfire Risk Management Research Hub

With bushfires becoming more frequent and more intense, the objectives of the Bushfire Risk Management Research Hub are improving fire management strategies and reducing the risk bushfires pose to people, property, and the environment.

It's doing this by bringing together researchers, fire agencies, public land managers and Indigenous knowledge holders in a collaborative research program.

It will provide a better understanding of how warning systems and control measures can be used to reduce bushfire risk, while protecting biodiversity and human health.

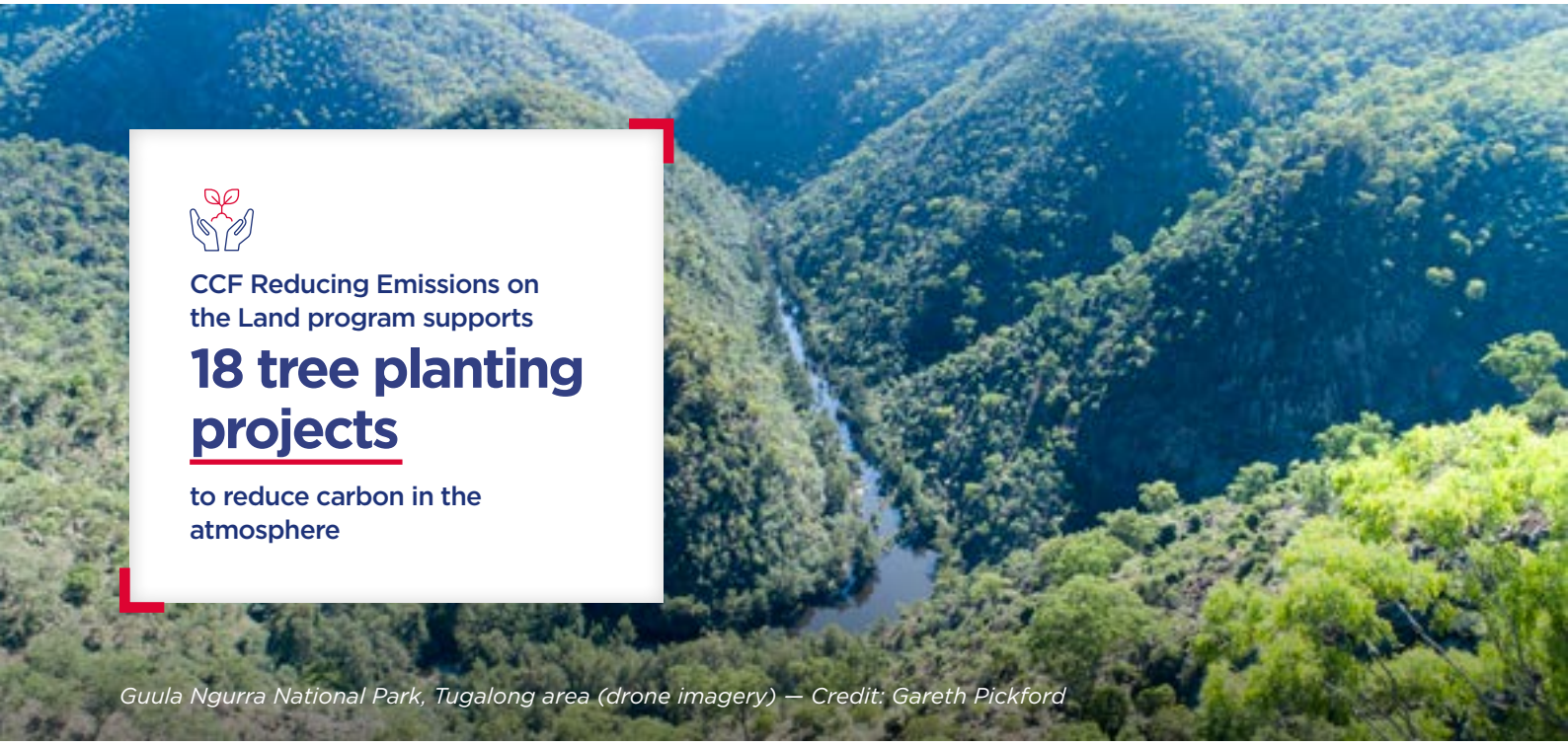
Key achievements

- Provided research and reports to the NSW Bushfire Inquiry. The reports covered 19 themes and provided an evidence base for the Inquiry's recommendations, as well as the direction for future management and associated research needs
- Contributed to the improvement of the Prescribed Burning Atlas, which helps fire managers make decisions about burning programs to improve risk reduction. The Research Hub's work on the Atlas updated and added information about NSW's diverse landscape, population and demographics, which will help improve local decision-making
- Delivered a series of public webinars presenting the research projects undertaken by the Hub to assist the NSW Bushfire Inquiry.

Did you know NSW is a global leader in fire management?

This year saw our internationally recognised experts develop software that provides rapid assessment of the fire regime status of vegetation. FireTools Cloud is a cloud-based geographic information system (GIS), which brings together fire history, vegetation and fire regime data. The platform has been integrated into fire management planning and is critical for conducting the planned burn program and maintaining biodiversity.

Credit: Greg Kirby/NPWS



CCF Reducing Emissions on the Land program supports

18 tree planting projects

to reduce carbon in the atmosphere

Guula Ngurra National Park, Tugalong area (drone imagery) — Credit: Gareth Pickford

Protected Area Management

The Protected Area Management funding supports the overall management and operation of the NSW national parks system, including 884 protected areas.

NSW national parks are the habitat for thousands of plants and animals affected by a changing climate. The parks and reserves also offer a place of relaxation and enjoyment for our communities.

National Parks and Wildlife Service (NPWS) also delivers the CCF Reducing Emissions on the Land program, which supports 18 tree planting projects to reduce carbon in the atmosphere.

Key achievements

- Contributed $34 million towards NPWS's work to:
  - protect threatened fauna and flora
  - manage landscapes, waterways and heritage
  - support biodiversity and ecological health
  - plan and manage parks
  - provide education and awareness for the community
  - reduce risks from predators and invasive species following the 2019-20 fire event
- Delivered the largest feral animal control program in NPWS history as part of the 2019-20 bushfire season recovery response. This included more than 1,700 hours of aerial shooting, removing more than 27,000 pest animals, and more than 32,000 km of aerial baiting
- Managed feral free areas, which allowed for the reintroduction of four endangered species: the crest-tailed mulgara, greater stick-nest rat, numbat, and Shark Bay bandicoot
- Contributed to infrastructure and threat abatement projects that increase resilience, such as emergency stabilisation of damaged coastal erosion sites, relocating critical infrastructure to reduce risks, and upgrading fire fighting and fire mitigation equipment.

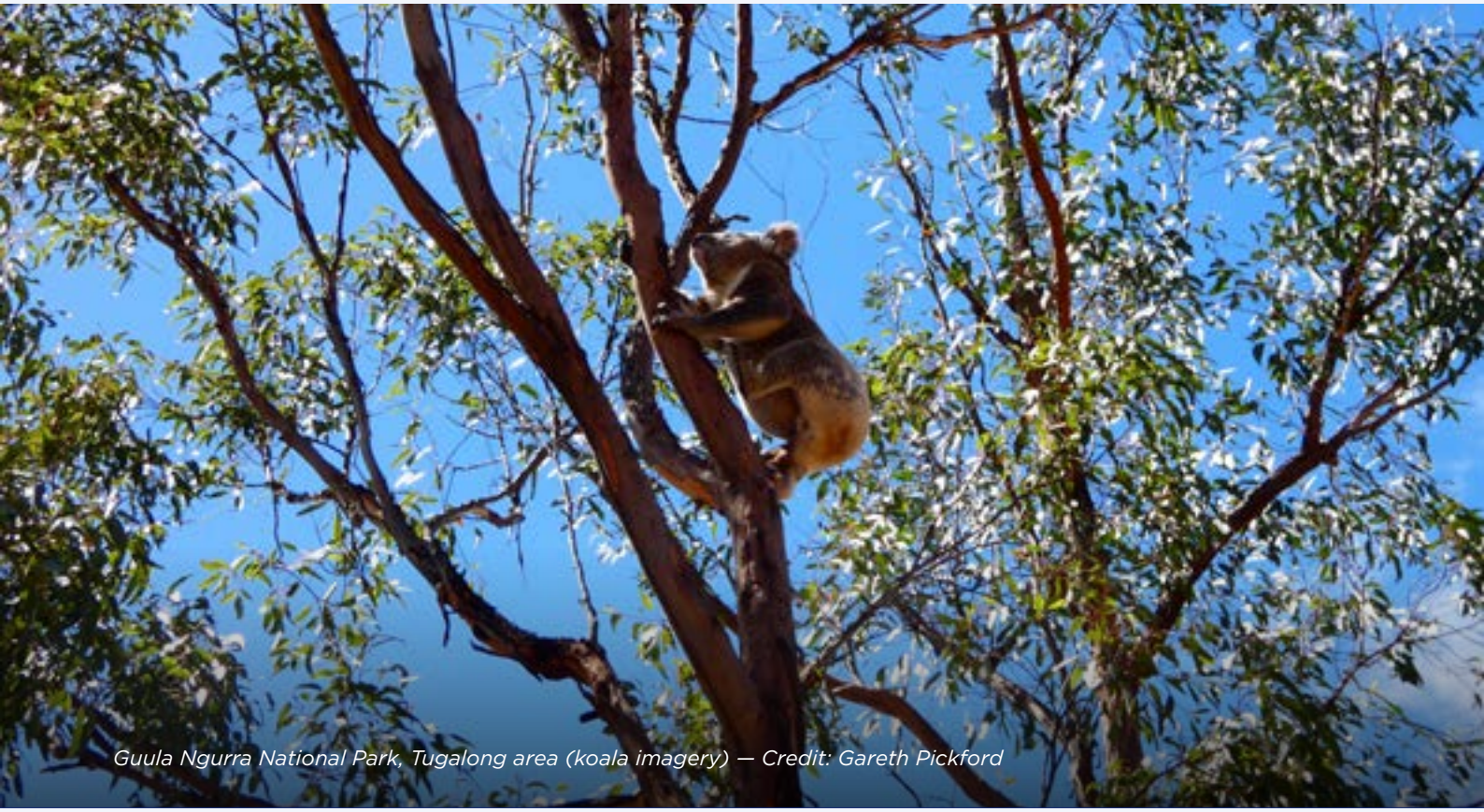
Spotlight on increasing our national parks to protect wildlife and culture

Did you know at 30 June 2021, national parks covered more than 7.44 million hectares of our beautiful state? That means the NPWS team is responsible for managing almost 10% of land area in NSW.

Managing this land involves a range of responsibilities, including plant and animal conservation, fire management, sustainable tourism, research and education.

NSW's system of parks and reserves plays an important role in the maintenance and management of a significant portion of the state's carbon stocks including carbon dioxide sequestration through regeneration of disturbed lands.

In 2020-21 the CCF contributed support through management and restoration that expanded our National Parks estate by 225,873 hectares including new parkland for regional and rural NSW and western Sydney. That's almost the size of a second Blue Mountains National Park. The newly declared Guula Ngurra National Park in the southern highlands now preserves important koala habitat as well as culturally significant land to the Gundungurra Aboriginal People.



Guula Ngurra National Park, Tugalong area (koala imagery) — Credit: Gareth Pickford

Sustainable Homes

Residential homes contribute to about 20% of NSW's greenhouse gas emissions. As the population in NSW grows, the increased number of dwellings required will intensify those emissions.[1] That's why the NSW Government is focused on sustainable homes becoming the norm.

The objective of the Sustainable Homes initiative is to increase the demand and supply of sustainable homes, which are more energy efficient, more comfortable, cheaper to operate and more resilient to climate and extreme weather.

Key achievements

- Delivered 60 workshops, engaging with more than 50 financial and social housing organisations to ensure key residential policies, such as energy ratings for existing homes and disclosure, are fit-for-purpose for the intended sectors
- Identified eight policy actions informed by industry engagement that could support the Trajectory for Low Energy Buildings. Those were shared with the Commonwealth, States and Territories for consideration
- Delivered a pilot program to help major builders sell net zero energy homes, with the pilot now being rolled out widely to industry
- Developed the 'Renovate or Rebuild' pilot working with partners including research organisations, state and federal Government agencies and the construction industry. After a successful pilot, this new concept has been licensed, filmed, and will be aired on Channel Nine in late 2021. The program is encouraging residents to be more sustainable and reduce their emissions when renovating or building, using mass media communications and reality television.

1. ASBEC and CRC for Low Carbon Living, Growing the market for sustainable homes, 2019

Spotlight on award winning collaborative design

New homes contribute to greenhouse gas emissions.

While builders in New South Wales are designing energy-efficient homes to address this problem, they struggle to sell the benefits to homebuyers.

By working with builders and homebuyers, the program was able to co-design solutions to this challenge. Those solutions were validated through a recent pilot with participating volume builders.

The program is now looking at opportunities to roll them out to the broader industry.

Credit: Quentin Jones/DPIE

Did you know the Sustainable Homes program won the Good Design Award – Best in Class for Service Design: Public Sector Services in September 2020 for their pilot program to help volume builders to design and build more sustainable homes.

Credit: Katherine Wilson/DPIE

Achievements

Financial support at a time of need

Household and Small Business Upgrades

Households and small businesses are encouraged to save energy and money while reducing emissions by upgrading high energy use appliances.

The program supports positive change by providing incentives for businesses to upgrade appliances such as lighting and commercial fridges to more energy efficient options.

Key achievements

- 1,800 households and more than 500 small businesses participated, of which roughly 65% are regional
- Participating households and businesses saved an estimated $1.2 million in energy bills per year
- 5,800 MWh/year of energy was saved which is equal to the energy required to run 15 high schools, saving at least 4,100 tCO_2e per year through upgrades which is equal to electricity use of 1,100 homes.

Key data

2,311 projects funded

Over **$1.87m** incentives paid

4,145 tCO_2e/yr emission savings

More than **$1.15m**/yr in energy cost savings

5,757 MWh/yr energy savings

Credit: Bec Hannaford/DPIE

Credit: Cut Above Productions

Achievements

The NSW Government is leading by example

Electricity Strategy & the Electricity Infrastructure Roadmap

Traditional energy generators are aging, the transmission system is congested, and electricity prices are putting pressure on households and businesses. This is why the NSW electricity system must change.

To enable that change, the NSW Government developed the NSW Electricity Strategy. It creates a reliable, affordable and sustainable electricity future that supports a growing economy.

The strategy encourages an estimated $8 billion of new private investment in the NSW electricity system in the next decade, including $5.6 billion in regional NSW.

The Electricity Infrastructure Roadmap builds on the foundations of the Electricity Strategy, transitioning our electricity sector into one that is cheaper, cleaner and more reliable.

The Roadmap is expected to:

- attract up to $32 billion in private investment for regional energy infrastructure by 2030
- support an estimated 9,000 jobs, mostly in regional NSW
- save around $130 a year on average for NSW household electricity bills and $430 a year on the average small business electricity bills between 2023 and 2040.

The Roadmap will also help NSW deliver on its ambitions to reach net zero emissions by 2050. It will support NSW to reduce electricity emissions by 90 million tonnes by 2030.

Key achievements

- Supported the passage of the Electricity Infrastructure Investment Act 2020
- Delivered the Electricity Infrastructure Roadmap
- Announced five programs, including the Transmission Development Scheme, to create certainty for generator connections, and a safeguard tendering mechanism for new generation and storage projects
- Completed consultation for the Energy Security Safeguard.

Tallawarra B Grant

The Tallawarra B Project is helping to deliver a cleaner energy future and develop the green hydrogen industry in NSW.

Green hydrogen is a cheap, reliable type of energy that is made using 100% renewable sources.

Using a blend of green hydrogen and natural gas, Tallawarra B is Australia's first dual fuel capable power plant, and its direct carbon emissions will be written off over its operational life.

It will provide more than 300 MW of dispatchable capacity for NSW residents after the coal-fired power station Liddell retires. In peak periods, Tallawarra B will deliver reliable power to an additional 150,000 NSW homes. Under the funding agreement, Energy Australia will offer to buy enough green hydrogen equivalent to over five per cent of the plant's fuel use from 2025 (200,000 kg of green hydrogen per year) and will offset direct carbon emissions from the project over its operational life.

The project sets a new benchmark for how gas generators can be consistent with the NSW Government's plan to achieve net zero emissions by 2050 by using green hydrogen and offsetting residual emissions.

Key achievements

> Started community engagement through forums and mass communication

> Initiated a procurement process for the open gas turbine generator.

Credit: Lisa Madden/DPIE

Renewable Energy Zones

Renewable Energy Zones (REZs) are modern-day power stations.

They combine renewable energy generation such as wind and solar, storage such as batteries, and high-voltage poles and wires to deliver energy to homes and businesses.

REZs are a key part of the NSW Government's Electricity Infrastructure Roadmap (the Roadmap). They are a critical element in delivering affordable, reliable energy generation to help replace the state's existing power stations as they come to their scheduled end-of-operational life.

The NSW Government is prioritising the delivery of REZs in the Central-West Orana, New England, South-West, Hunter-Central Coast and Illawarra regions.

The Central-West Orana, New England and South-West REZs alone will support up to $20.7 billion of private sector investment in NSW regions, while unlocking a significant pipeline of large-scale renewable energy and storage projects.

The Roadmap and *Electricity Infrastructure Investment Act 2020* are expected to support the private sector to bring 12 GW of renewable energy and 2 GW of long-duration storage online by 2030, largely within REZs.

Key achievements

- Commenced on-the-ground ongoing stakeholder engagement for the Central-West Orana REZ, including the launch of the Regional Reference Group, deliberative community forums in Dubbo, Wellington and Gulgong, and Transgrid community drop-in sessions
- Announced commitment of $79 million funding to support the delivery of the New England REZ and established a Regional Reference Group to ensure the REZ delivers long-term benefits to local communities
- Released New England REZ Registration of Interest to market to help inform the best timing, capacity, design and location of the REZ
- Public consultation on the Central-West Orana REZ access scheme to inform detailed design and future declaration of a preferred access scheme for the REZ.

Supporting the private sector to bring

12 GW of renewable energy

and 2 GW of long-duration storage online by 2030


Credit: DPIE

Net Zero Programs

In 2020-21, significant progress was made in delivering the government's Net Zero Plan Stage 1: 2020-2030. The plan is the foundation for NSW's action on climate change and goal to reach net zero emissions by 2050. It outlines the NSW Government's approach to protect our future by growing the economy, creating future fit jobs and helping NSW businesses to prosper in a low carbon economy while reducing emissions.

Key achievements

- Launched the Net Zero Industry and Innovation Program in March 2021, to support and partner with industry to reduce emissions, including hard to abate sectors, by accelerating the development of clean technology and decarbonisation
- Established the Net Zero Emissions and Clean Economy Board and commenced the process for appointing board members
- Increased the annual energy savings target to the Energy Savings Scheme from 8.5% to 13% by 2030, injecting an additional $1 billion into the state's economy and delivering a $2.4 billion boost to bill savings
- Released the NSW Electric Vehicle Strategy in June 2021 to increase electric vehicles to 52% of new car sales by 2030-31 through rebates, phasing out stamp duty for new vehicle purchases, fleet incentives to support local councils and businesses, and building a world-class charging network
- Supported the formation of the Materials Embodied Carbon Leadership Alliance, an industry-government leadership alliance launched in April 2021, that works with large companies and their suppliers to support the market for green building materials
- Committed $70 million to establish at least two hydrogen hubs to help grow hydrogen industries in NSW and increase electrolyser capacity to 700 MW by 2030.

Emerging Energy

Emerging Energy offers $75 million in grants to support affordable, reliable and clean energy across NSW.

It aims to reduce investment barriers for emerging technologies, helping the energy sector reduce greenhouse gas emissions, and NSW meet its target of achieving net zero emissions by 2050.

The program supports the development and commercialisation of dispatchable, large-scale electricity storage projects.

Key achievements

- Awarded grant funding to Centennial Coal Company Pty Ltd to assess the potential for a 600 MW pumped hydro project near Lake Macquarie
- Funded TransGrid's Wallgrove Grid Battery, a 52 MW large-scale lithium ion battery, which was registered as 'committed' by AEMO. This is the first grid-scale battery to achieve this status in NSW and construction is underway
- Progressed and achieved milestones in the SolarHub Smart Distributed Batteries Project. The project is a first for NSW and will develop a 6 MW Virtual Power Plant to strengthen the electricity network and lower electricity costs for consumers.

Helping Communities Become More Resilient to Climate Change

Climate Adaptation

This program helps state and local government, businesses and communities in NSW to prepare for the impacts of climate change, avoid potentially significant future costs and protect those most vulnerable to future climate-related damage and disruptions. By building capacity and supporting local decision makers, the program helps people take action to address climate change risks, and seize potential climate-related opportunities. Decision makers are provided with tools, guidance, training and technical support. The program also delivers collaborative governance, helping organisations mainstream their climate change activities to ensure they're embedded across relevant decisions affecting our communities.

Key achievements

- Launched the nationally accredited Climate Risk Ready course with Western Sydney University for state and local government staff to build skills in climate change risk assessment and management
- Delivered the Climate Risk Ready NSW Guide with support of NSW Treasury, to help the government sector identify, assess and develop plans to address future climate risks
- Launched the XDI (Cross-Dependency Initiative) NSW Program, providing public asset owners access to analysis of future climate risks to critical infrastructure.

Climate Information and Knowledge Delivery

The year 2019 marked a new record: it was the hottest year ever recorded in NSW.

It came toward the end of another NSW record: the hottest decade in history, from 2011.

With average temperatures steadily rising since the 1960s, the people of NSW need to be equipped with information about how to adapt to climate change and the increasing extremes it brings with it.

Climate Information and Knowledge Delivery delivers information, tools and resources to help government, businesses and communities build resilience and adapt to the effects of climate change.

Key achievements

- Delivered $615,659 in the first round of the Increasing Resilience to Climate Change (IRCC) community grants program to 23 community led projects. These projects are helping communities manage climate change impacts
- Awarded $611,700 to eight councils through IRCC council grants program
- Delivered a series of webinars involving 27 speakers who shared information about building resilience to climate change with hundreds of attendees
- Commenced a major redevelopment of the AdaptNSW website to ensure a customer centred communication approach to sharing information about climate change in NSW, the benefits of adaptation and the NSW Government's actions.

Key data

$2.8 million

provided to 31 projects across NSW through Increasing Resilience to Climate Change council grants since 2019

Climate Science

Decision-makers and communities have better access to consistent and accurate climate data and information through the Helping Communities Become More Resilient to Climate Change – Climate Science program.

The program helps assess and address the risks of climate change by providing grants, training and research. It's focussed on finding and filling knowledge gaps, improving regional climate projections and assessing potential risks and impacts of climate change.

Key achievements

- Delivered the new Climate Data Portal improving access to climate projection data
- Developed a partnership with South Australia to expand NSW and ACT Regional Climate Modelling (NARCliM) providing high-resolution climate change projections across NSW
- Released enhanced NARCliM climate projections, delivering high-resolution climate data spanning 150 years, with two future climate scenarios. These projections provide new insights to inform climate risk awareness and planning for South-East Australia
- Produced five peer-reviewed publications in respected scientific journals further demonstrating the NSW's government's leading technical expertise in climate science
- Provided climate science advice and projections to other NSW Government agencies, including the Treasury report titled An indicative assessment of four key areas of climate risk for the 2021 NSW Intergenerational Report.

Credit: Joanna Munnelly/DPIE

Hunter Valley Flood Mitigation Scheme — Credit: John Spencer/DPIE

Floodplain Management

With floods and storms predicted to become more extreme as the climate changes, the Floodplain Management program is undertaking important activities to manage flood risk and build community resilience across NSW.

The program works to reduce the impacts of flooding and flood liability on communities and reduce private and public losses.

Floodplain Management grants provide technical and financial support to councils and eligible public land managers to:

- make informed decisions about managing flood risk by preparing management plans
- implement management plans to reduce flood risk and losses to communities and developments
- provide essential information to the SES so it can prepare and implement local flood plans effectively to deal with flood emergency responses.

Key achievements

- Awarded $5.4 million in funding to support 26 local government projects to help them understand and mitigate flood risk
- Supported work to update flood guidance for councils and industry
- Supported work on the strategic management of levees
- Evaluated voluntary purchase and house raising schemes to assess effectiveness and make recommendations for improvements.

NSW Coastal and Flood Data Network

Changes in the NSW coastal environment are monitored and assessed thanks to the Manly Hydraulics Laboratory's extensive data collection network.

The Laboratory maintains and operates the network of:

	178 flood and 46 estuary automatic water level recorders
	20 ocean tided sites
	75 rainfall recording stations
	7 offshore Waverider buoys.

The data allows changes in the coastal environment to be monitored and assessed and provides an improved understanding and awareness of current and future risks of flooding and coastal hazards, including climate change. The data is also used by emergency agencies to generate warnings during extreme weather events (flood and storm) providing an essential community safety function.

Credit: Quentin Jones/DPIE

More Efficient Street Lighting

130 councils have streetlights that use less energy thanks to the NSW Government's More Energy Efficient Street Lighting program.

Since 2017, the Program has saved nearly $4 million annually in energy bills and 29,558 MWh energy savings which is equivalent to taking more than 20 cars off the road.

This was made possible through NSW Government grants that helped councils and local authorities replace old bulbs with energy efficient LED light globes.

The Program concluded in 2021, having substantially exceeded its targets and kick-starting the LED street lighting sector in NSW.

Key achievement

> 23,734 streetlights replaced under direct funding, saving 6,404 MWh in energy which is the equivalent of having eight people switch from cars to riding bicycles, and 4,611 tCO_2e which is equivalent to more than 250 acres of forest storing carbon for one year.

Key data[1]

Around 18%

of the total public lighting stock in NSW was replaced through the program.

130
Councils supported

113,307
streetlights replaced

21,281 tCO_2e
annual emissions savings

$3.98m
annual energy bill savings

29,558 MWh
annual energy savings

1. Over four years from 2017-18 to 2020-21

Improved Energy Efficiency Standards for Buildings and Infrastructure

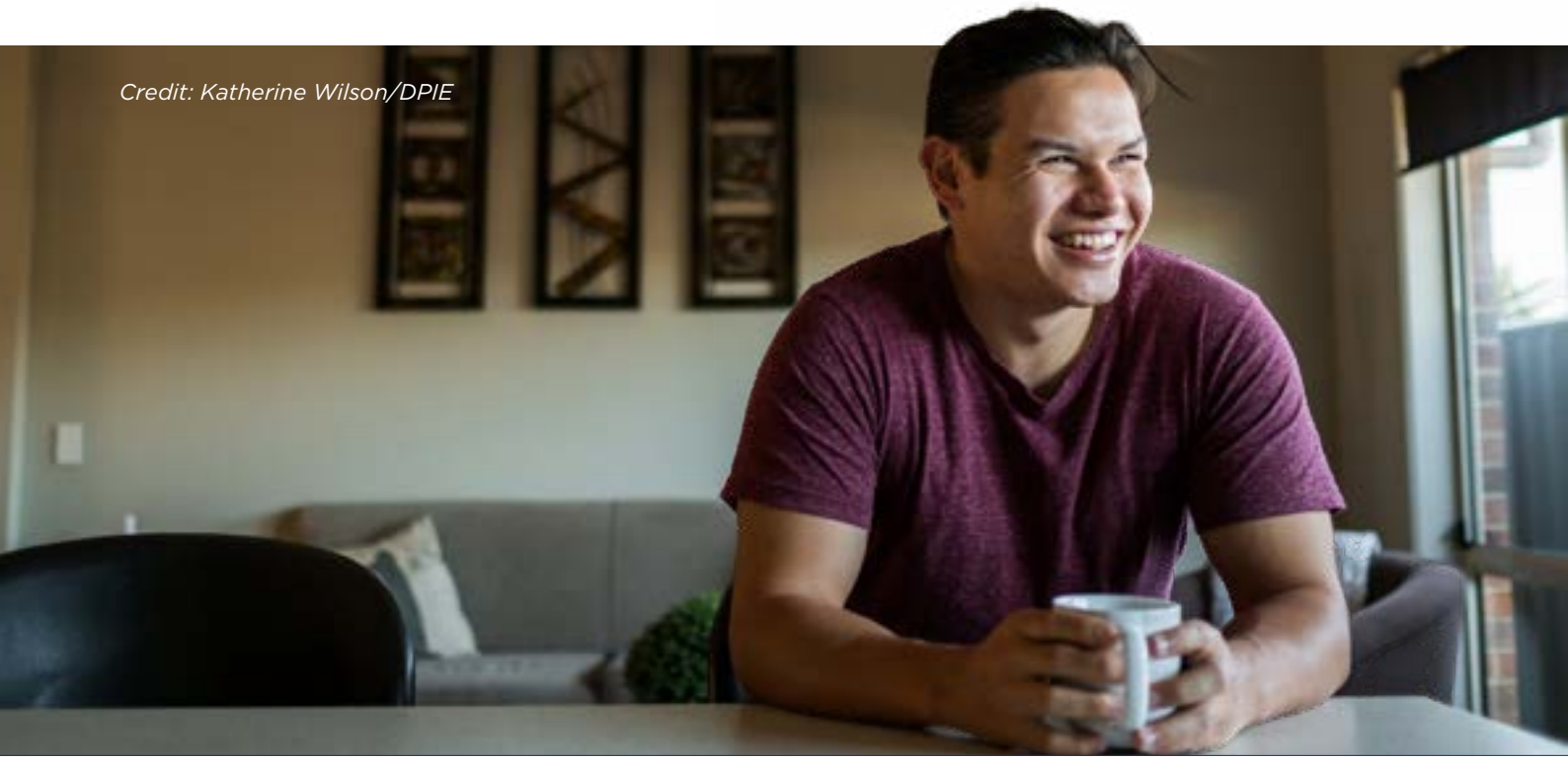
To help meet the state's emissions targets it's important to make it easier for apartment residents to install sustainable technology, including solar, batteries and electric vehicle charging stations.

This program examines the role of standards and investigates other ways of enhancing energy efficiency in existing commercial buildings, existing apartment buildings, new State Significant Infrastructure and State Significant Developments.

It also ensures NSW continues its contributions to the National Energy Productivity Plan and the Nationwide House Energy Rating Scheme.

Key achievements

- Contributed to the development of the *Strata Schemes Management Amendment (Sustainability Infrastructure) Act 2021*, and the NSW Government's Sustainability Infrastructure Review, to make it easier for people living in residential apartment units to install solar PV panels, batteries and electric vehicle (EV) charging stations
- Developed the Energy and Climate Change Action Plan for Sustainability Infrastructure in Existing Apartments with recommended actions to improve the energy efficiency of NSW's existing apartment buildings, including common areas and shared services
- Supported the implementation of several energy efficient building measures under the National Energy Productivity Plan, including:
  - a home energy-rating scheme for existing homes
  - the development of a national disclosure framework for home energy ratings to support customers' choice at the point of sale and lease
  - the development of a national framework for minimum energy efficiency standards for rental homes.



Credit: Katherine Wilson/DPIE

Credit: Emmy Etie/DPIE

New Energy Efficiency Standards for Appliances

New Energy Efficiency Standards for Appliances help NSW households and businesses save energy, money and emissions.

It does this by conducting first of its kind research into the energy efficiency of appliances, and develops standards that improve the efficiency of products on the market.

The program contributes to the development of energy labelling for products, making it easier for consumers to choose appliances that will help them save on bills while reducing emissions.

It leads, collaborates on and contributes to investigating several products on behalf of the Equipment Energy Efficiency (E3) Program, an initiative of the Australian Government, states and territories and the New Zealand Government.

Key achievements

- Released a product profile on 'Residential Space Heaters in Australia and New Zealand' for consultation with the Federal Government. The information will help the development of a space heater energy-rating labelling scheme, which will help consumers compare heating technologies and make more informed decisions
- Research to inform regulation impact statements for commercial icemakers, commercial catering equipment and domestic cooking equipment
- Commenced interviews with major suppliers of commercial icemakers in the Australian and New Zealand markets to fill information gaps before completing the consultation regulation impact statement
- Prepared policy options papers to provide the foundation for a potential consultation regulation impact statement to investigate energy savings from ceiling fans, hot and cold-water dispensers and vacuum cleaners.

Credit: Ashley Cooper/Getty Images

Recoverable Grants for Pumped Hydro

Project developers are able to gain help with the cost of early stage, detailed feasibility studies for pumped hydro projects through this recoverable grants program.

Pumped hydro is recognised as the most established form of long duration storage, meaning it is consistent and reliable over extended periods.

However, pumped hydro projects face long lead times, with costly development activities taking up to four years to complete, and procurement and construction typically taking another four years.

With support from the CCF, the program aims to establish up to 3 GW of advanced pumped hydro projects, which will help to maintain a secure and reliable energy grid as more renewable sources are brought online.

The program is a key action in the NSW Government's Electricity Infrastructure Roadmap.

Key achievements

- Announced as a key action under the Electricity Infrastructure Roadmap
- Launched program, including website and Program Guidelines, in preparation for applications opening in July 2021.

Wamberal coastal erosion — Credit: Phil Watson/DPIE

Coastal and Estuary Management

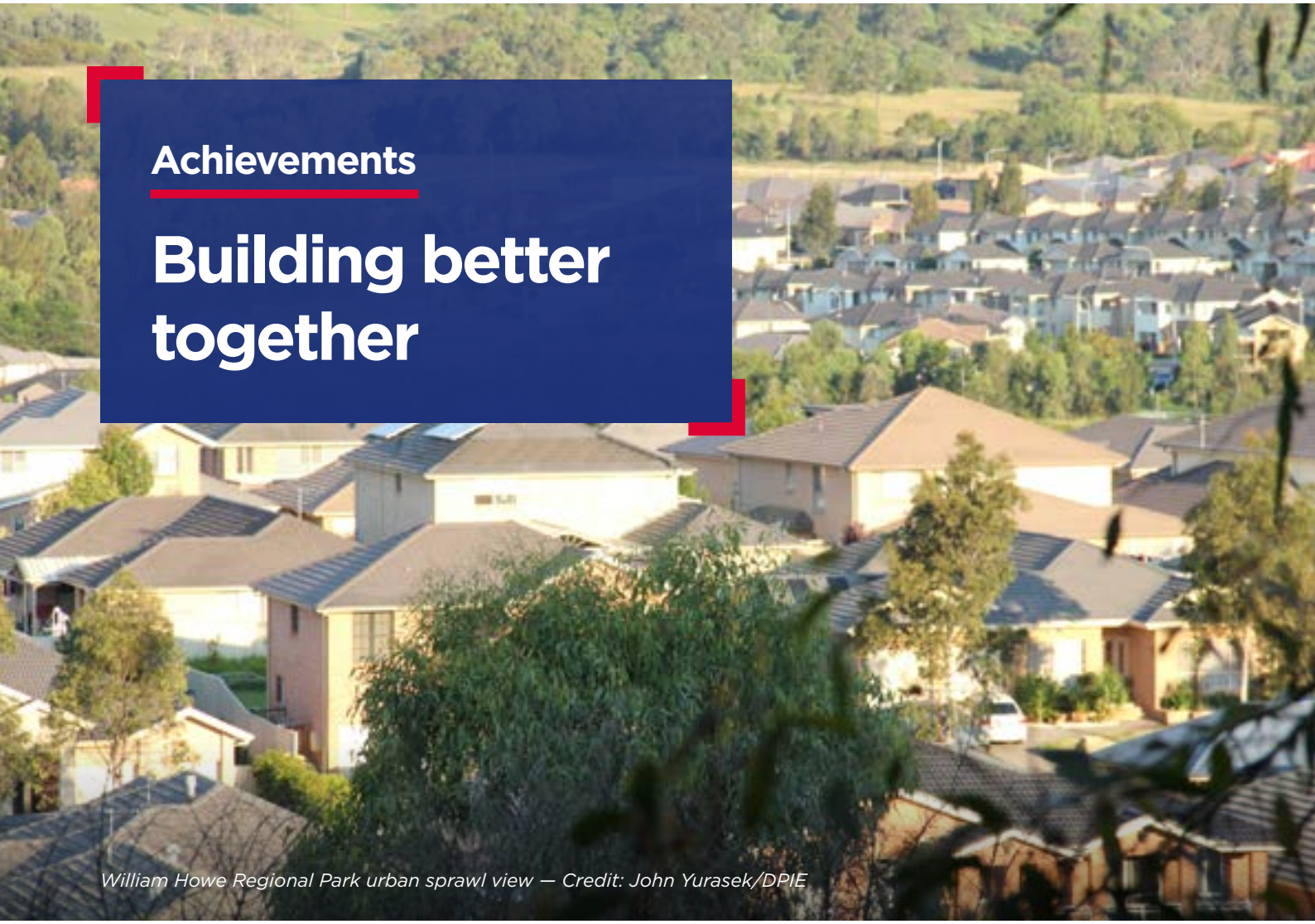
The Coastal and Estuary program supports local councils to achieve the NSW Government's long-term vision for the coast.

The program helps councils prepare coastal management plans by providing technical advice, guidance and support.

It also provides state-wide research and mapping that underpins coastal and estuary management, reviews mapping and planning proposals associated with State Environmental Planning Policy, and through the NSW Coastal Council, provides independent and expert advice to the Minister for Local Government.

Key achievements

- Awarded 70 new projects totalling $21.1 million to local government to prepare coastal management programs and manage the coastal and estuarine environment
- Three coastal management plans for Stockton Beach, Lake Illawarra, and Lake Ainsworth were certified by the Minister for Local Government
- Provided technical advice, guidance and support to local councils in preparing more than 40 new coastal management programs. These programs will help mitigate coastal hazards, manage the coastal environment, and adapt to potential impacts of climate change
- Delivered high resolution quality controlled modelling and mapping published on the NSW SEED data portal.



Achievements

Building better together

William Howe Regional Park urban sprawl view — Credit: John Yurasek/DPIE

Regional Community Energy

Regional communities will have more reliable energy, cheaper electricity bills and more access to renewable energy with support from the Regional Community Energy program.

As part of the program, the Regional Community Energy Fund provides grants to community energy projects that create innovative and/or dispatchable renewable energy and benefit the local community.

Seven projects around regional NSW are being supported so far, unlocking nearly 17.2 MW in electricity generation and 17.9 MW of energy storage.

Key achievements

- Two projects launched their community capital raise campaigns, with one of these projects achieving its community capital raise target
- Three projects received Offers to Connect from their Distribution Network Service Provider
- Multiple working groups were held to enable knowledge sharing and collaboration between each of the community project teams.

Empowering Homes

Empowering Homes helps eligible home-owner occupiers buy a home battery or a solar and battery system by providing access to interest free loans.

Launched in February 2020 as a pilot in nine local government areas across the Hunter region, it was expanded in late 2020 to a total of 24 local government areas across NSW.

The pilot successfuly delivered valuable insights about the rapidly changing and emerging solar battery and green finance sectors.

This experience is helping inform this and other government initiatives aimed at enabling access to clean energy solutions and reducing household energy costs.

Key achievements

- 536 system quotes delivered to households
- 295 no-interest loans approved
- 246 installations completed resulting in:
  - 2.1 MWh of installed battery capacity
  - 1.1 MW of new solar installed
  - more than $3.9 million of private investment in solar and battery solutions.

Sustainability Advantage

Medium and large organisations are supported and encouraged to achieve better business success by adopting sustainable practices and goals through Sustainability Advantage.

The program works with a network of more than 800 businesses, not-for-profits and government agencies, to boost commitment to net zero emissions, circular economies, the restoration of nature, and the UN Sustainable Development Goals.

The Sustainability Advantage network provides important collaborative opportunities for businesses to learn and share knowledge. The program ultimately helps NSW achieve its Net Zero ambitions, and ensures NSW businesses are resilient and competitive into the future.

Key achievements[1]

- Delivered more than 180 projects with program partners, including roadmaps to net zero and regional circular economy strategies resulting in significant resource efficiency and estimated $93.8 million cost savings for program partners
- Completed a Net Zero Emissions Pathway Pilot involving 36 organisations to develop cost effective ways to create net zero plans
- Launched the Sustainability Advantage Net Zero Emissions Leadership Accelerator. This nine-month program involves 26 organisations and provides leadership and educational support in implementing net zero emissions strategies.

1. Since the start of the program

Achievements

Innovative delivery

Credit: Peter Taseski/NPWS

Bushfire Management

Bushfire Management is a key part of the NSW Government's strategy for adapting to climate change and fire weather conditions that are predicted to worsen.

Two bushfire management programs increase NPWS capacity for bushfire management. Bushfire management and hazard protection helps protect communities and assets by enabling NPWS to implement hazard reduction and respond rapidly to bushfires.

The CCF helps support dedicated rapid aerial response teams (RARTs) positioned in strategic locations in high-risk bushfire areas. It contributes to research that helps to ensure NSW has effective fire management.

In 2020-21 the bushfire management programs were affected by the severe impacts of the 2019-20 bushfire season, the recommendations of the NSW Bushfire Inquiry, and the wetter than average conditions caused by La Niña. These challenges impacted the programs' achievements over the 12 months.

Key achievements

- 100% of Rapid Aerial Responses:
  - occurred within 30 minutes of detection
  - kept the fire to less than ten hectares in size
- Exceeded its target for hazard reduction in Asset Protection Zones with 2,321 hectares treated – approximately 25% above the proposed target
- Completed 31,321 hectares of hazard reduction in Strategic Fire Advantage Zones
- Completed 2,111 hazard reduction activities, including 143 hazard reduction burns and 1,968 mechanical activities.

Key data

- The NSW Bushfire Inquiry recommended moving away from simple hectare targets and prioritising implementation of revised processes for bushfire risk management planning. This helped inform how NPWS approached the delivery of both APZ and SFAZ requirements as per below
- 1,802 hectare target of hazard reduction in Asset Protection Zones
- 49,594 hectare target of hazard reduction in Strategic Fire Advantage Zones.

Conducted

55,967 hectares of hazard reduction

on National park land

Air Quality Monitoring and Forecasting

For more than 60 years, the NSW Government has monitored and forecast air quality across the state.

Its air quality monitoring network is the largest in Australia, providing detailed air quality information that is updated hourly on the Department of Planning, Industry and Environment's website.

The Air Quality Monitoring and Forecasting program delivers important scientific evidence and advice about air quality to citizens, organisations and government.

The program enables better planning, which ultimately helps to minimise exposure to harmful air pollution.

In 2020-21, the program's focus was delivering an enhanced service to ensure more people had easy access to local air quality information in near-real time.

The program prioritised its activities to address needs that were identified as a result of the intense bushfires of summer 2019-2020.

Key achievements

- Updated the automated email and SMS air quality alerts system to provide alerts based on near-real time particle concentrations
- Upgraded all 39 rural network stations to provide indicative monitoring of both PM2.5 and PM10
- Extended monitoring of black carbon from six locations to ten to provide additional information on particle composition and their related impact on public health and the climate
- Commissioned a background air quality monitoring station at the existing Merriwa site in the Upper Hunter region, which now measures criteria gaseous pollutants and PM2.5
- Launched an air quality data explorer on the SEED portal and the DPIE air quality website
- Adapted new advanced modelling tools and techniques to enhance accuracy of air quality predictions
- Released the first report for the Sydney Air Quality Study – a multi-year study that will extend the evidence base for air policies and programs, providing information on past, current and future air quality and its impacts on public health and the environment
- Commenced a trial to expand air quality forecasting into Sydney sub regions, Lower Hunter, Central Coast and Illawarra.

The Air Quality Monitoring and Forecasting program delivers

important scientific evidence and advice

about air quality to citizens, organisations and government.

Credit: John Spencer/DPIE

The Climate Smart Pilot project is providing technology and information support to the Clyde River oyster growers improving their resilience to climate change — Credit: Matt Pierce

Primary Industries Climate Change Research Strategy

Primary producers in NSW are already experiencing the effects of a changing climate through altered rainfall patterns, increased temperatures, changing growing seasons and more extreme weather.

The Primary Industries Climate Change Research Strategy invests in projects and programs that support primary industries to adapt to climate change and reduce or sequester their carbon emissions.

The strategy involves 7 research and innovation projects across 3 categories that are seeking to identify opportunities and meet the challenges of climate change.

- **Energy:** 3 projects are providing clean energy solutions, including biomass alternatives, and tackle rising energy costs through efficiency and technology. These projects are using trials, outreach activities, feasibility studies, pilots, community of practice and PhD research to find innovation and solutions for primary industries
- **Carbon opportunities:** 2 projects are improving market access and understanding of abatement opportunities and market barriers within agriculture
- **Climate resilience:** 2 projects are testing technology and adaptation options and developing deep knowledge on the vulnerability of primary industries to climate change.

The 2020-21 year marked the half-way point for the strategy. The program has been extended by 12-months as the strategy experienced delays due to bushfire, drought and COVID-19.

Credit: NSW Department of Primary Industries

Key achievements

Launched new webpages detailing the strategy's work.

Energy:

- Implemented 6 of 7 pilot projects across the state, using novel technologies and systems to provide energy solutions, with investments of $1.05 million from the Strategy and $2.01 million from project proponents
- Delivered 3 Beyond Diesel webinars, attracting more than 700 views, exploring pathways to reduce diesel use on farm through alternate technologies and energy sources
- Moved into the monitoring phase of the Biomass for Bioenergy crop trials involving 50,000 trees being planted on 12 sites across NSW
- 2 peer-reviewed papers were published in international journals, as well as seven technical publications for Biomass for Bioenergy

Carbon Opportunities:

- Completed modelling estimating the economic supply of carbon from 4 major vegetation-based Emission Reduction Fund methods across regional NSW to inform the decision support tool currently under development
- Completed a comprehensive review of methods of assessing and reducing enteric methane from ruminant animals
- 9 papers and reports published by Carbon Opportunities

Climate Resilience:

- Installation of sensors and supporting network infrastructure on the remaining 2 pilot sites at Tullamore and Trangie
- Focus group meetings to confirm multi criteria analysis structure and design and impact assessments for 28 commodities and 14 biosecurity risks to understand climate change risks and impacts
- Entered the monitoring and maintenance phase for all 5 Climate Smart technology pilots.

Community Insights

In its final year, Community Insights delivered social research that helped to measure the impacts of CCF programs on the people of NSW.

The program collected data that helped inform strategic planning, priorities, policy and program development, and communications.

The Community Insights Pulse survey was rolled out in 2020-21 with the goal of better understanding how changes in the environment and human behaviour can affect life satisfaction, adaptability and resilience.

Key achievements

- Collected insights from more than 3,000 NSW residents in the Community Insights Pulse surveys
- Provided early and valuable input into the design of the Net Zero Plan's electric vehicle programs
- Provided social research expertise to support the evaluation of air quality communications
- Delivered six social research seminars to more than 300 staff to support newly acquired social research.

More than

3,000 NSW residents

offered their insights in the inaugural quarterly Community Insights Pulse surveys.

Koala Strategy — Koala Research Plan

The NSW Koala Research Plan is a ten-year plan designed to find and fill knowledge gaps about koalas, especially amidst a changing climate. The CCF contributes to the Research Plan over four years from 2018-19 to 2021-22.

This research will help inform how the NSW Government manages koalas, including through restoring habitat and conserving koala populations.

The NSW Koala Strategy and subsequent Research Plan was developed in response to a 2016 report by the NSW Chief Scientist & Engineer, which estimated a 26% decline over the past three koala generations, and the next three generations.[1] The NSW Koala Strategy is part of a long-term vision to increase koala population numbers across the state.

Key achievements

- Funded research programs to improve understanding of the impacts of climate change and extreme weather events on koalas. This research will help to identify areas koalas might survive in despite climate change, and improve management of koala populations, including on private land
- Delivered the 2021 NSW Koala Research Symposium which brought together scientists, policy makers and land managers who use the koala research data and featured presentations from all research groups funded under the Koala Research Plan. The Symposium enabled participants to provide input into the future priorities and direction of koala research in NSW
- Initiated research to assess the habitat suitability of sites to determine their potential as future koala translocations areas. This includes an assessment of habitat, presence of koalas, koala health and threats to their survival.

1. *NSW Chief Scientist and Engineer, Report of the Independent Review into the Decline of Koala Populations in Key Areas of NSW, 2016*

Safeguard Administration

The CCF helps the Independent Pricing and Regulatory Tribunal (IPART) to administer and regulate energy saving schemes under the NSW Energy Security Safeguard (the Safeguard). This includes the expanded Energy Savings and the new Peak Demand Reduction Scheme, intended to save energy at peak times.

Through Safeguard Administration, IPART is building capacity to support Safeguard regulation and administration. IPART will inform, prepare, and transition stakeholders to participate in the Safeguard, improving user experience and compliance wherever possible.

Beyond the Green Globe Awards

The Green Globe Awards were created 20 years ago to recognise and share the stories of inspiring environmental leaders in NSW.

A strategic review of the Green Globe Awards found people had a greater desire to be engaged and inspired by stories of NSW's sustainable leaders; stories that would help them embark on their own sustainability journey.

As a result, the Department is now looking at fresh, modern, and more accessible ways of sharing these inspiring stories with a broader audience.

Energy Management Services

Businesses around NSW were supported to reduce their energy use, emissions and save on energy bills through Energy Management Services.

The Medium and High Energy User Coaching provided businesses with tailored support to develop detailed energy saving action plans and improve their energy management skills.

Key achievements

- Delivered 266 tailored energy management support projects
- Energy intensive businesses completing High Energy User Coaching projects reported a potential 20% improvement in their energy management maturity.

Credit: John Spencer/DPIE

CCF administration, evaluation and budget

Credit: DPIE

Administration

The CCF is established under Part 6A of the *Energy and Utilities Administration Act 1987* (the Act). The Minister for Energy and Environment has statutory responsibility for the fund. DPIE Environment, Energy and Science (EES) Group administers the CCF and provides strategic oversight of programs. The CCF Administration Committee meets regularly to monitor the fund and its programs.

Evaluation

Section 34H(4) of the Act requires the Minister to report on the effectiveness of completed CCF programs. To guide the required program evaluation, DPIE has developed the CCF Evaluation Framework (the evaluation framework).

The evaluation framework explains how to meet NSW Treasury evaluation requirements and is informed by research undertaken by the CCF Research and Evaluation Initiative. The evaluation framework ensures that all programs are evaluated rigorously and consistently.

There are two types of evaluation under the evaluation framework: program evaluations and overarching thematic evaluations. Program evaluations include economic evaluations, outcome evaluations, impact evaluations or process evaluations. The overarching thematic evaluations assess the effectiveness of the CCF's performance and outcomes in delivering social, economic and environmental benefits to NSW.

The CCF's programs continue to progress their evaluation plans. To date, 17 process evaluations have been completed and are in the final stages of approval. As 2021-2022 marks the final year of the current funding cycle, programs completing implementation in 2022 are in the process of initiating their outcome evaluations with findings expected in early to mid-2022. These evaluations will provide important learnings to determine whether intended outcomes have been achieved, and to inform future program design.

Budget

In 2020-21, the CCF was resourced by contributions from electricity distributors. Electricity distributors are requested to recover no more than 25% of costs from household customers, with the remainder to come from commercial, business and industrial customers.

The total revenue of the CCF in the 2020-21 financial year was $276.5 million.

Revenue 2020-21

Source	Amount ($)
Ausgrid	133,474,553
Endeavour Energy	85,505,918
Essential Energy	56,757,833
Return of grant	151,997
Interest	487,887
Miscellaneous revenue	163,542
Total	**276,541,729**

In 2020-21 the CCF's total expenditure was $304.3 million.

The difference between revenue and expenditure is a result of different program implementation schedules in the 2020-21 financial year.

Expenditure 2020-21

Program	Actual ($M)
Energy efficiency programs	
Home Energy Action	7.8
Household and Small Business Upgrades	3.0
Energy Management Services	3.0
More efficient homes for low income tenants	1.0
Manufacturing Efficiency Funding	4.1
More efficient street lighting	1.4
New Energy Efficiency Standards for Appliances, Buildings and Infrastructure	0.8
Net Zero Programs	17.5
Subtotal	**38.6**

Program	Actual ($M)
Delivering reliable, clean and affordable energy	
Empowering Homes	1.3
Smart Batteries for Key Government Buildings	2.2
Emerging Energy	0.5
Regional Community Energy	1.3
Solar for Low Income Households	3.1
Electricity Strategy and Electricity Infrastructure Roadmap, including Renewable Energy Zones	4.9
Tallawarra B grant	1.0
Subtotal	**14.4**


Credit: Peter Robey/DPIE

Expenditure 2020-21 continued

Program	Actual ($M)
NSW's energy regulation responsibilities	
National energy regulation contribution	11.0
Demand response trial in partnership with the Australian Renewable Energy Agency (ARENA)	1.8
Subtotal	**12.8**

Program	Actual ($M)
Increasing resilience to a changing climate	
Tree planting projects to reduce carbon emissions	0.8
Five Million Trees for Greater Sydney	20.3
Biodiversity Conservation Trust Private Land Conservation	50.0
Enhanced Bushfire Management & Research Hub	15.0
Hawkesbury-Nepean Flood Risk Management Strategy	3.1
Helping communities become more resilient to climate change	6.0
Primary Industries Climate Change Research Strategy	2.2
Contribution to Cooler Classrooms	47.1
Koala Strategy – Koala Research Plan	0.7
Hunter Valley Flood Mitigation	5.2
Air Quality Monitoring and Forecasting	3.8
Coastal, Estuary and Floodplain Management	15.4
NSW Coastal and Flood Data Network	4.0
Sustainability programs	4.6
Protected Area Management	34.7
Bushfire Management	11.9
Subtotal	**224.8**

Program	Actual ($M)
Other	
CCF Administration	2.7
Program support services and short-term priorities	9.5
Waterfix	1.4
Subtotal	**13.6**
Grand Total	**304.3**

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Environment, Energy and Science
Department of Planning, Industry and Environment

Locked Bag 5022, Parramatta NSW 2124
Phone: +61 2 9995 5000 (switchboard)
Phone: 1300 361 967 (Environment, Energy and Science enquiries)
TTY users: phone 133 677, then ask for 1300 361 967
Speak and listen users: phone 1300 555 727, then ask for 1300 361 967
Email: info@environment.nsw.gov.au
Website: www.environment.nsw.gov.au

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