CESSNOCK
CITY COUNCIL

Planning for
our people,
our place,
our future

CESSNOCK

Climate Change Resilience Plan

2023

www.cessnock.nsw.gov.au

Acknowledgement of Country

Cessnock City Council acknowledges that within its local government area boundaries are the traditional lands of the Wonnarua people, the Awabakal people and the Darkinjung people.

We acknowledge these Aboriginal peoples as the traditional custodians of the land on which our offices and operations are located, and pay our respects to Elders past and present.

We also acknowledge all other Aboriginal and Torres Strait Islander people who now live within the Cessnock Local Government Area.

Climate Change 101

Carbon offsetting	Using processes to reduce greenhouse gases already in the atmosphere, such as vegetation planting and increasing soil carbon storage.
Climate change adaptation	Responses that seek to improve resilience of the human and natural environment to help withstand the impacts of climate change.
Climate change mitigation	Actively reducing the amount of greenhouse gas emission released to the atmosphere.
CO_{2-e}	Measure to compare emissions from greenhouse gases based on global warming potential. The measure converts the gas to the equivalent amount of carbon dioxide with the same global warming potential.
Net zero emissions	Achieving a balance between greenhouse gas emissions produced and greenhouse gases taken out of the atmosphere. Moving towards net zero means reducing greenhouse gas emissions as far as possible and balancing remaining emissions by offsetting.

Abbreviations

Abbreviation	Full name
CO_2	Carbon Dioxide
CO_{2-e}	Carbon Dioxide equivalent
IPCC	Intergovernmental Panel on Climate Change
IP&R	Integrated Planning and Reporting
LG Act	Local Government Act 1993
PV	Photovoltaic
SDG	Sustainable Development Goals
UN	United Nations

Contents

INTRODUCTION

1.1 Global climate change

Global surface temperatures have cycled naturally over time resulting in glacial or cooler periods and warmer periods. These natural cycles fluctuate in response to a number of factors and have developed over long timeframes. A key regulator of global temperatures are atmospheric greenhouse gases that prevent global surface heat from escaping into space.

However, since the start of the Industrial Age in the mid-18th century there have been growing concentrations of greenhouse gases in the atmosphere with emissions increasing significantly since 1960. Greenhouse gas monitoring at Kennaook/Cape Grim in Tasmania, a premier World Meteorological Organisation monitoring site, shows carbon dioxide (CO_2) has increased in the atmosphere by 26% since 1976 (**Figure 1**) (CSIRO 2022).

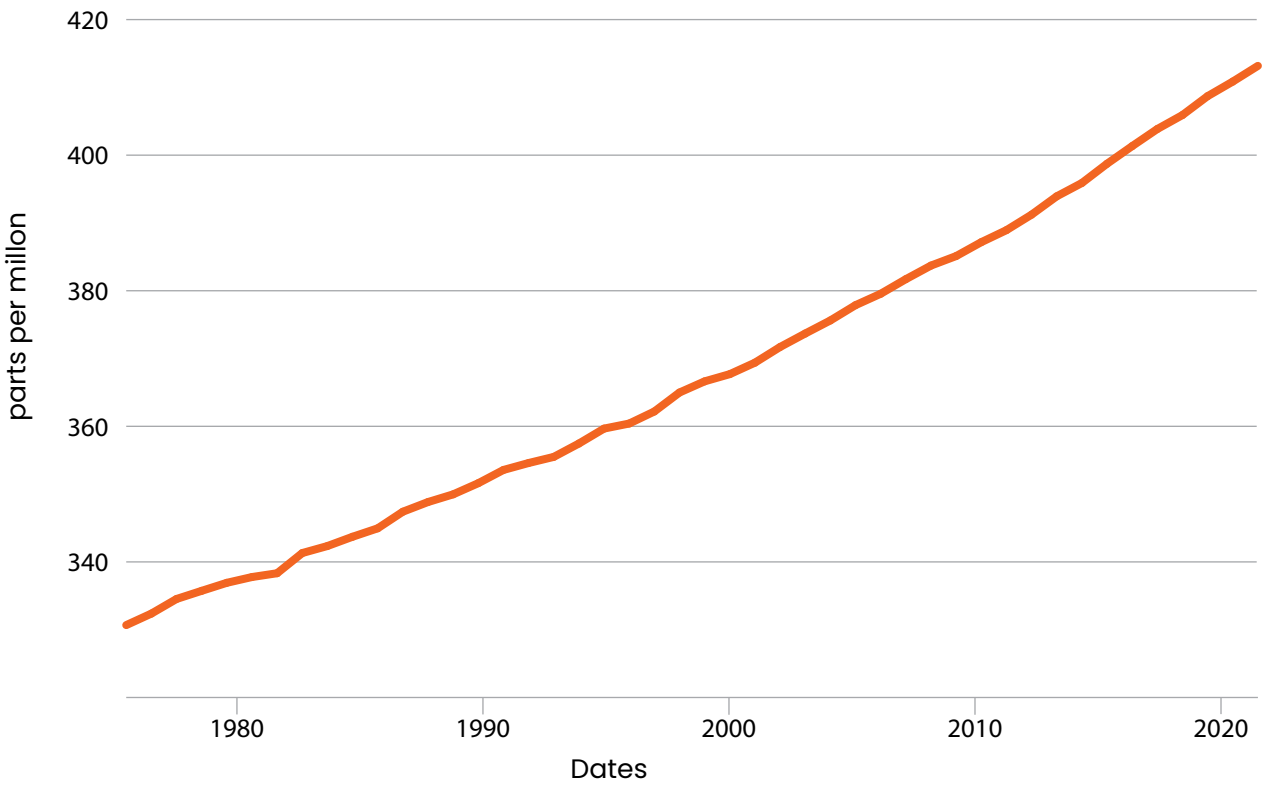


Figure 1 **Atmospheric carbon dioxide measurements at Kennaook/Cape Grim monitoring station, Tasmania 1976-2022**

The increasing levels of greenhouse gases in the atmosphere have resulted in significant alterations to global environmental systems and changes in the world's climate. The United Nations Intergovernmental Panel on Climate Change (IPCC) assesses the latest research on climate change and its effects around the world. The IPCC sixth report (AR6) was released in 2022 with key findings including:

- Human activity, through increased greenhouse gas emissions, is the dominant cause of global climate change since 1950 with extensive research supporting this finding.
- Global surface temperatures have increased between 0.8^{oc} to 1.3^{oc} from 1850-2019.
- Rainfall over land has increased since 1950 with a faster rate of increase since 1980. The frequency and intensity of heavy rainfall events has increased in all land regions across the world since 1950.
- Global sea level has increased by 0.2m between 1901 and 2018.
- Warming of the global upper ocean environment has occurred since 1970.
- Acceleration of glacier retreat and Artic sea ice reduction has occurred since 1970.
- Global surface temperatures will continue to increase until the mid-21st century due to current levels of greenhouse gases in the atmosphere.
- To limit global warming to between 1.5^{oc} and 2^{oc} deep reductions in CO_2 and other greenhouse gases needs to occur in the coming decades (IPCC 2022).

Changes to the Earth's climate driven by increased human emissions of greenhouse gases is a global problem, but impacts vary across the world. Australia's climate has warmed on average by 1.44^{oc} since 1910 within an increase in the frequency of extreme heat events. Rainfall patterns across the country have altered with south-east Australia experiencing a 12% decline during winter/early spring since 1970 and a higher frequency of extreme rainfall events. Extreme fire weather events have increased across the country with the length of the fire season significantly extended, particularly in southern Australia (CSIRO 2020).

1.2 Climate change in Cessnock

Since the 1970's the Hunter Region has experienced a changing climate. The average annual maximum temperature within the Hunter Region has increased by 1.2^{oc} between 1970 and 2007. Temperatures during spring have significantly increased during this period and an overall increasing trend of 0.9^{oc} in annual average temperature has been recorded (HCCREMS 2010).

Climate change modelling by the NSW State Government using the NSW and ACT Regional Climate Modelling (NARCLiM) system resulted in the following climate change projections for the Hunter Region:

- Maximum annual temperature is predicted to increase by 0.7^{oc} by 2030 and 2^{oc} by 2070 compared to the baseline average (1990-2009).
- Minimum annual temperature is predicted to increase by 0.7^{oc} by 2030 and 2.1^{oc} by 2070 compared to the baseline average (1990-2009).
- Hot days (>35^{oc}) are predicted to increase by an extra 5 days/year by 2030 and 14 extra days/year by 2070
- Autumn rainfall is predicted to increase into the future
- Average fire weather conditions are projected to increase in summer, spring and winter by 2030 with severe fire conditions predicted to increase in summer and spring by 2070 (Adapt NSW 2014).

1.3 Climate change resilience

Resilience is a guiding principle for the community within the Cessnock Local Government Area (LGA). The community identified resilience as the ability to support each other to survive, adapt and thrive in the face of extreme challenges (CCC 2022). Climate change represents one of the greatest challenges of the 21st century and the effects will continue to surface into the future impacting both urban and natural environments. The ability to build resilience capacity in response to climate change is crucial for on-going sustainable community outcomes.

Actions to build resilience can be multi-faceted and include both reducing greenhouse gas emissions (mitigation) to limit on-going climate change and being prepared to change or evolve existing management processes in response to climate change (adaptation).

Mitigation and adaptation actions often interact and provide co-benefits in strengthening resilience to climate change. This Climate Change Resilience Plan provides an integrated approach to prepare the community for the impacts of climate change and assist in the local area and region's vision for a sustainable future.

PROJECTED CLIMATE CHANGE IMPACTS

hot days (>35°C)

5 extra days/ year by **2030**

14 extra days/ year by **2070**

Fire weather conditions **increasing** in **summer**, **spring** and **winter** by **2030**

Increasing **severe fire conditions** in **summer** and **spring** by **2070**

Annual temperatures:

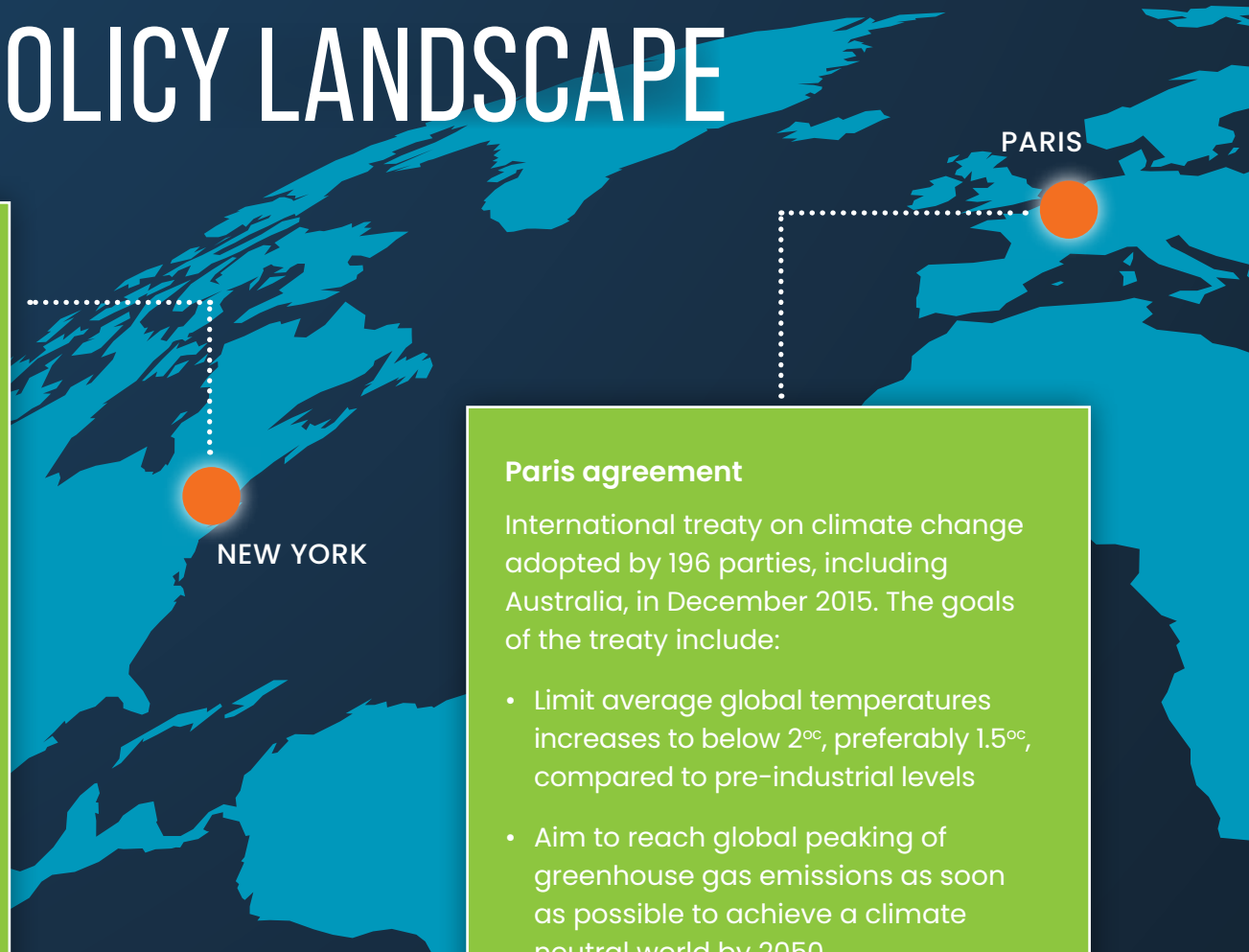
0.7°C by **2030**

2–2.1°C by **2070**

Autumn rainfall is predicted to **increase** into the future

CLIMATE CHANGE
POLICY LANDSCAPE

CLIMATE CHANGE POLICY LANDSCAPE



SUSTAINABLE DEVELOPMENT GOALS

The United Nation's Sustainable Development Goals (SDGs) provide a framework for inclusive development undertaken in an environmentally, socially and economically responsible manner. Climate change resilience contributes to a number of SDGs including:

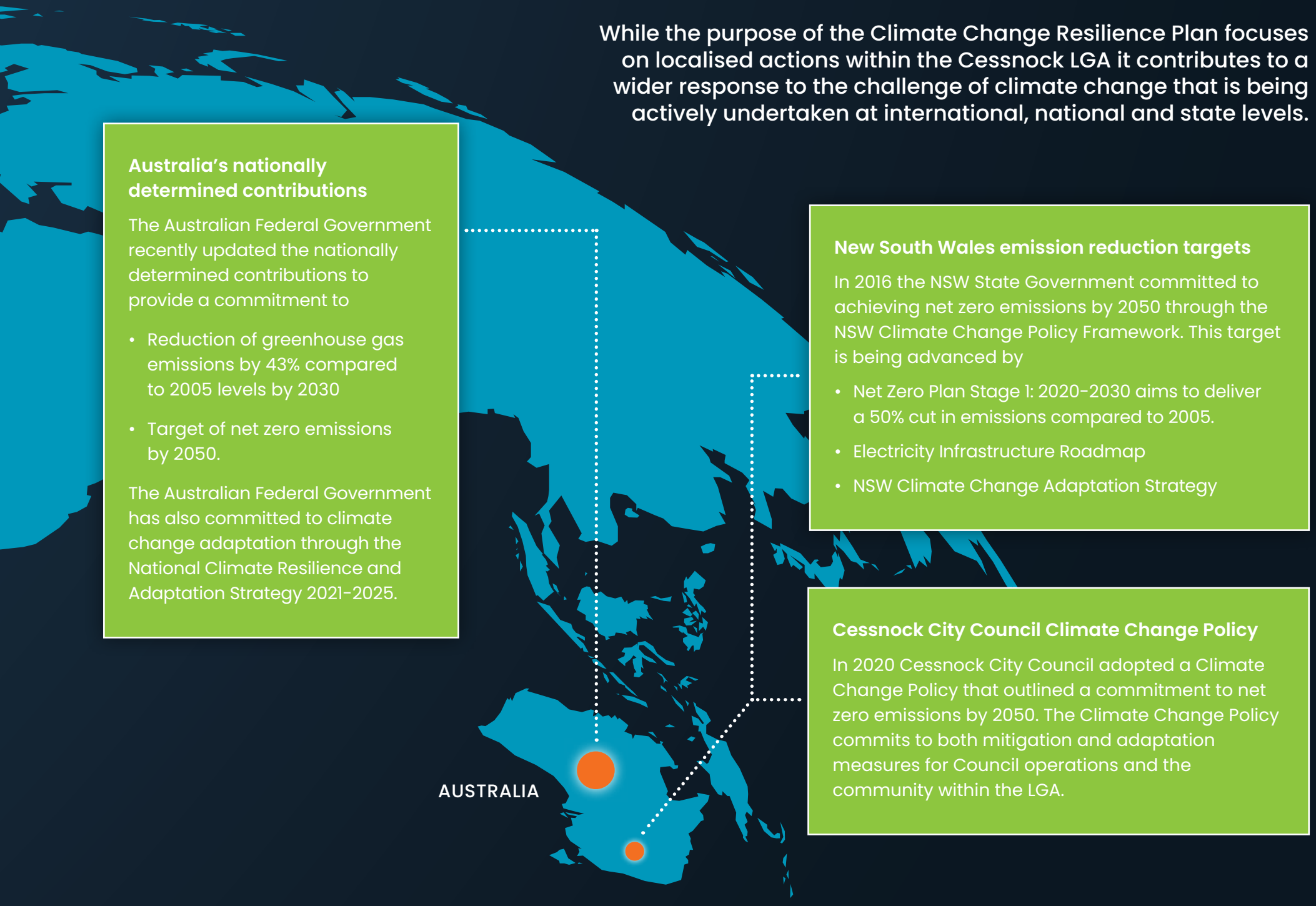
- Good health and well-being
- Clean water and sanitation
- Affordable and clean energy
- Industry, innovation and infrastructure
- Sustainable cities and communities
- Responsible consumption and production
- Climate action
- Life below water
- Life on land
- Partnerships for the goals

Paris agreement

International treaty on climate change adopted by 196 parties, including Australia, in December 2015. The goals of the treaty include:

- Limit average global temperatures increases to below 2^{oc}, preferably 1.5^{oc}, compared to pre-industrial levels
- Aim to reach global peaking of greenhouse gas emissions as soon as possible to achieve a climate neutral world by 2050.
- Parties agree to nationally determined contributions they intend to achieve to reduce greenhouse gas emissions including reduction targets. Nationally determined contributions include both mitigation and adaptation measures.

While the purpose of the Climate Change Resilience Plan focuses on localised actions within the Cessnock LGA it contributes to a wider response to the challenge of climate change that is being actively undertaken at international, national and state levels.



Australia's nationally determined contributions

The Australian Federal Government recently updated the nationally determined contributions to provide a commitment to

- Reduction of greenhouse gas emissions by 43% compared to 2005 levels by 2030
- Target of net zero emissions by 2050.

The Australian Federal Government has also committed to climate change adaptation through the National Climate Resilience and Adaptation Strategy 2021-2025.

New South Wales emission reduction targets

In 2016 the NSW State Government committed to achieving net zero emissions by 2050 through the NSW Climate Change Policy Framework. This target is being advanced by

- Net Zero Plan Stage 1: 2020-2030 aims to deliver a 50% cut in emissions compared to 2005.
- Electricity Infrastructure Roadmap
- NSW Climate Change Adaptation Strategy

Cessnock City Council Climate Change Policy

In 2020 Cessnock City Council adopted a Climate Change Policy that outlined a commitment to net zero emissions by 2050. The Climate Change Policy commits to both mitigation and adaptation measures for Council operations and the community within the LGA.

CESSNOCK CITY COUNCIL CLIMATE CHANGE *RESPONSE*

The issue of climate change was first raised in 1972 at the UN Scientific Conference in Stockholm Sweden. However, an international agreement on climate change was not reached until the UN Conference on Environment and Development (Earth Summit) in Rio de Janiero, Brazil in 1992. The Earth Summit resulted in the signing of the UN Framework Convention on Climate Change and subsequent protocol to limit greenhouse gas emissions (Kyoto Protocol) in 1997 (UN Chronicle 2007) and the current Paris Agreement in 2015 (See Section 2).

While climate change policy debate in Australia has continued at Federal and State levels for thirty years Council commenced its climate change response in 2009 by assessing opportunities for mitigation of carbon emissions from Council operations. Through greenhouse gas emission reduction planning and policy development (**Figure 3.1)** Council has reduced its operational greenhouse gas emissions by 12% (Ironbark Sustainability 2021). **Figure 3.2** outlines some of the initiatives and projects undertaken by Council that have contributed to emissions reduction and progressed resilience to climate change.

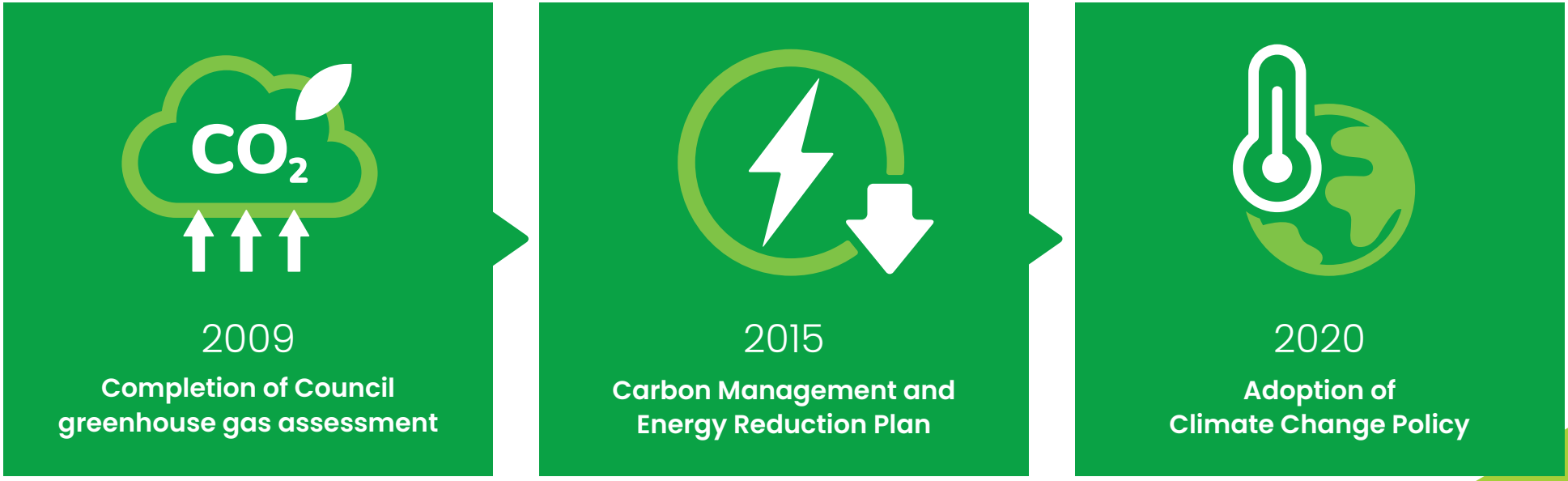


Figure 3.1 **Council climate change planning**

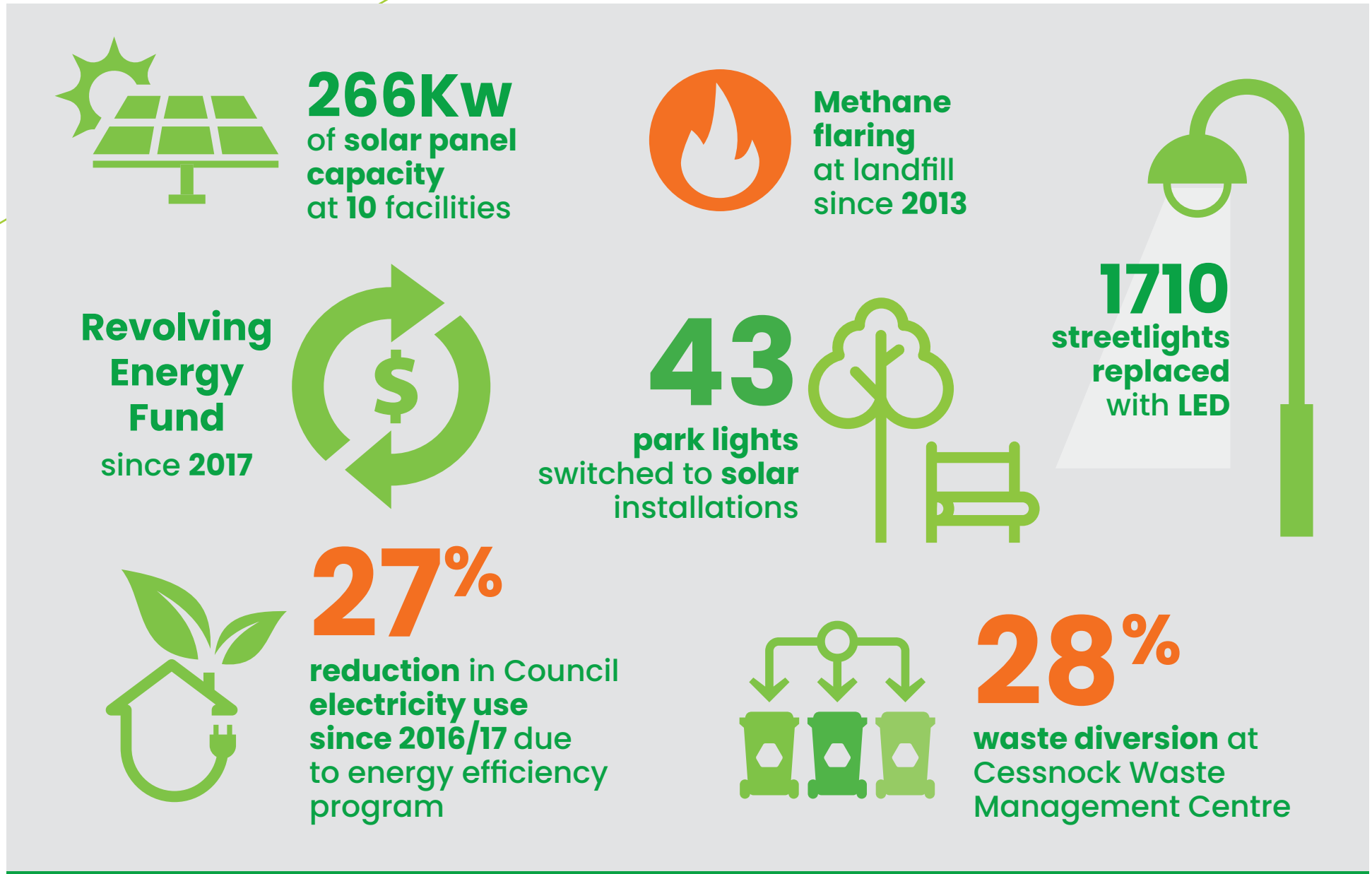


Figure 3.2 **Council climate change projects and achievements**

CLIMATE CHANGE ***ACTION***

4.1 Council strategic context

Local Councils in NSW are governed through the provisions of the *Local Government Act* (LG Act) *1993* with the principle of ecologically sustainable development, including consideration of the long-term and cumulative effects of actions on future generations, guiding Council operations and decision-making. Council is required to undertake strategic planning and reporting through the Integrated Planning and Reporting framework (IP&R) (**Figure 4.1**).

The Climate Change Resilience Plan forms a supporting plan to Council's objective of a sustainable and healthy environment as outlined in the Cessnock Community Strategic Plan 2036. The strategic context of the Climate Change Resilience Plan within Council's planning hierarchy is outlined in **Figure 4.2**.

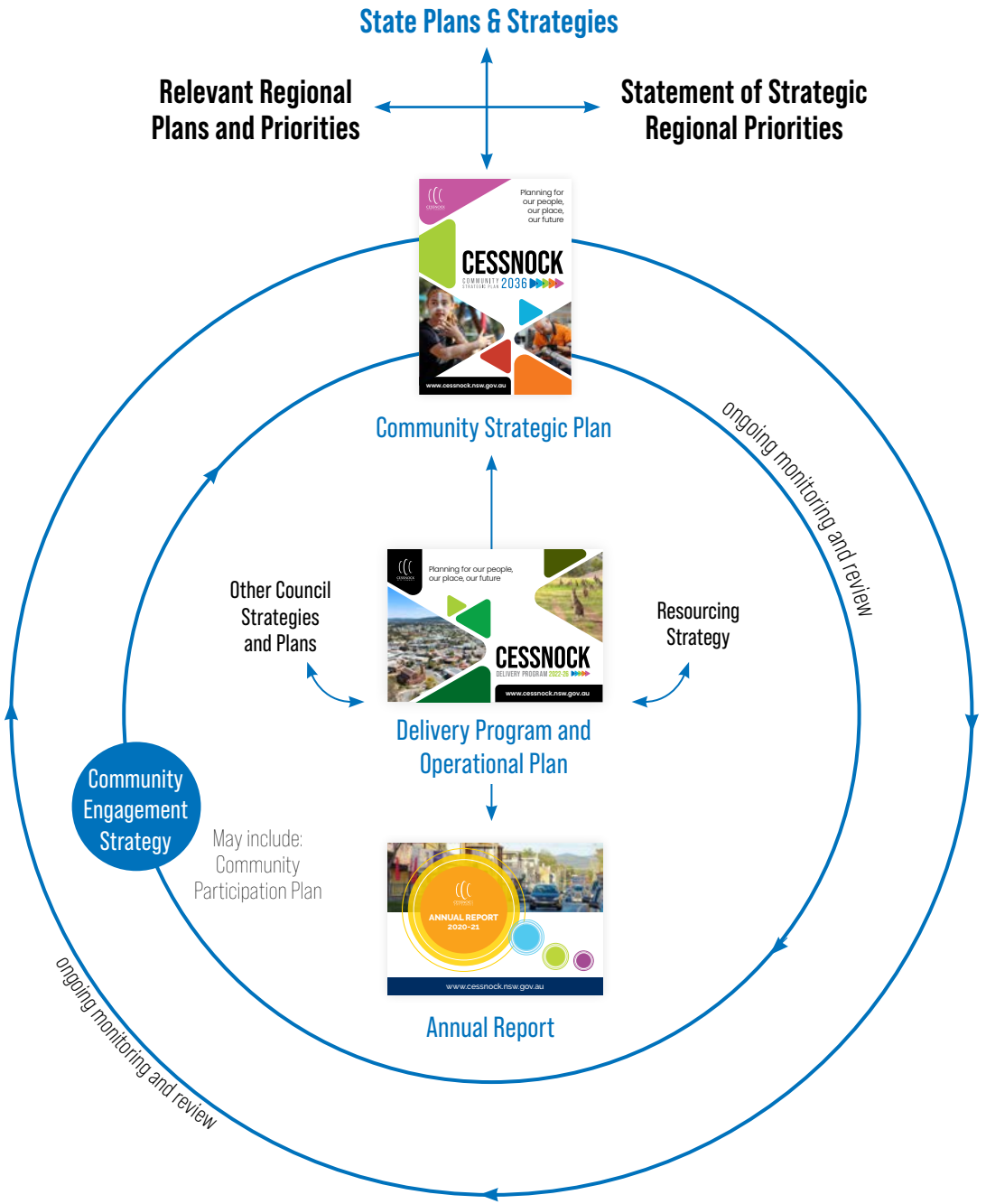


Figure 4.1 **Integrated Planning and Reporting framework under Chapter 13 of the Local Government Act 1993.**

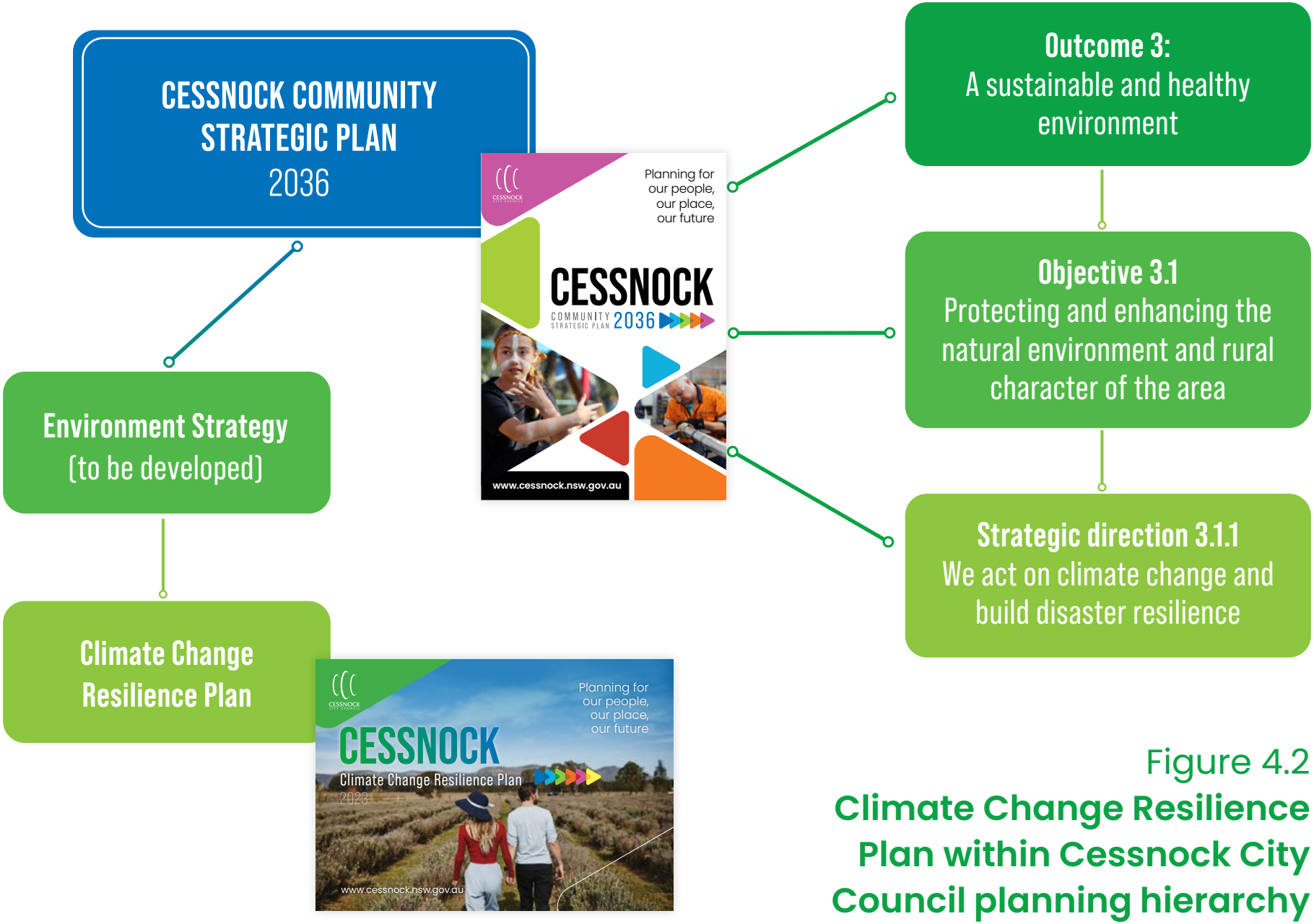
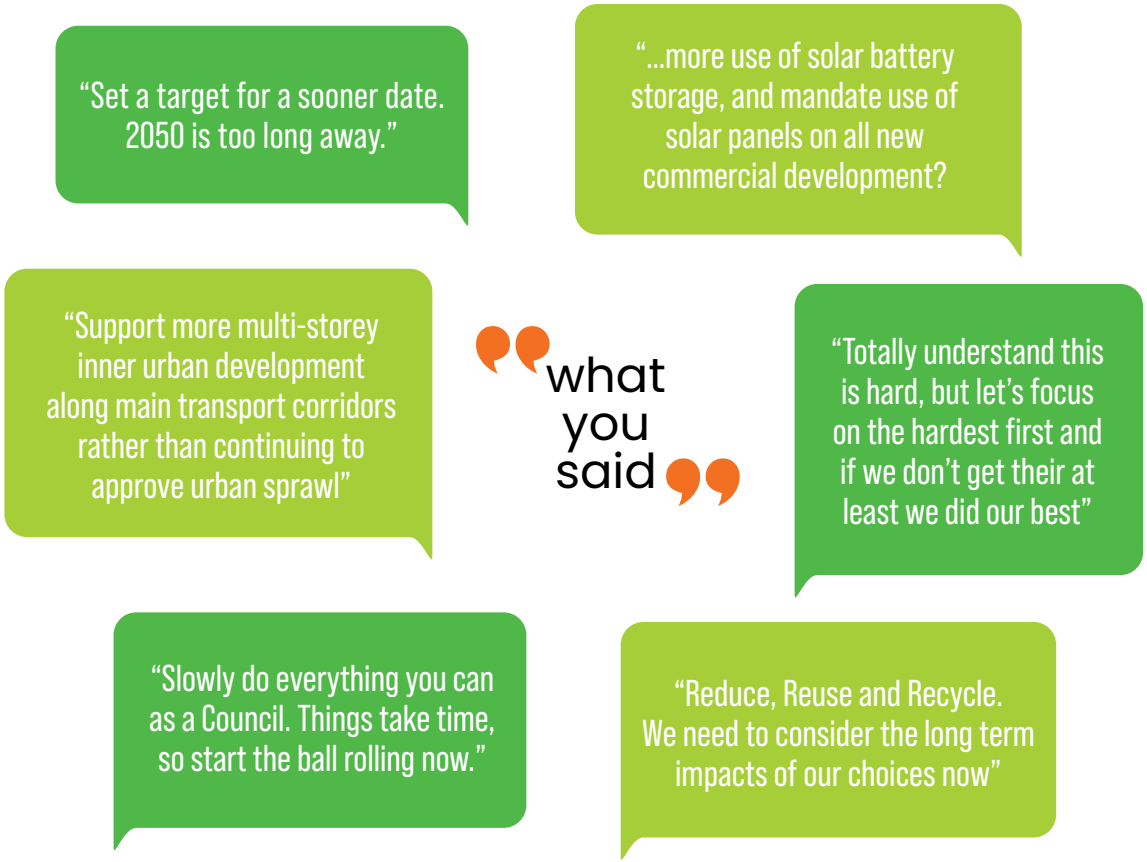


Figure 4.2
Climate Change Resilience Plan within Cessnock City Council planning hierarchy

4.2 Community climate action feedback

In developing the climate change resilience actions outlined in **Sections 5 and 6** Council conducted community consultation including an on-line community survey (84 respondents) and engagement workshops (11 attendees). Community feedback included:



4.3 Council's climate change role

All levels of government as well as private sector businesses and the community have various roles in building climate change resilience. Council recognises local government plays an important part in developing climate change resilience capacity for the local area and region, but many aspects of climate change anagement are outside the statutory responsibility or influence of local government.

The highest level of influence Council has is directly implementing actions to reduce the environmental impacts of our operations. While Council cannot directly implement the uptake of environmental behaviors within the community we are committed to assisting and facilitating community greenhouse emissions reduction and sustainable actions. This commitment extends to providing factual educational material and supporting advice to our community and business sector to assist enhancement of climate change resilience. As a Council we also provide representation to the voices of our community and will advocate for the needs of our community at State and National levels to effect sustainable environmental change.

Climate change resilience actions are outlined in **Sections 5 and 6**. Council's role in implementation of actions include:

PROVIDER Provide direct services including infrastructure, facilities and programs to meet the needs of the community.

COLLABORATOR Forming partnerships and strategic alliances with other partners to achieve best possible outcomes for the community.

ADVOCATE Promoting the interests of the community to other decision makers and influencers.

LEADER Identify key community issues and respond where appropriate through policy and practice.

CAPACITY BUILDER Work with groups and agencies to bring interested parties together and obtain necessary resources for community outcomes.

EDUCATOR Building awareness and sharing reliable knowledge

4.4 Timeframe

Council's Climate Change Policy states a commitment to net zero greenhouse gas emissions by 2050. The Climate Change Resilience Plan contributes to this long-term target but actions identified in **Sections 5 and 6** are to be implemented within the next four (4) years. Therefore, actions within **Sections 5 and 6** have been assigned the following timeframes for implementation:

Short	**Delivery within 1-2 years**
Medium	**Delivery within 2-4 years**
On-going	**Continued implementation throughout the 4 year timeframe of the plan**

CLIMATE ***RESILIENT*** COUNCIL

5.1 Operational emissions and areas for action

While Council has achieved a significant reduction in operational greenhouse gas emissions (See Section 3) we are committed to expanding our response to the climate change challenge and accelerating our journey towards net zero emissions.

Council operational activities generated 29.8 kilotonnes of greenhouse gas emissions (CO_{2-e}) in 2019 (Ironbark Sustainability 2021). **Table 5.1** shows the contribution of each sector of Council's operations to overall greenhouse gas emissions.

Landfilling of waste materials, electricity usage by Council facilities and transport fuel combustion contribute over 91% of Council's greenhouse gas emissions. Council is actively implementing processes and technology to reduce emissions and these mitigation measures are an important component of strengthening Council's climate change resilience. However, Council adaptation and investment in monitoring and reporting capabilities will play an integral role in building both Council operational and community resilience outcomes. This reporting capacity and evolving technological landscape is particularly relevant for waste sector emission reduction to meet Council's commitment of net zero emissions by 2050.

Sector	Greenhouse Gas emissions (tCO_{2-e})	Percentage of emissions (%)
Landfill	22,638.00	76.00
Electricity (buildings)	2402.15	8.06
Transport fuel	2144.83	7.20
Street lighting	1966.45	6.60
Other goods and services	444.02	1.49
Water	125.24	0.42
Business travel	24.48	0.08
Stationary fuel	22.01	0.07
Fugitive gases	9.88	0.03
Natural gas	9.11	0.03
Total	**29,786.17**	**100.00**

Table 5.1 Greenhouse gas emissions from Council operations in 2019

Council actions in Section 5.2 have been organised into six (6) operational themes:

1. **WASTE** Council is responsible for collecting and managing waste produced by households and operates the waste management facility. Waste management is undertaken by Council through the Waste and Resource Recovery Strategy 2020-25. The Climate Change Resilience Plan will work in conjunction with the Waste and Resource Recovery Strategy to assist in mitigating greenhouse gas emissions.

2. **ELECTRICITY** Council is responsible for and has direct control over the amount and source of energy used within its facilities and buildings.

3. **INFRASTRUCTURE AND FACILITIES** Council owns and operates buildings and facilities, including parks and sportsgrounds, and are responsible for the maintenance and construction of these community assets.

4. **FLEET AND PLANT** Council is responsible for and has direct control over size, type of plant and vehicles as well as fuel source used.

5. **CORPORATE PLANNING AND PROCUREMENT** Council is responsible for its own governance and purchase of goods and services, including accounting for the principle of ecologically sustainable development and operation in accordance with the LG Act 1993.

6. **DEVELOPMENT PLANNING** Council has a regulatory role through the Environmental Planning and Assessment Act 1979 to ensure ecologically sustainable development is promoted and implemented through the Local Environment Plan and Development Control Plans. This role intersects with Council's Local Strategic Planning Statement.

5.2 **Council climate change actions**

Table 5.2 **Climate change resilience management actions for Council operations**

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
WASTE								
W1	Develop a Sustainable Events guideline for event managers, including Council, and stallholders to improve sustainability of events including waste minimisation. Guideline would form part of conditions for Local Government Act and Development Application approvals.	• Leader	• Waste and Environment • Strategic Planning		• Staff time			Medium
W2	Implementation of food organics and garden organics (FOGO) waste collection program across the LGA. The FOGO waste collection program will be accompanied by extensive educational program to divert organic waste from landfill.	• Provider • Educator • Leader	• Waste and Environment • Business Support	• NSW EPA	• Capital funds • Domestic waste charge • Staff time	• $700,000 p.a		Medium
W3	Undertake a review of resource/material use across Council operations to identify opportunities for increased uptake of recyclable/alternative materials in line with current and emerging technologies.	• Collaborator	• Infrastructure • Open Space and Community Facilities		• Staff time			Medium

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
W4	Advocate for State and Federal Government leadership and financing for development of alternative waste treatment processes and facilities.	• Advocate	• Waste and Environment		• Staff time			On-going
W5	Investigate carbon offsetting opportunities to balance emissions from Council's waste facility.	• Leader • Collaborator	• Waste and Environment	• Industry	• Staff time			Medium
W6	Construct and extend the methane capture system at Council's existing waste facility. Investigate the potential for the methane capture system to facilitate waste to energy generation and use.	• Provider	• Waste and Environment		• Capital funds • Domestic waste charge • Operational funds (on-going)	• Domestic waste charge		Short-medium
W7	Investigate alternative and innovative treatments/measures to stabilise waste materials prior to placement in landfill.	• Leader • Collaborator	• Waste and Environment	• NSW EPA • Industry	• Staff time			On-going
W8	Ensure partnerships are established and secured/ continued to progress the circular economy within the Hunter Region.	• Leader • Collaborator	• Waste and Environment • Strategic Planning	• Hunter Joint Organisation of Councils • Industry	• Staff time			On-going
W9	Advocate to the Australian Federal and NSW State Governments for changes in packaging/product standards to facilitate more sustainable or recyclable packaging materials and extension of product stewardship schemes	• Advocate	• Waste and Environment	• Hunter Joint Organisation of Councils	• Staff time			Short On-going

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
FLEET AND PLANT								
FP1	Review Council fleet policy to support and incentivise uptake of hybrid and plug-in hybrid vehicles and promote higher efficiency standards where dual-fuel alternatives are not available.	• Leader	• Works and Operations • Waste and Environment • Finance and Administration		• Staff time		Commenced	Short
FP2	Develop and implement business case for electric vehicle trial within passenger pool fleet and installation of EV charging infrastructure for large scale fleet transition by 2030.	• Leader	• Works and Operations • Waste and Environment • Finance and Administration		• Staff time • Capital funds	$40,000		Short
FP3	Undertake a Council fleet transition plan including: • Timing and proportion of fleet targets for transition to zero emission or electric vehicles • Incentives for uptake of staff electric vehicles • Options for passenger, light and heavy vehicle transition	• Leader	• Works and Operations • Waste and Environment		• Staff time • Operational funds	$20,000		Medium
FP4	Establish electric vehicle charging points at Council Administration building and depot to facilitate uptake of electric vehicles.	• Leader • Provider	• Infrastructure • Waste and Environment		• Capital funds	$150,000		Medium
FP5	Investigate the transition of Council operational plant and equipment to electric and battery powered options or other low/zero emission alternatives such as hydrogen fuel cells	• Leader	• Works and Operations • Waste and Environment	• Industry	• Staff time			Medium

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
INFRASTRUCTURE AND FACILITIES								
IF1	Undertake innovative trials to assess sustainable options for road and maintenance activities including: • Recycling of old road pavement in-situ • Exploring materials requiring minimisation of excavation • Recycling of excavated materials • Working with suppliers to increase appropriate use of recycled materials	• Leader • Collaborator	• Infrastructure • Works and Operations	• Industry	• Operational funds • Staff time	To be determined		On-going
IF2	Support Council facility managers to understand and implement sustainability practices, such as reduced energy, water use and waste.	• Collaborator • Educator	• Waste and Environment • Infrastructure	• Community facility managers	• Staff time		Commenced	On-going
IF3	New and replacement sporting field lighting installations will utilise LED fittings or similar low-energy fittings.	• Provider	• Open Space and Community Facilities		• Capital funds • Operational funds	$400,000		On-going
IF4	Progressively transition Council facilities from gas energy supply as opportunities arise.	• Provider	• Infrastructure • Waste and Environment		• Operational funds			On-going

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
IF5	Develop a sustainable buildings/infrastructure guideline for Council facilities including new facilities and upgrade projects.	• Leader • Provider	• Infrastructure • Open Space and Community Facilities • Waste and Environment		• Staff time • Operational funds	$20,000		Medium
IF6	Continue implementation of the LED bulk replacement program for streetlights	• Provider • Collaborator	• Waste and Environment	• Ausgrid	• Operational funds • Staff time	$2,000,000	Commenced	On-going
IF7	Update flood studies in accordance with latest version of Australia Rainfall and Runoff assuming a warmer (0.5-1.5oc increase) baseline scenario	• Leader • Provider	• Infrastructure • Development Services	• NSW State Government	• Operational funding • Grant funding • Staff time	$50,000		On-going
IF8	Identify opportunities in open space areas to incorporate latest research and best practice to ensure urban landscapes can adapt to future climate. New open space projects will be designed to incorporate best practice and latest research in adaptive design.	• Leader • Provider	• Open Space and Community Facilities • Infrastructure		• Operational funds • Capital funding • Staff time	To be determined		On-going
IF9	Review and update Council Asset Management Plans to incorporate current best practice climate adaptation actions including sustainable procurement measures.	• Provider	• Infrastructure • Open Space and Community Facilities		• Staff time			Short-medium

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
ELECTRICITY								
E1	Establish a Council energy and emissions data system. The data system will assist in decision-making and help track progress towards Council's target of net zero emissions.	• Leader • Provider	• Waste and Environment • Strategic Planning		• Operational funding • Staff time	$25,000	Commenced	Medium
E2	Continue to install behind the meter solar PV where feasible.	• Provider	• Waste and Environment • Infrastructure		• Operational funding • Revolving energy fund	$100,000	Commenced	On-going
E3	Undertake continuing energy audits across Council facilities to provide options for further emission reduction investment.	• Educator	• Waste and Environment		• Operational funding	$40,000	Commenced	On-going
E4	Establish an innovative public reporting platform for Council's Greenhouse gas emissions, energy use and supply (renewable and grid).	• Provider • Leader • Educator	• Waste and Environment • Strategic Planning • Business Support	• Ausgrid	• Operational funding • Staff time	$50,000		Medium
E5	Continue membership of the Cities Power Partnership.	• Collaborator • Capacity Builder	• Waste and Environment • Strategic Planning		• Staff time		Commenced	On-going

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
E6	Continue participation in the State Government's Cities and Communities Program including mentoring to upskill Council's workforce.	• Collaborator • Capacity Builder	• Waste and Environment	• NSW State Government	• Staff time		Commenced	On-going
E7	Secure and implement a renewable Power Purchase Agreement for Council operations.	• Collaborator • Provider	• Waste and Environment		• Staff time • Operational funding	To be determined	Commenced	Medium
E8	Investigate potential options for establishment of renewable energy generation facility(s) on Council owned or managed land.	• Leader	• Waste and Environment • Strategic Planning • Infrastructure	• Industry	• Staff time • Operational funding	$25,000		Medium

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CORPORATE PLANNING AND PROCUREMENT								
CPP1	Update the Local Emergency Management Plan to incorporate potential climate change impacts and prepare community for effects of climate change.	• Collaborator • Capacity Builder	• Infrastructure	• Local Emergency Management Committee	• Staff time			Short
CPP2	Prepare a waste emergency management subplan to assess risk to waste management infrastructure and outline operational capabilities during anticipated increased frequency of emergency events. Ensure the subplan is formally recognised in the emergency management framework.	• Capacity builder • Provider	• Infrastructure • Waste and Environment		• Staff time			Short
CPP3	Review emergency management plans to ensure they adequately respond to new climate change data as it becomes available.	Leader	• Infrastructure	• Local Emergency Management Committee	• Staff time			Medium
CPP4	Investigate the use of additional early warning networks to increase community preparedness for natural disasters and impacts of climate change.	Leader Capacity Builder	• Infrastructure		• Staff time • Operational funds	$40,000		Medium

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CPP5	Review the Hunter and Central Coast Enabling Regional Adaptation Report for application to Council internal processes and asset management	Provider Capacity Builder	• Strategic Planning • Infrastructure		• Staff time			Medium
CPP6	Establish a Council climate change steering committee with representation across all departments of Council to assist in implementation of climate change actions.	Collaborator Capacity Builder			• Staff time			Short
CPP7	Initiate organisational review of Council policies, processes and operational practices to ensure alignment with net zero emissions target.	Leader Provider	• Finance and Administration • Strategic Planning • Infrastructure		• Staff time • Operational funding			Short
CPP8	Review the Cessnock Climate Change Risk Assessment and Adaptation Plan including • Predicted cost of climate change to Council service delivery and public infrastructure assets • Risk and resilience pathway planning • Risk reduction and mitigation options	Provider	• Strategic Planning • Infrastructure • Waste and Environment		• Operational funds • Staff time	$50,000		Medium

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CPP9	Establish climate change planning objectives/ assessment into Council's project management framework and implement in project planning and delivery.	• Leader • Provider	• Finance and Administration • Infrastructure • Waste and Environment		• Staff time			Medium
CP10	Strengthen the environmental and sustainability considerations, including emission and waste reduction, in Council's Procurement Policy and application in procurement documentation.	• Leader • Provider	• Finance and Administration		• Staff time			Short
CP11	Continue to fund emissions reduction activities via the Revolving Energy Fund	• Leader	• Waste and Environment		• Operational funds • Staff time	To be determined based on cost savings	Commenced	Short
CP12	Increase seed funding to the Revolving Energy Fund to facilitate further innovative actions and projects while existing mitigation projects pay back initial capital investment.	• Leader	• Waste and Environment		• Operational funds • Staff time	To be determined		Short

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
DEVELOPMENT PLANNING								
DP1	Undertake a review of Council's Development Control Plan (DCP) to promote the uptake of green infrastructure such as green roofs and walls.	• Leader	• Strategic Planning		• Staff time			Medium
DP2	Review the requirements of Council's DCP to promote resilient development through innovative building, infrastructure and landscape design to facilitate adaptation to a changing climate.	• Leader	• Strategic Planning • Development Services		• Staff time			Medium
DP3	Investigate the potential for inclusion of provisions within the Council's DCP for installation of community batteries within new subdivisions and major developments.	• Leader	• Strategic Planning	• Ausgrid	• Staff time			Medium
DP4	Investigate inclusion of an ecologically sustainable development chapter to the existing Development Control Plan (DCP) including objectives relating to greenhouse gas emissions, waste minimisation and water efficiency above the current NSW Building Sustainability Index (BASIX) and National Construction Code requirements.	• Leader • Educator	• Strategic Planning • Development Services		• Staff time			Medium

Action number	Management Action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
DP5	Investigate changes to planning instruments such as the Local Environment Plan to encourage increased dwelling density in appropriate parts of the LGA.	• Leader • Collaborator	• Strategic Planning • Development Services		• Staff time			Medium
DP6	Investigate changes to the Development Control Plan (DCP) to facilitate uptake of electric vehicles in residential areas, such as requiring charging points in new development.	• Leader	• Strategic Planning • Development Services		• Staff time			Medium

CLIMATE ***RESILIENT*** CESSNOCK

6.1 Community emissions profile

In 2019 the calculated greenhouse gas emissions from Cessnock LGA were 632 000 t CO_{2e}. (**Figure 6.1**) (Ironbark Sustainability 2021a). In terms of cumulative LGA emissions Council operational activities account for 4.7% of total emissions (**See Section 5.1**).

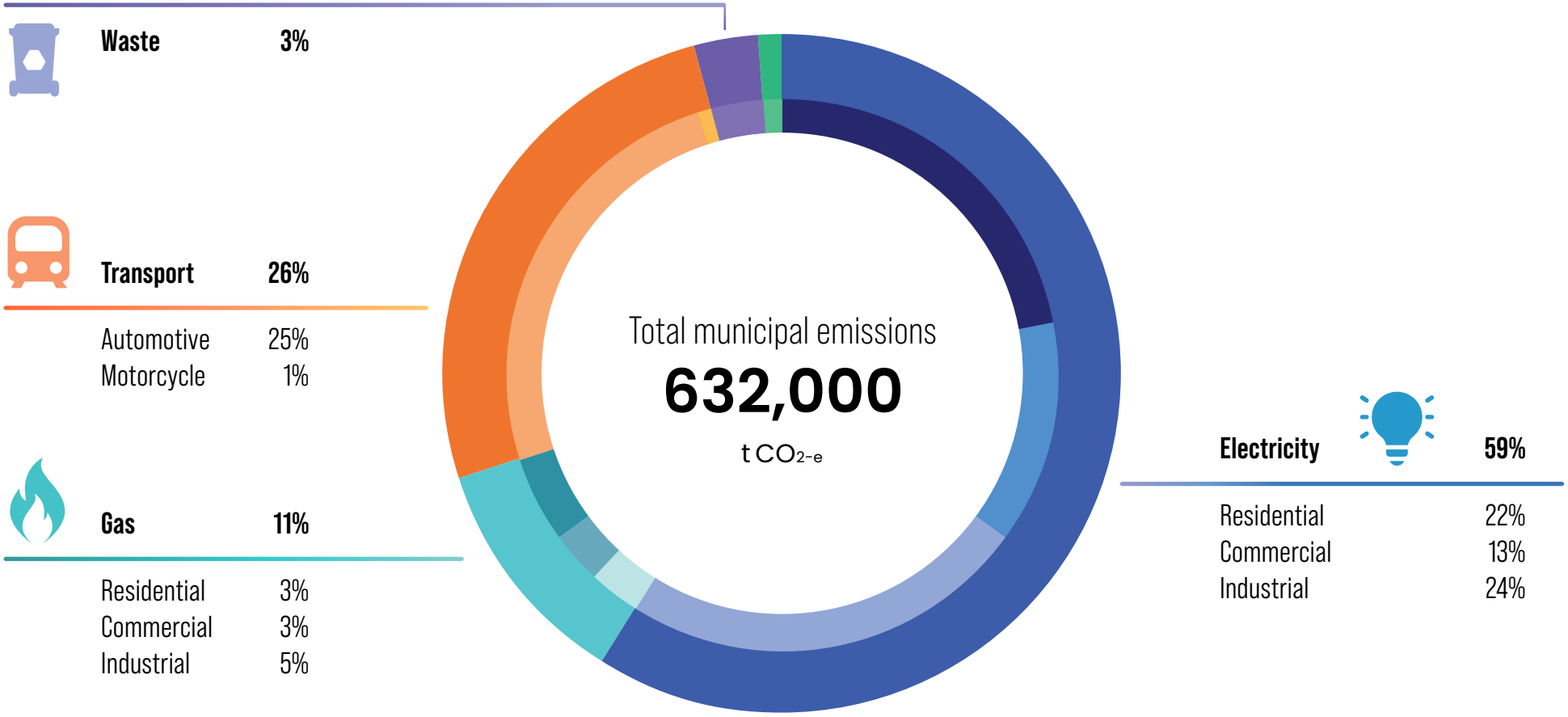


Figure 6.1 Greenhouse gas emissions profile for Cessnock Local Government Area (2019).

Almost 60% of total greenhouse gas emissions within the LGA are from electricity use or production. Electricity use within the LGA can be further divided into sectors with industrial operations accounting for 24% of overall greenhouse gas emissions and residential use 22%. Combustion of fuel for transport accounts for over a quarter of greenhouse gas emissions within Cessnock LGA.

Ausgrid monitors electrical usage data within Cessnock LGA. Industrial and commercial operations have reduced total electricity consumption within Cessnock LGA since 2012/13 with smaller/medium operations (0-160 MWh/year) showing a 6.32% reduction and larger operations (>160MwH/yr) a 5% decrease (**Figure 6.2**) (Ausgrid 2022)

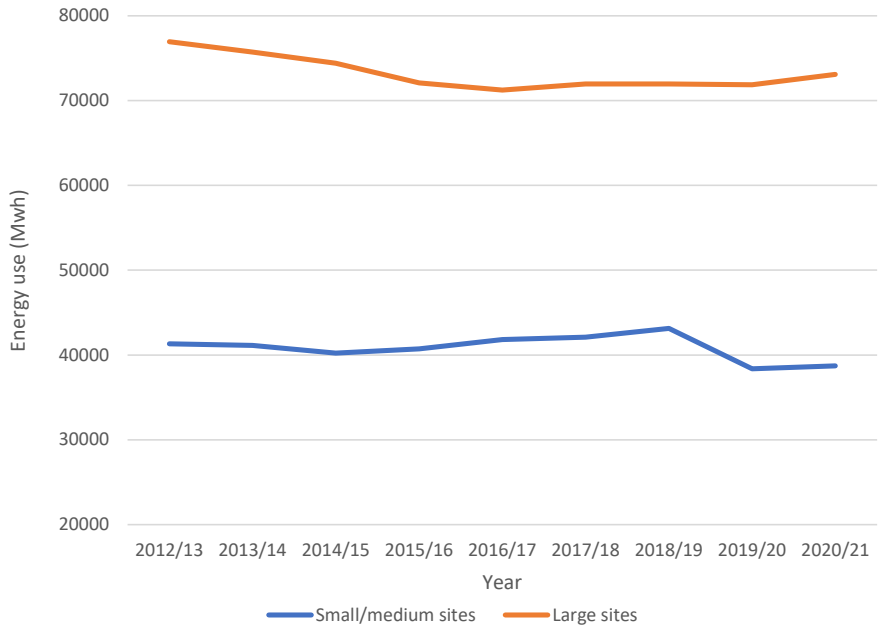


Figure 6.2 Annual electricity use by commercial/industrial operations within Cessnock Local Government Area 2012/13 - 2020/21

Note: Small/medium sites (0-160MWh/yr), Large sites (>160MWh/yr).

The number of residential electricity customers has increased by 17% since 2012/13 within Cessnock LGA. With an increasing number of consumers total annual electricity consumption is projected to rise and since 2012/13 total electricity consumption within Cessnock LGA from residential customers has risen by 10% (**Figure 6.3**).

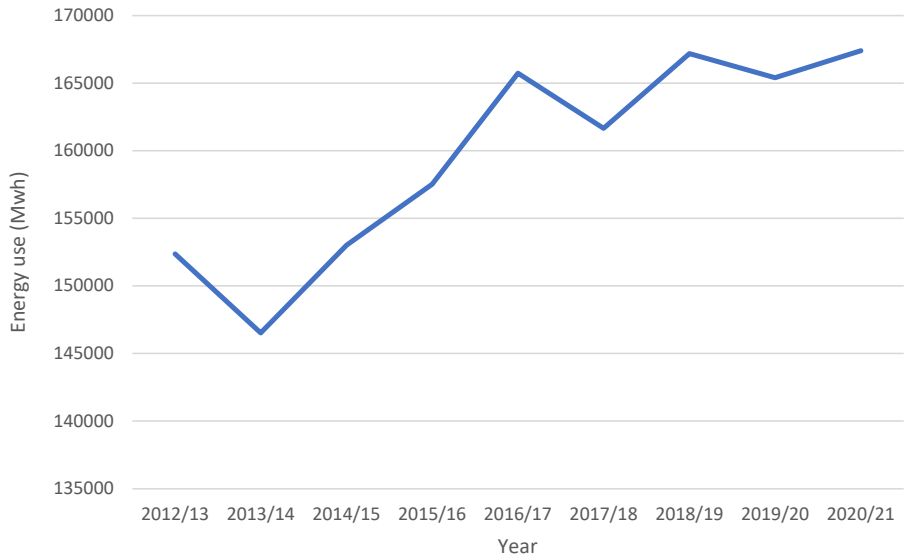


Figure 6.3 Annual electricity consumption by residential customers within Cessnock Local Government Area 2012/13 - 2020/21.

Greenhouse gas emissions generated as a result of community activity has the potential to grow significantly due to projected population growth and economic development within Cessnock LGA. This is highlighted by the projected rapid population growth of 43% within Cessnock LGA in the next twenty years (DPE 2022). However, a transition in energy generation has commenced with the uptake of solar photovoltaic (PV) systems increasing. Within Cessnock LGA solar PV systems installation on residential properties have increased by 105% from 2016/17 to 2020/21 and by 87% on commercial/industrial properties over the same time period. This has resulted in a 257% increase in solar generation capacity within the LGA since 2016/17 (**Figure 6.4**) and a 356% increase in energy exported to the grid annually from renewable energy systems within the LGA (**Figure 6.5**).

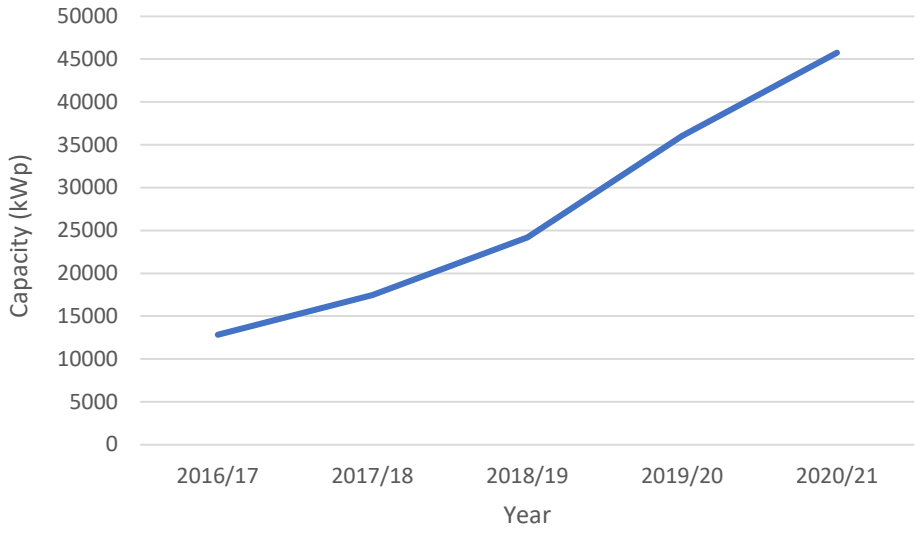


Figure 6.4 **Installed solar energy generation capacity within Cessnock Local Government Area 2016/17 – 2020/21.**

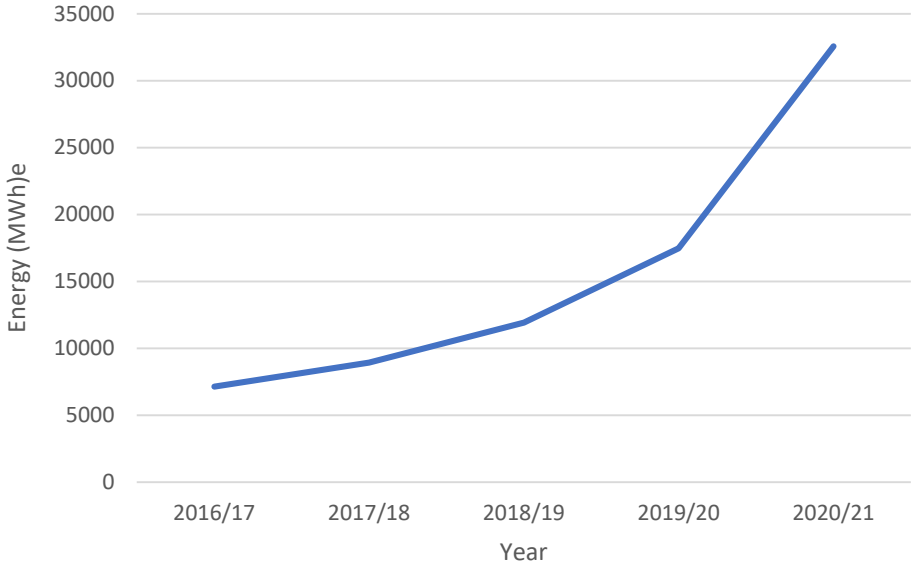


Figure 6.5 **Annual energy exported to the grid from Cessnock Local Government Area 2016/17 – 2020/21.**

6.2 **Community climate change actions**

The community of Cessnock LGA are concerned about the impacts of climate change on the environment, their family and the economy. The community has expressed they want Council to take a leadership role and strong action on climate change. Council's commitment to the community is to deliver local initiatives and quality information regarding climate change science and programs to progress towards a sustainable future. Table 6.1 outlines the management actions to be undertaken by Council to assist the community in building climate change resilience.

Table 6.1 **Climate change resilience community management actions**

Action number	Management action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CR1	Develop an on-going emissions profile for the Cessnock Local Government Area and establish a community information platform to illustrate community emission reduction progress.	• Leader • Provider	• Waste and Environment • Strategic Planning • Business Support		• Operational funding • Staff time	$25,000		Short-medium
CR2	Establish a range of community sustainability and environmental awards to incentivise community-driven change	• Provider	• Waste and Environment		• Operational funding • Staff time	Award amount to be determined		Medium
CR3	Investigate potential environmental upgrade finance programs for local businesses. Partner with appropriate funders to support local businesses to uptake sustainable building upgrades including solar photovoltaic systems and batteries and water efficiency installations.	• Provider • Collaborator • Capacity Builder	• Waste and Environment • Strategic Planning	• Identified environmental upgrade funders	• Staff time			Medium

Action number	Management action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CR4	Investigate and promote collaborative bulk-buy programs for solar panels or other cost-effective programs that increase adoption of renewable energy across the community	• Leader • Collaborator	• Waste and Environment		• Staff time			Short-medium
CR5	Undertake a promotion program for the 'share and repair' economy within the community to reduce waste to landfill	• Capacity Builder	• Waste and Environment	• Identified businesses	• Staff time	$10,000		Medium
CR6	Investigate opportunities for community renewable energy projects such as neighbourhood batteries	• Leader • Collaborator • Capacity Builder	• Waste and Environment • Strategic Planning	• Ausgrid	• Staff time			Short
CR7	Implement programs and activities designed to increase householder preparedness for natural disasters and climate change	• Provider • Capacity Builder • Educator	• Infrastructure • Strategic Planning	• Hunter Joint Organisation of Councils • Local Emergency Management Committee	• Staff time • Grant funding	To be determined	Commenced	Medium

Action number	Management action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CR8	Pursue funding for installation of public electric vehicle charging stations at a number of accessible locations across the LGA. Charging stations should be powered by on-site renewables where possible. Charging stations may be considered in association with supporting partners.	• Provider • Collaborator	• Waste and Environment • Infrastructure • Strategic Planning	• Industry • NSW State Government	• Staff time • Operational funding • Grant funding	To be determined	Commenced	Short-medium
CR9	Advocate for improved public transport infrastructure in proximity to urban areas/towns.	• Advocate	• Infrastructure		• Staff time			On-going
CR10	Design and deliver a sustainability and environmental education plan to expand existing programs and focus on community capacity to take sustainable practical actions.	• Provider • Capacity Builder • Educator	• Waste and Environment		• Staff time • Operational funding	$20,000		On-going
CR11	Promote NSW State Government energy efficiency programs to local businesses and manufacturers to increase uptake of efficiency practices.	• Collaborator • Capacity Builder	• Waste and Environment	• NSW State Government	• Staff time			On-going

Action number	Management action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CR12	Pursue partnerships with local business representatives or associations to educate and adopt sustainable practices such as circular economy, energy and waste reduction while promoting environmental and financial outcomes.	• Collaborator • Capacity Builder • Educator	• Waste and Environment • Economic Development	• NSW State Government	• Staff time	To be determined		On-going
CR13	Implement a series of initiatives which assist with community connection before, during and after natural disasters (including bushfires) and facilitate greater community resilience.	• Collaborator • Capacity Builder • Educator	• Infrastructure • Strategic Planning	• Hunter Joint Organisation of Councils • NSW State Government • Rural Fire Service	• Staff time • Operational funding	To be determined	Commenced	Short - medium On-going
CR14	Advocate to the NSW State Government for improvement to legislated sustainability performance requirements eg. BASIX.	• Advocate	• Strategic Planning • Development Services		• Staff time		Commenced	On-going
CR15	Advocate for State and Federal Government support for businesses and the community to accelerate the transition to a net zero emissions economy.	• Advocate	• Strategic Planning • Waste and Environment		• Staff time			On-going

Action number	Management action	Council role	Primary responsibility	Supporting partners	Resource type	Cost estimate	Status	Timeframe
CR16	Provide opportunities to support local food production and consumption through farmers markets, community gardens and community supported agriculture programs to ensure food security in a changing climate.	• Provider • Capacity builder	• Waste and Environment		• Staff time			On-going
CR17	Promote circular economy, energy efficiency and waste reduction initiatives that benefit the business community.	• Provider	• Economic Development		• Staff time			On-going

IMPLEMENTATION

7 Implementation

Achieving progress in both mitigation and adaptation to form a strong base for climate change resilience will require strong commitment from both Council and the wider community. Implementation of the Climate Change Resilience Plan will place Council in a strengthened position to confidently continue greenhouse gas emission reduction within its own operations and better influence and advocate for wider climate change action. Implementation of the plan will also assist in the local community in approaching the climate change challenge in a sustainable manner and facilitate a wider transition to a net zero emissions way of life.

Actions from this plan have been allocated a resource type in **Tables 5.2** and **6.1**. Actions will be prioritised and will inform both Council's delivery program and annual operational plans as illustrated in **Figure 4.1**. Consideration of actions will undertaken through Council's annual budgeting process and allocated operational or capital funding. Some actions may require additional assessment, or attract external funding, particularly where community benefits or partnerships can be established. Developments in national and state policy may also allow Council to take advantage of new initiatives or respond with further advocacy and collaboration when change is not fast or strong enough.

MONITORING AND REPORTING

8 Monitoring and reporting

Meaningful and robust monitoring of climate change mitigation and adaptation performance is required to effectively inform future planning and projects for climate change resilience. Where there is minimal or limited data around key actions of this plan Council will collect and advocate for relevant data to establish suitable baselines for performance. This will ensure appropriate and innovative reporting platforms can be established where Council can both review its own climate change resilience progress and provide a transparent reporting mechanism for the community. Council will initially report to the community as part of the IP&R annual report, but as data and technology solutions emerge Council will establish innovative community-based reporting formats.

The Climate Change Resilience Plan will be reviewed every four years to assess its implementation and maintain agility in response to technology and policy change. Where appropriate indicators may be updated prior to review as further information becomes available.


RURAL FIRE
BRIGADE

References

Adapt NSW 2014 Hunter Climate Change Snapshot. https://www.climatechange.environment.nsw.gov.au/sites/default/files/2021-06/Hunter%20climate%20change%20snapshot.pdf Accessed 17 August 2022.

Ausgrid 2022 Average electricity use. https://www.ausgrid.com.au/Industry/Our-Research/Data-to-share/Average-electricity-use Accessed 17 August 2022.

Cessnock City Council (CCC) 2022 Cessnock Community Strategic Plan 2036. https://www.cessnock.nsw.gov.au/Council/Forms-and-documents/Integrated-planning-and-reporting.

CSIRO AND BoM (2020) State of the Climate. https://www.csiro.au/en/research/environmental-impacts/climate-change/state-of-the-climate Accessed 10 August 2022.

CSIRO (2022) Latest Kennaook/Cape Grim greenhouse gas data. https://www.csiro.au/en/research/natural-environment/atmosphere/latest-greenhouse-gas-data Accessed 20 July 2022.

Department of Planning and Environment (2022) Population Projections. https://www.planning.nsw.gov.au/Research-and-Demography/Population-Projections Accessed 16 August 2022.

Hunter and Central Coast Regional Environmental Management Strategy (HCCREMS) 2010 Historic and Projected Impacts of Climate Change on the Central Climatic Zone of the Hunter, Central and Lower North Coast. Accessed 21 July 2022.

Intergovernmental Panel on Climate Change (IPCC) 2022 *Special Report: Global Warming of 1.5oc: Summary for Policymakers* https://www.ipcc.ch/sr15/chapter/spm/

Ironbark Sustainability (2021) Cessnock City Council Greenhouse Gas Emissions Inventory and Action Plan.

United Nations (UN) Chronicle (2007) From Stockholm to Kyoto: A Brief History of Climate Change. https://www.un.org/en/chronicle/article/stockholm-kyoto-brief-history-climate-change#:~:text=Held%20in%20Stockholm%2C%20Sweden%20from,recommendations%20for%20international%20environmental%20action Accessed 17 August 2022.

CESSNOCK
CITY COUNCIL

62-78 Vincent Street, Cessnock NSW 2325 | PO Box 152 Cessnock NSW 2325
02 4993 4100 | council@cessnock.nsw.gov.au | www.cessnock.nsw.gov.au