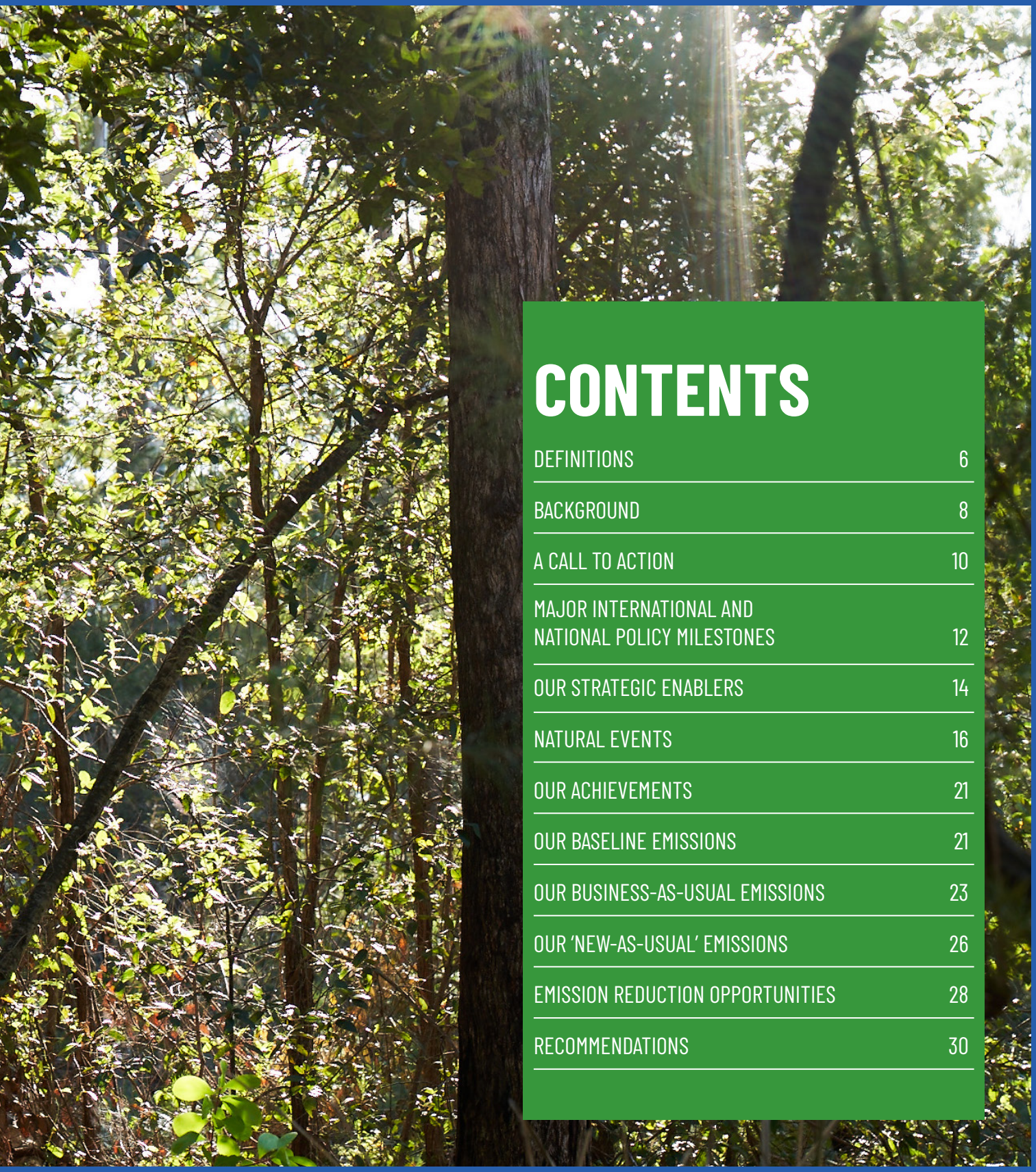
CAMPBELLTOWN CITY COUNCIL

TRANSITIONING OUR OPERATIONS TOWARDS NET ZERO



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ACKNOWLEDGMENT OF COUNTRY

The Dharawal people walked in harmony with this land, treading lightly and paying respect to the Elders who went before them. They welcomed people from many nations to gather and enjoy the land between 2 rivers.

We acknowledge the Dharawal people, the traditional custodians of this land. Campbelltown has always been a gathering place, with its fertile land, abundant food sources, bushland and wildlife. This, along with the welcoming nature of the Dharawal people, made the area a perfect meeting place for all mobs to unite, to yarn, trade, discuss lore and resolve any grievances that may have occurred between them.

We acknowledge the strength and welcoming spirit of Campbelltown's Aboriginal community, who are creating a shared community on their land in contemporary Campbelltown – one that honours the past and its people while looking towards the future. They create strength through their connections to each other and embody resilience.

We acknowledge the future Aboriginal community of Campbelltown, and look to them for guidance, as together, we create a resilient future for all.

MESSAGE FROM THE GENERAL MANAGER

Our community is telling us to be innovative, to ensure our decisions do not impact future generations, and take the critical leadership required to act on climate change.

We are experiencing significant growth. Over the next 10 years, the population of Campbelltown is expected to increase to 230,000. That's on average, 5,000 people per year.

Throughout this growth, we are also living through some of the most challenging times - bushfires, floods, urban heat and disease pandemic.

Our growth needs to be carefully managed – we need to reflect on how our communities are changing, how the world around them is changing. We need to be flexible and adaptive.

We have set ourselves an ambitious goal to achieve Net Zero by 2029. This goal will require innovation and investment in our energy and transportation infrastructure, building standards, waste management practices, and supply chain policies. By embracing innovative technologies, fostering collaboration and delivering measurable results we can create a thriving and resilient community that sets an example for others to follow.

The path to Net Zero is not without its hurdles, both financial and logistical, yet the benefits far outweigh the costs. By embracing the recommendations outlined in this report, we can create a sustainable, vibrant, and resilient city that we can all be proud of. By taking bold action now we will pave the way towards a Net Zero future.

We have a once-in-a-generation opportunity to lead by example, demonstrate our commitment to the well-being of our community, and leave a lasting legacy for future generations.

100% renewables

This document was produced in partnership with 100% Renewables endorsed by Council in August 2023.

We are extremely grateful for 100% Renewables commitment to our city.

DEFINITIONS

Abatement
Measures that organisations take to prevent, reduce or eliminate sources of Greenhouse Gas (GHG) emissions within their value chain. Examples include reducing energy use, switching to renewable energy, switching from gas and transport fuels to electricity, and working with low carbon suppliers.

Carbon budget:
The maximum amount of carbon emissions that would align with the outcome of limiting global temperature rise below 1.5°C.

The carbon budget allocated to the Campbelltown LGA is 13.8 Mt CO2-e.

Our operational carbon budget equal to approximately 161,648 t CO_2-e.

Carbon Offsets:
Purchasing 'credits' generated from initiatives such as tree planting and renewable energy generation to offset carbon emissions that are produced by an organisation's activity.

Carbon Negative:
To achieve carbon negativity an organisation must remove more carbon emissions from the atmosphere than it emits. This can be achieved by investing in carbon capture and storage technologies, promoting regenerative agriculture practices, and supporting natural carbon sinks such as forests, wetlands, and oceans. This can also be called Climate Positive.

Climate-Resilient Development:
Implementation of GHG mitigation and adaptation options to support sustainable development for all.

Emission scopes:
To help differentiate between different GHG emission sources, emissions are classified into the following scopes according to the GHG Protocol – Corporate Standard:

- **Scope 1 emissions** are emissions directly generated by operations such as onsite natural gas or LPG use, driving company cars, or refrigerant gases in your air conditioning equipment.
- **Scope 2 emissions** are caused indirectly by consuming electricity. These emissions are generated outside the organisation but we are indirectly responsible for them, like purchasing grid electricity produced from a coal-fired power station.
- **Scope 3 emissions** are also indirect emissions and happen upstream and downstream of the organisation. Typical examples are landfill waste emissions, air travel, consumption of goods and services, contractor emissions, or leased assets.

Global warming:
The IPCC defines global warming as an increase in combined surface air and sea surface temperatures averaged over the globe over a three-year period.

Greenhouse Gas (GHG) Emissions:
The IPCC defines greenhouse gas (GHG) emissions as the release of gases into the atmosphere both naturally and human-caused that have the ability to trap heat contributing to the enhancement of the greenhouse effect.

The naturally occurring greenhouse effect allows the Earth's atmosphere to retain heat warming the Earth's surface to create liveable conditions.

However, human activities, particularly the burning of fossil fuels and deforestation have increased the concentration of greenhouse gases in the atmosphere leading to an increase in global temperature.

There are several prominent greenhouse gases including carbon dioxide (CO2), Methane (CH4), Nitrous Oxide (N2O), water vapour (H2O) and fluorinated gases such as hydrofluorocarbons (HFCs) and Perfluorocarbons (PFCs).

Intergovernmental Panel on Climate Change (IPCC)

Created in 1988 by the World Meteorological Organisation and the United Nations Environmental Program, the Intergovernmental Panel on Climate Change (IPCC) is the peak scientific body for assessing the scientific basis of climate change.

The IPCC currently has 195 member countries, including Australia, and utilises the contributions of thousands of experts from all over the world. These experts review scientific information relating to climate change and develop assessment reports to assist decision-makers in policy and action-based responses. Assessment reports are generally prepared by three specialist working groups:

- **Working Group 1 (WGI):** The physical science basis WGI assesses the physical scientific basis of the climate system and climate change.
- **Working Group 2 (WGII):** Impacts, Adaptation and Vulnerability WGII assesses the vulnerabilities of socio-economical and natural systems and how these systems can adapt to climate change.
- **Working group 3 (WGIII):** Mitigation of climate change WGIII assesses methods for reducing greenhouse gas emissions, and opportunities for mitigation and adaptation.

Net Zero Emissions

Reducing greenhouse gas emitting practices to as close to zero as possible. Any residual emissions that are difficult to abate need to be offset by participating in activities that remove emissions elsewhere, which is achieved through the purchase of carbon offsets.

Science-based targets

Targets that are in line with what the latest climate science says is necessary to meet the goals of the Paris Agreement – to limit global warming to well-below 2°C above pre-industrial levels and pursue efforts to limit warming to 1.5°C.

Science-based Targets initiative (SBTi)

The SBTi is part of the World Resources Institute (WRI)'s Centre for Sustainable Business and a collaboration of WRI, CDP, WWF and the UN Global Compact. SBTi has defined a science-based standard for net-zero target setting, to ensure that companies' targets translate into action that is consistent with achieving a net-zero world by no later than 2050.

Value chain emissions

An organisation's scope 1, 2, and 3 emission as defined by the GHG Protocol accounting standard.

BACKGROUND

We engaged 100% Renewables in 2022 to develop a plan to guide the transition of our operational emissions to Net Zero. We wanted this plan to include:

- An analysis of our Greenhouse Gas (GHG) emissions footprint for the 2020/2021 financial year (FY2021)
- A diagnostic survey to identify our climate awareness and current management and response systems, as well as possible strategic opportunities
- Site inspections of our top 11 energy consuming facilities to identify opportunities for operational efficiency improvements
- Projections illustrating future GHG emissions incorporating growth
- Pathway opportunities to achieve Net Zero defined by time horizons
- Activities required to achieve Net Zero emissions
- Facilitate staff engagement and awareness workshops

Operational emissions were identified to include the following emissions.

- Electricity consumption from Council assets
- Electricity consumption from streetlighting
- Natural gas consumption from Council assets
- Fuel consumption from Council's operational and passenger fleet
- Landfill waste generated by Council facilities and operations
- Water consumption from Council's assets

We recognise the NSW State Government target of 50% emissions reduction by 2030, and Net Zero by 2050. However, we acknowledge the need to act with urgency – we want to be an active part of the solution, leading and inspiring a climate conscious community.

This plan sets a more ambitious emissions reduction target in the context of our carbon budget. This budget provides a timeframe for Net Zero of, at most, 10 years.

What is the carbon budget?

Comparable to a household budget, a carbon budget quantifies the amount of GHGs that can be 'spent'/emitted for a given level of global warming. If we exceed this budget, global temperatures will be higher.

For example, if we want to keep global warming to the Paris targets of 1.5°C then the total amount of GHG emissions must be kept below the 'carbon budget'.

It is important to note that the budget is not an annual one. Rather it is cumulative – based on past, present and future emissions. Decisions that we make today, will use up our carbon budget. Once the carbon budget has been 'spent', net emissions must be held to zero from that point onward in order to avoid exceeding the temperature target.

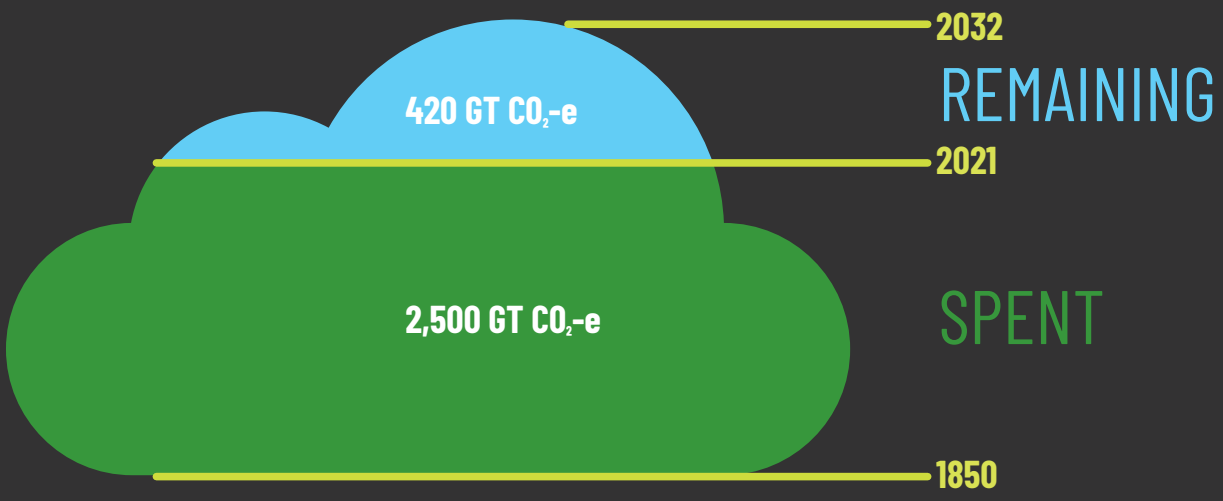
The carbon budget to keep global warming to 1.5 degrees celsius:

- Globe: 420 Mt CO_2-e

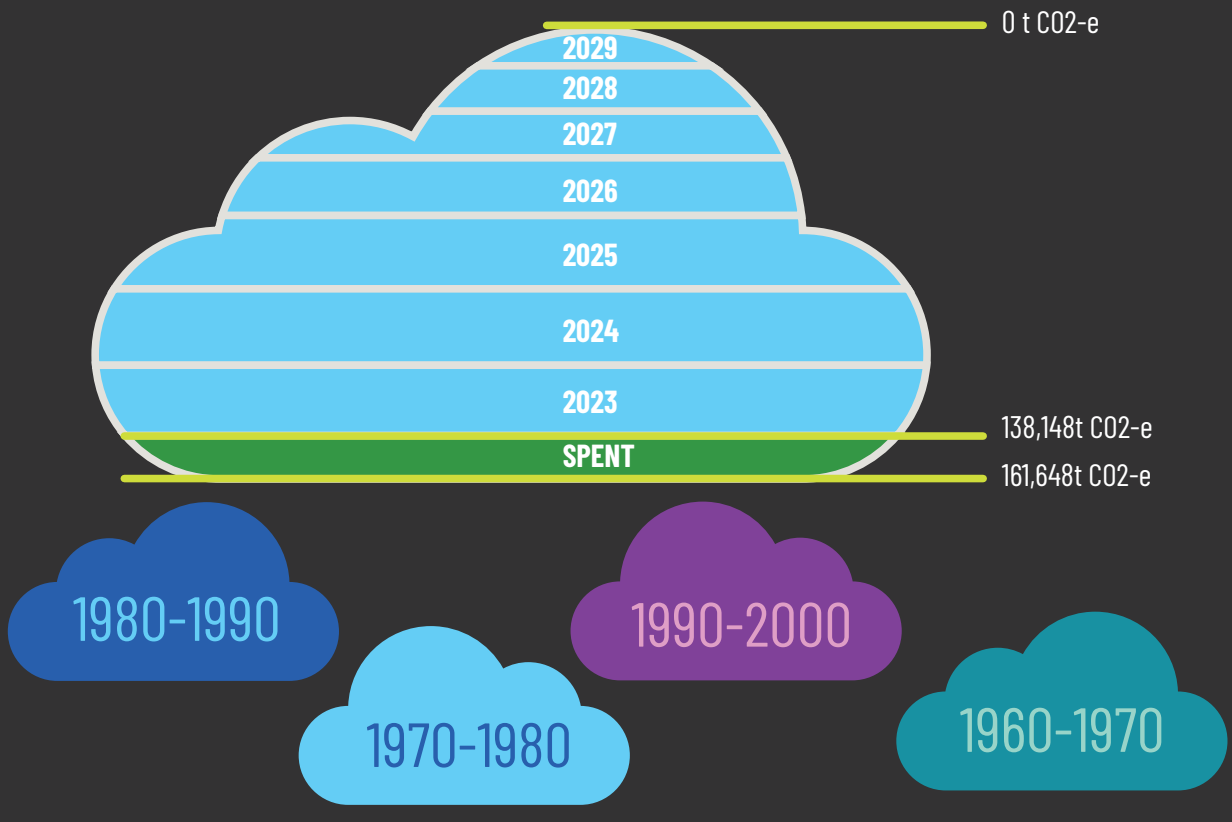
- Campbelltown LGA: 13.8 Mt CO_2-e.

- Our operations: 161,648 t CO_2-e.

Global carbon budget to keep global warming to 1.5 degrees celsius

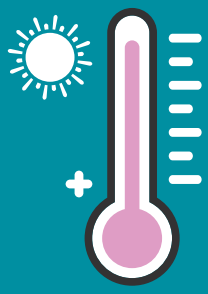


Council's carbon budget if we want to play our part in keeping global warming to 1.5 degrees celsius



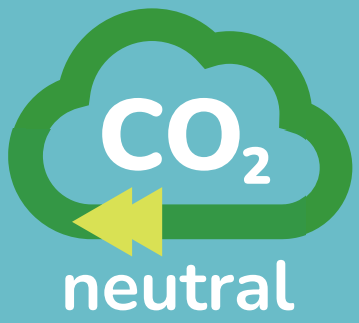
A CALL TO ACTION

"Climate change is a threat to human well-being and planetary health. There is a rapidly closing window of opportunity to secure a liveable and sustainable future for all. The choices and actions implemented in this decade will have impacts now and for thousands of years"



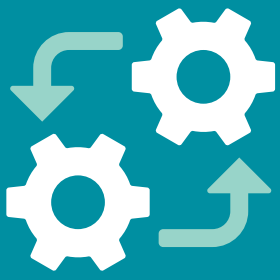
Increases in **extreme heat events** have resulted in human mortality and morbidity.

Compound **heatwaves** and **droughts** will become **more frequent** and concurrent.



Limiting human-caused global warming requires **net zero CO2 emissions**.

It is **unequivocal** that **human influence** has warmed the atmosphere, ocean and land.



Deep, rapid and sustained mitigation and accelerated implementation of adaptation actions in this decade would **reduce projected losses and damages for humans and ecosystems**.

With further **warming**, climate change risks will become increasingly complex and more **difficult to manage**.

Australia is one of the most **vulnerable** developed countries **to climate impacts**.

Global surface temperature reached **1.1°C above 1850–1900** in 2011–2020.

In 2021-22, the average **Australian household paid $1,532 in direct costs because of extreme weather events.** This is well above the 10-year rolling average of $888 per household.

Between 2005-2022, the federal government spent **$23.99 billion on disaster recovery and relief.**

During 2020-2021, **380,760 insurance claims** were made each averaging $17,000.

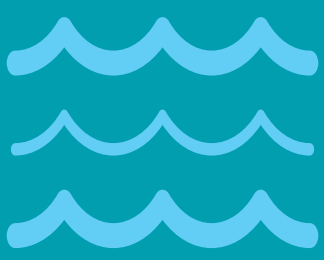
By 2050 the **direct economic cost** of extreme weather events is calculated to reach **$35.24 billion per annum.**

In 2021, **432 catastrophic events were recorded globally**, which is significantly higher than the average of 357 annual extreme weather events recorded between 2001-2020.

By 2050 the average Australian household will pay $2,509 per year.

Natural disasters cost the global economy an estimated **$468 billion** in 2022

The 2022 Feb/Mar flooding events were Australia's **highest insurance loss in history at $5.65 billion**



MAJOR POLICY MILESTONES:

2015 PARIS AGREEMENT Signatory countries agreed to work to limit global temperature rise to well below 2°C, and given the grave risks, to strive for 1.5°C Cels

2016 SUSTAINABLE DEVELOPMENT GOALS

Calls on action from all countries to end poverty and promote prosperity while protecting the planet.

2018 SPECIAL IPCC REPORT ON 1.5°C WARMING (SR15)

Governments approved the wording of a special report on limiting global warming to 1.5°C. The report indicates that achieving this would require rapid, far-reaching, and unprecedented changes in all aspects of society.

2020 NET ZERO PLAN STAGE 1: 2020–2030

The first of three 10-year plans that sets a pathway to achieve net zero emissions in NSW by 2050

2020 ELECTRICITY INFRASTRUCTURE INVESTMENT BILL (2020)

Drives the transition to renewables by coordinating investment in new generation, storage and network infrastructure in NSW.

2021 CLIMATE CHANGE 2021: THE PHYSICAL SCIENCE BASIS. WORKING GROUP I CONTRIBUTION TO THE IPCC SIXTH ASSESSMENT REPORT

The first publication of the IPCC's Sixth Assessment Report, and the first to be jointly-produced by all three Working Parties. The special report includes findings from over 6000 published scientific and technical research articles. Of note, the report concluded with high confidence:

- Human activities have caused approximately 1°C of global warming above pre-industrial levels
- Global warming is likely to reach 1.5°C between 2030 and 2052

2022 WORLD ECONOMIC FORUM, GLOBAL RISKS REPORT 2022

Highlights adverse climate change-related outcomes as among the most likely to occur with the highest impacts to the global economy. The report is underpinned by the Global Risk Perception Survey (GRPS) and gathers insights from nearly 1,000 global experts and leaders.

The report emphasises the importance and urgency of international collaboration to address the economic, environmental, geopolitical, societal, and technological risks. Climate change continues to be perceived as the severest threat to humanity. Climate action failure, extreme weather, and biodiversity loss rank as the three most potentially severe risks for the next decade.

2022 AUSTRALIAN FEDERAL GOVERNMENT CLIMATE CHANGE ACT 2022

The Act aims to advance an effective and progressive response to the urgent threat of climate change drawing on the best available scientific knowledge. It sets out Australia's greenhouse gas emissions reduction targets, which contribute to the global goals of holding global temperature rise to well below 2 degrees C above pre-industrial levels. Australia's GHG emissions reduction target is set as a 43% reduction in GHG emissions on 2005 levels by the year 2030 and achieve net zero GHG emissions by 2050.

2023 SYNTHESIS REPORT (SYR) OF THE IPCC SIXTH ASSESSMENT REPORT (AR6)

This Synthesis Report (SYR) of the IPCC Sixth Assessment Report (AR6) summarises the state of knowledge of climate change, its widespread impacts and risks, and climate change mitigation and adaptation. It integrates the main findings of the Sixth Assessment Report (AR6) based on contributions from the three Working Groups and the three Special Reports.

The Sixth Assessment Report provides an overview of the current state of knowledge around climate change. It took hundreds of scientists eight years to complete and includes thousands of pages. It provides one very clear message – act now or it will be too late. Our window to avoid the worst of climate change is rapidly closing. This our last warning.

2023 DECARBONISING SYDNEY

In 2023, the Committee for Sydney released a report titled "Decarbonising Sydney, The role of transport, buildings and grid infrastructure on Greater Sydney's path to net zero". The report provides data-driven insights into what a decarbonised economy means for the Greater Sydney region, the actions needed to deliver the NSW Governments emission objectives for Sydney, and the implications those actions might have.

2023 INCREASING RESILIENCE TO CLIAMTE CHANGE

In 2023, the Western Sydney Health Alliance released a resource designed to provide local governments within the Western Parkland City with practical recommendations on taking immediate action to increase community resilience to the health impacts of a changing climate.

OUR STRATEGIC ENABLERS:

Climate action requires a systems-thinking approach. Both the strength and the challenge of this approach is its broad scope – it cuts horizontally across silos and 'vertical' systems in order to identify systemic challenges, connections and interdependencies.

Over 20 plans, policies, strategies, frameworks and technical studies were reviewed. Of note are the following:

Reimagining Campbelltown City Centre Masterplan 2020

Reimagining Campbelltown articulates a bold vision for the future, which challenges the business-as-usual response, and acknowledges the holistic and integrated approach to enhance positive transformation across the City of Campbelltown.

Reimagining Campbelltown is underpinned by a sustainability and resilience framework, and incorporates commitments and city making moves that seek to create low-resource, low-carbon and low-waste precincts.

Local Strategic Planning Statement 2040

The Local Strategic Planning Statement (LSPS) is an overarching document that supports the community's social, environmental and economic land use needs over the next 20 years. It sets a number of planning priorities and adopts the four themes of our Community Strategic Plan. Of note is the sustainability theme, and the planning priorities relating to 'managing our finite resources', and 'adapting to climate change and building resilience'.

The LSPS acknowledges that we need to take decisive action on planning, harnessing new technology, supporting renewable resource sources, creating a circular economy and ensuring that growth is managed in a way that provides a prosperous and sustainable future.

Community Strategic Plan – Campbelltown 2032

Our Community Strategic Plan, Campbelltown 2032, presents the community's 10-year vision for Campbelltown. The Plan is structured around 5 Community Outcomes and 23 Focus Areas.

Campbelltown City Council Delivery Program 2023

The Delivery Program is our four-year plan that outlines the programs, projects and services that will be delivered, along with key performance measures.

Our Delivery Program is underpinned by two priority areas – City Revitalisation and City Resilience. These priority areas provide the foundation for planning, prioritising and implementing our activities, projects and actions.

Asset Management Plan

Asset Management Plans are required to include "an assessment of the resilience and vulnerability of the agency's assets to the impacts of climate change, natural disasters, and human-related threats and proposed mitigations/interventions".

The management of our assets and infrastructure plays an important role in reducing the impacts of climate change. For example - valuing and quantifying green infrastructure will assist in mitigating urban heat, adopting renewable energy sources and batteries will reduce our exposure to network instability and cyber-attacks.

Incorporating resilience into our AMP will ensure that we recognise the function, interactions and interdependencies of our assets. This in turn will ensure that our assets:

- Contribute to building our community's resilience
- Are designed to support future needs
- Are able to withstand shocks and support stresses
- Are maintained for improvement, shifting away from like-for-like replacement
- Optimise resilience dividends (when a range of net positive benefits are realised from an individual action).

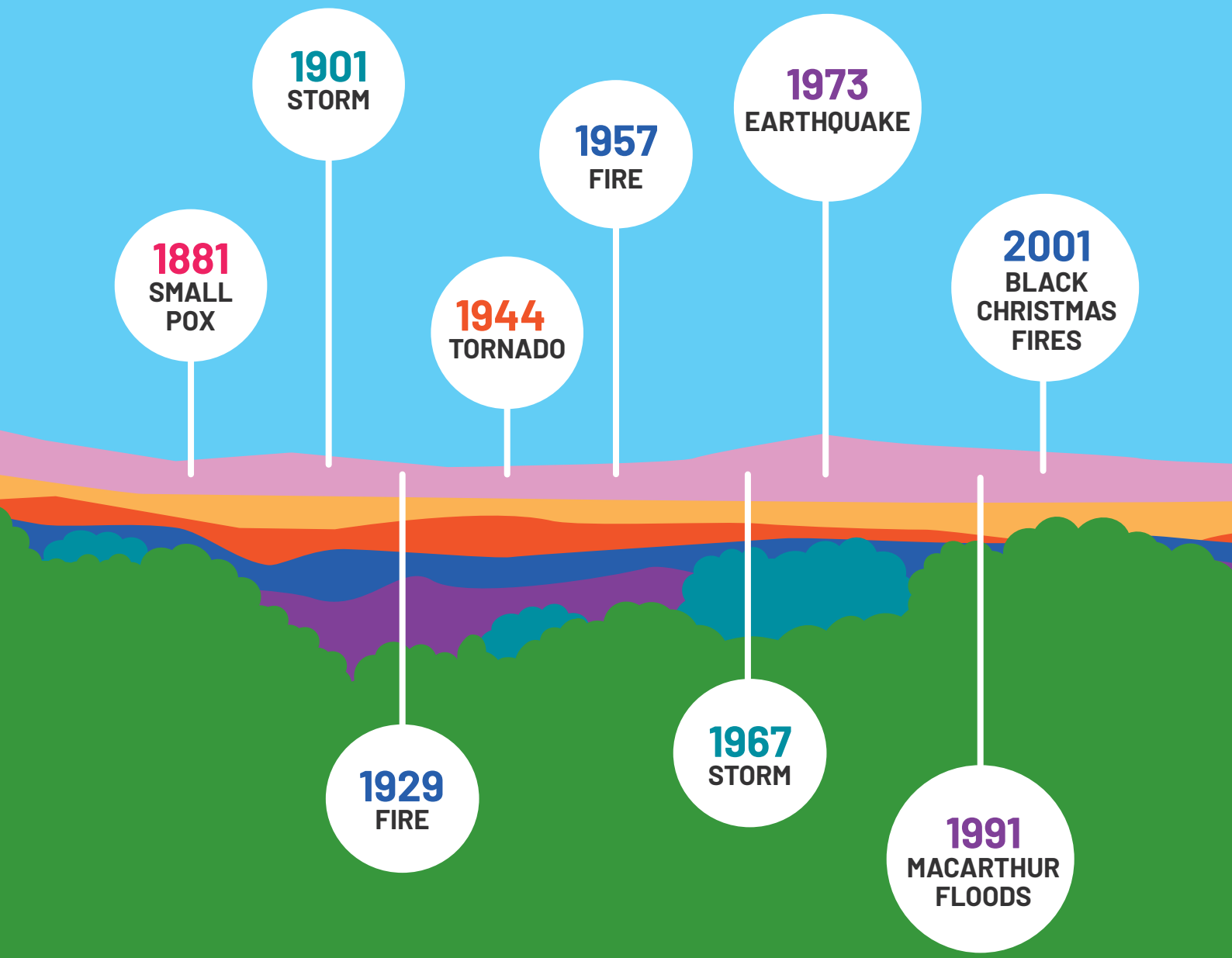
Toward a Thriving City – Our Resilience Hazard Assessment:

In January 2022, we adopted our Resilience Hazard Assessment (RHA), which marked the first stage of a broader Resilience approach for our City. Our RHA seeks to deeply understand our community and is founded on extensive data and insights.

Our RHA identified:

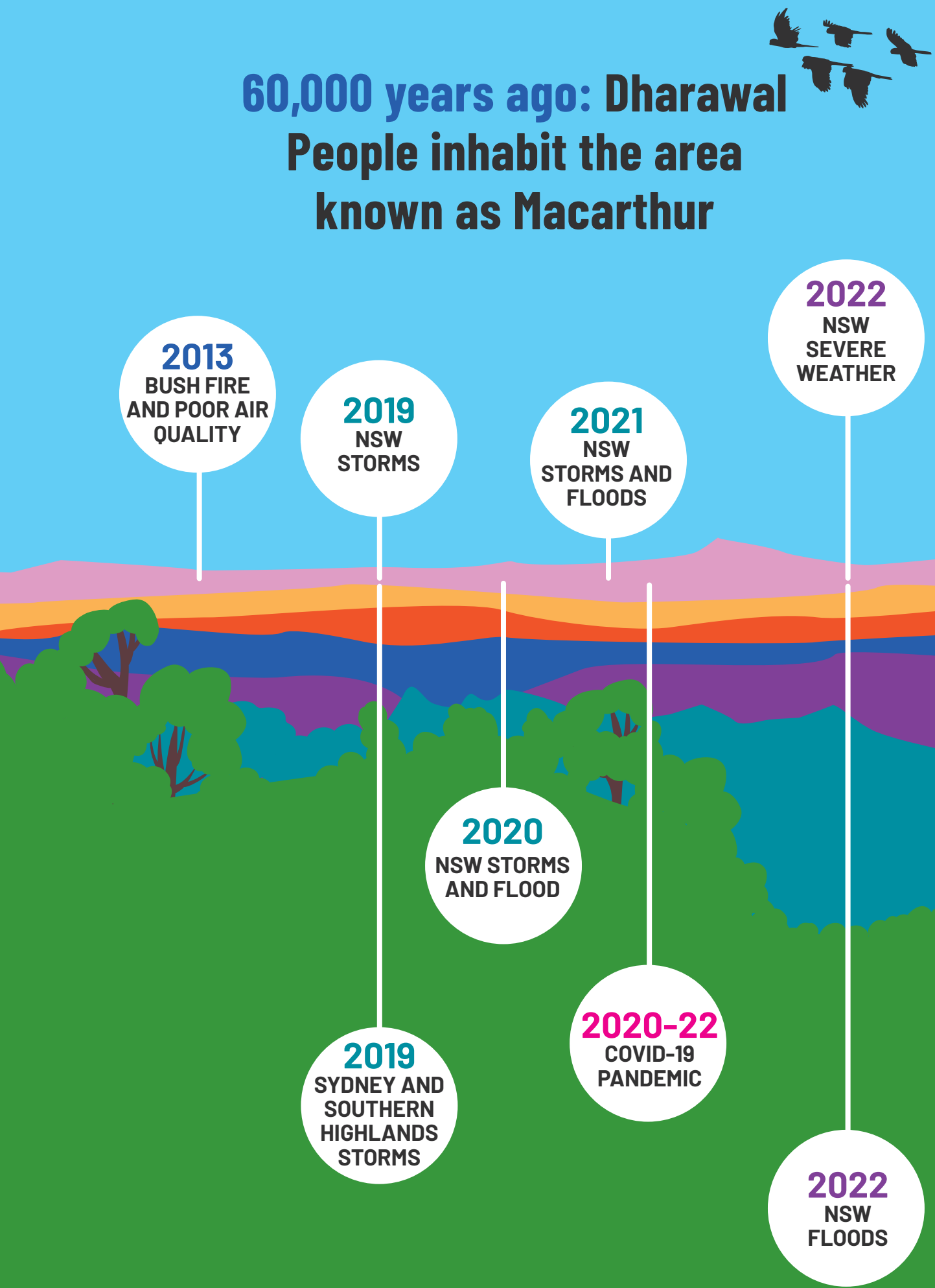
- 10 shocks (events that can stop Campbelltown City)
- 10 stresses (everyday pressures the community experience)
- 7 resilience hazards (the hazards our City will face if resilience is not embedded

NATURAL EVENTS - 1800-2000



From the Archives, 1957: Four men save township from bushfire (smh.com.au)
Australian Institute of Disaster Resilience
https://knowledge.aidr.org.au/resources/thunderstorms-new-south-wales-november-2019/

60,000 years ago: Dharawal People inhabit the area known as Macarthur



Our shocks and stresses

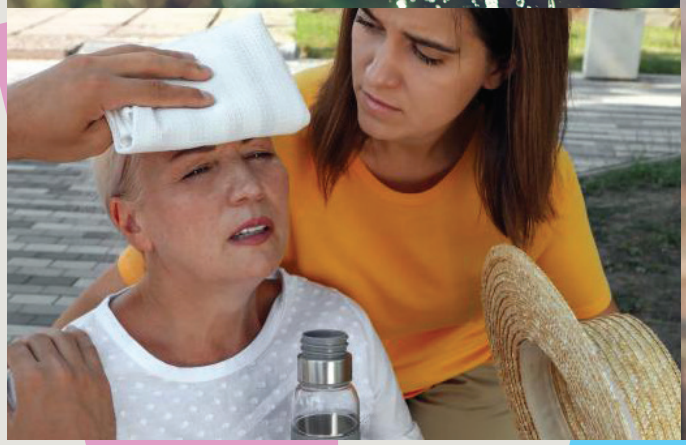
Shocks and stresses provide a baseline for evidence-based action. A foundation to move the dial where it counts.

Stresses:

- Increasing vulnerable populations
- Homelessness
- Domestic and Family Violence
- Food insecurity
- Aging community infrastructure and facilities
- Housing affordability
- Increasing congestion for commuter travel
- Increasing digital divide
- Increasing average temperatures
- Chronic illnesses (including mental illness)

Shocks:

- Bushfires
- Infrastructure failure
- Extreme temperatures and heatwaves
- Financial crisis & high structural unemployment
- Disease pandemic
- Flooding
- Drought & water shortages
- Severe storms
- Cyber attack
- Civil disobedience/terrorism



OUR ACHIEVEMENTS

In the absence of a Plan, we have actively been implementing a range of initiatives to reduce our emissions.

The below summary outlines key projects implemented.

- **Renewable electricity purchase**
  In 2017, Council joined 17 other councils in a landmark initiative facilitated by the Southern Sydney Regional Organisation of Council's (SSROC) titled Program for Energy and Environmental Risk Solutions (PEERS).

  After an extensive and comprehensive procurement process, on the 1 July 2019, we began receiving renewable electricity from Moree Solar Farm.

  The landmark agreement with Moree Solar Farm included the supply of 20% of our entire electricity portfolio, providing significant cost savings, reducing carbon emissions and supporting investment into the renewable energy industry in NSW.

  In July 2022, we further increased our renewable energy purchase to 70% as part of one of the largest renewable energy agreements for Local Government. Along with Moree Solar farm, the agreement provides the addition of renewable energy sourced from Hillston and Nevertire Solar Farms in NSW.

- **Solar**
  Since 2013, we have progressively installed solar PV systems across 18 of our large energy consuming facilities. This provides a total installed capacity of approximately 720 kilowatts (kW), which is capable of generating approximately 7% of our electricity demand based on FY2021 electricity consumption
- **Resilient Facilities**
  In 2021 we undertook our first Climate-Resilient facility project. The project saw battery-ready PV systems installed on 6 of our Early Learning Centres, and has resulted in some centres being energy-positive with average savings of 73%.
- **Electric Vehicles**
  We purchased our first electric vehicle, Evie, in 2021, and have since converted the majority of our operational fleet to electric. Now our rangers, bin inspection monitors and asset management officers drive an electric vehicle to undertake their work in keeping our City safe and clean.

  To support these vehicles, we have also installed a number of EV chargers.
- **Street lighting LED replacement**
  In 2023, we collaborated with our electricity network service provider to undertake an LGA wide replacement of our old inefficient streetlights with new LED lights. Once this project is completed, we will have replaced over 13 000 lights across the LGA, which will lead to a reduction in energy use of over 50% from our street lighting network whilst halving our annual GHG emissions from street lighting.
- **Creating a Spark**
  In 2021 we partnered with Landcom and energy consultant, Sourced Energy, to develop a guide to help local communities and councils take control of their energy generation and share it locally. The guide introduces the concept of an energy sharing community, provides an overview of technologies, electricity market rules and regulations and shows how councils and developers can encourage local generation for energy sharing.
- **Carbon Accounting**
  Our sustainability accounting tool is how we track our operational carbon emissions. Carbon accounting is critical to ensuring that our Net Zero ambitions are on track.

OUR BASELINE EMISSIONS 2020/2021

A baseline year is a reference point chosen in time by an organisation or Country to measure against their GHG emissions target. This measurement provides a benchmark to judge the success of emission reduction initiatives.

Our operational emissions were identified to include the following emissions:

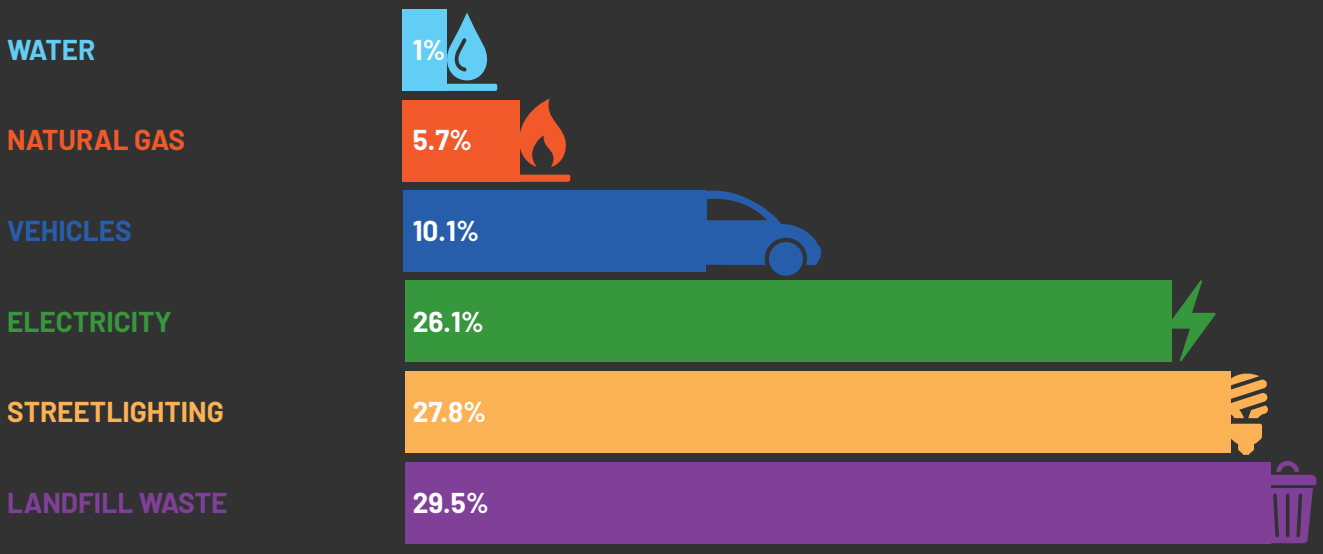
- Electricity consumption from Council assets
- Electricity consumption from streetlighting
- Natural gas consumption from Council assets
- Fuel consumption from Council's operational and passenger fleet
- Landfill waste generated by Council facilities and operations
- Water consumption from Council's assets

It is important to note:

- To be entirely Net Zero, we are required to include emissions associated with capital works, construction and demolition, employee commute and the purchase of goods and services (supply chain). However, due to the availability of data, these emissions were unable to be captured at this stage.
- In developing the Plan, we sought to balance the NSW State Government target of 70% emissions reduction by 2030, and Net Zero by 2050 against the carbon budget.

During the FY2021, our operational emissions were 20,595 t CO2-e

They are broken down as follows:



OUR BUSINESS-AS-USUAL EMISSIONS:

To appreciate the scale of achieving Net Zero emissions, it is important to understand what our emissions profile would look like under a Business-As-Usual (BAU) setting. That is if we did nothing to reduce our emissions.

In developing a high-level estimate of BAU emissions, the following factors were considered:

- Population growth and any resultant increase or decrease in demand for Council services
- New facilities to be built
- Facilities to be closed or divested
- Emissions reduction activities undertaken as a result of external factors (e.g. grid decarbonisation)

A few of the more significant factors are discussed below:

- **Population growth and any resultant increase or decrease in demand for Council services**
  According to the Australian Bureau of Statistics 2021 Census of the Population, the Campbelltown LGA had an estimated residential population of 176,519. Based on population forecasts undertaken by the Department of Planning and Environment, this is expected to increase by 54,000 people, to around 230,000 residents by 2041. This represents an average annual growth rate of 1.3%.

  This rapid growth will place pressure on our existing services and infrastructure – including cultural, education, health, community and water infrastructure – that are often already at, or nearing capacity. Targeted investment in services and infrastructure can support growth and take account of existing utilisation, while also responding to changing demands over time and in different places.

- **New facilities to be built**
  In responding to the significant growth, we have been successful in obtaining funding for a number of valuable city-shaping opportunities. These include:

1. **Western Sydney Liveability Program ($31 million):**
   Providing over $31 million in funding to create the Campbelltown Billabong Parklands, A four-hectare oasis of recreational water play facilities, landscaped areas, parklands and amenities based on the local Dharawal National Park and Georges River.
2. **WestInvest:**
   Providing over $171 million in funding across 20 projects to improve community, recreational and sporting infrastructure, including:
   - Campbelltown Arts Centre Expansion
   - Gordon Fetterplace Aquatic Centre Upgrades
   - Dharawal Nature Playspace
   - Multipurpose Community Facilities Hub
   - Minto Multicultural Community Centre Enhancement
   - Ingleburn Town Centre Transformation Project
   - Leumeah Youth Precinct
   - St Helens Park Youth Space

It is imperative that these facilities do not negatively impact our Net Zero ambitions. Instead, they must embrace, steward and showcase our commitment.

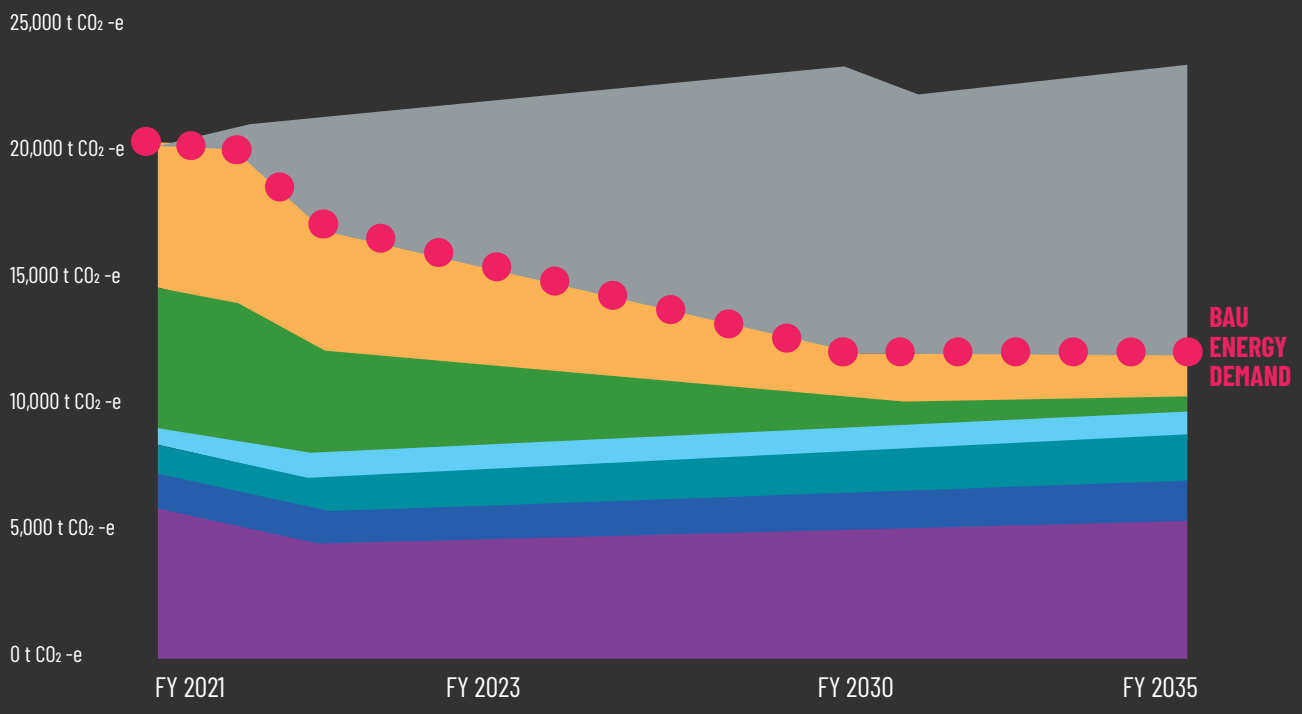
- **Emissions reduction activities undertaken as a result of external factors**
  Since the world's first power station began operating in 1882, electricity has mostly been generated and supplied in the same way. That is by large-scale centralised coal-fired plants generating in real-time, for immediate use by widespread customers through a chain of transmission and distribution grids.

  Distributed Energy Resources (DERs), especially hydro, solar and wind power, have provided a much-needed disruption to this model, bringing diversity in power sources. With the massive increase in rooftop solar, households are now enabling two-way flows of energy through both power consumption and power generation that can be fed back to the grid.

  Today, the generation and supply of our electricity is undergoing a once-in-a-century transformation – by 2050 all electricity generated in NSW is expected to be from renewables.

Australia leads the world in residential use of solar, with over 3 million household rooftop systems installed. This equates to about 20% of all homes generating 13 gigawatts (GW) of electricity, or about 7 per cent of the energy going into the national grid.

During the FY2021, our operational emissions were 20,595 t CO2-e



- GRID DECARDONISATION
- ELECTRICITY / STREET LIGHTING
- ELECTRICITY /COUNCIL ASSETS
- LANDFILL WASTE
- PETROL
- DIESEL
- NATURAL GAS

OUR 'NEW-AS-USUAL' EMISSIONS

Setting a target year

Setting a target year to achieve Net Zero is a critical step in successfully delivering our ambitions.

Our target has been carefully curated to guide the long term planning and strategic direction of our operations within a low emissions environment. It sets the framework for accountability, allows the development of a reporting and monitoring schedule, and importantly, provides financial and human resource assistance.

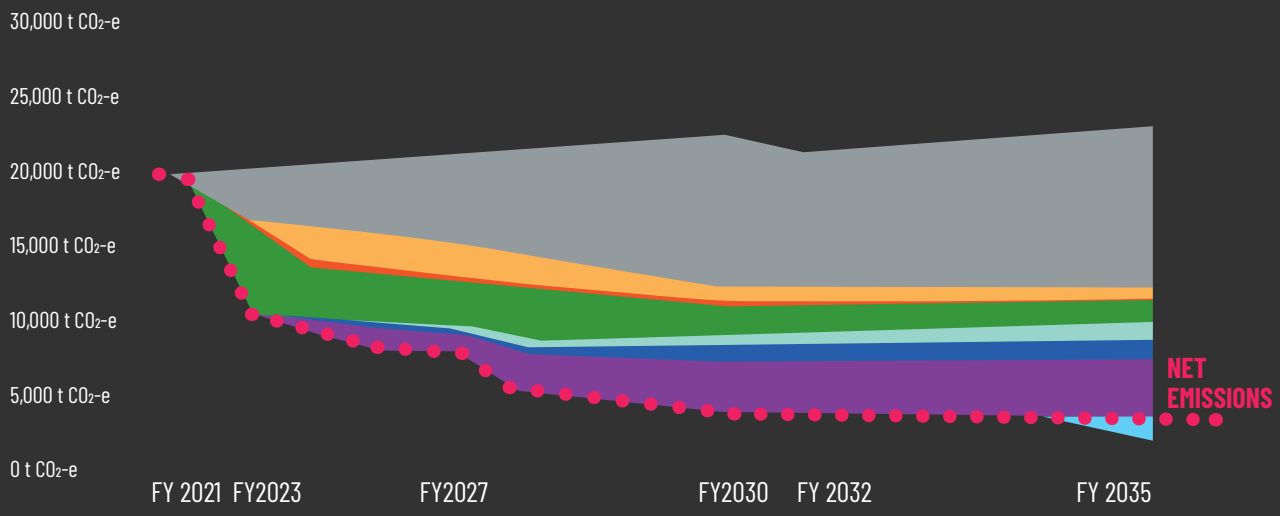
Our BAU emissions highlight the significance of grid decarbonisation in our Net Zero journey and projects a decrease in our emissions up until 2030.

Beyond this, emissions from all other sources are expected to rise under a BAU scenario. This means that we will not achieve Net Zero by relying soley on external factors, we must commit to permanent and progressive emission reduction actions to remain on a downward emissions pathway.

We must be bold and strive to eliminate emission sources from our operational activities so that we have the greatest chance to stay within our carbon budget.

Keeping in line with our carbon budget, our target toward achieving Net Zero emissions is 2029

Our emissions pathway



- OFFSETS
- PPA
- WASTE REDUCTION STRATEGY
- BEHIND-THE-METER SOLAR
- GAS-TO-ELECTRIC HOT WATER SYSTEM
- STREETLIGHTING UPGRADE
- EV TRANSITION
- GRID DECARBONISATION

RECOMMENDATIONS

Meeting our emission reduction target is influenced by factors both within and outside of our influence. These factors are described as abatement measures and are provided below in order of greatest impact.

ABATEMENT MEASURE	DESCRIPTION

Buying clean energy	• This is the single biggest opportunity to reduce electricity emissions.
	• Seven out of our 230 facilities account for 83% of our electricity-related GHG emissions. They include:
	  ○ Street lighting
	  ○ Civic Centre
	  ○ Aquatic Leisure Centres (x3)
	  ○ Arts Centre
	  ○ Sports Stadium

Energy efficiency	• Energy efficiency remains the cheapest way to reduce our GHG emissions. • While the potential for energy savings is significant, the design and construction of new facilities will see increases in energy demand, even if these new facilities are highly energy efficient.
Onsite solar	• Solar PV is a well-established technology. • Solar PV systems are installed across 18 of our facilities totalling a capacity of approximately 720 kW. This capacity equates to almost 7% of our electricity demand based on FY2021 electricity consumption data. • Our Early Learning Centres are battery ready.

RECOMMENDATION	TIMEFRAME
Increase the purchase of renewable electricity to 100% by FY2027. This will provide a 19% reduction.	Immediately
Upgrade street lights to LEDs. This will provide a 36% reduction in energy.	Immediately
Require all new Council-led buildings and precincts to complete a Climate-Resilient Assessment at the design stage, and implement all identified opportunities. • Provide supporting policy and guidance tools.	Immediately
Implement energy efficient initiatives as outlined in 100% Renewables Technical Plan. The implementation of these initiatives will result in the following savings: • $45,896 • 184 MWh (equivalent to 3% of overall electricity consumption by Council assets excluding streetlighting, or an average 5% of the consumption of each individual identified building)	Immediately
Undertake an energy deep dive investigating the use of batteries and energy positive revenue sources.	Short-term
Increase installed solar capacity across our sites by a further 1,146 kW.	Medium-term

ABATEMENT MEASURE	DESCRIPTION
Gas to electric	• Gas consumption is dominated by our Aquatic Leisure Centres for water heating. Pool heating can be achieved with electric heat pumps, which when supplied with renewable energy offer a zero-emissions pathway.
Waste Management	• Landfill waste is the most significant source of our GHG emissions, accounting for 30% of our baseline footprint. Currently, our overall recycling rates are minimal.
Sustainable transport	• Our fleet contributes a relatively small amount of GHG emissions to our overall footprint. • GHG emissions are associated with 215 diesel and petrol consuming vehicles and items across our passenger fleet, heavy fleet, and plant. • We are well placed to accelerate the transition of our passenger fleet to Electric Vehicles.

RECOMMENDATION	TIMEFRAME
Ban the installation of gas from all future Council owned facilities.	Immediately
Replace all gas-powered equipment to electric as outlined in 100% Renewables Technical Plan.	Long-term
Conduct a comprehensive waste audit to: • Identify opportunities to reduce waste sent to landfill • Inform a waste reduction strategy • Embed waste reduction targets in line with the NSW Waste and Sustainable Materials Strategy (WSMS) 2041	Immediately
• Investigate gas recovery systems at landfill sites	Long-term
Implement the findings of the 'Decarbonising our Fleet Plan'.	Immediately
Investigate opportunities to install public EV charging infrastructure on Council land	Short-term

ABATEMENT MEASURE	DESCRIPTION
Carbon offsetting and sequestration	• In order to achieve Net Zero emissions, we may have to consider the role of carbon offsets, either through purchasing offsets or by creating our own offsets through sequestration. • Purchasing carbon offsets is a common strategy for organisations that seek to achieve Net Zero immediately. • To reach our Net Zero ambitions, purchasing carbon offset should be limited and only used as a last resort.
Supply chain	• Sustainable supply chain refers to how we procure goods and services. • Sustainable supply chain accounts for a significant component of scope 3 emissions. • We do not currently account for our supply chain emissions. To be accredited as Net Zero, we will need to commence accounting for these emissions. • Collectively, Local Government represents a significant opportunity to drive social and environmental change through not only direct suppliers, but also associated supply chains.

RECOMMENDATION	TIMEFRAME
• Develop a plan to provide guidance for carbon offsets and sequestration.	Short-term
• Investigate utilising our vegetated spaces and planting programs to assist sequester carbon.	Medium-term
• Undertake an audit of all outstanding scope 3 emissions to: • Complete Net Zero boundary and requirements • Define pathways for reporting on scope 3 emissions	Immediately
Develop a sustainable procurement framework to address Scope 3 emissions with a focus towards low emissions and positive environmental suppliers and materials.	Short-term
Identify suppliers who are actively reducing their own GHG emissions through policy and certifications such as Climate Active Carbon Neutral.	Short-term
Develop education and training programs to assist staff in identifying, budgeting and incorporating sustainable procurement offerings.	Short-term

CAMPBELLTOWN