

*Tackling Climate Change together*



**ZERO**  
**EMISSIONS**  
Shellharbour

Strategy 2022 - 2050





# Acknowledgement

Shellharbour City Council acknowledges the Traditional Custodians of Dharawal Country and recognises their continued connection to the land. We pay our respects to Elders past, present and emerging and the contribution they make to the life of this city.





An underwater photograph featuring a sea turtle swimming towards the right in the upper left quadrant. The background is a deep blue ocean with sunlight filtering through the surface, creating a dappled light effect. In the lower right, there is a large, textured coral reef structure.

# Summary

Council has committed to achieving net zero carbon emissions by 2035 for Council operations and 2050 for our community and the Shellharbour LGA. This Zero Emissions Shellharbour Strategy outlines our commitment to reducing carbon emissions and building climate resilience for our city. It includes our pathway forward including the objectives and goals set to achieve Council's operational 2035 net zero target, demonstrating leadership on achieving a low carbon future for our community.

# Background

In Australia the impacts of prolonged drought, unprecedented coral bleaching events, increased frequency and intensity of extreme events like storms, heatwaves, flooding and bushfire are being felt by communities near and far.

The United Nations Environmental Program (UNEP) Annual Emissions Gap report finds that unless global greenhouse gas emissions fall by 7.6% each year between 2020 and 2030 the world will miss the opportunity to get on track to achieve Paris Climate Agreement targets. Rapid reductions in emissions are required to prevent long-term ecological and climate breakdown, with every fraction of a degree making a difference in avoiding irreversible climate impacts. Keeping global temperature increases below 1.5°C from pre-industrial levels is considered critical to protecting lives and livelihoods.

It is critical that we reach global net zero emissions by 2050 and reduce the concentration of carbon dioxide in the atmosphere to ensure global temperatures do not rise above 1.5C. Temperature increases above this may lead to catastrophic effects on the stability of life.

## Climate Change projections for the Illawarra

On track for a  
**1.9°C**  
increase  
by 2070

**1.9°C**  
rise is not safe



Source: Office of Environment & Heritage (2014) Illawarra Climate Change Snapshot

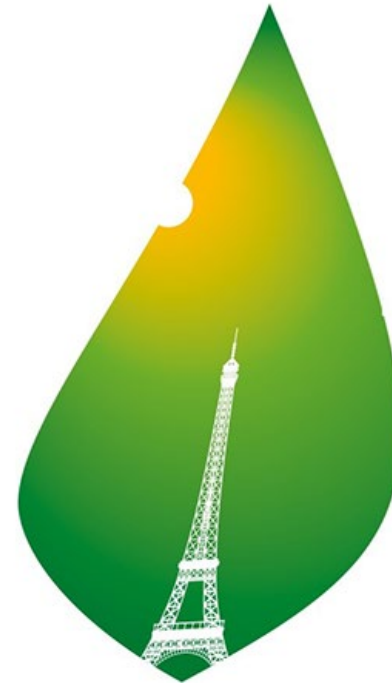


# What's happening around the world to combat climate change?

The United Nations Framework Convention on Climate Change (UNFCC Secretariat) established 1992, is the parent treaty of the 2015 Paris Agreement with 197 member Countries, including Australia.

Under this legally binding treaty, Countries like Australia must aim to reach a global peak in greenhouse gas emissions as soon as possible and work towards net zero emissions by 2050 (a carbon neutral world).

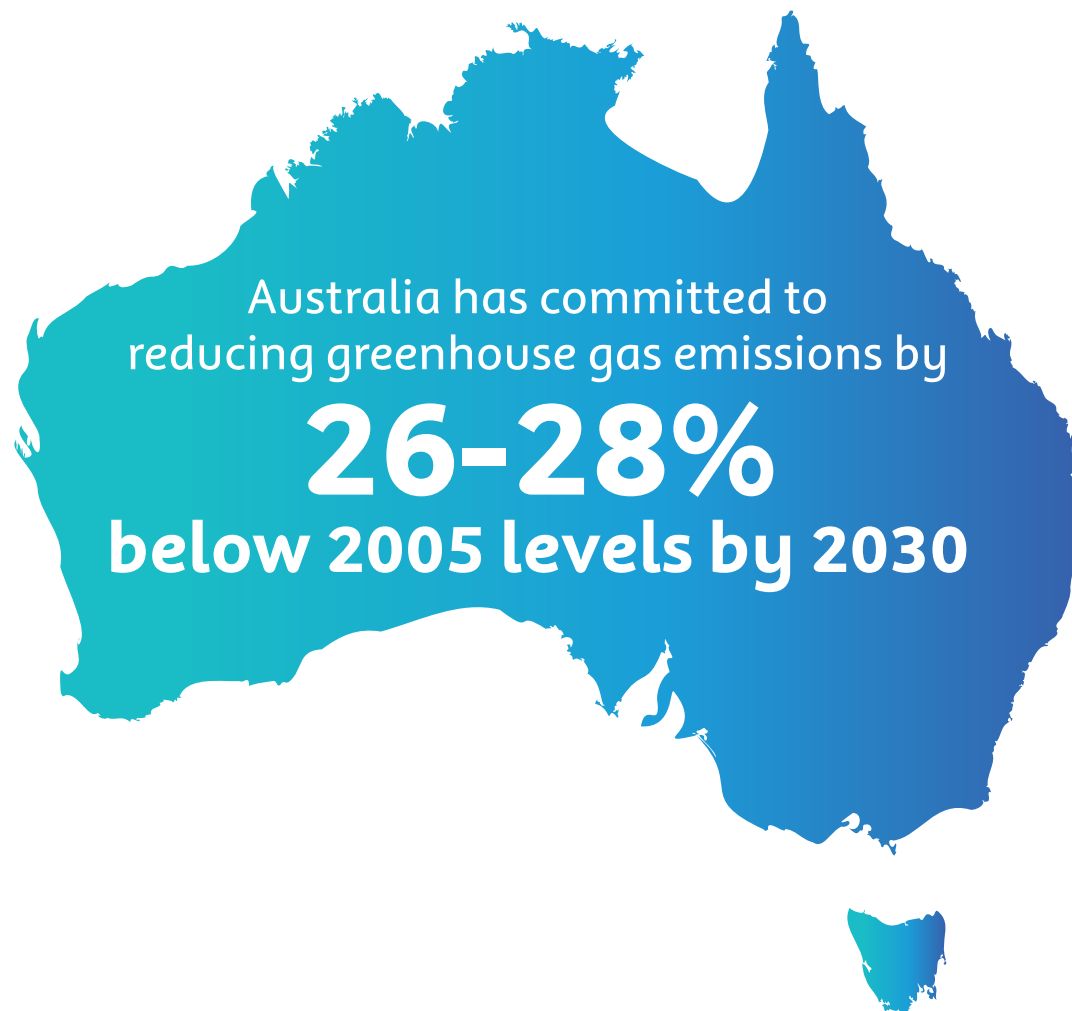
The Intergovernmental Panel on Climate Change (IPCC) regularly reviews and assesses the most recent scientific, technical and socioeconomic information produced worldwide, on climate change. The information and reports compiled by the IPCC assist policy makers, such as Council, in making science-based decisions.



COP21 • CMP11  
**PARIS 2015**  
UN CLIMATE CHANGE CONFERENCE



# What commitment has Australia made?



In the lead up to the COP26 summit, the federal government released “Australia’s Long-term Emissions Reduction Plan. A whole-of-economy Plan to reach net zero emissions by 2050”, a cornerstone of the Federal Government’s plan is the “Technology Investment Roadmap” which is modelled to reduce Australia’s emissions by 40% from 2005 levels by 2050. This entails investing at least \$20 billion over the next decade in emerging technologies and methods such as carbon capture and sequestration, clean hydrogen (and low emissions steel and aluminium using clean hydrogen), soil organic carbon measurement, as well as low cost solar and energy storage.

In line with the 2015 Paris Agreement, each Australian State and Territory has committed to net zero emissions by 2050, with the ACT setting a more ambitious target of net zero by 2045. States also have varying interim emissions targets leading to 2050, and all but NSW and WA have set renewable power targets.

In March 2020 the NSW Government released *Stage 1 (2020-2030)* of its *Net Zero Plan*, setting out four priorities:

- 1. Drive uptake of proven emissions reductions technologies**
- 2. Empower consumers and businesses to make sustainable choices**
- 3. Invest in the next wave of emissions reduction innovation**
- 4. Ensure NSW Government leads by example**

The plan notes there will be unexpected developments in technology and that NSW will look to take advantage of what these may offer. It secondly stresses that achieving net zero by 2050 will require action from “local government, business, communities and individuals”.

The NSW Climate Change Policy Framework (2016) sets out the following policy directions:

**Create investment certainty to manage transition**

**Boost energy productivity**

**Take up opportunities for new industries**

**Reduce risks to public and private assets**

**Reduce impacts on health and wellbeing**

**Manage impacts on natural resources, ecosystems and communities**

An Objective of the Illawarra Shoalhaven Regional Plan 2041 is to

“plan for a net zero region by 2050”.



# What does net zero emissions mean?

Net zero emissions broadly refers to a state where any greenhouse gases generated are counterbalanced by removal of greenhouse gases from the atmosphere. In practice, net zero means reducing emissions as far as possible, then offsetting the remainder. This requires action by all levels of government, communities and business.

Local Government, businesses and other organisations are actively managing their greenhouse gas emissions to position themselves for growth and competitiveness in a lower-emissions future. Shellharbour City Council has resolved to go one step further, demonstrating leadership and accountability by becoming carbon neutral.

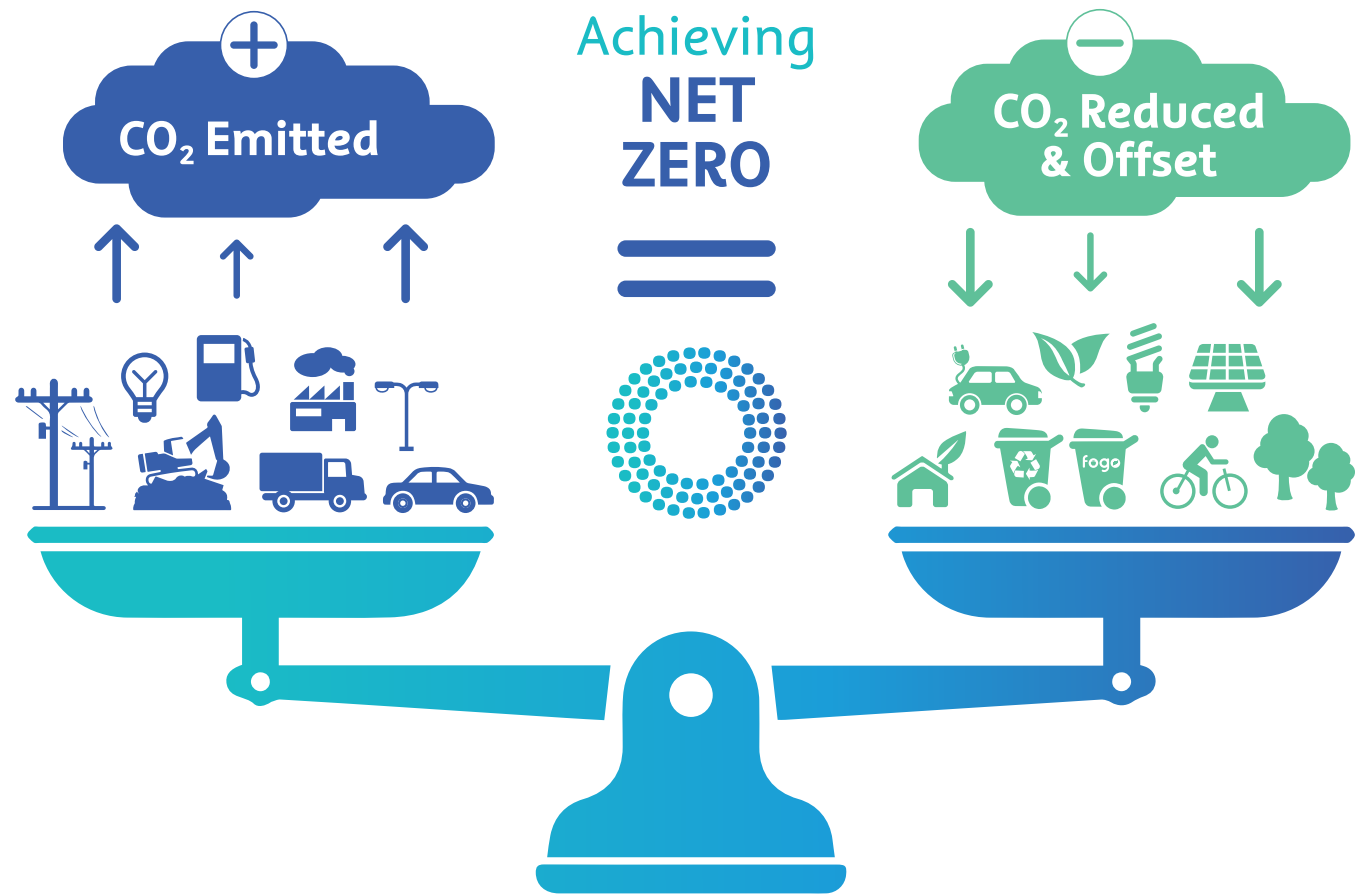


Figure 1. Achieving net zero emissions



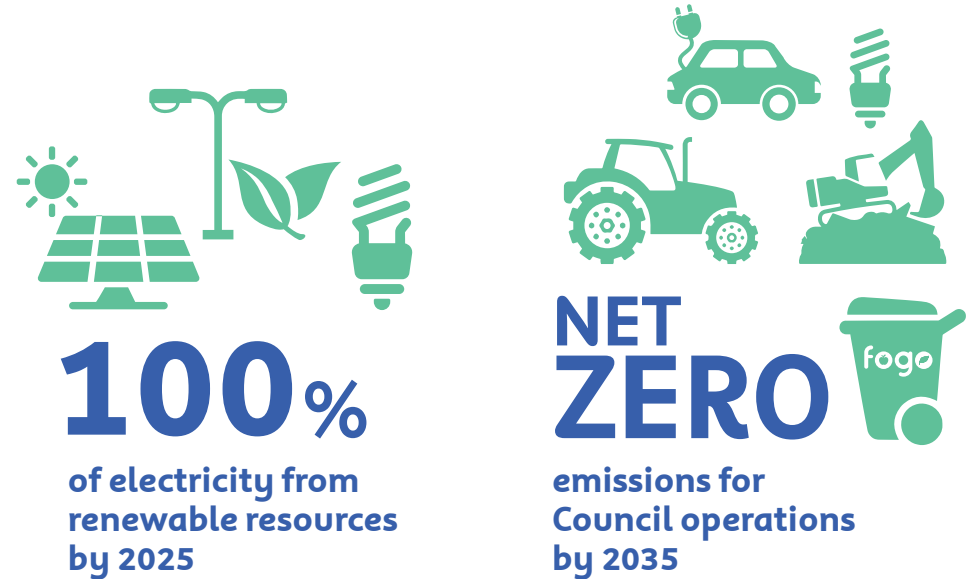
# Shellharbour City Council's Commitment

On 15 December 2020 Council committed to a net zero emissions goal for both its operations and the whole of the City by 2050. This target builds on Council's participation and commitments under the Cities Power Partnership program.

During the development of the Climate & Sustainability Policy and the Zero Emissions Shellharbour Strategy, it was identified that was an opportunity to review Council's energy contracts. In light of this review, Council's operational net zero target was brought forward to 2035. An additional target for the procurement of 100% of Council's electricity from renewable resources by 2025 was also endorsed. These targets represent financially sustainable goals that demonstrate leadership to the community.

This Strategy maps out a high-level, adaptive process to achieve Council's operational and community targets. Council is intentionally adopting a flexible approach to allow for changes to projects currently under investigation, as well as the possibility of bringing new innovative technologies online as they become financially viable.

## Council's Operational Targets



## Community Target



# How Council's Zero Emissions Shellharbour Strategy links with other Council strategies

The Community Strategic Plan (CSP) 2022-2032 focuses on what the community have told Council they want for Shellharbour City. It explains the community's vision and objectives to help Council make the city an even better place to live, work and play. It belongs to the community and guides Council's decisions regarding services, projects and works programs.

The Zero Emissions Shellharbour Strategy supports objectives and strategies set in the Community Strategic Plan (CSP) 2022-2032, that aim to reduce operational and community generated greenhouse gas emissions and work towards a sustainable, healthy Shellharbour.

This strategy is also consistent with the following commitments and legislative requirements:

- Shellharbour City Council's Cities Power Partnership pledge commitments resolved by Council on 19 March 2019
- Planning Priority 10, 11 and 12 of the Local Strategic Planning Statement
- Objective 15 of the draft Illawarra Shoalhaven Regional Plan 2041

To keep the community informed on the progress of achieving the Zero Emissions Shellharbour Strategy, Council will use the existing Integrated Planning and Reporting (IP&R) Framework for the purposes of monitoring the implementation of the Strategy.

## CSP Strategies that link in with our Zero Emissions Shellharbour program

### 1.2 We are a liveable community

- 1.2.3 Construct and upgrade buildings and infrastructure that meet current and future community needs

### 2.1 We are sustainable

- 2.1.2 Deliver plans and programs that enhance and protect biodiversity in our natural areas
- 2.1.3 Partner with the community to inspire innovative practices, that promotes sustainability
- 2.1.4 Our waste is managed as a valuable resource and the environmental impacts are minimised
- 2.1.5 Address, adapt, and build resilience to climate change

### 2.2 We are a beautiful & connected City

- 2.2.1 Our planning reflects the unique character of our City and natural environment and is responsive to the evolving needs of our community
- 2.2.2 Provide and promote a sustainable and integrated active travel and transport network
- 2.2.3 Facilitate sustainable development that considers current and future needs of our community and environment

### 3.1 We support a strong local economy

- 3.1.1 Our businesses are well-connected and thrive in an environment that supports innovation and economic growth

### 4.2 We have strong leadership

- 4.2.1 Our Council is transparent and trusted to make decisions that reflect the values of the community collectively
- 4.2.2 The Council lives responsibly within its means and strengthens its financial sustainability
- 4.2.4 Undertake visionary, integrated, long term planning and decision making, reflective of community needs and aspiration

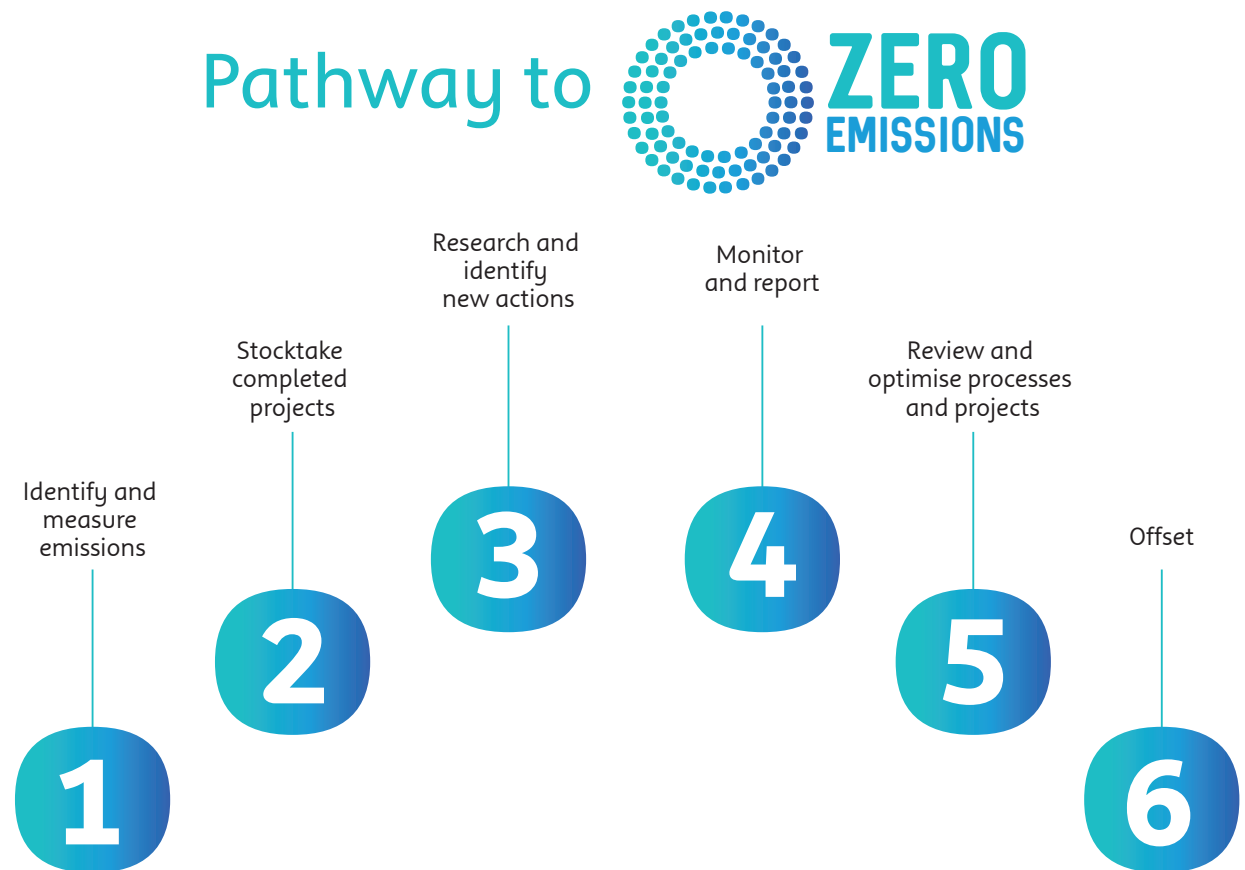


# Our pathway to achieve Operational Zero Emissions targets

## Council's Operational Emissions Reduction Plan

Council will develop an operational emission reduction plan to measure, monitor, reduce and offset Councils operational greenhouse gas emissions by the target dates.

The OERP will build on existing actions taken by Council to reduce operational emissions and map out future actions which will be reported back to the Community annually through Council's intergrated planning and reporting framework.



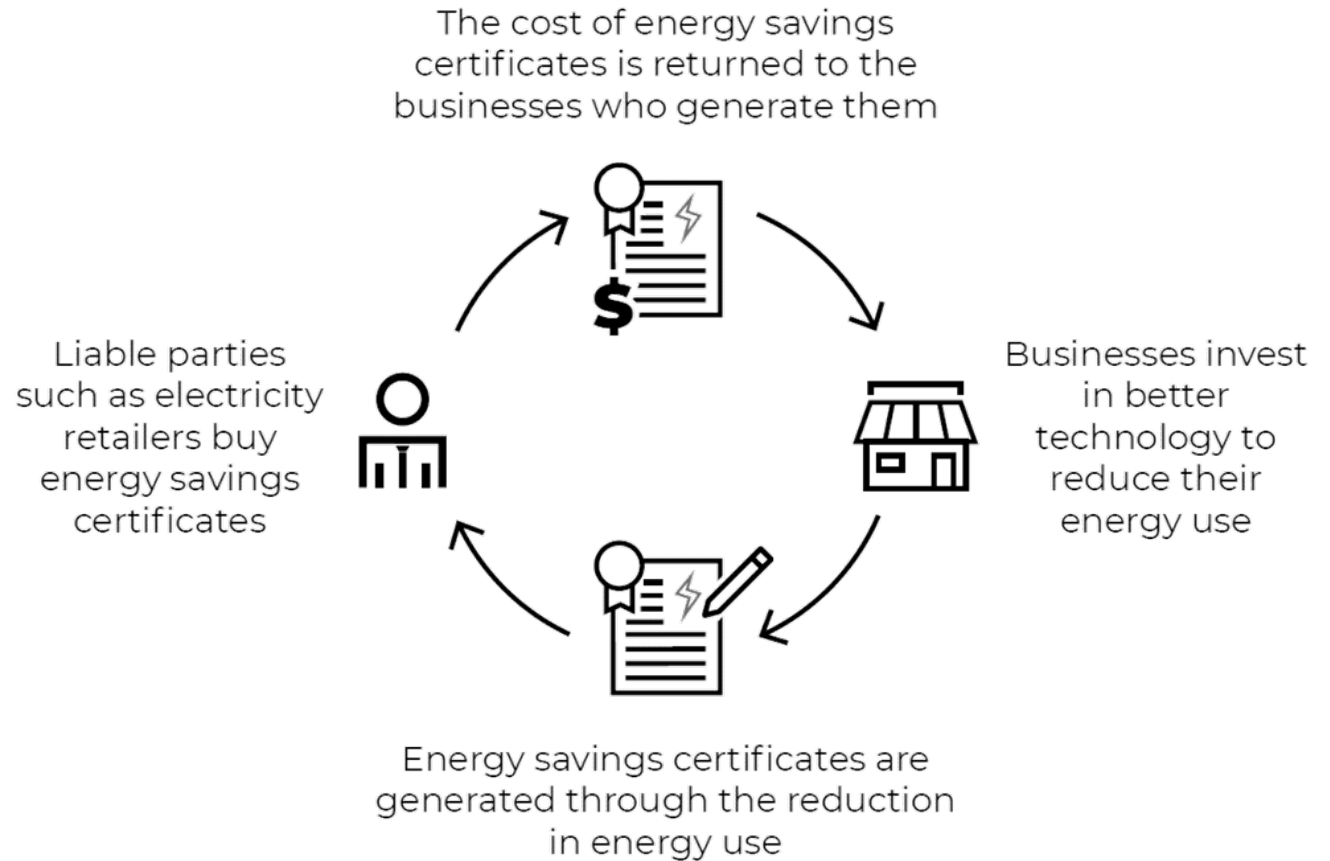
**Figure 2.** Pathway to Net Zero Emissions

# NSW Energy Savings Scheme

Under the NSW Energy Savings Scheme (ESS) financial incentives are provided to organisations and households to install, improve or replace energy savings equipment and appliances. The ESS was established in 2009 under the Electricity Supply Act 1995.

## Council's position on participation in the ESS is that:

Individual carbon abatement projects will be assessed for their environmental, financial and social benefits in achieving Council's net zero targets; and that ESCs may be traded or retired in order to not only make those projects viable, but to be able to reach Council's adopted net zero targets. Council will always be transparent on its use of ESCs via its carbon accounting practises.





# Measuring Emissions

To align with a national methodology for monitoring and reporting emissions for a local government, the National Greenhouse and Energy Reporting (NGER) methodology has been employed to measure Council's baseline and ongoing emissions.

A dark blue cloud-shaped icon with the text 'Scope 1' in white.

## Scope 1

**Scope 1** Direct greenhouse gas emissions generated from sources which are controlled by Council.

This includes emissions generated from fuel used for Council's fleet, plant and equipment and gas used for heating and cooling.

A medium blue cloud-shaped icon with the text 'Scope 2' in white.

## Scope 2

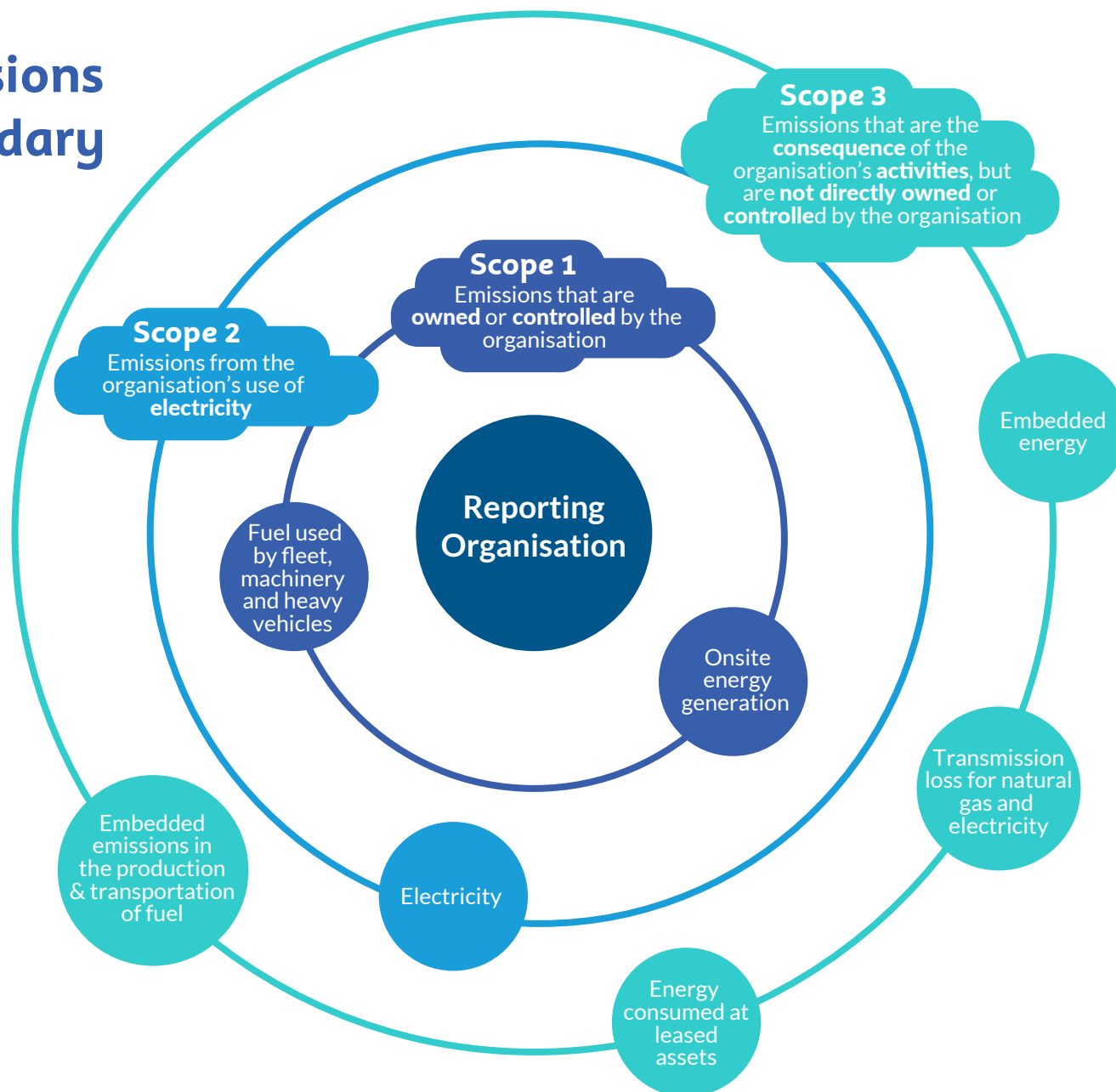
**Scope 2** Indirect greenhouse gas emissions that are generated by electricity, which Council purchases for operational use.

A light blue cloud-shaped icon with the text 'Scope 3' in white.

## Scope 3

**Scope 3** All other indirect greenhouse gas emissions that Council contributes to in part, generated from sources not owned or Controlled by Council. This includes emissions associated with products and services that Council procures, materials purchased and staff travel etc.

## Emissions Boundary



## Operational baseline emissions

Using the NGER methodology, Council's operational baseline emissions were calculated for the 2019/20 financial year.

The total baseline emissions were calculated as  
**7,521 tonnes** of Carbon Dioxide Equivalence (tCO<sub>2</sub>-e).



# Operational Objectives and Goals



Electricity



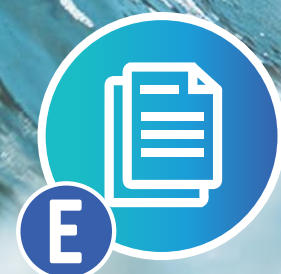
Fuel



Natural Gas



Waste



Governance

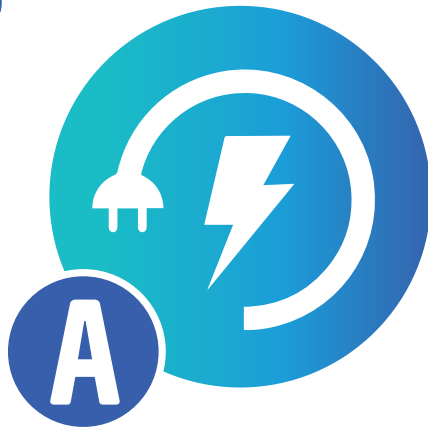


Scope 3  
Emissions



Carbon  
Offsets

## Objective A | Electricity



### Improve electricity efficiency and transition to 100% renewable energy by 2025

Electricity use across all assets and street lighting accounted for 75% (5,591 tCO<sub>2</sub>-e) of Council's baseline operational emissions.

In order to reduce emissions associated with the use of electricity Council has upgraded 50% of its street lighting to LEDs. Council has recently entered into a further agreement with Endeavour Energy to retrofit the remaining 50% of streetlights to LEDs in 2023.

A review of Council's electricity contracts is also being undertaken with the aim of purchasing renewable energy for all assets and street lighting by 2025. This will reduce Council's carbon footprint by more than 50%.

## Goals

**Transition to  
100% renewable  
electricity by 2025**

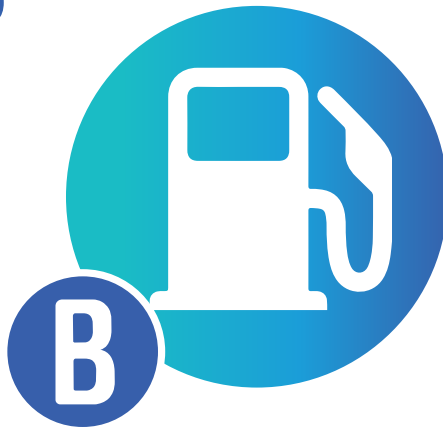
**Maximise  
renewable  
energy generation  
on Council owned  
assets**

**Maximise the  
energy efficiency  
of existing Council  
assets and  
operations**

**Minimise the  
emissions footprint  
of new Council  
assets through  
innovative design**



## Objective B | **Fuel**



### Optimise fuel efficiency and transition to renewable fuel sources

Fuel use accounted for 20% (1,534 tCO<sub>2</sub>-e) of Council's baseline emissions. Vehicle use including plant and equipment is necessary to maintain essential community infrastructure such as roads, pavements and open spaces.

Council has taken significant steps to improve the environmental performance of its passenger fleet. Although once considered an idea of the future, the transition to EVs is becoming more attainable with the constantly evolving technology in this space. As such, Council continues to investigate options for the introduction of EVs into the fleet and has recently developed EV Charging Infrastructure Guidelines to help plan for a future network of EV chargers on Council land across the Shellharbour LGA.

## Goals

**Transition passenger fleet to hybrid vehicles**

**Pursue alternative renewable fuel sources for fleet and equipment**

**Investigate transition of plant and heavy vehicle fleet to lower emissions technologies**



## Objective C | Natural Gas



### Eliminate natural gas consumption across Council facilities

Natural gas use accounted for 5% (396 tCO<sub>2</sub>-e) of Council's baseline emissions. This equates to approximately 396 tCO<sub>2</sub>-e per year. Natural gas is currently used for heating and cooling across several Council facilities. Whilst accounting for a small proportion of Council's total emissions, Council is moving towards eliminating the use of natural gas use across Council facilities in favour of renewable options due to its high global warming potential.

---

## Goal

**Transition to  
alternative energy  
sources at gas using  
Council facilities**

## Objective D | Waste



### Improve Operational Energy Efficiency of Dunmore Waste & Recycling Depot and reduce emissions from landfill

The majority of waste received at Dunmore Waste and Recycling Facility is from kerbside collection through Council's domestic waste management service (which in 2019/20 was 30,542 tonnes). The emissions associated with the landfill itself will be included in the community footprint and addressed through the CERP. This approach is consistent with the Department of Planning, Industry and Environment's Net Zero Emissions Guidance for NSW Councils that indicates that non-operational waste should form part of the community emissions profile.

## Goals

**Maximise the amount of waste diverted from landfill through best practise in waste avoidance, recovery and management**

**Investigate opportunities to efficiently capture landfill gas and convert it to energy**



## Objective E | Governance



### Build capacity of Council to reduce emissions as business as usual

Building the consideration of emissions reduction into Council policies, procedures and processes will play an important role in Council's journey to net zero. It will ensure that greenhouse gas emissions associated with Council projects and activities are consistently integrated into all decision making.

## Goals

Complete an audit of Council's baseline emissions data

Improve Council's data management system to align with the requirements of the Australian Climate Active standard

Establish a Sustainability Revolving Fund to fund ongoing emissions reduction projects

Update Council systems and procedures to include emissions reduction considerations



## Objective F | **Scope 3 Emissions**



### Define and reduce Scope 3 emissions from Council's operations

Scope 3 emissions refers to indirect greenhouse gas emissions resulting from the activities of Council, but from sources not owned or controlled by the organisation. The Scope 3 emissions sources that have been included in Council's baseline inventory include transmission loss for natural gas and electricity, energy consumed at leased assets, and embedded emissions in the production and transport of fuel. Council has committed to define and measure a range of additional Scope 3 emissions sources to provide a more complete picture of Council's carbon footprint.

---

### Goals

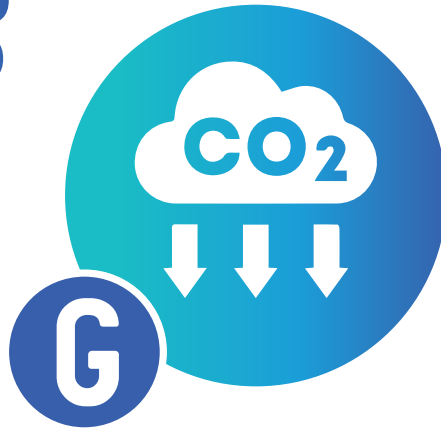
**Define and measure Scope 3 operational emissions in line with the Australian Climate Active standard**

**Embed emission reduction considerations into procurement policies and procedures**

**Provide education and opportunities for staff to reduce Scope 3 emissions associated with their employment**

**Undertake trials of recycled and low carbon materials in capital works projects**

## Objective G | Carbon Offsets



Offset remaining emissions to reach net zero target with preference for local offsetting in Shellharbour LGA

Whilst Council is committed to reducing operational emissions. These remaining emissions will be counteracted through generating or purchasing carbon offsets through Climate Active's carbon neutral accreditation process.

### Goals

**Investigate opportunities to undertake offset projects on Council owned land**

**Develop a Carbon Emission Offset Policy**

**Become certified carbon neutral under the Australian Climate Active standard by 2035**



# Pathway to Achieve Community Zero Emissions by 2050

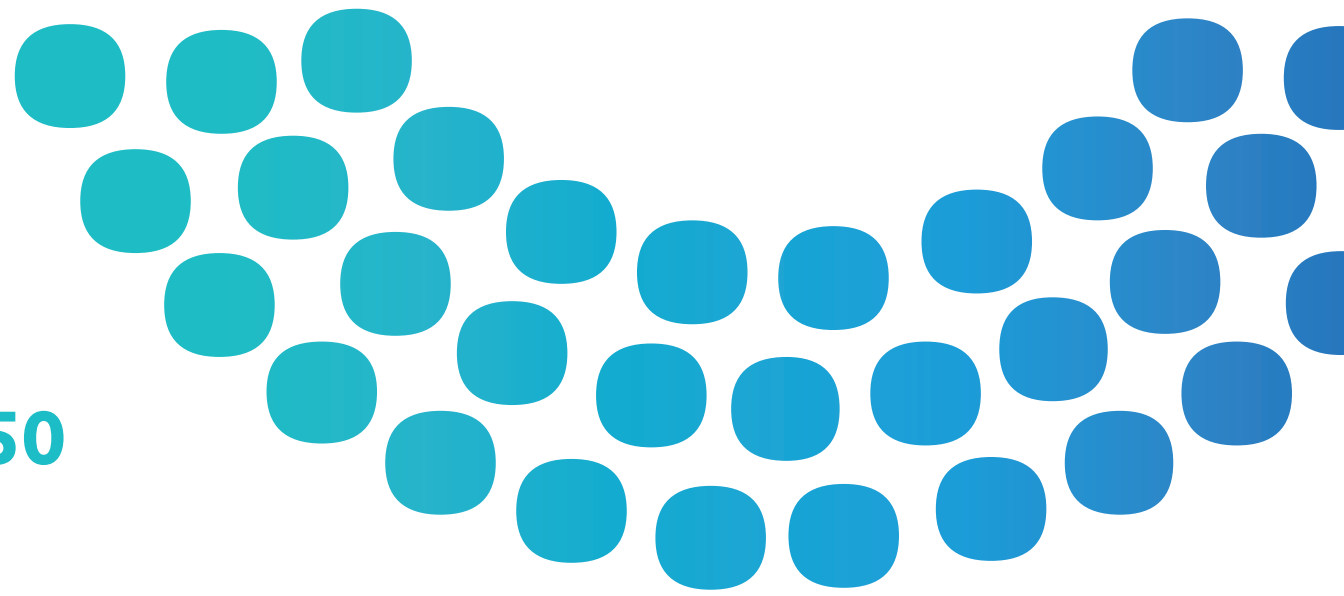
## Community Emissions Reduction Plan

Current estimates suggest that greenhouse gas emissions generated in the Shellharbour LGA are around 669,000 tonnes each year.

Council will develop a Community Emissions Reduction Plan to identify and direct efforts in achieving the net zero target by 2050 for our community.

This plan will measure and monitor greenhouse gas emissions for the community and as part of this process, Council will engage and consult with the community to establish a range of initiatives and actions.

Council has a limited amount of control and influence over many community emissions sources such as stationary energy (including residential and commercial buildings) and on-road transportation. The target of net zero emissions for the whole of the Shellharbour LGA cannot be achieved by Council alone, a cross-sectoral approach involving residents, business and other levels of government is required.



# Definitions

**Carbon Dioxide Equivalence (CO<sub>2</sub>-e)** – a standard measure that takes account of the global warming potential of different greenhouse gases and expresses the effect in a common unit.

**Carbon Credit** – a generic term for any tradable certificate or permit representing the right to emit a set amount of carbon dioxide or the equivalent amount of a different greenhouse gas (tonnes of CO<sub>2</sub>-e). Carbon credits and carbon markets are a component of national and international attempts to mitigate the growth in concentrations of greenhouse gases. One carbon credit is equal to one tonne of carbon dioxide, or in some markets, carbon dioxide equivalent gases.

**Carbon Footprint** – the amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organisation, or community.

**Carbon Neutral** – (see also Net Zero Emissions) refers to when the net emissions associated with an activity are equal to zero because emissions have been reduced and/or offset to fully account for all emissions. Usually, offsets are created through purchasing carbon credits to make up the difference. The best practice approach is to reduce, or avoid, carbon emissions first, then offset any unavoidable emissions.

**Climate Active (Carbon Neutral Standard)** – a standard for making carbon neutral claims; maintained by Australian Government Department of the Environment and Energy; sets rules for measuring, reducing, validating and reporting emissions. The standard is available for organisations, products and services, buildings, precincts and events. (Previously National Carbon Offset Standard)

**Emissions Boundary (See also, Scope 1, Scope 2, and Scope 3)** – An emissions boundary is the extent to which an organisation or entity defines the scope of emissions within their inventory. It can include sources of emissions resulting either directly or indirectly from the operations or facilities within the organisation or entity, and is categorised into Scope 1, Scope 2 or Scope 3 emissions.

**Energy Efficiency** – using less energy to achieve the same output.

**Energy Hierarchy** – a system that will be used to guide decision-making for selection of emissions reduction actions to achieve net zero emissions. This system prioritises actions in the following order: avoiding emissions, reducing emissions, replacing emissions, offsetting.

**Greenhouse Gases (GHG)** – the atmospheric gases responsible for causing global warming and climate change. The Kyoto Protocol lists six greenhouse gases – carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur-hexafluoride (SF<sub>6</sub>) – with the addition of nitrogen trifluoride (NF<sub>3</sub>) from the beginning of the protocol's second commitment period.

**Landfill Capping** – refers to a containment technology that involves placing a cover over contaminated material, such as landfill waste, thereby shielding humans and the environment from the harmful effects of its contents.

**Local Carbon Offsetting** – refers to certified carbon offsetting or sequestration activities and projects within the Shellharbour LGA or wider Illawarra area, used to offset the emissions whilst simultaneously stimulating the local economy.

**Local Government Area (LGA)** – the administrative area covered by local government Councils in Australia

**Mitigate** – in relation to climate change, refers to efforts to reduce or prevent emission of greenhouse gases.

**Net Zero Emissions** – (see also Carbon Neutral) refers to when the net emissions associated with an activity are equal to zero because emissions have been reduced and/or offset to fully account for all emissions. Usually, offsets are created through purchasing carbon credits to make up the difference. The best practice approach is to reduce, or avoid, carbon emissions first, then offset any unavoidable emissions.

**Offsetting** – the activity of cancelling offset units/carbon credits, where an entity has directly exchanged the value of their emissions for an equivalent value of carbon sequestered from the atmosphere.

**Renewable Energy** – energy from resources which are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat.

**Scope** – refers to the categorisation of emissions sources into direct and indirect sources.

**Scope 1 Emissions** – the release of greenhouse gases into the atmosphere as a direct result of activities occurring within a responsible entity's control (or geographic boundary).

**Scope 2 Emissions** – The release of greenhouse gases into the atmosphere from the consumption of electricity, heating, cooling or steam that is generated outside of a responsible entity's control (or geographic boundary).

**Scope 3 Emissions** – Greenhouse gases emitted as a consequence of a responsible entity's activities but emitted outside the responsible entity's control (or geographic boundary).



# *Tackling Climate Change together*

Enquiries and feedback should be made to:

The Chief Executive Officer  
Shellharbour City Council  
*Dharawal Country*  
Locked Bag 155  
Shellharbour City Centre NSW 2529

Telephone: (02) 4221 6111  
Facsimile: (02) 4221 6016  
E-mail: [council@shellharbour.nsw.gov.au](mailto:council@shellharbour.nsw.gov.au)

[www.shellharbour.nsw.gov.au](http://www.shellharbour.nsw.gov.au)