

Tackling Climate Change together



ZERO
EMISSIONS
Shellharbour

Strategy 2022 - 2050



Shellharbour
CITY COUNCIL



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 from the left towards the center. The turtle's head and front flippers are visible. Below the turtle, a large, textured coral reef structure rises from the bottom. The water is clear blue, and sunlight filters down from the surface, creating a dappled light effect. The overall scene is serene and emphasizes marine life.

Summary

In December 2020, Council resolved to commit to a net zero emissions target by 2050 for both Operational and Community Emissions for the Shellharbour LGA. The Zero Emissions Shellharbour Strategy outlines Council's commitments in reducing both our operational and community emissions, our program objectives and interim goals to monitor our progress.

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 have been more widely noted.

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



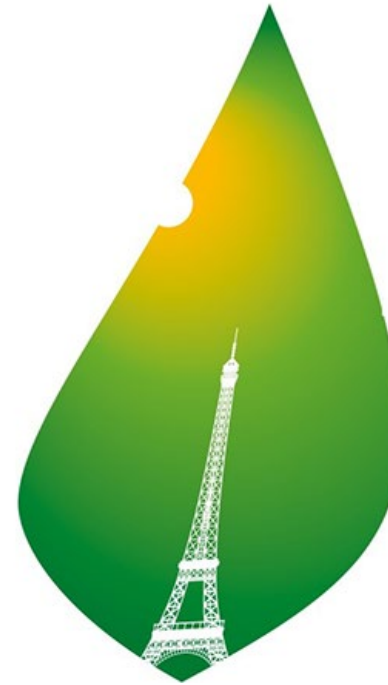
Source: Office of Environment & Heritage (2014) Illawarra Climate Change Snapshot

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).

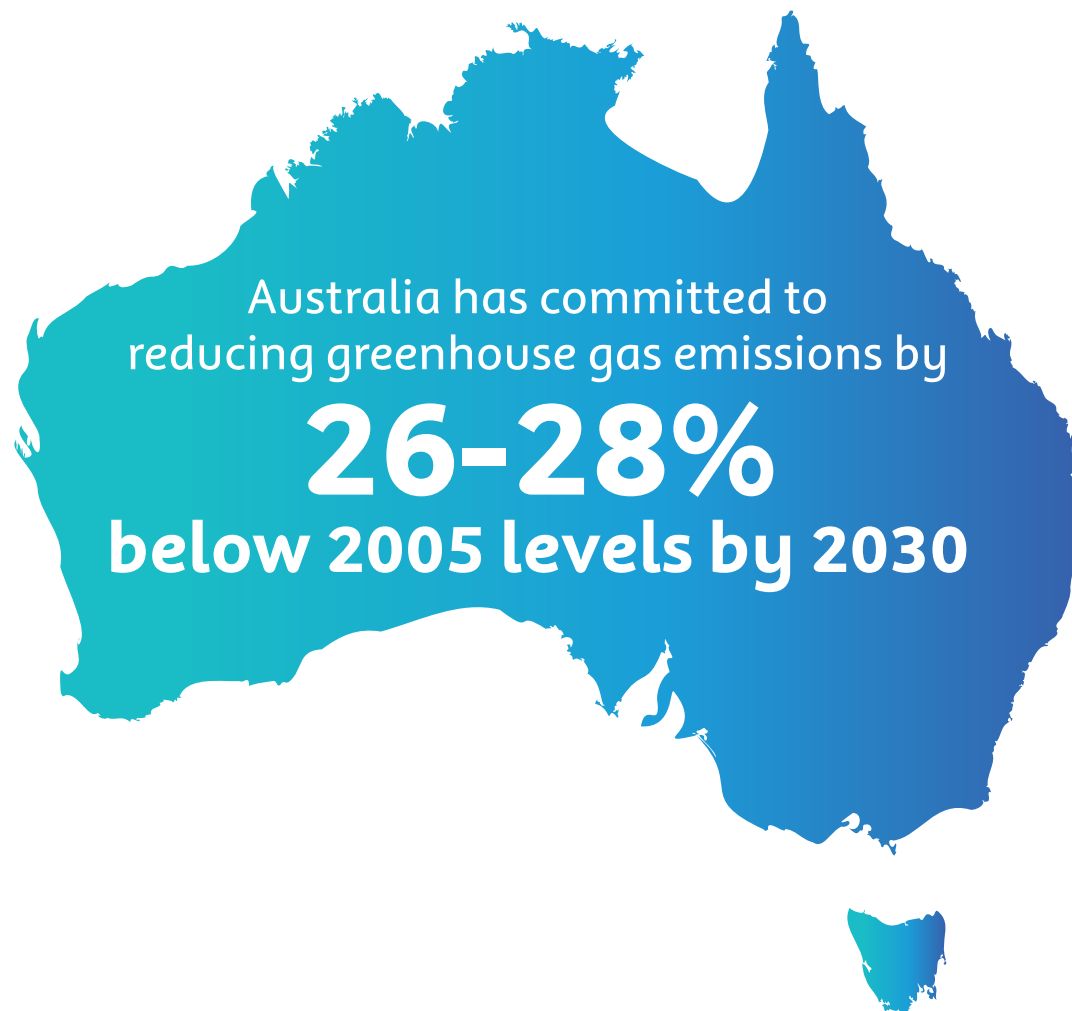
The Intergovernmental Panel on Climate Change (IPCC) regularly reviews and assesses the most recent scientific, technical and socioeconomic information produced worldwide, on climate change. The information and reports compiled by the IPCC assist policy makers, such as Council, in making science-based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

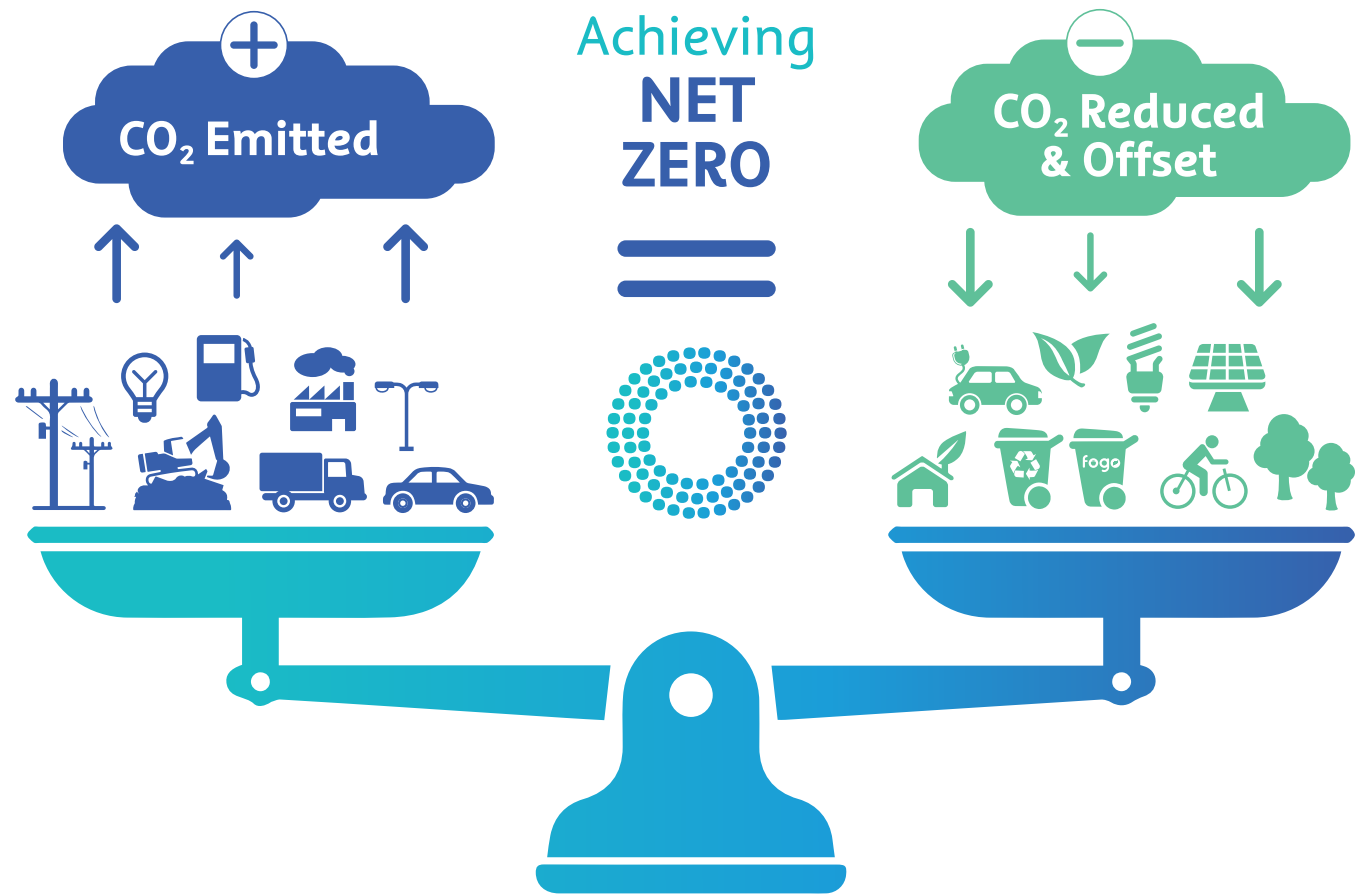


Figure 1. Achieving net zero emissions

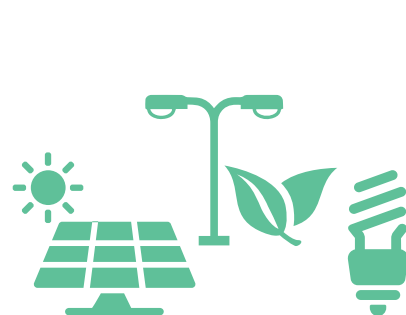
Shellharbour City Council's Commitment

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 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, the following operational targets for renewable energy and operational emissions reduction have been 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 goals of net zero emissions by 2050. 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



100%

**of electricity from
renewable resources
by 2025**



NET ZERO

**emissions for
Council operations
by 2030**



Community Target



NET ZERO

**emissions
by 2050**

How our Zero Emissions Shellharbour Strategy links with other Council strategies

The Community Strategic Plan (CSP) 2018-2028 focuses on what the community have told us they want for Shellharbour City. It explains the community's vision and objectives to help us make our city an even better place to live, work and play. It belongs to the community and guides our decisions regarding services, projects and works programs.

The Zero Emissions Shellharbour Strategy supports objectives and strategies set in the Community Strategic Plan (CSP) 2018-2028, 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

CSP Strategies that link in with our Zero Emissions Shellharbour program

2.1 Protects, promotes and enhances its natural environment

2.1.2 Deliver plans and programs that enhance and protect biodiversity in our natural areas

2.1.4 Facilitate active community engagement in caring for the natural environment

2.2 Practices sustainable living

2.2.1 Provide community engagement and education on environmental sustainability

2.2.2 Provide effective and sustainable waste operations and services for the City

2.2.3 Reduce our ecological footprint

2.3 A city that is connected through places and spaces

2.3.2 Undertake land use planning in a socially, economically and environmentally responsive manner

2.3.3 Provide and promote a sustainable, safe and connected transport network

2.3.6 Deliver sustainable whole of life asset management for the community

3.1 Plans, builds and manages infrastructure for the community

3.1.1 Provide the community with a range of infrastructure delivered in a sustainable manner

4.2 Supported by a Council that is responsive, accountable and financially viable

4.2.3 Ensure Council is financially sustainable and continues to be transparent and accountable

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

Recent achievements

Through Council's existing partnerships and CPP commitments, Council has already delivered a number of projects and initiatives which have seen reductions in our emissions as an organisation over the last 5 years. Following is a summary of these achievements.

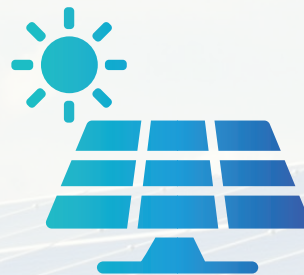
Completed or Ongoing Projects



Street Lighting*

Council has replaced 2,279 inefficient streetlights with energy efficient LEDs reducing emissions by around 800* tonnes of CO2-e each year.

Council has recently entered into a further agreement with Endeavour Energy to retrofit the remaining 50% of streetlights to LEDs in 2023.



Solar Power*

Council has installed over 206 kW of solar power across 7 Council sites. Together these projects will reduce operational emissions by approximately 209 tonnes of CO2-e.

A further 99.5 kW solar installation at Dunmore Waste & Recycling Depot will be completed in 2022.



Lighting Upgrades*

LED lighting upgrades have been completed across 17 Council facilities. Together these upgrades are estimated to save 226* tonnes of CO₂-e each year.



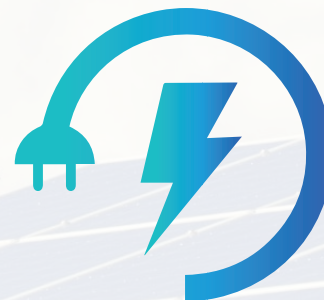
Low Emissions Fleet

By 2023 95% of Council's passenger fleet will be converted to hybrid vehicles resulting in a 125 tonne reduction in CO₂ emissions each year.



Landfill Gas Collection

Council converts methane from our landfill to a carbon dioxide in a process called methane flaring. Collection has reduced landfill emissions by approximately 7,964 tonnes of CO₂-e.



Electricity contracts

Council has committed to procuring 100% of its electricity supply from renewable energy sources by 2025.



Sustainable Building Design

Council achieved a 5-star Green Star design rating by the Green Building Council of Australia for the Civic Centre.



Leachate Treatment Plant and connection to sewer

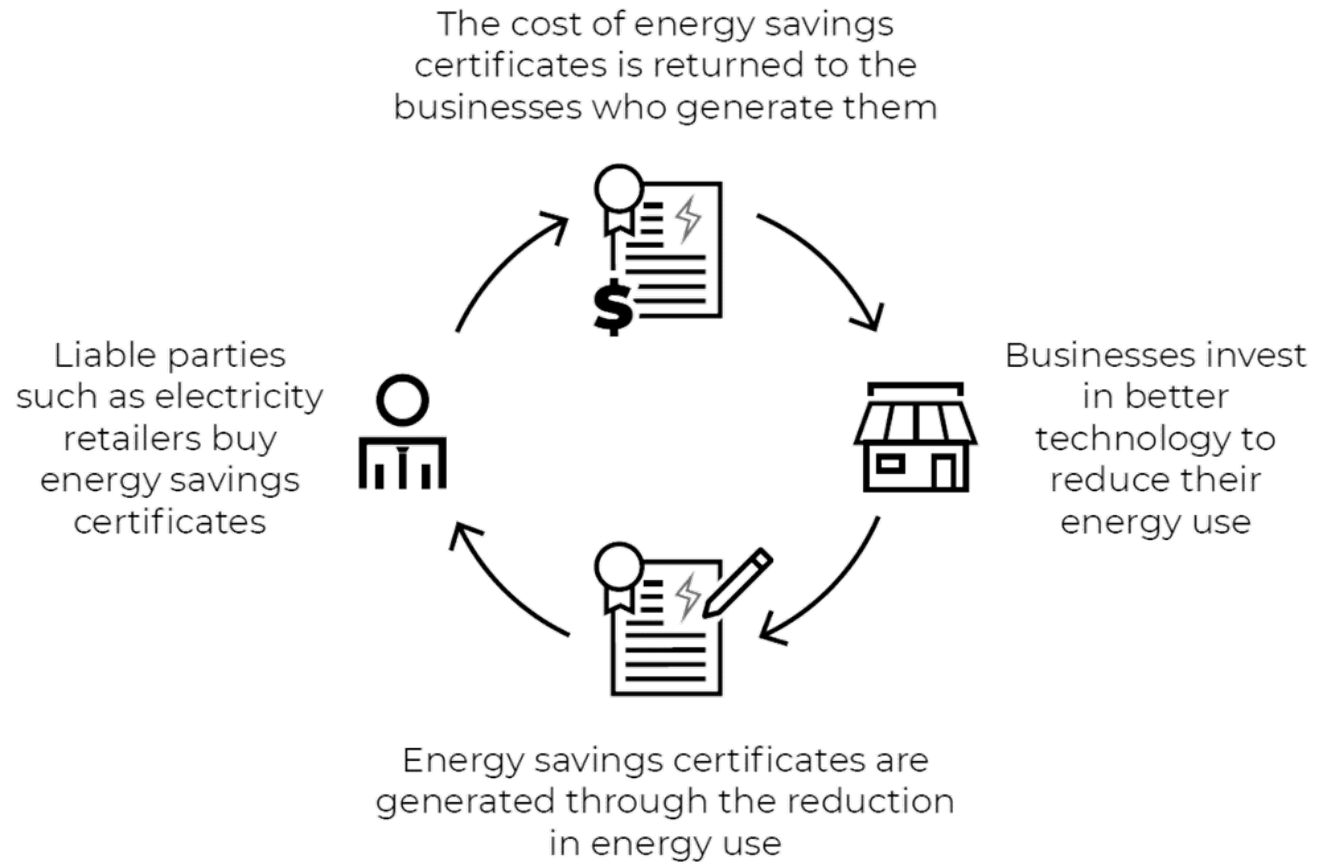
In 2021 Council built a leachate treatment plant at the Dunmore Waste and Recycling Facility which will greatly decrease Scope 3 emissions from transporting and treating leachate offsite. The energy used for the leachate treatment will increase Scope 2 emissions but these can be removed by future renewable energy generation on site.

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

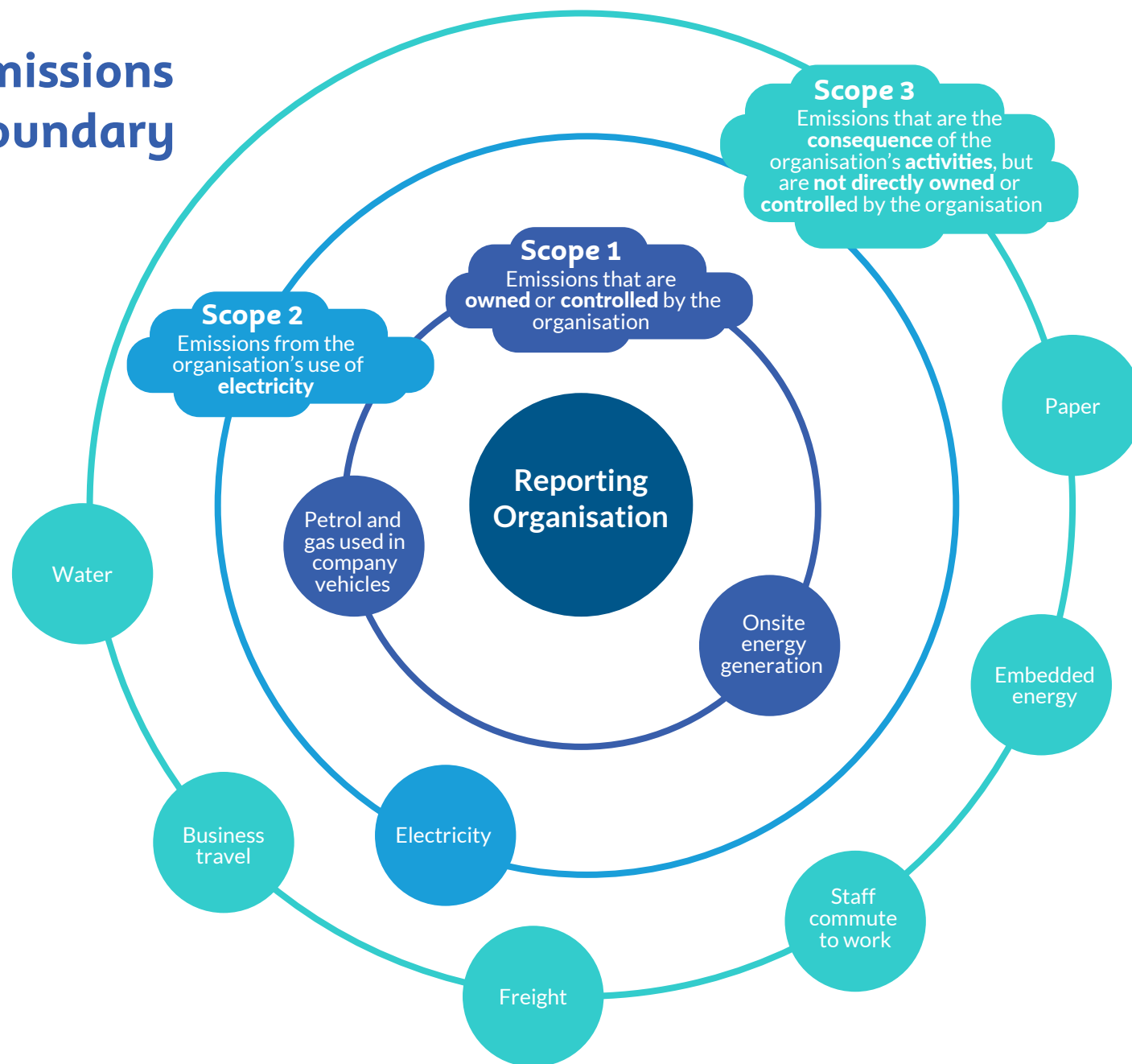
Scope 2 Indirect greenhouse gas emissions that are generated by electricity, which Council purchases for operational use.

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 (tCO₂-e).

Our Objectives and Goals



Electricity



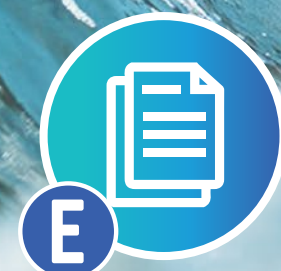
Fuel



Natural Gas



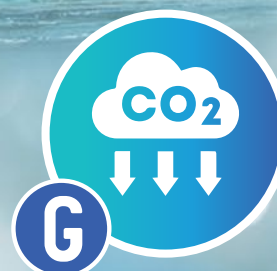
Waste



Governance

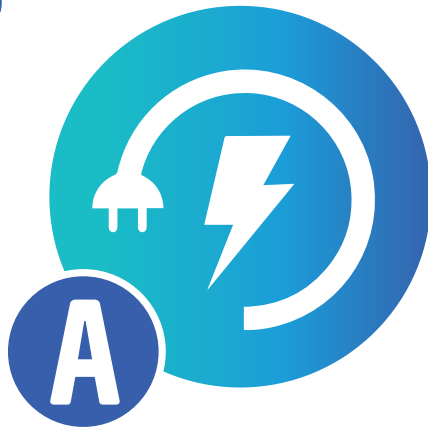


Scope 3
Emissions



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 tCO₂-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%.

The actions in the OERP capture these major projects and an additional suite of projects to maximise renewable energy generation and further improve energy efficiency to reduce Council's operational footprint.

Goals

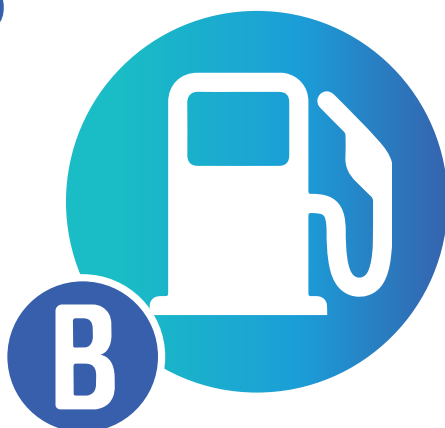
**Transition to
100% renewable
electricity by 2025**

**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 tCO₂-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.

The actions in the OERP capture a range of current and future actions aimed at minimising fuel use by Council's operations and transitioning to renewable fuel sources.

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 tCO₂-e) of Council's baseline emissions. This equates to approximately 396 tCO₂-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.

The actions in the OERP outline Council's transition away from natural gas across Council facilities in support of our net zero target.

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.

As landfill operations come under the operational control of Council this OERP contains waste related actions that specifically relate to operational efficiency and site improvements (e.g. disposal technologies and conversion of landfill gas).

Also included under this category in the OERP are actions to measure and reduce waste generated by Council operations, activities and projects and provision of community education.

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. The actions in the OERP also relate to the verification of Council's baseline emissions data, the procurement of a data management system to support a more robust carbon accounting system, the establishment of a future Sustainability Revolving Fund and opportunities for advocacy and collaboration.

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. The OERP aims to define and measure a range of additional Scope 3 emissions sources such as waste generated by Council operations, staff travel, embedded emissions in the production and transport of purchased goods and services such as concrete and bitumen, emissions from the collection and transport of community kerb side waste, catering and courier services, 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 goal 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 2050

Our Pathway to Achieve Community Zero Emissions by 2050

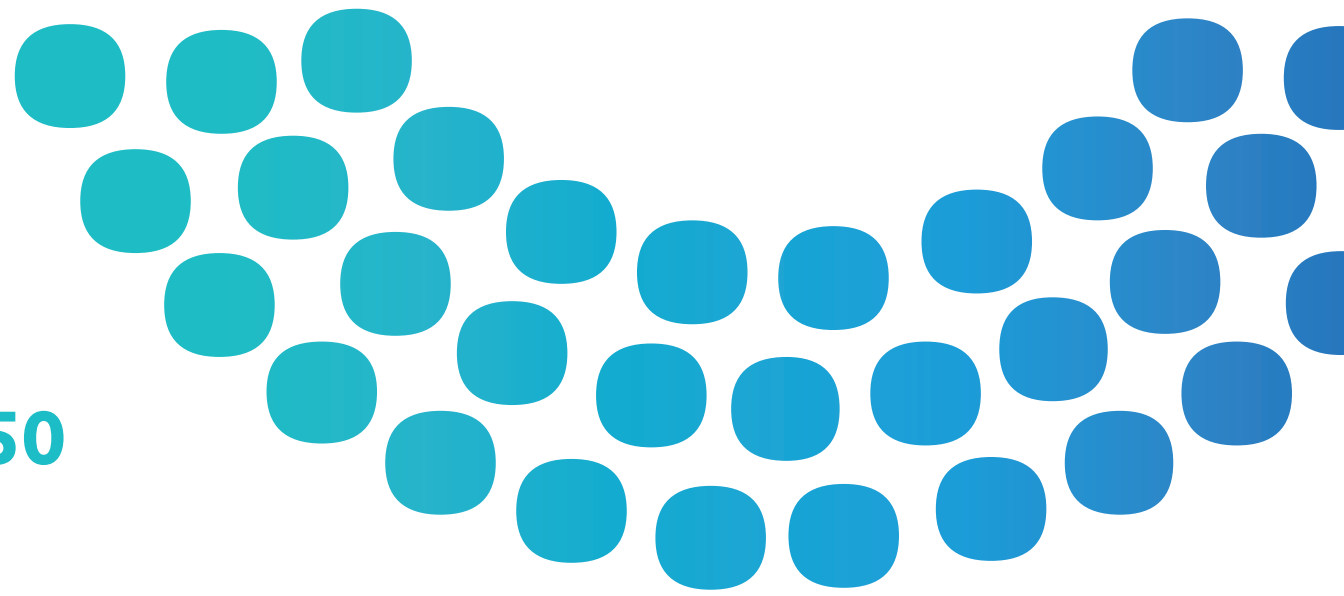
Community Emissions Reduction Plan

Current estimates suggest that Shellharbour LGA greenhouse gas emissions are around 669,000 tone p/a.

Council will develop a Shellharbour Community Emission Reduction Plan to identify and direct efforts in achieving 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 City cannot be achieved by Council alone, a cross-sectoral approach involving residents, business and other levels of government is required.



Community Focused: Ongoing or Completed Emissions Reduction Projects



Project	Description
Solar my School	Council is currently supporting 3 public schools to participate in the Solar my School program which assists schools to explore and install solar power.
Community education	Council continues to deliver our popular Sustainable Shellharbour and Waste education programs. In 2019/20 Council ran over 33 events involving 2,930 participants as part of the Sustainable Shellharbour program. Council also delivered 15 educational campaigns in the same year as part of the Waste program which involved a range of events, workshops, campaigns and social media messaging.
Revegetation	In 2019/20 Council planted over 14,200 trees in our reserves and donated more than 510 trees to community groups.
Electric Vehicle (EV) Charging Infrastructure Guidelines	Council has recently developed draft EV Charging Infrastructure Guidelines to help plan for a future network of EV chargers on Council land in the Shellharbour LGA.
Food Organics Garden Organics (FOGO)	In 2016 Council introduced a FOGO collection service which turns residential food and garden waste into soil conditioner. In 2019/20 FOGO reduced community emissions by approximately 160 tonnes.

Definitions

Carbon Dioxide Equivalence (CO₂-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 CO₂-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 (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur-hexafluoride (SF₆) – with the addition of nitrogen trifluoride (NF₃) 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:

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