



**TO ZERO
TOGETHER**



Byron Shire Council **Net Zero Emissions Action Plan** For Council Operations 2025





Acknowledgement of Country

In the preparation of this document Council acknowledges and pays respect to the Bundjalung of Byron Bay – Arakwal People as Traditional Custodians of the land within Byron Shire, and form part of the wider Aboriginal Nation known as the Bundjalung.

In addition, Council acknowledges and respects the Widjabal and Mindjungbul people as Traditional Custodians within the Byron Shire.

Council acknowledges the Aboriginal and Torres Strait Islander People who now reside within the area.



VERSION CONTROL

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Part 1 – Introduction and Guiding Principles

INTRODUCTION

Byron Shire Council has long acknowledged its contribution to global carbon emissions, reducing its reliance on fossil fuels since 2004 and monitoring emission reductions since 2015. In 2017 Council resolved to achieve net zero emissions for Council operations by 2025, and to source 100% of its energy through renewable sources by 2027. Acting on this resolution, the *Net Zero Emissions Strategy for Council Operations 2025* (the Strategy) was adopted in 2019.

The Strategy lead to the completion of several major renewable energy projects, including an additional 400 kilowatts (kW) of solar installed across Council assets and further progress towards investigating a 5 megawatt (MW) solar farm and a bioenergy facility within the Shire. In addition to this increasing renewable energy portfolio, Council offset over 2,600 tonnes of carbon dioxide equivalent (tCO₂-e) by choosing a carbon neutral electricity retailer, bringing its total net emissions down from 17,984 to 15,358 tCO₂-e in the 2018/19 financial year. Also in 2019, Council resolved to become certified carbon neutral by the 2025/26 financial year under the Federal Government's Climate Active requirements. The Climate Active standard is bound by rigorous auditing and reporting, and represents the highest level of commitment to reaching net zero emissions for Council operations.

The Action Plan aims to address the questions: where are we now, and what do we need to do to reach net zero emissions by 2025? Council's vision is mapped out through a series of Objectives, Goals, Actions, and Measures, providing Council staff with specific and practical steps as to how they can help meet the net zero emissions target. The five overarching Objectives provide the foundations for our emission reduction goals, and are based on the principal contributing sources of emissions within Council operations (see Figure 1).

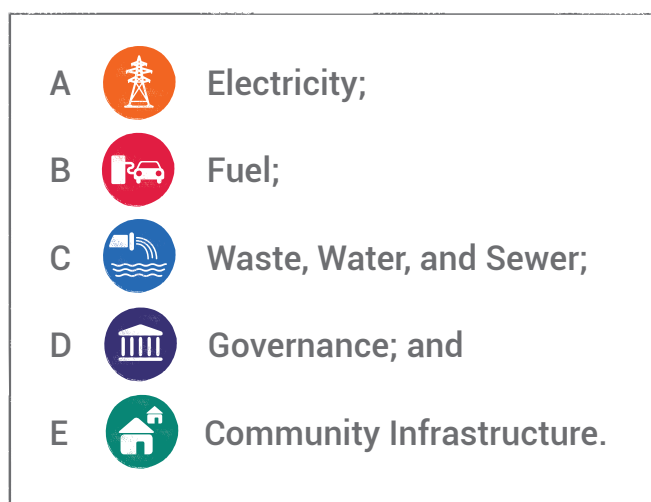


Figure 1: The five principle contributing sources of emissions within Council operations

GUIDING PRINCIPLES

The Action Plan represents Council's commitment to tackling climate change alongside a growing cohort of leading Australian and international governing bodies. The rapid growth within the climate science space means that technology and policy will be constantly evolving throughout the implementation of the Action Plan.

Whilst we endeavour to reflect the most current state of affairs, it is important to note that there is some level of uncertainty and assumption within this document. Not all actions and measures are weighted equally, and therefore may not all be individually required to reach net zero emissions by 2025. The goals in this plan are based on the figures and progress made over the past four years since Council's emissions baseline was established in 2016.

It is therefore essential that we continue to learn and adapt our response to the climate crisis by reviewing and updating this document annually, together with Council's annual emissions reporting. This will ensure that the Action Plan remains up to date and relevant for Byron Shire Council in the context of changing climate science, technology and policy, as well as reflecting the emissions reduction goals we achieve along the way.



The 99 kW solar carport structure at the Council Administration Building, Mullumbimby

Part 2 – Action Plan Summary Table






VISION

Net Zero Emissions for Council Operations by 2025



OBJECTIVES

The objectives stem from the five principal contributing sources of emissions within Council Operations

 Objective A <i>Electricity</i>	 Objective B <i>Fuel</i>	 Objective C <i>Waste, Water and Sewer</i>	 Objective D <i>Governance</i>	 Objective E <i>Community Infrastructure</i>
Improve electricity efficiency and transition to 100% renewable energy	Optimise fuel efficiency and transition to renewable fuel sources	Reduce waste and improve water efficiency	Disclose and improve emissions reporting and invest in high quality carbon offsets.	Minimise emissions from the construction of community infrastructure

GOALS

Goals are measurable longer-term targets that will guide Council towards achieving the relevant objective.
They will align with the timeframe of the 2021-2025 Delivery Program.

<ul style="list-style-type: none"> • Transition to renewable electricity at a minimum rate of 20% per annum • Improve energy efficiency of Council operations by a minimum of 5% per annum • Maximise renewable energy generation on Council owned assets 	<ul style="list-style-type: none"> • Reduce bulk fuel use by 2.5% per annum • Transition passenger vehicle fleet to electric vehicles • Pursue alternative renewable fuel sources for equipment and fleet • Support the uptake of electric vehicles in the Byron Shire 	<ul style="list-style-type: none"> • Support a landfill free shire through best practice in waste avoidance, recovery and management • Reduce inflow and infiltration to the wastewater system • Maximise water efficiency in Byron Shire 	<ul style="list-style-type: none"> • Prepare Council for meeting "Climate Active" carbon neutral certification requirements • Develop staff training and tools for emissions reduction and reporting • Incorporate carbon offsetting across Council operations • Provide planning policies that support emissions reduction in the Byron Shire 	<ul style="list-style-type: none"> • Assess and improve the emissions footprint of Council's infrastructure projects • Support public and passive transport options in the Byron Shire
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ACTIONS

Actions are specific and measurable steps for Council staff to deliver within approximately one financial year. They will be included within the annual Operational Plan.

<i>Electricity</i>	<i>Fuel</i>	<i>Waste, Water and Sewer</i>	<i>Governance</i>	<i>Community Infrastructure</i>
A1. Investigate 5MW solar farm at Dingo Lane, Myocum	B1. Investigate new bulk fuel storage and monitoring system to minimise manual data entry	C1. Implement the Zero Waste Strategy (years 1-5)	D1. Embed emissions reduction into procurement policies and procedures	E1. Implement the Integrated Transport Plan and Bike Plan
A2. Investigate bioenergy facility at West Byron STP	B2. Develop and deliver Electric Vehicle Charging Station Policy and Procedure	C2. Progress the Brunswick Valley Sustainability Centre Management Plan	D2. Conduct Councillor and staff education on carbon monitoring and offsets	E2. Finalise the Sustainable Visitation Strategy
A3. Facilitate bulk roll out of LED street-lights for Byron Shire	B3. Investigate potential to utilise car sharing services for Council pool cars	C3. Progress the closure and rehabilitation of the Southern Expansion landfill cell at the Byron Resource Recovery Centre	D3. Develop and implement a carbon offset policy for Council	E3. Facilitate the development of the Byron Shire Rail Trail
A4. Investigate energy efficiency upgrade of Council Administration Building, Mullumbimby	B4. Investigate and transition from fuel to electric tools and equipment	C4. Increase efficiency of STPs and pump infrastructure	D4. Support the development of a local carbon offsetting industry	E4. Investigate alternative materials for construction of infrastructure
A5. Review pre-existing energy performance audits on all Council-owned buildings	B5. Explore partnerships with electric vehicle providers for fleet transition	C5. Improve water efficiency within the Shire and maximise use of recycled water and alternative water sources	D5. Develop an emissions disclosure framework for Council staff	
A6. Liaise with regional LGAs to collaborate and develop local energy projects, e.g. local energy purchasing	B6. Review Council's passenger vehicle policies and procedures to encourage Hybrid and Electric Vehicle ownership	C6. Review operation of gas flare at Byron Resource Recovery Centre	D6. Incorporate carbon neutral criteria into leasing and licencing of Council assets	
	B7. Review fuel efficiency of heavy vehicle fleet	C7. Review potential closure of Ocean Shores STP	D7. Investigate an internal emissions reporting dashboard for Council Operations	
	B8. Investigate operational logistics to maximise fuel efficiency	C8. Encourage events in Byron Shire to utilise the Event Guide for sustainable events and emissions reduction		
	B9. Investigate options for decentralised workforce			

MEASURES

Measures are one or several indicators to determine the completion of an action. Refer to Part 3 - Action Plan Roadmap.

Part 3 – Action Plan Roadmap



The Cavanbah Centre has a 25 kW rooftop solar PV system

Objective A: Electricity



Improve electricity efficiency and transition to **100%** renewable energy

Council's current electricity use accounts for 28.8% of its total emissions, which equates to over 5,000 tCO₂-e per year. With over 600kW of solar installed on Council assets and plans for more in the future, Council has already shown its commitment to a transition to 100% renewable energy. In 2019, Council also switched to a carbon neutral electricity retailer to offset 100% of its emissions.

While offsetting electricity usage is a step in the right direction, if Council is to truly mitigate the carbon footprint of its electricity usage, more needs to be done to reduce the total consumption within Council operations. To improve energy efficiency, using Council's total electricity emissions for FY2018/19 as a baseline, Council has the following goals:



Transition to renewable electricity sources at a minimum rate of 20% per annum



Improve energy efficiency of Council operations by a minimum of 5% per annum



Maximise renewable energy generation on Council owned assets

ACTION		MEASURE	LEADING DIRECTORATE/S
<i>Projects Underway</i>			
A1	Investigate 5MW solar farm at Dingo Lane, Myocum	Investigation complete.	Infrastructure Services (IS)
A2	Investigate bioenergy facility at West Byron STP	Investigation complete.	IS
A3	Facilitate bulk roll out of LED streetlights for Byron Shire	All streetlights in Byron Shire upgraded to LED technology	IS in collaboration with Essential Energy and Sustainable Environment and Economy (SEE)
<i>Future Projects</i>			
A4	Investigate energy efficiency upgrade of Council Administration Building, Mullumbimby	Completed comprehensive energy audit of the Administration Building Develop and report on business case for upgrades Reduced total energy consumption of Council Administration Building	SEE in collaboration with Corporate and Community Services (CCS)
A5	Review pre-existing energy performance audits on all Council-owned buildings	Form prioritised upgrade list and implement upgrades where necessary	SEE in collaboration with CCS
A6	Liaise with regional LGAs to collaborate and develop local energy projects, e.g. local energy purchasing	Attend quarterly Sustain Energy meetings. Collaborate on the development of regional energy projects.	SEE



Tweed Shire Councillor Chris Cherry and Byron Shire Mayor Simon Richardson at the opening of the Byron Bay Library Electric Vehicle charging station in 2017

Objective B: Fuel



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

Fuel consumed by Council fleet vehicles accounts for 6.5% of operational emissions, equivalent to over 1,000 tCO₂-e per year. Vehicle usage, particularly heavy fleet, is necessary in order to fulfil Council's commitment to maintaining vital infrastructure for the community, such as roads, open spaces, and utilities.

Analysis of Council's performance in fuel efficiency represents a clear opportunity for improvement in this sector, including operational logistics and reduction in overall fuel usage. Although once considered an idea of the future, the transition to electric vehicles is becoming more attainable with the constantly evolving technology in this space. As such, Council has set ambitious goals to optimise its operational fuel efficiency and transition to renewable fuel sources:



Reduce fuel use by 2.5% per annum



Transition passenger vehicle fleet to electric vehicles



Pursue alternative renewable fuel sources for equipment and fleet



Support the uptake of electric vehicles in Byron Shire

ACTION		MEASURE	LEADING DIRECTORATE/S
<i>Projects Underway</i>			
B1	Investigate new bulk fuel storage and monitoring system to minimise manual data entry	Report investigation	IS
B2	Develop and deliver Electric Vehicle Charging Station Policy and Procedure	Investigation complete.	SEE in collaboration with IS
B3	Investigate potential to utilise car sharing services for Council pool cars	Report investigation	SEE in collaboration with IS
B4	Investigate and transition from fuel to electric tools and equipment	Generate cost/benefit analysis of comparative electric alternatives Using Council's "Better Byron" team as a model, transition outdoor teams to using electric tools and equipment	SEE in collaboration with IS
B5	Explore partnerships with electric vehicle providers for fleet transition	Investigate and report on membership with electric vehicle providers and software platforms	IS
<i>Future Projects</i>			
B6	Review Council's passenger vehicle policies and procedures to encourage Hybrid and Electric Vehicle ownership	Generate cost/benefit analysis and business case for passenger fleet transition	SEE in collaboration with IS
B7	Review fuel efficiency of heavy vehicle fleet	Report review findings.	IS
B8	Investigate operational logistics to maximise fuel efficiency	Internal educational communications developed for staff intranet. Operational logistics of travelling staff and outdoor crew reviewed and optimised for fuel efficiency. Implement internal staff car pooling education campaign.	SEE in collaboration with IS
B9	Investigate options for decentralised workforce	Review Scope 3 emissions boundary to include working from home arrangements.	SEE in collaboration with P&C



Objective C: Waste, Water, and Sewer



Reduce waste and improve water efficiency

Fugitive emissions from landfill account for over half of Council's carbon emissions, totalling nearly 10,000 tCO₂-e year. An additional 1,100 tCO₂-e is also released by Council's sewage treatment plants (STP) each year, equating to approximately 6.5% of total emissions. These figures represent a significant opportunity for improvement, and Council has already made important operational changes in recognition of the impact of these sectors.

As part of the *Byron Resource Recovery Centre Master Plan (2017)*, the decision was made to close landfill in the Shire and to investigate the potential closure of the Ocean Shores STP. These actions alone will offer substantial reductions in Council's emissions. The implementation of the *Towards Zero - Byron Shire's Integrated Waste and Resource Recovery Strategy 2019-2029* will also help facilitate waste reduction and infrastructure optimisation in the future.

Managing water usage is a key component in the improvement of Council's wastewater system. In light of recent drought events and subsequent water restrictions in the Shire, using the *Integrated Water Cycle Management Plan*, Council will ensure water is being managed as efficiently as possible. The following goals aim to address these issues:



Support a landfill free shire through best practice in waste avoidance, recovery and management



Reduce inflow and infiltration to the wastewater system



Maximise water efficiency in Byron Shire

ACTION		MEASURE	LEADING DIRECTORATE/S
<i>Projects Underway</i>			
C1	Implement the <i>Integrated Waste and Resource Recovery Strategy</i> (years 1-5)	Report investigation	IS
C2	Progress the <i>Brunswick Valley Sustainability Centre Management Plan</i>	Complete the Project Charter initiative Initiate and continue native bush regeneration on site Investigate feasibility of Community Solar on the property	IS in collaboration with SEE
C3	Progress the closure and rehabilitation of the Southern Expansion landfill cell at the Byron Resource Recovery Centre	Complete approved Landfill Closure and Rehabilitation Plan and design for the Southern Expansion Undertake landfill capping and closure civil works of the Southern Expansion, and commence rehabilitation as outlined in the <i>Byron Resource Recovery Centre Master Plan</i>	IS
C4	Increase efficiency of STPs and pump infrastructure	Pump station energy efficiency upgrades completed in accordance with the Council's 30 Year Capital Works Program.	IS
C5	Improve water efficiency within the Shire and maximise use of recycled water and alternative water sources	Review pilot program for smart meter installation, with the view to roll out Council wide smart metering. Reduced reliance on centralised potable water sources and enhanced water and water-related energy efficiency.	IS
C6	Review operation of gas flare at Byron Resource Recovery Centre	Review the Myocum Landfill Gas Flare and report on its efficiency. Prepare business case on the Capture and Combustion of Landfill Gas at Myocum Landfill and the associated offsets project under the <i>Carbon Credits (Carbon Farming Initiative Act) 2011</i> . Prepare business case for the renewal of the Capture and Combustion of Landfill Gas Project at Myocum Landfill post-2022. Complete cost benefit analysis of, again, participating in the Emissions Reduction Fund.	SEE in collaboration with IS
<i>Future Projects</i>			
C7	Review potential closure of Ocean Shores STP	Complete feasibility assessment for closure of Ocean Shores STP	IS
C8	Encourage events in Byron Shire to utilise the Event Guide for sustainable events and emissions reduction	Distribute Event Guide and run information session	SEE



Mayor Simon Richardson and Councillor Michael Lyon engaging with Council staff in Brunswick Heads

Objective D: Governance



Disclose and improve emissions reporting and invest in high quality carbon offsets

In 2019, Council resolved to become officially 'carbon neutral' by 2025 under the Federal Governments' Climate Active certification requirements. This is a standard bound by rigorous reporting, which represents the highest level of commitment to reaching net zero emissions for Council operations.

Emissions monitoring and reporting has been a Council deliverable since 2004, however in order to meet this newly adopted standard by 2025 it is essential that all staff understand how the Action Plan will influence future decision making within their teams. The following goals aim to educate and empower Council staff as these changes occur:



Prepare Council for meeting 'Climate Active' certification requirements



Develop staff training and tools for emissions reduction and reporting



Incorporate carbon offsetting across Council operations



Provide planning policies that support emissions reduction in Byron Shire

ACTION		MEASURE	LEADING DIRECTORATE/S
<i>Projects Underway</i>			
D1	Embed emission reduction into procurement policies and procedures	Review Sustainable Procurement Guidelines and templates	CCS and SEE
<i>Future Projects</i>			
D2	Conduct Councillor and staff education on carbon monitoring and offsets	Carbon offset workshop for staff and Councillors completed Carbon offset factsheet for Council staff developed	SEE
D3	Develop and implement a carbon offset policy for Council	Carbon Offset policy and procedure adopted by Council	SEE
D4	Support the development of a local carbon offsetting industry	Support local community groups, including Zero Emissions Byron	SEE
D5	Develop an emissions disclosure framework for Council staff	Incorporate emissions disclosure and risk assessment into Pulse Develop risk assessment profile to use for all Council projects Define Council's emissions boundary in accordance with the Climate Active guidelines	SEE and IS
D6	Incorporate carbon neutral criteria into leasing and licencing of Council assets	Generic lease and licence clauses developed to incorporate into all Council agreements and briefs	SEE and GM
D7	Investigate an internal emissions reporting dashboard for Council Operations	Review and investigate capability of developing an in-house dashboard to automatically collate all required emissions data	SEE and CCS



The rainbow bridge at Belongil Creek

Objective E: Community Infrastructure



Minimise emissions from the construction of community infrastructure

Byron Bay is the fourth most visited town in NSW among international visitors and the 11th most visited town overall in NSW. Although tourism is the main driver of economic activity with over two million visitors annually, it also takes its toll on community infrastructure vital for the daily undertakings of Byron Shire residents.

Although construction and maintenance of community infrastructure produces emissions from a variety of sources already addressed, including electricity, fuel, waste, and water, this Objective sits alongside the implementation of the following strategies: *Integrated Transport Management Strategy*; *Sustainable Visitation Strategy 2020-2030* and the *Byron Shire 10 Year Bike Plan 2019*. The goals below aim to ensure that construction of community infrastructure is enabling for future sustainable development whilst ensuring emissions are accounted for in the process:



Assess and improve the emissions footprint of Council's infrastructure projects



Support public and passive transport options in Byron Shire

ACTION		MEASURE	LEADING DIRECTORATE/S
<i>Projects Underway</i>			
E1	Implement the <i>Integrated Transport Plan and Bike Plan</i>	Plans implemented	IS
E2	Finalise the <i>Sustainable Visitation Strategy</i>	Implement the Strategy	SEE
E3	Facilitate the development of the Multi-Use Byron Shire Rail Corridor	Continue feasibility studies of the Multi-Use Byron Shire Rail Corridor	IS and SEE
<i>Future Projects</i>			
E4	Investigate alternative materials for construction of infrastructure	Define Scope 3 emissions sources for Council Operations and develop appropriate monitoring procedures	SEE

Glossary

Australian Carbon Credit Unit (ACCU) – an emissions unit issued under the *Carbon Credits (Carbon Farming Initiative) Act 2011*.

Carbon Certificate – represents a reduction of greenhouse gases (typically 1 tonne of CO₂) or removal of greenhouse gases from the atmosphere through storage or sequestration. The certificates are tradeable units and can be used to negate (or offset) all or part of another entity's emissions.

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 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 service, 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.

FOGO – abbreviation for 'food organics and garden organics'

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 industry – refers to certified carbon offsetting or sequestration activities and projects within the Byron Shire or wider Northern Rivers area, used to offset the community's total emissions whilst simultaneously stimulating the local economy.

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.

Offset Unit – (see also **Carbon Certificate**) represents a reduction of greenhouse gases (typically 1 tonne of CO₂) or removal of greenhouse gases from the atmosphere through storage or sequestration. They are tradeable units and can be used to negate (or offset) all or part of another entity's emissions.

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).

Smart Meter – a device that digitally measures your energy use, such as when and how much water is used on a premises.

Water Efficiency – refers to using less water to achieve the same output.