

**TO ZERO
TOGETHER**



**Byron Shire Council
Net Zero Emissions Strategy
for Council Operations 2025**





Net Zero Emissions Strategy for Council Operations 2025

The development of this Strategy has been a collaborative undertaking across Council, community and constituents. Byron Shire Council would like to thank the members of the Sustainability and Emissions Reduction Advisory Committee for their guidance and input.



For more information on Council's climate change projects, please go to

<https://www.byron.nsw.gov.au/Services/Environment/Climate-change>

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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.



Content

1. Mayor's Introduction	4
2. Executive Summary	5-6
3. Introduction	7
3.1 Defining Byron Shire Council's emissions	8
3.2 What does net zero emissions look like?	9
3.3 How will Council reach net zero emissions?	9
3.4 Council's net zero emissions decision-making principles	9
3.5 Community-wide emissions reduction	10
4. Context: Where have we come from?	10
4.1 Climate change issues: global, national and regional	10
4.1.1 Global issues	11
4.1.2 National issues	11
4.1.3 Regional issues	11
4.2 Climate change actions taken so far: global, national, state, regional and local	12
4.2.1 Global actions	12
4.2.2 National actions	12
4.2.3 State actions	12
4.2.4 Regional actions	12
4.2.5 Local actions: Byron Shire Council	13
a) Completed actions	13-14
b) Strategies and policies	15
c) Collaboration	16-17
4.2.6 Local actions: Byron Shire community	17-18
5. Council's Target: Where do we want to be?	19
6. Council's Roadmap: How will we get there?	20
6.1 Step one: identify and measure emissions	20
6.1.1 Council emissions profile	20-21
6.1.2 Community emissions profile	22
6.2 Step two: stocktake completed emissions reduction and renewable energy projects	22
6.3 Step three: research potential new projects and explore implementation plan options	23-24
6.4 Step four: research potential funding opportunities for new projects	25
6.5 Step five: develop communication plans	25
6.6 Step six: monitor and report annually on emissions and emissions reduction measures	26
6.7 Step seven: review and optimise internal processes and projects	26
7. References, Tables and Figures	27



1. Mayor's Introduction -

Net Zero Emissions Strategy for Council Operations 2025

As the Mayor of Byron Shire I see this *Net Zero Emissions Strategy for Council Operations 2025* as one of the most important documents the Byron Shire Council has ever developed.

Science is telling us that climate change is having a massive impact on the earth and you only have to listen to the news or read the paper for evidence of this. There are unprecedented coral bleaching events on the Great Barrier Reef, seemingly relentless heat waves in parts of Australia in summer; bushfires and wildfires not only in Australia but in the Arctic Circle of all places. More intense storms and cyclones around the world, sea level rise and a shrinking polar ice cap. We cannot ignore this as a community, and certainly not as a Local Government. We need to show leadership.

The latest report from the Intergovernmental Panel on Climate Change (released in October 2018) stipulates the need for "rapid, far-reaching" changes to all aspects of society if the world is to limit global warming to 1.5°C. The report determines that global greenhouse gas emissions must reach net zero by 2050 if we are to keep to that limit.

Council supports the community organisation Zero Emissions Byron (ZEB) with its goal of seeing the Byron Shire emissions free by 2025. What an achievement this would be! For this to happen though, Council, as an organisation, must rise to the challenge. We already do great work in so many areas, particularly with our recycling, but we need to do better. We can do better and we must do better – there is no option.

This Strategy is a response to the current climate crisis. It lays out a roadmap for Council's path to its ambitious goals of net zero emissions for its operations by 2025 and 100% renewable energy by 2027.

We have developed a five-step hierarchy to guide our decisions based on avoiding or reducing energy use where we can, replacing existing energy supplies from fossil fuels with renewables, investing in high quality offsets and constantly reviewing and optimising processes and projects.



This is not as simple as investing in solar installations, which we are already doing. It goes beyond to building a bioenergy facility that will be fed by our green waste and solids from our sewage treatment plants, ensuring our procurement and investment policies support sustainable

enterprises, and making sure our offices and key sites are operating on energy efficiency and sustainability principles.

Council is forming alliances with organisations that we can learn from including the International Council for Local Environmental Initiatives, the Global Covenant of Mayors for Climate and Energy, the Cities Power Partnership and bringing community together with Council's Sustainability and Emissions Reduction Advisory Committee.

We recently declared a State of Climate Emergency and are convening a community-led Climate Emergency Guidance Group to develop a shire-wide Climate Emergency Plan to provide a framework for how we reduce climate impacts.

Byron Shire Council is committed to seeing this Shire achieve net zero emissions by 2025. It won't be easy but, as a community, we are known for our willingness to not only take on a challenge, but to win.

Climate change is not something we can ignore and it is incumbent on Council and the community, to work together to make sure we are doing as much as we can, whatever we can, to make a difference where we can. Towards zero together – let's do it.

Simon Richardson,
Byron Shire Council Mayor
2019

2. Executive Summary

Climate change is set to impact present and future generations and the natural environment in a multitude of ways. Like all other Councils, Byron Shire Council has contributed to global climate change through our reliance on carbon intensive fuel sources for energy production and transportation.

Council has been taking action to reduce its reliance on fossil fuels for more than a decade through the *Greenhouse Action Strategy 2004* and the *Byron Shire Low Carbon Strategy 2014*. This *Net Zero Emissions Strategy for Council Operations 2025* (the Strategy) sets the climate change context and maps out a dynamic, high-level pathway for Council to achieve its aspirational climate change mitigation goals of net zero emissions by 2025 and sourcing 100% of its energy from renewable sources by 2027. These goals relate specifically to Council operations; however, Council operations comprise less than 5% of the Shire's total annual emissions. We will continue to work with our constituents to reduce community emissions wherever possible; however we think it is imperative to get our own house in order before turning our full efforts to reducing Shire-wide emissions.

Council's emissions profile for 2017/18 was calculated as 17, 453 tonnes of carbon dioxide equivalent (t CO₂e). The National Greenhouse and Energy Reporting methodology was used to calculate emissions from four Scope 1 sectors (landfill, sewage treatment plants, fleet, and bottled gas) and two Scope 2 sectors (general electricity and streetlight electricity). To reduce that total greenhouse gas (GHG) figure down to net zero, we have developed a seven-step roadmap to guide us:

- Step one:** identify and measure emissions
- Step two:** stocktake completed emissions reduction and renewable energy projects
- Step three:** research potential new projects and explore implementation plan options
- Step four:** research potential funding opportunities for new projects
- Step five:** develop communication plans
- Step six:** monitor and report annually on emissions and emissions reduction measures
- Step seven:** review and optimise internal processes and projects

Highlights of the plan include:

- Further solar installations at Council assets, including a solar farm at Dingo Lane that is projected to produce around 5 MW of electricity.
- Bioenergy facilities at sewage treatment plants, which will turn our green wastes into an estimated 1.3 MW of electricity.
- The Byron Waste Management and Resource Recovery Strategy, which is currently being drafted and which has the ultimate goal of a landfill-free circular economy within the Shire.
- The planned Brunswick Valley Sustainability Centre, which is envisaged to be a site for sustainable eco-pursuits, renewable energy technologies and innovative environmental processes.

The journey to net zero emissions for Council operations will not be a straightforward or easy one. We are operating in a dynamic, uncertain environment; despite this, we commit to following our strategic decision-making hierarchy at every step of the way:

- 1) Avoid using energy in the first place
- 2) Reduce energy use of operations where possible
- 3) Replace existing energy supplies from fossil fuels with renewables
- 4) Invest in high-quality offsets
- 5) Review and optimise processes and projects

The threat of climate change presents very real dangers to the whole of Byron Shire. With this Strategy, Council aims to turn that threat into an opportunity for environmental improvements, economic growth and social resilience. Shifting focus away from carbon intensive activities is a step on the path towards financial and environmental security for Council, businesses and our community.



This logo will be placed on all Byron Shire Council Net Zero Emissions projects

What is Council's resolved position?

Council resolved at the Ordinary meeting held March, 2017 the following:

17-086

- *To achieve 100% net zero emissions by 2025 in collaboration with Zero Emissions Byron (ZEB)*
- *Sourcing 100% of its energy through renewable sources within the next 10 years (2027).*

Council resolved at the Ordinary meeting held October, 2018 the following:

18-680

- *To declare that we are in a State of Climate Emergency that requires urgent action by all levels of government, including by local councils.*
- *To develop a Shire-wide Community Climate Emergency Plan to further enhance resilience and reduce climate impacts in a timeframe that is as fast as practicably possible.*

3. Introduction

No corner of the Earth will be left untouched by global climate change in the coming decades. By 2030, the North Coast region of New South Wales (NSW) in which Byron Shire is situated is predicted to be significantly affected by warmer temperatures, an increased number of high temperature days, decreased rainfall during winter and increased average and severe fire weather days¹. These climate changes will impact Byron Shire Council, the economy, the community and the natural environment.

In recognition of the importance local government plays in addressing climate change, Byron Shire Council has been actively implementing emissions reduction strategies and reporting on emissions since 2004. This Strategy builds on the climate change work implemented under the *Greenhouse Action Strategy 2004* and *Byron Shire Low Carbon Strategy 2014*. Key projects to date include Electric Vehicle and Bike Strategies, Council's switch to 100% carbon neutral GreenPower electricity, implementation of sustainable investment and procurement policies, landfill gas capture and flaring as well as support for Community Gardens, food grown on public land and sustainability events such as Renew Fest, World Environment Day and Sustainable House Day. To date, Council has installed over 215 kW of solar on its assets and has plans to install a further 7.8 MW. We are members of international and national groups focussed on climate change mitigation, and in October 2018 we declared that we are in a State of Climate Emergency that requires urgent action by all levels of government (including local councils).

The Shire's constituents are likewise very active in the climate change space. Forward-thinking community organisations such Zero Emissions Byron (ZEB) and Community-Owned Renewable Energy Mullumbimby (COREM) are leading the charge as are the many individuals in our community who have installed solar panels to their homes and businesses, who have switched to more energy efficient appliances and lighting, who grow their own fruits and vegetables and who help reduce food miles by shopping at their local Farmers' Markets. As detailed in this Strategy, Council was integral to setting up, and fully supports ZEB's goal of net zero emissions for the Byron Shire community by 2025. Council will continue to work closely with ZEB to advocate and assist the broader community to implement energy efficiency and renewable energy projects as we work "To Zero Together" to ensure a more sustainable future for the Shire.

This Strategy focusses on climate change mitigation. Climate change adaptation processes in Byron Shire currently occur here at Council and at the regional level through Rous County Council (who is planning for a reduced water supply in the region) and the NSW Office of Environment and Heritage (who coordinate regional adaption research and measures). Council's most comprehensive climate change adaptation document, the Climate Change Strategic Planning Policy, provides guidance on future flood, coastline management and biodiversity planning.

The Strategy has been developed in consultation with key Council and community stakeholders. It is a living document that will evolve over time through an ongoing planning, communication, consultation and review process. Council will publicly release updates to the Strategy every three years to keep the community abreast of progress and new projects.

By sharing its approach to emissions reduction and renewable energy, Council hopes to encourage other local governments to work towards carbon neutrality and a healthier, more sustainable future for communities and the environment.

3.1. Defining Byron Shire Council's emissions

Before greenhouse gas emissions can be reduced, emissions sectors must first be identified and measured in a manner that is transparent, easily reportable and replicable by others. To align with a national methodology for monitoring and reporting emissions for a local government, the National Greenhouse and Energy Reporting (NGER) methodology is Council's carbon accounting approach. This approach applies three distinct scopes. Council currently monitors and reports on Scope 1 and 2 emissions only as we directly manage these. Council acknowledges that it has not yet included Scope 3 emissions in its journey to net zero emissions. In order to align with the National Greenhouse and Energy Reporting (NGER) methodology, Council will be gradually including relevant Scope 3 emissions, in a series of stages, into the emissions boundary for Council's operations. Council intends to begin measuring Scope 3 emissions under Australia's National Greenhouse Accounts in the coming years so that a more comprehensive picture of our emissions footprint can be reported on and reduced by 2025.

- » **Scope 1** emissions include all direct GHG emissions from sources that are within the organisation's control boundary. These could be emissions from fuel use, refrigerants and on-site electricity generation.
- » **Scope 2** emissions include purchased electricity, heat, cooling and steam (i.e. energy produced outside the organisation's control boundary but used within the organisation).
- » **Scope 3** emissions are all indirect emissions that occur as a result of the activities of the organisation, but occur from sources outside the organisation's control boundary.²

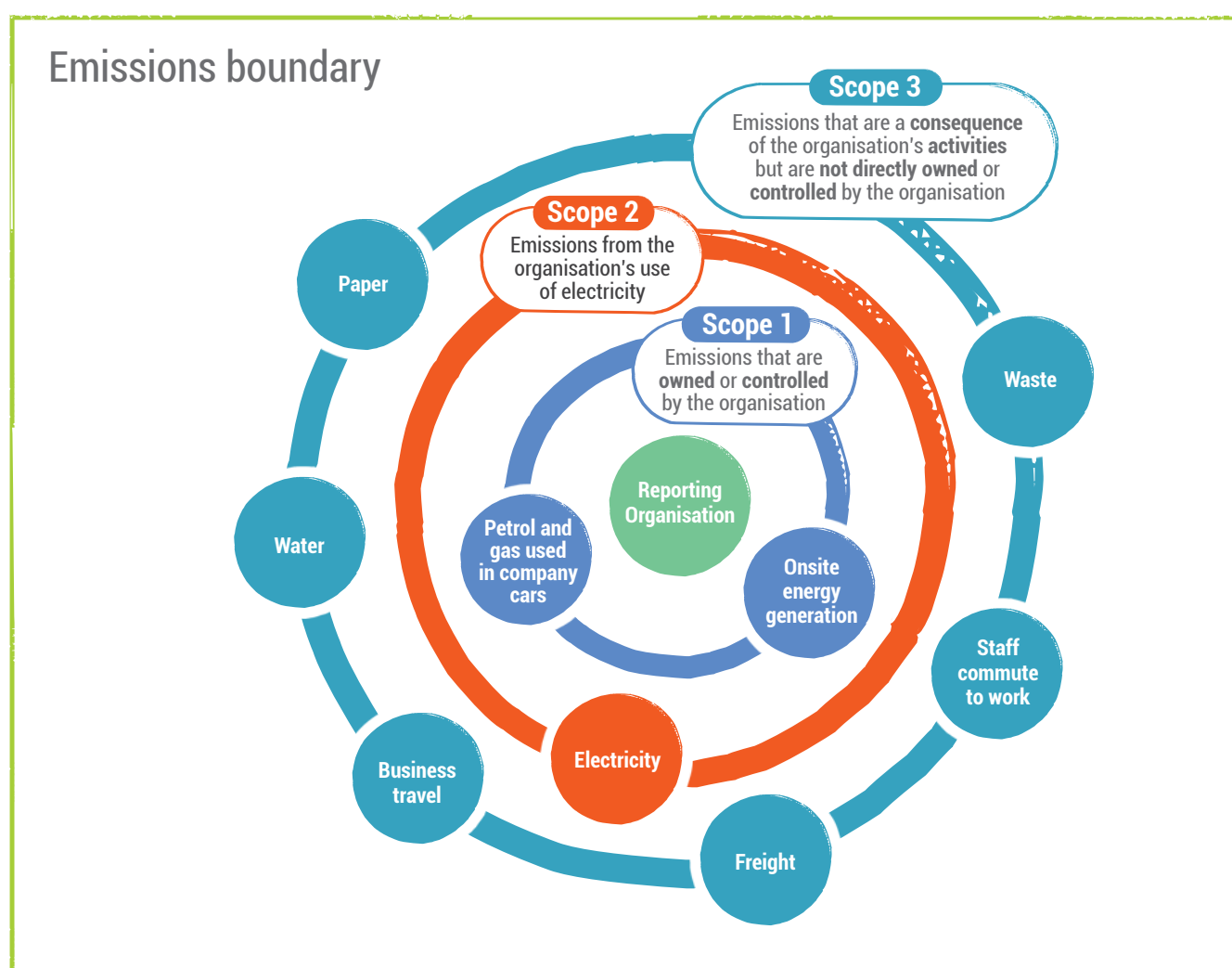


Figure 1 Source: Commonwealth of Australia, National Carbon Offset Standard for Organisations, page 12

3.2. What does net zero emissions look like?

Net zero emissions or being carbon neutral means that the net GHG emissions associated with Council's activities are equal to zero. It is achieved through a combination of measuring and reducing carbon emissions along with the purchasing of good quality carbon offsets. Net zero emissions is different to zero emissions, which is achieved when no carbon emissions at all are produced.

Net Zero Emissions = Total Emissions - Emissions Reductions - Offsets

To reach net zero emissions, Council will:

1. establish its emissions baseline (this was completed using data from 2015/16);
2. implement emissions reduction projects (some projects have been implemented; some are close to implementation; others haven't been conceived of yet);
3. offset any remaining emissions that can't be reduced to zero by 2025. Beyond 2025, Council will continue to work towards reducing those remaining emissions that are being offset; and
4. work towards getting certified as carbon neutral under an appropriate carbon neutrality scheme (potentially the National Carbon Offset Standard, but other options will also be explored).



3.3. How will Council reach net zero emissions?

Council will use different tools to enact and track its journey to reach net zero emissions. The below trajectory models compare the current business-as-usual emissions scenario against current potential pathways to reduce emissions and reach net zero by 2025. The models enable Council to project different future abatement scenarios and to investigate and analyse the most effective areas for emissions reduction prior to commencing projects. Note that both models are subject to change going forward as potentially more emissions (such as some from Scope 3) are included in Council's emissions boundary, and as different abatement projects are conceived of and brought online.

The main standard to certify carbon neutrality in Australia is the National Carbon Offset Standard for Organisations (NCOS). NCOS acknowledges that building a comprehensive Scope 3 inventory is a 'work-in progress' for most councils, and provides some leniency on current claims of 'net zero emissions'. Councils that have achieved 'net zero' status typically report on Scope 1 and 2, and the more common and easily measured Scope 3 sources such as paper usage, employee commuting and business travel.

Business-as-usual

Council produced 17, 453 tCO₂e in 2017/18 (note that this does not include any Scope 3 emissions sources). If Council continues on this trajectory of "business as usual" and does not take any further actions to reduce its CO₂ emissions, we will still be producing 12, 265 tCO₂e in 2025 (see Figure 2). The significant decrease in facility electricity tracked over 2019 represents the new 100% GreenPower contract Council has in place with its electricity provider. As this is only a short term contract, it was not factored into the long term "business-as-usual" model. Looking at the overall trajectory, the incidental decrease will be a result of previous emissions reduction initiatives, decrease in landfill fugitive emissions and the decarbonisation of the NSW electricity grid."

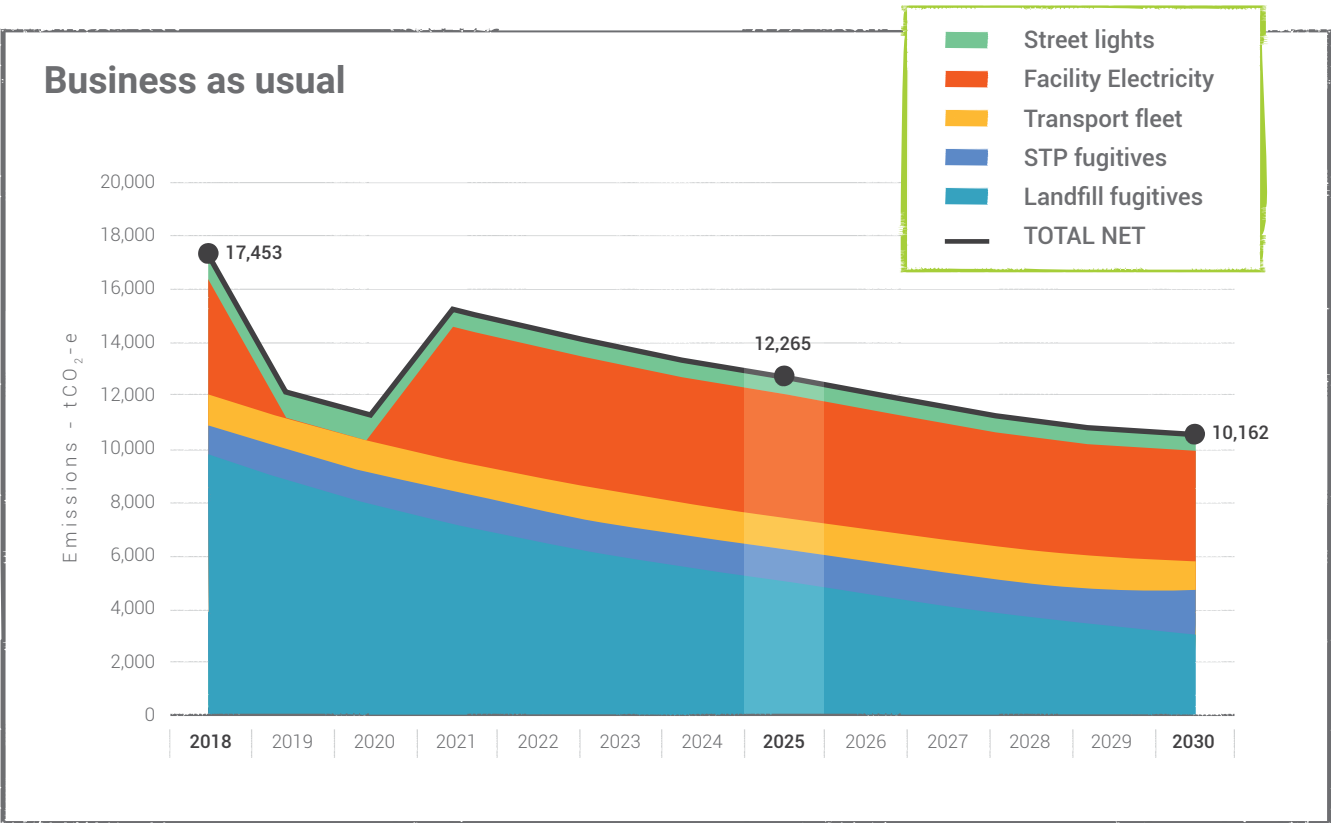


Figure 2 Business-as-usual (BAU) pathway showing Council emissions to 2030

Pathways to Net Zero

A second scenario was created by theoretically implementing future planned actions for Council emissions abatements (see Figure 3). This opportunity scenario presents a much more positive projection of Council emitting 7,763 tCO₂e in 2025. The abatement options shown in the below model include Council's electricity being offset by the planned Dingo Lane Solar Farm, and some fugitive emissions from sewage treatment plants being reduced by the planned Bioenergy Plant at West Byron Sewage Treatment Plant. To reach carbon neutrality, Council will need to offset remaining emissions in 2025 (projected to be 7,763 tCO₂e in the below model).

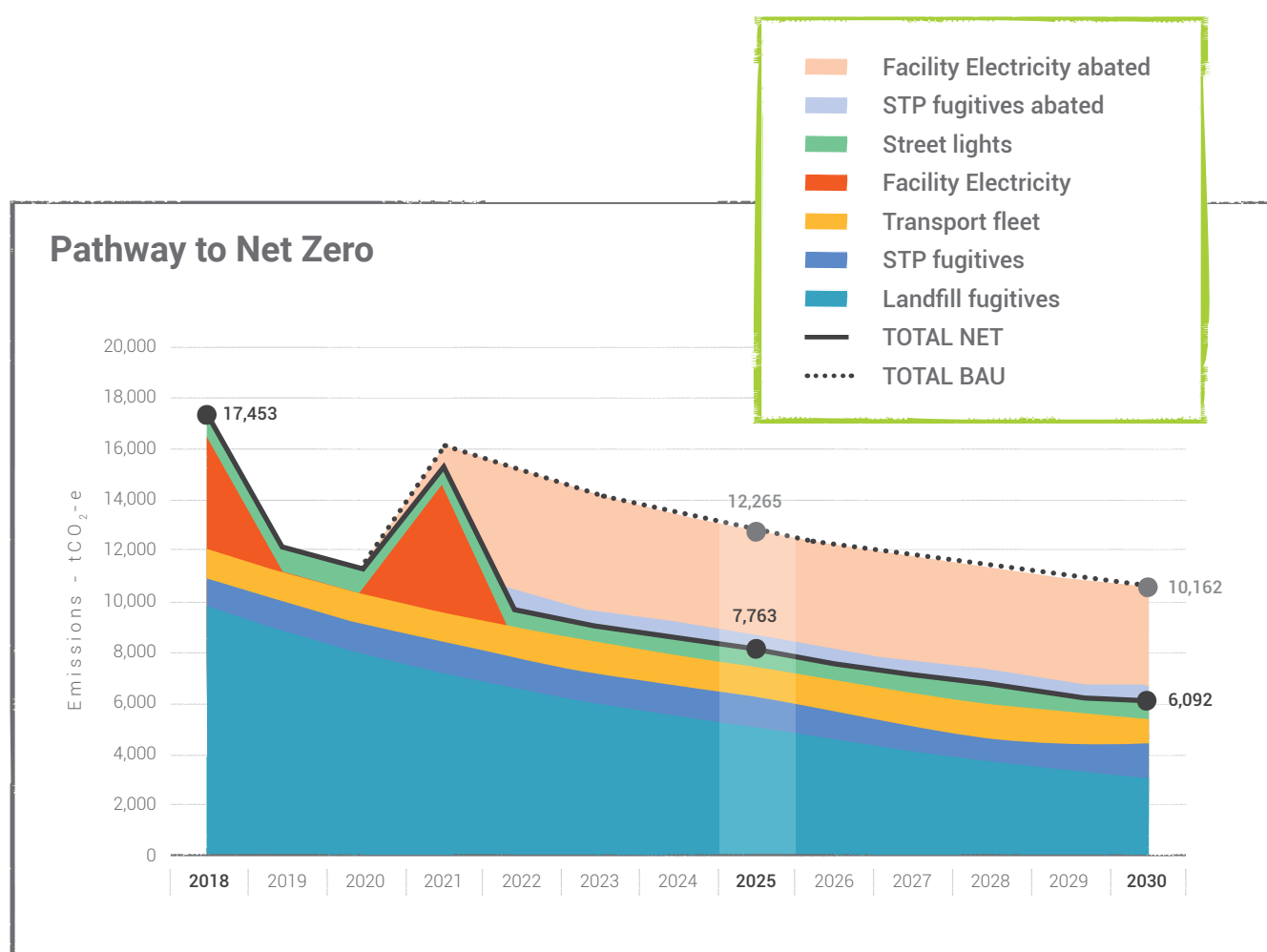


Figure 3 Pathway to net Zero. Opportunity scenario showing Council emissions to 2030 after actions have been implemented.



Kane Goldworthy, Byron Shire Council's Environment Programs Officer, working on Council's bioenergy facilities.

3.4. Council's net zero emissions decision-making principles

Council has developed a five-step hierarchy to guide its decision-making around achieving net zero emissions and 100% renewable energy for its operations:



3.5. Community-wide emissions reduction

This Strategy outlines a pathway to net zero emissions and renewable energy specifically for Council operations. Annual GHG emissions from Council operations comprise only around 4.4 percent of the Shire's annual community-wide GHG emissions, which were calculated as 394,081 tonnes of CO₂e in 2016/17 ³. In partnership with Council, community organisation Zero Emissions Byron (ZEB) has set the ambitious and necessary goal of achieving net zero emissions for the whole of the Byron Shire municipality by 2025. As set out in this Strategy, Council fully supports this goal and will collaborate with Zero ZEB where possible to achieve it. Council is currently implementing, and considering a number of future Council-led initiatives that will help reduce community emissions and encourage residents and businesses to transition to a more renewable and sustainable way of life (project details can be found in Section 6: Council's Roadmap).

While Council will continue to advocate and assist our community to implement energy efficiency and renewable energy projects, it is important to understand that Council has a limited amount of control and influence over many Shire-wide emissions sources such as stationary energy (including residential and commercial buildings) and on-road transportation. Independently achieving the goal of net zero emissions for the whole of Byron Shire cannot be achieved by Council alone. For Byron Shire to achieve net zero emissions by 2025, a cross-sectoral approach (with residents, business and other levels of government) must be accompanied by fundamental changes to the Shire's energy supply, which is subject to Australian and NSW Government policy.

What could fundamental changes to the Shire's energy supply look like?

The Shire currently receives its energy supply from the national grid, from liquid petroleum fuels and generates around 20% of its own renewable energy from decentralised solar installations ⁴. There is an emerging use of renewable fuel sources for transport in the Shire. Fundamental changes to the Shire's energy supply would paint a very different picture to the current situation.

Imagine a Byron Shire with a mix of renewable energy sources both produced locally and some imported. Small scale solar on most rooftops coupled with some large scale solar farms in the fields of the hinterland. Bioenergy hubs creating a closed loop cycle of organic waste and energy, fuelling not only electricity generation, but possibly gas powered transport. Electric and hydrogen cars move commuters with a variety of refuelling stations. Batteries, micro hydro and a smart grid join it all together for a reliable, secure and sustainable network.

4. Context: Where have we come from?

4.1. Climate change issues: global, national and regional

Byron Shire Council accepts the findings of the Intergovernmental Panel on Climate Change (IPCC) that in order to avoid the most catastrophic effects of climate change, the increase in average global temperature must not exceed 2°C. To achieve this, global GHG emissions must be reduced by at least 80% below 1990 levels by 2050.

Climate change is a natural process of long term variations in climate conditions differing from the average conditions of a previous time. It is important to note that while the weather conditions may change frequently between the seasons, the term climate change applies to change over decades, centuries or even millions of years. Climate change can occur as either change in weather conditions (temperature, rainfall, etc.) or change in the frequency of weather events (e.g. fewer or more rainfall events) ⁵. For thousands of years climate change has occurred as a natural cycle where global temperatures have slowly cooled and heated. However, recent human activity such as the burning of fossil fuels, deforestation and land-use change has altered the Earth's reflective capacity and increased the greenhouse effect, thus increasing global temperatures. Scientific evidence tells us that increasing levels of greenhouse gases in the Earth's atmosphere are having a profound effect on our climate and oceans and the Earth's ecological systems.

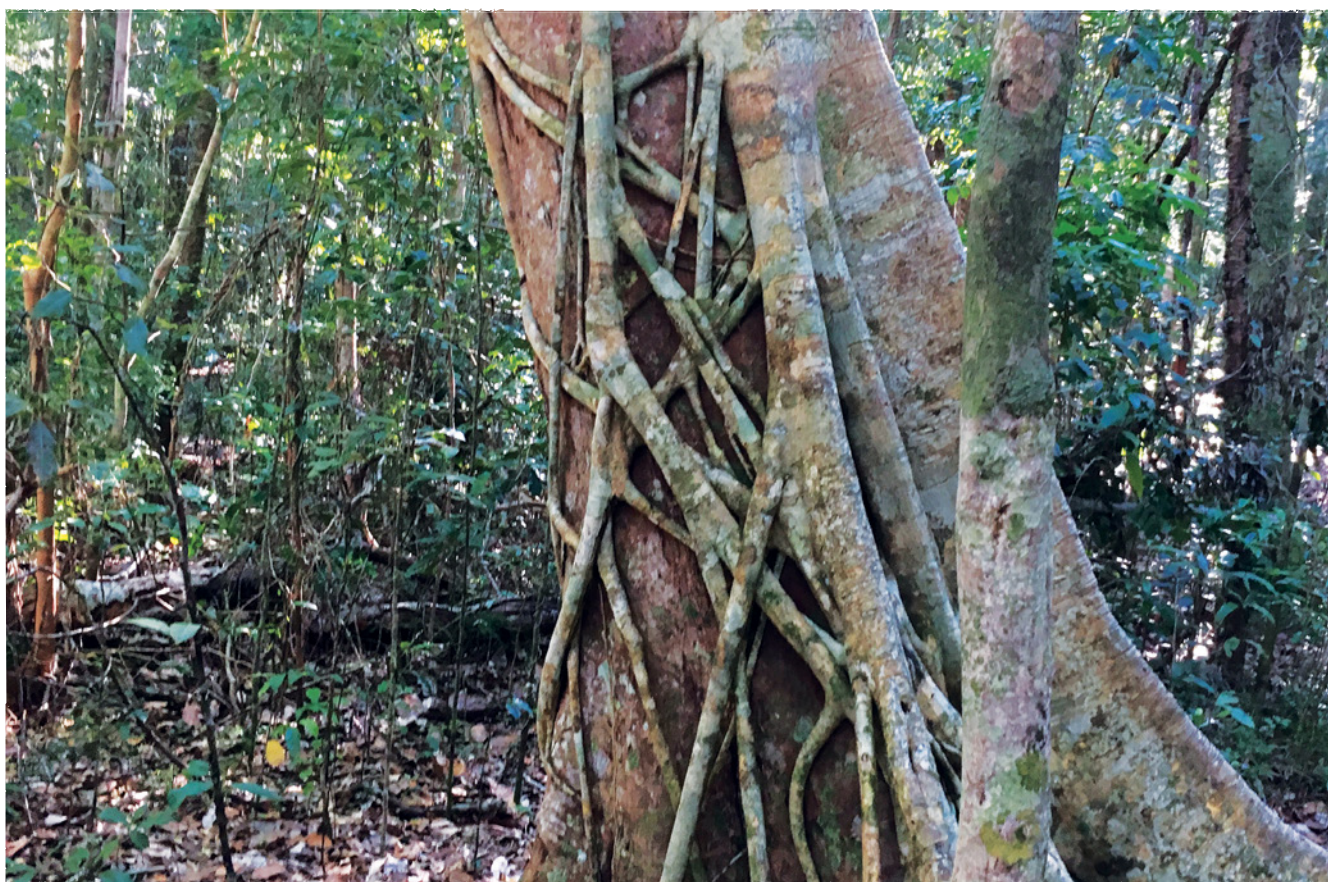
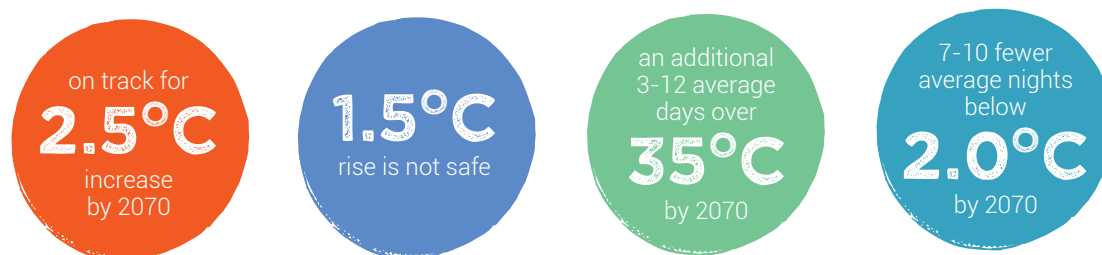


Table 1 Global, national and regional climate change issues

Issue level	Description
4.1.1 Global issues	<p>The past few decades have seen an unprecedented rate of warming. Global temperatures have increased by approximately 1.1 °C since the pre-industrial period, and all of the ten warmest years on record have occurred between 1998 and the present, with the hottest year on record being 2016. No year since 1985 has observed a global mean temperature below the 1961–1990 average ⁶. Global sea levels have risen more than 20cm since the end of the 19th century ⁷.</p> <p>The results of these increases in global temperature are already apparent. The world is experiencing longer and more intense heat waves, more extreme weather events, loss of sea ice and glaciers and accelerated sea level rise ⁸. Climate change is contributing to conflicts and mass migrations, as competition for food and water increases. If this warming trend continues, an increase of greater than 2 °C in average global temperatures is expected to cause dramatic and long term changes, such as accelerating the melting of ice sheets in Antarctica and Greenland and associated further sea level rises. This has the potential to raise sea levels enough to flood some major cities and the river deltas where much of the world's food is grown. As the area covered by land and sea-ice diminishes, heat ordinarily reflected by snow would in turn be absorbed, further amplifying changes to the global climate.</p>
4.1.2 National issues	<p>Warming associated with human induced climate change has seen Australian annual mean temperature increase by approximately 1.1 °C since 1910, with most of this warming occurring since 1950. The 11-year mean temperature for 2007–2017 was the highest on record at 0.61 °C above average. Seven of Australia's ten warmest years have occurred since 2005 and Australia has experienced just one cooler than average year in the last decade (2011) ⁹. These increases have resulted in more intense and frequent heat waves, heavy rainfall and flooding, the bleaching of the Great Barrier Reef, decimation of mangrove forests and marine kelp forests and extreme weather leading to more bushfires.</p>
4.1.3 Regional issues	<p>The impacts associated with human induced climate change pose a significant threat to the North Coast Region of NSW. Predicted changes include a continued increase in average temperatures across all seasons, an increase in hot days and heat waves, fewer frosts, lower average rainfall in winter and spring and increased intensity of storms, continued sea-level rise causing coastal inundation and erosion, and higher risk of bushfires during hotter months ¹⁰.</p> <p>The flow-on environmental and social effects of these climatic changes to the Byron Shire could include habitat disturbance and loss of biodiversity in highly valued natural areas, damage to key infrastructure, electricity outages and failed data services, coastal incursion of sea water, pollution of waterways and flash flooding, damage to food crops and more difficult growing conditions, risks to individual and community health, safety and wellbeing, negative impacts on tourism and businesses, and an economic burden on Council and community as a result of costs of damage, repairs, insurance and rehabilitation.</p>

Key climate change numbers for the NSW North Coast region

**Figure 4** Source: Office of Environment and Heritage (2014) – North Coast Climate Change Snapshot

4.2. Climate change actions taken so far: global, national, state, regional and local

Table 2 Global, national, state and regional climate change actions

Action level	Description
4.2.1 Global actions	<p>The Paris Climate Conference (United Nations COP21) was held in December 2015. At the Conference, 195 nations agreed to limit total global average temperature increase to below 2°C, and to pursue efforts to keep warming below 1.5°C above pre-industrial levels. This first universal climate agreement became law in November 2016.¹¹</p> <p>To keep global average temperature rise below 2°C, the world's governments must take rapid action to decarbonise their economies and to remove excess carbon from the atmosphere on a large scale. Many countries have recognised the environmental, social and financial benefits of transitioning to a low carbon economy, and understand the potentially catastrophic consequences if action on climate change is delayed. The private sector is playing a significant part on the world stage as well, as many forward-thinking multinational companies and institutions capitalise on the emerging market opportunities presented by the global transition to a low carbon culture.</p>
4.2.2 National actions	<p>In November 2016, the Australian Government ratified the Paris Agreement 2015. Ratification of the Agreement supports Australia's national greenhouse gas emissions reduction target to reduce greenhouse gas emissions to 26-28% below 2005 levels by 2030.¹²</p> <p>Australia's Renewable Energy Target 2001 (RET), a Federal Government Policy, sets a requirement for 20% of Australia's energy consumption (33,000 gigawatt hours) to be sourced from renewable energy generation by 2020. Many consider that the Federal Government is failing to provide the necessary policies and levers that will transition Australia to a low carbon economy.¹³</p>
4.2.3 State actions	<p>In 2016 the NSW Government released the NSW Climate Change Policy Framework which provides important context for the government's approach to climate change. It sets two aspirational objectives: achieving net zero emissions by 2050 and helping NSW become more resilient to a changing climate.</p> <p>In 2007 the Climate Change Fund was established in order to increase public awareness and acceptance around climate change and address some of its major impacts. The Draft Climate Change Fund Strategic Plan 2016 sets out priority areas of investment and potential future actions for NSW.</p> <p>The NSW Government also released the Energy Efficiency Action Plan (EEAP) and NSW Renewable Energy Action Plan (REAP) in 2013. These initiatives were created in order to assist in strengthening the energy efficiency market, increase renewable energies in the state, and work closely with communities to produce electricity locally and use energy more efficiently.</p>
4.2.4 Regional actions	<p>In 2008, the Northern Rivers Climate Change Collaboration Agreement (NRC3A) was developed as a commitment by 10 peak regional organisations including Byron Shire Council to communicate, consult and collaborate for action on climate change. Through this agreement, the Sustain Northern Rivers (SNR) collaboration was created as an innovative platform for regional collaboration on climate change mitigation and adaptation. Under SNR, representatives from Council, other local and state Government departments and non-Government organisations worked together on a range of solutions for sustainable energy, transport and food within the Far North Coast of NSW. The umbrella organisation of SNR has since disbanded, however one of its smaller associated groups that Council actively participates in, Sustain Energy (http://sustainnorthernrivers.org/sustain-energy/) continues to meet on a regular basis.</p> <p>Byron Shire Council is a member of the Northern Rivers Joint Organisation (NRJO) along with Tweed Shire Council, Ballina Shire Council, Lismore City Council, Richmond Valley Council and Kyogle Council. This alliance is one of 11 joint organisations comprising more than 70 councils in regional NSW designed to strengthen collaboration between local Councils and the State Government on regional initiatives. Through this alliance, the Byron Shire community has access to better planning, economic and service outcomes with the support of fellow NRJO member Councils. These outcomes will include the development of broader climate change projects designed to reduce emissions on a regional scale.</p> <p>In addition, the NSW Government has assisted local councils to develop Regional Economic Development Strategies (REDS) based on the concept of a Functional Economic Region (FER). The Northern Rivers FER incorporates Byron Shire Council, Ballina Shire Council, Kyogle Council, Lismore City Council and Richmond Valley Council. The Northern Rivers REDS published in late 2018 provides a clear economic development strategy for the region, to enable faster access to dedicated state funding, such as the Growing Local Economies Fund, and may also be used to support other types of government grant applications. Importantly, it will also provide a collaborative guide to renewable energy generation and localised energy supply in the Northern Rivers FER.</p>

4.2.5 Local actions: Byron Shire Council

a) Completed actions

Byron Shire Council has already taken a number of steps down the path to net zero emissions and 100% renewable energy. Sustainability and emissions reduction projects have been implemented under the *Greenhouse Action Strategy 2004* and the *Byron Shire Low Carbon Strategy 2014* since 2004. Key projects include “Power Up – Northern Rivers Electric Vehicle Strategy” and Byron Shire Bike Plan 2019, implementation of sustainable investment and procurement policies, landfill gas capture and flaring as well as support for Community Gardens, food grown on footpaths and sustainability events such as Renew Fest, World Environment Day and Sustainable House Day. To date, Council has installed over 215 kW of solar on its assets and has plans to install a further 7.8 MW.

Table 3 A summary of completed projects

Council Operations: Completed Projects	
Project	Description
Solar installations at Council assets	Council has installed more than 200 kW of rooftop solar across a range of assets, such as the Byron Bay Library, Sandhills Childcare Centre, Cavanbah Centre and Byron Bay Resource Recovery Centre.
Myocum landfill gas capture and flaring	In 2013 landfill gas capture and flaring was implemented at the Myocum landfill to reduce emissions.
Revolving Energy Fund	In 2009 a Revolving Energy Fund was established to finance ongoing renewable energy projects that reduce GHG emissions and provide monetary savings.
Sustainable investment and procurement policies	In line with the Low Carbon Strategy 2014, Council investigated and implemented divestment options, moving away from non environmental and/or non ethical activities.
Electricity Contract – 100% carbon neutral	Council's new electricity contract for all of its assets came into effect on 01 January 2019. Electricity purchased is 100% GreenPower (i.e. 100% certified carbon neutral) under the National Carbon Offset Standard.

In addition to actions that reduce the carbon footprint of its operations, Council has also implemented a number of projects that work to reduce Shire-wide emissions and promote a sustainable, healthy community.

Table 4 A summary of community focussed completed projects

Community Focussed: Completed Projects	
Project	Description
Electric Vehicles Strategy	The 'Power Up' Northern Rivers Electric Vehicle (EV) strategy was completed in November 2017. One of the key goals of the EV strategy is to establish a comprehensive network of charge stations in our region that will ensure EV users have confident access to charge opportunities in the Northern Rivers region. Council has installed and is currently trialling funding free community access to a Fast Charge station in Byron Bay that is powered from 100% renewable energy. Council is investigating the potential for an EV charge station at the Mullumbimby Administration Centre. Council is also currently reviewing the EV trial to investigate the benefits of incorporating EV's into a car pool program. This will also begin to address the peak oil preparedness.
Northern Rivers Carpool Scheme	Supported by the Community Carpool Association Inc. (CCAI), the Northern Rivers Carpool Scheme facilitates online carpooling matches through a website developed by a regional alliance of Councils. Since its creation in 2009, there are now almost 2000 members and five other regions around Australia have taken up a licence to run the same project.
Byron Shire Bike Strategy	In 2008 Council adopted the Byron Shire Bike Strategy (Bike Plan) in order to encourage the use of a healthier, more sustainable form of transport for members of the Byron Shire community. This Plan is ongoing, and has resulted in an increased amount of cycleways, end trip facilities (secure parking) and reduced car dependency and the impact of carbon emissions within the Shire. The Bike Strategy is currently under review and will be updated in 2019.
Renew Fest	Council is a major sponsor of Renew Fest, a pioneering waste free sustainability festival held annually in Mullumbimby. The festival began in 2016 as an initiative of local community energy group COREM in collaboration with Byron Shire World Environment Day and a number of other local, regional and state partners.
Community Gardens	Byron Shire Council recognises community gardens as legitimate social assets that enhance health and well being plus local food security. Council is committed to the promotion, development and management of community gardens across the Shire in accordance with best practice guidelines. The Byron Shire Community Gardens Policy aims to facilitate the establishment of community gardens and regulate the management of existing community gardens on Council owned land.
Sustainable Streets program	Council previously ran a 'Sustainable Streets' program, which aimed to foster community inspired sustainable behaviour change at a neighbourhood level. The program consisted of regular neighbourhood gatherings and sustainability education workshops on topics including: organic gardening; bush-friendly backyards; rainwater harvesting; solar power and energy efficiency; ethical shopping; green cleaning and cooking with local produce.

b) Strategies and policies

Council has in place and is developing a number of new strategies and plans that work together to guide the Shire into a more sustainable future. The development of this Strategy has been underpinned by the key strategic directions set out in Council's *Community Strategic Plan 2028 (CSP)*. The Strategy recognises the growing interest in emissions reduction projects and renewables observed in the Byron Shire, which is highlighted in the CSP, and acknowledges and provides a pathway for realising Council's own commitment to reducing emissions to net zero and transitioning to renewable energy sources. The CSP is accompanied by the more detailed implementation document *Our Byron, Our Future*, which comprises the *Byron Shire Council Delivery Program 2017-21 (Revised)* and the *Operational Plan 2018-19*. This Strategy fulfils a number of Council's obligations under *Our Byron, Our Future's* Community Objectives 3.2.a *Work towards Council's zero emissions target*, and 3.2.b *Support community environmental and sustainability projects*.

This Strategy is further complemented and supported by a number of other Council policies and strategies, as set out in the diagram below. Many of these strategies already incorporate environmental and sustainability principles, and work is being done to strengthen those with room for improvement.

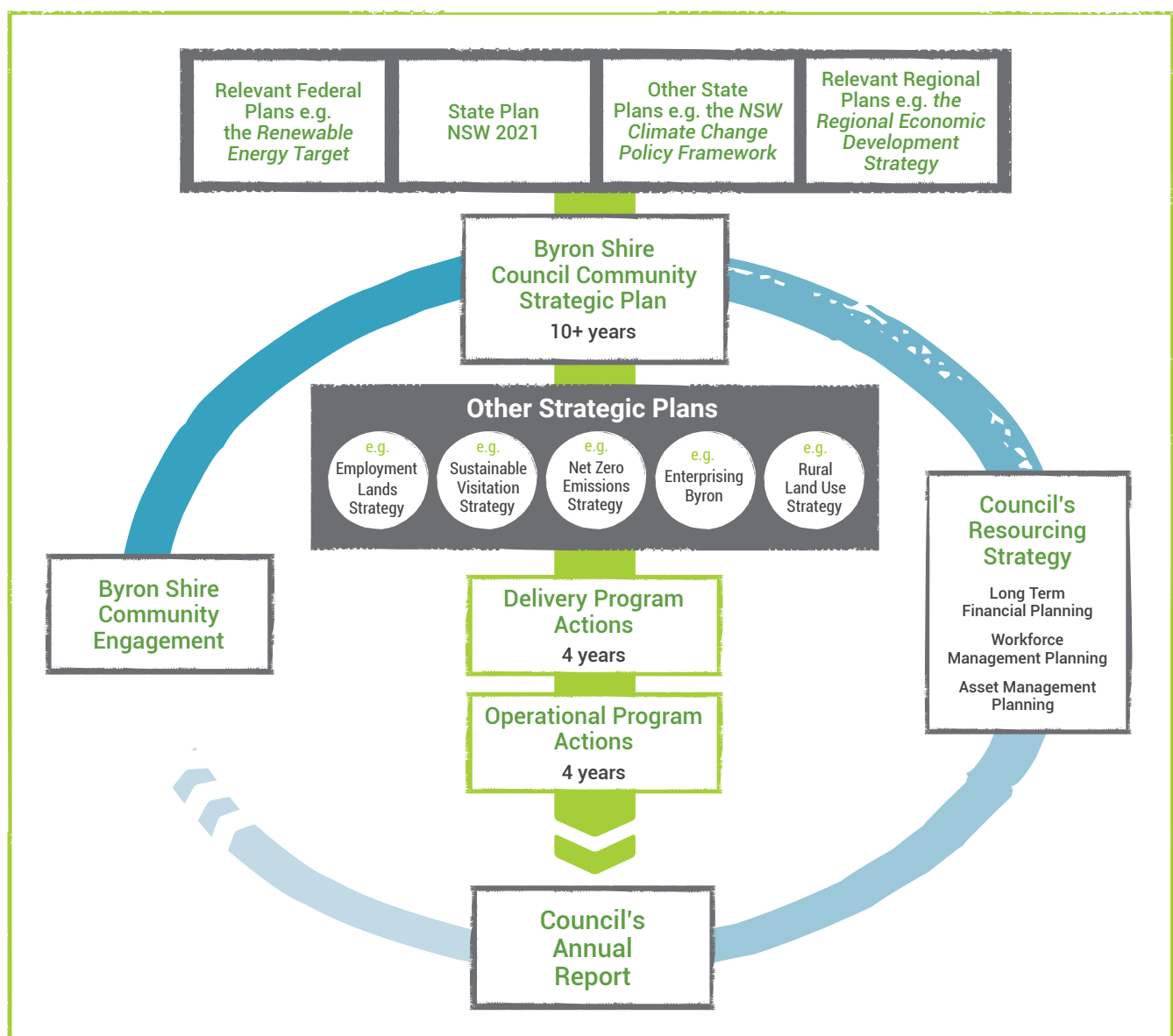


Figure 5 Byron Shire Council's Planning Structure

c) Collaboration

As part of its push towards a more sustainable and secure future, Council has both joined and initiated a number of international, national and local groups with a focus on climate change mitigation.

International Council for Local Environmental Initiatives

The International Council for Local Environmental Initiatives (ICLEI) is an international association of local governments and national and regional local government organisations that have made a commitment to sustainable development. Byron Shire Council has been a member of ICLEI since October 2015, working alongside hundreds of other member organisations and cities to create a more sustainable, low emission development pathway.

Global Covenant of Mayors for Climate & Energy

ICLEI are one of the founding members of the Global Covenant of Mayors for Climate & Energy (CoM). This international alliance of cities and local governments share a long-term vision of promoting and supporting voluntary action to combat climate change and move to a low emission, resilient society. The CoM represents 7,511 cities and almost 700 million people worldwide which is almost 10% of the total global population. In October 2015, Byron Shire joined the CoM, internationally recognising the commitment to help Byron Shire become emissions free. This commitment includes reporting to the CoM, and publicly reporting on the following:

- The greenhouse gas emissions inventory for our Shire consistent with the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC)
- The climate hazards faced by our Shire
- Supporting ZEB's target to reduce Shire-wide greenhouse gas emissions
- The climate vulnerabilities faced by our Shire
- Our plans to address climate change mitigation and adaptation.

Cities Power Partnership

The Cities Power Partnership (CPP) is a free national program that exists to celebrate and accelerate the emission reduction and clean energy successes of Australian towns and cities. In July 2017 Byron Shire Council joined 70 local councils from around Australia representing over 8 million people on the CPP program. As part of this program, Council is pledging five key actions to move forward on emissions reduction and clean energy:

- Install renewable energy (solar PV and battery storage) on Council buildings including childcare facilities, libraries, recreation centres, sporting grounds, Council offices and through street lighting
- Power Council operations by renewables directly, or by purchasing GreenPower, and set targets to increase the level of renewable power for Council operations over time
- Create a revolving green energy fund to finance energy efficiency projects and receive monetary savings
- Provide fast-charging infrastructure at key locations for electric vehicles (EVs)
- Support local community groups with their community energy initiatives, for example local organisations ZEB and COREM.

Actions are to be reported biannually and form part of this Strategy (for project details see 6.3).

Sustain Energy

As part of the Sustain Northern Rivers collaboration, we have been participating in the Sustain Energy Working Group since its inception in 2008. The group's goal is to ensure the Northern Rivers has a resilient and sustainable energy system by enabling our region to reduce greenhouse gas emissions from energy systems and increase the proportion of renewable energy sources to 20% by 2020. The group consists of nine organisational members and has delivered a suite of strategic, on ground and collaborative outcomes over the past decade.

Sustainability and Emissions Reduction Advisory Committee

The Sustainability and Emissions Reduction Advisory Committee (SERAC) was founded in 2018 by Council and includes staff from numerous Council Directorates and members from community including ZEB and COREM and nominated members of the public. A focused group dealing with sustainability matters is not new; prior to SERAC, Council had a Biodiversity and Sustainability Advisory Committee for almost a decade. SERAC was created to further assist Council in the development, implementation and review of relevant sustainability and emissions reduction plans, policies and projects and support the drive towards a zero emissions Byron Shire Council and community.

Internal Council Stakeholders

There is a dedicated internal Sustainability Team working towards net zero emissions, the transition to renewable energy and various sustainability initiatives. The Sustainability Team works closely with internal subject matter experts in solar, electricity, procurement, engagement, environment and biodiversity to ensure a cohesive and consistent approach to sustainability and emissions reduction across all day-to-day Council operations.



Planting Day in the Byron Shire

4.2.6 Local actions: Byron Shire community

Byron Shire is renowned for its engaged and passionate constituency and its robust history of environmental activism and counter-culture. The community is conscious of protecting and preserving its many beautiful natural features and driving innovation underpinned by local values. Many individuals in our community are already working towards a more sustainable future by installing solar panels to their homes and businesses, switching to more energy efficient appliances and lighting, growing their own fruits and vegetables, reducing waste and reducing food miles by shopping at their local Farmers' Markets. In addition to individual residents and businesses, the following community organisations are getting behind the push towards sustainability and emissions reduction:

Zero Emissions Byron Limited

Zero Emissions Byron Limited (ZEB) aims to reduce all of Byron Shire's emissions to net zero by 2025 across five sectors (energy, buildings, land use, transport and waste), and to inspire and work with the community to reach this goal. The net zero emissions target for all of Byron Shire was first developed in March 2015 as an initiative of Byron Shire Council in partnership with Beyond Zero Emissions and the Centre for Social Change. In June 2016, ZEB published the Shire's baseline community emissions report, the work of its then project coordinator and over 50 volunteers. In October 2016, Zero Emissions Byron Limited was formed as a non-profit company limited by guarantee and managed by a board of seven directors assisted by an expert advisory panel.

Zero Emission Byron Limited functions as a community run organisation that assists in calculating Shire emissions as well as being the overarching body for community groups sharing similar aims and interests. ZEB supports commercial and residential emissions reduction projects of Council, community groups such as COREM, local energy suppliers such as Enova Community and other community emissions reduction projects and programs within the Shire. For example, ZEB partners with Enova Community and COREM in RePower Byron (formerly called 'Green my Grid' with funding support from Council), a street -by-street initiative to promote ethical electricity supply, energy efficiency and renewable energy. ZEB also initiates its own projects in association with stakeholders and community groups. Table 3 below clarifies ZEB's role within the community.

As noted in the introduction, Council has a limited amount of control and influence over many Shire-wide emissions sources. Despite this, Council is committed to working closely with ZEB to advocate and assist the broader community to implement energy efficiency and renewable energy projects and achieve the goal of net zero community emissions by 2025. Based on the information produced as part of ZEB's 2016 Shire emissions report, Council's community emissions reduction planning framework and associated actions will be focused on the largest emitting sectors which include stationary energy, transportation and waste.

Community-Owned Renewable Energy Mullumbimby

Community-Owned Renewable Energy Mullumbimby (COREM) is a voluntary not-for-profit renewable energy organisation based in Byron Shire. COREM seeks innovative solutions to make switching to community-owned renewable energy easier, cheaper and more socially-inclusive. The group's aim is to transition Byron Shire to 100% renewable electricity as well as transition the political and economic power structures from centralised energy distribution to de-centralised, communally-shared platforms. Active projects include a community Revolving Energy Fund, low-interest business solar system loans, RePower Byron and Renew Fest plus potential projects including a hydro-power scheme and large-scale solar gardens. Council collaborates with COREM on projects and promotions where ever possible.

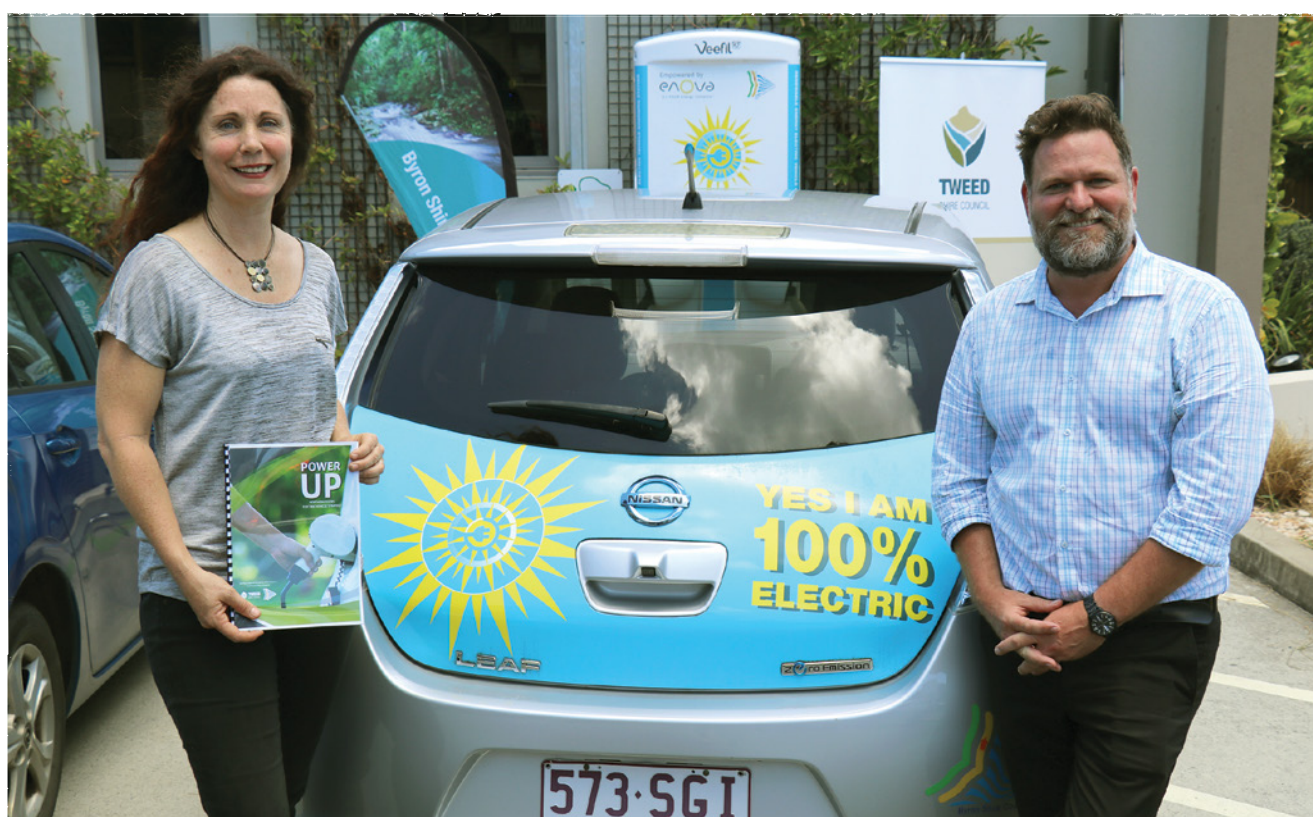
5. Council's Target: Where do we want to be?

On 23 March 2017, Resolution 17-086 was adopted and included two specific targets. At this meeting, Council committed to achieving:

- 100% net zero emissions by 2025 in collaboration with Zero Emissions Byron (ZEB); and
- sourcing 100% of its energy through renewable sources within the next 10 years (2027).

This *Net Zero Emissions Strategy for Council Operations 2025* is a response to this Council resolution. The recently updated 2015/16 baseline of emissions from Council operations will be used as a benchmark against which progress will be measured.

Collaboration and communication are crucial to any successful strategy. Council is committed to working with the public and promptly responding to people's requests, questions and concerns on the journey to reach net zero emissions and 100% renewable energy. This Strategy has been developed in consultation with stakeholders and the general community.



Deputy Mayor Cherry of Tweed Shire Council and Mayor Richardson from Byron Shire Council launch the Electric Vehicle (EV) Strategy in Nov. 2017.

6. Council's Roadmap: How will we get there?

This Strategy maps out a high-level, dynamic roadmap to achieving Council's goals of net zero emissions by 2025 and transitioning to 100% renewable energy by 2027. Council is intentionally adopting a flexible approach to allow for changes to projects currently in the pipeline, as well as the possibility of new technologies becoming available or more financially viable in the coming years. As 2025 draws closer, Council will have a much clearer picture of the total amount of emissions that have been reduced and therefore how many emissions remain to be offset. Similarly, as 2027 draws closer and renewable energy projects currently in the pipeline or not yet conceived come online, Council will have a greater understanding of how much electricity remains to be transitioned to renewable before the deadline.

Given this dynamic state of play, a detailed implementation plan would be premature at this initial stage. The following seven step roadmap will guide Council on its journey to net zero emissions and 100% renewable energy. At every step of the journey, Council will be guided by its net zero emissions decision-making hierarchy as set out in the Introduction to this Strategy.

Step one	Identify and measure emissions
Step two	Stocktake completed emissions reduction and renewable energy projects
Step three	Research potential new projects and explore implementation plan options
Step four	Research potential funding opportunities for new projects
Step five	Develop communication plans
Step six	Monitor and report annually on emissions and emissions reduction measures
Step seven	Review and optimise internal processes

6.1. Step one: Identify and measure emissions

Council contracts independent external environmental providers to assist with the identification and measurement of Council and community-wide emissions. The collected data is used as a baseline against which Council and community performance can be measured.

6.1.1 Council emissions profile

Using the NGER methodology, we calculate emissions across Council's six sectors for scope 1 and scope 2 emissions. Council's emissions profile for the 2017/18 financial year is outlined in Table 5 and depicted in Figure 4. The total annual GHG emissions for Byron Shire Council during this period were calculated as 17,453 t CO₂e. To reach its net zero emissions and renewable energy goals, Council will research and implement projects across all six sectors (for detailed project information see steps two and three of the Roadmap).

Figure 4 shows the significant contribution to Council's emissions profile from fugitive emissions escaping from the landfill (56%). General electricity usage from all Council operated assets produced the next highest emissions per category at 27% of total emissions. When broken down further into separate asset types, the wastewater and treatment sector made up 59% of total emissions within the general electricity category. Fugitive emissions from sewage treatment plants and fleet emissions are the third and fourth highest contributors at 6.5% each. Streetlights and bottled gas totalled just 3.7% collectively.

Table 5 Total Council emissions by sector 2017-2018

Sector	Description	Emissions (t CO ₂ e)	%
Landfill Fugitive Emissions	Fugitive emissions from solid waste disposal on land. (Fuel and electricity usage emissions encapsulated in other sectors).	9,755	56%
General Electricity	All assets operated by Council.	4,733	27%
Sewage Treatment Plant Fugitive Emissions	Fugitive emissions from organic waste water decomposing in the ponds as it is being treated.	1,162	6.5%
Fleet	All diesel and petrol consumed by Council fleet.	1,134	6.5%
Street Lights	Electricity used by Streetlights	633	3.5%
Bottled Gas	LPG bottled gas used at Council assets.	36	0.2%

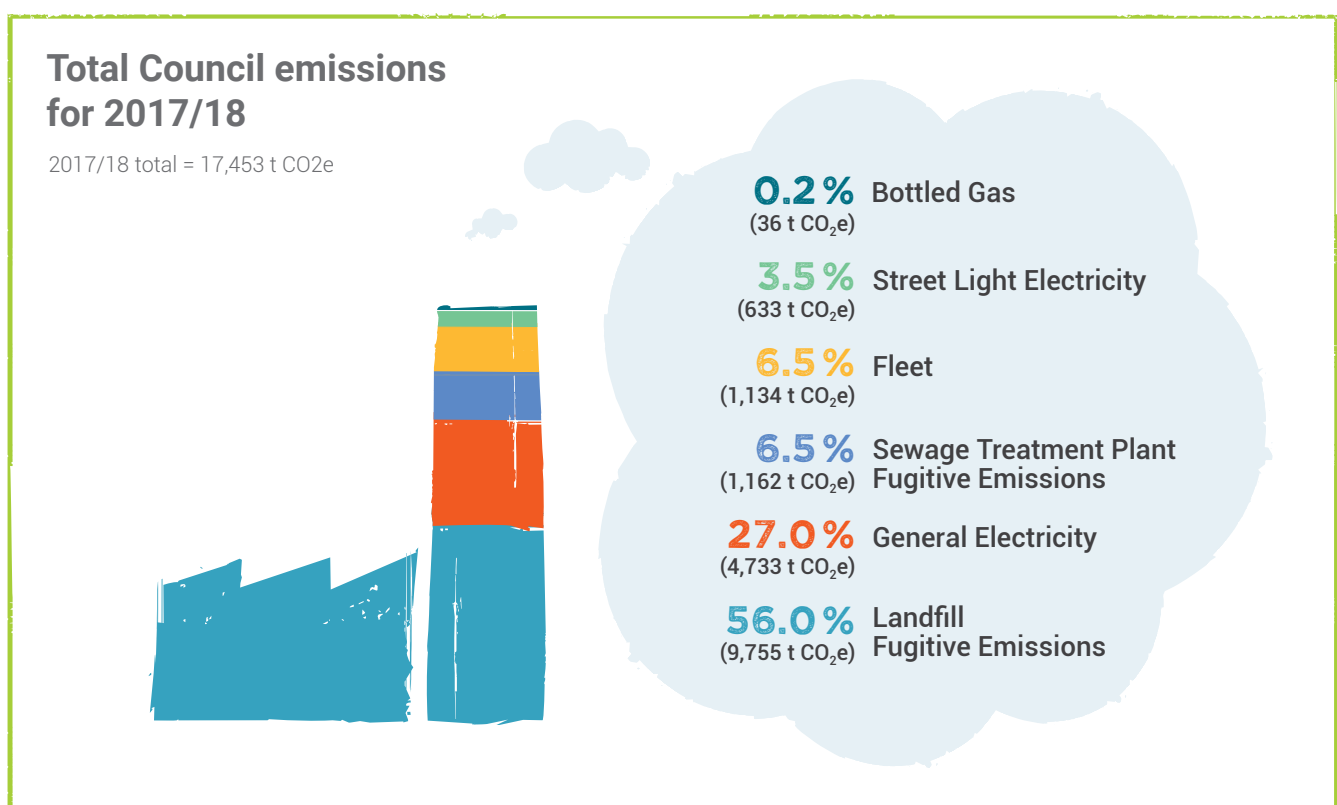


Figure 6 Total Council emissions by sector 2017-2018

6.1.2 Community emissions profile

The Byron Shire community GHG emissions profile for the period 2016/17 was measured using the NGER reporting method. In line with Global Protocol for Community-scale Greenhouse Gas Emissions (GPC) standards, inventory was conducted for the following sectors: energy, buildings, land use, waste and transport. The total annual GHG emissions in Byron Shire for this period were calculated as 394,081 t CO₂e. The following graph summarises community emissions by sector. Note that the information in the graph is to be used as a planning tool, not an emissions management calculator.

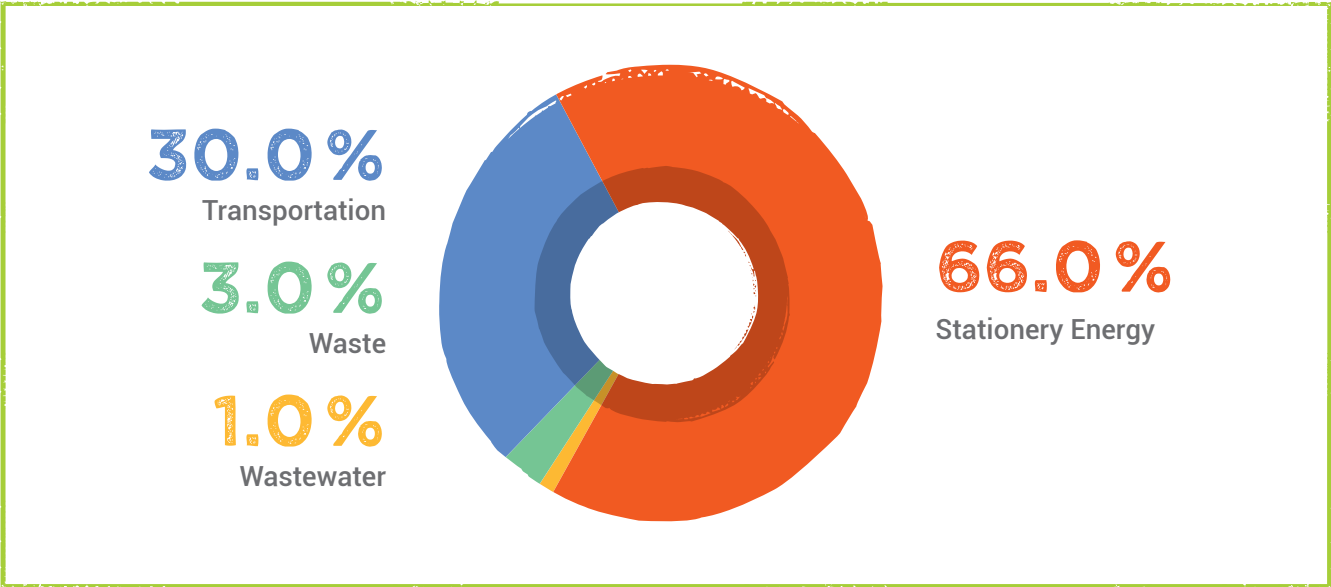


Figure 7 Byron Shire community emissions by sector. Source: Ironbark Sustainability (2018) Byron Shire Council Community Emissions Profile Report

As seen in Figure 5, the largest source of total GHG emissions is stationary energy at 262,410 t CO₂e or 66%. Stationary energy includes emissions from the consumption of fuel in residential buildings, commercial and institutional facilities and manufacturing and construction industries. This sector does not include such activities as agriculture and farming in general. On-road transportation produced the next highest emissions per category, at 30% of total emissions or 7,057 CO₂e. Waste sources produced 4% of total emissions at 14,614 t CO₂e, largely from disposal of solid waste (3%) and also from biological treatment of wastewater, including sewerage (1%).

6.2. Step two: stocktake completed emissions reduction and renewable energy projects

To date, Council's approach to emissions reduction and renewable energy projects has been guided by the *Greenhouse Action Strategy 2004* and *Low Carbon Strategy 2014*. A list of completed projects that are currently working to reduce Council and the community's carbon footprint can be found in tables 3 and 4 of this Strategy. The interactive trajectory models (Figures 2 and 3) will also enable Council to visually demonstrate progress towards the net zero goal, for example, the significant decrease in facility electricity in the model demonstrates the abated CO₂ emissions from Council's switch to 100% GreenPower in 2019.

6.3. Step three: research potential new projects and explore implementation plan options

Council is actively researching a wide variety of new projects to reduce emissions and transition to renewable energy for its operations. The below projects are at varying stages of implementation. As they start to come online in the near future, Council will gain a clearer picture of what remains to be done to achieve its 2025 and 2027 goals.

Table 6 A summary of future Council actions towards reducing emissions and transitioning to renewable energy for its operations

Council Operations: Projects in the Pipeline	
Project	Description
Further solar installations at Council assets	<p>Council is considering and in the process of implementing a number of further potential solar installations. These various projects will likely occur at different stages over the next 10 years. Key projects in the pipeline include:</p> <ul style="list-style-type: none"> » Solar Farm at Dingo Lane, Myocum (2-7 MW). Buffer land to the Myocum Resource and Recovery Centre is being considered for a large scale ground-mounted solar farm. A site feasibility assessment identified that the proposed site is suitable for a photo-voltaic solar facility of up to 7 MW. This solar farm could offset Council's and potentially community emissions. » Solar carpark at Council's Mullumbimby Administration Building (99 kW). In 2019, a 99 kW solar system carport structure will be installed in the carpark. As well as reducing carbon emissions and energy consumption for the Administration Building by around 20%, the carport structure will provide shade for around 40 public parking spaces. » Rooftop solar on the Bangalow, Brunswick Valley and West Byron Sewage Treatment Plants (close to 300 kW in total). These systems should be installed in the 2019/20 financial year. » Solar Farm at Brunswick Valley sustainability centre to offset emissions from STP operations. This project is at early initiation stage. » Further applicable sites are being investigated for their potential.
Bioenergy Facilities at Sewage Treatment Plants (STP)	<p>Council's municipal green wastes and STP biosolids have been identified as potential feedstock for bioenergy facilities. Other feedstock, such as oils and grease, and the growing of coppice crops intended for use as bioenergy feedstocks is also being considered. Council is investigating siting bioenergy facilities at its STP properties to process and valorise the feedstock materials. Bioenergy has an estimated potential output of 1.3MW. These bioenergy facilities are likely to be designed and built in the next 2-3 years.</p>
Street Lighting Efficiency	<p>Council is considering a proposal from Essential Energy to upgrade streetlights to LED technology for category P (low traffic residential) areas. As these LED upgrades occur accordingly to Essential Energy's maintenance schedule, the upgrades would occur regularly at pre-determined intervals into the future.</p>
Sustainability Guidelines Template	<p>Council is researching a Sustainability Guidelines document to support Council Development project plans. This document would enable Council to highlight any potential environmental risks associated with projects, such as carbon emissions likely to be generated. It will also include extra information about optional green building rating systems, such as Green Building Council of Australia's voluntary Green Star program and National Australian Built Environment Rating System (NABERS). This template will be developed over the next 5 years.</p>
Sustainable investment and procurement policies	<p>Council is investigating further ways to strengthen its already robust sustainable investment and procurement policies, including updating the existing Ethical Catering Policy to include sustainability principles. These policies will be updated and implemented over the next 2 years.</p>
Brunswick Valley Sustainability Centre – Council benefits	<p>The Brunswick Valley Sustainability Centre is envisaged to be a site for sustainable eco-pursuits, renewable energy technologies and innovative environmental processes. The site is on operational land owned by Council near the sewage treatment plant in Valances Road, Mullumbimby. The Centre would help reduce Council emissions through projects such as the production of bioenergy from biomass (from the STP as well as crops) and Council-owned solar farm projects. Council aims to have this Centre built and running in the next 2-5 years.</p>
Energy Efficiency Program	<p>Council is investigating an energy efficiency program focusing on upgrading lighting and heating, ventilation and air-conditioning systems at key sites. This is an ongoing program that will involve numerous individual projects that will contribute to Council's overall efficiency. Each project is likely to have a different timeframe.</p>
Offsetting mechanisms	<p>Council is researching the best ways to offset remaining emissions through avenues such as the purchase of accredited offsets, or generating our own offsets by tree planting or other local offset projects. These mechanisms will be put in place over the next 6 years, to enable Council to reach its net zero emissions goal by 2025.</p>
Byron Waste Management and Resource Recovery Strategy	<p>Council is developing a 10-year integrated waste management and resource recovery strategy that will define a clear path towards a Shire that is landfill-free, carbon neutral and waste wise. The ultimate goal is a circular economy within Byron Shire. The strategy will seek to harness the high rates of environmental awareness and strong levels of community participation within the Byron community to deliver a step-change around the generation and management of waste.</p>
Sustainable Transport	<p>Council is pursuing a range of transport initiatives and will collaborate to progress its net zero goal accross these projects where possible.</p>

Council is currently undertaking or looking into the following potential future projects in relation to community emissions reduction, renewable energy and sustainability.

Table 7 A summary of future Council actions towards reducing emissions and transitioning to renewable energy for the community

Community Focussed: Projects in the Pipeline	
Project	Description
Car share pilot	Council is initiating a 12-month car share pilot in the Byron Shire later in 2019. The purpose of the pilot is to test the market and feasibility of offering a traditional car-sharing service here in the Shire. Traditional car sharing provides users with access to cars that are owned by a car sharing company. These companies manage the 'sharing' or 'hiring' platform and take care of all the ancillary costs of each vehicle including registration, insurance, maintenance, and even petrol. In addition to reducing traffic and providing affordable, flexible access to car hire, car sharing has a positive environmental benefit. For every car-share vehicle used, 10 vehicles are taken off the road and so car sharing could help Council in its aim to reduce emissions.
Byron Shire Bike Plan	Council is preparing a 10 year Bike Plan to provide a strategic and holistic approach to cycleways, their provision and maintenance, and the way they connect across the Shire. The new plan will build on earlier work undertaken on Council's previous bike plan (see Table 2: Community Focussed: Completed Projects in Section 4: Context) with a refreshed decade-long focus. The new plan will assist Council in the provision of well-located and better connected cycleways and shared paths that will encourage more cycling for both recreation purposes and as a more sustainable mode of transport than cars. Council aims to have the Final Plan approved by the end of 2019.
Environmental Upgrade Agreements	Council is researching an Environmental Upgrade Agreement (EUA) mechanism. EUAs allow approved financiers to lend money for environmental upgrades via participating NSW Councils, who levy an Environmental Upgrade Charge on the building. Repayments are collected through the rates system.
Social Access Solar Gardens Project	This project is being led by the University of Technology Sydney's Institute of Sustainable Futures and the Community Power Agency in collaboration with 17 partner organisations including Byron Shire Council, and local community energy group COREM. A solar garden is a centralised solar power station that offers households the opportunity to purchase solar panels with the aim that the electricity generated from those panels will be credited on their power bill. While it has been determined that a Council-led community solar garden is not feasible at this time, Council will explore opportunities to support community groups in community-led solar gardens.
Regional adaptation collaboration	The NSW Office of Environment and Heritage (OEH) manages the state's approach to climate change adaptation. OEH has developed a process to enable regional adaptation and planning by working with local government, agencies and other local stakeholders to identify and understand regional climate vulnerabilities. Council participated in the consultation stage of the North Coast Enabling Regional Adaptation project throughout 2018, and the final report from that process is due to be published by OEH in 2019. The report is expected to identify and develop adaptation models for key regional systems such as energy, water, settlements etc. and to identify key adaptation projects.
Advocacy opportunities	Council will advocate for ways to remove legislative and taxation impediments to community investment in renewable energy and sustainable practices (e.g. Council will advocate for the NSW Government to improve residential building standards and advise that all new builds must be Green Star certified by the Green Building Council of Australia). Council will also explore incentives to encourage increased investment in the sector, on an ad hoc basis.
Brunswick Valley Sustainability Centre – community benefits	As explained previously, the planned Brunswick Valley Sustainability Centre is envisaged to be a site for sustainable eco-pursuits, renewable energy technologies and innovative environmental processes. The Centre would benefit the community through projects such as privately-owned solar farm projects, affordable housing initiatives and community-use areas (education centres, community gardens, camping and tourist accommodation, and access to walkways through natural spaces).
Marketing opportunities	As Council transitions its operations to being net zero emissions and 100% renewable, and as the community moves forward on its emissions reduction journey, Council will investigate opportunities to market and promote the Council and the Shire as a whole as a sustainable, environmentally-conscious region that is doing its part to mitigate climate change and keep the increase in global temperature below 1.5°C.
Sustainable Events Toolkit	Council is researching the development of a Sustainable Events Toolkit, which would assist planners of small, medium and large events within Byron Shire to reduce waste and emissions. Council aims to have the Final Toolkit ready for public release by 2020.
Competitive advantage	Transitioning to renewable energy and reducing an operation's carbon footprint makes business sense as well as environmental sense. By demonstrating leadership in the sustainability sector, Council aims to foster a competitive edge for the Shire that will attract business investment and maximise consumer and business choice in the region.

6.4. Step four: research potential funding opportunities for new projects

Additional sources of funding outside of Council operations will be explored to help support the implementation of the Strategy. These options include:

- State Government mechanisms such as the NSW Energy Savings Scheme and Office of Environment and Heritage funding.
- Federal Government mechanisms such as Renewable Energy Certificates.
- Clean Energy Finance Corporation – low interest finance solutions that support renewable energy and energy efficiency projects.
- Revolving Energy Fund - reinvesting financial savings from energy efficiency and renewable energy projects to provide funding for future projects.
- Power Purchase Agreements – These agreements allow Council to lock in lower energy cost while supporting the development of renewable energy projects
- Grants from the Federal and/or State government.
- Community funding opportunities.

6.5. Step five: develop communication plans

Council will develop and implement communication plans and timelines to periodically update internal Council stakeholders and the community as we progress towards our resolution goals. This Strategy comprises the initial communication piece for both Council and community as it formally sets out Council's aims, objectives and key messages. Beyond this Strategy, Council commits to the following:

- Updates to the Strategy will be published every three years, with the first update due to be released in 2022.
- Council will provide progress updates (in addition to the formal Strategy Updates) to key community stakeholders and the community as projects are developed and delivered, challenges overcome and milestones reached. Avenues for community communication will include Council's quarterly SERAC meetings and e-newsletter articles, social media and website updates and media releases.
- Further to external communication, Council will work with community organisations such as ZEB and COREM to advocate and promote emissions reduction and renewable energy in community, commercial and residential sectors where ever possible.

6.6. Step six: monitor and report annually on emissions and emissions reduction measures

Council has been and will continue to monitor and report on its emissions profile and the progress of emissions reduction measures in a number of capacities:

- Since 2004, Council has been reporting on its carbon emissions from general electricity use, street lighting, heavy and light vehicle fleets, landfill, sewage treatment plants and bottled gas. Over time, data reliability and reporting systems have improved greatly allowing for more accurate and robust carbon accounting. From the information collected, Council produces an annual status report for GHG emissions from Council operations which monitors the progress towards meeting the net zero emissions target.
- Shire-wide community emissions will be reported using the Global Protocol for Community Scale Greenhouse Gas Emissions Inventories (GPC). Emissions profiles will be updated on an as-needed basis according to changes in state and nationwide influences and increased emissions data collection on a regional scale.
- Council will continue to meet reporting obligations under the Global Covenant of Mayors (CoM) by reporting under the GPC framework.
- Council will report on project progress to the Sustainability and Emissions Reduction Advisory Committee (SERAC). Meeting minutes are made available to the public online via the Byron Shire Council website.
- In addition to the carbon accounting and project reports above, Council will monitor the progress of projects through the internal Sustainability Team to ensure it remains on track to meet the net zero carbon and renewable energy goals. An Energy Matrix group that includes representatives from all relevant Council service areas meets regularly to provide updates on individual renewable energy projects run by Council. The progress of these projects will be reported annually to Council and SERAC as a major component of the annual carbon inventory reporting, and this Strategy updated accordingly.

6.7. Step seven: review and optimise internal processes and projects

Council will cross-reference this Strategy in other strategic plans to ensure that its aims and objectives are consistently applied across all service areas. Council will conduct annual internal reviews of its processes and procedures to ensure that its actions to reduce emissions and reliance on non-renewable energy are as efficient and effective as possible. Further, Council will continually monitor current projects to ensure that it is receiving the greatest benefits in terms of emissions reduction and energy efficiency as well as financial return. Where necessary, Council will adjust its processes and project management approach to optimise outcomes.

7. References, Tables and Figures

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Tables

Table 1	<i>Global, national and regional climate change issues</i>	15
Table 2	<i>Global, national, state and regional climate change actions</i>	16
Table 3	<i>A summary of completed projects</i>	17
Table 4	<i>A summary of community focussed completed projects</i>	18
Table 5	<i>Total Council emissions by sector 2017-2018</i>	25
Table 6	<i>A summary of future Council actions towards reducing emissions and transitioning to renewable energy for its operations</i>	27
Table 7	<i>A summary of future Council actions towards reducing emissions and transitioning to renewable energy for the community</i>	28

Figures

Figure 1	<i>Source: Commonwealth of Australia, National Carbon Offset Standard for Organisations, page 12</i>	8
Figure 2	<i>Business-as-usual (BAU) pathway showing Council emissions to 2030</i>	10
Figure 3	<i>Pathway to net Zero. Opportunity scenario showing Council emissions to 2030 after actions have been implemented.</i>	11
Figure 4	<i>Source: Office of Environment and Heritage (2014) – North Coast Climate Change Snapshot</i>	15
Figure 5	<i>Byron Shire Council's Planning Structure</i>	19
Figure 6	<i>Total Council emissions by sector 2017-2018</i>	25
Figure 7	<i>Byron Shire community emissions by sector. Source: Ironbark Sustainability (2018) Byron Shire Council Community Emissions Profile Report</i>	26

Byron Shire Council

**Net Zero Emissions Strategy
for Council Operations 2025**

