

Notice of Meeting

Climate Change and Resource Recovery Advisory Committee Meeting

An Climate Change and Resource Recovery Advisory
Committee Meeting of Byron Shire Council will be held as
follows:

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 16 March 2023
Time	9.00am

Shannon Burt
Director Sustainable Environment & Economy

I2023/352
Distributed 09/03/23



BYRON
SHIRE
COUNCIL

CONFLICT OF INTERESTS

What is a “Conflict of Interests” - A conflict of interests can be of two types:

Pecuniary - an interest that a person has in a matter because of a reasonable likelihood or expectation of appreciable financial gain or loss to the person or another person with whom the person is associated.

Non-pecuniary – a private or personal interest that a Council official has that does not amount to a pecuniary interest as defined in the Code of Conduct for Councillors (eg. A friendship, membership of an association, society or trade union or involvement or interest in an activity and may include an interest of a financial nature).

Remoteness – a person does not have a pecuniary interest in a matter if the interest is so remote or insignificant that it could not reasonably be regarded as likely to influence any decision the person might make in relation to a matter or if the interest is of a kind specified in the Code of Conduct for Councillors.

Who has a Pecuniary Interest? - a person has a pecuniary interest in a matter if the pecuniary interest is the interest of the person, or another person with whom the person is associated (see below).

Relatives, Partners - a person is taken to have a pecuniary interest in a matter if:

- The person’s spouse or de facto partner or a relative of the person has a pecuniary interest in the matter, or
- The person, or a nominee, partners or employer of the person, is a member of a company or other body that has a pecuniary interest in the matter.

N.B. “Relative”, in relation to a person means any of the following:

- (a) the parent, grandparent, brother, sister, uncle, aunt, nephew, niece, lineal descends or adopted child of the person or of the person’s spouse;
- (b) the spouse or de facto partners of the person or of a person referred to in paragraph (a)

No Interest in the Matter - however, a person is not taken to have a pecuniary interest in a matter:

- If the person is unaware of the relevant pecuniary interest of the spouse, de facto partner, relative or company or other body, or
- Just because the person is a member of, or is employed by, the Council.
- Just because the person is a member of, or a delegate of the Council to, a company or other body that has a pecuniary interest in the matter provided that the person has no beneficial interest in any shares of the company or body.

Disclosure and participation in meetings

- A Councillor or a member of a Council Committee who has a pecuniary interest in any matter with which the Council is concerned and who is present at a meeting of the Council or Committee at which the matter is being considered must disclose the nature of the interest to the meeting as soon as practicable.
- The Councillor or member must not be present at, or in sight of, the meeting of the Council or

Committee:

- (a) at any time during which the matter is being considered or discussed by the Council or Committee, or
- (b) at any time during which the Council or Committee is voting on any question in relation to the matter.

No Knowledge - a person does not breach this Clause if the person did not know and could not reasonably be expected to have known that the matter under consideration at the meeting was a matter in which he or she had a pecuniary interest.

Non-pecuniary Interests - Must be disclosed in meetings.

There are a broad range of options available for managing conflicts & the option chosen will depend on an assessment of the circumstances of the matter, the nature of the interest and the significance of the issue being dealt with. Non-pecuniary conflicts of interests must be dealt with in at least one of the following ways:

- It may be appropriate that no action be taken where the potential for conflict is minimal. However, Councillors should consider providing an explanation of why they consider a conflict does not exist.
- Limit involvement if practical (eg. Participate in discussion but not in decision making or vice-versa). Care needs to be taken when exercising this option.
- Remove the source of the conflict (eg. Relinquishing or divesting the personal interest that creates the conflict)
- Have no involvement by absenting yourself from and not taking part in any debate or voting on the issue as of the provisions in the Code of Conduct (particularly if you have a significant non-pecuniary interest)

Committee members are reminded that they should declare and manage all conflicts of interest in respect of any matter on this Agenda, in accordance with the [Code of Conduct](#).

RECORDING OF VOTING ON PLANNING MATTERS

Clause 375A of the Local Government Act 1993 – Recording of voting on planning matters

- (1) In this section, **planning decision** means a decision made in the exercise of a function of a council under the Environmental Planning and Assessment Act 1979:
 - (a) including a decision relating to a development application, an environmental planning instrument, a development control plan or a development contribution plan under that Act, but
 - (b) not including the making of an order under that Act.
- (2) The general manager is required to keep a register containing, for each planning decision made at a meeting of the council or a council committee, the names of the councillors who supported the decision and the names of any councillors who opposed (or are taken to have opposed) the decision.
- (3) For the purpose of maintaining the register, a division is required to be called whenever a motion for a planning decision is put at a meeting of the council or a council committee.

- (4) Each decision recorded in the register is to be described in the register or identified in a manner that enables the description to be obtained from another publicly available document and is to include the information required by the regulations.
- (5) This section extends to a meeting that is closed to the public.

OATH AND AFFIRMATION FOR COUNCILLORS

Councillors are reminded of the oath of office or affirmation of office made at or before their first meeting of the council in accordance with Clause 233A of the Local Government Act 1993. This includes undertaking the duties of the office of councillor in the best interests of the people of Byron Shire and the Byron Shire Council and faithfully and impartially carrying out the functions, powers, authorities and discretions vested under the Act or any other Act to the best of one's ability and judgment.

BYRON SHIRE COUNCIL

BUSINESS OF MEETING

1. APOLOGIES

2. DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

3. ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

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Sustainable Environment and Economy

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ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

Report No. 3.1 Confirmation of minutes of the Climate Change and Resource Recovery Advisory Committee held on 17 November 2022

5

Directorate: Sustainable Environment and Economy

Report Author: Arika McElroy, Project Support Officer

File No: I2023/86

10

RECOMMENDATION:

That the minutes of the Climate Change and Resource Recovery Advisory Committee Meeting held on 17 November 2022 be confirmed.

15

Attachments:

- 1 Minutes 17/11/2022 Climate Change and Resource Recovery Advisory Committee,
20 I2022/1685 , page 8  

Report

The attachment to this report provides the minutes of the Climate Change and Resource Recovery Advisory Committee Meeting of 17 November 2022.

Report to Council

- 5 The minutes were reported to Council on 15 December 2022. **Comments**

In accordance with the Committee Recommendations, Council resolved the following:

22-719 Resolved that Council notes the minutes of the Climate Change and Resource Recovery Advisory Committee Meeting held on 17 November 2022
22-720 Resolved that Council adopts the following Committee Recommendations:

- 10 1. That the Climate Change and Resource Recovery Advisory Committee notes the report.
2. That Council continues the annual membership with Climate Emergency Australia.
3. That Council notes that the report on Council's Annual Emissions will also be tabled with the Climate Change and Resource Recovery Advisory Committee for further
15 consideration and input.

22-721 Resolved:

- 20 1. That Council supports an invitation to Mullum Cares to participate in the Climate Change and Resource Recovery Advisory Committee, include Cr Dey as an alternate Councillor and endorse the constitution at Attachment 1 (E2021/148037) as amended pending Mullum Cares acceptance.
2. That Cr Pugh be alternate Chair in Cr Ndiaye's absence.

Minutes of Meeting
Climate Change and Resource Recovery
Advisory Committee Meeting

Venue	Conference Room, Station Street, Mullumbimby
Date	Thursday, 17 November 2022
Time	4.30pm



BYRON SHIRE COUNCIL

CLIMATE CHANGE AND RESOURCE RECOVERY ADVISORY COMMITTEE MEETING
MINUTES 17 NOVEMBER 2022

**Minutes of the Climate Change and Resource Recovery Advisory Committee
Meeting held on Thursday, 17 November 2022**

File No: I2022/1685

PRESENT: Cr Sarah Ndiaye, Cr Asren Pugh, Cr Mark Swivel

Staff: Sharyn French (Manager Environmental and Economic Planning)

Julia Adams (Sustainability Team Leader)

Phil Ridler (Sustainability Officer)

Danielle Hanigan (Manager Resource Recovery)

Sarah Child (Resource Recovery Strategy and Engagement Officer)

Community:

Fleur Brown

Madeleine Green

Katrina Shields (ZEB representative)

John Taberner (Enova Community Energy Ltd)

Cr Ndiaye (Chair) opened the meeting at 4.34pm and acknowledged that the meeting was being held on Bundjalung Country.

ATTENDANCE VIA AUDIO-VISUAL LINK: Shannon Burt (Director Sustainable Environment and Economy)

APOLOGIES: Luke McConell, Bronwyn Elliott, Jean Renouf (Resilient Byron)

DECLARATIONS OF INTEREST – PECUNIARY AND NON-PECUNIARY

Madeleine Green declared a non-pecuniary interest. The nature of the interest being that Madeleine lives 2kms from the Resource Recovery Centre.

Note: The minutes of the meeting held on [meeting date] were noted, and the Committee Recommendations adopted by Council, at the Ordinary Meeting held on [date]. (this note is only required if relevant ie a Panel meeting does not necessarily need to be reported to Council.)

BUSINESS ARISING FROM PREVIOUS MINUTES

There was no business arising from previous minutes.

BYRON SHIRE COUNCIL

CLIMATE CHANGE AND RESOURCE RECOVERY ADVISORY COMMITTEE MEETING
MINUTES 17 NOVEMBER 2022

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

PROCEDURAL MOTION

Committee Recommendation:

That Council change the order of business to deal with Report 3.2 next on the Agenda.

(Ndiaye/Pugh)

The recommendation was put to the vote and declared carried..

Report No. 3.2 **Revised Constitution of Climate Change and Resource
Recovery Advisory Committee**
File No: I2022/1661

Committee Recommendation:

- 1. That Council support an invitation to Mullum Cares to participate in the Climate Change and Resource Recovery Advisory Committee, include Cr Dey as an alternate Councillor and endorse the constitution at Attachment 1 (E2021/148037) as amended pending Mullum Cares acceptance.**
- 2. That Cr Pugh be alternate Chair in Cr Ndiaye's absence.**

(Taberner/Ndiaye)

The recommendation was put to the vote and declared carried.

BYRON SHIRE COUNCIL

ADOPTION OF MINUTES FROM PREVIOUS MEETINGS

3.1 - ATTACHMENT 1

BYRON SHIRE COUNCIL

CLIMATE CHANGE AND RESOURCE RECOVERY ADVISORY COMMITTEE MEETING
MINUTES 17 NOVEMBER 2022

Report No. 3.1 Sustainability Project Updates
File No: I2022/1426

Committee Recommendation:

1. That the Climate Change and Resource Recovery Advisory Committee notes the report.
2. That Council continues the annual membership with Climate Emergency Australia.
3. That Council note that the report on Council's Annual Emissions will also be tabled with the Climate Change and Resource Recovery Advisory Committee for further consideration and input.

(Shields/Taberner)

The recommendation was put to the vote and declared carried.

STAFF REPORTS - INFRASTRUCTURE SERVICES

Report No. 3.3 Resource Recovery Projects Update
File No: I2022/1473

Committee Recommendation:

That the Climate Change and Resource Recovery Advisory Committee notes the report.

(Brown/Green)

The recommendation was put to the vote and declared carried.

Report No. 3.4 North Coast Regional Waste Investment Project and Richmond Valley Council's waste update for Councils
File No: I2022/1474

Committee Recommendation:

That the Climate Change and Resource Recovery Advisory Committee notes the report.

(Green/Swivel)

The recommendation was put to the vote and declared carried.

There being no further business the meeting concluded at 6.24pm.

CCRR Climate Change and Resource Recovery Advisory Committee Meeting page 5

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

Report No. 4.1 Meeting Schedule for 2023 Climate Change and Resource Recovery Advisory Committee

5

Directorate: Sustainable Environment and Economy

Report Author: Arika McElroy, Project Support Officer

File No: I2023/84

Summary:

10 This report advises committee members of the scheduled committee meeting dates for 2023 and informs of the process for agendas.

15 **RECOMMENDATION:**

1. That the Climate Change and Resource Recovery Advisory Committee notes the scheduled meeting dates and times for 2023.
2. That the Climate Change and Resource Recovery Advisory Committee advise of any agenda items for future meetings.

20

Report

The following dates have been scheduled for the Committee's meetings for 2023, to be held in the Conference Room:

- Thursday 16 March, 9.00am
- 5 • Thursday 18 May, 4.30pm
- Thursday 29 June, 2.00pm
- Thursday 21 September, 2.00pm

At each meeting, staff will provide report/s on the status of current projects for the agenda.

10 A Resource Recovery project update report will be provided at each meeting in 2023. The following climate change mitigation and adaptation issues will also be reported, scheduled in line with 2023 project milestones.

- Carbon offset policy for Council
- Emissions reduction projects, including electric fleet vehicles, charging stations and sustainable procurement
- 15 • Climate risk for council operations
- Climate Conversations art exhibition in mid-2023

We would also like to hear your suggestions for future agenda items in line with the purpose of the Committee, which is stated in the Constitution as follows:

20 1. To assist Council in the development, implementation and review of relevant sustainability, resource recovery and climate change mitigation and adaptation plans, policies and projects such as:

- Council's Net Zero Emissions Strategy and Action Plan
- Council's Towards Zero Integrated Waste Management and Resource Recovery Strategy
- 25 • Councils Illegal Dumping and Litter Enforcement and Education Plan
- Climate Change Adaptation Plan
- Renewable energy projects
- Local network trading and local network charges
- Carbon reporting
- 30 • Waste avoidance, resource recovery, circular economy and reuse programs
- Other sustainability and resource recovery initiatives.

BYRON SHIRE COUNCIL

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.1

2. To support our community's drive towards zero emissions and zero waste to landfill.
3. To identify and report opportunities or concerns regarding resource recovery, waste management, sustainability and climate change adaptation and mitigation issues to Council including, but not limited to, funding opportunities, special events, government policy, practice or guidelines.

5

It is proposed that meetings can target specific issues related to resource recovery, waste management, sustainability and climate change mitigation and adaptation and that in order for the Committee to understand the issue and identify opportunities, experts on the subject can be invited to contribute.

- 10 It is also proposed that meetings can be held outside the Council building within environments that are relevant to that meeting's theme. For example, different formats could be used such as field days and workshops.

Committee members may also request items for inclusion in agendas for the above purpose, through the Chair.

- 15 Generally, agenda items are due 5 weeks prior to the meeting date. A reminder will be sent to Committee members by email to meet this deadline.

A link from Council's website to the agenda for each meeting will be provided to members, by email, at least 7 days prior to the meeting date. Agenda items are to be requested to the Chair by the below due dates, to allow time for report preparations.

Meeting Date	Agenda item due date
Thursday 18 May	Thursday 13 April
Thursday 29 June	Thursday 25 May
Thursday 21 September	Thursday 17 August

Strategic Considerations

Community Strategic Plan and Operational Plan

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
1: Effective Leadership We have effective decision making and community leadership that is open and informed	1.1: Enhance trust and accountability through open and transparent leadership	1.1.2: Governance - Ensure legislative compliance and support Councillors to carry out their civic duties	1.1.2.4	Deliver Council meeting secretariat – including agenda preparation, minutes and council resolutions monitoring

Recent Resolutions

- 22-744, 15 December 2022

5 Legal/Statutory/Policy Considerations

Nil

Financial Considerations

Nil

Consultation and Engagement

10 N/a

Report No. 4.2 Resource Recovery Project Updates

Directorate: Sustainable Environment and Economy

Report Author: Danielle Hanigan, Manager Resource Recovery

File No: I2023/158

5 **Summary:**

10 This report provides an overview of the key projects being delivered within the Resource Recovery Department, with a focus on NSW EPA Grant funded projects and upcoming opportunities. All projects are being delivered in accordance with the [Towards Zero Integrated Waste Strategy 2019 to 2029](#) objectives. The Report includes updates on Second Life for Second Hand Shop, Bring it Back – Bruns, Clean Up Australia Day, Byron Resource Recovery Centre – Increased Recovery Trials and the Single Use Packaging and Materials Policy.

15

RECOMMENDATION:

That the Climate Change and Resource Recovery Advisory Committee notes the report.

20

Resource Recovery – Key Projects Update

Second Life for Second Hand Shop: The Re-market

5 The *Second Life for Second Hand Shop Project* is funded by the *NSW EPA Better Waste and Recycling Fund*. The objective is to expand Shop operations and make it more of a destination location for dropping off and buying quality items. The focus is on creating efficiency in shop processes, improving infrastructure to allow increased storage of materials, engaging the broader community and encouraging circular economy initiatives including repair and upcycling workshops. The Shop has been rebranded as *The Re-market*, in-keeping with the ethos of encouraging the community to re-think, recover, re-purpose and repair.

The Project is in the final reporting stages, with the following actions delivered;

- Existing shed onsite moved into *The Re-Market* yard for the purpose of conducting upskill, upcycling and repair workshops
- 15 • New Point of Sale system purchased and implemented which will allow for improved data on the types of items that sell, as well as estimated volumes and weights to assist in understanding the overall diversion from landfill
- Mural artwork on the exterior of the workshop space, as well as new signage, garden beds to improve the aesthetic and create a welcoming space
- 20 • Additional racking and reorganisation of the space to allow for increased recovery of materials – especially building and construction materials.

The Re-Market Open Day was held on the 25th February. Workshops and activities were facilitated by local community re-pair and re-purposing groups including;

- 25 ○ Salvage Culture and Mullum Cares: Textile mending and repair
- Shedding Community Workshop and Mullumbimby Repair Café: Working with pallets to retrieve valuable timber
- Wheels and boards: Bike Repair
- North East Waste: Composting and Problem Household Waste
- 30 In addition to items taken directly to *The Re-Market*, an additional 35 tonnes of goods have been recovered from the Public Drop Off area in the past 5 months, which otherwise were destined for landfill.

The Resource Recovery Team will continue to expand operations to recover more items and create more events for skill sharing in the future.



Re-Market Workshop Space

The

Bring it Back – Bruns

- 5 *Bring it Back Bruns* is funded by the *NSW EPA On Ground Litter* grant, with the objective to reduce the amount of single-use takeaway items and single-use takeaway litter in Brunswick Heads. To achieve this objective, participating businesses will replace some of their single use takeaway containers with reusable ones, which once customers have finished with, will be deposited into specialised collection bins.
- 10 Council has engaged a ‘reuse at events’ group – Green My Plate (GMP) to co-ordinate the collection, washing and sanitisation of the containers. The containers will begin their circulation on the 11th of March and continue to be distributed by business on Saturday and Sundays for 3 months. The collections will take place on Sundays and Mondays, with GMP staff on the ground educating the community for the first two Saturdays.
- 15 Promotion will be undertaken through print, online, social media, targeted signage in Brunswick Heads as well as through face to face engagement with businesses and community in Brunswick Heads and at targeted events.

The pilot will allow Council to assess the feasibility of local reuse schemes and public collection for the future.

20

Source to Sea

- 25 Council is currently undertaking a litter prevention project called *Source to Sea* that aims to reduce the amount of litter entering into our local marine environment. The project is funded by the *NSW EPA Own it and Act Litter Grant* and consists of monitoring the amount and composition of litter both on land (Byron CBD) and in our coastal environment (Belongil Estuary) within the Belongil catchment area. Alongside this, research has been undertaken and a business case is being developed to determine what stormwater quality improvement devices (SQIDs) may be suitable to trial within this area. The installation of SQIDs could mean that any litter that may end up in our waterways through the stormwater network could be considerably reduced. The trial also aims to conduct audits
- 30

5 of items located in these devices, in order to develop and implement ongoing source reduction programs to help educate and prevent littering. Resource Recovery is working alongside the drainage engineering and maintenance crew to ensure trial options are suitable for our infrastructure, and that ongoing maintenance is viable within ongoing operational budgets.

Clean Up Australia Day

10 At the time of this Report, there are 9 clean up events (public and private) registered in the Shire as a part of Clean Up Australia Day. Council will be running a beach clean event in Byron in collaboration with *Positive Change for Marine Life* from 9am – 11am on Main Beach. Council is also supporting all events with waste collection and disposal (where required), and advice and promotion (where appropriate). A tally of the amount of litter will be collected from the events and shared with our community, as well as utilised in guiding litter prevention projects.

15

Byron Resource Recovery Centre – Increased Recovery Trials

20 A resource recovery trial of concrete commenced in October 2022, and has seen 186.68 tonne of bricks, concrete, and roof tiles recovered and sent for recycling to a licenced facility in Alstonville. The majority of this has come from commercial operators with an average monthly diversion of 40 tonne, which was previously being transported to the Ti-Tree Bioenergy facility in South East QLD for disposal. This trial phase has provided information for cost analysis including on-site handling, and enabled a reduced fee for concrete disposal to be proposed in the fees and charges for 2023-24. In addition, the feasibility of mattress recycling, gyprock recovery and increased building materials recovery is also being undertaken, working in partnership with North East Waste. The aim is to encourage source separated clean streams of this material through a reduced fee structure, enabling increased resource recovery and decreased waste to landfill.

30

Single Use Packaging and Materials Policy

35 Work on the *Single Use Packaging and Materials Policy* and associated Guidelines is continuing. This policy will secure Councils commitment to reducing the consumption of products from non-renewable resources and protecting our natural environment from plastic pollution. The Policy will apply to all Council business and operations (Councillors, Staff, Committees, leases, contracts, volunteers) where single-use, disposable materials may be used such as, but not limited to purchases, packaging, merchandise, catering, workshops and events.

The Policy aims to:

•Reduce carbon emissions caused by producing, transporting, recycling and disposing of single-use materials;

- 5
- Reduce single-use plastic pollution in our beaches, reserves, parks, and waterways;
 - Preserve natural resources and reduce the need to mine raw materials;
 - Minimise the amount of valuable resources going to landfill;
 - Enhance Byron Shire as a clean, green and healthy place to live and visit;
- 10
- Increase community pride and encourage leadership in environmental stewardship;
 - Work to change behaviour and normalise the use of reusables throughout our community;
 - Support and create opportunities for new resource infrastructure and support a circular economy;

15

Internal stakeholder engagement is currently being undertaken – which is assisting in shaping the Policy, identifying gaps and provide integral information to guide implementation. The Draft Policy will be presented to the Committee prior to the May meeting to provide an opportunity for feedback.

20

Upcoming Grant Funding Opportunities

NSW EPA Local Government Waste Solutions Fund – up to \$200,000

5 This funding stream aims to support NSW Councils to deliver innovative and collaborative waste solutions that support the transition to a circular economy and contribute to achieving NSW Government’s waste priorities and targets. This is a new funding stream with projects requiring completion by 30 June 2027.

The Resource Recovery team is applying for funding to research, design, construct and implement a mobile wash trailer for events.

10 The wash trailer will come equipped with everything needed to facilitate a reusable system at an event in order to replace, single-use, disposable takeaway.

Mobile wash trailers are not currently available in New South Wales and there is only one other community group operating one in the country.

15 The project will require collecting data and partnering with events, businesses and community organisations to determine the feasibility of the trailer for a variety of events. This Project supports the creation of a circular economy industry, is innovative in nature and will support upcoming policies at both Council and State level.

Applications close 31 March and will be announced in June 2023.

Illegal Dumping Prevention Grant – up to \$120,000

20 The Resource Recovery team is applying for funding under the NSW EPA Illegal Dumping Prevention Grant, with the project to run from July 2023 – June 2024 if successful. The project will continue Council’s ongoing efforts in illegal dumping prevention, with a continued focus on removing barriers for incorrect disposal and an increased focus on increasing resource recovery of bulky waste items that are commonly illegally dumped through working closely with Contractors to ensure the Re-market is utilised wherever possible. Applications close 31 March and will be announced in June 2023.

30

Strategic Considerations

Community Strategic Plan and Operational Plan

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
3: Nurtured Environment We nurture and enhance the natural environment	3.5: Minimise waste and encourage recycling and resource recovery practices	3.5.1: Waste management and resource recovery strategy - Implement Integrated Waste Management and Resource Recovery Strategy - Towards Zero	3.5.1.3	Improve management of Council generated waste
3: Nurtured Environment We nurture and enhance the natural environment	3.5: Minimise waste and encourage recycling and resource recovery practices	3.5.2: Recycling - Work with business and tourism sector to reduce waste to landfill	3.5.2.2	Implement reusable takeaway container pilot program in Brunswick Heads
3: Nurtured Environment We nurture and enhance the natural environment	3.5: Minimise waste and encourage recycling and resource recovery practices	3.5.4: Education - Empower the community to increase avoidance, reuse, and recycling activities	3.5.4.4	Improve and enhance the Second Hand Shop to increase patronage, upcycling and repair

Legal/Statutory/Policy Considerations

- 5 [NSW Waste and Sustainable Materials Strategy 2041](#)
[Towards Zero Integrated Waste Strategy 2019 to 2029 - Byron Shire Council \(nsw.gov.au\)](#)

Financial Considerations

Projects are Grant funded or funded through the Waste Reserve.

Consultation and Engagement

- 10 Resource Recovery Team

Report No. 4.3 Annual Emissions Inventory for Council Operations

Directorate: Sustainable Environment and Economy

Report Author: Julia Adams, Sustainability Team Leader

5 **File No:** I2023/159

Summary:

10 As requested in the November 2022 meeting, this report outlines the annual emissions inventory for the 2021/22 financial year for Byron Shire Council operations and provides an update on the current identified emissions boundary. This report was presented to Council for noting in the December 2022 Ordinary meeting.

FY2021/22 is the first year that Council has produced an annual emissions report inclusive of scopes 1, 2 and 3, i.e. Council’s full Climate Active-compliant emissions boundary. Previous emissions reports identified six scope 1 and 2 emission sources, and in this year’s report Council has added another 26 scope 3 emission sources.

15 With the addition of scope 3 emission sources this year the overall emissions are higher than reported last year, however, the overall trajectory of Council’s emissions is down.

20 **RECOMMENDATION:**

That the Climate Change and Resources Recovery Advisory Committee notes the report.

Attachments:

- 25
- 1 2021-22 Annual inventory of Councils emissions profile all scopes - Final, E2022/114369 , page 35 
 - 2 Net Zero Emissions Action Plan For Council Operations 2025, E2020/56957 , page 60 

30

Report

5 Council has been annually reporting on its greenhouse gas emissions since baseline year 2015/16. Council has resolved to be net zero emissions for its operations by 2025, to source 100% of its energy through renewable sources by 2027 (**Res 17-086**), and to become certified carbon neutral under the Climate Active standard commencing in financial year 2025/26 (**Res 19-634**).

10 The *Net Zero Emissions Action Plan for Council Operations 2025* (the Action Plan) was adopted by Council in 2020 (**Res 20-628**) and maps a path for future activities that Council will undertake to reduce emissions from Council operations (Attachment 2, E2020/56957).

Part A of this report presents the 2021/22 Annual Emissions Inventory for Council operations. Part B of this report presents the second annual progress update on the Action Plan.

Part A: 2020/21 Annual Emissions Inventory overview

15 FY2021/22 is the first year that Council has produced an annual emissions report inclusive of scopes 1, 2 and 3, i.e., Council's full Climate Active-compliant emissions boundary. Previous emissions reports identified six scope 1 and 2 emission sources, and in this year's report Council has added another 26 scope 3 emission sources.

20 On 5 May 2022 staff presented Councillors with an internal report on Council's scope 3 emissions generated by consultants, 100% Renewables. This report was prepared after last year's annual report 'cut-off date', so we have retrospectively added the FY2020/21 figures to the report to give better context.

25 Consequently, Council has experienced an increase in reported organisational carbon emissions compared to the previous reported year, however, lower than the retrospectively added figures to the FY2020/21 report. This shows the Council's emissions have reduced this year by 5.4% compared to the equivalent widened emissions boundary of last year.

Figure 1 and Table 1 below show how Council is tracking towards the net zero target by 2025. Table 2 provides a summary of change in relation to different emissions sectors.

BYRON SHIRE COUNCIL

STAFF REPORTS - SUSTAINABLE ENVIRONMENT AND ECONOMY

4.3

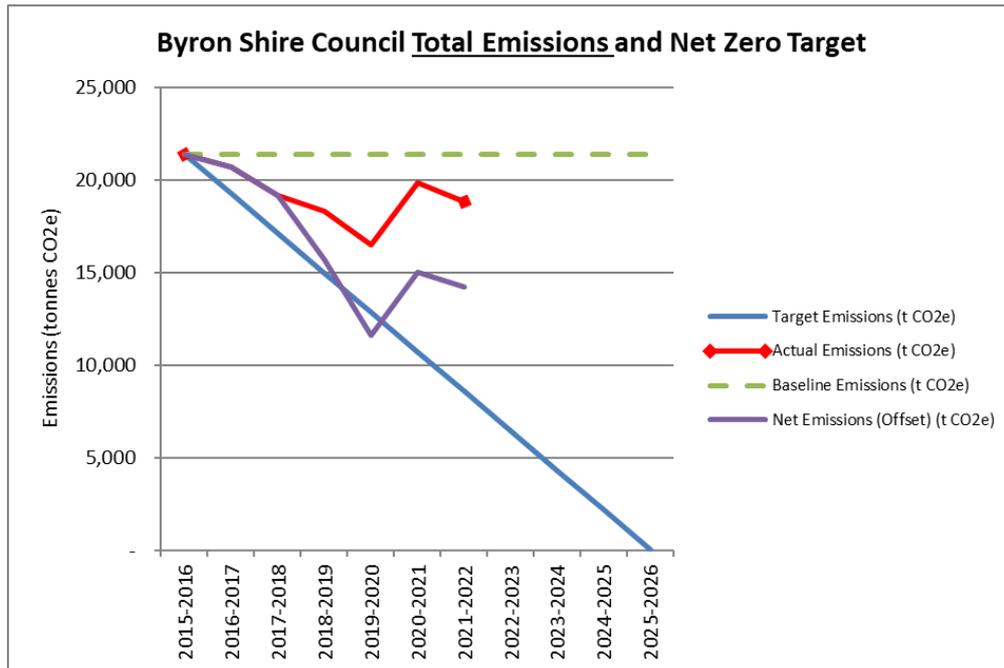


Figure 1. 2019-20 Emissions tracking towards 2025 target.

5

Table 1. 2019-20 Actual and net emissions since baseline year 2015/16.

Financial Year	Actual Emissions (tCO2e)	Net Emissions (Offset) (tCO2e)
2015/16	21,389	21,389
2016/17	20,701	20,701
2017/18	19,122	19,122
2018/19	18,325	15,700
2019/20	16,442	11,618
2020/21* (All scopes)	19,810	14,998
2021/22* (All scopes)	18,805	14,190

10

Table 2. Summary of Emissions Sectors and Change

Summary of Emissions Sectors		
	Highlights	Emissions Change (tCO2e)
Electricity & Fossil fuels		
Electricity	<ul style="list-style-type: none"> Contract with Powershop until Jan22, then Iberdrola and Origin provided 100% renewable electricity. 3.8% reduction in electricity use. Annual cost \$1,248,775. 	-161 (net emissions is zero)
Streetlights	<ul style="list-style-type: none"> Contract with Powershop until June22, then Iberdrola provided 100% renewable electricity. Electricity use was reduced by 6.1% due to the replacement program of failed fluorescent lamps with 	-36 (net emissions is zero)

BYRON SHIRE COUNCIL

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	<ul style="list-style-type: none"> LED lamps. Annual cost if street light service is \$326,188. 	
Fleet	<ul style="list-style-type: none"> 1.8% decrease in fuel consumption. Emissions fell 1% for FY2021/22 The price of petrol and diesel increased significantly this year due to higher world demand of fuel post the Covid travel restrictions, and current international market volatility. 39% of fuel used in light (passenger) vehicle fleet and 61% used in heavy plant and equipment. Significant action is required to reduce fleet sector emissions. Annual cost \$781,084. 	-9
Waste		
Waste	<ul style="list-style-type: none"> 8.2% reduction in overall emissions for waste. 8.6% natural decline of emissions in landfill. Composting emissions increased compared to the previous year by 15.5%. No Australian Carbon Credit Units (ACCU's) sold during the year. 	-618
Wastewater	<ul style="list-style-type: none"> 11% decrease in wastewater fugitive emissions (108 tCO₂e), despite a 1.75% decrease in flow. Main decrease in emissions was due to a review of the calculation methods for Bangalow STP. The annual flow was slightly lower than last year, although significantly higher than the previous 5 years. 	-108
Community investment - Construction		
Asphalt		+267
Concrete	<ul style="list-style-type: none"> Increase over FY2020/21 emissions due to the extreme weather events 	+53
Road Building Materials		+211
Equipment hire		+147
Water for Council operations		
Water	<ul style="list-style-type: none"> Water usage increased by 9.7ML to 45.80ML, up 27% on the previous year. Emissions were up 25% to 94.96 (tCO₂e) 	+25
Employee commute		
Commute	<ul style="list-style-type: none"> Based on survey, increased due to increased number of FTE 	+63
Other emissions		
Paper IT equipment IT software Postage & couriers Telecommunications Entertainment Advertising Cleaning Stationery Legal fees	These emissions contribute approximately 958 (tCO ₂ e) or 6.8% of the total. The emissions are calculated using Climate Active factors based on the spend on each of the emission sources or uplift factors.	-20

Popcar – Car share service Machine & vehicle repairs Refrigerants Education Working from home Air travel Business accommodation Food and catering Office equipment		
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--

Impacts of extreme weather events

5 The extreme weather events in February and March 2022 caused severe infrastructure damage in Byron Shire through flooding and storm damage. Infrastructure, such as roads, bridges and pavements had the most damage but also the large volume of rainfall had a direct impact in the provision of services by Council. The above-mentioned issues had a direct cost impact to Council but also resulted in an increase in the emissions profile, due to an increased use of materials, electricity, workforce resources and asset utilisation. Some of the key identified impacts in the emissions in FY21/22 are as follows:

10 **Infrastructure and construction:**

- This sector had one of the largest increases in emissions for FY2021/22, and the ongoing repair and replacement of Council infrastructure will continue to impact future emissions.
- Areas that saw direct increases included asphalt, concrete, general building materials, equipment hire, work force, diesel usage, and transport.

Electricity:

- Although the total electricity consumption was down 3.8% compared to the previous year, some increased asset consumption directly corresponded with the weather events.
- 20 • The sewage treatment plants (STP) had higher than average volumes to treat due to increased water entering the system. This requires extra duty from pumps, blowers, chemicals and associated STP infrastructure.
- The Resource Recovery Centre had an increased consumption due to the need to pump out contaminated rainfall and manage increased amounts of leachate. This resulted in extra electricity consumption in pumps but also transport costs to treat the liquid at the Byron STP.

A full and detailed analysis of each sector and suggested action is provided in Attachment 1.

Part B: Progress update on *Net Zero Emissions Action Plan for Council Operations 2025*

5 The *Net Zero Emissions Action Plan for Council Operations 2025* (the Action Plan) (Attachment 2) was adopted by Council at the Ordinary Meeting of 26 November 2020 (**Resolution 20-628**). The Action Plan maps a path for future activities that Council will undertake to reduce emissions from Council operations. It was designed to align with the Delivery Program and Operational Plan and allocates responsibility for specific actions to different Directorates. This helps keep staff accountable and to track progress.

10 There are five objectives, based on Council’s principal sources of emissions, which provide the Action Plan’s basic structure:

- Objective A – Electricity;
- Objective B – Fuel;
- Objective C – Waste, Water, and Sewer;
- 15 • Objective D – Governance; and
- Objective E – Community Infrastructure.

Actions within the Action Plan are labelled based on the emissions objective (i.e. sector) they correlate to. For example, under Objective A – Electricity, Action A1 is “investigate 5MW solar farm at Dingo Lane, Myocum”.

20 The measure under 2021/22 Operational Plan Activity 3.2.1.1 “Implement the *Net Zero Emissions Action Plan for Council Operations 2025*” is, “annual report to Council on delivery of Action Plan, alongside annual emissions inventory”. The following update completes that OP Activity.

Objective A – Electricity

25 Objective: improve electricity efficiency and transition to 100% renewable energy.

As of 1 January 2022, Council achieved the “100% renewables” part of **Resolution 17-086** and fulfilled the overarching Action Plan Electricity objective to “transition to 100% renewable energy”. This is five years ahead of the 2027 target. Until 1 January 2024, Council has a contract with electricity retailer Iberdrola to source approximately 60% of its
30 total operational electricity needs (all large sites) from Collector Wind Farm in Cullerin, NSW. The remainder of Council’s electricity needs will be 100% GreenPower (all small sites). Fulfilling the 100% renewables target will help Council achieve our net zero emissions target by 2025.

35 While Council may have achieved this renewable energy target, the best solution is to always avoid use of electricity in the first place or seek to reduce current consumption. The following actions seek to minimise Council’s carbon profile.

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Action	Corresponding OP Activity	Status update	Estimated delivery date
<i>A1. Investigate 5MW solar farm at Dingo Lane, Myocum</i>	1.4.4.5	The Northern Rivers Regional Planning Panel approved the project's development application in November 2022.	30 June 2023 (project to be shovel ready)
<i>A2. Investigate bioenergy facility at West Byron STP</i>	3.2.1.5	The Development Application consent was granted in May 2022. If/when State and Federal grant funding approvals are forthcoming, Council can consider the holistic financial implications of the Bioenergy and Dingo Lane projects on Council's Long Term Financial Strategy and make a decision for 'Go/No Go' on construction for the Bioenergy Facility. Note also that Public Private Partnerships with private financing could be contemplated for this and the solar farm projects.	30 June 2023 (Council decision for 'Go/No Go')
<i>A3. Facilitate bulk roll out of LED streetlights for Byron Shire</i>	n/a	Planning for the bulk upgrade is currently being undertaken and the project is expected to be rolled out in April 2023 with Essential Energy.	2023 (bulk rollout planned)
<i>A4. Investigate energy efficiency upgrade of Council Administration Building, Mullumbimby</i>	3.2.1.11	The Sustainability team has partnered with Council's Property Maintenance team to investigate options for energy efficiency upgrades at the Administration Building. Quotations have been sought for lighting upgrades and new solar PV systems and these are currently being reviewed.	30 June 2023 (business case to Council)

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Objective B – Fuel

Objective: optimise fuel efficiency and transition to renewable fuel sources.

Action	Corresponding OP Activity	Status update	Delivery date
B2. <i>Develop and deliver Electric Vehicle Charging Station Policy and Procedure</i>	1.6.3.2	<p><i>Electric Vehicle Charging Station Instalment and Maintenance Procedure 2021</i> was introduced as an internal document to guide staff in June 2021. This document applies to staff wishing to install new or maintain existing Council-owned EV charging stations. A how-to guide for external providers wishing to install charging stations on Council land is currently being investigated by staff. In addition, the Sustainability Team has engaged a third party to manage and monitor Council's two EV charging stations on one software platform, and formalised Council's Property Maintenance Coordinator as the EV charging station asset owner. The chargers in Mullumbimby were replaced in March 2022 and the charger at Byron Library was repaired and recommissioned in September 2022.</p> <p>A user-pays system was implemented in 2022 for both locations.</p>	30 June 2023 (ongoing management)
B6. <i>Review Council's passenger vehicle policies and procedures to encourage Hybrid and Electric Vehicle ownership</i>	n/a	<p>This was partially achieved on 7 October 2020 when staff updated the <i>Light Motor Vehicle Fleet Procedure – "Fees and Charges Makes & Models"</i> to include Hybrid and Electric Vehicle options.</p> <p>A plan outlining what needs to</p>	Partially achieved October 2020. It is recommended to develop the EV implementation

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Action	Corresponding OP Activity	Status update	Delivery date
		be included in an EV Transition strategy was developed and presented to the Executive Team on 30 November 2022.	strategy in FY2023.
<p><i>B9. Investigate options for decentralised workforce - Review Scope 3 emissions boundary to include working from home arrangements.</i></p>	n/a	<p>Due to the “work from home” health orders resulting from the COVID-19 pandemic, Council’s workforce has become decentralised over the past two years. This contributed to a decrease in electricity usage at Council’s Administration building in 2021/22.</p> <p>The Council’s emissions boundary is now reporting separate Scope 3 emission sources for working from home and staff commute.</p>	<p>Completed 30 June 2022 (review of scope 3 emissions boundary)</p>

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Objective C – Waste, Water, and Sewer

Objective: Reduce waste and improve water efficiency.

Action	Corresponding OP Activity	Status update	Delivery date
C3. <i>Progress the closure and rehabilitation of the Southern Expansion landfill cell at the Byron Resource Recovery Centre.</i>	1.4.4.4	Staff are progressing the landfill capping and closure of civil works of the Southern Expansion and will commence rehabilitation as outlined in the <i>Byron Resource Recovery Centre Master Plan</i> .	30 June 2023 (Stage 1 works completed)
C4. <i>Increase efficiency of sewage treatment plants and pump infrastructure.</i>	3.2.1.13	A new temporary position of Sustainability Officer – Utilities was filled in April 2021 to focus on increasing energy efficiency and reducing emissions in the utilities (wastewater collection and treatment) sector. Energy usage audits and benchmarking of Council's utilities services are ongoing. Energy efficiency actions have been identified and the utilities electricity consumption decreased by 2.66% this year.	30 June 2022 (energy usage audit complete)
C6. <i>Review operation of gas flare at Byron Resource Recovery Centre</i>	3.2.1.4	Council's CER ACCU contract will come to a close on 7 March, with an exit payment made to fulfill the contract obligations as insufficient credits were acquired to meet the final milestone. This will enable Council to count the emission reductions achieved through gas flaring towards its own net zero goal. Council will be going to tender in the coming months for the gas flare contract that is currently held by Run Energy, as the current contract expires in November. Staff will also be looking to increase the flaring efficiency through an appropriately sized	30 June 2023

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Action	Corresponding OP Activity	Status update	Delivery date
		flare for the amount of methane being produced.	

Objective D – Governance

Objective: Disclose and improve emissions reporting and invest in high quality carbon offsets.

5

Action	Corresponding OP Activity	Status update	Delivery date
Actions D2 and D3. <i>Conduct Councillor and staff education on carbon monitoring and offsets and develop and implement a carbon offset policy for Council</i>	3.2.1.10	The Sustainability team has begun research and development of a draft carbon offset policy for Council operations that will set out how Council selects carbon offset units to achieve net zero emissions. Staff will present a carbon offset policy and purchasing timeline to Council in mid-2023.	30 June 2023 (report to Council)
D5. <i>Develop an emissions disclosure framework for Council staff - Define Council's emissions boundary in accordance with the Climate Active guidelines</i>	3.2.1.2	All relevant scope 3 emissions will need to be included in Council's boundary by 2025/26 when we aim to become certified carbon neutral under Climate Active. Through working with a consultant, 100% Renewables, the Climate Active-compliant boundary was determined and calculated for FY21 & FY22. All future emission reports will include the full scope 3 boundary.	30 June 2022 Completed and included in FY2022 emissions report

Strategic Considerations

Community Strategic Plan and Operational Plan

CSP Objective	CSP Strategy	DP Action	Code	OP Activity
3: Nurtured Environment We nurture and enhance the natural environment	3.4: Support and empower our community to adapt to, and mitigate our impact on climate change	3.4.3: Monitoring and reporting - Monitor and report on actions that aim to address climate change	3.4.3.2	Prepare Annual Emissions Inventory to determine progress towards 2025 Net Zero Emissions Target.

Recent Resolutions

- 17-086
- 5 • 19-634
- 20-628

Legal/Statutory/Policy Considerations

Applicable Council Strategies and Plans:

- Net Zero Emissions Strategy for Council Operations 2025
- 10 • Net Zero Emissions Action Plan for Council Operations 2025
- Climate Change Adaptation Plan

Financial Considerations

No relevant financial considerations.

Consultation and Engagement

- 15 Sustainability team, relevant internal staff, and Executive Team.



Annual inventory of Council’s emissions
Financial Year 2021/22

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Part 1: Overview

Purpose:

As part of the operational plan, OP Activity 3.4.3.2 states "Prepare Annual Emissions Inventory to determine progress towards 2025 Net Zero Emissions Target". This report provides a detailed annual inventory of Council's emissions from its operations in FY2021/22, including Scopes 1, 2 and 3. In the FY2021/22 emissions report, the full known boundary of Council's emissions will be included, this is introducing scope 3 emissions that were not previously calculated.

Key findings are:

- 1) Overall Council emissions were down 808 t CO₂-e, or 5.4%, on the previous year FY2020/21.
- 2) In FY2021/22 there was significant disruption to Council's operations due to the continued impact of Covid-19 and two major weather events, this has affected the emissions results.
- 3) New 100% renewable electricity contracts were put in place.
- 4) 3.8% reduction in general electricity consumption.
- 5) 6.1% reduction in streetlight electricity usage.
- 6) 1% decrease in fuel emissions.
- 7) 8.2% natural decline in landfill fugitive emissions.
- 8) 11% decrease in reported wastewater fugitive emissions, despite just a 1.75% decrease in flow. The main reason for the emissions drop is due to the recalculation of Bangalow STP emissions.
- 9) Community infrastructure construction was up by 678 t CO₂-e or 34%. Construction emissions figures were included for the first time in the report but were significantly higher than the previous year's calculations, due to weather events in the Shire and the need for infrastructure repairs.

Summary

Council experienced a 7.5% reduction in scope 1 & 2 emission sources, that have been traditionally reported on, compared to the previous year. The emission reductions were across all six of Council's emission sources, this is because of targeted emission reduction programmes, but also one-off events such as Covid 19 restrictions and 2 extreme weather incidents.

Scope 3 emissions were calculated for the first time in FY2020/21. These were not included in the Council emission report FY2020/21, due to timing, but have been used in the FY2021/22 report as a benchmark for variances from last year. Overall, the scope 3 emissions this year were down by 1.3%, however, the Community infrastructure construction materials were up by 684 tCO₂-e.

The total net emissions, including all scopes, for Council operations was 14,190 tCO₂-e for FY2021/22, this was a decrease of 808 tCO₂-e (5.4%) over the FY2020/21 figure of 14,998 tCO₂-e.

Table 1 shows the total emissions within Council's operational boundary. Years FY2015/16 to FY2019/20 includes six identified emission sources as the emissions boundary. Years FY2020/21 & FY2021/22 include scopes 1,2 and 3, the complete boundary, calculated using Climate Active methodology.

Table 1 – Total actual and net emissions since baseline year FY2015/16

Financial Year	Actual Emissions (tCO2e)	Net Emissions (Offset) (tCO2e)
2015/16	21,389	21,389
2016/17	20,701	20,701
2017/18	19,122	19,122
2018/19	18,325	15,700
2019/20	16,442	11,618
2020/21* (All scopes)	19,810	14,998
2021/22* (All scopes)	18,805	14,190

*FY2020/21 & 2021/22 emissions (tCO2e) include ALL identified scopes (1,2 & 3)

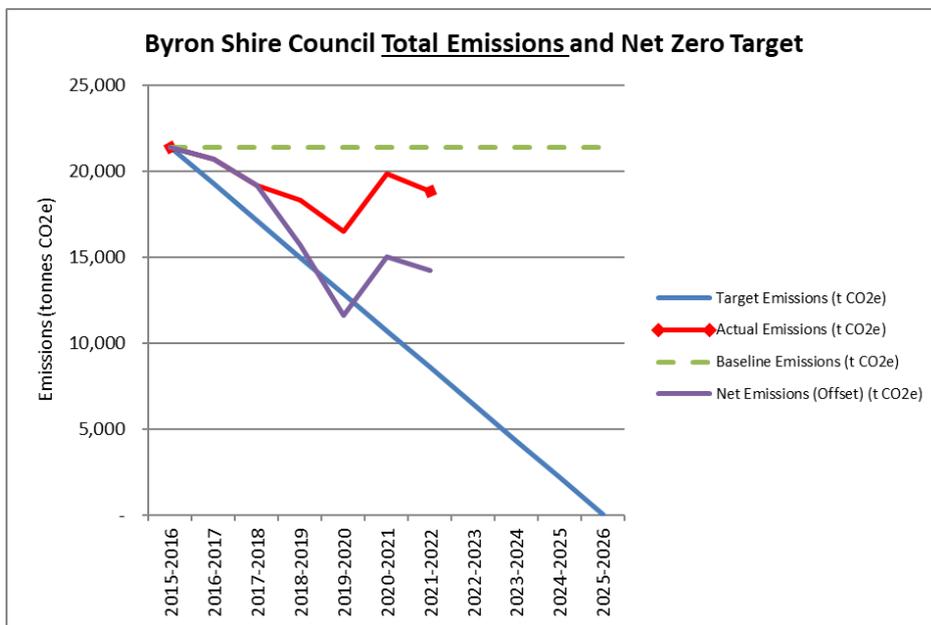


Figure 1 – FY2021/22 Total Council emissions tracking towards 2025 target (note – all scopes included from FY2020/21).

Background

Emissions calculation methodology

Byron Shire Council emissions calculations have been undertaken using the National Greenhouse Gas and Energy Reporting (NGER) methodology. In this report Council has included 26 new emission sources, consisting of mainly scope 3 emissions and one scope 1 emission source.

The emissions calculations have been undertaken by consultants, 100% Renewables, using the Council derived emissions and incorporated Climate Active methodology to produce the final emissions boundary result for FY2021/22. The Climate Active Carbon Neutral Standard, formerly called the National Carbon Offset Standard, was developed in accordance with the general principles of:

- The Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard developed by the World Business Council for Sustainable Development (GHG Protocol);
- GHG Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard. This inventory measures greenhouse gases in carbon dioxide equivalence (CO₂-e) and includes all seven greenhouse gases covered by the Kyoto Protocol – carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆), nitrogen trifluoride (NF₃), as well as hydrochlorofluorocarbons (HCFCs) covered by the Montreal Protocol (where applicable).

Scopes

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

- Scope 1 emissions include all direct greenhouse gas emissions from sources that are within the Council’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 Council’s control boundary but used within the organisation).
- Scope 3 emissions are all indirect emissions that occur because of the activities of the organisation but occur from sources outside the Council’s control boundary.

Historically Council has reported its annual emissions inventory across scopes 1, 2 and some 3. All relevant scope 3 emissions will need to be included in Council’s boundary by FY2025/26 when we aim to become certified carbon neutral under Climate Active. Defining Council’s emissions boundary in accordance with the Climate Active guidelines is a measure under Action D5 in the *Net Zero Emissions Action Plan 2025*.

FY2021/22 is the first year that Byron Shire Council has produced an emissions report with the full known boundary of scope 1, 2 and 3 emissions that are Climate Active-compliant. The emission sources and scopes are listed below in table 2.

Required scope 3 emission sources under Climate Active

Under Climate Active, organisations must include scope 1 and 2 as well as relevant scope 3 emission sources in their boundary. Categories of scope 3 emissions sources that need to be considered are as follows:

1. Purchased goods and services
2. Capital goods
3. Fuel- and energy-related activities (not included in scope 1 or scope 2)
4. Upstream transportation and distribution
5. Waste generated in operations
6. Business travel
7. Employee commuting
8. Upstream leased assets
9. Downstream transportation and distribution
10. Processing and use of sold products
11. End-of-life treatment of sold products
12. Downstream leased assets
13. Franchises
14. Investments

The emission sources identified by 100% Renewables and Council are as follows:

Table 2 – Council emission sources and scopes

Emission Source	Scope(s)
LPG stationary	1 and 3
Diesel stationary	1 and 3
Diesel – fleet	1 and 3
Petrol – fleet	1 and 3
Ethanol – fleet	1 and 3
Refrigerants	1
Wastewater	1
Closed landfill	1
Electricity	2 and 3
Streetlighting	2 and 3
Scope 3 facilities	3
Water	3
Employee commute	3
Working from home	3
Paper	3
IT equipment	3
IT software	3
Postage and couriers	3
PopCar	3
Waste	3
Telecommunications	3
Cleaning supplies	3
Cleaning services	3
Professional services	3
Stationery	3
Asphalt	3
Air travel	3
Concrete	3
Other road-building material other than asphalt	3
Machinery and vehicle repairs	3
Equipment hire	3
Clothing	3
Air travel	Uplift applied
Business accommodation	Uplift applied
Office equipment	Uplift applied
Food and catering	Uplift applied

Emissions for FY2021/22

Table 3 documents the full emissions boundary for FY2021/22 and breaks down the emissions by source and scope.

Table 3 - FY2021/22 emissions boundary

Emission source	Activity data	Unit	Scope 1 (t CO2-e)	Scope 2 (t CO2-e)	Scope 3 (t CO2-e)	Total (t CO2-e)
Closed landfill	6,950	t CO2-e	6,950			6,950
LPG stationary	18	kL	29		2	30
Fleet - Diesel	402	kL	1,093		56	1,148
Fleet - Petrol	89	kL	205		11	216
Fleet - Ethanol	6	kL	0.05		0.46	0.51
Wastewater	886	t CO2-e	886			886
Refrigerants	8	kg	0.50			0.50
Electricity	5,157,374	kWh		-	-	-
Streetlighting	685,432	kWh		-	-	-
Asphalt (RPQ)	4,754,028	\$			1,024	1,024
Asphalt (Boral)	303,680	\$			126	126
Employee commute	3,134,648	km			732	732
Other road-building mats	2,791,806	\$			602	602
Equipment hire	2,080,967	\$			502	502
Waste from Council ops	372	tonnes			484	484
Concrete	388,555	\$			416	416
Food and catering	231	t CO2-e			231	231
Office equipment	177	t CO2-e			177	177
IT software	1,121,602	\$			156	156
IT equipment	1,027,083	\$			140	140
Water	95	t CO2-e			95	95
Professional services	618,281	\$			64	64
Telecommunications	358,600	\$			56	56
Postage and couriers	99,000	\$			36	36
Cleaning	270,000	\$			30	30
Green waste	13	tonnes			21	21
Stationery	75,900	\$			20	20
Machine & vehicle repairs	73,171	\$			15	15
Air travel	12	t CO2-e			12	12
Working from home	4	t CO2-e			4	4
Business accommodation	4	t CO2-e			4	4
Clothing	51,773	\$			5	5
Paper	3,910	kg			9	9
Recycled waste	55	tonnes			-	-
PopCar	0	km			-	-
TOTAL:			9,162	-	5,027	14,190

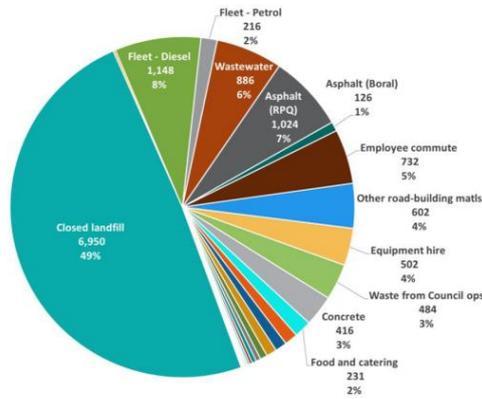


Figure 2 - The detailed contribution of emission sources to the inventory

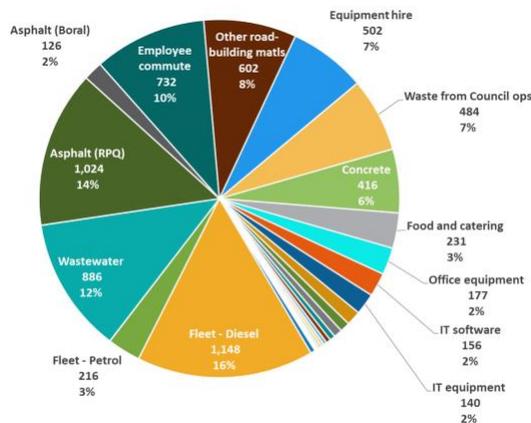


Figure 3 - The detailed contribution of emission sources to the inventory, excluding emissions from the closed landfill

Table 4 below highlights the top 10 changes by source, comparing FY2020/21 and FY2021/22. As can be seen in the table, the largest changes are associated with community infrastructure construction, this is explained further in the document.

Table 4 - Top 10 increase in emissions by source from FY2020/21– FY2021/22

Emission source	FY 2021 (t CO2-e)	FY 2022 (t CO2-e)	Year on year change (t CO2-e)	Scope	Δ (%)	Rank
Asphalt (RPQ)	751	1,024	274	3	36%	1
Other road-building matls	391	602	211	3	54%	2
Equipment hire	355	502	147	3	41%	3
Employee commute	669	732	63	3	9%	4
Concrete	363	416	53	3	15%	5
Fleet - Diesel	1,119	1,148	30	1 + 3	3%	6
IT software	144	156	12	3	8%	7
Telecommunications	46	56	10	3	22%	8
IT equipment	131	140	9	3	7%	9
Paper	1	9	8	3	865%	10

Part 2: Emissions sectors

Sector: Fossil fuels

Emission source: Bottled Gas

Bottled gas usage decreased by 8% compared to the previous year. Bottled gas is used at Council’s holiday parks and childcare centre for cooking and hot water heating. The hot water heating is a boost system to solar at First Sun Holiday Park and was installed as an efficiency measure taken in 2016. The minimal nature of emissions from bottled gas compared to other sectors does not warrant further action at this stage. It is recommended as assets come to their natural end of life either the most efficient appliance is chosen or transition to induction (electric) cooking is made.

Table 5 - Bottled Gas Sector Scope 1 Emissions since baseline year FY2015/16

Financial Year	Emissions (tCO2e)	LPG (kL)	Cost (\$)
2015/16	41	27	\$17,913
2016/17	39	25	\$14,931
2017/18	36	23	\$12,342
2018/19	36	23	\$14,972
2019/20	27	18	\$10,235
2020/21	31	20	\$14,032
2021/22	29	18	\$21,476

Emission source: Fleet

Emissions relating to the fleet sector include all fuel used in the light passenger vehicles, heavy plant, and equipment as well as petrol operated tools (whipper snippers and generators etc.). Data is sourced from the Caltex Star card system for passenger vehicles (39% of total fuel use) and from purchases of bulk fuel delivered to the depot and landfill facilities (61% of total fuel use).

This year Council has experienced a 1.8% decrease in total fuel usage compared to the previous year, resulting in a 1% decrease in emissions. The bulk diesel use increased by 25KL (9%), primarily due to the increased capital works and flood recovery efforts. As diesel has higher emissions per litre compared to petrol, the emissions remained similar to last year. Council has adopted the Climate Active calculation methodology for FY2021/22 and so the reported emissions are slightly higher than the calculation method used by Council previously. This is due to Climate Active including the related Scope 3 emissions, the delivery of the fuel, in the final calculations. For this report FY2020/21 emission figures were recalculated using Climate Action methodology and shown in the tables below to give a benchmark for this year. Fleet fuel usage (Star card) was lower than FY2020/21 by 34KL (15%), this is mainly due to the travel restrictions caused by the need of Council workers to work from home during flood events and Covid lockdowns.

There was a 9% increase in the total cost of fuel for the Council in FY2021/22. The increases are primarily due to the higher world demand of fuel, post the Covid travel restrictions, and current international market influences, such as the war in Ukraine.

An investigation of the Council’s fleet sector has been recommended, in order to implement significant emissions reductions and meet the net zero target. A current activity is included in the FY2021/22 Operational Plan, 5.3.2.3, “Investigate development of an Electric Vehicle transition plan for Council’s vehicle fleet”. This plan will identify key areas to be addressed when developing the strategy and find opportunities to reduce emissions and develop a low emission vehicle plan.

Table 6 - Fleet Sector Scope 1 Emissions since baseline year FY2015/16

Financial Year	Emissions (tCO2e)	Fuel (kL)	Cost (\$)
2015/16	1,279	482	\$482,922
2016/17	1,128	427	\$438,480
2017/18	1,134	435	\$523,606
2018/19	1,171	452	\$633,308
2019/20	1,230	474	\$613,329
2020/21	1,379*	506	\$715,819
2021/22	1,365*	497	\$781,084

*FY2020/21 & 2021/22 emissions (tCO2e) include Scopes 1 & 3

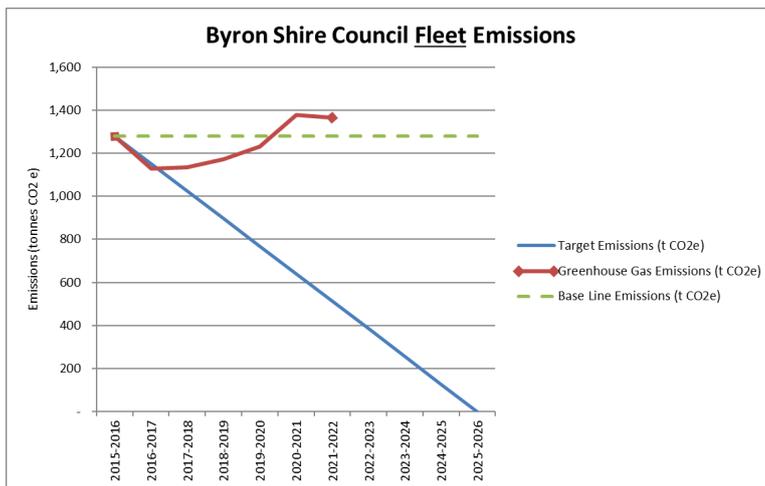


Figure 4 - Fleet Sector Scope 1 & 3 Emissions

Sector: Electricity

The general electricity sector consists of Council's buildings, facilities, pumping infrastructure and sports/public lighting. Data is captured and analysed through a third-party subscription with Azility. This year Council's electricity consumption decreased by 3.8% compared to the previous year.

As of 1 January 2022, Council achieved the "100% renewables" part of Resolution 17-086 and fulfilled the overarching *Net Zero Emissions Action Plan for Council Operations 2025* "Electricity Objective" to "transition to 100% renewable energy". This is five years ahead of the 2027 target. Until 1 January 2024, Council has a contract with electricity retailer Iberdrola to source approximately 60% of its total operational electricity needs from Collector Wind Farm in Cullerin, NSW. The remainder of Council's electricity needs will be 100% GreenPower.

When calculating the emissions for Council's electricity, there are 2 points to consider:

1. The electricity purchased is 100% renewable, this is purchased from a renewable source and the Large Generation Certificates (LGC's) associated with the generation of the electricity are surrendered when the electricity is supplied to BSC. This means all emissions are offset and be classed as carbon neutral.
2. The actual electricity in the grid in NSW only comprises of 21% renewable power for FY2021/22, this is calculated by the Clean Energy Regulator. Although 100% renewable power is purchased the actual electricity supplied to Council is 79% fossil fuel.

While Council may have achieved its renewable energy target, the best solution is to always avoid the use of electricity in the first place or reduce current consumption. Current and future projects within the Action Plan and Operational Plan will continue to seek to minimise Council's carbon profile.

In February and March 2022, two major weather events hit the Byron Shire Council area. Very high rainfalls caused widespread flooding and damage to infrastructure such as bridges, roads, and buildings. Due to these significant events, the electricity usage varied from the previous years and so can be problematic when trying to understand patterns in usage and overall trends.

Key points to note in the electricity usage:

- Pumps associated with the sewage treatment plants had a higher workload due to the increased volumes of water into the plants including stormwater.
- Pumps at the waste recovery facility were required to pump higher volumes of leachate due to the increased rain.
- The occupation profile of Council buildings changed during, and immediately after, the rain events. Some sites were shut or had reduced usage during this time and others had increased usage to aid flood recovery, such as the community buildings.

Another key aspect that affected Council's electricity usage was the continued impact of the Covid-19 pandemic. NSW State mandated restrictions varied throughout the year, but they affected travel, workplace attendance and Council operations. A primary affect was less electricity usage in:

- Caravan Parks
- Sports facilities
- Pools
- Administration buildings
- Depots

Table 7 shows Council’s general electricity emissions since baseline year FY2015/16. Figure 5 shows both the actual emissions generated from Council’s energy use (red line) and the net result having offset the year’s electricity (purple line). Figure 6 shows Council’s electricity usage by asset type (kWh and percentage of total). This excludes streetlighting.

Table 7 - General Electricity Sector Scope 2 Emissions since baseline year 2015/16

Financial Year	Emissions (tCO2e)	Net Emissions (Offset) (tCO2e)	Electricity (MWh)	Cost (\$)
2015/16	4,755	4,755	5,661	\$1,147,944
2016/17	4,791	4,791	5,772	\$1,191,475
2017/18	4,674	4,674	5,700	\$1,257,905
2018/19	4,554	2,250	5,623	\$1,291,102
2019/20	4,208	14	5,195	\$1,238,488
2020/21	4,235	0	5,360	\$1,264,789
2021/22	4,074	0	5,157	\$1,248,775

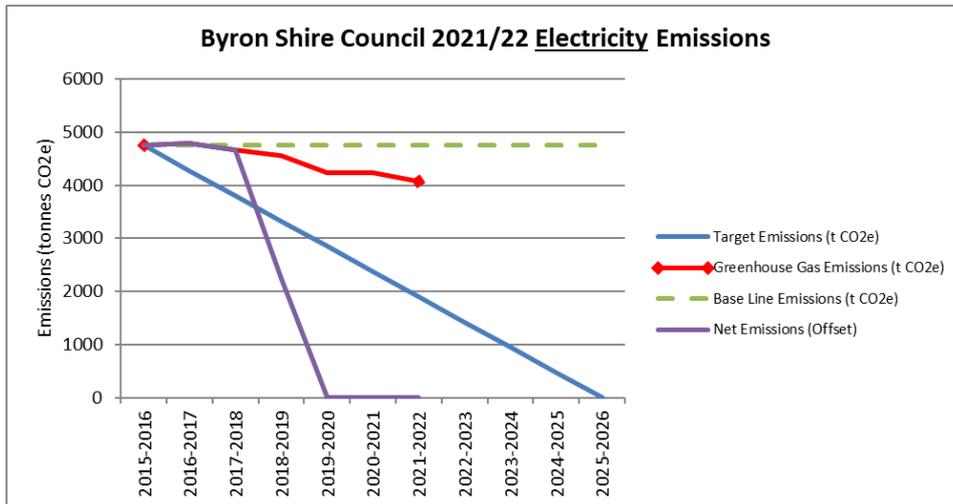


Figure 5 - General Electricity Sector Scope 2 Emissions (Offset and Actual)

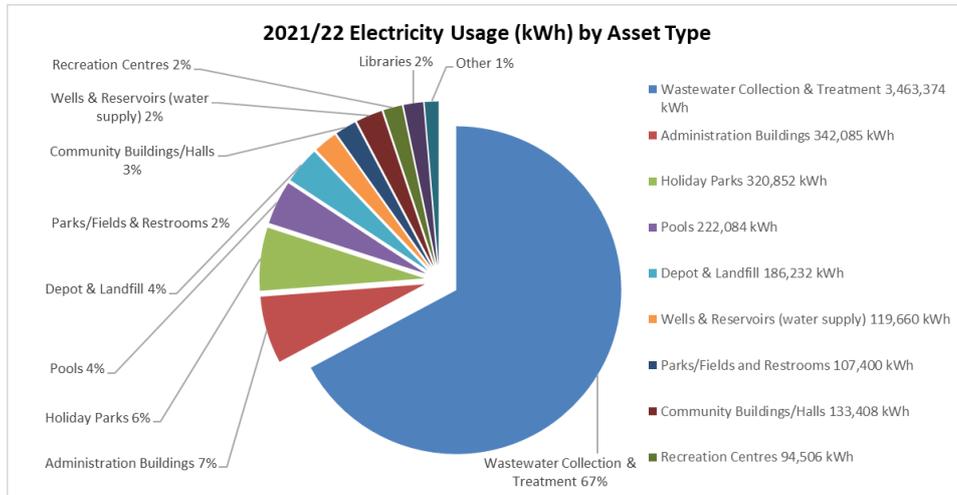


Figure 6 - FY2021/22 Electricity Usage (kWh) by Asset type

Of Council’s assets, wastewater collection and treatment use the largest amount of electricity (67%). Council created a new position, Sustainability Officer – Utilities, in April 2021 to focus on increasing energy efficiency and reducing emissions in the Utilities sector (including assets in the Wastewater Collection & Treatment and Wells & Reservoirs (water supply) areas. The work undertaken on this program has helped to continue the decrease in electricity usage.

Although the Sewerage Treatment Plants (STP’s) were challenged during the flood events, the overall energy usage was lower by 94MW (2.66%) compared to the previous year.

The next largest electricity user is Council’s Administration Building at Mullumbimby (7%). A 99KW solar PV structure was installed in the carpark of the building in June 2019, which has reduced baseline electricity consumption by approximately 25% since 2018/19. Usage decreased by another 7% from FY2020/21 – FY2021/22, likely due to many staff working from home part-time for the full financial year due to COVID-19 and the weather events. Further measures must be taken to further reduce kWh consumption for this high energy using asset. The Sustainability Team is working with the Property Maintenance Coordinator to develop a business case for an energy efficiency upgrade of the building (Action Plan Action A4; OP Activity 3.2.1.11).

Emission source: Streetlight Electricity

Streetlight energy use reduced 6.1%, from 730MWh to 685MWh, this is mainly due to the replacement program of the lamps. When an older lamp fails and is replaced by an LED lamp, an energy saving is made. For example, a 42W compact fluoro lamp (CFL) is typically being replaced by a 17W LED lamp, which consumes less than half the energy.

Although the total energy consumed for streetlighting reduced for FY2021/22, the cost increased by 5.5%. This increase was due to a new electricity contract that took effect in May 2022. Market prices for electricity have increased dramatically in Australia during 2022 and this has been reflected in the pricing. It should be noted that if the contract was signed a couple of months later the increase in pricing would have been significantly higher.

Council’s electricity supply contractor Essential Energy has a bulk LED upgrade planned for the Shire in early 2023. This project supports Action A3 in the Action Plan, and will further reduce Council’s electricity emissions.

Net electricity emissions for FY2021/22 are zero due to the retailer contracts with Iberdrola and Origin being 100% carbon neutral. This is shown by the purple line in Figure 7.

Table 8 - Streetlight Electricity Sector Scope 2 Emissions since baseline year FY2015/16

Financial Year	Emissions (tCO2e)	Net Emissions (tCO2e)	Electricity (MWh)	Cost (\$)	Number of streetlights
2015/16	636	636	757	\$314,425	1,890
2016/17	635	635	765	\$336,809	1,897
2017/18	633	633	772	\$315,504	1,922
2018/19	633	314	782	\$355,420	1,941
2019/20	630	0	778	\$307,320	1,973
2020/21	577	0	730	\$308,146	2,009
2021/22	541	0	685	\$326,188	2,013

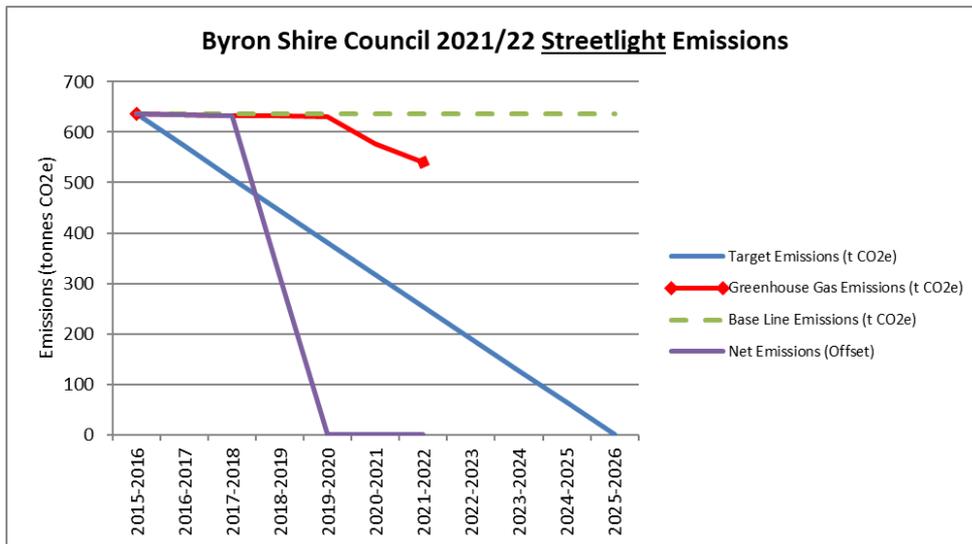


Figure 7- Streetlight Electricity Sector Scope 2 Emissions (Offset and Actual)

Solar Generation

Council has invested in solar photovoltaic (PV) generation since 2013 and has over 600kW of installed PV, generating approximately 738 MWh per year. This generation equates to 12.5% of the FY2021/22 Councils annual usage and a total of 92MWh is also fed back into the grid each year, resulting in a total of 583 tCo2-e avoided. Council’s solar photovoltaic (PV) generation is greater than its yearly streetlighting electricity consumption.

Table 9 - PV installation and generation for FY2021/22

For Period from 1/7/2021-30/6/2022	Size (kW)	Install Year	(MWh)	(tCO2e- /year) avoided	Total Solar Generation kWh	Feed back to grid (kWh)	Solar Used on Site (kWh)
Byron STP	152	2019	204	161	204300	10530	193770
Byron STP (Old System)	52	2015	36	29	36200	3000	36200
Brunswick Valley STP	99	2019	129	102	129100	5200	123900
Mullumbimby Admin Building Carpark	99	2019	120	95	120174	7000	113174
Byron Bay Library	60	2017	86	68	86200	22520	63680
Bangalow STP	51	2019	64	51	64200	2090	62110
Cavanbah Centre	25	2015	34	26	33500	5180	28320
Resource Recovery Centre - 2	15	2019	18	14	17600	7650	9950
Sandhills Childcare Centre	13	2017	15	12	15200	6710	8490
Mullumbimby Drill Hall	12	2016	10	8	10300	8620	1680
Mullumbimby Neighbourhood Centre	10	2017	10	8	9800	6270	3530
Durrumbul Hall	8	2012	7	5	6500	5240	1260
Mullumbimby Civic Hall	5	2013	5	4	4840	2420	2420
TOTAL	600		738	583	737914	92430	648484

Sector: Waste Fugitive Emissions - Landfill

Byron Shire Council’s closed landfill emits fugitive emissions from the legacy waste buried within. The methane gas flare captures a portion of gas rising and converts the methane to carbon dioxide thus reducing the global warming potential of the gas. The fugitive emissions will decline as the waste inside the landfill naturally decomposes. The decrease from FY2020/21 – FY2021/22 was 8.2%.

The methane gas flare currently generates Australian Carbon Credit Units (ACCU’s) under the Federal Emissions Reduction Fund, and Council is contractually obliged to sell these offsets until its requirements are met. This means that Council cannot count the total reduction associated with the methane gas flare for its own reduction efforts. The previous ACCU contract expired in December 2021 with a shortfall in Council’s credits. Staff have requested a five-year extension with the Clean Energy Regulator until sufficient ACCUs have been created by the gas flare project to meet contract obligations.

Council did not sell any ACCUs in FY2021/22 due to administrative timing and not enough ACCUs being created. In light of the net zero target, staff have engaged a consultant to analyse the future methane gas flare potential and whether Council should sell the associated ACCU’s or retire them so that any reductions will benefit Council’s own carbon footprint (Action C6 in the Action Plan).

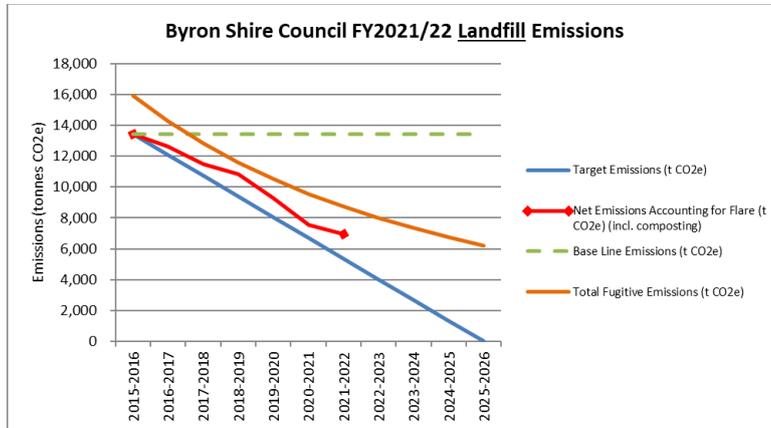
Council commenced composting at the Myocum Resource Recovery Centre in 2019. The composting operations added an extra 164 tCO2 e to the waste sector in FY2021/22 due to small pockets of anaerobic decomposition in the compost pile. Both the composting and fugitive emissions of the Myocum landfill are considered scope 1 emissions.

Table 10 - Waste Sector Scope 1 Emissions since baseline year FY2015/16

Financial Year	Total Emissions (tCO2e)	Total Flare (tCO2e)	ACCU's Sold (tCO2e)	Composting (tCO2e)	Net Emissions* (tCO2e)
2015/16	15,931	5,241	2,729	0	13,419
2016/17	14,283	3,539	1,903	0	12,647
2017/18	12,852	3,097	1,723	0	11,478
2018/19	11,607	2,372	1,440	166	10,841
2019/20	10,519	2,382	1,025	140	9,302
2020/21	9,564	2,138	0	142	7,568
2021/22	8,724	1,938	0	164	6,950

* Net Emissions = Total Emissions – Total Flare + ACCU's Sold + Composting

Figure 8 - Waste Sector Scope 1 Emissions



Sector: Wastewater Fugitive Emissions

Fugitive wastewater emissions are created during the processing of wastewater at Council’s four sewage treatment plants (STPs) and are greatly affected by rain events due to the potential for inflow and infiltration to the sewer system. Despite two major rain events in 2022 the annual flow was lower than last year, although significantly higher than the previous 5 years. The FY2021/22 fugitive wastewater emissions declined by 108 tonnes, or almost 11%, compared to the previous year.

Total annual flow decreased by 71,668ML, or 1.75%. Flows to the Bangalow, Byron and Brunswick Valley plants increased, likely due to relaxations in COVID-19 travel restrictions and increased precipitation. Ocean Shores STP saw a slight decrease in flow.

It should be noted that, while total emissions went down in FY2021/22, they will continue to fluctuate across years as the Shire experiences varying conditions (drought and rain) and different operational aspects (like reduced or increased biosolids inventories land application).

A major change compared to last year’s emissions was at the Bangalow STP. The NGER sludge management basis was changed to "managed aerobic" for the Bangalow STP, this was to reflect the operators' clarification of the sludge dewatering process directly from the bioreactor. This accounts for the ~90% emissions reductions drop for Bangalow STP.

Effluent quality from STPs, including chemical oxygen demand (COD) reduction and denitrification, has remained generally of high quality, with low concentrations of COD and nitrogen (as nitrate) discharges. Other GHG emissions for STPs generally reflect the kL/year flows and the calculated tonnes of biosolids land applied, effluent quality, and recycled water use.

Whilst solar and energy efficiency projects at the sewage treatment plants continue to drive down electricity emissions, these projects have no effect on the scope 1 fugitive emissions. The major factors that can drive down fugitive emissions are water efficiency measures to reduce wastewater generation, minimising inflow, and infiltration, and improving the effectiveness and efficiency of treatment operations.

Table 11 - Wastewater Sector Scope 1 Emissions since baseline year FY2015/16

Financial Year	Emissions (tCO2e)	Flow (ML)
2015/16	1,264	3,255
2016/17	1,387	3,542
2017/18	1,162	3,349
2018/19	1,094	3,327
2019/20	1,046	3,507
2020/21	994	4,112
2021/22	886	4,040

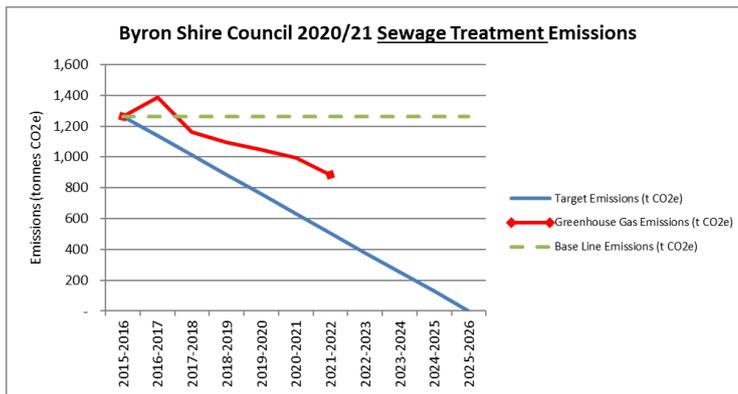


Figure 9 - Wastewater Sector Scope 1 Emissions

Sector: Community Infrastructure - Construction

FY2021/22 is the first year that the community infrastructure figures have been added to the emissions boundary, as scope 3 emissions. This sector includes construction materials, such as asphalt, concrete and other building materials, as well as equipment hire. Due to flood damage in February and March 2022, essential repairs and construction of roads, bridges and infrastructure was needed. These works will continue through FY2022/23 and are well beyond budgeted amounts. In June 2022 the FY2020/21 scope 3 emissions were calculated but not published with the main emissions report, so Council has two years’ worth of results to compare.

Table 12 - Community Infrastructure, Construction

Community Investment - Construction	Volume (tonnes)	Cost (\$, inc. GST)	Emissions (tCO2e)	Change in emissions over previous year
Asphalt				
2020/21	Approx. 12,000	\$3,804,391	883	
2021/22	Approx. 15,000	\$5,563,479	1150	30.24%
Concrete				
2020/21		\$338,642	363	
2021/22		\$388,555	416	14.60%
Other road-building materials				
2020/21		\$1,814,224	391	
2021/22		\$2,791,806	602	53.96%
Equipment hire				
2020/21		\$1,472,997	355	
2021/22		\$2,080,967	502	41.41%

Asphalt

This is a high emissions material, and the use has increased in FY2021/22 due to the damage of community infrastructure in the weather events. The asphalt figure consists of the asphalt procured from RPQ and a bonding emulsion that is sourced from Boral. Initially the emissions were calculated using the monetary value through the Climate Active methodology, after reviewing the results it has been decided to investigate the emissions using production figures. Future carbon reduction strategies will need to focus on using a lower embodied energy products which are being introduced into the market.

Concrete, other road-building materials, and Equipment Hire

All construction materials and works equipment that is used to repair and maintain community infrastructure has seen an increase compared to last year. This is due to the need to repair and replace infrastructure because of the March and April weather events.

Sector: Employees

Employee commute

The emissions for the employee commute were determined through an online survey that approximately 25% of the employees completed. The survey was based on 364 full time employees for FY2020/21. Under the Climate Active methodology, the survey results are valid for 2 years and was amended to cater for an increase of employees to 398 for FY2021/22.

Table 13 - Employee commute

Method of transport	km	Emissions (tCO2e) FY2020/21	Emissions (tCO2e) FY2021/22	Change in emissions over previous year
Employees		364	398	
Petrol - large car	277056			
Petrol - medium car	705952			
Petrol - small car	984048			
Diesel - large car	615264			
Diesel - medium car	176384			
Diesel - small car	74880			
Hybrid	32864			
Walk	416			
		669	732	9.42%

Working from home

Working from home contributes only 4 tCO2e to Council’s emissions, as employees use electricity for computers, the internet, lighting and generally require office infrastructure to perform their duties. This is calculated on the number of employees multiplied by a factor.

Sector Council: Corporate Governance and Services

Included in the scope 1 & 3 emissions is a number of emission sources from Council, these account for approx. 6.25% of Councils emissions. Refrigerants used in topping up gases in the air-conditioning systems is a measured value. Most other emissions sources have the tonnes of carbon dioxide equivalent (tCO2 e) calculated by using the financial values to purchase the services together with the Climate Active methodology. Office equipment, food and catering, air travel and business accommodation are calculated by using the overall Council emission results and multiplying it by a Climate Active uplift value.

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> • Paper • IT equipment • IT software • Postage and couriers • Office equipment * • Food and catering * • Telecommunications • Entertainment • Advertising • Cleaning • Clothing | <ul style="list-style-type: none"> • Stationery • Legal fees • Air Travel * • Business accommodation* • Popcar – Car share service • Machine & vehicle repairs • Refrigerants • Education <p>*= Climate Active uplift factor applied</p> |
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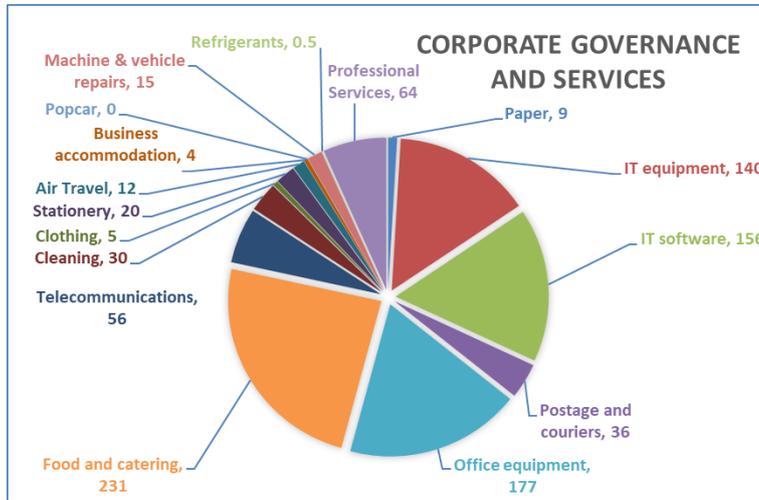


Figure 10 - Breakdown of corporate governance and services

Waste Collection Service

Council contracts its waste collection service to Solo Resource Recovery. As part of this contract, Solo monitors the fuel use for the collection and transfer of Byron Shire waste and then offsets the associated emissions with international carbon credits (VCU’s – Verified Carbon Units). For the FY2021/22 financial year 644 VCU’s were purchased for Council.

Water Supplied to Council Assets

Council purchases water from Rous Country Council and supplies its own water from the Lavery Gap Weir. All associated emissions from the water supplied from the Lavery Gap Weir are accounted for in previous scope 1 and 2 emissions outlined earlier in this report. The water supplied by Rous Country Council has emissions related to its collection, transfer and treatment, mainly due to the electricity associated with it.

For the FY2021/22, water usage increased by 9.7ML to 45.80 megalitres (ML), up 27% on the previous year. Emissions were also up this year with 95 tCO₂-e created to supply Council assets, this is up 25% on the emissions on the previous year. Table 15 outlines the emissions for water use on Council assets in each suburb.

Table 14 - Water supplied to Council Assets FY2021/22

Row Labels	ML	Emissions (tCO ₂ e)
BANGALOW	1.74	3.61
BILLINUDGEL	0.00	0.00
BRUNSWICK HEADS	2.12	4.40
BYRON BAY	28.78	59.67
MULLUMBIMBY	4.38	9.08
NEW BRIGHTON	0.65	1.36
OCEAN SHORES	1.12	2.31
SOUTH GOLDEN BEACH	0.29	0.60
SUFFOLK PARK	6.72	13.94
Grand Total	45.80	94.96

Part 3 – Recommendations

Preparing the report for FY2021/22 has highlighted some areas that could be addressed to improve the collection of data and the decision making around the Council's emissions. Areas that need to be investigated include:

- Additional clauses in contracts requiring suppliers to report on emissions related to goods and services supplied to Council, this will improve speed in collecting, and accuracy, of the data.
- Further investigation needs to take place to ensure the full boundary is identified, areas such as chemical usage and transport could increase Council's emissions profile. FY2021/22 is the first year that the full emission profile has been calculated and so further emission sources could be identified.
- Financial reporting should be more readily accessible to the Sustainability team and even custom reports prepared for the emission data gathering to improve speed and accuracy.
- The employee commute figures were based on a survey in early 2022 that had a response of approximately 25%. As the employee commute contributes 5.2% of the Council's emissions it is recommended that a new survey is conducted mid-year 2023 and the results used for the emissions boundary results FY2022/23.
- A shadow carbon price should be investigated, when making decisions on materials, services, or infrastructure the carbon emission implications should be reviewed as part of the decision-making process.

Glossary of terms and abbreviations

Term	Definition
Activity data	Source data from an emissions generating activity, such as fuel usage and electricity consumption, used to determine greenhouse gas emissions through multiplication by an Emissions Factor.
Australian Government Department of Climate Change, Energy, the Environment and Water	The Department assesses claims of carbon neutrality and provides certified organisations, products, services or events with access to the Climate Active certification trademark. The certification trademark can be used for promoting products or services to consumers, showcasing an organisation's action to address climate change or for other marketing purposes.
Australian Carbon Credit Unit (ACCU)	An emissions unit issued under the Carbon Credits (Carbon Farming Initiative) Act 2011.
Annex 1 countries	Defined in the International Climate Change Convention as those countries taking on emissions reduction obligations: Australia; Austria; Belgium; Belarus; Bulgaria; Canada; Croatia; Czech Republic; Denmark; Estonia; Finland; France; Germany; Greece; Hungary; Iceland; Ireland; Italy; Japan; Latvia; Liechtenstein; Lithuania; Luxembourg; Monaco; Netherlands; New Zealand; Norway; Poland; Portugal; Romania; Russian Federation; Slovakia; Slovenia; Spain; Sweden; Switzerland; Ukraine; United Kingdom; USA.
Baseline	A hypothetical scenario for what GHG emissions, removals or storage would have been in the absence of greenhouse gas (GHG) project activities.
Boundaries	GHG accounting and reporting boundaries can have several dimensions, i.e. organisational, operational, geographic, business unit, and target boundaries. The inventory boundary determines which emissions are accounted for and reported.
Carbon account	A measure of the carbon dioxide equivalent emissions attributable to an activity. A carbon account can relate to the emissions of an individual, household, organisation, product, service, event, building or precinct. This can also be referred to as a carbon footprint or emissions inventory.
Carbon dioxide equivalent (CO ₂ -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 neutral	A situation where the net emissions associated with an activity are equal to zero because emissions have been reduced and offset units cancelled to fully account for all emissions.
Carbon Neutral Program	Businesses that wish to have their carbon neutral status certified and recognised need to participate in the Carbon Neutral Program, administered by the Department of Industry, Science, Energy and Resources.
Carbon sink	A natural or man-made reservoir, such as a forest, that stores carbon.
Certified Emissions Reductions (CERs)	A unit of emission reduction generated by a CDM project. CERs are tradable commodities that can be used by Annex 1 countries to meet their commitments under the Kyoto Protocol.
Clean Development Mechanism (CDM)	A mechanism established by Article 12 of the Kyoto Protocol for project-based emission reduction activities in developing countries.
Climate Active Carbon Neutral Standard	A standard for making carbon neutral claims which sets rules for measuring, reducing, validating and reporting emissions. The standard is available for organisations, products and services, buildings, precincts and events. It is administered by the Department of Industry, Science, Energy and Resources.
Direct GHG emissions	Emissions from sources that are owned or controlled by the reporting company.
ECF	Energy Content Factor
Emission factor (EF)	Emissions Factors refer to numeric values that specify the kilograms of CO ₂ -e emissions per unit of activity.

Term	Definition
Eligible offset unit	An offset unit that has been deemed to meet the Climate Active Carbon Neutral Standard's offsets integrity principles.
Embedded/embodied/cradle-to-gate emissions	Cradle-to-gate emissions include all emissions that occur in the life cycle of purchased products, up to the point of receipt by the reporting company (excluding emissions from sources that are owned or controlled by the reporting company).
Emissions	The release of GHG into the atmosphere.
Emissions abatement or carbon abatement	Either the removal of one or more greenhouse gases from the atmosphere or the avoidance of emissions of one or more greenhouse gases.
Emission Reduction Unit (ERU)	A unit of emission reduction generated by a Joint Implementation (JI) project. ERUs are tradable commodities which can be used by Annex 1 countries to help them meet their commitment under the Kyoto Protocol.
Emissions - Downstream	Emissions that are emitted after a product or service leaves the company's control/ownership.
Emissions - Upstream	Emissions from the purchased materials, products and services that flow into the company
Greenhouse gases (GHG)	The atmospheric gases responsible for causing global warming and climate change. The Kyoto Protocol lists six greenhouse gases – carbon dioxide (CO ₂), methane (CH ₄), nitrous oxide (N ₂ O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur -hexafluoride (SF ₆) – with the addition of nitrogen trifluoride (NF ₃) from the beginning of the protocol's second commitment period.
GreenPower®	A voluntary government-accredited program that enables an electricity provider to purchase renewable energy on a buyer's behalf. GreenPower® guarantees that the renewable electricity from energy suppliers meets stringent environmental standards and is additional to Australia's Renewable Energy Target.
Gold Standard	A standard and logo certification mark program for non-governmental emission reductions projects in the Clean Development Mechanism (CDM), the Voluntary Carbon Market and other climate and development interventions.
Indirect GHG emissions	Emissions that are a consequence of the operations of the reporting company, but occur at sources owned or controlled by another company.
Inventory	A quantified list of an organisation's GHG emissions and sources.
Kyoto Protocol	The Kyoto Protocol operationalises the United Nations Framework Convention on Climate Change by committing industrialised countries to limit and reduce greenhouse gases (GHG) emissions in accordance with agreed individual targets.
National Carbon Offset Standard	The previous name of the Climate Active Carbon Neutral Certification Standard.
National Greenhouse and Energy Reporting System (NGER)	Introduced in 2007 to require large emitting organisations to report their scope 1 and scope 2 greenhouse gas emissions and energy consumption and production. More info here .
Offsetting	The activity of cancelling offset units.
Offset unit	Represents reductions of GHG or removals of GHG from the atmosphere by sinks, relative to a business-as-usual baseline. Offset units are tradeable and can be used to negate (or offset) all or part of another entity's emissions.
Operation	A generic term used to denote any kind of business, irrespective of its organisational, governance, or legal structures. An operation can be a facility, subsidiary, affiliated company or other form of joint venture.
Outsourcing	The contracting-out of activities to other businesses.

Term	Definition
Public Disclosure Summary	A report or document prepared by the submitting organisation and submitted to the Department to be certified as carbon neutral under the Climate Active standard and eligible to use the certification trademark.
REDD+	Reducing emissions from deforestation and forest degradation. These carbon offset projects encourage developing countries to reduce emissions and enhance removals of greenhouse gases through a variety of forest management options.
Relevance	Ensuring that the carbon account of a subject appropriately reflects the emissions of that subject and meets the expectations of users and stakeholders.
Relevance test	Qualitative test for determining whether certain emissions sources are or are not considered relevant.
Removal Units (RMUs)	An emission unit issued by a Kyoto Protocol country on the basis of land use, land-use change and forestry activities under article 3.3 or 3.4 of the Kyoto Protocol.
Reporting	Presenting data to internal management and external users such as regulators, shareholders, the general public or specific stakeholder groups.
Scope	The categorising of emissions sources into direct and indirect sources. See individual definitions for scope 1, scope 2, and scope 3 emissions.
Scope 1 emissions	The release of GHG into the atmosphere is a direct result of activities occurring within a responsible entity's control (or geographic boundary).
Scope 2 emissions	The release of GHG 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 are emitted as a consequence of a responsible entity's activities but emitted outside the responsible entity's control (or geographic boundary).
Sequestration	The removal of atmospheric carbon dioxide, either through biological processes (e.g. photosynthesis in plants and trees) or geological processes (e.g. storage of carbon dioxide in underground reservoirs).
True-up	The calculation to determine if additional eligible offset units must be purchased after the measurement of a post-event carbon account.
Uplift factor	A factor is used to increase the estimated emissions from an activity, usually by a risk-adjusted proportion or percentage, and mitigate the risk of emissions being underestimated in the carbon account.
Value chain emissions	An organisation's scope 1, 2, and 3 emissions as defined by the GHG Protocol accounting standard.
Verification	An independent assessment of the reliability (considering completeness and accuracy) of a GHG inventory.
Verified Carbon Standard (VCS)	Verra or VCS, formerly the Voluntary Carbon Standard, is a standard for certifying carbon emissions reductions. VCS is administered by Verra, a not-for-profit.
Verified Carbon Units (VCUs)	An emission unit issued by the Verified Carbon Standard (VCS). Each VCU represents a reduction or removal of 1 t CO ₂ -e achieved by a project.
Vintage	Refers to the date of issuance of an offset unit.
Voluntary Emissions Reductions (VERs)	An emission unit issued by the Gold Standard. VERs are a reduction in GHG from a project that is independently audited (i.e., verified) against a third-party certification standard. Each verified emission reduction represents 1 t CO ₂ -e.
Zero emissions	Zero emissions, or absolute zero, refers to zero greenhouse gas emissions. In contrast with net zero emissions, absolute zero is achieved without the use of offsetting to balance emissions.



**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

Version	Release / Issue	DATE
01	Draft	August 2020



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Part 1 – Introduction and Guiding Principles



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 led 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).

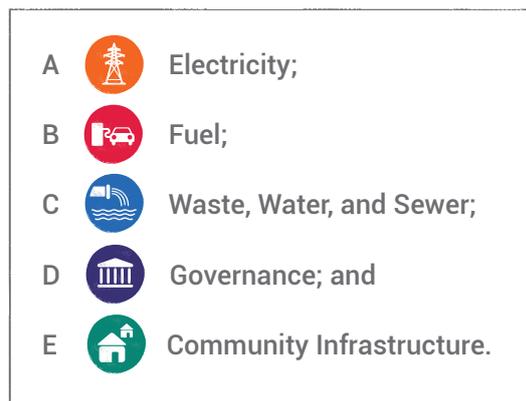


Figure 1: The five principle contributing sources of emissions within Council operations

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

<p style="text-align: center;">VISION</p> <p style="text-align: center;">Net Zero Emissions for Council Operations by 2025</p>				
				
<p style="text-align: center;">OBJECTIVES</p> <p style="text-align: center;">The objectives stem from the five principal contributing sources of emissions within Council Operations</p>				
 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>
<p>Improve electricity efficiency and transition to 100% renewable energy</p>	<p>Optimise fuel efficiency and transition to renewable fuel sources</p>	<p>Reduce waste and improve water efficiency</p>	<p>Disclose and improve emissions reporting and invest in high quality carbon offsets.</p>	<p>Minimise emissions from the construction of community infrastructure</p>
<p style="text-align: center;">GOALS</p> <p style="text-align: center;">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.</p>				
<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

Part 2 – Action Plan Summary Table

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.				
Electricity	Fuel	Waste, Water and Sewer	Governance	Community Infrastructure
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 streetlights 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

Part 3 – Action Plan Roadmap - Objective A - Electricity

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

Part 3 – Action Plan Roadmap - Objective B - Fuel



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

Part 3 – Action Plan Roadmap - Objective B - Fuel

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

Part 3 – Action Plan Roadmap - Objective C - Waste, Water, and Sewer



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

Part 3 – Action Plan Roadmap - Objective C - Waste, Water, and Sewer

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

Part 3 – Action Plan Roadmap - Objective D – Governance



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

Part 3 – Action Plan Roadmap - Objective D – Governance

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

Part 3 – Action Plan Roadmap - Objective E - Community Infrastructure



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.