



KIAMA MUNICIPAL COUNCIL
your council, your community



Corporate Emissions Reduction Plan

2021-2031



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1.0 ACKNOWLEDGEMENT OF COUNTRY

Kiama Municipal Council acknowledges the Wodi Wodi and Dharawal people as the traditional custodians of the land on which our Municipality is located. We pay our respects to Elders past, present and future. We are committed to honouring Australian Aboriginal and Torres Strait Islander peoples' unique cultural and spiritual relationships to the land, waters and seas and their rich contribution to our community.



This mural was created at SENTRAL Youth Services with Aboriginal and Torres Strait Islander community parents and children during a workshop that was coordinated by our Aboriginal Liaison Officer. *"When the wattle starts to flower we know that the whales are beginning to migrate".*

2.0 EXECUTIVE SUMMARY

Climate change is causing a global threat to humanity and the systems that support us. Glimpses of these impacts are being realised in everyday life. In order to combat a changing climate, an urgent and coordinated response is critical. Armed with ambition, cities and local governments are at the forefront of emissions reduction action to reduce systemic shocks and build resilience to communities.

Kiama Municipal Council (Council) is committed to minimising its impact by reducing emissions and mitigating the effects of climate change. This will be achieved by harnessing technology in order to reduce energy usage and transition to low emissions and renewable energy sources. Council has set an ambitious target of achieving net zero emissions by 2031 for all of its operations, facilities and services, including an interim target of 50% of electricity from renewable sources by 2025.

Already Council has implemented a number of emissions reduction actions including energy efficiency upgrades, on-site generation of renewable energy and organisational education initiatives.

This has resulted in a steady decline of greenhouse gas emissions that is monitored and reported through a robust carbon accounting program. Economic opportunities have also been taken advantage of through energy cost savings and financial incentives that allow for future funding and budget certainty.

This ten year Corporate Emissions Reduction Plan sets out a pathway to achieve further emissions reductions and lays the foundation to reach net zero by 2031. Building on past success and knowledge, priority actions within the Plan focus on researching innovative and proven emissions reduction technologies, reducing energy consumption and replacing current energy sources to cleaner alternatives.

To meet the challenges of addressing the climate emergency it will take a collective effort from all aspects of government and the Community. To complement this plan a *Community Emissions Reduction Plan* will also be developed to facilitate sharing knowledge, research and experience to support the local community in driving down emissions in the Kiama Local Government Area (LGA) and help deliver our vision for a sustainable and liveable community.



Kiama Council's Mayor, Cllr. Mark Honey, speaks at the Cities Power Partnership Summit 2018, hosted by Kiama Council.

3.0 PURPOSE

The purpose of this Corporate Emissions Reduction Plan (Corp ERP) is to provide a forward strategy with prioritised actions for Council to identify, measure and reduce its corporate greenhouse gas emissions in line with adopted interim and carbon neutral targets.

The Corp ERP builds on the existing actions taken by Council to reduce emissions and sets the foundations for future opportunities to continue towards net zero operations. The Corp ERP will principally focus on Council's corporate emissions reduction activities. A separate Community Emissions Reduction Plan (Comm ERP) will be developed to target community emissions generated in the Kiama LGA. Combined these reports outline Council's complete net zero Emissions Policy.

4.0 OBJECTIVES

The objectives of this policy are to:

1. determine operational carbon emission reduction targets and goals
2. establish Council's emissions profile and operational boundary
3. incorporate current carbon accounting best practice and standards
4. highlight progress to date
5. develop emission reduction pathways and strategies



5.0 THE BIG PICTURE

Ecological thresholds are already being surpassed in every corner of the globe as the impacts of climate change become increasingly evident. Australia is experiencing a higher intensity and frequency of extreme weather such as storm events, heatwaves and heavy rainfall, leading to an increase in costly disturbances that have significant impacts on all aspects of society such as flooding, bushfires, drought and storm surge.

The associated shift in climatic conditions is attributed to an increase in the amount of greenhouse gases in the Earth's atmosphere creating an enhanced greenhouse effect. This is largely due to human induced emissions which, driven by economic and population growth, are now the highest they have been in history ⁽¹⁾.

The burning of fossil fuels (Coal, Oil and Gas) continues to be the principal driver of anthropogenic emissions making up 85% of global CO₂ emissions, while land use changes (land clearing and agriculture) make up 15% ⁽²⁾.

Approximately half of the human induced emissions since pre industrial times (1750) have occurred in the last 40 years ⁽¹⁾. As a result, globally averaged air temperatures at the Earth's surface have warmed by over 1.0°C above pre-industrial levels and a business as usual trend is likely to result in reaching a 1.5°C rise by the end of 2030 ⁽³⁾.

In order to curb the impacts of climate change and avoid catastrophic consequences, a combined and concerted response is required to rapidly reduce the amount of human induced emissions and contain global warming to below 2°C of pre-industrial levels, as legally required by the Paris Agreement ⁽⁴⁾.

Council is committed to being a part of the solution to restore a safe climate ensuring the future integrity of the natural environment and the social, economic and ecological benefits that are associated with it.

Reducing Council's carbon emissions and its contribution to climate change is an enormous challenge but also provides a great opportunity to show leadership and demonstrate the benefits of acting on climate change.

This plan sets out Council's commitments and pathways to reducing emissions and mitigating the effects of climate change at an organisation level.

5.1 Global context

The reality of climate change as a global issue is made clear through the notable rise in global land and ocean temperatures over the last decade. Nine of the ten warmest years on record have all occurred in the decade between 2010 and 2020, and the coming decade is estimated to continue this record breaking trend ⁽⁵⁾. (Figure 1)

Currently there are two international agreements that address climate change in a significant way, the Paris Climate Agreement and the United Nations Sustainable Development Goals.



The United Nation's Framework Convention on Climate Change (UNFCCC) was entered into in 1994 and today has been ratified by 197 countries. Building on the Convention is the major current international climate change strategy known as the Paris Agreement. The Agreement aims to keep global temperature rise in this century to 'well below' 2°C over pre-industrial levels and provides a dynamic framework for all countries to take climate action from 2020. The commitments under the agreement are legally binding and require countries to set mitigation targets and report national emissions and progress.

The United Nations Sustainable Development Goals were developed in 2015 as a call to action to end poverty, protect the planet and improve the lives and prospects of humanity. The goals have specific targets for each including Goal 13 which requires urgent action to combat climate change and its impacts.

5.2 National context

Australia is signatory to and has ratified both agreements mentioned above. Our 2015 nationally determined contribution (NDC) to the Paris Agreement is an emissions reduction of 26% to 28% below 2005 levels by 2030. *The United Nations Emissions Gap Report 2019* considered this NDC 'blatantly inadequate' to achieve the Paris Agreement targets as it is consistent with warming up to 3°C⁽⁶⁾.

Based on current policies *Australia's Emissions Projections 2020* reported that Australia will not reach this reduction by 2030 without policy reform⁽⁷⁾. The Australian Federal Government released its NDC recommunication to the UNFCCC in December 2020 which held global expectations for governments to increase their climate action ambition.

Australia's recommunicated NDC reiterated the old, insufficient target including no further supporting targets, despite the fact its 2020 renewable energy target has expired. It states Australia is on track to achieve its current target without the use of carryover credits but does not rule out their use in the future⁽⁸⁾.

Renewable energy generation in Australia has been increasing in recent years and remains the lowest cost option for power in Australia. Twenty-four percent

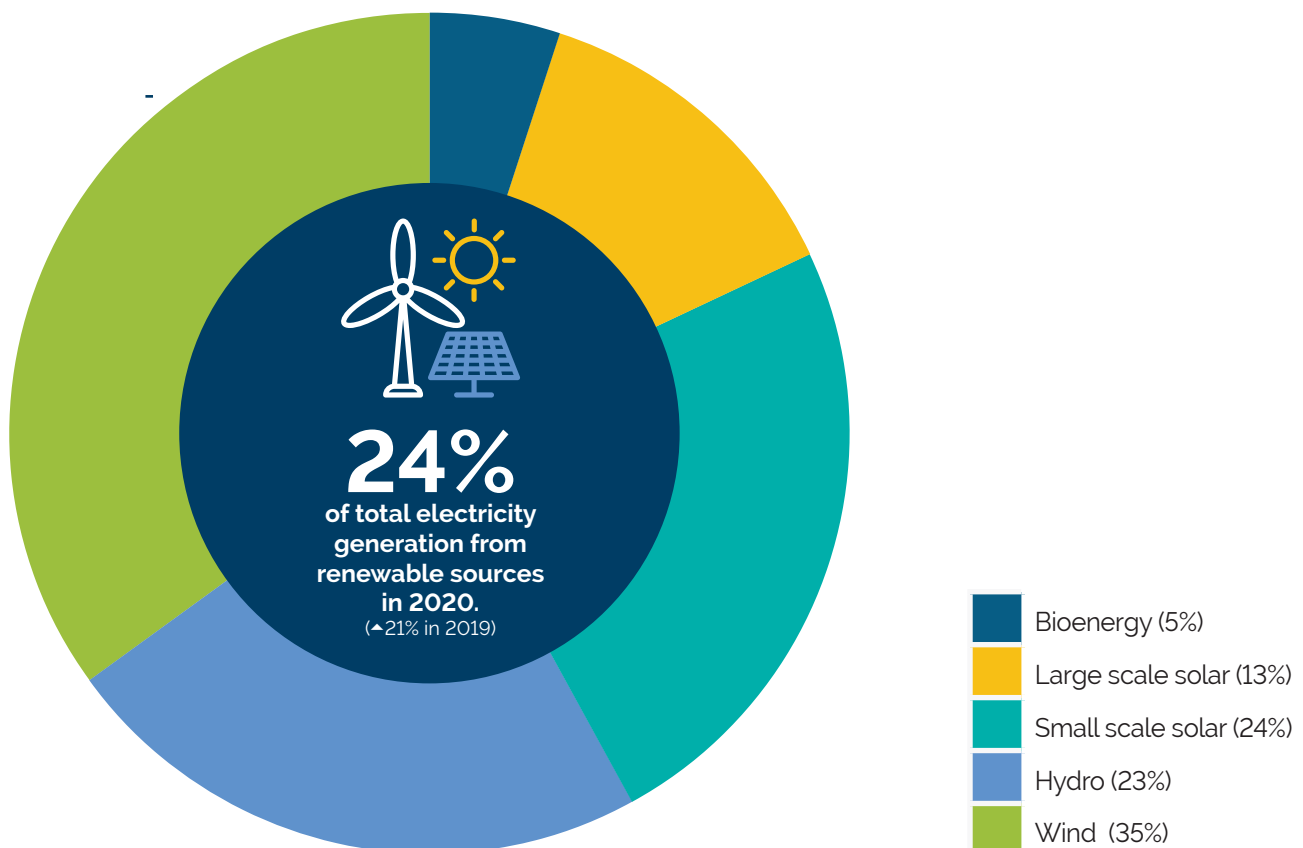
of Australia's total electricity generation in 2020 was from renewable sources⁽⁹⁾. The National Energy Productivity Plan 2015-2030 aims to deliver 40% improvement in Australia's energy productivity by 2030. This has potential to provide benefits to Council through improving vehicle emissions standards, improving buildings energy efficiency and accelerating new technologies.

Other national renewable energy policies include the Renewable Energy Target (RET) that is designed to ensure that at least 33,000 gigawatt-hours of Australia's electricity comes from renewable sources by 2020. This target was met in September 2019 and associated subsidies and requirements will continue to be implemented until 2030⁽¹⁰⁾.

Another policy is the Energy Efficient Communities Program that aims to help businesses reduce energy consumption through grant funding, however funding for this program has been reduced since its inception.

Current policies project that the electricity sector in Australia will remain fossil-fuel intensive, considering that there is no explicit emissions reduction policy for the energy sector, and instead a specific push for a 'gas led recovery'.

Figure 1: *Electricity generation from renewable sources*



5.3 State context

NSW has adopted a net zero emissions target of 2050 in line with the Paris Agreement and has set out how this will be achieved in the NSW Net Zero Plan Stage 1: 2020-2030. The NSW Climate Change Fund has contributed \$1.4 billion between 2017 and 2022 that provides funding and support for energy technologies and solutions, energy efficiency and climate change.

The NSW Energy Saving Scheme is one of the key strategies that reduces electricity consumption in NSW by creating financial incentives for organisations to invest in energy saving projects. Opportunity exists for Council to continue utilising this scheme to assist in funding energy efficiency measures.

5.4 Kiama Municipal Council

As the level of government closest to the community, Council has the ability to influence individuals, households and local businesses as well as lobby State and Federal governments in order to take action to reduce emissions. Council can reduce emissions in two ways: indirectly through influencing the community (Comm ERP) and directly by addressing operations (Corp ERP).

These two strategies are aligned with Council's *Community Strategic Plan* (CSP) which underpins the community vision and identifies strategies to work towards achieving long-term objectives.

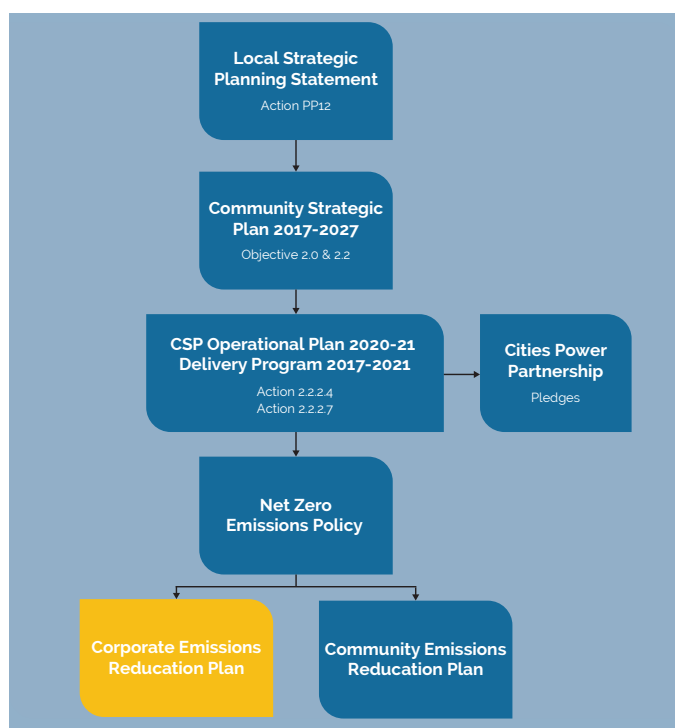
The CSP addresses social, environmental, economic and civic leadership issues in an integrated manner including emissions reduction.

The Net Zero Emissions Policy is also identified in the *Kiama Local Strategic Planning Statement* (LSPS) which highlights specific actions for achieving our planning priorities over the next 20 years and sits at the top of Council's planning documents.

Council has been addressing the risks and engaging solutions of climate change for over a decade. The framework for this was established through the *2009 Climate Change Risk Assessment* and *2009 Climate Change Adaptation Strategy and Action Plan*. These documents included a Greenhouse Local Action Plan as part of the International Council for Local Environmental Initiatives (ICLEI) Cities for Climate Protection project.

In 2017 Council became a member of the Cities Power Partnership, Australia's largest government climate network representing close to 11 million Australians. This involved Council committing to 5 pledges to tackle climate change involving renewable energy, efficiency, transport and working together for influence. As a requirement of this partnership, Council also has a responsibility to implement a Net Zero Emissions Policy including both community and corporate operations with an ambitious target.

Figure 2: Kiama Council's Integrated Planning framework



6.0 WHAT WE ARE AIMING FOR

6.1 Target

Setting an emissions reduction target is an imperative part of developing an effective emissions reduction plan. A target provides direction for action pathways and evaluating performance, and should be set in accordance with the most recent and reliable science surrounding emissions reductions.

The United Nations Environmental program (UNEP) Annual Emissions Gap report finds that unless global greenhouse gas (GHG) emissions fall by 7.6% each year between 2020 and 2030 the world will miss the opportunity to get on track to achieve Paris Climate Agreement targets ⁽⁶⁾.

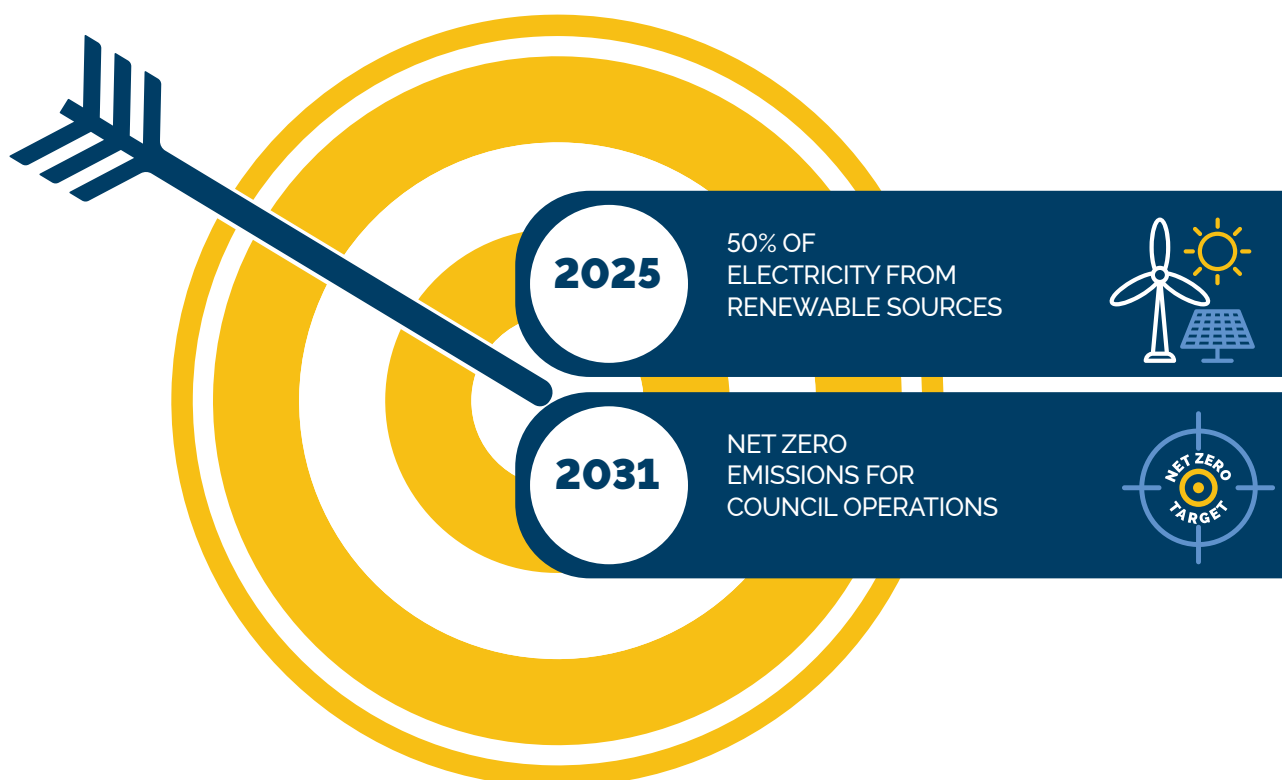
Additionally the Intergovernmental Panel on Climate Change (IPCC) special report states that emissions would need to be reduced by about 45% from 2010 levels before 2030 in order to achieve net zero by 2050.

Considering these findings and the urgent action required in order to respond to the climate emergency, Council will aim to achieve:

- 50% of electricity from renewable sources by 2025
- Net Zero emissions for Council operations by 2031

This target is an ambitious but achievable goal that represents leadership in the community in order to further develop the community target. Based on the available science and built upon previous achievements, this Plan provides a pathway to achieve this target.

Figure 3: Council's emissions reduction target.



6.2 Organisational boundary inclusion

In order to effectively manage Council's carbon inventory and track emissions reduction progress, there must be a defined boundary that encapsulates what is included in Council's emissions profile. The Australian Government has established two frameworks to standardise how emissions are measured and reported:

1. National Greenhouse and Energy Reporting (NGER) scheme
2. Climate Active Carbon Neutral Standard for Organisations (formally known as NCOS).

Both standards utilise principles established by the international Greenhouse Gas Protocol, which sets the requirements for measuring and managing emissions.

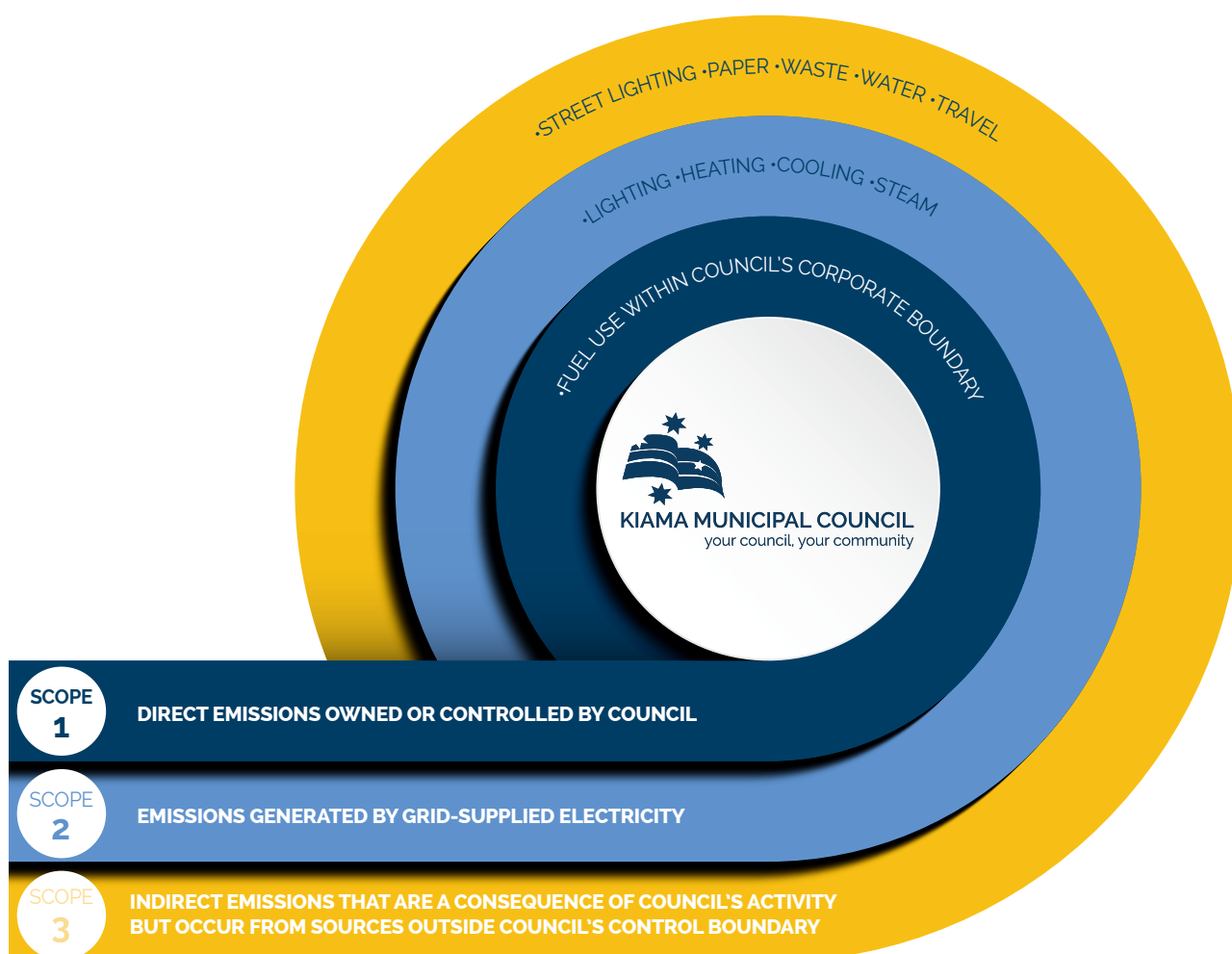
Council's GHG organisational boundary has been established in line with these standards and has adopted the Operational Control approach.

This approach requires the organisation to report 100 per cent of operations over which it has the full authority to introduce and implement its operating policies and can directly influence, control and typically measure emission sources.

A relevance test is conducted in accordance with the GHG Protocol to ensure the carbon account appropriately reflects the emissions of the organisation and meets the expectations of both internal and external stakeholders.

To help differentiate between different emissions sources, emissions will be classified into one of three scopes depending on their origin.

Figure 4: *Scopes of Emissions*



Each year we will include an inventory of our emissions in our CSP and consider them within our action plans. Table 1 below shows Kiama Council's Corporate greenhouse gas inventory for the 2019-2020 financial year.

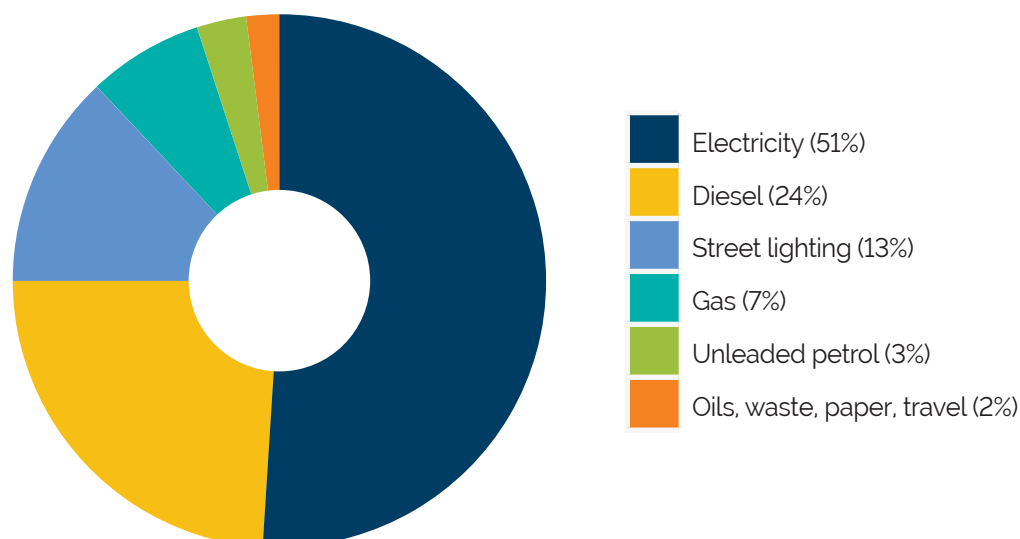
Table 1: 2019-2020 Greenhouse Gas Inventory

Source	Activity amount	tCO ₂ -e
SCOPE 1		
Fleet Vehicles - Diesel	579,364 (L)	1,576.85
Fleet Vehicles - Petrol	94,190 (L)	206.80
Gas	7,110,183 (MJ)	366.39
Oils	3020 (L)	1.63
Scope 2		
Electricity	3,975,199 (kWh)	3,160.53
Scope 3		
Street Lighting (electricity)	1,014,553 (kWh)	913.1
Electricity - transmission and distribution losses	3,975,199 (kWh)	351.17
Diesel - production and transport	579,364 (L)	80.51
Petrol - production and transport	94,190 (L)	17.73
Natural Gas - transmission and distribution	7,110,183 (MJ)	91.01
Paper	5,240 (kg)	0 (Carbon Neutral)
Waste disposal to landfill	82.82 (t)	134.79
Business travel - Flights	0 (km)	0
Reticulated Water Use	134,216 (ML)	36.23
Total		6936.74

6.3 Emissions profile

As seen in the emissions profile (Figure 5 below) Kiama's corporate emissions are largely consistent with those of other local government authorities, with the majority of our emissions arising from electricity consumption including street lighting. By understanding this profile, we are able to make informed decisions on how to prioritise our attention and future resources. This thinking has been reflected in the priority actions within this plan.

Figure 5: Corporate emissions profile 2019-2020



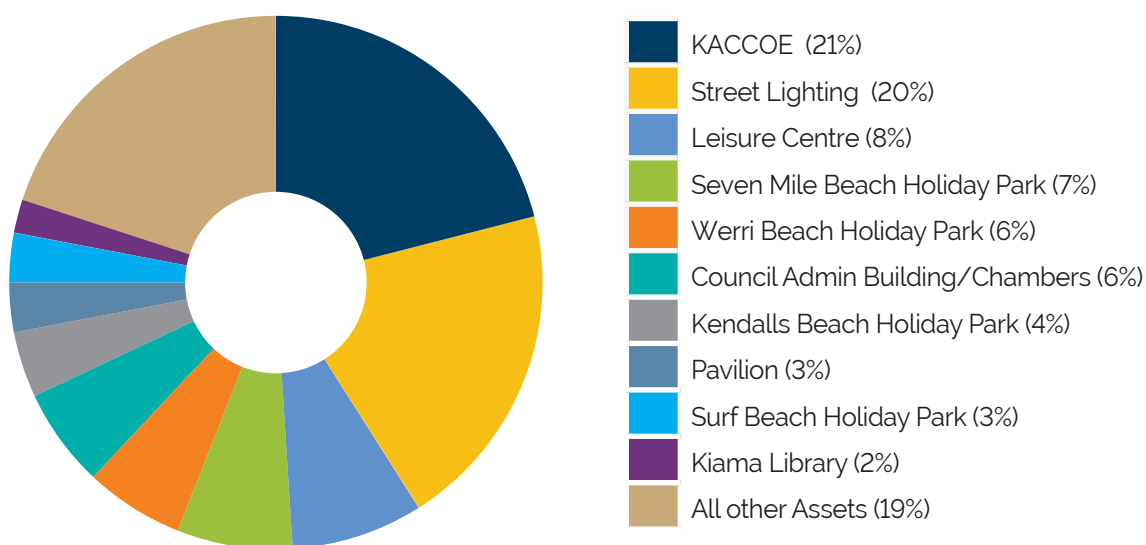
6.4 Electricity consumption

Electricity consumption makes up over two thirds of Council's generated emissions, this is used to power major energy users such as streetlights, holiday parks, the Leisure Centre and key community facilities. As seen in Figure 6 below, 80% of Council's electricity is used by ten sites including street lighting.

These sites are a key focus for actions to reduce energy consumption and replace with renewable generation. Energy efficient equipment and lighting makes a significant contribution to reducing consumption and is implemented throughout facilities proactively or as current infrastructure approaches its end of life and is replaced.

On-site solar generation currently accounts for 5% of Council's electricity use, the remaining is from grid supplied electricity from fossil fuel sources. Increasing solar generation and procurement of renewable energy are priority actions for the listed sites to reduce Council's emissions from electricity consumption.

Figure 6: *Electricity consumption 2019-2020*



Kiama Leisure Centre - 99.6kW Photovoltaic system reduces energy consumption on site by 30% annually.

7.0 WHAT WE HAVE ACHIEVED SO FAR

To date Council has already achieved substantial emissions reductions through actions aimed at reducing our energy consumption and increasing our generation of solar as an alternative to fossil fuels.

Major actions that we have undertaken include:

- solar installation on Council assets – installing around 200 kW of rooftop solar across a range of assets including a 99.6kW system on the Kiama Leisure Centre
- establishing a Revolving Energy Fund to finance ongoing renewable energy projects
- LED/energy efficient lighting upgrades for energy efficiency across Council assets
- Energy saving LED street lighting upgrade
- water management and water data logger programs
- waste education programs
- Voltage Power Optimisation and Power Factor Correction at the administration building
- Energy Audit of Kiama Leisure Centre.

Table 2: 2019-2020 emissions avoided

Source	Activity amount	tCO ₂ -e
On-site Solar Generation	44,600 (kWh)	39.69
Street Lighting Upgrade Saving	118,517 (kWh)	163
Paper – Carbon neutral	5,240 (kg)	6.86
Total		209.55

As shown in Table 2, implemented actions during 2019-2020 by Council successfully avoided 209.55 tCO₂-e of emissions.



Kiama Leisure Centre - 99.6kW Photovoltaic system.

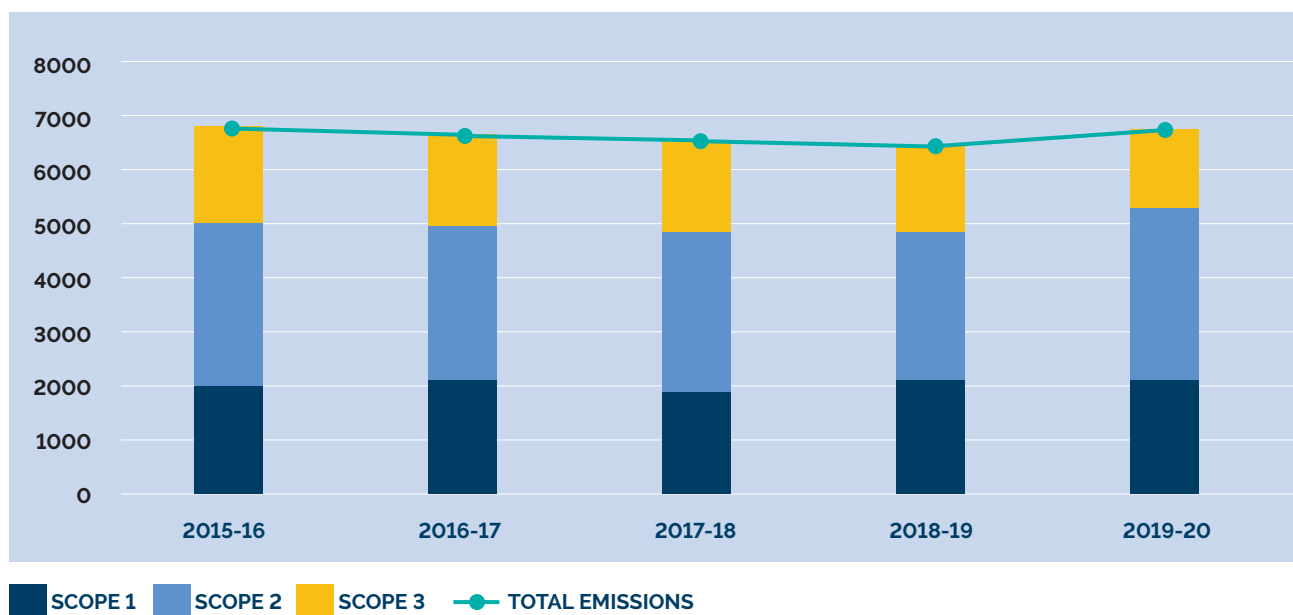


Energy efficient lighting upgrade –Council Administration Building

In March 2021, Kiama Council completed an LED lighting upgrade of its administration building. The project was implemented utilising the NSW Government's Energy Saving Scheme that saved Council \$11,766.25 through upfront rebates. The project will reduce the facility's lighting energy consumption by 68% per year. This translates to approximately \$11,700 annually following a 6-month payback. The project also resulted in an annual reduction of 73.26 tonnes of CO₂ from reduced electricity consumption. A number of Council's assets are flagged for similar upgrades for future energy and cost saving.

Council's corporate emissions overall have trended downward over the last 5 years as a result of emissions reduction and energy saving initiatives. A slight increase in 2019-20 (Figure 7) is due to bringing Council's Blue Haven Bonaira retirement facility online as a major asset. Following the adoption of this plan a much more robust carbon accounting system will allow for a more accurate data set of emission sources, this will allow Council to focus actions to achieve maximum emissions reductions, as well as fulfil Climate Active (formerly NCOS) requirements to be certified Carbon Neutral in the future.

Figure 7: Historical emissions by scope (t CO₂-e)



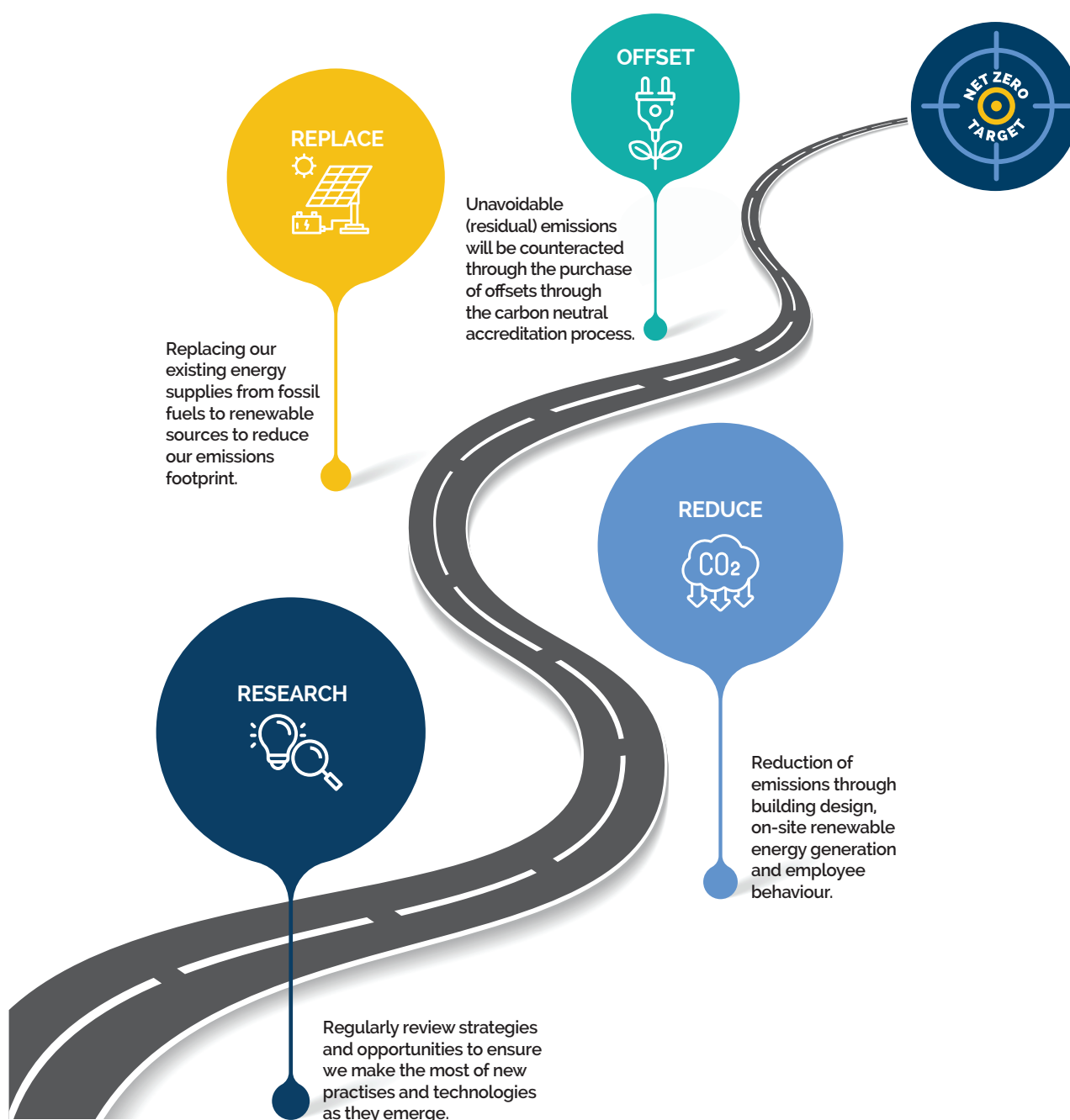
8.0 PATHWAY TO NET ZERO

Council operates a large number of buildings, facilities, vehicles, plant and equipment across its operations which all contribute to its carbon footprint. Achieving net zero emissions is both technologically and economically feasible, as much of the required technology and solutions are readily available and rapidly developing.

It will however, require a strategic and sustained approach to ensure emissions reduction activities are implemented utilising the best available information, technology and research. This will ensure the most efficient and permanent transition to net zero emissions without increasing our footprint in other areas or being financially unsustainable.

Moving towards net zero will involve an 'energy hierarchy' approach that prioritises actions that will streamline our transition with the least impact on economic, environmental and social resources. Council has developed the action plan detailed on the following pages to achieve this in line with best practises.


Figure 8: *Pathway to Net Zero*

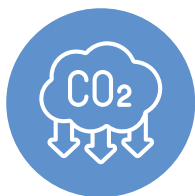




8.1 Research

Emissions reduction is not a static process and so regular review is essential to ensure we make the most of new practises and technologies as they emerge. Viability and cost of energy sources, alternative fuels and other emissions reduction technologies, will change and emerge over time and provide opportunities not identified in this or future strategies. Council officers will continue to research and investigate opportunities for corporate emissions reduction through the following actions:

Action	Emissions reduction action	Rationale
1.1	Engage with State and Federal Governments for combined approaches, knowledge and grant opportunities.	The NSW State Government has developed a Net Zero Emissions program for NSW Councils, which provides support and knowledge to local government for implementing emissions reduction strategies and programs. Climate change focused grants are also periodically available through both State and Federal Governments to attribute funds to emission reduction actions or research.
1.2	Engage with local community and stakeholders for input, support and ideas.	Achieving net zero for corporate operations is only a small percentage of community emissions, however it will provide leadership and momentum towards advocating and implementing a Community Emissions Reductions Plan.
1.3	Lobby State and Federal Governments to ensure a consistent approach and support for emissions reduction across all levels of government.	A coordinated response at the State and Federal level of government will provide a more robust and efficient framework in order to implement actions to drive emissions reduction across the country.
1.4	Collaborate with adjoining councils to align activities and benefit from increased buying power and consistent policy.	Member councils of the Illawarra Shoalhaven Joint Organisation (ISJO) and the wider surrounding LGA community are individually developing emissions reductions plans. There are economic and strategic benefits in collaboration which can increase buying power relating to resources, energy and offsets, as well as knowledge and resource sharing amongst organisations.
1.5	Dedicate staff resources to accurately monitor and report corporate emissions in line with national reporting requirements with the goal to secure carbon neutral certification.	In order to effectively manage and reduce emissions, accurate measurement of emissions is key. This Plan outlines a number of national and international standards that are required to be met when tracking emissions in order to be certified carbon neutral.
1.6	Maintain membership to the Cities Power Partnership (CPP) program and continue implementing pledges under the program. 	Council's CPP pledges relate to reducing emissions and combating climate change. Council has also pledged to adopt, implement and maintain emissions reduction targets for both Council and Community Plans.





8.2 Reduce

The most effective way to reduce emissions is through avoiding generating emissions directly from your site and indirectly from energy use. This can be done in most areas of Council operations through a combination of actions including building design, on-site renewable energy generation and employee behaviour. Increasing energy efficiency of all equipment is also a key step in reducing energy use, whether it be on an end of life basis or through funded upgrade programs. Key actions in reducing emissions include:

Action	Emissions reduction action	Rationale
2.1	Work in collaboration with Endeavour Energy to further upgrade LGA street lighting to energy efficient LEDs or alternatives.	Street lighting is a major source of emissions for Council, however Council does not own the streetlighting infrastructure. Council has partnered with the Department of Planning, Industry and Environment, and Endeavour Energy to upgrade minor road street lighting to LED alternatives. Street lighting made up 13% of 2019/2020 emissions. Further upgrades of major street lighting within the Kiama LGA will be investigated as available.
2.2	Install LED lighting upgrades and smart control lighting on Council assets.	A number of sites have been upgraded through specific upgrade programs (e.g Council Administration Building), or as new build projects/refurbishments (The Pavilion Kiama / Blue Haven Bonaira). Continual upgrade of broken/end of life lights and heavily utilised lighting to LED and efficient alternatives will continue to gradually reduce emissions from corporate electricity consumption. The NSW Government's Energy Savings Scheme is legislated to run until 2025 and will improve the business case for projects that also reduce cost and emissions.
2.3	Formalise Sustainable Procurement Policy to incorporate sustainable designs, products and materials.	Through a formalised procurement policy that governs the purchase of goods and services, Council has the opportunity to implement the below actions (2.4 – 2.6) and include low carbon options as key selection criteria.
2.4	Develop and embed best practice environmentally sustainable design specifications into capital works and maintenance programs. For example, include a minimum standard of green star rating on all new buildings and upgrades.	The Green Building Council Australia has developed a green star buildings rating system that assesses and certifies the sustainability attributes of buildings and design. This will help ensure that whole of life costs and sustainability are considered and included at the design stage of a project. Green Star rated buildings produce 55% fewer GHG emissions and use 66% less electricity than the average Australian building.



The Green Building Council Australia green star buildings rating system that assesses and certifies the sustainability attributes of buildings and design.

2.5	<p>Purchase of energy efficient plant and equipment for new installations and upgrades.</p>  <p><i>Water Efficiency Labelling Scheme (WELS)</i></p>	<p>Energy Performance and Energy Ratings Labels should be considered for all electrical appliance purchasing. Often some items that cost less up-front may ultimately cost more over their working life due to higher electricity consumption. Market average energy star ratings for example:</p> <ul style="list-style-type: none"> • fridge/freezers – 3 stars • air conditioners – 3.5 stars • washing machines – 3 stars • dishwashers – 3 stars • TV/computer monitors – 3 stars.
2.6	<p>Purchase water efficient appliances for all new installations and upgrades. Where applicable apply a minimum water efficiency star rating.</p>  <p><i>Energy Performance and Energy Ratings</i></p>	<p>Appliances and equipment with a star rating under the Water Efficiency Labelling Scheme (WELS) to have at least the following ratings:</p> <ul style="list-style-type: none"> • showerheads – 3 stars • toilets and urinals – 4 stars • washing machines – 4.5 stars • dishwashers – 4 stars • taps and flow controllers – 4.5 stars.
2.7	<p>Continue to implement Waste minimisation and management projects.</p>	<p>Recycling, auditing, education and training programs at Council facilities can significantly reduce the amount of corporate waste and emissions produced from landfill.</p>



Energy efficient LED Street lighting illuminating Kiama's night sky.



8.3 Replace

Replacing our existing energy supplies from fossil fuels to renewable sources will significantly reduce our emissions footprint. This involves electrifying existing systems on Council assets and fleet from traditional systems and providing power through on-site renewable generation or purchased renewable energy.

Solar power generated via 'behind the meter' solar photovoltaic (PV) installations costs less than electricity supplied from the grid. Providing zero carbon emissions, solar power installation is encouraged on all Council assets where the asset has the ability to utilise all or the majority of power generated by the system, on site. According to a specific assets electrical load and PV system capacity, storage batteries can also play a pivotal role in reducing network demand charges and reliance on power from the grid.

A renewable Power Purchase Agreement (PPA) is an agreement between an independent power generator and a buyer for the sale of clean energy. PPAs can be used to secure large amounts of renewable energy, enabling support of the renewable energy sector and securing an energy price over an extended period of time which is beneficial for long term financial planning. The cost to secure this long-term renewable energy can be achieved at no greater cost and with no greater risk than purchasing regular grid power.

Considering electricity consumption makes up 50% of Council's emissions and currently 91% of Council's electricity usage is captured by smart meters, sourcing a competitive PPA is critical in securing renewable energy for Council's residual electricity consumption after all viable on site renewable generation (solar PV) and energy efficiency upgrades have been implemented. This is the only viable way of meeting both renewable and emissions targets.

Action	Emissions reduction action	Rationale
3.1	Install solar PV systems on suitable Council-owned assets where energy use profile is favourable to consume generated electricity.	<p>Suitable Council owned assets for solar PV will satisfy the following criteria:</p> <ul style="list-style-type: none"> • sufficient daytime electricity/load • adequate roof size with >20 years of remaining life expectancy or similar ground mounting availability • minimal shading from trees or other structures • favourable electricity tariff costs/charges. <p>Where Council assets are evaluated and found to be suitable for solar PV installations, these should be prioritised and budgeted for with the option of funding from the Revolving Energy Fund. With solar power costing less than grid electricity, an attractive business case for payback periods, and emissions reduction benefits, there is no reason to delay solar PV installs on suitable Council owned assets.</p>
3.2	Develop and implement a corporate Power Purchase Agreement to source renewable energy for Council's grid supplied electricity.	Council's current electricity contracts expire in December 2022. Investigation into the emerging market of PPAs should commence immediately to ensure Council is well placed and well informed to enter into an agreement at this time. PPAs provide a low risk/cost opportunity to achieve significant emission reductions towards targets.
3.3	Investigate battery storage to be incorporated with Solar PV installations where an asset's energy use, roof capacity and load profile suits.	It is expected batteries will become more affordable which will create favourable business cases for suitable Council assets. Future solar PV installations by Council could be considered to be over-sized and therefore 'battery ready' for the future. Storage battery solutions work best on assets that have electrical loads outside daylight hours. The Pavilion is a likely candidate for installation of a solar PV system with battery storage.

3.4	Investigate possibilities for mid-scale solar farm opportunities within the LGA.	As the renewable energy sector, and energy market regulations and settings mature, installation of mid or utility-scale solar farms (<5 MW in size) is increasing around Australia as a means of generating large amounts of renewable energy. Following Council's commitment to reducing emissions and increasing renewable energy supply, suitable locations and options within the LGA can be investigated to support a small to mid-scale solar farm (example – Vacant space on capped landfill)
3.5	Encourage local community renewable energy uptake for rooftop solar PV and storage batteries for residents and businesses in Kiama LGA. This can be through: <ul style="list-style-type: none"> • education and information programs • renewable energy bulk-buy programs 	<p>Council can encourage the community to adopt sustainable technologies to reduce their emissions and save money through a range of education and information programs.</p> <p>Council run renewable energy bulk buys can also provide an opportunity for the community to have access to cheaper solar PV installations and pre-vetted quality installers. This will be further investigated in the Comm ERP.</p>
3.6	Maintain Council's Revolving Energy Fund to provide future funds for high priority energy efficiency and renewable energy projects.	Reinvesting financial savings from energy efficiency and renewable energy projects to provide funding for future projects should be prioritised for projects that have short payback periods to ensure fund is replenished quickly.
3.7	Review and update Council's Fleet Policy to ensure alignment with transition to low carbon options and include in proposed 'Sustainable Procurement Policy'.	Possible targets for Fleet Policy review include, a maximum average emissions standard across all fleet vehicles purchased (eg 100g/CO2-e), with an accelerated phase out of diesel engines where 'Euro 6' standards cannot be achieved. Zero emissions and electric vehicle selection may also provide a leaseback financial incentive to encourage change over.
3.8	Transition Council's fleet to hybrid or fully electric vehicles (EVs) where it is fit for purpose, cost-effective and rechargeable from renewable sources.	Recharging the EVs by renewable energy is a priority as this enables them to be 'zero emissions' vehicles.
3.9	Investigate possibilities for installation of Council owned EV charging stations.	Providing Council use and public access electric vehicle charging stations will encourage the transition to low carbon transport and increase tourism. Charging (billing) customers for the use of the charging facility will help Council with the upfront capital and ongoing maintenance costs.
3.10	Develop pathways and policy to provide clarity on installation of private and commercial EV charging facilities within the Municipality.	Develop an Electric Vehicle Charging Infrastructure on Public Land Policy to facilitate and accelerate the uptake of EV charging possibilities for the community.



8.4 Offset

Whilst Council is committed to implementing energy efficiency and renewable energy initiatives as outlined within this Plan, there will remain some unavoidable (residual) emissions that need to be accounted for in order for Council to achieve and maintain its net zero target by 2030 and beyond. These remaining emissions will be counteracted through the purchase of offsets through the carbon neutral accreditation process. This represents a holistic carbon reduction hierarchy approach that reduces Council's emissions and also stimulates external offset projects that reduce or remove emissions from the atmosphere.

Offset projects can also have other environmental, social, cultural and economic co-benefits that may be considered when evaluating and comparing offset projects. Examples of projects that produce carbon offsets are solar and wind farming, revegetation, fire management, methane or carbon capture and cattle management.

Action	Emissions reduction action	Rationale
4.1	Develop an Offset Policy to align offset procurement with Council's values.	Carbon offsets must be Climate Active (formerly NCOS) accredited offsets in order to achieve carbon neutrality certification. A Council Offset Policy will guide purchasing decision making depending on preferences for location, cost and co-benefits.
4.2	Investigate opportunities to utilise group buying power with ISJO councils to achieve financial savings on offsets.	Offsets will only be necessary in the final stage of this Plan to become completely carbon neutral. Prior to this, investing in Council's emission reduction and energy efficiency projects is more beneficial. Bulk buying offsets in collaboration with surrounding councils will increase buying power when appropriate.
4.3	Investigate possibilities to produce Council's own offset projects.	Council can initiate emissions reduction projects within the LGA and voluntarily surrender the carbon units produced in order to create its own offsets.



Hyam's Creek, Jamberoo Bush Regeneration Project.

9.0 REFERENCES

1. IPCC, 2014: *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Core Writing Team, R.K. Pachauri and L.A. Meyer (eds.)]. IPCC, Geneva, Switzerland, 151 pp.
2. Australian Bureau of Meteorology and CSIRO, 2020, State of the Climate 2020, 24pp. bom.gov.au/state-of-the-climate/ | csiro.au/state-of-the-climate
3. Allen, M.R., O.P. Dube, W. Solecki, F. Aragón-Durand, W. Cramer, S. Humphreys, M. Kainuma, J. Kala, N. Mahowald, Y. Mulugetta, R. Perez, M. Wairiu, and K. Zickfeld, 2018: Framing and Context. In: *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty* [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)]. In Press.
4. Paris Agreement to the United Nations Framework Convention on Climate Change, Dec. 12, 2015, T.I.A.S. No. 16-1104.
5. NOAA National Centers for Environmental Information, State of the Climate: Global Climate Report for Annual 2020, published online January 2021, retrieved on January 26, 2021 from <https://www.ncdc.noaa.gov/sotc/global/202013>.
6. United Nations Environment Programme (2019). Emissions Gap Report 2019. UNEP, Nairobi.
7. Department of Industry, Science, Energy and Resources 2020, Australia's emissions projections 2020, DISER, Canberra, ACT.
8. Australian Government, Australia's Nationally Determined Contribution – Communication 2020, DISER, Canberra, ACT.
9. Department of Industry, Science, Energy and Resources 2021, *Australian Energy Statistics, Table O Electricity generation by fuel type 2019-20 and 2020*. DISER, Canberra, ACT. energy.gov.au
10. Clean Energy Regulator. Renewable Energy Target. Australian Government, Canberra, ACT.

10.0 SIGNATURE



Jane Stroud
Chief Executive Officer

Date:

Date approved/adopted	20 July 2021
Resolution No	21/192OC
Date effective	July 2021
Date last reviewed	New policy
Next review date	July 2026
Department	Environmental Services
Author	Sustainability Officer
TRIM reference	21/52477
Supporting documents	Community Emissions Reduction Plan (when drafted)

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