NET ZERO

OUR MAP TO NET ZERO
CORPORATE EMISSIONS 2020-2025

Contents

Foreword

There was a time when climate change was viewed as something that would impact us in the future. Our future has now become our reality with our climate already warming by over 1 degree Celsius compared to pre-industrial levels. It continues to warm, and our goal to stop further warming at 1.5 degrees Celsius may not be possible.,

We cannot continue as we are. Change is needed, and quickly.

On 9 December 2019, the Elected Members of the City of Charles Sturt brought forward a motion to declare a Climate Emergency, and unanimously voted in support of that motion. It was a clear 'statement of truth' from our Council – a statement of which I am personally very proud. As a Council, we have made a firm commitment to bring change to our community and our world.

'Net Zero' is a cornerstone of our Charles Sturt climate emergency response. This strategy commits to achieving net zero corporate greenhouse emissions by the year 2023/24. It is an ambitious target that is also practical and entirely achievable, and it will not cost us the Earth.

In setting this target, we have reviewed our existing greenhouse gas emissions profile and made plans to sharply reduce those emissions within a few years.

Within the next few years, we hope to see all levels of government implementing targets to join in a cohesive approach. Given the current state in 2020, rapid change is required to minimise irreparable damage to the natural systems that support us.

From Charles Sturt's perspective, this work aims to improve the long-term outlook for our community; for humans and for the animals and wildlife that share the land with us.

We approach this challenge with a strong head start, having implemented wide-ranging improvements over the past 10 years, already resulting in major reductions in our greenhouse gas emissions. We have already installed 160kW of solar panels on Council's buildings, with another 351kW budgeted and scheduled to be installed by mid-2021, almost 8,200 streetlights have been swapped to energy efficient LED lighting over the last few years and we have worked with 26 of our sporting and community groups to reduce their electricity use and their electricity costs. Efficiency and sustainability have become a part of our everyday decision-making at the City of Charles Sturt – a strength that we will build on as we implement 'Net Zero' for the long-term benefit of our community.

'Net Zero' will see us add to this list of achievements by improving the energy efficiency of Council's buildings, reducing compostable waste ending up in landfill, accelerating the take up of electric vehicles, and moving away from the use of gas to provide for Council's electricity needs.

This is our contribution to the global challenge of climate change.

I invite you to join us in creating a new sustainable future. Let's tell our future generations we all did this, together.

Angela Evans
Mayor

Introduction

The City of Charles Sturt declared a climate emergency in December 2019. Currently 1,495 governments in 30 countries have declared such an emergency. In Australia this includes 96 councils (16 in South Australia), representing 34% of the population and has been declared by the Upper House of South Australia (Climate Emergency Declaration). Net Zero was created in response to that declaration.

Responding to the climate emergency recognises that the scale of this problem requires action from all levels of government – and that solutions are available to us, but that rapid action and significant greenhouse gas emissions reductions are needed. Local government has a role to play in reducing its own emissions, providing opportunities for communities to reduce their emissions, influencing stakeholders and advocating to other levels of government.

The Paris Agreement, the key international agreement to address climate change, recognises the need to limit global warming to well below 2°C with effort to keep it at no more than 1.5°C this century (UNFCCC, 2020). The Intergovernmental Panel on Climate Change (IPCC) indicates that climate change risks increase from current levels of warming to 1.5°C and then to 2°C - such as greater loss of coral reefs, higher sea level rise with millions more people exposed to this risk and higher species loss and extinction. To achieve the 1.5°C target requires global emissions to reduce by 45% by 2030 and net zero emissions by 2050 (IPCC, 2018). All Australian states and territories have net zero emission targets or aspirations. South Australia has a target to achieve net zero emissions by 2050.

Council's declaration of a climate emergency acknowledges that current global commitments to reduce greenhouse gas emissions are not adequate to keep temperature increases to below 2°C. Under current rate of warming we are heading towards a 1.5°C increase between 2030 and 2052. We are already experiencing a 1°C warming. To keep to 1.5°C will require active effort to reduce emissions well ahead of 2030.

A global carbon budget has been calculated to indicate the maximum emissions until we exceed the above temperature limit. An assessment of Australia's remaining carbon budget to keep within the 1.5°C increase shows that the carbon budget will be spent between 4 and 7.6 years (for a 67% and 50% chance respectively of keeping to the temperature limit) with net zero emissions required by 2035 (Climate Works, 2020). Swift action and deep emission cuts are required this decade across sectors – including energy, transport, buildings, land use and industry. A number of these areas are ones where Council's own operations intersect.

Climate change mitigation has overlaps with climate change adaptation. How much we reduce/mitigate our emissions will have an impact on the level of warming we experience. The more we mitigate emissions the less we will have to adapt to future impacts. In implementing actions co-benefits should be considered where both could be addressed. For example, creating more energy efficient buildings with an excellent thermal envelope is also an adaptation response as the buildings will be better able to function in extreme heat events. Details for addressing adaptation are in the AdaptWest Plan (URPS, 2016) and led by the work of the AdaptWest western Adelaide regional group of councils, including Charles Sturt.

We are already feeling climate change impacts. We have just experienced the warmest five years globally with 2019 being the hottest and driest on record for Australia. Australia's vulnerability to climate change impacts is high and unmitigated climate change will increase the impacts of droughts, floods, bushfires and heatwaves. Our natural world is also feeling the impact with biodiversity already under pressure (rated as 'poor and deteriorating' in the 2016 Australia State of the Environment report) which is being made worse by climate change (Climate Council).

Net Zero focuses on Council's corporate greenhouse gas emissions as a first phase which will be followed by a second community centred phase. Net Zero focuses on the following key areas:

- Buildings, lighting and open space;
- Transport;
- Renewable energy procurement;
- Not waste
- Carbon offsets

Although waste is not part of the corporate greenhouse gas emissions inventory it is an action area included due to the significance of its emissions and Council's ability to influence services. Implementing Net Zero will require a coordinated response and is addressed in the governance section.

This is a living document and should be amended as needed as achievements are made, with updates to the science and mitigation options also playing a part.

The action tables under each key area include an indication of the impact of actions under three categories as indicated below.

CO_2 Reduces greenhouse gas emissions

Can change processes and decision making for low carbon outcomes, including advocacy

Co-benefits such as contributes to climate change adaptation, operational cost reductions or uses low carbon technologies/knowledge

The climate science indicates the need for significant action in a short time and has helped inform the targets for Net Zero. See table 1 for targets and summary of actions.

Background

Development of Net Zero recognises the significant work that Council has already done in this area (see image 1) and seeks to build upon it.

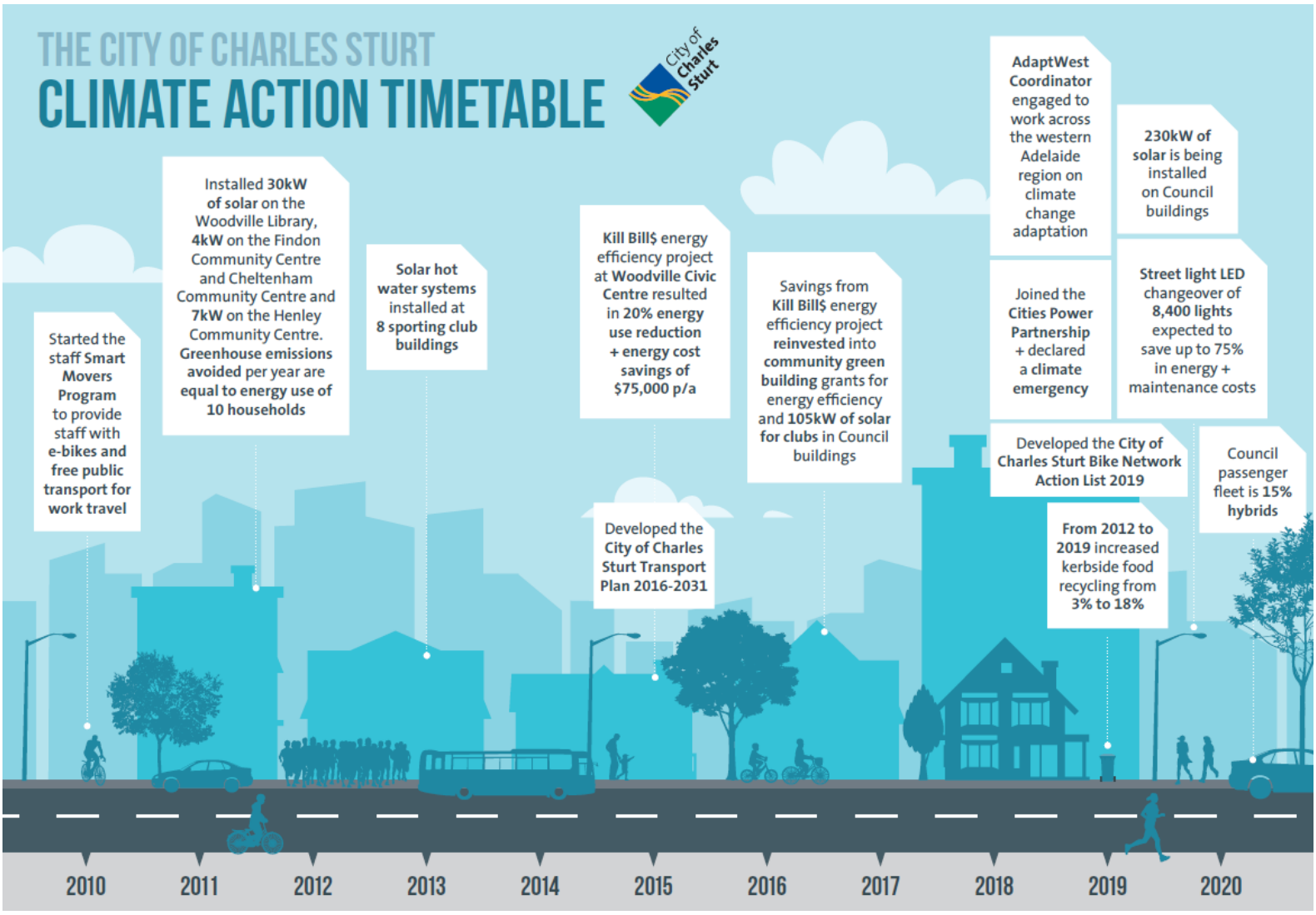


Image 1: Climate change action at Charles Sturt 2010-2020

In developing Net Zero Council staff were involved through:

- Developing mitigation options with staff in areas of transport, buildings, open space, water management, electricity use and procurement, utilities management and waste
- A workshop to raise awareness about the climate emergency, discuss actions that teams are already implementing and driving to create the vision for future action.

See image 2 for a snapshot of the future vision that workshop participants wanted to create by 2025.

Image 2

The costs and benefits of addressing climate change show that the cost of adapting to climate change impacts under current emission trends are very much higher than the cost of effectively reducing greenhouse gas emissions in Australia (Kompas et al, 2019). The key message being, it is more effective to reduce emissions than adapt.

Some of the actions within Net Zero are expected to have operational savings through reduced electricity and fuel costs and reduced operating costs for waste disposal. Other actions are investing in emissions reductions more broadly and do not have a direct cost benefit to Council but a wider benefit such as investing in renewable energy through procurement. Estimated operational cost savings from LED street light changeover, solar installations and transport actions could be equal to approximately 30% of estimated implementation cost.

Snapshot of Actions

Table 1

Overarching targets 50% emissions reduction based on 2017/18 levels by 2025 Net zero corporate emissions by 2023/24			
Sub-sector	**Vision**	**Actions overview**	**Targets**
Building, Lighting + Open Space	Our buildings and open space projects use less energy, are powered by renewables, are designed to reduce climate change impacts and we create more comfortable spaces	• Energy efficiency retrofits at high energy using sites • Complete the LED street light rollout • Install onsite solar PV and assess battery storage opportunities • Determine operational building energy management roles + responsibilities (to monitor solar generation and building management systems) • Create environmental building design policy • Influence suppliers to have their own climate change policies • Advocate to other tiers of government to work toward net zero carbon buildings	Net zero carbon buildings for new buildings by 2025 Continuously improve energy efficiency and solar PV uptake for existing buildings based on 2017/18 levels
Transport	We reimagine how and why we travel and integrate sustainable travel into how we do business	• An analysis of current organisational and staff transport practices to identify sustainability best practice and direction for culture change • Consider the feasibility of incentivising hybrid vehicles and begin to introduce electric passenger fleet vehicles into corporate fleet • Analyse and assess the options for electric trucks and heavy vehicles before any new purchase is made • Advocate to other tiers of government to expand and improve public transport and incentivise to lower vehicle greenhouse gas emissions	45% of passenger fleet to be hybrid vehicles by 2023 15% of passenger vehicles to be EVs by 2025

Sub-sector	Vision	Actions overview	Targets
Renewable Energy Procurement	We contribute to growth of renewable energy generation in Australia	• Actively pursue renewable energy procurement • Partner with other councils to maximise electricity from renewables at minimum price through collective procurement • Advocate to other tiers of government to transition the electricity grid to renewables nationally	Achieve 100% renewable electricity for Council operations by end of 2023 financial year
Not Waste	Council and our communities value waste as a resource and act to maximise this value	• Targeted community education campaign and incentives to increase food waste diversion • Roll out Civic recycling improvement program and then implement at Beverley, libraries and community centres • Advocate to other tiers of government to help increase organics diversion from landfill • Continue to roll-out the circular procurement pilot • Continue to change Council's specification and procurement practices to drive the circular economy in the reuse of recycled product and to influence suppliers	Increase recovery rate of food organics from kerbside collections to 60% by 2025 and 70% by 2030 from 18% in 2019 Increase purchase of recycled goods each year until Council is buying back recycled material equivalent to 50% by weight of the contents of kerbside recycling bins by 2025 and 100% by 2030
Carbon Offsets	We choose accredited carbon offsets with multiple benefits for emissions we cannot directly eliminate	• Establish policy position for offset selection • Establish roles and responsibilities for zero net carbon claim	Achieve carbon neutral/net zero emissions by 2023/24

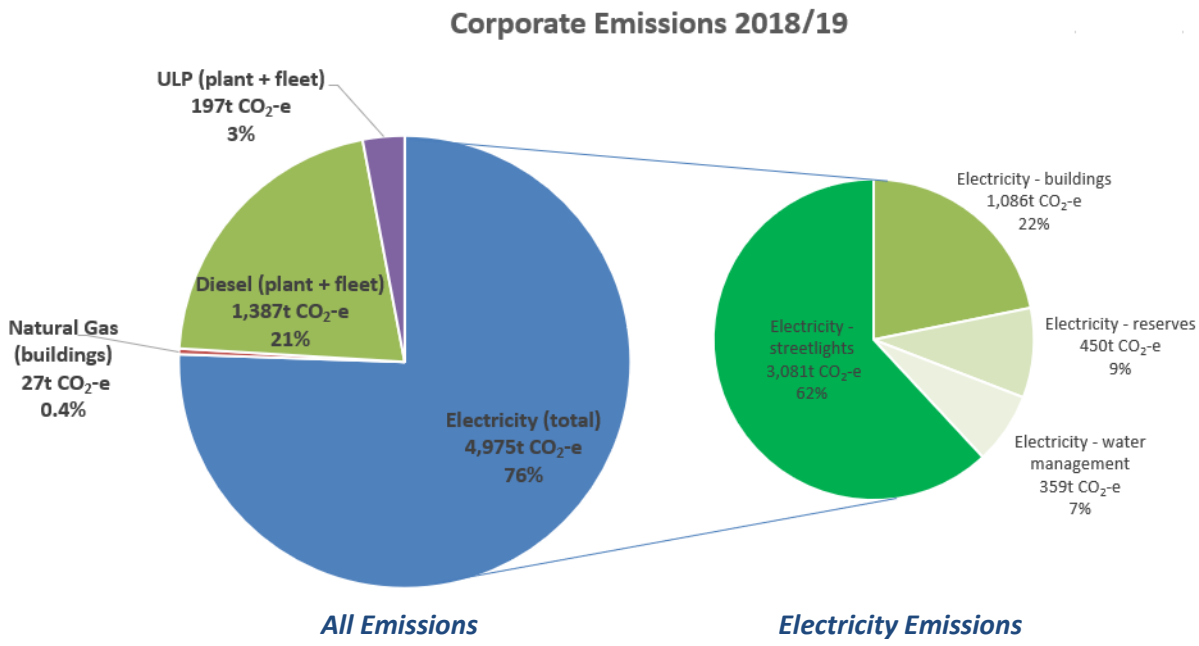
Our Greenhouse Gas Emissions

The City of Charles Sturt's greenhouse gas emissions includes emissions from gas and electricity consumption from Council buildings (where Council pays the utility bills), reserves, water management (including recycled and bore water pumping), public street lights and fuel use from Council fleet vehicles, plant and equipment.

In 2018/19 total gross emissions were 6,632 tonnes CO_2-e. Over 75% of emissions were from electricity consumption (with 62% of total electricity consumption from street lights followed by 22% from buildings); almost 25% is from fleet and less than 1% from natural gas consumption (see graph 1).

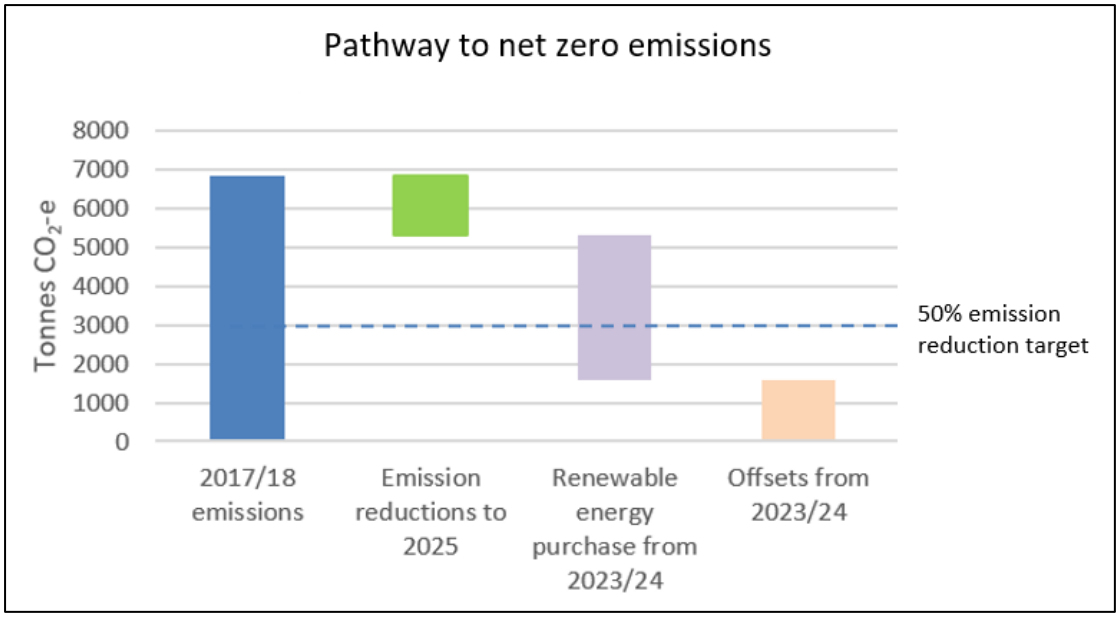
Annual total gross emissions have been consistent since 2015/16. Net emissions have steadily increased over time as Green Power ceased to be purchased from June 2018 and Canopy offsets for Council fleet were not purchased for 2018/19. It also includes offsets from solar generation from PV systems installed on five Council buildings included in the scope of this inventory, which were the only offsets for 2018/19.

Approximately 2.3% of electricity used (excluding street lights) is from solar energy generated onsite.



Graph 1

Our route to net zero emissions by 2025 will involve a number of measures that are outlined in the action tables of Net Zero. It includes a 50% emissions reduction by 2025 target aligned with the science-based target of a 45% reduction by 2030 for a chance at a 1.5°C limit to warming (see graph 2 and table 2).



Graph 2

Table 2

2017/18 gross emissions		6,836 tonnes CO_2-e
Emission reduction target	**Emissions tonnes CO_2-e**	**Emissions reduction required - tonnes CO_2-e**
50% below 2017/18 levels by 2025	3,418	3,418

Potential emission reductions to 2025	**Tonnes CO_2-e**
Street light LED project	1,220
Onsite solar PV installations	286
Fleet hybrids and electric vehicles	13
Estimated purchased renewable energy	3,727
Estimated total	**5,246**
Estimated carbon offsets	1,590

Note: This table does not include all possible greenhouse emission reductions from Net Zero, these will be identified as actions are progressed

Urban Greening + Green Infrastructure

Urban greening or green infrastructure (which includes street trees, reserves and parks, water in the landscape, green roofs and walls) are also important components of responding to climate change with both mitigation and adaptation benefits (see table 3). Urban areas are particularly challenged as they become more dense and green spaces are reduced and under stress.

While Net Zero does not include separate actions for green infrastructure, instead it highlights the related climate change mitigation and adaptation work within existing Council strategies and plans.

This includes Council's:

- Biodiversity Action Plan for 2017-2030
- Open Space Strategy 2025
- Tree and Streetscape Policy and Management Plan
- The application of i-tree canopy study findings and urban heat mapping and
- The AdaptWest Action Plan 2019-2022.

Table 3: Benefits of urban greening. Source: IPCC, 2018, Global Warming of 1.5°C

Green infrastructure	**Adaptation benefits**	**Mitigation benefits**
Urban tree planting, urban parks	Reduced heat island effect, psychological benefits	Less cement, reduced air-conditioning use
Permeable surfaces	Water recharge	Less cement in city, some bio-sequestration, less water pumping
Forest retention, urban agricultural land	Flood mediation, healthy lifestyles	Reduced air pollution
Wetland restoration, riparian buffer zones	Reduced urban flooding, low-skilled local work, sense of place	Some bio-sequestration, less energy spent on water treatment
Biodiverse urban habitat	Psychological benefits, inner-city recreation	Carbon sequestration

Governance

The suite of actions from Net Zero will require a coordinated and supported approach for implementation. To enable this approach strategic working groups will lead the 5 key action areas: Buildings, Lighting + Open Space; Transport; Renewable Energy Procurement; Not Waste; and Carbon Offsets (see image 3). Members of the working groups are staff who deliver projects in and have knowledge of the focus area. Members from each group will work together to plan and implement relevant actions. Groups will be chaired by members of the Leadership Team.

This will assist with regular communication and will be a structured way to plan for project implementation, share knowledge, grow capacity and monitor and report on progress.

An additional key area will be a Staff Led Initiatives Group. This group will be open to staff interested in developing and implementing actions that would complement the actions in Net Zero. Members of the groups will be the climate change champions for their work area, with the aim of strengthening communication about climate change across the organisation and the goals of Net Zero.

Each strategic working group will provide a quarterly update to the Leadership Team and to Council to track against relevant actions. It will be published on The Mine and promoted and identify issues and indicate progress towards targets.

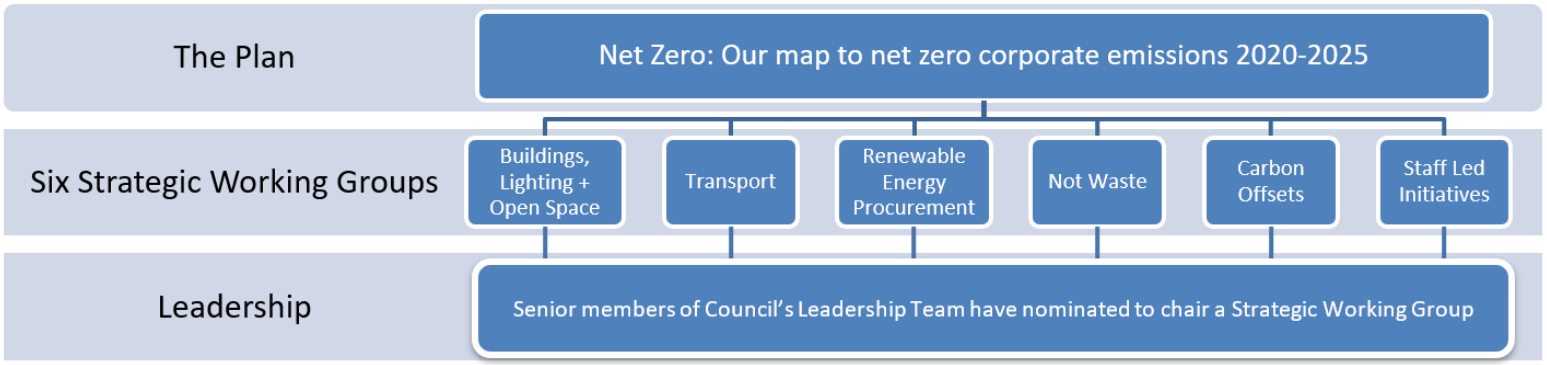


Image 3

Buildings, Lighting + Open Space

Why is this important?
Globally buildings are significant energy users and account for 54% of electricity use and 23% of carbon emissions from energy use (IPCC, 2018). The pathway to reducing emissions from buildings needs to happen quickly due to their long life – inefficient buildings can lock in high emissions over time.

Responding to climate change will require high performing buildings, energy efficiency and energy management, onsite renewable energy generation and removing buildings from gas. Reducing cooling demand will be particularly important given the increased pressure from people wanting to counter extreme heat events. Many of the solutions for buildings apply proven technologies and implementing them saves in operational costs and contributes to creating healthier buildings that will better withstand climate change impacts.

The World Green Building Council calls for net zero operating emissions for corporate and government buildings by 2030, and for this to be achieved for all buildings by 2050. A net zero carbon building is 'highly energy efficient and powered from on-site and/or off-site renewable energy sources' (World Green Building Council, 2020).

In 2018/19 of the 74% of corporate emissions from electricity use 61% was from street lights, 23% from buildings, 9% from reserves and 7% from water management. Approximately 1% of emissions are from the use of natural gas.

These emissions are for operational use of buildings, lighting and water management. It does not include the embodied carbon, being the carbon produced from a building's construction and materials. This component is also important as it can help lower emissions through the supply chain. Embodied carbon can be reduced through design for adaptability and long life, low emission material choice and construction methods, recycled content and renewable energy sources for manufacture and considering the 'transport miles' associated with the materials used in building construction.

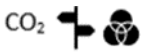
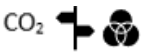
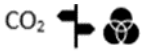
Where we're at
- One of the most significant energy efficiency projects is our changeover of 8,200 inefficient street lights to LEDs with a reduction of approximately 1,000 tonnes CO_2-e per year
- Our major energy efficiency upgrade at the Woodville Civic Centre and Library as part of the Kill Bill$ energy efficiency program saw lighting and air conditioner upgrades, a building management system tune up and window shading resulting in a 20% energy efficiency improvement
- Savings from the Woodville Civic Centre and Library energy efficiency program were reinvested into community energy efficiency grants with 128kW of solar installed and many other energy saving measures implemented by clubs located in Council buildings
- Requiring new builds to achieve a 25% improvement in energy efficiency compared to Building Code requirements
- A Cross Council Utilities Management Team has recently been established to improve data management and identify energy efficiency improvements.

Our future focus

- Continue to install solar PV on Council's large energy using sites
- Roll out the second phase of the street light energy efficiency project
- Identify potential energy efficiency savings for reserves and water management
- Ensure policy and decision-making points are structured to address climate change impacts as well as influence beyond our boundaries.

Vision:	**Our buildings and open space projects use less energy, are powered by renewables, are designed to reduce climate change impacts and we create more comfortable spaces**
Target:	**Net zero carbon buildings for new buildings by 2025** **Continuously improve energy efficiency and solar PV uptake for existing buildings based on 2017/18 levels**

	Action	Timeframe	Impact	Responsibility
1.	Implement the CCS Environmental Sustainability Objectives for building and open space projects and integrate into project planning	Ongoing	CO_2	Open Space and Property Projects Property Services Waste + Sustainability
2.	Disconnect from natural gas where possible and do not connect to gas for new buildings where feasible	Ongoing		Property Services Open Space and Property Projects
3.	Complete the LED energy efficiency street light rollout	2020/21	CO_2	Engineering Strategy + Assets
4.	Integrate mitigation requirements into project planning, budget bid process and procurement to assess for lowest climate change impact where appropriate	Within 12 months	CO_2	Corporate Program Building, Lighting + Open Space Strategic Working Group
5.	Integrate request for information about mitigation and net zero emission policies of suppliers into procurement process	Within 12 months	CO_2	Building, Lighting + Open Space Strategic Working Group
6.	Determine operational building energy management roles and responsibilities (to monitor solar generation and building management systems to optimise performance)	Within 12 months	CO_2	Property Services Open Space and Property Projects Cross Councils Utilities Waste + Sustainability
7.	Complete the installation of solar PV on 13 Council buildings project	2020/21	CO_2	Property Services Open Space and Property Projects Waste + Sustainability
8.	Investigate and implement additional onsite solar PV installations and battery storage options	2020-2024	CO_2	Open Space and Property Projects Cross Councils Utilities Property Services Waste + Sustainability
9.	Participate in consultation to strengthen the energy efficiency provisions of the National Construction Code (consultation estimated to be in late 2020 or early 2021)	2020/21	CO_2	Planning + Development Waste + Sustainability

	Action	Timeframe	Impact	Responsibility
10.	Investigate and implement budget and guideline requirements for energy efficiency to be embedded in building contingency repairs and maintenance works	2021/22		Property Services Building, Lighting + Open Space Strategic Working Group
11.	Review and amend Council's Environmental Sustainability Policy to provide stronger direction for Asset Management Plans climate change requirements	Within 18 months		Assets Building, Lighting + Open Space Strategic Working Group
12.	Identify and implement energy efficiency retrofits (integrating climate change adaptation measures) for high energy using sites (buildings, reserves, lighting, water management)	2021-2023		Engineering Works Property Services Open Space and Property Projects Cross Councils Utilities Waste + Sustainability
13.	Ensure procurement, maintenance and disposal of air-conditioning systems reduce the greenhouse gas impact of refrigerants by embedding this in the project/program process	By 2022		Property Services Building, Lighting + Open Space Strategic Working Group
14.	Explore and establish incentives for environmental sustainability for Council's community leased buildings	By 2023		Property Services Asset Management
15.	Work jointly with other councils to develop environmentally sustainable development policy + design requirements for council buildings with mandated climate change mitigation and adaptation performance standards	By 2025		Property Services Open Space and Property Projects Cross Councils Utilities Waste + Sustainability Building, Lighting + Open Space Strategic Working Group
16.	Pilot an embodied energy project to build capacity and knowledge to feed into future direction	By 2025		Property Services Open Space and Property Projects Cross Councils Utilities Waste + Sustainability

Transport

Why is this important?
Greenhouse gas emissions from transport are responsible for 19% of Australia's greenhouse gas emissions – second after electricity. 60% of these emissions are from cars and light commercial vehicles. Transport emissions are expected to continue to grow by 12% to 2030 due to our car dependency, more cars on the road and an increase in freight (Climate Council).

In 2018/19, 25% of the City of Charles Sturt's corporate greenhouse gas emissions were from plant and fleet. Trucks followed by light commercial vehicles are responsible for the majority of emissions from diesel use and fleet passenger vehicles responsible for the majority of emissions from petrol use.

Responding to the climate emergency needs all solutions for reducing transport emission to be implemented. This includes reducing the need to travel, urban environments sympathetic to non-car-based travel, behaviour change, improved fuel efficiency and zero emission fuels.

Whole of life impacts and emissions are an important consideration in this transition. The impacts from the manufacture, use and recycling of electric vehicle should be assessed to ensure total emissions are reduced.

Transforming the transport sector will include not only technological solutions but rethinking how and why we travel. This type of approach also contributes to liveability and health and wellbeing of individuals and communities. Sustainable transport options are particularly viable for some of Council's facilities that are within close reach of train and bus services and cycling corridors

Where we're at
The City of Charles Sturt has implemented a number of corporate measures to reduce emissions from fleet. This includes:

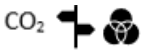
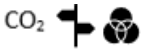
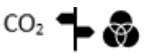
- Hybrids in Council's fleet (currently 15% and aiming for 27% by the end of 2020)
- Providing the staff Smart Movers program to encourage alternatives to single occupancy car-based travel since 2010. This program resulted in CCS being a mentor to local businesses for sustainable transport and staff travel
- Providing infrastructure for alternative transport such as bicycle repair stations and e-bikes.

Our future focus

- Undertake a holistic review of best practice transport options for low and zero carbon solutions along with staff engagement to inform future transport decisions. This will bring together the various departments that work across the transport area and link to key strategic transport decisions
- Until the review strengthen policy direction for our corporate vehicle fleet including incentives for low emissions travel, flexibility in how we travel for work purposes and analysis of low carbon options for major plant purchases
- Through the rapid changes that the Covid-19 pandemic has required we have experienced a shift to flexible work arrangements and online meetings and collaboration. The co-benefits of this avoided travel could be explored to determine how these learnings and arrangements could fit in to a climate emergency response

- As the choice of electric cars grows in Australia we will begin to transition to these types of vehicles, and keep an eye on the development of the electric truck market to determine when this transition is feasible.

Vision:	**We reimagine how and why we travel and integrate sustainable travel into how we do business**
Targets:	**15% of passenger vehicles to be EVs by 2025** **45% of passenger fleet to be hybrid vehicles by 2023**

	Action	**Timeframe**	**Impact**	**Responsibility**
1.	Consider the feasibility of incentivising hybrid vehicles for staff fleet vehicle choices	Within 6 months		Governance and Operational Support Transport Strategic Working Group
2.	Ensure that fleet only vehicles earmarked for replacement are replaced with hybrid vehicles	Within 6 months		Fleet Services
3.	Provide electric vehicle test drive opportunities for staff	Within 6 months		Fleet Services
4.	Review learnings from Covid-19 flexible working arrangements and integrate virtual communication and other relevant learnings into day to day practice to reduce carbon emissions	2020/21		Transport Strategic Working Group
5.	Advocate to the federal government to introduce mandatory greenhouse gas vehicle efficiency standards + incentives and policy direction for electric vehicles	Within 12 months		Transport Strategic Working Group
6.	Conduct an overarching analysis of our current corporate transport practices (fleet and work journey behaviour) and identify best practice and sustainability improvements including technology options, accelerate the uptake of electric vehicles and to identify next stages of the Smart Mover Program	2021/22		Engineering Strategy + Assets Fleet Services Transport Strategic Working Group
7.	Introduce first electric vehicles into Council's fleet in 2021/22, install charging infrastructure and investigate how renewables can be power it	In 12-18 months		Fleet Services Transport Strategic Working Group
8.	Analyse and assess the options for electric trucks and street sweepers before any new purchase is made	In 12 months		Fleet Services Transport Strategic Working Group
9.	Continue to work with and advocate to the state government to expand and improve public transport services for the city	Ongoing		Engineering Strategy + Assets

Renewable Energy Procurement

Why is this important?
Emissions from electricity are the largest contributor to global greenhouse gas emissions. The IPCC highlights that a rapid decrease in emissions from electricity to 2030 is required by reducing energy demand and a bigger share of electricity from renewables to 2050. This decarbonising of electricity grids is important to shift more of our energy from fossil fuels to renewables – such as the move to electric transport and buildings powered by electricity rather than gas.

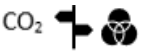
Emissions from electricity are also the highest source of emissions in Australia (34% of emissions (Australian Government, 2020). Nationally the electricity mix is heavily reliant on fossil fuel sources with approximately 76% from coal and gas and 24% from renewables (Clean Energy Council, 2020). South Australia's renewable energy share is over 50% with gas contributing approximately 47% (AEMO, 2019).

This section addresses the remaining electricity that Council will have to purchase after emission reductions and local renewable energy installations.

Where we're at
- In 2018/19 74% of greenhouse gas emissions from Council's operations were from electricity use
- Prior to 2017 Council purchased approximately 20% GreenPower for its electricity use, since then the focus has been on energy efficiency and solar projects to bring down operational energy use and costs
- Increased knowledge and capacity to manage utilities costs, savings and energy reduction opportunities through the recent establishment of a Cross Council Utilities Team, who will work across three partner Councils.

Our future focus
- Work with other councils to explore renewable energy procurement requirements
- Increase understanding of our own electricity usage, accuracy of billing data and options for demand management
- Prepare for the next electricity contract to begin in 2023 by identifying and analysing renewable energy options and costs.

Vision:	**We contribute to growth of renewable energy generation in Australia**			
Target:	**Achieve 100% renewable electricity for Council operations by end of 2023 financial year**			
	Action	**Timeframe**	**Impact**	**Responsibility**
1.	Engage with Marion and Port Adelaide Enfield to identify common renewable energy requirements for electricity procurement	Over the next 6 months		Waste + Sustainability Cross Councils Utilities Team Renewable Energy Procurement Strategic Working Group

	Action	Timeframe	Impact	Responsibility
2.	Increase understanding about our electricity usage profile, potential energy savings and demand management options to ensure accurate data and to inform preparation for new electricity contact to begin in January 2023	Over next 18 months		Cross Councils Utilities Team
3.	Engage with councils and the LGA to assess sector requirements and options for renewable energy procurement in the lead up to the new electricity contract	2020/21		Cross Councils Utilities Team Waste + Sustainability Renewable Energy Procurement Strategic Working Group
4.	Advocate to the federal government to develop an energy policy to encourage the transformation to a renewables grid and to guide an exit from fossil fuel generation	2020/21		Renewable Energy Procurement Strategic Working Group

Not Waste

Why is this important?
Keeping organic materials (such as food, paper and garden organics) out of landfill reduces the production of methane – the short lived but powerful global warming gas.

To move away from a 'take, make, use and dispose' model includes growing the circular economy to maximise the value of precious resources by keeping them in circulation for as long as possible. This transition will also provide employment opportunities and greenhouse gas emission reductions (Lifecycles, 2017).

On a national and state level it is recognised that these two issues need to be addressed. The IPCC highlight that reducing organic material in landfill and food waste, changes to land use and sustainable food choices are part of the suite of necessary measures to reduce methane emissions and address climate change.

Where we're at

- The amount of food waste diverted from landfill through Council's kerbside collection has increased from 3% in 2012 to 18% in 2019. There are still opportunities to significantly reduce emissions by increasing diversion
- We have joined the Local Government Association's Circular Procurement Pilot. It aims to grow the market for recyclable materials by encouraging councils to increase their purchase of goods with recycled content
- Project planning and procurement systems have already integrated triggers for circular procurement
- The Beverley Recycling and Waste Centre upgrade was completed in 2018. It now allows for better sorting of materials to reduce what is sent to landfill and disposal costs
- Green organics brought to the Centre by Field Services Teams is sent off to be processed and received back as mulch. Almost all (90-95%) of the material from Council's tree pruning program is turned to mulch and used on Council reserves and some landscape projects
- Council provides opportunities for the community to improve their recycling practices through practical measures (providing caddies and compostable bags for food recycling), communication material – such as the Nudging for Good animation and educational sessions for schools
- These opportunities will increase with the recent engagement of a waste education officer, who will work across four partner councils
- Waste from Council operations is not currently included in the corporate greenhouse gas inventory. Some of the potential waste streams that could be considered for inclusion are street sweeping, construction/works waste and organic waste to landfill by field staff
- A recent office-based waste audit at the Beverley Centre and Woodville Civic Centre shows that there is room to improve workplace recycling and organic material diversion from landfill. This is being addressed through the roll-out of an office recycling improvement program
- Over time there has been much interest from Council staff to increase diversion from landfill. This includes that generated by staff in the office environment as well as providing community drop-off points in libraries and community centres for materials such as batteries and soft plastics
- The building of a Material Recovery Facility jointly with the City of Port Adelaide Enfield will provide more control over where recyclable materials are sent for processing.

Our future focus

- Improving recycling and organics diversion from landfill by Council staff
- Working towards circular procurement targets
- Assisting the community to divert more organic material from landfill.

Vision:	**Council and our communities value waste as a resource and act to maximise this value**
Targets:	**Increase recovery rate of food organics from kerbside collections to 60% by 2025 and 70% by 2030 from 18% in 2019** **Increase purchase of recycled goods each year until Council is buying back recycled material equivalent to 50% by weight of the contents of kerbside recycling bins by 2025 and 100% by 2030**

	Action	Timeframe	Impact	Responsibility
1.	Continue to improve organics diversion from landfill from kerbside bins by offering a city-wide food organics recycling system: a) through a targeted community engagement campaign b) through provision of free kitchen caddies and compostable bags to residents on request c) encouraging and supporting supermarkets and other retailers to trial and offer compostable bags at no charge d) providing incentives for large quantities of garden organics to be deposited at the Beverley Recycling and Waste Centre e) Increase awareness of residential green organics collection (from 16% in 2020 to 50% in 2025)	Over the next 5 years	CO_2	Waste + Sustainability Not Waste Strategic Working Group
2.	Enable increased organics diversion from landfill by engaging with the state government about alternative collection frequencies	Within 12 months	CO_2	Waste + Sustainability
3.	Roll-out the Civic office recycling improvement program and then implement at Beverley, libraries and community centres	Within 12 months	CO_2	Waste + Sustainability Not Waste Strategic Working Group
4.	Engage with event planning staff to support vegetarian food options for catering	Over the next 12 months	CO_2	Urban Projects Public Health + Safety Waste + Sustainability Not Waste Strategic Working Group
5.	Identify how recycling and green organics collection services can be provided to community centres and clubs in Council buildings in the future street litter bin review	In 12 months time	CO_2	Governance + Operational Support
6.	Continue to participate in the LGA Circular Procurement Pilot	Over the next 21 months	CO_2	Waste + Sustainability Not Waste Strategic Working Group

	Action	Timeframe	Impact	Responsibility
7.	Include a requirement for capital and operating projects to require reuse, recycle, take back or apply other options to reduce waste and maximise value of resources, where applicable	Within 24 months		Corporate Programs Waste + Sustainability Not Waste Strategic Working Group

Carbon Offsets

Where do offsets fit in?
The aim of a global net zero carbon target by 2050 or earlier is to transform our energy, transport, food production and waste systems and decarbonise them. This requires taking out the fossil fuels and processes that emit greenhouse gas emissions and replace them with low and zero carbon fuels and processes.

Up until this profound transformation achieving net zero emissions, or carbon neutral, will still involve reducing emissions as much as possible and offsetting the remaining emissions that cannot currently be eliminated directly.

A net zero/carbon neutral by 2023/24 target would involve continuing to reduce our emissions through energy efficiency, solar PV installations, renewable energy purchase, transport efficiencies, behaviour and process change and offsetting the remainder.

To ensure quality offsets that do result in emission reductions they must comply with a recognised standard and adhere to the following requirements: that they are additional; permanent; measurable; transparent; address leakage; independently audited; and registered. Carbon offsets are available for a range of projects such as revegetation, renewable energy, energy efficiency and capture of gas from landfills.

The federal government's Climate Active framework provides a standard to guide organisations to achieve net zero emissions/carbon neutrality. This standard can also be used for certification which includes an independent validation of the claim.

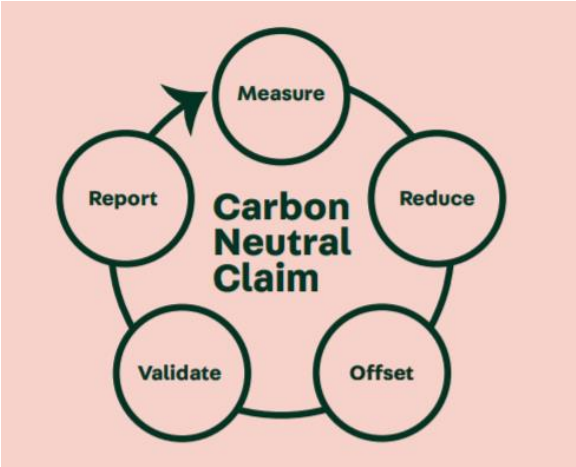


Image 4: Steps to carbon neutrality
Source: www.climateactive.org.au/

Vision:	**We choose accredited carbon offsets with multiple benefits for emissions we cannot directly eliminate**			
Target:	**Achieve carbon neutral/net zero emissions by 2023/24**			
	Action	**Timeframe**	**Impact**	**Responsibility**
1.	Determine procedures and responsibilities for administration of carbon neutral claim	By December 2020		Carbon Offsets Strategic Working Group
2.	Determine if achieving net zero emissions will be certified	By December 2021		Carbon Offsets Strategic Working Group
3.	Explore offset project options and standards and establish policy or directions statement to guide selection of offsets	2021/22	CO_2	Carbon Offsets Strategic Working Group
4.	Investigate the feasibility of a price on carbon for high energy using business units within Council's carbon profile	2021/22	CO_2	Carbon Offsets Strategic Working Group
5.	Prepare for net zero emissions claim	2022/23		Carbon Offsets Strategic Working Group

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