

City of Marion Carbon Neutral Plan 2020-2030



Introduction

Marion Council is aiming to be carbon neutral by 2030.

This means that over the next 10 years we will work to achieve zero carbon dioxide emissions from our operations.

Our primary areas of focus are electricity, gas and fuel consumption.

We have already achieved a lot in this area, including replacing most streetlights with LED energy-efficient globes, installing solar power on many Council and community facilities, and expanding our use of hybrid vehicles.

We will do more. As this document outlines, we have plans to make our major events carbon neutral, switch to renewable energy, and transition to a zero emissions fleet. Many of the actions will also result in cost savings for council.

Taking increased responsibility for reducing greenhouse gas emissions is an important contribution to the global issue of climate change.

These actions are supported by robust policies that underline our commitment to a greener organisation and planet.

We welcome your feedback on the City of Marion Carbon Neutral Plan 2020 – 2030.



Contents

Carbon Neutral Implementation Plan	3
Why do we need to reduce carbon emissions?	5
Where do our carbon emissions come from?	6
Our Achievements So Far.....	7
What we are going to do	9

Carbon Neutral Implementation Plan

■ = indicative year of delivery ◆ = Council decision required

INITIATIVE DESCRIPTION		ESTIMATED COST	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30
1. Tracking Carbon Emissions												
1.1. Carbon inventory and annual reporting	Within existing resources											
2. Reduce Carbon Emissions												
2.1. Improving Council Buildings:												
2.1.1. Trial ESD Guidelines on Council projects	Within existing project budgets											
2.1.2. Embed updated ESD Guidelines	3 – 5% on capital for new building projects (e.g. additional \$200,000 for a \$4M new build project; additional \$5,000 for a \$100,000 refurbishment project – leading to reduced whole-of-life costs)											
2.1.3. Sustainable behaviour change program	Within existing budgets											
2.2. Zero Emissions Fleet:												
2.2.1. Develop EV Transition Plan	~\$30,000											
2.2.2. EV charging stations at Council sites for fleet vehicle recharging	~\$27,000 / charging station (number and locations to be identified in EV Transition Plan)											
2.2.3. Implement EV Transition Plan	currently 20-25% increase in whole of life costs (based on purchase price of \$30,000, running and maintenance costs over 5 years)											
2.3. Sustainable Street lighting: Change over remaining public lighting to LED												
2.3.1. Implement the Public Lighting Action Plan	~\$300,000 - \$500,000											

Carbon Neutral Implementation Plan

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3. Switch to Renewable Electricity												
3.1. Option A: 100% renewable electricity contract	\$0 increase on existing contract				◆							
3.2. Option B: Large-scale Solar												
3.2.1. Explore solar farm opportunities	Within existing resources		■	■	◆							
3.2.2. Solar farm feasibility assessment	~\$130,000				■							
3.2.3. Construct solar farm (if favourable)	~\$10,000,000					◆	■	■				
4. Offsetting Carbon Emissions												
4.1. Research carbon offset projects	Within existing resources		■	■	■	■	■	■		◆		
4.2. Implement final carbon offset program	Currently \$14 - \$34 / tonne (total cost is dependent on tonnes required to be offset; estimated 800 tonnes CO ₂ -e at \$20/tonne will cost \$16,000/year)										◆	
5. Supporting Activities												
5.1. Communication and Promotion	\$5,000 p/a		■	■	■	■	■	■	■	■	■	■
5.2. Make major council events carbon neutral	~\$1 – 5,000 per event (cost per event determined by event type, size, attendance, etc.)			◆								
5.3. Sustainable Procurement Policy	\$5,000 (to develop policy and embed within Council procurement systems and processes)			■	■	■	■	■	■	■	■	■
5.4. Climate Active Certification (optional) (Climate Active certification fees required annually and third-party re-assessment every 3 years)	Current estimate \$25,000 (includes audit, technical assessment, third party validation and \$2,000- 3,000 in Climate Active certification fees)											◆

Where do our carbon emissions come from?

Climate change is already affecting the entire world, with extreme weather conditions such as drought, heat waves, heavy rain, floods and landslides becoming more frequent. Other consequences of the rapidly changing climate include rising sea levels, ocean acidification and loss of biodiversity.

More locally, the Resilient South regional climate partnership is responding to climate impacts such as longer and more intense heat waves, changing rainfall patterns and more frequent and extreme fire danger days across southern Adelaide.

In order to limit global warming to 1.5 degrees Celsius, a threshold the Intergovernmental Panel for Climate Change (IPCC) suggests is safe, carbon neutrality by mid-21st century is essential. This target is also laid down in the Paris agreement signed by 195 countries, including Australia.

The City of Marion has set a target of becoming carbon neutral by 2030 for its own operations.

This target is based on the desire to demonstrate leadership and provide an advocacy platform to engage other levels of government in the action required for our community to meet these targets. It also aligns with science that indicates deep reductions are needed to avoid the worst impacts of climate change.

Reducing the carbon emissions from the City of Marion's corporate operations through various policy, efficiency, renewable energy, offsetting and electrification projects supports this global goal while also delivering direct and indirect benefits to Council and to the broader Marion community.

Key benefits include:

- Direct emissions reductions for harmful greenhouse gas emissions and related environmental benefits.
- Long-term financial gains through reduced energy costs for operations.
- The value of Council's building assets can be improved through the transition to smarter energy and waste efficient operations.
- Healthy buildings with improved air quality are known to contribute towards improved productivity, reduced sick leave and staff attrition.
- Reputational gains from Council's adoption of a leadership position, making Marion a more desirable place to visit, live, learn, work, invest and do business.
- A greater use of energy efficient technologies and renewable energy sources reduces Council's exposure to unpredictable energy market price fluctuations and anticipated long-term price increases.
- Council innovation will educate and pave the way for other parts of the community to follow suit.



Health and wellbeing benefits for users of Council facilities is a key benefit of carbon neutrality

Where do our carbon emissions come from?

The baseline carbon footprint for City of Marion's corporate operations is approximately 5,700 tonnes of carbon dioxide equivalent per year.

The emissions baseline has been set from the 2015/16 financial year, to account for emissions reduction activities since this time. A breakdown of the baseline carbon inventory is shown in Figure 1.

Energy consumption generally makes up a large component of an organisation's carbon footprint. At the City of Marion, electricity accounts for 70% of corporate carbon emissions and is used in Council's buildings, facilities and public lighting. Transport fuel is the next largest contributor at 15%. The remaining 15% includes the use of natural gas in council buildings, waste generated from council activities, and the energy used to provide mains water and treat wastewater.

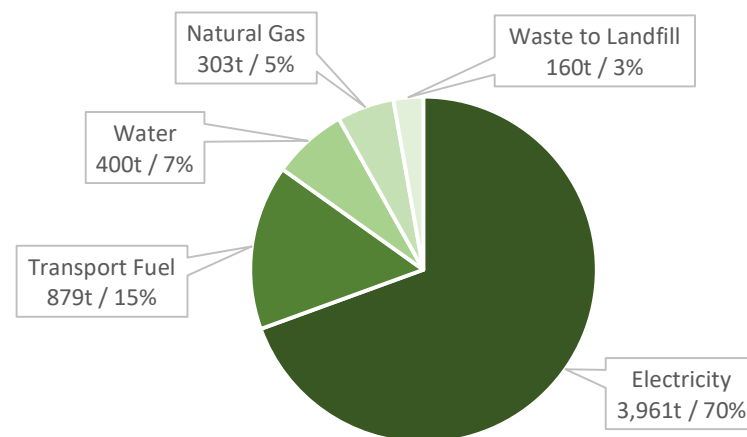
Note that the carbon emissions profile is not compliant with the Climate Active standard and there are gaps in the data, for example, refrigerant gases from air conditioners. These make up a very small proportion of the overall footprint, therefore this 'best estimate' gives a reasonable summary of the carbon profile.

Depending on the level of control that Council has over the emissions, they fall into various emissions categories and levels of reporting, as follows:

Scope 1: emissions under Council's direct control, for example energy generated on site from rooftop solar, fuel used in generators, and fuel used in Council fleet vehicles.

Scope 2: emissions from the use of electricity generated elsewhere and purchased from the grid.

Figure 1: City of Marion Baseline Carbon Emissions, 2015/16 (tCO₂-e / %)



Scope 3: indirect emissions from the extraction, production and transport of fuel burned to generate electricity and produce fuel used by Council, and emissions from waste, business, travel and accommodation, office paper and water use.

Other Scope 3 emission sources that may be relevant include staff commuting, food and catering, postage and freight, stationery, office printing, cleaning services, IT services (e.g. data centres) and telecommunication services.

To gain a more detailed understanding of Council's carbon emissions and the impact of projects implemented to reduce them, an annual carbon inventory is required that aligns with the Climate Active (the Australian Government Carbon Neutral Standard) carbon accounting rules.

Our Achievements So Far

The City of Marion has been measuring and reducing carbon emissions for several years and is making good progress towards carbon neutrality for its own operations by 2030.

A timeline showing the City of Marion's carbon reduction achievements to date is provided in Figure 2.

Successes

- Streetlight upgrades to energy-efficient LED lights has reduced annual greenhouse gas emissions by 876 tonnes CO₂-e (36%) and electricity cost by \$193k in 2019/20 compared with the 2015/16 baseline. The three-year project was funded by Council and includes the sale of carbon credits and the associated income from the emissions reduction from the LED lighting upgrade.
- Council has invested in Solar PV, including 410kW installed on ten Council-owned and operated buildings in 2017 and 2018. So far, we have reduced emissions from our buildings by around 1,600 tonnes CO₂-e compared with the 2015/16 baseline.
- Building energy efficiency improvements such as lighting and equipment upgrades have been delivered in Council-operated facilities.
- During 2018/19 five hybrid petrol/electric Toyota Corolla passenger vehicles were introduced to the fleet. As at June 2020 there were nine hybrid passenger vehicles in Council's fleet.
- Active participation in the Resilient South Regional Climate Partnership.
- Connection of the Oaklands recycled water supply for use for non-potable water needs to irrigate public open space.

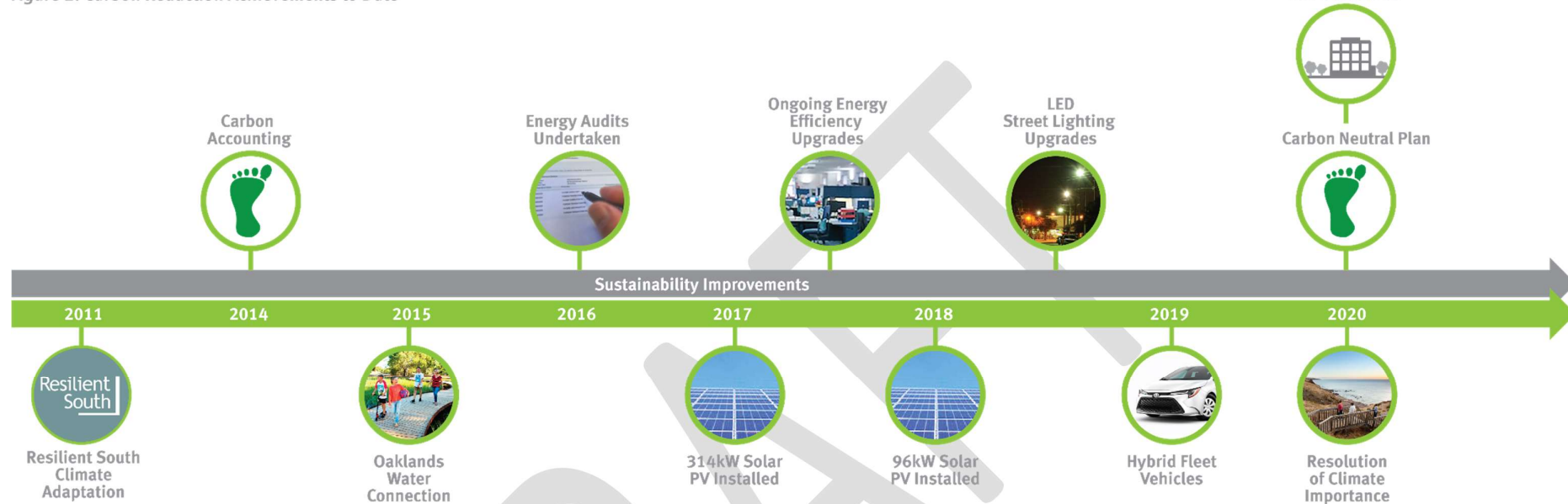
Total carbon emissions from vehicles fuels was 879 tonnes CO₂-e in 2015/16 and has reduced by 10% to 787 tonnes CO₂-e in 2019/20.

Opportunities

- Environmentally Sustainable Design (ESD) guidelines for Council buildings are being trialled over the next year. Sometimes budget restraints limit environmental outcomes and contractors may not be skilled in supplying environmental outcomes.
- New buildings, new services and increasing hours of operation may lead to increased energy consumption. This means Council will need to work with lessees and building users to ensure total energy use is managed appropriately.
- While there was an initial drop in the use of natural gas in Council buildings in 2016/17 compared with the 2015/16 baseline of 303 tonnes CO₂-e, since then it has risen by 21% to 367 tonnes CO₂-e in 2019/20. Phasing out natural gas use in Council buildings will need to be a focus.
- Although the Council vehicle fleet has reduced greenhouse gas emissions in recent years, a comprehensive Fleet Transition Plan is required to ensure elimination of vehicle fleet related carbon emissions.

We will be building on our progress so far, having reduced operational emissions by 25.5% from 2015/16 for electricity use in Council buildings.

Figure 2: Carbon Reduction Achievements to Date



The City of Marion is also undertaking a range of projects that affect community-wide emissions including:

- Carbon emissions from the transport fuel use associated with the kerbside waste and recycling collection service have been fully offset since 1 April 2013 by the contractor, previously SOLO and from 1 May 2020, Cleanaway. Since 1 April 2013, almost 6,000 tonnes of CO₂-e have been offset.
- A trial is being undertaken with Downer EDI to lay sustainable asphalt in new roadworks; in 2018/19 the use of sustainable asphalt including RAP (Recycled Asphalt Product) instead of traditional asphalt resulted in a greenhouse gas emission saving of 331 tonnes CO₂-e per annum. From 2019, 50% of road asphalt comes from recycled materials.
- Ongoing increase in walking and cycling infrastructure to reduce community transport emissions, including streetscape upgrades and collaboration on projects such as the Flinders Greenway project,

creating connected sustainable transport options between Tonsley, the Flinders University campus, and the wider community.

- Since 2018 approximately 130kW of rooftop solar has been installed on leased sporting clubs and facilities.
- Collaborating with Jolt to provide a network of public EV chargers at high-use locations across the council-area to support greater community uptake of electric vehicles.



Changing our streetlighting to efficient LED lighting has helped to reduce our carbon emissions

What we are going to do

Short descriptions of the actions listed in the Implementation Plan (page 1) are provided below. Focus is on reducing emissions from areas under Council's operational control (Scope 1 and 2). The Implementation Plan provides indicative costs and timing of each action.

The **green** area in Figure 3 (below) represents the carbon emissions reducing over time as carbon reduction projects are implemented. The **grey** area shows reducing emissions in a 'do-nothing' scenario where the South Australian electricity grid decarbonises over time.

1. Tracking Carbon Emissions

- Carbon Inventory and Annual Reporting: data completeness, integrity and reporting are critical to informing good decision making when attempting to manage complex areas such as emissions and carbon.

2. Reduce Carbon Emissions

- Implement the Environmentally Sustainable Design (ESD) Guidelines for all building upgrades, maintenance, refurbishment and new construction activities. This will include consideration of additional solar and/or battery technology as appropriate, phasing out of natural gas used in Council buildings, water efficiency and waste reduction initiatives.
- Behaviour change program for staff, tenants and facility users to support good energy management practices.
- Develop an EV Transition Plan that establishes a planned approach to transition Councils fleet from petrol and diesel vehicles to electric vehicles that includes timeframes, types of vehicles to ensure they are fit-for-purpose, consideration of light versus heavy vehicles, recharging infrastructure requirements, data management solutions, transition costs and whole-of-life costs. Bulk vehicle purchase opportunities will also be explored.
- Implement the Public Lighting Action Plan by upgrading all existing metered high intensity discharge public lighting (approx. 930 luminaires) with energy efficient LED equivalents over a 5-year period as identified in the Open Space Lighting Audit.

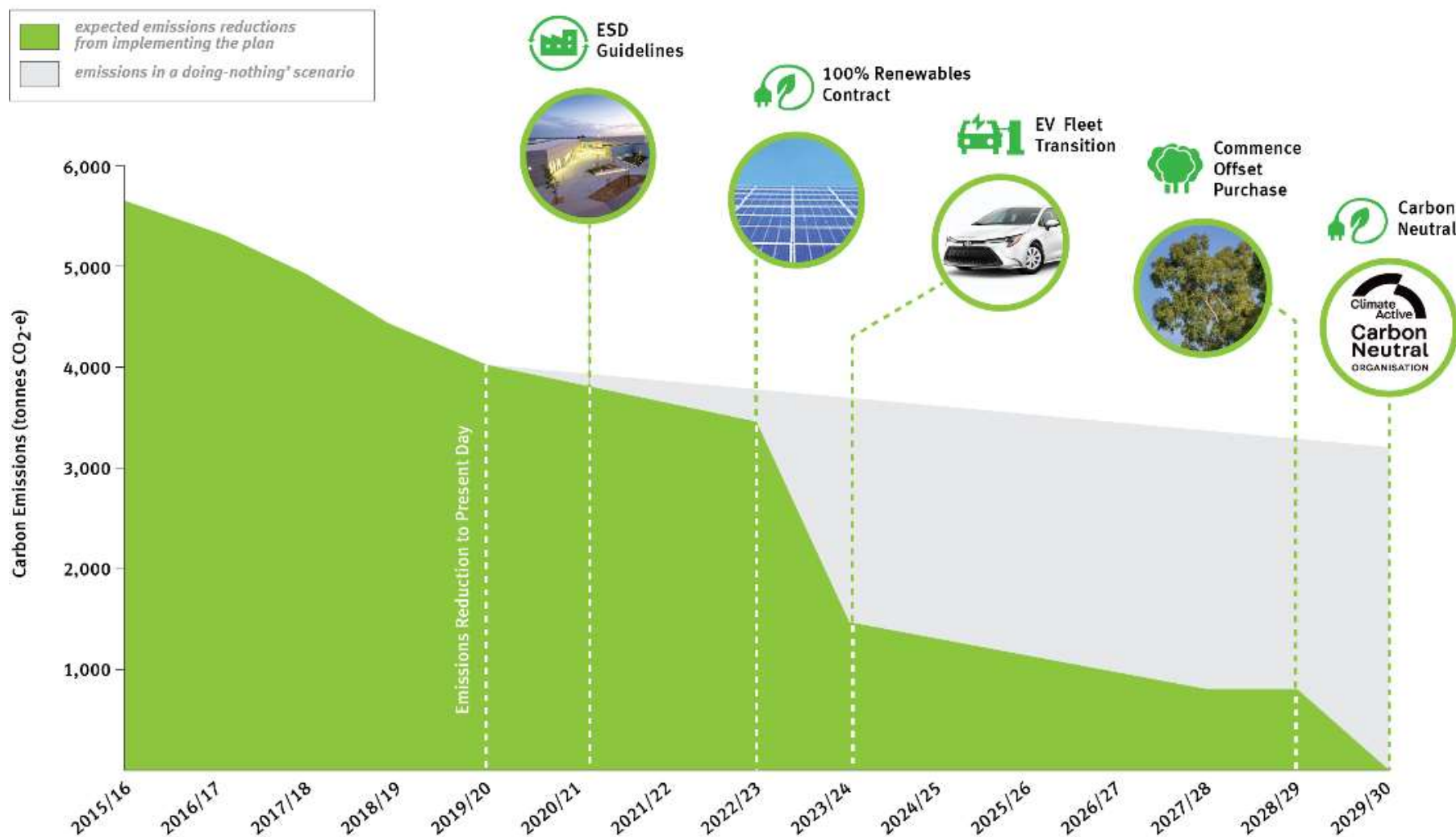
3. Switch to Renewable Electricity

Two pathways for switching to renewable electricity have been identified. Option A is shown in Figure 3.

- **Option A: Renewable Electricity Contract:** 100% renewable electricity from an external party, either via a collaborative procurement process with other Councils or a Power Purchase Agreement negotiated independently. This reduces the capital cost and risk associated with the large solar infrastructure in Option B and is expected to be at a similar cost to the existing electricity contract that expires in December 2022.
- **Option B: Large-Scale Solar Farm:** Council undertakes a large-scale renewable energy project. This involves preparing a detailed feasibility of a solar farm and delivering a solar farm capable of offsetting 100% of Council's electricity consumption.

Options include partnering with others such as SRWRA or developing our own solar farm and selling electricity to the grid. This option would be at significantly higher cost and risk than Option A, with an estimated capital cost for a 2.5MW solar farm of \$10M with a simple payback of approximately 16 years.

Figure 3: Carbon Neutral Pathway showing expected emissions reductions from implementing the plan (green) and a 'doing-nothing' scenario (grey)



4. Offsetting Carbon Emissions

After all other projects that directly reduce carbon emissions have been implemented, remaining emissions can be offset through the purchase of carbon offsets (e.g. local carbon farming projects, renewable energy projects in Developing Nations, etc.). This is a last step to achieve carbon neutrality.

- Carbon offsets are generated from an activity that prevents, reduces or removes greenhouse gas emissions from being released into the atmosphere. They are regulated through the national Clean Energy Regulator.
- Research into carbon offset options will be required prior to purchase, with consideration given to local revegetation programs that will also deliver biodiversity, urban cooling and amenity benefits.
- Options for revegetation projects delivered by Council or in partnership with others will be investigated. Considerations for determining tree numbers and land area requirements include species selection and growing conditions such as soil type and rainfall.
- The cost of offset unit purchase is variable and market dependent. This means that the price fluctuates daily depending upon the availability of the standard of offset required, the market demand at the time of purchase, and the quantity of offsets required. The current market price for accredited Grade A carbon offset units that support Australian projects ranges from \$14/tonne to \$34/tonne.

5. Supporting Activities

- Communication and promotion to support advocacy and information sharing, including case studies and progress on delivery of the Plan.
- Council events, such as open days or concerts, can achieve Climate Active Certification through purchase of eligible offset units to compensate for emissions that cannot be reduced through energy efficiency, the procurement of renewable energy or supply chain management.
- Reviewing the Procurement Policy to include sustainable procurement to enable Council to influence how and from whom its goods and services are procured, taking account of traditional procurement factors but also the sustainability characteristics of the goods, recycled content, services and vendors involved. Factors such as manufacturing materials, source location and transport logistics can all be considered.
- Climate Active Certification: a structured, auditable pathway for organisations to work towards carbon neutrality. Formal certification is optional and can be considered closer to 2030 and will be required if Council wants to promote its carbon neutral status.
- The Climate Active annual license fee is based on organisation size and net emissions before offsetting. To maintain Climate Active certification, technical reassessment by a registered consultant is required every three years.