



**Alice Springs Town Council**  
**Climate Action Plan**  
**2018-2021**



## 1 Forward

TBC after consultation.

## 2 Glossary of terms

|                    |                                                                         |
|--------------------|-------------------------------------------------------------------------|
| ASALC              | Alice Springs Aquatic and Leisure Centre                                |
| ASTC               | Alice Springs Town Council                                              |
| CH <sub>4</sub>    | Methane                                                                 |
| CO <sub>2</sub>    | Carbon dioxide                                                          |
| CO <sub>2</sub> -e | Carbon Dioxide equivalent                                               |
| COP21              | Conference of the Parties (21st conference)                             |
| CPP                | Cities Power Partnership                                                |
| GHG                | Greenhouse gas emissions                                                |
| GPC                | Global Protocol for Community-Scale Greenhouse Gas Emission Inventories |
| GWP                | Global Warming Potential                                                |
| IPCC               | Intergovernmental Panel on Climate Change                               |
| NT                 | Northern Territory                                                      |
| KPI                | Key performance indicator                                               |
| kW                 | kilowatt                                                                |
| kWh                | kilowatt hours                                                          |
| PV                 | Photovoltaic                                                            |
| TCO <sub>2e</sub>  | Tonnes carbon dioxide equivalent                                        |

## 3 Stakeholders

TBC after consultation.

## 4 Introduction

This Plan is about the future of our town – a future where, by 2070 central Australia will experience six months of the year above 35°C (Mathew, 2015), more intense rain, a greater number of extinctions of our unique wildlife and consequences on health, morale and our way of life in general – all due to Climate change. Yet it is also a Plan to take responsibility for our collective impact on climate change, to embrace a low-carbon economy and the vast opportunities offered up by renewable technology in a location of unparalleled solar irradiance.

Despite the immensity of the problem, and the relatively small impact that our population makes on a global scale, our efforts over the next four years and beyond will combine with the global efforts to tackle this problem. It is at the level of individual towns and cities around the world that we will see the greatest impact on addressing climate change. This sun-drenched, creative and resilient outback community will surely provide some of the answers.

## 4.1 Objective

The Climate Action Plan seeks to:

- Calculate Council and community-wide emissions baselines.
- Identify a vision for reducing emissions over the next four years and beyond.
- Provide a list of actions to meet our emissions reductions through financially responsible options over short, medium, and longer timeframes by the Alice Springs Town Council and the Alice Springs community.
- Provide a plan for allocating sufficient resources to meet the emissions reduction targets.
- Detail ongoing evaluation and monitoring requirements.
- Support and enable residents to reduce emissions in their homes and businesses.
- Influence climate action beyond our local footprint.

## 5 What is climate change?

While 'weather' refers to short-term atmospheric conditions, 'climate' refers to patterns of weather over a long period of time. There is natural *variability* in climate such as year-to-year variations in the average conditions that will mean no one summer is the same as the last and the average rainfall differs each year. *Climate change* refers to shifts in long-term patterns of our climate.

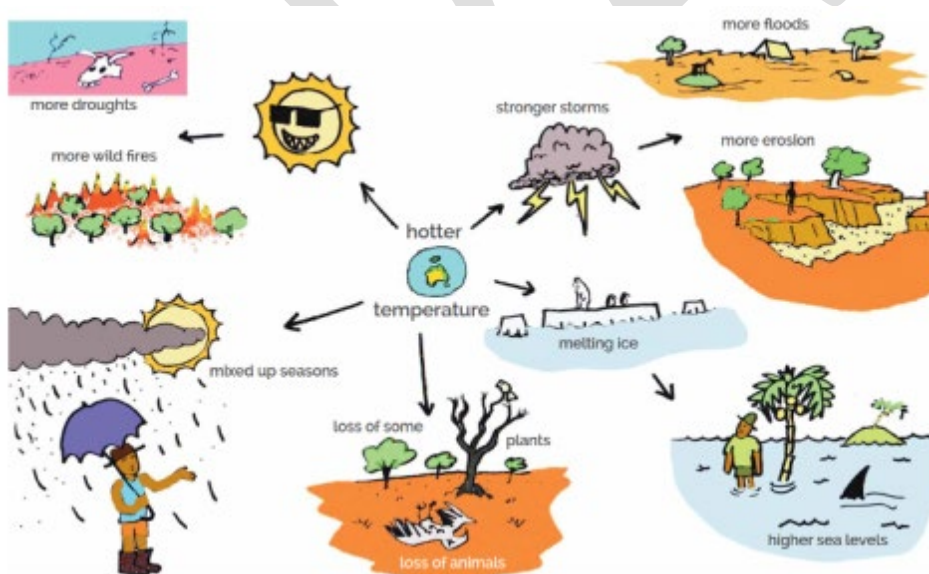


Figure 1: Implications for climate change for Central Australia (example diagram only - borrowed from CSIRO report).

## What causes climate change?

Greenhouse gases in the atmosphere absorb and emit radiation in the infrared range. They include water vapour, carbon dioxide, methane, nitrous oxide, and ozone. We depend on these gases to insulate the Earth, retain heat from the sun and provide a relatively stable climate that supports life on Earth.

Human activities, such as burning fossil fuels, industrial uses, agriculture, and land clearing have resulted in increased levels of greenhouse gases in the atmosphere, trapping more heat and raising the earth's temperature. This is sometimes referred to as an *enhanced* greenhouse effect.

Although the climate has undergone changes in the past, with the earth experiencing both hotter and cooler periods, the changes seen today differ due to the speed at which they are taking place. The human influence on the climate system is clear. The rate of increase in global average temperature since 1970 is approximately 170 times the baseline rate over the past 7,000 years (Climate Council of Australia, 2017). At no other time in human history have temperatures increased as rapidly as they have over the last century.

Greenhouse gases include gases such as carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) sulfur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>)<sup>6</sup>.

## 5.1 Effects of Climate change

### 5.1.1 Global Effects

*"Climate change has resulted in warming of the atmosphere and the ocean, changes in the global water cycle, reductions in snow and ice, and in global mean sea level rise; and it is extremely likely to have been the dominant cause of the observed warming since the mid-20th century. Natural forcings have conversely had little effect on warming since 1951" Section 3.4 and IPCC.*

Climate science tells us that increased global temperatures from the enhanced greenhouse effect are fundamentally altering the climate processes. The words "hottest", "wettest", "driest" to describe seasonal weather seem to have become commonplace as extreme weather records are being broken more and more frequently.

Combined global land and ocean surface temperatures have warmed by 1.1°C since the pre-industrial baseline (The Climate Institute, 2015) and current projections show we are on a path for 4°C of warming by the turn of the century or 2°C if emissions are reduced to the level agreed to by the global community in 2015.

Although a few degrees rise in temperature may not seem like much, the impact this warming would have on the planet is extreme. The 1.1°C rise we have already experienced resulted in the intensification of extreme weather events. Even small changes in temperature can result in dramatic shifts in our climate as ocean temperatures heat up causing major disruptions to ocean currents, thawing of ice sheets and increased sea level and storm surges. More intense rain events are occurring in higher latitudes – closer to the equator—while other areas, such as southern parts of Australia will experience reduced rainfall events. More hot days and fewer cold days will occur over most land areas.

Complex interactions and 'feedbacks' can speed up the already rapidly changing climatic system. An example of this is when sea ice melts. When frozen, sea ice is light-coloured and reflects a greater amount of solar energy, thereby moderating the climate. When sea ice melts due to climate change, there is less surface area

of ice to reflect sunlight, further reducing the cooling effect. The tipping point for runaway and irreversible climate is not far away, so we need to ensure we stay well below 2°C.

The effects of climate change are not just impacting on the human population but on all living things. With changes to species distributions, widespread damage to ecosystems (up to 30% of plant and animal species becoming extinct worldwide), mass bleaching of coral reefs and the possibility of losing the Great Barrier Reef forever.

"Unmitigated climate change would, in the long term, be likely to exceed the capacity of natural, managed and human systems to adapt." Intergovernmental Panel for Climate Change (IPCC) Working Group II - Fourth Assessment Report - *Climate Change Impacts, Adaptations and Vulnerability*

### 5.1.2 Local Effects

Central Australia is already known for its high temperatures, droughts and occasional floods –all of which will be exacerbated by climate change.

In Alice Springs, seasonal temperatures are getting hotter, with highest summer averages (October-March) already 1°C hotter since 1943 and winter temperate 1.5°C hotter since 1943 (CSIRO, 2014). This trend is consistent with climate change projections that show inland Australia is likely to experience a greater degree of warming than coastal areas. Worryingly, the hottest days are becoming more frequent with an estimated number of hot days over 35°C doubling from 90 per year to up to 182 by 2070 without global action to reduce emissions (Department of the Environment and Energy, n.d.).

Winter temperatures are likely to experience similar differences, with the number of days below 0°C expected to reduce from 16 to 9 or less (Yiheyis Taddele Maru, 2012). A trend of dry years and big rains is also becoming more apparent, but projected changes in rainfall are less certain on a local scale.

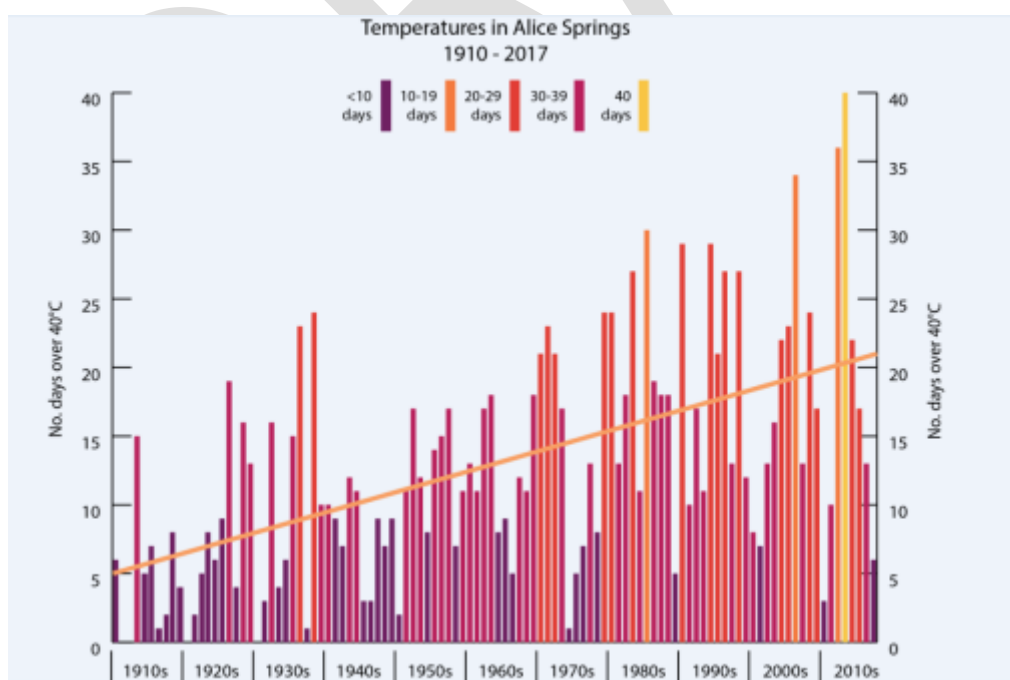


Figure 2: Number of days per year over 40°C (BOM).

Long term trends (CSIRO, 2015-2017):

- Average temperature increases in all seasons.
- More hot days and fewer frosts.
- Changes to rainfall patterns.
- Increased intensity of rainfall events.
- More frequent and intense fires.

The flow on effects of altered weather in Alice Springs:

- Increased use of energy for cooling and energy poverty experienced by a greater number of low-income earners.
- Increased use of our finite underground water resource.
- Increased evaporation during heatwaves.
- Disturbance to climate-sensitive flora and fauna – flow on effects to Aboriginal culture.
- Reduction in range of suitable habitat for some species and species extinctions.
- Greater spread of invasive species e.g. Buffel grass.
- Higher chance of mortality and exacerbated health conditions during heatwaves.
- Lost work time (absenteeism) during heatwaves and floods.
- Disruption of critical infrastructure e.g. power blackouts.
- Visitors from remote communities stranded in town during flood events.
- Events such as sporting or cultural events cancelled during extreme weather.
- Intensified weather events exacerbate pre-existing disadvantage and poverty in many Aboriginal Australians in remote communities (Yiheyis Taddele Maru, 2012).
- Population drain from Alice Springs.
- Drop in tourism throughout central Australia and flow-on effects to the local economy.
- Possible drop in reliability in food and supply delivery.

## **6 Frameworks for action**

### **6.1 International response to climate change**

The Paris Agreement is an agreement within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with greenhouse gas emissions mitigation, adaptation and finance. In 2015, nearly 200 countries agreed to work towards limiting warming to 2°C and pursue efforts to limit the temperature increase to 1.5°C. Limiting warming of 1.5°C to 2°C requires global emissions to fall below zero and carbon to be removed from the atmosphere (The Climate Institute, 2015). With the understanding that stronger targets than those put forward in Paris are needed to avoid the worst impacts of climate change and to limit warming to 1.5°C, signatory nations will review their individual targets every 5 years and work to strengthen action over time.

### **6.2 National and Territory-wide responses**

Australia adopted an emissions reduction target of 26-28% below 2005 levels by 2030 at COP21 in Paris. The Climate Change Authority advised that this was not in line with science and that a reduction of 45-63% was required by Australia.

In the absence of strong federal targets, all states and territories except Western Australia have a target of net zero emissions by 2050 and/or a renewable energy target (Climate Council of Australia, 2017).

In 2006, The *Northern Territory Strategy for Greenhouse Action* and a *Discussion Paper on NT Climate Change Issues* were released by the Northern Territory Government in 2008 – both of these documents are out of date and no longer referenced. There is no current Northern Territory policy on climate action; however, the Northern Territory Government has set a target of 50% renewable energy by 2030 and has recently released a Roadmap to Renewables plan.

### **6.3 Local government response**

A suite of climate change policy and action responses are being delivered at the municipal level as local governments around the world are recognising the important role they have in contributing to meaningful mitigation and adaptation to climate change in their local communities.

An estimated 70% of the world's energy-related emissions come from cities, so the city response is critical in meeting the global climate agreements made at COP21 (Climate Council of Australia Ltd, 2017). Inspiring actions from local governments come from remote towns like Uralla working towards zero net energy, to Australia's largest council, Brisbane City Council which has achieved carbon-neutral status, to the 100% solar-powered Sunshine Coast Council.

Local Government Association of Northern Territory (LGANT) developed several climate change policies, which were subsequently endorsed by Alice Springs Town Council in 2015. These policies provide overarching statements but do not offer tangible outcomes or targets.

### **6.4 Local context**

Alice Springs Town Council has a history of involvement in climate change action and leadership in renewable energy the local community. Council was the first Northern Territory member of the Cities for Climate Protection Program in 1998 and adopted a *Local Action Plan to Reduce Greenhouse Gas Emissions in Alice Springs* in 2006. Council was the lead agent in the Alice Solar City project, which ran from 2008 until 2013 and led to the installation of energy efficiency measures, solar PV systems, and solar hot water systems for hundreds of homes and businesses across the municipality. This program was fitting, given that Alice Springs has some of the highest solar radiation of anywhere in the world.

In 2013, the *Roadmap to a desertSMART Town (2013 - 2018)* brought together stakeholders from a wide cross section of the community, with Alice Springs Town Council being among them. This roadmap defined progressive visions in the areas of energy, water, waste, built environment, food and transport (desertSMART COOLmob, 2014).

Alice Springs Town Council dedicates significant ongoing funding toward increasing its solar power capacity. In 2018, Council's ninth solar PV system will be installed at the Alice Springs Aquatic and Leisure Centre, bringing the total amount of solar generation capacity at Council facilities to over 500kW.

The 2018 Climate Action Plan is a result of a recommendation through Council's Environment Advisory Committee. In 2017, Alice Springs Town Council also joined the Climate Council's Cities Power Partnership – a national program of mentoring, leadership and action.

#### **6.4.1 Review of the Local Action Plan to Reduce Greenhouse Gas Emissions in Alice Springs in 2006**

To complete the 2006 Local Action Plan to Reduce Greenhouse Gas Emissions, Community and Council emissions for a baseline year of 1996 were established. In the two decades since emissions profiles were completed, Council emissions have more than doubled while community emissions have remained relatively stable despite the previous attempts to reduce greenhouse gas emissions. Increased waste from society, facilities with energy-intensive infrastructure and a legacy of facility user groups being unaware of their energy uses are key factors that contribute to emissions rising. On the other hand, increase solar power and more efficiency in power supply leading to lower emissions factors has balanced out the effect of rising emissions to some degree.

Maintaining momentum, embedding mitigating actions in Council strategies, staff delegation and quantifying emissions savings are key recommendations from a review of the 2006 Action Plan. A stronger commitment to reporting and monitoring will also be required moving forward.

#### **6.5 Opportunities for action**

Acting on climate change by transitioning away from fossil fuels presents a suite of opportunities that can be embraced by our town. Many of the opportunities presented in moving to a low-carbon economy will have benefits beyond cost savings. Some examples are: switching to energy efficient LED lights will not only save energy but will save on maintenance costs and produce better light output; improving active transport (walking and cycling) conditions will have health and wellbeing benefits for cyclists and reduce road congestion; growing more local food reduces transport and creates social cohesion; and planting trees captures carbon whilst also creating much-needed shade. The number and length of sunny days in Alice Springs creates enormous potential for solar systems to generate the majority of power from solar technologies and for exporting learnings from an isolated electricity grid. The rapid advances in renewable energy are such that not only will solar alleviate the high costs of electricity, scaled-up renewable energy projects will provide employment opportunities, a cleaner source of energy, and further along the track will provide energy security as more battery systems are installed and energy systems are decentralised.

#### **6.6 Risks of inaction**

Responding to the climate crisis is not just a socially, environmentally, and often financially responsible action, it is also important from a risk management point of view. Councils should provide up to date information to the community and consider climate change forecasts in planning.

*“Local Councils are, in many instances, at the forefront in responding to the impacts of climate change. Impacts associated with increased temperatures, sea level rise, increased frequency and intensity of natural hazards and other severe weather events will all be experienced most acutely at the local level. Members of local communities will, therefore, increasingly look to their local Council to provide solutions to adapt to, manage, transfer or share the risks associated with climate change impacts (ALGA, 2011).”*

#### **6.7 Mitigation vs adaptation**

Climate *mitigation* refers to any actions that limit the rate of climate change and generally involve reducing greenhouse gas emissions. Mitigating the effects of climate change by reducing emissions from Council and from the community is the main focus of this report.

Climate change *adaptation* refers to planning to deal with the effects of climate change. An example could be building a flood wall to protect a town from extreme flood events. Over a longer time frame, transformative adaptation will be necessary. Although climate adaptation is not the primary focus of this report, preliminary measures or future adaptation actions could be identified through the report.

The more the global community works together to reduce emissions and the earlier we do so, the less adaptation will be needed. However, even if all emissions were to cease immediately, the concentrations of greenhouse gases in the atmosphere would still cause damaging climate change. Adaptation planning will be an important process for the community of Alice Springs to undergo.

### 6.7.1 Future planning

Understanding the full extent of the likely impacts is crucial to planning for the future in a world that will face changes to the climate and more extreme weather events. Detailed monitoring and analysis over decades by scientists has enabled modelling of climate projections into the future. This modelling is assisting in planning and adaptation for future climates and the social, economic, water security, infrastructure, and human health implications of a changed world.

Heat maps, such as the map provided in Figure 3 highlight the stark difference in land surface temperatures and the opportunities for grappling with heat through green space planning and even canopy cover targets. If water availability issues can be overcome, strategic plantings can be part of a suite of mitigation actions as planting near buildings can be a mitigation action as building temperatures and therefore energy consumption can be reduced (Charles Darwin University, n.d.).

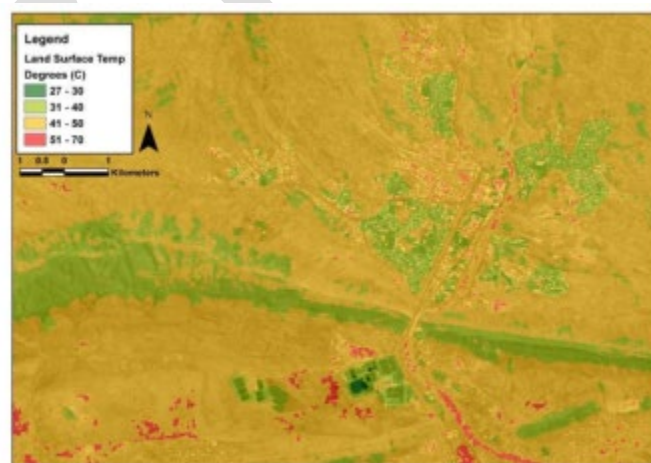


Figure 3: Land surface temperature map of Alice Springs and surroundings on 7 November 2015, derived from LANDSAT 8. The green shaded regions in the map indicate cooler regions in Alice Springs town area and surrounding regions. The cooler regions in the map coincide with the residential areas and vegetated areas in the town.

**Figure 3: Land surface temperature map of Alice Springs (Example figure only - borrowed from Ninti One report).**

## 7 Council Carbon footprint

### 7.1 Corporate Emissions

Council's greenhouse gas (GHG) emissions were quantified for the 2016 calendar year and have been independently verified by Ironbark Sustainability. Emissions from Council operations amounted to 19,975tCO<sub>2</sub>e. A more detailed explanation of inclusions and exclusions is provided in the Appendix.

The 2016 inventory will be used as a baseline for targets and actions identified through this report. This year was chosen due to the availability of data for a full calendar year and the need for an updated, recent and relevant baseline.

The data used in creating the emissions baseline was collated from various sources and has been converted to carbon dioxide equivalents (CO<sub>2</sub>e) through emissions factors from the National Greenhouse Accounts Factors 2016 and a number of other sources (see Appendix). The scope of Council's emissions is limited to areas where Council has control over or can significantly influence or advocate for. This includes electricity from Council-owned facilities, street lighting, gas usage, vehicle fleet, and waste going to landfill, Council's water use and a selection of indirect emissions including paper, flights, and contractor emissions.

Excluding waste, which goes to the Council-owned landfill, electricity use makes up 66% of Council's emissions (Figure 5). Emissions from water refer to Scope 3 emissions from electricity used to pump water for Council operations.

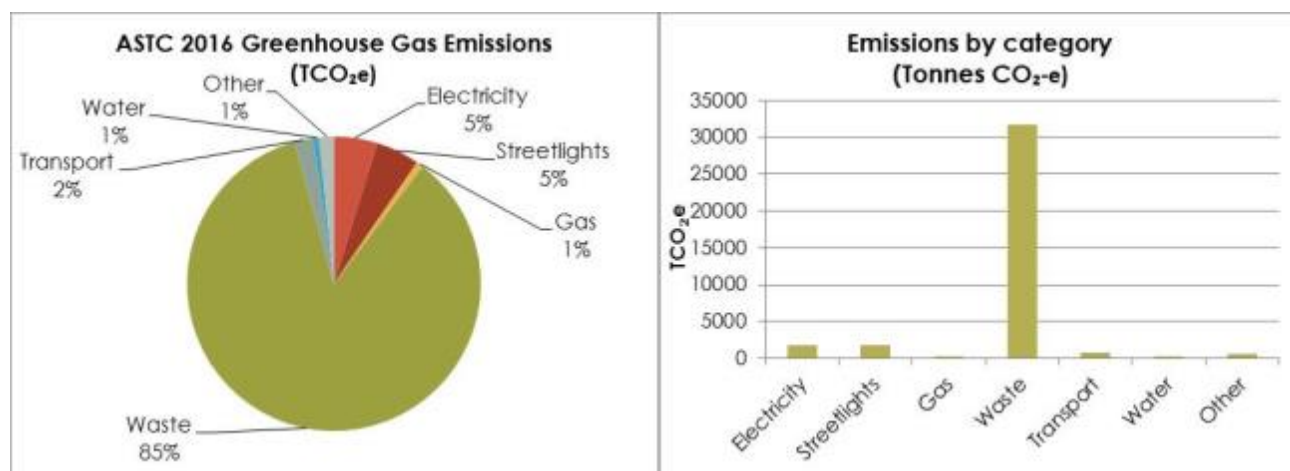
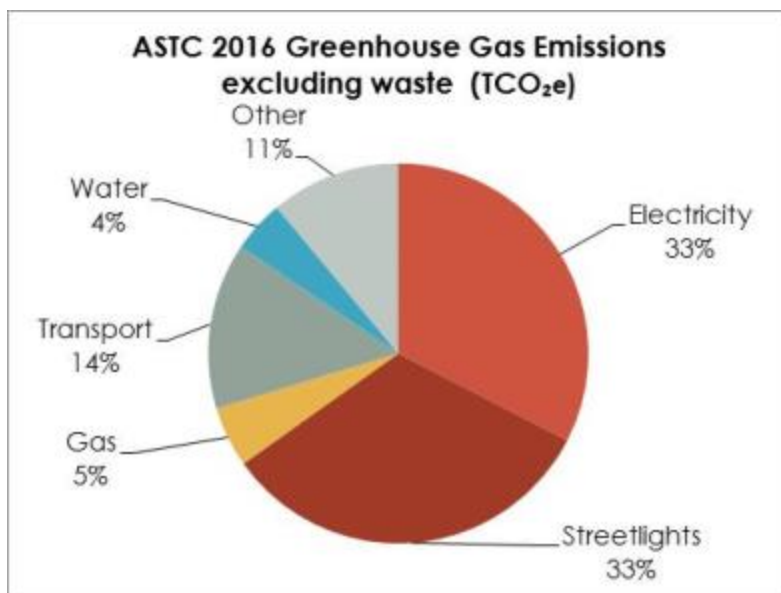


Figure 4a and 4b: Greenhouse Gas emissions from Council operations.

Table 1: Summary of 2016 Council emissions.

| Source of emissions        | Emissions (TCO <sub>2</sub> e) | Percentage total emissions |
|----------------------------|--------------------------------|----------------------------|
| Electricity                | 1785                           | 5%                         |
| Electricity (Streetlights) | 1785                           | 5%                         |
| Gas                        | 282                            | 1%                         |
| Waste                      | 31768                          | 85%                        |
| Transport                  | 777                            | 2%                         |
| Water                      | 245                            | 1%                         |
| Other (indirect sources)   | 605                            | 2%                         |
| <b>Total</b>               | <b>37,248</b>                  |                            |



**Figure 5: 2016 Greenhouse Gas Emissions from Council operations excluding waste.**

### Global Warming Potential

Each Greenhouse Gas has a different Global Warming Potential (GWP). Carbon dioxide equivalents (CO<sub>2</sub>e) express the impact of different greenhouse gases in terms of the amount of warming created by CO<sub>2</sub>. For example, 1 tonne of methane (CH<sub>4</sub>) would have a carbon dioxide equivalent of 26 tonnes (tCO<sub>2</sub>e).

### Emissions Factors

Emissions factors can vary from year to year, depending on factors that include efficiencies in energy production and the proportion of renewable energy in the grid. In 2005/06 the emissions factor for the NT was 0.73kgCO<sub>2</sub>-e/kWh but has reduced to 0.67kgCO<sub>2</sub>e/kWh. *National Greenhouse Accounts Factors 2016* were used for the 2016 Council and Community emissions inventories.

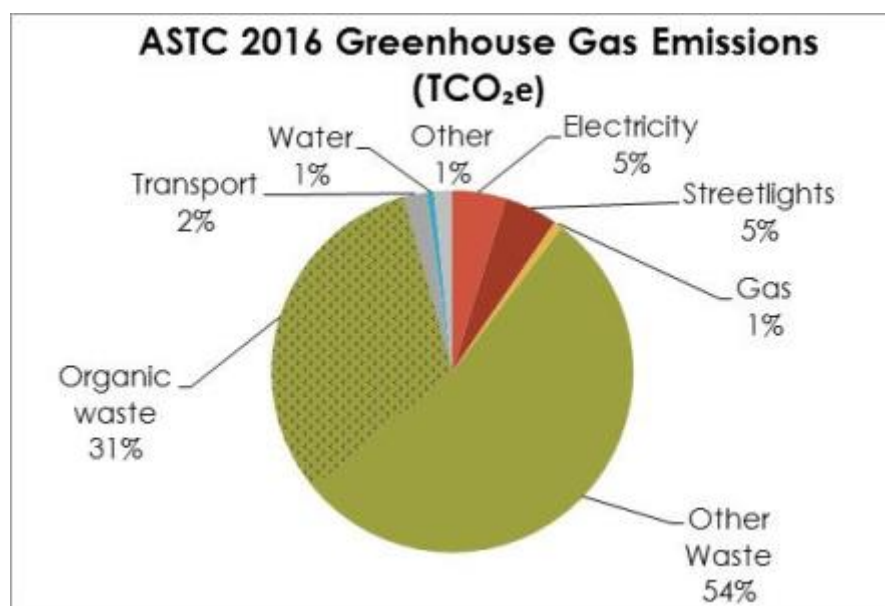
## 7.2 Key areas

Council's main emissions sources are waste (85%), electricity from facilities (5%), electricity from streetlights (5%), and transport (2%). Focussing on these areas will be key to limiting our emissions and our contribution to climate change.

### 7.2.1 Waste

A large proportion of waste emissions come from organic waste - food waste, greenwaste, paper, cardboard, and wood. Over 6,000 tonnes organic material is sent to landfill every year at the Regional Waste Management Facility, with much of this entering via household bins or garden organics used as landfill cover. Methane and carbon dioxide are released from waste over time as these organic materials decompose *anaerobically* in the landfill. Actions to reduce organic waste from households and the commercial sector will be vital for reducing our overall emissions and reaching our target.

The remained of the waste emission are from municipal solid waste and commercial and industrial sources. A variety of solutions for minimising waste and diverting waste from landfill through reuse and recycling will be required to make improvements to the waste emissions.



**Figure 6: Council Greenhouse Gas Emissions Inventory showing the proportion of organic waste.**

### **7.2.2 Electricity from facilities and streetlights**

Electricity from facilities and from streetlights makes up a total of 10% of emissions. Council owns a large number of facilities including the Civic Centre, the Public Library, Council's Depot, the Rediscovery Centre, and a number of sporting facilities and community buildings. But by far the largest consumer of electricity from facilities is the Alice Springs Aquatic and Leisure Centre. Improving the energy efficiency of this facility will be a high priority and is vital to reducing our overall emissions.

Reducing greenhouse gas emissions from electricity is perhaps the most straightforward area. Electricity can be easily measured and monitored and there are technologies for demand management, improving efficiency or using renewable energy as a source of electricity. Monitoring energy use can help to pinpoint areas for improvement.

The largest proportion of electricity from facilities use is from sport and recreation and this is one area where improvement can be made. Sporting groups can work together with Council to improve the energy efficiency of their facilities including canteens, change rooms and clubhouses.

### **7.2.3 Transport**

Emissions from transport account for 2% of Council's total emissions. Council owns a large number of petrol and diesel vehicles including passenger vehicles, graders, road and earth work machinery, trucks, street sweepers, mowers, and water trucks.

Reducing the number of kilometres travelled in vehicles, improving the energy efficiency of vehicles, empowering staff to use bicycles for work-related travel and switching to electric vehicles will be the key

ways to reduce emissions from transport. Nonetheless, achieving emissions savings in the area of transport will be challenging, particularly as there are few electric vehicles on the market and even less for machinery and heavy vehicles.

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## 8 Community Emissions

In 2016, Alice Springs had an estimated resident population of 26,823 (Australian Bureau Statistics, 2017). Emissions from the community have been profiled by Ironbark Sustainability using the Global Protocol for Community-Scale Greenhouse Gas Emission Inventories (GPC). The GPC is an internationally accepted reporting standard for community emissions and communities that have completed a GPC-compliant emissions profile can compare their emissions against other communities in Australia or around the world.

The community emissions profile provides a snapshot of greenhouse gases with the municipality but is not suitable as a tool for measuring the success of individual targets or actions.

Total annual community emissions are 352,274TCO<sub>2</sub>e. Electricity, gas, and transport are the key contributors from the community-profile with the remainder comprising solid waste and wastewater. With the NT Government's plan for 50% renewables by 2030, electricity is an area where vast improvements will be made in the coming years. Emissions from transport have a less clear descent path. Without strong federal policies and incentives for electric vehicles and disincentives for driving high fuel emitting cars, this is an area where emissions savings will be more challenging. Continuing to improve on cycling rates and working with key stakeholders to introduce electric vehicles will be key areas to focus on.

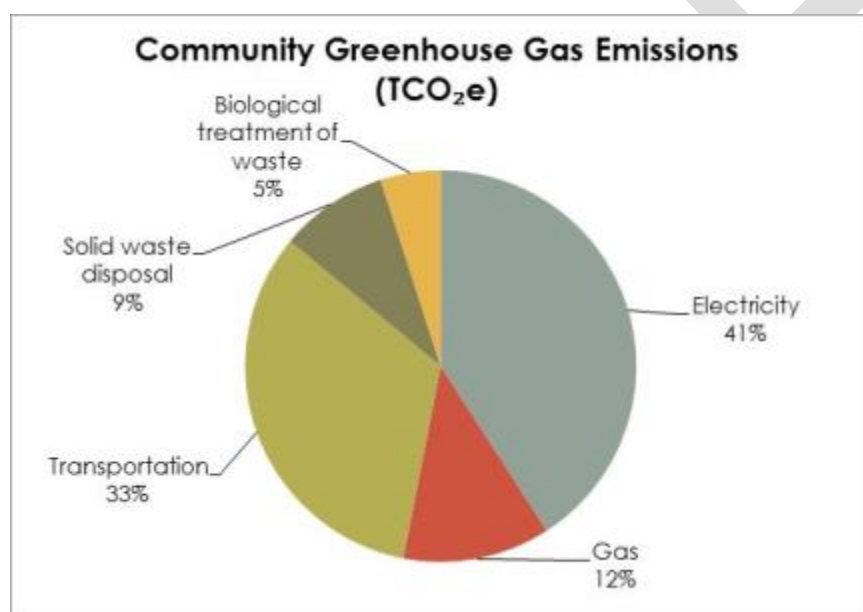


Figure 7: Profile of community greenhouse gas emissions from 2016.

Table 2: Summary of 2016 Community emissions profile.

| Source of emissions           | Emissions (TCO <sub>2</sub> e) | Percentage total emissions |
|-------------------------------|--------------------------------|----------------------------|
| Electricity                   | 144,043                        | 41%                        |
| Gas                           | 42,954                         | 12%                        |
| Transportation                | 115,990                        | 33%                        |
| Solid waste disposal          | 31,768                         | 9%                         |
| Biological treatment of waste | 17,518                         | 5%                         |
| <b>Total</b>                  | <b>352,274</b>                 | <b>100%</b>                |

## 9 Action Plan

Actions to reduce Council and community emissions by 2020 are listed below. Most actions will lead to quantifiable improvements in emissions, while others will support climate change responses in the community. Wherever possible, emissions savings from each action have been estimated. Having good knowledge of the potential emissions reductions from each action is important in setting achievable targets.

Implementing actions will be dependent on Council's budgets and will require forward planning. By the same notion, efficiency measures reduce costs and future-proof against electricity, fuel and gas price hikes and this can be factored in. The question "what will it cost us? Could equally be replaced with "what will it save us?" and what other benefits will the community receive? All actions listed are nonetheless aspirational yet achievable.

Costs associated with each measure are defined as being low, medium, high or very high as follows:

Low cost: <\$10,000

Medium cost: \$10,000 - \$100,000

High cost: >\$100,000

Very high cost: >\$1,000,000

### 9.1 Current emissions savings from Council facilities and operations

Council has implemented a significant number of energy efficiency and solar projects across its facilities.

Solar PV installations:

- Alice Springs Aquatic and Leisure Centre: 99kW
- Basketball stadium: 30kW
- Civic Centre 100kW
- Depot 44kW
- Public Library (car park) 90kW
- Rediscovery centre 30kW

While some of these were completed prior to 2016, others were implemented in 2017 and the emissions savings will therefore not be reflected in the baseline but will be noticeable in future emissions inventories. The projected savings from already implemented or planned projects amount to 360TCO<sub>2</sub>e , approximately 2% of total 2016 emissions. These savings have been taken into account in developing the target.

Projects that will further reduce emissions that are in planning stages are kerbside recycling (which will reduce emissions from paper and cardboard being diverted from landfill) and variable speed drives f and an additional 175kW solar system at the Aquatic and Leisure Centre.

### **9.1.1 Future considerations**

The realities of a changing world and the changes in the facilities and services under Council's care and control need to be taken into account to ensure targets can be met going into the future.

As we experience temperature rises in central Australia, electricity consumption will also increase to meet cooling demands. Additional facilities and services that Council will inherit that will send emissions on an upward trend include:

- Kilgariff suburb
- Netball stadium
- Garden Cemetery Chapel
- Transport of recycling interstate
- Higher energy demands for cooling due to temperature increases

On the other hand, the rate at which renewable and energy efficiency technologies are increasing means that there is scope to rapidly decrease emissions. Technologies that were considered to be too expensive only a few years ago and now feasible.

**Table 3: Action Plan for reducing emissions from Council operations.**

|    |             | Action                                                                                    | Performance indicator                                                                                                                            | Time frame | Outcome                                                                                                | Tonnes GHG saved per annum | Cost                                                       | Cost                                                                                                                                                       | Priority  |
|----|-------------|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------------------------------------------------------|----------------------------|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1. | Waste       | Trial commercial food waste composting systems.                                           | 50 tonnes food and green waste is trialled using a low-cost, low technology method (e.g. open windrows).<br>Report to Council on trial outcomes. | 2019-2020  | Food waste composting trial is assessed for suitability to being scaled up.                            | 140                        | Low-Medium                                                 | \$20,000 if consultant fee required. Otherwise (high) staff costs only.                                                                                    | High      |
| 2. | Waste       | Reduce pallets going to landfill by 50%.                                                  | 225 tonnes reduction in pallets going to landfill.                                                                                               | 2021       | Emissions savings from wood waste going to landfill, less stockpiling.                                 | 125                        | Low                                                        | \$0                                                                                                                                                        | Low       |
| 3. | Waste       | Identify cost-effective measures to reduce food waste and garden waste going to landfill. | Options for reducing food waste and garden waste presented in business case to Council.                                                          | 2018       | Feasible options adopted by Council.                                                                   | -                          | Low                                                        | \$20,000. Business case (grant funding already requested).                                                                                                 | High      |
|    |             | Action                                                                                    | Performance Indicator                                                                                                                            | Time frame | Outcome                                                                                                | Tonnes GHG saved per annum | Cost                                                       |                                                                                                                                                            | Priority  |
| 4. | Electricity | Source 50% of renewable energy by 2021.                                                   | Additional 248kW solar energy.                                                                                                                   | 2021       | Emissions reductions, leadership and long-term leadership. Cost reductions over a 4-6 year time frame. | 306                        | High initial investment, but savings over a 5 year period. | \$600,000 price based on existing solar PV systems at Council.                                                                                             | Very High |
| 5. | Electricity | Implement LED street lighting changeover, regardless of ownership.                        | All streetlights in Alice Springs changed to LEDs.                                                                                               | 2021       | Lower emissions, higher light output and lower maintenance requirements.                               | 370                        | Very high                                                  | \$2,000,000 estimated price. Recommend approaching the NTG. PWC may be willing to change like for like replacements prior to completing a full changeover. | High      |

|    |             |                                                                                                            |                                                                                                                                                                                                |      |                                                                                                                                                                                |     |        |                                                                                                                                                                                      |           |
|----|-------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 6. | Electricity | Variable speed drive for ASALC indoor pools.                                                               | 8 variable speed drives installed in indoor pools.                                                                                                                                             | 2018 | Major reduction (12%) in electricity from Council facilities.                                                                                                                  | 187 | Medium | \$75,000 (already committed and going ahead.                                                                                                                                         | Very High |
| 7. | Electricity | Introduce user-pays systems and user-agreements for energy use in Council-owned facilities.                | User-pays systems are in place for energy used across Council facilities.<br>Introduce a tenancy partnership program to ensure users of Council facilities take responsibility for energy use. | 2018 | Fair and equitable terms and conditions for user groups.<br>Accountability by user groups.<br>Tenants take ownership for energy used on Council facilities.<br>Energy savings. | 30  | Low    | \$0                                                                                                                                                                                  | High      |
| 8. | Electricity | Replace all inefficient lights in Council buildings with LEDs.                                             | All lights in Council-owned buildings LEDs.                                                                                                                                                    | 2021 | Significant electricity savings.<br>Improved light output.<br>Lower maintenance costs.                                                                                         | 77  | High   | Very difficult to estimate. Most light changeovers can be done over time during regular replacement/maintenance.<br>Estimated costs \$50,000 for facilities and \$150,000 for ASALC. | Medium    |
| 9. | Electricity | Financial support for sports and other user groups to become energy efficient or install renewable energy. | Excess fridges and freezers are removed.<br>Push-button timers on lights.<br>Solar PV where appropriate                                                                                        | 2018 | Electricity savings.<br>Accountability by user groups.<br>Tenants take ownership for energy used on Council facilities.<br>Energy savings.                                     | 30  | Medium | Suggest 10 grants of \$500.<br>Will enable sports to install more energy efficient fridges etc. Will need to be done after user agreements are in place.                             | Medium    |

|     |             |                                                                                                                                                                                                             |                                                                                                                                                                                                                                                   |                   |                                                                                                                                                                    |                                   |             |                                                                                                                                           |                 |
|-----|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| 10. | Electricity | Consider sustainability issues in the decision-making process of planning including a forecast of estimated energy use for all new facilities. Ensure new buildings are appropriately insulated and shaded. | Environmental assessments for new developments and for significant projects. Ecological sustainable development principles considered.                                                                                                            | 2018              | Sustainability considered in design phase. Energy efficiency measures put in place prior to developments.                                                          | -                                 | Low-High    | Decision making costs low unless external consultant is required or sustainable design considerations add significant costs.              | Medium          |
| 11. | Electricity | Undertake an energy audit of key Council facilities.                                                                                                                                                        | Audit of key facilities undertaken every 3 years. List of prioritised action items.                                                                                                                                                               | 2018-2021         | Cost effective energy efficiency measures across Council facilities are identified. Baseline established from which improvements to energy efficiency can be made. | -                                 | Low-medium  | Can be done by staff at a basic level, by an independent consultant, or bit by bit with local contractors quoting on individual elements. | High            |
| 12. | Electricity | Establish a rolling fund for financing energy efficiency projects and renewable energy.                                                                                                                     | Fund established based on allocating 25% of Council's facilities electricity expenditure. \$170,000 allocated to support renewable energy projects with a return in energy savings over a 1-5 year period. Number of projects paid for from fund. | 2018              | Budgets available to allow for forward planning. Rolling fund will enable energy efficiency/solar actions from this Plan to be completed.                          | -                                 | High        | Medium costs on an annual bases ~\$160,000/annum with reductions in electricity bills each year due to energy savings)                    | Very High       |
|     |             | <b>Action</b>                                                                                                                                                                                               | <b>Performance Indicator</b>                                                                                                                                                                                                                      | <b>Time frame</b> | <b>Outcome</b>                                                                                                                                                     | <b>Tonnes GHG saved per annum</b> | <b>Cost</b> |                                                                                                                                           | <b>Priority</b> |
| 13. | Gas         | Pool blankets for indoor heated pools at ASALC.                                                                                                                                                             | Indoor pool blankets installed.                                                                                                                                                                                                                   | 2018              | Reduced gas consumption.                                                                                                                                           | 45                                | Medium      | \$100,000.                                                                                                                                | High            |
|     |             | <b>Action</b>                                                                                                                                                                                               | <b>Performance Indicator</b>                                                                                                                                                                                                                      | <b>Time frame</b> | <b>Outcome</b>                                                                                                                                                     | <b>Tonnes GHG saved per annum</b> | <b>Cost</b> |                                                                                                                                           | <b>Priority</b> |

|     |           |                                                                                                                                                     |                                                                                                                                                                                 |           |                                                                                         |                                   |                        |                                                                                                                                                           |        |
|-----|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------------------------------------------------------------------|-----------------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 14. | Transport | Replace one Council vehicle with an electric vehicle per year (when vehicles are due for renewal). Provide a charge point for the electric vehicle. | 4 electric vehicles in Councils fleet by end 2021.<br>Electric vehicle charge points are installed.                                                                             | 2021      | Reduced fuel use from Council fleet.<br>Leadership in reducing emission from transport. | 8 tonnes per year by 2020         | High                   | Medium cost per vehicle (estimated \$60,000). Assume electric vehicle would replace existing vehicles at time of renewal. Charge point already installed. | High   |
| 15. | Transport | Introduce an active transport policy for Council staff.<br>Incentivise active transport.                                                            | Policy implemented and actively supported by each Department. Annual increase in the number of staff walking, cycling or taking public transport to work and during work trips. | 2018      | Leadership in reducing emission from transport.                                         | Savings linked to previous action | Staff cost: low-medium | \$0<br>Staff cost only.                                                                                                                                   | High   |
| 16. | Transport | Ensure bicycles and electric bicycles are available for transport during work hours and encourage their use.                                        | Distance travelled by staff on foot or bicycle                                                                                                                                  | 2018-2021 | Leadership in active transport, reduction in emissions from Council's fleet.            | 2                                 | Low                    | 1 electric bicycle available already. Potentially introduce additional bicycles at the Civic Centre/Library, ASALC, and Depot if required.                | Medium |
| 17. | Transport | Reduce fuel use at landfill by adopting GPS monitoring for compactor at landfill.                                                                   | GPS unit installed in compactor.                                                                                                                                                | 2019      | Reduced fuel usage.<br>Improved compaction of waste in landfill.                        | 2                                 | High                   | \$120,000<br>Co-benefit of reducing staff hours, reduced machinery use, more accurate compaction levels.                                                  | Low    |

|     |           |                                                                                                      |                                                                                                                                                                                        |                        |                                                                                                      |                                   |                                 |                                                                           |                 |
|-----|-----------|------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------|---------------------------------------------------------------------------|-----------------|
| 18. | Transport | Introduce a green fleet policy.                                                                      | Minimum fuel efficiency standards introduced to all new Council passenger vehicles.                                                                                                    | 2018                   | Decrease in emissions from transport.                                                                | -                                 | Low (similar replacement costs) | Similar replacement costs for low emissions vehicles.                     | Low             |
| 19. | Transport | Introduce minimum fuel efficiency standards for waste-contractor vehicles.                           | Provide minimum standards for fuel efficiency for major contractors.                                                                                                                   | 2020                   | Decrease in Scope 3 transport emissions                                                              | 1                                 | Low                             | No cost to Council. Onus is on waste contractor.                          | Low             |
|     |           | <b>Action</b>                                                                                        | <b>Performance Indicator</b>                                                                                                                                                           | <b>Time frame</b>      | <b>Outcome</b>                                                                                       | <b>Tonnes GHG saved per annum</b> | <b>Cost</b>                     |                                                                           | <b>Priority</b> |
| 20. | Policy    | Embed sustainable practices and carbon reduction measures into all staff KPIs.                       | Sustainability KPIs for each staff member e.g. sustainable procurement from finance team, sustainable vehicle purchasing from mechanics, reducing paper use from administration staff. | End 2018               | Bottom up approach. Greater ownership from staff. Greater knowledge sharing within the organisation. | -                                 | Staff cost: medium              | \$0 staff cost only                                                       | High            |
| 21. | Policy    | Facilitate staff training in energy efficiency, energy auditing, eco-driving, waste management etc.  | -Staff training opportunities provided<br>-Information on Council's climate action work in staff recruitment and induction process                                                     | 2018                   | Awareness and education                                                                              | -                                 | Staff cost: medium              | \$0 staff cost only unless Council undergoes a specific training program. | Medium          |
| 22. | Policy    | Collaborate with other Councils to share and contribute advice through the Cities Power Partnership. | CPP goals are set and achieved. Semi-regular sharing of information with partner councils.                                                                                             | Start 2018 and ongoing | Leadership and learning.                                                                             | -                                 | Staff cost: medium              | \$0                                                                       | High            |
| 23. | Policy    | Sustainable purchasing policy.                                                                       | Sustainable procurement policy created and implemented.                                                                                                                                | 2020                   | Lower indirect emissions and waste to landfill.                                                      | -                                 | Staff cost: medium              | \$0                                                                       | Low             |

Note: some GHG savings overlap (e.g. Food waste trial with home composting).

**Table 4: Actions to reduce community emissions**

|  |  | <b>Action</b> | <b>Performance Indicator</b> | <b>Time</b> | <b>Outcome</b> | <b>Tonnes</b> | <b>Cost</b> | <b>Cost</b> | <b>Priority</b> |
|--|--|---------------|------------------------------|-------------|----------------|---------------|-------------|-------------|-----------------|
|--|--|---------------|------------------------------|-------------|----------------|---------------|-------------|-------------|-----------------|

|     |            |                                                                                                                                        |                                                                                                                                 | frame      |                                                                                                                                                                | GHG saved per annum        |           | explanation                                                                                                              |           |
|-----|------------|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------|-----------|
| 24. |            | Implement a kerbside recycling service for residents and businesses.                                                                   | Kerbside recycling service implemented.<br>High percentage of household paper and cardboard removed from domestic waste stream. | 2018       | Reduced emissions from reducing paper and cardboard going to landfill.<br>Co-benefits: reduced waste to landfill, conserving resources, additional employment. |                            | Very high | Kerbside recycling already being actioned.<br>Budget separate to this Plan.                                              | Very High |
| 25. | Waste      | Pending outcome of business case (action item 3), implement a food and garden organics kerbside collection service.                    | Organics collection service implemented.<br>Compost system in place.                                                            | 2021       | Large reduction in emissions.<br>Co-benefits: waste diverted from landfill, compost product available for re-sale to the community.                            | 1907                       | Very high | \$1 million in new facility. Possibly grant dependent. Co-benefit of diverting approx. 5,000 tonnes waste from landfill. | High      |
| 26. | Waste      | Home composting program implemented.                                                                                                   | Discounted home composting bins provided to 500 residents<br>Composting workshops and ongoing education program.                | 2020       | 500 additional households are composting.<br>Householders are upskilled in composting.                                                                         | 5                          | Medium    | \$22,000 Discounted compost bins to 500 households + series of workshops.                                                | High      |
|     |            |                                                                                                                                        |                                                                                                                                 |            |                                                                                                                                                                |                            |           |                                                                                                                          |           |
| 27. | Wastewater | Lobby Power Water Corporation to reduce emissions from wastewater by investigating water efficiency programs and wastewater treatment. | Correspondence with Power Water Corporation.                                                                                    | 2018       | Reduction in emissions from wastewater.                                                                                                                        | -                          | High      | \$0 staff time only                                                                                                      | Medium    |
|     |            | Action                                                                                                                                 | Performance Indicator                                                                                                           | Time frame | Outcome                                                                                                                                                        | Tonnes GHG saved per annum | Cost      |                                                                                                                          | Priority  |

|     |             |                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                   |                  |                                                               |   |                                   |                                                                                                                                                                            |      |
|-----|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------|---|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| 28. | Electricity | Lead, advocate for or assist with community-owned solar.                                                                                                                                                                                                                                                               | Community-owned solar projects supported by Council – either actively or in-kind. Partnerships formed with community groups. Working model or community energy project developed. | 2018 and ongoing | Community members can more easily access solar energy.        | - | Low- high                         | Staff costs only to support community – owned solar e.g. through in-kind support. Leading on community-owned solar would incur costs due to consultancy fees, set-up fees. | High |
| 29. | Electricity | Provide information on household and business solar.                                                                                                                                                                                                                                                                   | Information on Council's website. Community information session or event. Information booklet on solar PV.                                                                        | 2018             | Actively support the transition to a renewable energy future. | - | Low                               | Cost of printing materials, hiring experts for workshops.                                                                                                                  | High |
| 30. | Electricity | Open up unused Council land for solar projects.                                                                                                                                                                                                                                                                        | Land available for solar projects is identified.                                                                                                                                  | 2018             | Land accessible for community energy projects.                | - | Staff cost: Medium + medium costs | Staff costs + development approval costs. Additional expenses if Council is required to alter land e.g. for drainage etc.                                                  | High |
| 31. | Electricity | Engage with and lobby the Northern Territory Government, electricity generators and retailers and other relevant stakeholders to ensure a smooth transition to a renewable energy powered network is feasible. Transition to include innovative technologies to support renewable energy such as peer to peer trading. | Number meetings or advocacy actions.                                                                                                                                              | Ongoing          | Renewable energy targets made achievable Leadership.          | - | Staff cost: low                   | Staff time                                                                                                                                                                 | High |

|     |             |                                                                                                                          |                                                                                                                                                                                                                                                            |                   |                                                                                                     |   |                 |                                                                                                                             |                 |
|-----|-------------|--------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------|---|-----------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------|
| 32. | Electricity | Attract a service that enables billing of renters for solar to make it more attractive for home-owners to install solar. | Number of businesses approached to offer a service for home-owners. Service available to charge renters for solar.                                                                                                                                         | 2019              | Solar more accessible for a wide cross-section of the community. Greater uptake of solar.           | - | Staff cost: low | Staff cost only.                                                                                                            | High            |
|     |             | <b>Action</b>                                                                                                            | <b>Performance Indicator</b>                                                                                                                                                                                                                               | <b>Time frame</b> | <b>Outcome</b>                                                                                      |   | <b>Cost</b>     |                                                                                                                             | <b>Priority</b> |
| 33. | Transport   | Set a target for active transport (walking and cycling) and commit to developing a bicycle plan.                         | Target set. Bicycle plan commenced or planned.                                                                                                                                                                                                             | 2019              | Improvement in cycling and walking rates.                                                           | - | Medium          | Consultancy fee if plan goes ahead \$30,000. Otherwise staff time only to develop a target/                                 | Medium          |
| 34. | Transport   | Expand provision of safe, secure infrastructure for cyclists and pedestrians.                                            | Bicycle symbols painted in key areas<br>'Share the road' signage<br>Remove obstructions to safe riding.<br>Additional bicycle racks.                                                                                                                       | 2018-2021         | Improvement in cycling rates.<br>Reduction in emissions from transport.<br>Reduced road congestion. | - | High-very high  | \$5,500 for bicycle symbols and signage in key areas of CBD. Larger areas of footpaths and signage would need to be costed. | High            |
| 35. | Transport   | Develop an identity as a bike-friendly town.                                                                             | Education output and signage on sharing the road with cyclists.<br>Cycling maps available<br>Work with the NTG to counter negative driver sentiment and misinformation towards cyclists.<br>Provide support for new riders through: Rusty riders workshops | 2018-2021         | Positive attitude towards cyclists.<br>Improved perception of safety.<br>Increase in cycling rates. | - | Medium          | Signage, driver awareness/education/media output \$30,000.                                                                  | High            |

|     |            |                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                   |                   |                                                                                                                                                                                                                                           |   |                        |                                                                              |                 |
|-----|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|------------------------|------------------------------------------------------------------------------|-----------------|
| 36. | Transport  | Facilitate meetings with key stakeholders to progress the incursion of electric vehicles in central Australia.<br><br>Lobby NT Tourism and the NTG to set up a linked network of electric vehicles in central Australia. Desert Knowledge Australia | Meetings with stakeholders. Key actions to support electric vehicles are identified. Sufficient charge points installed to allow for travel between key destinations and between Adelaide and Darwin. Sufficient charge points for electric vehicle tourism in central Australia. | 2018-2019         | Remove barriers to driving an electric vehicle in central Australia Increase awareness of electric vehicles. Barriers to driving an electric vehicle in central Australia are lessened. Barriers to electric vehicle tourism are removed. | - | Low                    | Staff costs                                                                  | High            |
| 37. | Transport  | Install electric vehicle charging stations in a central location.                                                                                                                                                                                   | 2 slow charge electric vehicle charge stations installed.<br><br>2 fast charge stations installed.                                                                                                                                                                                | 2018<br><br>2021  | Remove barriers to driving an electric vehicle in central Australia. Increase awareness of electric vehicles.                                                                                                                             | - | High                   | \$100,000 for two fast charging stations. Costs likely to come down by 2021. | High            |
|     |            | <b>Action</b>                                                                                                                                                                                                                                       | <b>Performance Indicator</b>                                                                                                                                                                                                                                                      | <b>Time frame</b> | <b>Outcome</b>                                                                                                                                                                                                                            |   | <b>Cost</b>            |                                                                              | <b>Priority</b> |
| 38. | Leadership | Lobby the NT Government to provide strong leadership on climate action.                                                                                                                                                                             | Meetings and correspondence with NT Government. Number of specific actions requested. Alignment between Climate Action Plan and NTG climate policies.                                                                                                                             | 2018-2021         | Greater support for Council and communities initiatives. Reduced emissions across the Northern Territory.                                                                                                                                 | - | Staff time: low-medium | Staff time only.                                                             | Very high       |
| 39. | Leadership | Partner with key local organisations to develop or progress action on climate change initiatives.                                                                                                                                                   | Meetings with desertSMART. Roadmap stakeholders. Actions identified and progressed.                                                                                                                                                                                               |                   | Momentum maintained in community. Collaborative approach across Alice Springs. Spread responsibility for action across different organisations.                                                                                           | - | Staff time: medium     | Staff time only.                                                             | Medium          |

|     |                       |                                                                                                               |                                                                                                   |        |                                                                                                                         |   |                    |                                                                                                                                                                                                                                                                                 |        |
|-----|-----------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|--------|-------------------------------------------------------------------------------------------------------------------------|---|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 40. | Awareness & education | Engage with and support the community on climate change issues through the arts and through community events. | Art event or collaboration focusses on climate change.<br>Public art with a climate change focus. |        | Cross departmental collaboration with environment and arts from within Council.<br>Inspiration and community education. | - | Staff time: medium | Council could tie climate change theme in with an existing arts events (e.g. Recycled Arts Prize) or create separate arts events and/or artwork/sculptures/digital art/performance art. Alternatively, Council could sponsor a particular arts even in the Desert Festival etc. | Medium |
| 41. | Awareness & education | Establish an environmental grant under Council's Community Grants Program.                                    | Amount of funding allocated to community groups for sustainability initiatives.                   | Annual | Greater capacity for action from community organisations.<br>Emissions reductions from community sector.                | - | Low-medium         | Existing community grants budget - allocate a proportion of funding to environment-specific projects. Or, separate funding of \$10,000 per annum.                                                                                                                               | High   |

|     |                       |                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                       |                                                                                              |   |                                            |                                                                                                                                                                                                                                                                                         |        |
|-----|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------|---|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| 42. | Awareness & education | Increase awareness of the science of, potential impacts, and mitigating actions of climate change within Council staff and within the community of Alice Springs. | <p>Section on climate change made available on Council website.</p> <p>Council staff trained in climate change awareness.</p> <p>Mail out to residents.</p> <p>Community forums.</p> <p>Community awareness education displays.</p> <p>Library, community events.</p> <p>Engage with schools.</p> <p>Survey residents to find key barriers to sustainable living and main areas of interest.</p> <p>Percentage (&gt;75%) of public aware of the impacts of climate change at a local and global level.</p> | Ongoing               | Community is made aware of the impacts of climate change.                                    | - | Staff time: medium                         | Key dates such as Earth Hour, World Environment Day to focus specifically on climate-change initiatives. Information on Council website, and regular posts on social media and with key Council figures (Mayor). Inform sports of the effects of climate change on sporting events etc. | High   |
| 43. | Awareness & education | Support innovation through local responses to climate change.                                                                                                     | Annual competition with a prize to kick-start innovative responses.                                                                                                                                                                                                                                                                                                                                                                                                                                        | End 2018 then ongoing | <p>-Maintain momentum and interest.</p> <p>-Awareness and education.</p> <p>-Adaptation.</p> | - | Staff time: low-medium<br>Cost: Low-medium | E.g. \$2500 prize/grant as a local kick-starter.                                                                                                                                                                                                                                        | Medium |

## 10 Target

### 10.1 Vision

**Vision statement:** where we want to be in 2020/2030. TBC after public consultation and consultation with Elected Members.

### 10.2 Council's Emissions Target

Achieving zero emissions by 2050 is widely acknowledged as necessary for keeping below a 2°C temperature rise, but interim targets are needed to stay on track to meet this long-term goal.

Council has a target of reducing Greenhouse Gas emissions by 12% from the baseline year of 2016 by 2021. To reach the target of 20% reduction compared to the baseline year, Council would need to reduce annual emissions by 4,435TCO<sub>2</sub>e by 2020.

For a target to be successful, it needs to be linked to actions rather than an aspirational but unachievable goal. By undertaking energy efficiency, renewable energy, and transport projects in the action list, and with actions already undertaken by Council the goal of 30% reduction in emissions is highly achievable. The 30% goal can be achieved through existing measures, removal of paper and cardboard from the waste stream via a kerbside recycling service, installation of additional solar panels, and variable speed drives at the Alice Springs Aquatic and Leisure Centre.

A stretch target for the year 2020 is 20%. To achieve this, Council's annual emissions would need to be reduced by 7,512TCO<sub>2</sub>e. This target would not only require energy efficiency, renewable energy, and transport projects but also a major reduction in organic waste going to landfill.

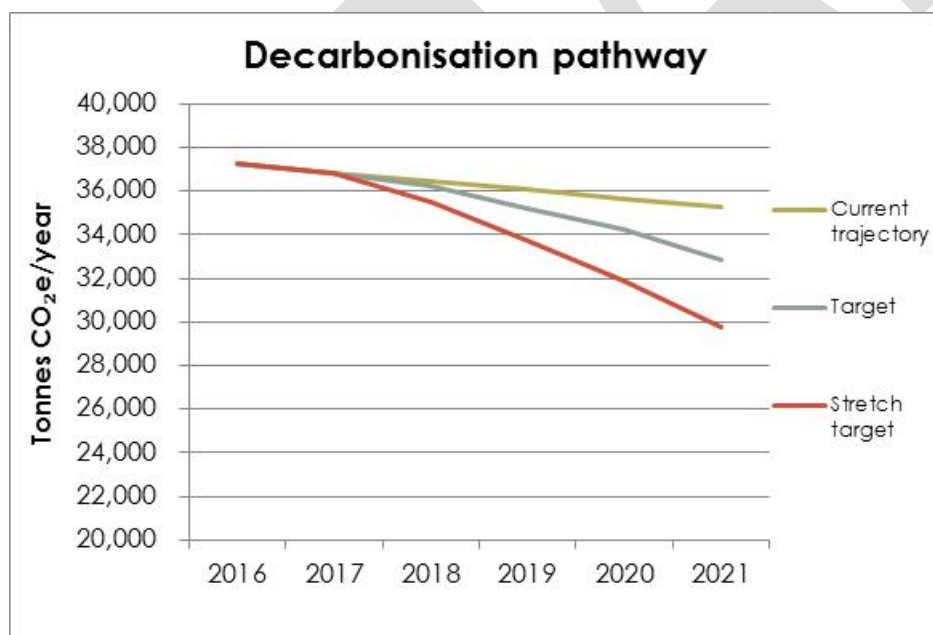


Figure 8: Projected pathways for Council emissions reductions.

### **10.3 Renewable Energy Target**

A renewable energy target is incorporated into the action plan to align with Council's Strategic Plan 2018-2021. This target is for 50% of electricity used by Council facilities to be from a renewable source by 2021. This target can be achieved through energy efficiency measures to reduce electricity consumption, installing solar directly onto facilities, or purchasing solar from community energy or large-scale renewables projects.

### **10.4 Actions to influence Territory-wide reduction in emissions**

To expand our sphere of influence on climate action, Council is in a position to lobby the NT Government to provide stronger support on climate action through a number of means which could include: grant funding for community-wide actions, publishing Territory-wide emissions data, providing incentives for electric vehicles; trialling electric buses; or prioritising investment in waste management services that reduce emissions such as diverting food and garden organics from landfill. Furthermore, Council can work with other councils in the Northern Territory or the Local Government Association Northern Territory or could work with Tourism NT and the Northern Territory Government to set up a linked network of electric vehicles in central Australia.

Council is already part of a growing number of council across Australia that have signed up to the Cities Power Partnership - a program of mentoring, leadership and action to promote and accelerate action on emissions reduction at the local government level.

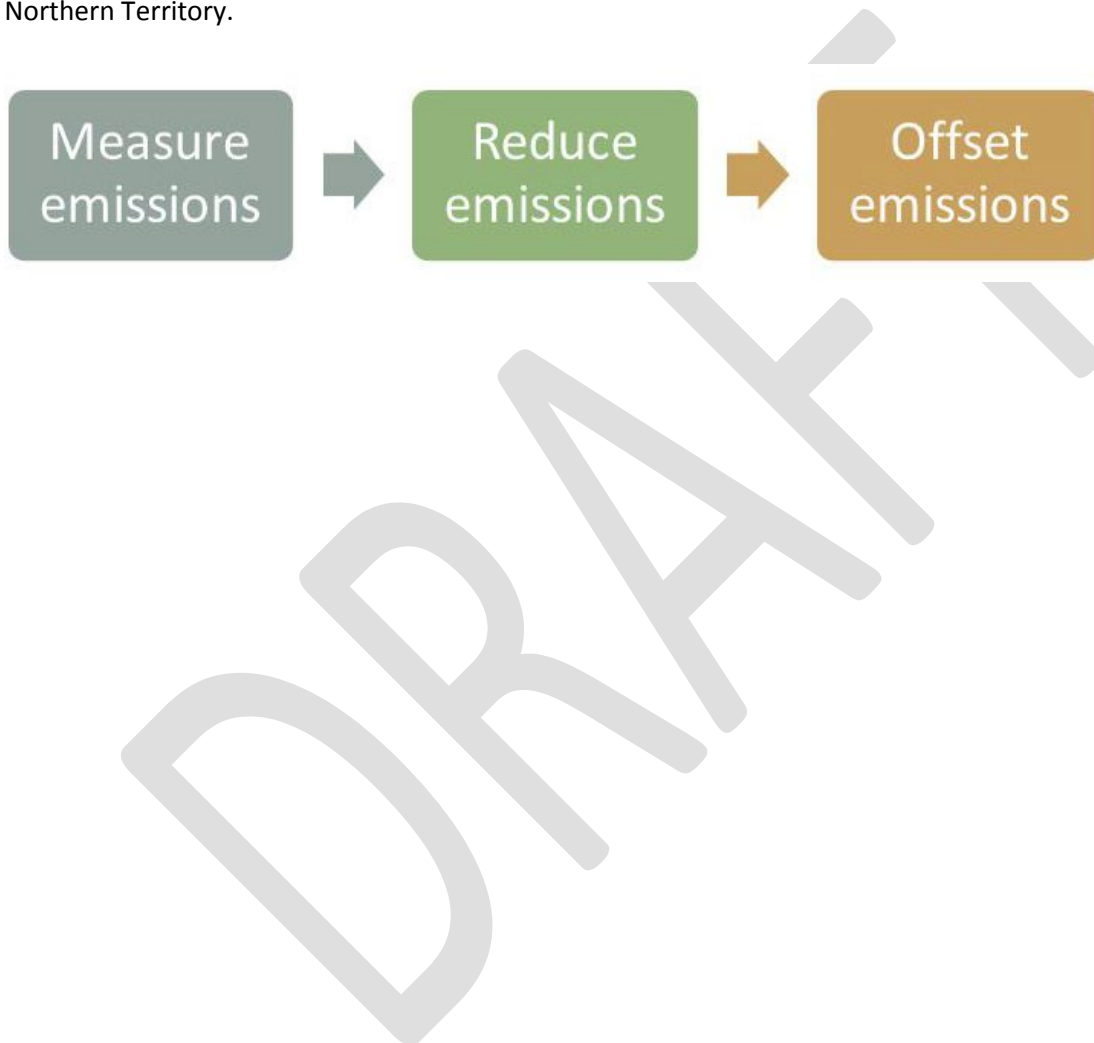
### **10.5 Community Emissions Target**

Council aims to be a leader in mitigating against climate change and in engaging, mobilising, and facilitating action in the community. Community engagement will be vital to realising improvements in the community emissions profile in the coming years. Nonetheless, reducing emissions from the community is an enormous task and one the needs to be addressed at the individual, households, community level as well as all levels of government. Large-scale solar projects, a reduction in wastewater, improving cycling rates and vehicle efficiencies and a reduction of waste to landfill will be the key actions to reducing emissions from the community.

A community emissions reduction targets can be difficult to achieve due to the limited influence Council can have on residents of Alice Springs. However, setting a specific electricity target or qualitative targets could be an effective way of addressing a community emissions reduction.

## 11 Carbon neutrality

Carbon offsetting is a voluntary way to reduce emissions by paying for a project or activity that removes or reduces greenhouse gases. Carbon offset projects do not necessarily have to occur in the same area and they are projects that would not otherwise occur if they were not funded by carbon offsetting. Achieving carbon neutrality has not been the aim of this Plan as the Plan seeks to re-establish a baseline and a path forward for reducing emissions beyond the status quo. However, throughout the life of the plan, Council can investigate offsetting its residual emissions and can look to follow the hierarchy of measure emissions, reduce emissions, offset emissions. Buying offsets will help to achieve a more ambitious target in the future and may have co-benefits (such as Aboriginal employment, improving the economy and telling the local story) from within the a Northern Territory.



## Monitoring, reporting and evaluation

Achieving deep emissions reductions through the action items listed will require a diligent approach over coming years from Council and collaboration across the community through the efforts of individuals, businesses and organisations. The leadership already shown by Council puts it in good stead to influence and advocate for climate action through various levels of government.

This section lays out the monitoring, reporting, and evaluation required to ensure the Action Plan stays on track and that momentum is maintained to meet the emissions reduction target and progress actions. Initially, and to maintain momentum, emissions will be re-profiled for the year 2017.

|      | Monitor                                                                                                                                                                                                                             | Report                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Evaluate                                                                                                                                                                                                                                                                                                                                                                                   |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2018 | <ul style="list-style-type: none"> <li>Re-profile community and corporate emissions for the year 2017.</li> <li>Monitor Council's environmental footprint in the areas of electricity, gas, waste, transport, and water.</li> </ul> | <ul style="list-style-type: none"> <li>Quarterly update on progress of action items reported via Council reports and Environment Advisory Committees.</li> <li>Report 2017 Council emissions inventory to general public and via Council reports and Environment Advisory Committee.</li> <li>Report 2017 community emissions profiles to the general public.</li> <li>Provide ongoing information/education about climate change and updates of Council and community progress.</li> </ul> | <ul style="list-style-type: none"> <li>Annual review of progress on actions and emissions reductions via Council reports and Environment Advisory Committee meeting.</li> </ul>                                                                                                                                                                                                            |
| 2019 | <ul style="list-style-type: none"> <li>Monitor Council's environmental footprint in the areas of electricity, gas, waste, transport, and water.</li> </ul>                                                                          | <ul style="list-style-type: none"> <li>Quarterly update on progress of action items reported via Council reports and Environment Advisory Committee meetings.</li> </ul>                                                                                                                                                                                                                                                                                                                    | <ul style="list-style-type: none"> <li>Annual review of progress on actions and emissions reductions via Council reports and Environment Advisory Committee meeting.</li> </ul>                                                                                                                                                                                                            |
| 2020 | <ul style="list-style-type: none"> <li>Monitor Council's environmental footprint in the areas of electricity, gas, waste, transport, and water.</li> <li>Re-profile community and corporate emissions for the year 2017.</li> </ul> | <ul style="list-style-type: none"> <li>Quarterly update on progress of action items reported via Council reports and Environment Advisory Committee meetings.</li> <li>Report 2017 Council emissions inventory to general public and via Council reports and Environment Advisory Committee meetings.</li> <li>Report 2017 community emissions profiles to the general public.</li> </ul>                                                                                                   | <ul style="list-style-type: none"> <li>Annual review of progress on actions and emissions reductions via Council reports and Environment Advisory Committee meeting</li> </ul>                                                                                                                                                                                                             |
| 2021 | <ul style="list-style-type: none"> <li>Final emissions inventory for Council and community emissions profile for the year 2020.</li> </ul>                                                                                          | <ul style="list-style-type: none"> <li>Report 2020 Council emissions inventory to general public and via Council reports and Environment Advisory Committee meetings.</li> <li>Report 2020 community emissions profiles to the general public</li> <li>Establish new Climate Action Plan for beyond 2021.</li> </ul>                                                                                                                                                                        | <ul style="list-style-type: none"> <li>Evaluate success of the plan by comparing emissions for Council and the community for the year 2020, estimating the baseline for 2021 and comparing this to the baseline year of 2016.</li> <li>Evaluate success of the plan according to actions and whether or not the actions were appropriate and achievable in the given timeframe.</li> </ul> |

## 12 Appendix

### Appendix 1: Emissions boundaries

| Activity                                                                             | Scope | ASTC                                                | Comment                                                                                                                                                                                                                                                                                          | Community emissions                                  |
|--------------------------------------------------------------------------------------|-------|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|
| Grid-sourced gas                                                                     | 1     | Yes                                                 |                                                                                                                                                                                                                                                                                                  | Yes                                                  |
| LPG (stationary)                                                                     | 1     | Yes                                                 |                                                                                                                                                                                                                                                                                                  | Yes                                                  |
| Other stationary energy (e.g. diesel for generators, wood for stoves)                | 1     | N/A                                                 |                                                                                                                                                                                                                                                                                                  | NA                                                   |
| Transport fuel (LPG, gasoline, diesel, E10)                                          | 1     | Yes                                                 | Source: Council fuel records                                                                                                                                                                                                                                                                     | Yes                                                  |
| Refrigerants                                                                         | 1     | No                                                  |                                                                                                                                                                                                                                                                                                  | No                                                   |
| Oils and lubricants                                                                  | 1     | No                                                  |                                                                                                                                                                                                                                                                                                  | No                                                   |
| Waste in Council-managed landfill                                                    | 1     | Yes                                                 | Source: Weighbridge data from RWMF                                                                                                                                                                                                                                                               | Yes                                                  |
| Electricity                                                                          | 2     | Yes                                                 | Source: Jacana<br>EF: National Greenhouse Accounts Factors 2016                                                                                                                                                                                                                                  | Yes                                                  |
| Electricity – street lights                                                          | 2     | Yes                                                 | Source: Council streetlight audit.<br>Assumptions: kWh estimated to account for total electricity usage. Hours of usage estimated based on sunrise and sunset times.<br>No accurate data on kWh usage from PWC.<br>EF: National Greenhouse Accounts Factors 2016.<br>Scope 3 emissions included. | Included within electricity                          |
| Electricity – transmission losses                                                    | 3     | Yes                                                 | Assumptions based on National Greenhouse Gas Accounts 2016.                                                                                                                                                                                                                                      | Yes                                                  |
| Electricity – from buildings etc where Council doesn't have operational control      | 3     | Yes, if Council owned and bills directed to Council | Includes select sports where Council receive the bill.                                                                                                                                                                                                                                           | NA                                                   |
| Grid-sourced gas – transmission losses                                               | 3     | No                                                  |                                                                                                                                                                                                                                                                                                  | Yes                                                  |
| Grid-sourced gas – from buildings etc where Council doesn't have operational control | 3     | NA                                                  |                                                                                                                                                                                                                                                                                                  | Yes                                                  |
| Water                                                                                | 3     | Yes                                                 |                                                                                                                                                                                                                                                                                                  | Emissions from pumping water included in electricity |
| Paper                                                                                | 3     | Yes, if data available                              | Source: Council administration                                                                                                                                                                                                                                                                   | No                                                   |
| Flights                                                                              | 3     | Yes                                                 | Source: Council administration                                                                                                                                                                                                                                                                   | No                                                   |
| Taxis and hire cars                                                                  | 3     | No                                                  |                                                                                                                                                                                                                                                                                                  | No                                                   |
| Public transport                                                                     | 3     | No                                                  |                                                                                                                                                                                                                                                                                                  | Yes (included in transport)                          |
| Other supply chain (e.g. embodied energy)                                            | 3     | No                                                  |                                                                                                                                                                                                                                                                                                  | No                                                   |
| Contractor emissions                                                                 | 3     | Waste contractor only                               |                                                                                                                                                                                                                                                                                                  | No                                                   |

**Appendix 2: Source data for community emissions data (Ironbark Sustainability).**

| Name                                                                    | Author                                          | Publication date |
|-------------------------------------------------------------------------|-------------------------------------------------|------------------|
| Electricity Gas Australia 2015                                          | Electricity Gas Australia                       | April 2015       |
| Small-scale Technology Certificates - Registered                        | Clean Energy Regulator                          | September 2016   |
| Population Estimates by Local Government Area (ASGS 2015), 2005 to 2015 | Australian Bureau of Statistics                 | March 2016       |
| National Postcode Concordances 2011                                     | Australian Bureau of Statistics                 | June 2012        |
| ABS National Regional Profile - Industry - LGA 2010-14                  | Australian Bureau of Statistics                 | June 2016        |
| National Regional Profile - Industry LGA 2010-14                        | Australian Bureau of Statistics                 | June 2016        |
| Waste Generation and Resource Recovery – 2010-11                        | Randell Environmental Consulting                | February 2014    |
| Waste Account, Australia, Experimental Estimates 2013                   | Australian Bureau of Statistics                 | February 2013    |
| National Greenhouse Accounting Factors 2016                             | Department of Environment and Energy            | August 2016      |
| National Greenhouse Gas Inventory 2015                                  | Australian Department of Environment and Energy | June 2016        |
| National Greenhouse Accounting Factors 2015                             | Australian Department of Environment and Energy | August 2015      |
| 2016 Australian Energy Statistics Update                                | Department of Industry, Innovation and Science  | October 2016     |
| Detailed electricity data sourced from local distribution companies     |                                                 | September 2017   |
| Detailed waste data sourced from Council                                |                                                 | September 2017   |

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