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City of Casey

Emissions Management Plan

2018-22

01

Executive Summary

The City of Casey is committed to the goal of carbon neutrality.

The City of Casey has positioned itself as a leader in the greenhouse gas emissions and energy reduction space.

Progressive Councils have adopted a best practice approach to reducing emissions and associated costs through energy efficiency and renewable energy investment.

The successful delivery of its Emissions Management Plan 2012-17 has resulted from Council's high level of leadership, collaboration and commitment.

The City's achievements include implementing the largest Council Light Emitting Diode (LED) Streetlight Upgrade Program in Victoria as well as the Emissions and Energy Building Improvement Program, Solar System Installation and Vehicle Fleet Efficiency Programs.

In line with delivery of the Council Plan and Council's aspiration to be Australia's Most Liveable City Casey has set ambitious targets to decrease corporate carbon emissions.

Emissions Reduction

» A 'Leadership' target of 15 per cent by 2021/22 on the 2015/16 baseline.

» A 'Stretch' target of 25 per cent by 2021/22 on the 2015/16 baseline.

Renewable Energy

» A 'Leadership' target of 20 per cent by 2021/22.

» A 'Stretch' target of 30 per cent by 2021/22.

These targets establish a clear path for Casey to meet the goal of being carbon neutral in 2040.

City of Casey BAU Emissions Trajectory with targets to 2021/22

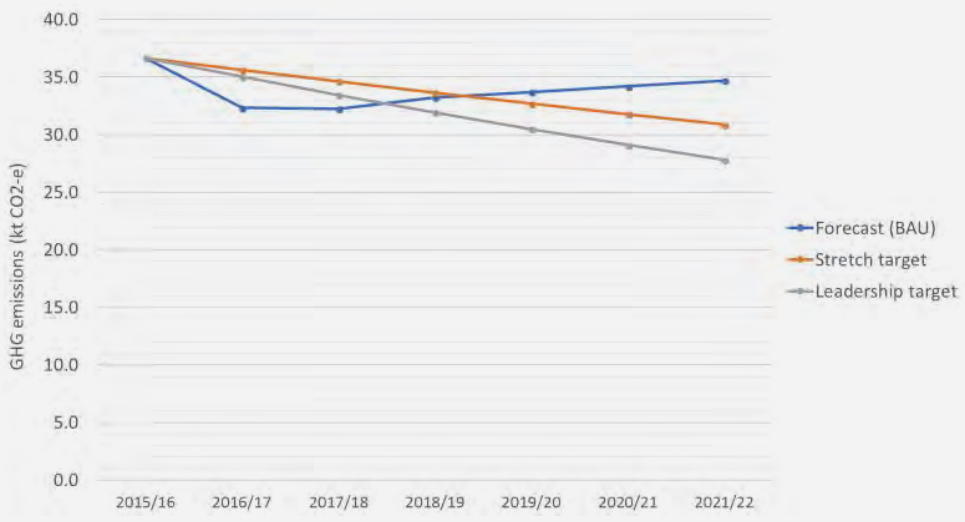

Figure 01: Greenhouse gas emissions reduction goals trajectory to 2021/22 based on 2015/16 baseline

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City of Casey Emissions Management Plan 2018-2022

This Plan provides a strategic pathway for City of Casey to invest in energy efficiency and renewable technology to maximise economic and environmental benefits to the City.

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Introduction

The City of Casey has a long history of identifying ways to reduce the greenhouse gas emissions and reducing energy produced from Council's operations. Since Council adopted a Greenhouse Strategy Local Action Plan in 2002 successive Councils and forward thinking has paved the way for the City of Casey to lead in emissions reduction through energy efficiency improvements.

In 2012 the City of Casey adopted its Emissions Management Plan 2012-17. This Plan was ground-breaking in setting out a fully cost and staged approach to reduce greenhouse gas emissions and energy consumption from Council's operations. It incorporated ambitious targets in the face of substantial growth in population, infrastructure and rising energy costs.

At the end of FY2016/17 Casey surpassed its emissions reduction target reducing emissions by 24% below those produced in 2010/11. This has brought about a significant decrease in emissions and cost savings and provided direct social, economic and environmental benefits to the Casey community.

Building on Council's proactive and collaborative approach, on 6 September 2016 the City resolved to take part in Victoria's TAKE2 Pledge helping Victoria reach its ambitious target to achieve net zero emissions by 2050. This is in-line with City of Casey's long-term goals of being carbon neutral by 2040 and becoming Australia's Most Liveable City.

This Emissions Management Plan 2018-22 guides and supports Council towards these goals over the next four years. It incorporates ambitious evidence-based targets in line with a comprehensive investment action program prioritised on economic, environmental and social benefits to ensure benefits are realised by the City.

03

Strategic Context

a. National policy context

Under International Climate Agreements Australian Government has committed to a 26-28 percent reduction in greenhouse gas emissions below 2005 levels by 2030 (under the Paris Agreement) as well as a 5 per cent reduction in emissions below 2000 by 2020 (under the Kyoto Protocol).

b. State policy context

Victoria's *Climate Change Act 2017* establishes a long-term target of net zero greenhouse gas emissions by 2050 as well as five yearly interim emissions reduction targets, to keep Victoria on track to meet this target. The State Government has also committed to renewable energy generation targets of 25 per cent by 2020 and 40 per cent by 2025.

c. Local policy context

The City of Casey is contributing to the broader efforts being made to reduce greenhouse gas emissions through improving energy efficiency, increasing renewable technology uptake and taking part in Victoria's TAKE2 Pledge and committing to be carbon neutral by 2040.

Council Plan 2017 – 2021

Casey is committed to efficient best practice through its Council Plan 2017-2021. The Plan identifies various strategies and indicators to guide Council actions.

- 5.4 Manage waste, water, biodiversity and energy use to achieve a clean, efficient and resilient city.
- 7.2 Encourage modes of transport that reduce emissions and congestion.
- 8.1 Plan, deliver and manage assets and resources to meet the needs of current and future communities.

04

Council is Leading through Action

City of Casey has shown a strong commitment to reducing its corporate emissions through sound investment in energy efficiency and renewable energy technology. This was proven in 2017 when Council reduced its corporate emissions by 24% through the implementation of its Emissions Management Plan 2012-17.

A key aspect of the Emissions Management Plan 2012-17 was to maximise both emissions reduction and utility cost savings from Council operations. In July 2017, Council met the two staged targets set in the Emissions Management Plan 2012-17.

» Stage 1: Reduce Council's greenhouse gas emissions back to the 2009/10 baseline in 2014/15.

» Stage 2: A 15% reduction in emissions from the 2009/10 baseline by 2016/17.

Key Projects implemented as part of the Emissions Management Plan 2012-17 include:

LED Street Light Upgrade

In 2016, the City of Casey completed the LED Street Light Changeover Program which was Casey's largest environmental investment and one the largest of its type in Australia. The Program involved the upgrade of all of Casey's 12,000 Standard 80W Mercury Vapour street lamps to 18W LED technology. This represented an 80% efficiency improvement eliminating in excess of 3,300 tonnes of greenhouse gas emissions per year.

Building Improvement Program

The City of Casey has improved efficiencies in buildings since the Plan was adopted in 2011/12. As an example, emissions have been reduced by 25% at Casey Aquatic and Recreation Centre (ARC) largely through efficiency improvements including Bauer system, Building Management System (BMS), 44kW solar PV installation, economy cycle retrofits, LED lighting, Heating, ventilation and cooling, pump and boiler upgrades.

Broad-Scale Solar Investment Program

The City of Casey has invested substantially in solar technology with 600kW of solar photovoltaic systems installed on Councils facilities and buildings. All new Council buildings are fitted with solar system at the time of the build to reduce energy costs and emissions.

Carbon offset fleet

All of council fleet emissions produced during the Emissions Management Plan were offset through local reforestation carbon offset purchases. This has resulted in 49,000 trees being planted by Green Fleet in Casey and surrounding areas.

Electric Vehicle and Fuel Efficiency Investment

Following its involvement in the Victorian Electric Vehicle Trial, Casey leases two electric vehicles which run on renewable energy sourced from the 80kW solar PV system at the Narre Warren Work Centre. Council has installed electric vehicle charging stations and improved fleet fuel efficiency through efficient vehicle procurement and staff Eco Driver Training.

The successful implementation of the Emissions Management Plan 2012-17 brought about annual cost savings of $1.5M per year by avoiding energy operational costs. The payback on this investment was 4 years which is significantly less now with accelerating energy costs.

To continue with its strong leadership position within the local government sector, Council is now moving into the next phase on its carbon neutral goal with this Emissions Management Plan by:

» Aligning its emissions inventory with the National Carbon Offset Standard (NCOS).

» Providing considerable investment in reducing operational and maintenance costs through energy efficiencies improvement.

» Adopting science-based emission targets in line with the level of decarbonisation required to keep global temperature increase within 2°C of pre-industrial levels.

Taking action on Climate Change in-line with City of Casey's emission reduction aspirations will enable Council to capitalise on the significant opportunities that eventuate in a low carbon economy.

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Council's Greenhouse Gas Emissions Boundaries and Profile

a. GHG emissions inventory boundaries

Casey's emissions boundary includes those emissions from sources where:

» Council has direct operational control of management of emissions i.e. electricity consumption at Bunjil Place.

» Third parties may have direct operational control, but Council can significant influence on the management of emissions i.e. electricity consumption at Casey ARC which is operated by a third party.

Excluded Scope 3 sources

» Emissions from community waste at Hallam Road landfill
» Legacy community waste emissions from the closed landfill at Quarry Road after gas recovery
» Business travel
» Waste produced from Council operations
» Contractor vehicles

Scope 01

» Fugitive emissions from closed landfill at Stevenson Road that Council manages
» Natural gas consumption in council operated facilities e.g. leisure centres, civic centres, pools, community buildings
» Fleet emissions
» Refrigerants used in HVAC units

Scope 02

Electricity consumption in council operated facilities e.g.

» Leisure centres,
» Civic centres
» Pools
» Reserves
» Community buildings
» Children's' centres
» Council operated public and street lighting

Scope 03

» Electricity consumption in council owned but not operated facilities
» Public and street lighting operated by Ausnet and United Energy
» Employee commute
» Water consumption
» Paper consumption

Figure 02: City of Casey's greenhouse gas emissions inventory boundary capitals

b. Councils GHG emissions profile

Since 2009/10 City of Casey has effectively measured, monitored and reported its Scope 1 and 2 greenhouse gas emissions in line with the NGER (National Greenhouse and Energy Reporting) Scheme. With its ambitious target of becoming carbon neutral, Council is now expanding its inventory to include Scope 1, 2 and 3 emissions in line with the National Carbon Offset Standard (NCOS). A new baseline year of 2015/16 has been established to support emissions monitoring and reporting over the course of the plan.

Table 01: City of Casey GHG Emissions 2015/16 Baseline Inventory

Scope	Description	Emissions (tonnes of carbon dioxide equivalents/year)
1	Refrigerants	898
1	Fugitive emissions from closed landfill sites	4,865
1	Natural gas consumption in council operated buildings	1,453
1	Fleet fuel consumption	1,732
2	Electricity used in Council operated facilities	6,216
3	Electricity consumption in council owned but not operated buildings	6,789
3	Public and street lighting	12,606
3	Transmission & distribution losses from natural gas consumption in council owned but not operated buildings	1,169
3	Transmission & distribution losses from natural gas consumption in buildings	183
3	Employee commuting	2,914
3	Indirect fuel emissions from council fleet vehicles	22
3	Transmission & distribution losses from electricity used in Council buildings	550
3	Transmission & distribution losses from electricity used in council owned but not operated buildings	601
3	Transmission & distribution losses from electricity used in public lighting	1,116
3	Water consumption	324
3	Paper consumption	38
	Total	**53,576**

c. Greenhouse gas emissions by sector

The City of Casey's greenhouse gas emissions are source from several sectors including: emissions from landfills, building electricity use, public and street lighting, employee commuting, building natural gas use, fleet fuel use from corporate travel, refrigerants, consumables, waste and water use.

City of Casey 2015/16 GHG Emissions by Sector (kt CO_2-e)

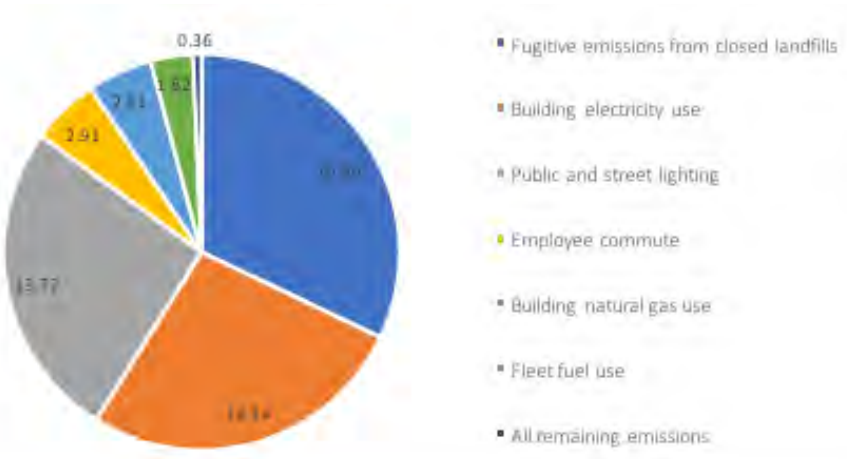

Figure 03: Greenhouse gas emissions reduction goals trajectory to 2021/22 based on 2015/16 baseline

06

Emissions Reduction and Renewable Energy Targets

a. Emissions reduction targets

To show leadership to the City and the broader community, City of Casey has incorporated two emissions reduction targets in the Emissions Management Plan:

A 'leadership' emission reduction goal to reduce its corporate greenhouse gas emissions by 15% by 2021/22 on the 2015/16 baseline. This science-based emission reduction target is underpinned by a well devised Action Investment Plan to maximise energy cost savings.

A 'stretch' emissions reduction goal to reduce its corporate greenhouse gas emissions by 25% by 2021/22 on the 2015/16 baseline.

This target was established from the identification of additional energy efficiency and renewable energy investment and funding opportunities. This is a highly aspirational goal that would firmly establish the City as a standout leader.

City of Casey GHG Emissions Reduction Targets to 2021/22

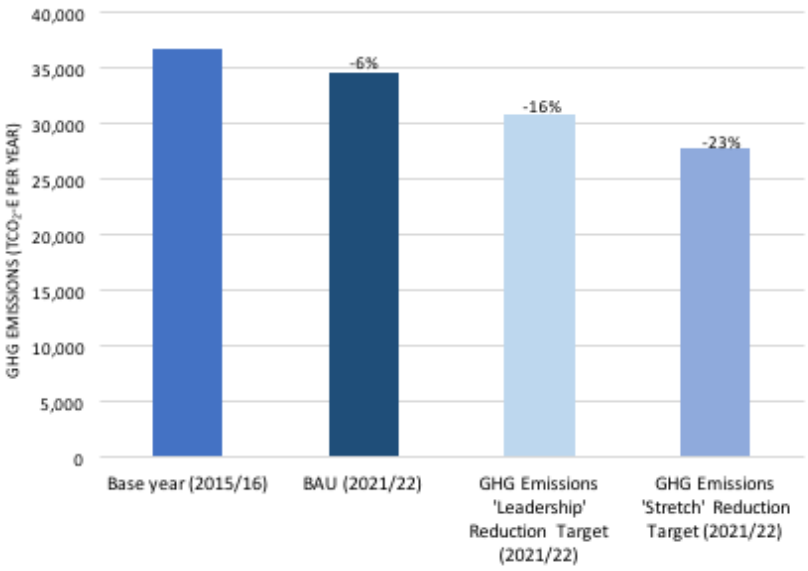

Figure 04: City of Casey Emissions Reduction Goals to 2021/22 compared with 2015/16 baseline

b. Renewable energy targets

To support Casey in working towards meeting these emission reduction targets it has established two renewable energy targets:

To source 20% of building electricity consumption from renewable energy by 2021/22.

This target is based upon the identification of cost viable rooftop solar photovoltaic projects that Council has available. This target is important for Council to meet emission reduction goals.

To source 30% of building electricity consumption from renewable energy by 2021/22.

This target would support Casey in meeting its 'stretch' target and follows in the trajectory set by the Victorian State Government Renewable Energy Target (40% by 2025).

City of Casey Renewable Energy Targets to 2021/22

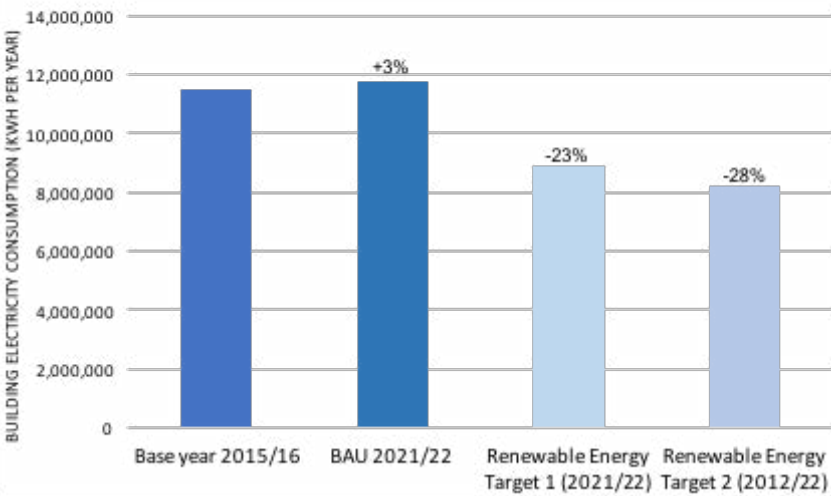

Figure 05: Renewable energy targets compared with 2015/16 building electricity consumption

07

Emissions Management Plan Action Summary

City of Casey's Emissions Management Plan 2017-22 is strongly aligned to the best practice principles: avoid, minimise and offset. This approach maximises the greenhouse gas emissions reduction achieved as well as the investment return through the energy savings gained.

The key actions that will deliver the emission reduction goals are summarised as follows:

To continue to improve energy efficiencies with investment in retrofitting, upgrading and optimising in the Building Improvement Program.

To incorporate best practice in Ecological Sustainable Design (ESD) in all new builds and refurbishments.

To continue to invest in renewable energy technology through Council's Broad Scale Solar Investment Program.

To investigate public-private partnerships for investment in large renewable energy projects e.g. solar farms on landfills or greenfield sites for corporate/community energy requirements.

To continue to investigate and trial electric vehicles and provide electric vehicle charging infrastructure across the City of Casey.

To investigate large scale battery storage and the opportunities the emerging technology presents for Casey's utility management.

To continue to offset Council's corporate fleet emissions through revegetation in City of Casey.

To continue to explore opportunities to partner with SECCCA, other councils, state and federal government and commercial operators to maximise benefits to the City and broader community.

To continue to improve real time monitoring of consumption, demand and solar generation in all council buildings.

City of Casey GHG Emissions Reduction Actions

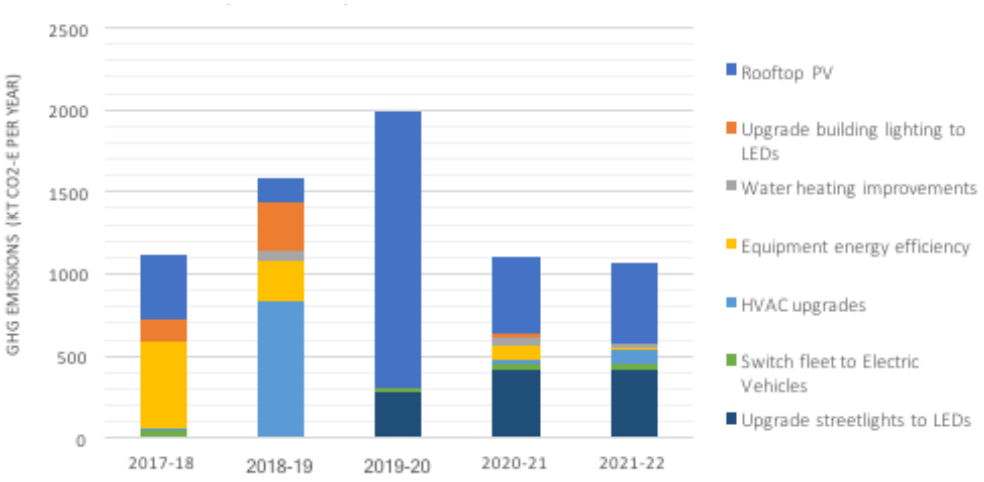

Figure 06: City of Casey's greenhouse gas emissions reduction actions

Energy efficiency initiatives that address building electricity and natural gas use, public and street lighting, and fleet fuel use have been identified and have been prioritised for investment in the Emissions Management Plan Action Plan.

Projects include: rooftop solar photovoltaic installations, building lighting efficiency improvement, heating ventilation and air conditioning (HVAC) upgrades and optimisation, water heating and equipment energy efficiency improvement, fleet vehicle fuel efficiency improvement and increased electric vehicle use, and high pressure sodium street light upgrades.

Over one hundred (100) initiatives to reduce greenhouse gas emissions and associated energy costs will be incrementally implemented over the next 4 years through the Plan.

The application of City of Casey's Action Plan will set Casey on the correct path to meeting its interim emission reduction targets by 2021/22.

City of Casey GHG Emissions to 2021/22

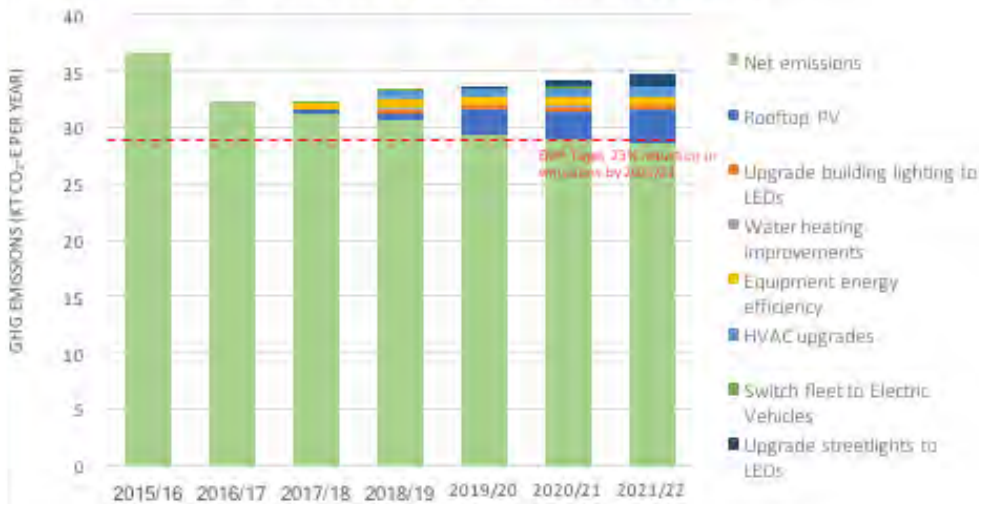

Figure 07: City of Casey's greenhouse gas emissions forecast

08

Achieving the Goal

The successful implementation of this Emissions Management Plan requires a strong commitment by the City to communicate the outcomes and to engage with stakeholders and the community.

Internal communications

» Annual reporting to Council on the implementation of this Plan and progress against targets.

» Communicating achievements including measured savings and benefits and progress against emission reduction and renewable energy targets.

External communications with the wider community

» Communication of successes and failures of the Plan to maximise benefit to the broader community

» Reporting in City of Casey's Annual Report/Annual Action Plan

» Council's website and social media sites

» Sharing information through South Eastern Councils Climate Change Alliance (SECCCA) and other local government alliances

09

Review

This Plan replaces the Emissions Management Plan (2012-17). The next review of this document is scheduled for completion by 30 November 2022.

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