



City of
DAREBIN

the place
to live

DAREBIN CLIMATE EMERGENCY PLAN

DRAFT - MAY 2017

CITY OF DAREBIN DRAFT

CLIMATE EMERGENCY PLAN

2017-2022

Contents

1. Executive Summary	5
2. Climate Emergency	7
2.1 Response to the climate emergency so far	8
3. Darebin's emissions and progress	12
3.1 Darebin Council emissions profile	12
3.1.1 Review of Council Corporate goal - Carbon Neutral by 2020	13
3.2 Darebin Community emissions profile	13
3.2.1 Review of Community goal - Carbon Neutral by 2020	14
3.3 Community consultation	16
4. Our Climate Emergency goals	17
4.1 Context	17
4.2 Overarching goals	17
5. Action to achieve our goals	18
5.1 Key direction # 1 – Climate Emergency mobilisation and leadership	20
5.1.1 Context	20
5.1.2 Supporting policies	20
5.1.3 Objectives and Action	21
5.2 Key direction # 2 – Energy efficiency	23
5.2.1 Context	23
5.2.2 Supporting policies	26
5.2.3 Darebin and Energy Efficiency	27
5.2.4 Objectives and Action	30
5.3 Key direction # 3 – Renewable energy and fuel switching	33
5.3.1 Context	33
5.3.2 Supporting policies	35
5.3.3 Darebin and Renewable Energy	35
5.3.4 Objectives and Action	38
5.4 Key direction # 4 – Zero emissions transport	40
5.4.1 Context	40

5.4.2	Supporting policies	41
5.4.3	Darebin and Zero emissions transport	43
5.4.4	Objectives and Action	44
5.5	Key direction # 5– Waste minimisation	47
5.5.1	Context	47
5.5.2	Supporting policies	48
5.5.3	Darebin and Waste	48
5.5.4	Objectives and Action	51
5.6	Key direction # 6 – Fossil fuel divestment	53
5.6.1	Context	53
5.6.2	Supporting policies	53
5.6.3	Objectives and Action	54
5.7	Key direction # 7 – Adaptation and resilience	55
5.7.1	Context	55
5.7.2	Supporting policies	56
5.7.3	Darebin and Adaptation	58
5.7.4	Objectives and Action	60
5.8	Key direction # 8 – Engaging the community	64
5.8.1	Context	64
5.8.2	Supporting policies	64
5.8.3	Engaging and supporting Darebin community action	65
5.8.4	Objectives and Action	68
5.9	Key direction # 9 – Darebin Energy Foundation	71
5.9.1	Context	71
5.9.2	Supporting policies	71
5.9.3	Objectives and Action	72
6.	Measuring and reporting on progress	73
7.	Resourcing	75

1. Executive Summary

The last few decades have seen an unprecedented rate of warming. The last 16 years are among the 17 warmest years on record. 2016 was the hottest year on record and the third year in a row to beat this record. Global sea levels have risen over 20cm since the end of the 19th century. There have been devastating impacts on Australia's coral reefs, mangrove forests and marine kelp forests. There are already climate refugees and millions of people will be displaced with associated security impacts if no action is taken. If no action is taken, with associated security impacts. Commentators and researchers are already linking climate change with existing wars where drought has exacerbated conflict.

Council has recognised that we are in a state of climate emergency that requires urgent action by all levels of government, including by local councils. We will undertake ambitious action and advocacy to reach our core goals which are:

- **To provide maximum protection for the community of Darebin and for people, civilization and species globally, especially the most vulnerable.**
- **To restore a safe climate at emergency speed by eliminating greenhouse emissions and enabling drawdown of excess carbon dioxide in the air.**
- **To encourage research to find safe ways to protect people, species and civilization from near-term dangerous temperatures, while zero emission and carbon dioxide drawdown strategies are being enacted.**
- **To enable our community to be resilient in the face of any unavoidable dangerous climate impacts.**
- **To engage, empower and mobilise governments, communities and organisations to take action on and achieve these goals with certainty and at emergency speed.**

We recognise that together with our communities, other Councils and like-minded partners we must take action to influence other levels of government, industries and organisations that have the greatest powers to take urgent and appropriate action to respond to the climate emergency. The draft plan has been developed to reflect this commitment.

The development of this plan and the actions within follow a review of Council's previous Climate Change Action Plans and Adaptation Plan. In these plans Council committed to zero greenhouse emissions by 2020 for both Council and community emissions. Darebin Council will continue to aim for zero carbon for our Council and community. We recognise that we will not achieve this without urgent leadership and action from other levels of government.

There has been some success. Since 2007 Council has been able to reduce operational emissions by 48% from 2007 for electricity use in Council buildings. Council's corporate greenhouse emissions were 8.54 kt CO₂-e in 2015-16.

There has been an estimated 18% reduction in community emissions since Council adopted the Community Climate Change Action Plan in 2009. Whilst the population has been growing, to date, this has been countered with energy efficiency and the installation of solar PV. There has also been a significant reduction in electricity emissions intensity.

The draft plan outlines the following nine key directions to reach our core goals:

1. Climate Emergency mobilisation and leadership
2. Energy efficiency
3. Renewable energy and fuel switching
4. Zero emissions transport
5. Waste minimisation
6. Fossil fuel divestment
7. Adaptation and resilience
8. Engaging the community
9. Darebin Energy Foundation

Highlights of the draft plan include:

- Development of a flagship Climate Emergency campaign and program, commencing with a Climate Emergency conference.
- The creation of the Darebin Energy Foundation to accelerate sustained and meaningful action with the community (residents, businesses, education and other organisations) to reduce Darebin's greenhouse emissions and embed community resilience to climate change.
- Doubling the amount of solar PV in Darebin from 19,000kW to 38,000kw through an expanded Solar \$aver program and school, business and community energy programs. These ambitious programs will involve an initial investment of \$20 million by Council, the majority of which will be paid back through special rates schemes. Battery storage options will be explored as their cost effectiveness is expected to improve significantly over the next 5 years.
- Supporting households and businesses to be more energy efficient and more resilient to heat waves and energy cost increases, including measures to minimise the urban heat island effect.
- A continued emphasis on supporting our most vulnerable and socio-economically disadvantaged communities.
- Improved engagement and communication with our community including culturally and linguistically diverse (CALD) communities.
- Council Leadership with a review of all Council programs and policies to ensure alignment with Council's Climate Emergency commitment, including improvements to buildings, renewable energy and fleet.

Advocacy is a key part of the plan as State and Federal Government policy and legislation will have the biggest impact on reversing global warming and acting on the Climate Emergency. These include: Renewable Energy Targets, emissions trading schemes, planning policy changes and minimum energy standards for homes, commercial buildings and vehicles. Collaborative campaigns involving partners such as other councils, education institutions, industry groups, community organisations and our community will be important to effect real change.

We do not have all the answers, therefore the plan also seeks to foster innovative solutions that respond to, or reduce, the Climate Emergency.

2. Climate Emergency

The need to take action on climate change is urgent to ensure safety for ourselves, our future and all other life on the planet. In order to restore a safe global temperature and avoid catastrophic climate change we need to act now to protect us from the worst of climate change and provide maximum protection for people and nature. Waiting to reach 1.5°C before taking action is not practical because 1.5°C is too hot. There will be a time lag between what we do to eliminate emissions and remove the excess carbon dioxide from the air, and when these measures have an impact by cooling the planet.

Global climate

The last few decades have seen an unprecedented rate of warming: the 16 years between 2001 - 2016 years are among the 17 warmest years on record; 2016 was the hottest year on record and the third year in a row to beat this record^{1 2}. Global sea levels have risen over 20cm since the end of the 19th century³.

If greenhouse gases continue to rise at the rate they previously have, by 2100 the global average air temperature will be 4°C above mid-19th century temperatures, leading to catastrophic effects on our environment. Even the current warming over 1°C is proving dangerous. We are already seeing the effects of climate change, with glaciers shrinking, Arctic sea ice prematurely breaking up and ecosystems being devastated. Sea levels are rising due to melting ice and warming oceans, and extreme weather events are becoming more frequent and intense⁴.

National climate

Australia's average surface air and sea temperature has increased by nearly 1°C since 1910⁵, much of that since the 1970s. Sea levels have risen about 20cm over the past century.

Climate change is causing more severe and frequent floods, storms, bushfires, droughts and heatwaves.⁶ The Bureau of Meteorology has observed that since the 1970s northern Australia has become wetter, southern Australia has become drier, the number of extreme fire weather days has increased in many places and heavy rainfall has accounted for an increasing proportion of annual-total rainfall⁷. Australia can expect further warming and changes in water availability.⁸

Local climate

The average annual number of days above 35°C experienced in Melbourne is likely to increase from the current 9 days per annum to up to 26 days by 2070 if action is not taken to reduce emissions⁹. The resulting local impacts of climate change will likely include:

- Increased cost of food, utilities, fuel and insurance
- More deaths from heat and cold, and other severe weather events
- Damage to homes, roads, power and water supplies from severe weather events
- Increased health impacts due to poorer air quality
- Increased use of and, therefore, strain on emergency and community support services
- More frequent water restrictions, impacting on household-level water supplies, agricultural supplies and parks and wildlife

¹ <http://www.bom.gov.au/state-of-the-climate/State-of-the-Climate-2016.pdf>

² <https://www.scientificamerican.com/article/2016-was-the-hottest-year-on-record/>

³ <http://www.bom.gov.au/state-of-the-climate/State-of-the-Climate-2016.pdf>

⁴ <http://climate.nasa.gov/effects/>

⁵ <http://www.bom.gov.au/state-of-the-climate/State-of-the-Climate-2016.pdf>

⁶ <http://www.climatecouncil.org.au/category/extreme-weather>

⁷ <http://www.csiro.au/en/News/News-releases/2015/New-climate-change-projections-for-Australia>

⁸ <https://www.science.org.au/files/userfiles/learning/documents/climate-change-r.pdf>

⁹ <https://www.environment.gov.au/climate-change/climate-science/impacts/vic>

2.1 Response to the climate emergency so far

Global - UN Paris Climate Conference

At the Paris Climate Conference (United Nations COP21) in December 2015, 195 independent nations agreed to keep average global temperatures to well below 2°C pre-Industrial temperatures and aimed to limit the increase to 1.5°C. This first universal climate agreement became law in November 2016.

To meet the goal of well below 2°C, the economies of the world will need to be very rapidly decarbonised and excess carbon dioxide will need to be removed from the air on a large scale. Decarbonising¹⁰ the electricity grid is considered the easiest and most affordable aspect of moving to zero emissions.

Most countries have recognised the financial benefits of moving to a low carbon economy and the high risk associated with not acting on climate change. Many global companies and financial institutions are driving change as they see the future as a low or zero carbon economy with many emerging market opportunities.

Australian Government

Australia signed up to the Paris UN Agreement and in 2016 parliament ratified a target of 26%-28% emission reduction (below 2005 levels) by 2030.

The 2015 revised renewable energy target (RET) of 33,000 GWh (approximately 23.5% of Australia's electricity) by 2020 will play a part in increasing renewables until 2020. As the RET concludes in 2020, this mechanism will not drive long-term electricity emissions reductions.

The Federal Government is seen by many as failing to provide adequate levers or policies to move to a zero carbon economy.

State Government

Victorian Renewal Energy Target (RET)

In 2016 Victoria re-established a target of 25% renewable energy by 2020 and 40% by 2025. By way of comparison, the ACT (100% renewable energy by 2020) and SA (100% renewables by 2030) governments are leading the way.

Carbon neutral by 2050

In 2017 the Victorian government announced a commitment to become carbon neutral by 2050 and announced an interim target of reducing greenhouse gas emissions by 20% by 2020 (from 2005 levels).

Local Governments

Local government has historically played a significant role in emissions reduction at community and local government level as well as advocating for state and national reduction targets. At the Paris COP21 in 2015, local governments from around the world were well represented and made their presence felt.

Global Covenant of Mayors for Climate and Energy

The Compact of Mayors¹¹ captures the impact of cities' collective actions through the measurement of emissions and climate risk.

Local Government has long been a leader on climate change. The Compact of Mayors provides evidence that cities are true climate leaders.

¹⁰ The decarbonisation of electricity means reducing its carbon intensity; that is, the emissions per unit of electricity generated tonnes/MegaWatt-hour or t/MWh

¹¹ <https://www.compactofmayors.org/history/>

Northern Alliance for Greenhouse Action

Northern Alliance for Greenhouse Action (NAGA) is an alliance of Banyule, Darebin, Hume, Manningham, Melbourne, Moreland, Nillumbik, Whittlesea and Yarra Councils, and Moreland Energy Foundation Limited.

NAGA works on climate change mitigation, adaptation to climate change impacts, advocacy, networking to build capacity for NAGA members and governance and organisational health in order to create a low-carbon society resilient to the impacts of climate change in the NAGA region.

In 2009 NAGA led the development of Towards Zero Net Emissions (TZNE) for the NAGA Region. It outlines a new approach to regional cooperation to achieve reductions in greenhouse gas emissions across northern metropolitan Melbourne. The blueprint outlined a comprehensive set of strategies and actions spanning key sectors in the region. By harnessing the combined capabilities of its members and their connection with local communities, the TZNE plan demonstrates how NAGA members can effect greater change than any one member could achieve alone.

Darebin Council Climate Emergency Response

At the first meeting of the newly elected Council in 2016, Darebin Council unanimously recognised that we are in a state of climate emergency.

This follows Darebin's leadership on climate change for over a decade and is summarised in the following pages.

This leadership has already influenced Victorian councils through the peak body Municipal Association of Victoria (MAV) adopting the following motion at the May 2017 State Council:

- (a) We are in a state of climate emergency that requires urgent action by all levels of government, including local councils
- (b) Human induced climate change stands in the first rank of threats to humans, civilisation and other species
- (c) It is still possible to restore a safe climate and prevent most of the anticipated long-term climate impacts –,but only if societies across the world adopt an emergency mode of action that can enable the restructuring of the physical economy at the necessary scale and speed;
- (d) The MAV has a particular role in assisting local governments in this regard.

Darebin City Council Climate Action Milestones



- Joins NAGA, a regional greenhouse alliance which collaborates on projects to reduce carbon emissions.

2002

2003

- Adopts targets for corporate and community greenhouse emission reductions of 20% on 1995 levels by 2010.

- Wins a Commendation award for its Community Power Program in the National LG awards for Community Greenhouse reductions.

2004

2007

- Adopts Darebin Council Climate Change Action Plan, focusing on Council's own operations, and Going Places - Darebin Transport Strategy, with a strong sustainable transport focus.
- Wins United Nations Association of Australia World Environment Day Award for Darebin Travel Rewards scheme.

- Achieves corporate 2010 reduction target early through an Energy Efficiency Program and the purchase of GreenPower.

- Wins Banksia award for a working example of what sustainability can look like in Reservoir Civic Centre.

2008

2009

- Adopts Darebin Community Climate Change Plan, to support the Darebin community to significantly reduce its emissions by 2020.
- Adopts Darebin Climate Change and Peak Oil Adaptation Plan, to address the risks of climate change and peak oil.



- Adopts Food Security Policy, to guide local provision of community gardens and associated programs.
- Wins United Nations Association of Australia World Environment Day Award for Darebin's Climate Change Action Plan.

2010

2011

- Launches Darebin Cool Shade project, where 482 vulnerable households are retrofitted with external shading or draught proofing.
- Darebin Fan Fair project – over 1000 fans delivered and installed free of charge to residents vulnerable to heat waves.
- Develops Talking My Language, working with Macedonian, Greek, Italian, Vietnamese and Indian communities to develop energy efficiency information.
- Offers Solar bulk buy schemes, where 275 Darebin households had solar hot water systems installed and 58 had solar panels installed.

- Adopts Darebin Heatwave Strategy, Urban Forest Strategy and Green Business Attraction Strategy.
- Launches the Green business network, 'We are Greening our Business' Sticker and Certificate Program.
- Continues Talking My Language, working with Arabic and Chinese communities to develop energy efficiency information.

2013

2014

- Light\$mart Program reaches its 100th business retrofit.
- Begins energy efficient street lights program, with savings of nearly 4,000t CO₂-e per year.
- Secures grant funding for significant Aquatic Centre energy efficiency upgrades.
- Adopts Urban Food Production Strategy.
- Finalist in Banksia Sustainability Awards – Local Government and UNAA World Environment Day – Local Government Award for Solar \$aver.

- Installs 150kW of solar across five Council-operated sites.
- Finishes installation of nearly 300 solar systems on the roofs of Darebin pensioners, through Solar \$aver program.
- Adopts Darebin Cycling Strategy, bringing about a 175% increase in cycling.
- Wins Premiers Sustainability Award – Environmental Justice and Local Government Professionals (Vic) LGPRO – Sustainability Initiative award for Solar \$aver.

2015

2016

- Achieves a 49% reduction in corporate greenhouse gas emissions from 16,858 to 8,541 tonnes since 2007/08.
- Second Solar \$aver program installs almost 200 solar systems on roofs of low income households and over 100kW solar on community operated facilities.

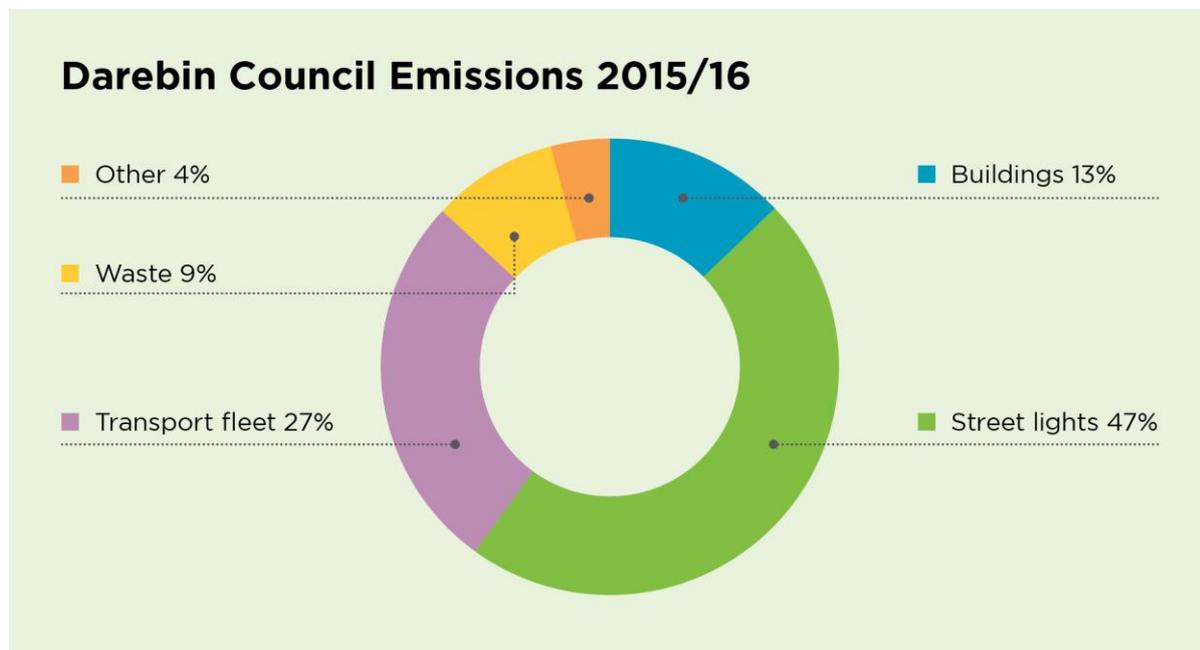


3. Darebin's emissions and progress

Darebin City Council adopted a target of becoming carbon neutral by 2020 for its own operations and for the community in 2007 and 2009 respectively. At the time these targets were set it was recognised that major changes were needed in state and federal government policy and action for Council and the community to achieve these targets. These targets were based on the desire to demonstrate leadership and provide an advocacy platform to engage other levels of government in the action required for our community to meet this target. It was also set because the science indicated a deep level of reductions is needed to avoid the worst impacts of climate change, and because community consultation supported this target.

3.1 Darebin Council emissions profile

Council's corporate greenhouse emissions were 8.54 kt CO₂-e in 2015-16



From 2008, Council has purchased 100% GreenPower™ for all buildings and metered sites. This has resulted in a significant reduction in greenhouse gas emissions of around 4.68 kt CO₂-e. If GreenPower™ had not been purchased Council emissions from buildings would be 44% of the Council total and total Council emissions would be 13.22 kt.

Since 2006 Council has invested in improving the energy efficiency of Council built infrastructure. Measures have included the reduction of air-leakages in buildings, more efficient HVAC (heating, ventilation and air conditioning) systems, building monitoring systems, double glazing retrofits and other technologies.

Council has invested in solar hot water systems and solar PV, such as 250kW of solar on council buildings including a number of council owned community childcare, kindergarten and community centres.

The reductions in Council's corporate emissions through the purchase of additional GreenPower™, investment in energy efficiency and solar hot water and PV are significant, reducing emissions by 48% from the 2007 baseline of 16.86 kt CO₂-e per year.

Council's corporate emissions of 8.45 kt CO₂-e per year are approximately 0.6% of Darebin's total community emissions.

3.1.1 Review of Council Corporate goal - Carbon Neutral by 2020

Successes

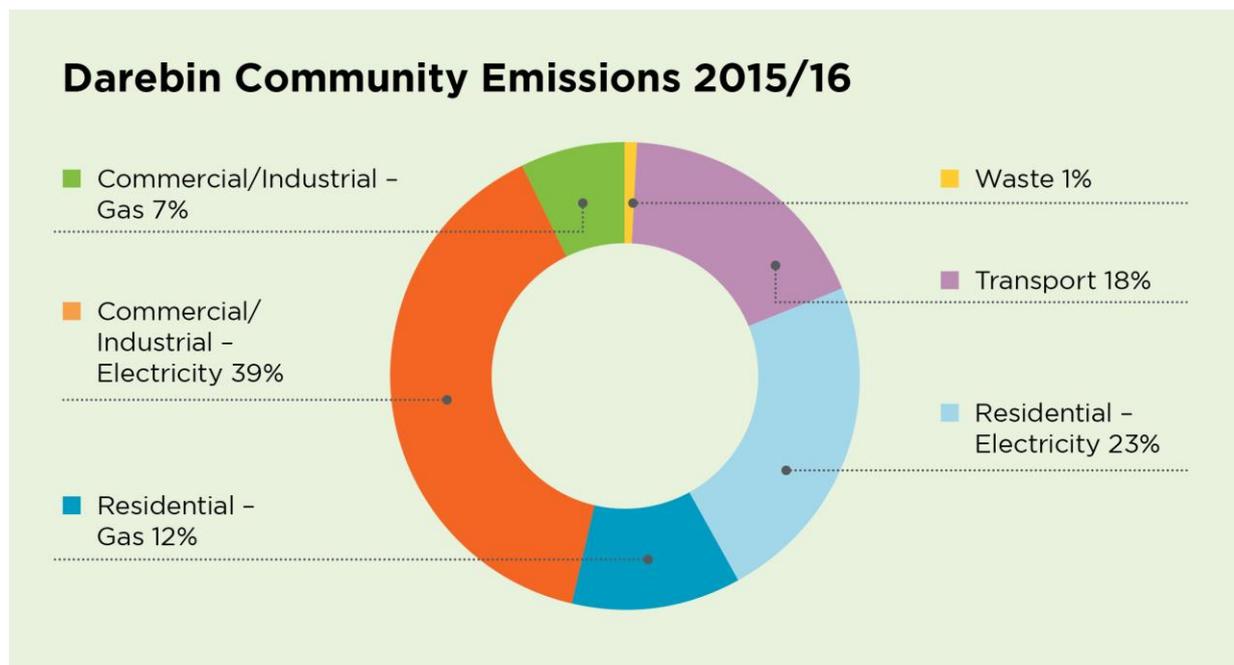
- Streetlight upgrades to energy efficient lights reduced annual greenhouse emissions and electricity cost by over 3.8kt and \$550,000 respectively. The 3 year project was funded by Council and the Australian Government. The new lights have provided a higher quality of light, greenhouse savings greater than expectations, and the community has responded positively to the changes.
- Council's energy efficiency program has concentrated on the buildings using the largest amount of energy, including council offices, libraries and aquatic and entertainment centres. The program has made over \$1.3 million savings in reduced energy costs since 2008. Projects have included lighting, heating, cooling, draught sealing and cogeneration.

Challenges

- New buildings, new services and increasing hours of operation over the period have increased energy consumption. This means Council has to work even harder to ensure total energy use is going down.
- There is currently no adopted Environmental Sustainable Development (ESD) policy for Council building works. Sometimes budget considerations limit environmental outcomes and sometimes contractors are not skilled in supplying environmental outcomes.
- Whilst the Council vehicle fleet has reduced greenhouse gas emissions over a number of years, in 2016 fleet emissions increased slightly. Further action is required to ensure consistent emission reductions.

3.2 Darebin Community emissions profile

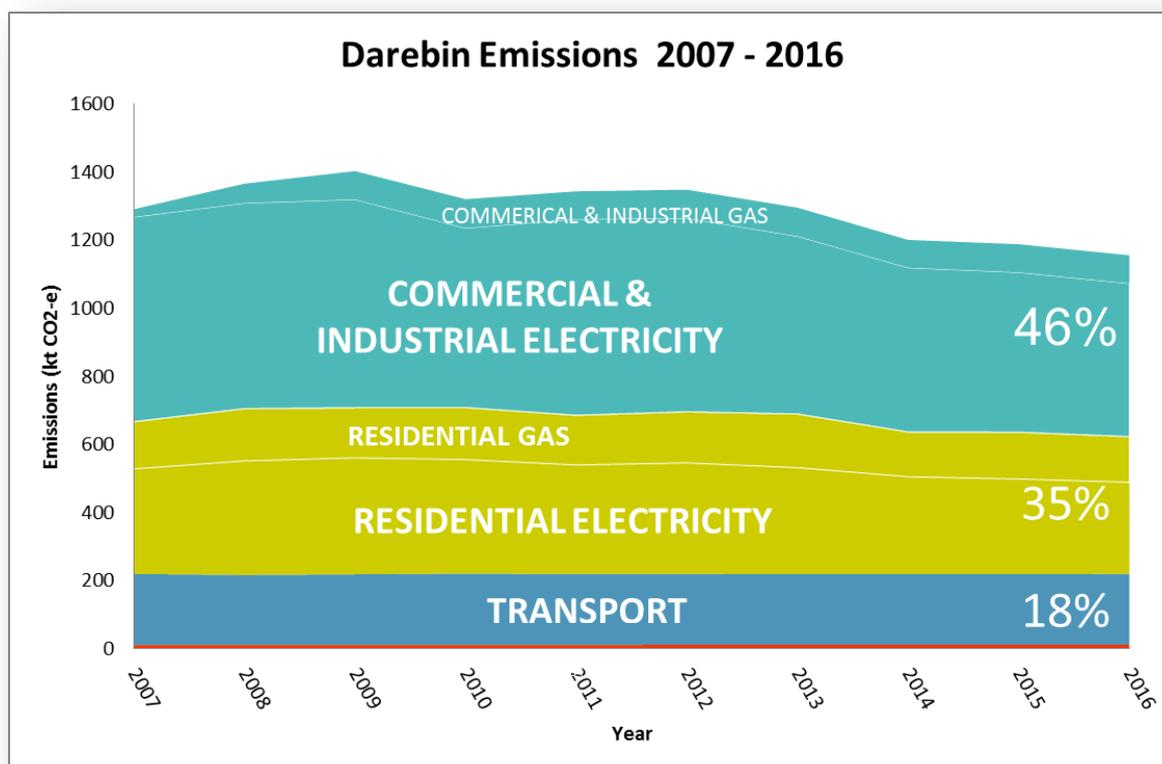
Darebin community greenhouse emissions were estimated to be 1,155 kt CO₂-e in 2015-16



Population growth has had a significant impact on the community's emissions profile and it is anticipated that the population will continue to grow. Fortunately energy efficiency actions, such as the installation of solar PV seem to be countering this increase.

A positive change has been the reduction in electricity emissions intensity. Victorian electricity emissions intensity is projected to move from 1.18 t/MWh in 2016 to 0.98 t/MWh in 2022. The closure of Hazelwood coal power station in March 2017 (Hazelwood Power Station was 1.4 t/MWh) will make this task a little easier.

The Victorian Government has committed to increasing renewable energy from 14% in 2016, to 25% by 2020 and 40% by 2025. This represents a 2% - 3% annual growth of renewable energy in Victoria. Based on projected residential and commercial/industrial electricity consumption in 2022, this is expected to reduce community emissions by 110 kt per year and is an important step in decarbonising our economy. However, much more action is needed.



We cannot reach a zero carbon Darebin without a 100% renewable electricity system which creates a zero carbon electricity grid. This highlights the need to advocate at local, state and national levels for the creation of a 100% renewable electricity network at emergency speed.

3.2.1 Review of Community goal - Carbon Neutral by 2020

Successes

- Council ran a Solar \$saver and a Solar Bulk buy program in 2013-14 and 2015-16. The Solar \$saver program helped approximately 500 pensioner and low income households with the upfront cost of solar and ensured good value quality solar with 10 year warranties was included. The two solar programs resulted in 1,800kW of solar PV being installed and an equivalent of over 11,000 tonnes of emissions avoided. The targeting of low income households was well received by the community. The Solar \$saver rates model is now being pursued in SA, ACT and 20 councils in Victoria.
- The Sustainable Homes and Communities Program is a key environmental education partnership program between Darebin and Banyule Councils. This program has had a broad reach, including workshops, direct programs with diverse communities, community leaders programs, sustainability awards and developing resources to engage the wider community. It has been effective in reducing household energy and water use, minimising waste, increasing the use of sustainable transport and promoting

sustainable gardening and sustainable food in line with Council targets. It complements Council's programs that work directly with low income and diverse communities

- Through the Darebin Light\$mart program, 123 business had their lights upgraded to energy efficient LEDs. The businesses changed 9,613 lights – collectively saving \$312,000 per year on their electricity bills and 1.84 kt of greenhouse emissions per year, with an average payback of 1 year.
- The Talking my Language program worked across 4 municipalities with the Italian, Indian, Vietnamese and Afghan communities and within Darebin Greek, Macedonian, Chinese and Arabic communities. The program delivered energy efficiency information in the respective languages, held workshops and provided some energy efficiency start-up kits.
- Between 2011 and 2014 the Cool Shade program provided 482 vulnerable households with a combination of external window shades, weather sealing and light globes to increase comfort and reduce energy costs. The program was initially co-funded by the Department of Human Services and has been rolled out in other council areas following our program.

Challenges

- Feedback from community consultation indicated that a portion of the community, including Culturally and Linguistically diverse (CALD) communities, had heard little or nothing about Council's work on climate change, energy efficiency programs and solar PV systems for low income households.
- Council has worked with low income households and various CALD communities through various programs but has not been able to reach all sections of the community. Council needs to explore new ways of helping those who are experiencing stress as a result of rising electricity prices and other challenges to reduce energy costs and adapt to climate change.



3.3 Community consultation

Between July and December 2016, Council consulted with the community on how they wanted to see Council respond to climate change.

During stage 1 of the consultation in August and September 2016, discussions, workshops and interviews were held with representatives of the Darebin community. During stage 2 of the consultation in November and December 2016, a survey was provided for feedback, both online and at a number of pop-up events across Darebin.

Climate Action > What next?

Participants want to hear more about emission reduction activities and programs. Darebin climate action should:



have social, health and/or financial benefits for the community



save council money in the long-term



focus on creating positive local impacts



prioritise support for the most vulnerable members of the community

Two thirds of people felt it was important that the community and the council become **CARBON NEUTRAL** by 2020, but without paying higher rates.

The highest priority should be **LOCAL ENERGY EFFICIENCY PROGRAMS** to help households reduce electricity and gas costs.

Participants thought **PURCHASING CARBON OFFSETS** to reach the carbon neutral target was a low priority.

Participants also thought **BROAD COMMUNITY EDUCATION** on climate change and energy efficiency for resident, businesses, landlords and renters and planting more trees in the municipality were important actions.

4. Our Climate Emergency goals

4.1 Context

The onset of the global climate emergency together with many years of insufficient action by the national and state governments are making targets difficult to achieve and making local ground-up action more important. We must aim to do as much as we possibly can, as quickly as possible and bring our governments and communities with us.

Darebin Council will continue to aim for zero greenhouse gas emissions for our Council and community. We will also take the action required to draw down our share of the excess carbon dioxide that is already in the air. We recognise that we will not achieve this without urgent leadership and action from other levels of government.

We also recognise the need to ensure that we are well prepared for the effects of built in climate change, such as more frequent heat waves and floods. There will also be large transitions required for our society to transform to a safe climate restoring world. We will take action to prepare our Council and community for this transition and improve our resilience to future changes. We will undertake ambitious action and advocacy to reach our goals.

4.2 Overarching goals

The Darebin Climate Emergency Plan overarching goals are:

- To provide maximum protection for the community of Darebin and for people, civilisation and species globally, especially the most vulnerable.
- To restore a safe climate at emergency speed by eliminating greenhouse emissions and enabling drawdown of excess carbon dioxide in the air.
- To encourage research to find safe ways to protect people, species and civilisation from near-term dangerous temperatures, while zero emission and carbon dioxide drawdown strategies are being enacted.
- To enable our community to be resilient in the face of any unavoidable dangerous climate impacts.
- To engage, empower and mobilise governments, communities and organisations to take action on and achieve these goals with certainty and at emergency speed.

5. Action to achieve our goals

Council aspires to be a national leader in response to this critical intergenerational issue and supports bold, ambitious and effective action. Council will continue to lead in its actions, support and advocacy regarding climate change issues.

To reach our goals the following key directions have been developed with supporting actions:

1. Climate Emergency mobilisation and leadership
2. Energy efficiency
3. Renewable energy and fuel switching
4. Zero emissions transport
5. Waste minimisation
6. Fossil fuel divestment
7. Adaptation and resilience
8. Engaging the community
9. Darebin Energy Foundation

There are a number of complementary and supporting strategies already adopted by Council which are summarised in the diagram below.

Council strategies and climate change



5.1 Key direction # 1 – Climate Emergency mobilisation and leadership

5.1.1 Context

“The unprecedented rate of global warming is melting the polar ice caps, raising sea levels and undermining food and water security for many of the world’s peoples. Action has been too slow, because economics has trumped physics. Now emergency action is the only rational response.” David Spratt, Author

The scale and speed of transformation needed to change our energy markets, our economy, our legislation and our behaviour to eliminate greenhouse emissions and draw down the excess CO₂ in the air requires an emergency nationwide and global response.

5.1.2 Supporting policies

Council has committed to undertake strong climate emergency action and engage our community, other local governments, organisations and players in taking action.

As local government, Council recognises that to maximise the impact of a climate emergency program the state and federal governments will need to commit to climate emergency action. The scale and speed required to transform legislation, markets and economies sit with these levels of governments. Therefore, a key part of our program is to take action to accelerate the process of getting these governments to declare a climate emergency and commit to programs of the necessary scope, scale and speed. Already the influence of Council's commitment has inspired communities in other countries.

Innovation is needed

We do not have all the answers and we need innovation. Council is keen to trial or be a demonstration site for innovations and programs that respond to, or reduce, the Climate Emergency – building climate entrepreneurship. Preference will be given to programs that can be scaled up across local governments and communities across Australia and globally. The Darebin Solar Saver program is an example of a multi benefit program that can be scaled across communities.

Offsets will be considered last

Some councils have purchased offsets for their corporate emissions to become carbon neutral and demonstrate leadership. The current cost of offsetting Darebin corporate emissions is estimated to be over \$130,000, (depending on the offsets chosen). In line with community consultation, whilst there is still significant action to take, both to reduce emissions and take climate emergency action, Council is better to spend these funds on action rather than offsets.

Council’s position on offsets will be reviewed at the end of this Plan timeline in 2022, or when a beneficial local offset program becomes available.

This doesn’t mean that offsets aren’t a good idea, and shouldn’t be considered by individuals and businesses. Council is following the recommended approach that offsets are considered after we have taken all the steps we can to reduce emissions.

5.1.3 Objectives and Action

OBJECTIVES

1. Build local engagement with climate emergency action broadly and deeply.
2. Engage and partner with other councils and organisations to mobilise State and Federal Governments to declare and act on the climate emergency as soon as possible to meet the goals of this plan.
3. Build support for climate emergency action globally.
4. Encourage and support innovation that can be scaled up to contribute to achievement of the goals of this plan.
5. Develop a drawdown plan for Darebin, based on removing our community's fair share of the excess carbon dioxide already in the air.
6. Demonstrate leadership in climate emergency action.

ACTIONS

Council corporate actions

Strategies	Timeframe	Actions
Demonstrate strong climate emergency action as an organisation	2018 – 2021 Ongoing 2018	<ul style="list-style-type: none"> ▪ Undertake an organisational review of all Council programs and policies to ensure alignment with Council's Climate Emergency commitment. ▪ Publicise key emission reduction achievements. ▪ Join the Global Covenant of Mayors for Climate and Energy.
Development of a flagship Climate Emergency campaign and advocacy program to engage other levels of government, other councils and other stakeholders to establish climate emergency programs and to cooperate on climate emergency action	2017 - 2018 ongoing	<ul style="list-style-type: none"> ▪ Convene a climate emergency conference to bring other councils, organisations and the community together to identify strategic action and collaboration. ▪ Develop readily available information on climate emergency program development and delivery. ▪ Deliver outreach through a variety of media including media releases, presentations, conference papers, social media. ▪ Undertake and collaborate on strong advocacy programs to State and Federal Governments to declare and act on the Climate Emergency as soon as possible to meet the goals of this plan. ▪ Provide submissions to government reviews ▪ Collaborate and partner with others for more effective campaigns.
Creation of the Darebin Energy Foundation and Climate Think Tank	2017 - 2018	<ul style="list-style-type: none"> ▪ Formalise the role that the Darebin Energy Foundation and Climate Think Tank will take leadership on in response to the Climate Emergency as part of the groups' establishment.
Foster innovation that can be scaled up	ongoing	<ul style="list-style-type: none"> ▪ Position Darebin to trial or be a demonstration site for innovations and programs that respond to, or reduce, the Climate Emergency – building climate entrepreneurship.

Drawdown of the excess carbon dioxide already in the air.	2019 -2022 2022	<ul style="list-style-type: none"> ▪ Determine Darebin’s fair share of the excess carbon dioxide already in the air, and develop a drawdown plan for Darebin to remove this.
Emissions offsets		<ul style="list-style-type: none"> ▪ Review purchase of carbon offsets for corporate emissions in 2022, or when a beneficial local offset program becomes available.

Council supporting the community

Strategies	Timeframe	Actions
Engagement with the community to build comprehensive climate awareness and commitment to effective emergency action.	ongoing	<ul style="list-style-type: none"> • Include Climate Emergency information in key Council communications such as website, events, social and printed media. • Provide engaging presentations, events, screenings, art installations etc. which increase community awareness and commitment.
Support community groups to engage with and take action on the Climate Emergency	ongoing	<ul style="list-style-type: none"> • Provide support including grants and the provision of venues • Partner and collaborate with groups on relevant campaigns.

What do we need others to do to make this happen?

Darebin Community

- Take up opportunities to learn about the Climate Emergency
- Act to reduce your emissions
- Get involved in local emissions reduction projects
- Get involved in action to get state and federal governments to take action on the Climate Emergency

State Government

- Declare a Climate Emergency and take urgent action to restore a safe climate
- Engage other governments to do likewise

Federal Government

- Declare a Climate Emergency and take urgent action to restore a safe climate
- Engage other governments to do likewise

5.2 Key direction # 2 – Energy efficiency

5.2.1 Context

Using energy efficiently means that our response to the Climate Emergency can be more efficient and cost effective as we will not be wasting energy.

Energy efficiency in buildings still remains one of the cheapest ways to reduce energy use and reduce carbon emissions. Most energy efficiency options provide a financial saving –the savings from reduced energy consumption cover the cost of installation and other energy efficiency measures.

Housing energy standards

Australian housing standards are poor compared with many OECD countries. Prior to 1991 there were no housing energy specifications in Victoria.

In 2005 Victoria introduced a new minimum housing energy standard of 5 stars¹². 86% of Victorian housing, built prior to housing standards performs at a lowly average of 1.81 star¹³. An average household in 2013 in Victoria paid \$2,800 per year on household energy use as a result.

In May 2011, Victoria lifted housing standards to a minimum of 6 stars energy rating which covers all new housing and any substantial renovation. This has been a positive step forward, but remains a long way behind other countries.

There are a number of very simple basic design principles which, if incorporated into new housing and renovation/retrofits, can make a substantial difference to the energy performance of a house¹⁴:

- Orientation and shading
- Passive solar heating and cooling
- Airtightness and insulation
- Thermal mass and glazing

If these passive design principles were incorporated into all new and renovated housing stock, this would make a substantial difference in the quality, efficiency and comfort of our homes.

All new housing in Germany, by 2020 will have to be climate neutral. In California all new residential housing has to be zero-net energy by 2020 and all commercial buildings must be zero-net energy by 2030. It is time Victoria and Australia moved to substantially higher new building standards.

Mandatory Disclosure at point of sale or rental

Despite new 6-star standards in Victoria, most of these new houses are probably only performing at a 3-4 stars rating¹⁵. This is likely to be due to a lack of consumer awareness, a

Draught sealing

The average Australian home has 36 Airchanges per hour (ACH) under a blower door pressure test. That is equivalent to having your front door open all day/night, all winter /summer.

A standard new home in the US/Canada has a maximum of 3.6 ACH. Blower door testing and thermal imaging testing of housing are ways to check that a building is constructed to the specified standard.

Passive House



Freiburg Council social housing at Weingarten West. Council retrofitted the 16 storey concrete building to passiv haus standard, requiring minimal heating/cooling.

¹² The Nationwide House Energy Rating Scheme (NatHERS) is a star rating system (out of ten) that rates the energy efficiency of a home, based on its design. 10 stars is excellent and uses almost no energy. <http://www.nathers.gov.au/>

¹³ Sustainability Victoria, Victorian Households Energy Report, May 2014

¹⁴ Your Home Guide <http://www.yourhome.gov.au/passive-design>

lack of building industry training, and limited monitoring of these aspects of the construction industry.

Mandatory energy efficiency ratings disclosed at point of sale or rental would provide transparency for otherwise hidden factors (e.g. insulation levels, draught proofing) and allow a prospective buyer / renter to make an informed assessment of the value of the house.

The new Victorian Government Residential Efficiency Scorecard¹⁶ is a positive move to providing transparency in energy performance of residential housing. It is, however, a voluntary scheme and a mandatory scheme needs to be introduced to serve the interests of renters, home buyers and the building industry.

Mandatory Disclosure

The ACT has had a Mandatory Disclosure at point of sale scheme since 1999. According to a 2008 study, home owners who invested in improving the energy performance of their house by 1 star level, on average increased its market value by about 3%. Mandatory Residential Energy disclosure is common in European countries and has been in place for a long time.

Introducing minimum standards at point of sale and rental

The introduction of mandatory disclosure is the first step in improving the energy efficiency of buildings, by allowing the industry to develop the skills and knowledge to provide and interpret energy disclosure information. The introduction of minimum energy standards would then be required to lift the energy performance of buildings.

The benefits of a minimum standard are:

- reduced consumer energy costs,
- reduced health risks associated with heat waves and cold periods,
- creation of building industry jobs, and
- development of retrofitting skills in the building industry

Energy poverty

Energy poverty is where a household spends a large proportion of its income on energy bills, and often restricts their energy consumption in order to pay for other essentials. Low income households are particularly vulnerable to heat and cold weather stress, and are least likely to afford alternatives to reduce energy costs. Many low income households rent because they are unable to purchase a house. Typically, this involves renting very inefficient, leaky and uncomfortable properties. A higher percentage of income is spent on energy to stay warm or cool, thus leading to a cycle of energy poverty. Low income households would be better protected by the introduction of minimum standards for energy efficiency.

In Victoria only 58% of private and 55% of public rented homes have insulation, compared with 95% of owner-occupied homes. One of the most effective ways to help the disadvantaged reduce their energy use and be less vulnerable to heat waves and temperature extremes is to introduce mandatory energy ratings for all buildings, combined with tax offsets for energy efficiency improvements in rental properties¹⁷.

In early 2017, the Victorian Government announced a new “Making Home Energy More Affordable” program. This program will target 800 low income households. Through no or low interest loans, households will be able renovate their homes, replace appliances, and install solar.

It is anticipated that the average household would save \$500 per year on energy costs through a typical retrofit of \$4500 for measures such as draught proofing, ceiling insulation and a heater upgrade.

¹⁵ National Energy Efficient Building Project, Pitty + Sherry, November 2014

<http://www.thefifthestate.com.au/innovation/building-construction/australias-building-energy-efficiency-system-is-broken/70863>

¹⁶ <http://www.vic.gov.au/news/residential-efficiency-scorecard.html>

¹⁷ <https://theconversation.com/renters-are-being-left-out-in-the-cold-on-energy-savings-heres-a-solution-65712?platform=hootsuite>

Appliance ratings and efficiency tools

A considerable amount of electricity used in the home is consumed by appliances: refrigerators, dishwashers, washing machines, TVs and other IT equipment. Mandatory minimum standards for appliances therefore drive substantial efficiency improvements. Energy labels first appeared on refrigerators in 1986, and a review found that between 1986 and 2000, the average efficiency of new refrigerators purchased by Australian consumers improved by around 40%.

Stand-by power accounted for more than 10% of Australia's residential electricity consumption in 2005¹⁸. The Australian Government introduced new regulations that mean all electrical equipment sold from 2013 cannot exceed 1 watt when on stand-by mode, which brought Australia in line with European standards. This simple cost-effective regulation has saved Australians a considerable amount of money in wasted electricity bills.

Environmentally Sustainable Development (ESD) planning

Darebin Planning Scheme Amendment GC42 builds on the overarching ESD objectives of the State Planning Policy Framework, the Municipal Strategic Statement and local policies contained within the Darebin Planning Scheme.

The policy seeks to ensure that all development that requires a planning permit achieves best practice across a wide range of ESD principles, including energy efficiency, water resources, indoor environment quality, stormwater management, transport, waste management and urban ecology. ESD guidelines have been developed for Council building projects to help

Northland Urban Renewal Project (NURP)

The redevelopment of a significant portion of the municipality is a once in a generation opportunity. The Northland Urban Renewal Project presents an opportunity for Council to facilitate the development of a model sustainable precinct. The precinct plans will consider:

- high levels of active transport and reduced dependency on cars,
- solar passive designs incorporated into all residential and commercial buildings,
- high energy performance housing well above mandatory minimum State standards eg 7 – 8 star energy rating,
- high levels of solar PV, heat pumps and energy efficient heating and cooling across the precinct, and potentially show casing 'energy plus' or zero carbon housing.
- green walls, green roofs and a green street level infrastructure which incorporates the thermal benefits of green roofs/walls, reducing the urban heat island effect and ensuring the capacity to retain and filter stormwater and
- future proofing buildings and related infrastructure e.g. mandating the provision of conduits for electric vehicle charging to enable retrofitting of charging facilities, when the technology is required in the next 5-10 years.

All these sustainability aspects will need to be facilitated through the statutory planning processes. NURP presents an ideal opportunity for Darebin to model a more liveable, active community precinct that showcases zero carbon living and business of the future.

achieve Council's climate and other environmental strategies. An adopted ESD policy would better ensure greater consistency across Council projects and guide expenditure decisions. A high level of ESD performance and innovation in Council projects is desired. Project stakeholders are required to consider sustainability initiatives throughout the building lifecycle stages. ESD is a rapidly evolving area, hence regular review of current best practices and further feasibility analyses will be required for new major projects.

¹⁸ Based on 120 households, residential standby power consumption was estimated to cost Australian consumers approx. \$950 million resulting in 6.5 million tonnes of carbon dioxide emissions -<http://www.energyrating.gov.au/products-themes/standby-power/about/>

Commercial and Industrial Energy Efficiency

Energy efficiency presents a major opportunity for Australia to reduce greenhouse emissions in a cost effective way. Energy productivity improvements could account for 420 MtCo₂-e or 44% of Australia's 2030 greenhouse reduction targets.¹⁹ The Australian Government and Council of Australian Governments Energy Council agreed to boost energy efficiency by 40% by 2030 or approximately 2%-3% efficiency per year²⁰.

The 2010 Climateworks study *Low Carbon Growth Plan for Australia*²¹ outlines a comprehensive economy-wide blueprint for ambitious reduction in greenhouse gas emissions. The Plan identifies 54 least-cost opportunities across the economy to achieve a 25% reduction in Australia's emissions below 2000 levels. A 2012 follow up study²² indicated that industrial and manufacturing industries could save 11% of total energy use, with the majority offering a payback of less than 2 years.

5.2.2 Supporting policies

State

The Victorian Energy Efficiency Target (VEET) scheme, also known as the Energy Saver Incentive, is designed to make energy efficiency improvements more affordable, contribute to the reduction of greenhouse gases, and encourage investment, employment and innovation in industries that supply energy efficiency goods and services.

This scheme has enabled many households and businesses to change to energy efficient lights, draught stoppers, and chimney balloons or upgrade to better standard kitchen appliances, heating and cooling, refrigeration and pool pumps. Expansion of the scheme and making it easier to access will improve uptake and outcomes.

Federal

The Australian government's Equipment Energy Efficiency (E3) program²³ aims to reduce energy consumption by household and business appliances, through the use of energy labels and enforceable standards for energy consumption. The program has saved the Australian economy 13.5 million tonnes of emissions and resulted in a financial saving of \$1,600 million – at an abatement cost of -\$119 per tonne²⁴.

Minimum energy efficiency standards are the key drivers to reducing energy consumption, energy costs and also greenhouse emissions. Experts recommend that the minimum standards program should expand the appliances covered by the scheme (e.g. ceiling fans, swimming pool pumps), and the minimum standards should be accelerated. For too long Australia has been a dumping ground for poor performing or end of run appliances that wouldn't meet European or North American standards.

The Australian Government Commercial Building Disclosure (CBD) Program requires most sellers and lessors of office space of 2000 square metres (1000 square metres from 1 July 2017) or more to obtain a Building Energy Efficiency Certificate (BEEC) before the building goes on the market for sale, lease or sublease. There is not currently a significant supply of office stock in the Darebin area; therefore this program needs to be expanded to support our business types.

¹⁹ <https://www.environment.gov.au/system/files/resources/b8540c8a-8a31-4aba-a8b5-63cc46466e33/files/australias-2030-abatement-potential-summary.pdf>

²⁰ http://www.coagenergycouncil.gov.au/sites/prod.energycouncil/files/publications/documents/National%20Energy%20Productivity%20Plan%20release%20version%20FINAL_0.pdf

²¹ http://climateworksaustralia.org/sites/default/files/documents/publications/climateworks_lcgpa_australia_full_report_mar2010.pdf

²² http://www.climateworksaustralia.org/sites/default/files/documents/publications/climateworks_ieedap_summary_dec2012.pdf

²³ <http://www.energyrating.gov.au/>

²⁴ <https://theconversation.com/energy-smart-appliances-cut-australian-power-bills-by-billions-25816>

5.2.3 Darebin and Energy Efficiency

One of the most cost effective ways of reducing Darebin's greenhouse emissions is to reduce energy consumption.

The commercial and industrial sectors (using electricity and gas) are the largest source of Darebin community emissions - **46%** or 533 kt in 2016.

Residential energy (using electricity and gas) is the second biggest source of Darebin community emissions - **35%** or 403 kt in 2016.

The commercial and industrial sectors are very diverse, including: education & training, retail and wholesale trade, manufacturing, health care & social assistance, construction, accommodation and food services. Notably, 58% of our 13,000 businesses operate from private homes. Although there is a greater number of smaller businesses, manufacturing are in aggregate the largest energy users.

Some efficiency improvements will relate to all businesses to varying degrees e.g. retrofitting of LED lights will work for most businesses, but the type of technology will be different for a retail shop when compared to a warehouse. Council, through the Green Business Program has implemented a Light\$mart program which has facilitated over 123 businesses to upgrade to energy efficient LEDs.

Similarly, in 2016 Council actively engaged with these businesses to offer the benefits of solar PV through Council's Solar Bulk-buy program.

Businesses often recognise the value of energy efficiency or solar, but struggle to find the time to investigate the possibilities, get quotes and make informed decisions about quality, value and warranty. Businesses have found the Council's Light\$mart and Solar Bulk-buy programs very helpful because the Council's providers are trusted and businesses are more likely to take up the energy efficiency or solar PV as a result. There is currently significant contact time involved in getting businesses to consider energy efficiency issues but smart resourcing of this area can bring about significant results. Energy upgrade agreements are available for larger solar installations for businesses and there has been interest in this from some larger sites in Darebin, but no commitment to date.

Many businesses in Darebin operate from rental premises but well-designed lease terms can allow favorable returns for business renters from energy efficiency investments.



Trial of LED lights in Citipower near Northcote Town Hall – Photo Noel Twyman, Citipower

Energy efficient street lights

Energy efficient street light replacement program (Tonnes CO₂)



The Darebin Green Light Program 2013-2016 has been successful in delivering a range of positive outcomes for our community. 9,675 streetlights have been changed to energy efficient lights, which produce a more even spread of light, less fade over time, less spill into private property and lower maintenance costs. A very significant 3,029,866 kWh of electricity will be saved per year, resulting in a reduction of nearly 4,000 tonnes of greenhouse gas emissions per year.

Council will save \$577,375 (GST excluded) each year on electricity costs and reduced operation, maintenance and replacement charges.

The Green Light Program only covers pedestrian level lighting in Darebin's streets. There is potential to upgrade the 1,500 vehicular (V) street lights with energy efficient lamps, where the electricity costs are shared between VicRoads and Council. VicRoads understand the financial and greenhouse benefits of upgrading to LED street lights.

In-house energy efficiency program

Council has annually invested in energy efficiency work on Council buildings. In 2016, the combined savings of this program was \$315,300, with a total cumulative energy savings of \$1,317,200.

For every \$1 Council spends on this energy efficiency program a \$1.40 is saved over the lifetime of the product. This program represents excellent value for Council and ratepayers. Council continues to explore and invest in energy performance initiatives that provide a Payback of 10 years or less.

Council's energy efficiency program (Tonnes CO₂)



5.2.4 Objectives and Action

OBJECTIVES

1. New buildings to meet high ESD standards including minimum energy efficiency standards
2. Existing buildings to be retrofitted to be energy efficient
3. New appliances and lighting, including street lighting to meet high ESD standards including energy efficiency standards
4. Existing appliances and lighting, including street lighting, to be upgraded to be energy efficient

ACTIONS

Council corporate actions

Strategies	Timeframe	Action
Continue energy efficiency program for council buildings	2017-2022	<ul style="list-style-type: none"> ▪ Works to include: Building Monitoring Systems, HVAC upgrades, double glazing, insulation, air-leakage control, saving on average 221 t per year and returning \$1.40 for every \$1 spent. ▪ Consider participation in a Council building energy performance benchmarking program.
Build new buildings to a high ESD standard	2017 2017 ongoing ongoing	<ul style="list-style-type: none"> ▪ Adopt a Council ESD policy with a minimum standard for new Council buildings consistent with GC42 Darebin Environmentally Sustainable Development (ESD) Policy. ▪ Include ESD as a key project management checkpoint early in the design process for all council building projects. ▪ Provide funding to support high standard ESD being incorporated into Council building projects. ▪ Provide training in ESD for all teams involved in council building projects.
Make streetlight use more energy efficient	2018-2022	<ul style="list-style-type: none"> ▪ In partnership with VicRoads upgrade V level streetlights to energy efficient LEDs. ▪ Investigate installation of timer and dimming technology on pedestrian street lights.
Advocate for Government action and support	ongoing	<ul style="list-style-type: none"> ▪ Advocate for actions in “What do we need others to do section”. ▪ Partner with other councils and organisations such as the Council Alliance for a Sustainable Built Environment (CASBE) for advocacy.

Council supporting the community

Strategy	Timeframe	Action
Support retrofit of homes to make them more energy efficient	2017-2019	<ul style="list-style-type: none"> ▪ Partner in the such as 'Making home energy more affordable' with State government and partners to retrofit low income households, including insulation, air leakage, efficient heating/cooling
Ensure new developments and precinct planning meet high levels of energy efficiency	2017-2022	<ul style="list-style-type: none"> ▪ Implement GC42 Darebin Environmentally Sustainable Development (ESD) Policy. ▪ Continue with One Planet framework and high ESD requirements in precinct planning for Northland Urban Renewal Precinct (NURP) and future precinct plans. ▪ Continue to support and promote the Green Building Council of Australia (GBCA) to develop, promote and implement rating tools and advocate to industry and governments.
Extend the reach of the Green Business program	2017-2022	<ul style="list-style-type: none"> ▪ Investigate opportunities where common technologies/systems may apply across a range of businesses and explore the benefit of bulk-buy or facilitated roll-out e.g. LED lights, timers, solar and batteries. ▪ Investigate and support financing programs for commercial building retrofits and solar, such as Environmental Upgrade Agreements. ▪ Investigate cost effective models for business energy advice services.
Improve home energy efficiency through the Victorian Government Energy Efficiency Scorecard	2017-2022	<ul style="list-style-type: none"> ▪ Explore potential for Council to work with the victorian government and the community to use the Scorecard as an aid in purchasing housing and appraising rental properties.
Support changeover to energy efficient appliances	2019	<ul style="list-style-type: none"> ▪ Explore the potential to extend the Solar \$aver program or appropriate finance mechanisms to support changeover to energy efficient appliances

What do we need others to do?

Darebin community

- Turn things off standby
- Buy highly rated appliances
- Support advocacy for adopting minimum energy standards at point of sale or rental
- Insulate and draught proof your property
- Get your building checked by an approved industry technician for insulation levels and air leaks
- If you run a business, consider taking advantage of VEET to be more energy efficient

State government

- Improve ESD standards in building codes and planning mechanisms including the raising of minimum energy rating from 6 star to 8 star minimum.
- Requiring passive design principles to be incorporated in all building design.
- Require all new homes to be 'energy plus' (produce more energy than is used on site).
- Introduce minimum house energy standards at point of sale and rental with a transition to a 4 stars energy rating by 2018, 5 stars by 2019 and 6 stars by 2020.
- Increase monitoring and verification of all new housing and renovations to provide consumer confidence that housing actually performs to specified minimum energy ratings.
- Demonstrate policy leadership in best practice ESD for new state government buildings and upgrades to existing buildings.
- Support accurate and thorough product labeling relating to emissions impact of product throughout its lifecycle.
- Approve GC42 Darebin Environmentally Sustainable Development (ESD) Policy
- Provide comfortable and high ESD public housing.
- Streamline the provision of energy use data to households, businesses and communities to support and develop energy literacy.
- Develop finance support mechanisms to facilitate households, especially low income households, to fund energy efficiency upgrades and best-in-category appliances to improve household energy efficiency.
- Adopt housing minimum energy standards at point of sale or rental as soon as possible and develop other ways to address the issue of the tenant-landlord split incentives.

Federal government

- Expand and improve the Australian Government Equipment Energy Efficiency Program which determines the minimum energy performance standards of appliances.
- Develop finance support mechanisms to facilitate households, especially low income households, to fund energy efficiency upgrades and best-in-category appliances to improve household energy efficiency.
- Support and mandate commercial and industrial sectors to significantly raise energy efficiency
- Expand and improve the Commercial Building Disclosure (CBD) Program.

5.3 Key direction # 3 – Renewable energy and fuel switching

5.3.1 Context

To meet our goal of eliminating greenhouse emissions to contribute to the restoration of a safe climate at emergency speed, we need to rapidly transition to 100% renewable energy.

Electricity and gas emissions are currently 53.5% of Australian²⁵ and 81% of Darebin greenhouse emissions. A high percentage of electricity generated in Victoria comes from brown coal, which has one of the highest electricity emissions intensities in the world.

Solar PV costs in Australia have dropped 58% in five years and according to the Climate Council are expected to continue to fall by a further 40-70% by 2040²⁶.

Australia has the highest per capita roof top solar PV installations in the world, with over 1.58 million homes or 20% of dwellings contributing²⁷.

100% renewables is possible

Solar and wind technologies are intermittent in their electricity production. Managing a modern electricity grid with higher percentages of intermittent renewable energy can²⁸ and must be planned for. Back-up electricity and grid stability can be provided in a number of ways including energy storage (hydro, molten salt storage or batteries) at a large scale, or by battery storage, hot water systems and electric vehicles at domestic levels. 100% renewable energy in a modern and well managed grid would be able to meet the same reliability standards of the National Electricity Market (NEM) today.



²⁵ <https://www.environment.gov.au/system/files/resources/48275b92-3f4b-44d0-aa4e-50ece408df86/files/nggi-quarterly-update-jun-2016.pdf>

²⁶ <https://www.climatecouncil.org.au/solar-report>

²⁷ <http://pv-map.apvi.org.au/historical#4/-26.67/134.12>

²⁸ The Zero Carbon Australia Stationary Energy Plan, Beyond Zero Emissions, 2010; Least cost 100% renewable electricity scenarios in the Australian National Electricity Market, Mark Ben Elliston, Iain MacGill, Mark Diesendorf, 2013; 100 per cent renewable study - modelling outcomes AEMO, 2013; Electricity network Transformation Roadmap, Energy Networks Association & CSIRO, 2016

Switching from gas

The gas industry argues that gas is a suitable low carbon fuel which can be used as a lower emissions fuel during the transition to a zero emissions economy. But since there is no carbon budget left, continued use of fossil gas is no longer appropriate. Battery and stored hydro are on the cusp of being cost competitive with gas for the supply of peak demand electricity.

At the domestic scale there are electricity-based replacement technologies for all home gas-based technologies, which are also more energy efficient. Heat pumps for hot water reverse cycle air-conditioning for heating and cooling and induction stove tops are cheaper to operate than the gas equivalents. At the residential level, zero emissions can be reached through the purchase of 100% GreenPower or by installing renewables.

In November 2014 the Alternative Technology Association reviewed the market and made the assessment that many households would be better off financially switching from gas to efficient electric appliances²⁹.

Batteries

Batteries are not a renewable energy generator, but are an electrical energy storage device. Given the intermittent nature of wind and solar production, batteries are closely connected to the success and adoption of renewable energy.

Many solar PV households are frustrated that their electricity is immediately sold to their next-door neighbours for 5 times the price they receive. The advent of peak demand charges and affordable batteries is likely to have a significant impact on the residential electricity market.

The financial benefit of solar PV is reduced if high levels of electricity are exported to the grid. Battery storage will create the potential for households to install larger solar systems and save more on their electricity bills. The battery industry expects Australia to be a world leading adopter of residential batteries due to the combination of high solar radiation, high residential electricity charges and low feed-in-tariffs for solar.

The market price for batteries is still relatively high, but is expected to reduce in the coming years. Fewer than 500 batteries domestic systems were installed in Australia in 2015 but the market increased to 6,750 installations in 2016. The market is expected to triple in 2017.

Solar is democratising energy

There are many people who are seeking a greater degree of energy independence - moving away from a carbon intensive grid, insuring against rising electricity prices and avoiding high network charges. Australian electricity prices are high compared with many OECD countries, and electricity transmission costs are very high.

Affordable solar PV has effectively broken the dependence on the traditional grid network and fossil fuel powered electricity. The advent of lower cost solar PV is bringing energy democratisation around the world. In Australia this means less dependence on fossil fuel generated electricity from the grid. In India and Africa it means an affordable LED light or technology to charge the phone in rural areas which do not have access to grid electricity. Removing an expensive and highly dangerous kerosene lantern is a significant benefit to these households and communities.

Installing solar PV on homes leads to residents having a higher level of interest in electricity production and the electricity grid. Instead of being a passive consumer, residents become active producers and consumers (pro-sumers). People are re-engaged and empowered.

²⁹ Are we still cooking with gas?, Alternative Technology Association, November 2014
<https://www.ata.org.au/news/are-we-still-cooking-with-gas>

Australian Energy Market

The electricity market rules were set at a time when climate change was not being taken seriously enough. The electricity market rules should be amended to mandate both energy efficiency improvements and greenhouse gas emissions reductions on the privatised companies managing the Victorian distribution networks, through the appropriate bodies such as the Australian Energy Market Regulator and the Essential Services Commission in Victoria.

Electricity market rule changes should facilitate community owned renewable energy projects, and smaller more flexible decentralized power generators. Countries such as Germany have been able to create markets which have allowed and encouraged smaller-scale community-owned generation opportunities, benefiting the participants and the market.

Council could play a role in working with the electricity distribution networks and the community to establish a community renewable energy project.

5.3.2 Supporting policies

State

In 2016 Victoria re-established a target of 25% renewable energy by 2020 and 40% by 2025. This is a positive step forward in one of the world's most greenhouse intensive electricity supply systems. By way of comparison, the governments of the ACT (100% renewable energy by 2020) and SA (100% renewables by 2030) are leading the way.

It is estimated that Victoria will have 31% renewable energy by 2020 according to the above targets.

Federal

The Federal Government is failing to provide adequate market incentives to move towards a zero carbon electricity network. The 2015 revised renewable energy target (RET) of 33,000 GWh (approximately 23.5%) by 2020 will play a part in increasing renewables until 2020. As the RET concludes in 2020, this mechanism will not drive long term electricity emissions reductions.

5.3.3 Darebin and Renewable Energy

Unaffordable electricity and gas bills are one of the greatest causes of rental arrears in Victorian low-income households³⁰. Solar panels reduce electricity costs, so are especially beneficial for such households. However, low-income and pensioner households are often unable to install solar panels due to the high up-front cost or because they are living in rental properties.

Darebin Solar \$aver, Solar Bulk Buy programs and the installation of solar on Council buildings have contributed to 10% of the installed solar in Darebin up to 2016³¹.

Council can continue to play a key role in facilitating resident and businesses installing solar PV through programs such as Solar \$aver (a rates based repayment scheme), supporting 'Environmental Upgrade Agreements'³² and bulk purchasing programs.

Community energy

Approximately 30% of Darebin residents live in rental accommodation. Solar PV is fixed to the roof of a property and consequently becomes the property of the owner. It is tenants who typically pay the electricity bills and who would benefit from reduced electricity costs from the

³⁰ <http://sydney.edu.au/news/84.html?newsstoryid=9874>

³¹ 675 households, businesses & council buildings resulting in approximately 2,000 kW of solar PV.

³² EUAs are a council-based mechanism to help businesses access funding for building works to improve energy efficiency, reduce waste and cut water use.

installation of solar PV. Under current electricity market conditions there is little incentive for a property owner to pay to install solar for the benefit of a tenant.

A significant number of Darebin residents live in multi-storey higher density accommodation with limited solar access. There are many home owners that simply do not have suitable solar access as a result of shading by trees or buildings.

Community energy projects around the world allow residents to purchase a share in a renewable energy project and then buy their energy from that project.

Purchasing of renewable energy

There is a range of existing and emerging market options to purchase and/or create new renewable energy. Examples include

- GreenPower™ (electricity supplied by a retailer who purchases Large-scale Generation Certificates (LGCs) from renewable energy generators additional to the National RET).
- local electricity trading / virtual net metering on a small / local scale (when an electricity customer with on-site renewables is allowed to assign their 'exported' electricity generation to other site/s, instead of claiming the FiTs),
- power purchase agreements with a retailer or a generator to create new renewables,
- organisations building their own offsite large scale renewable generator (trading the power into the market and offsetting their own consumption against this).

Some of the emerging purchasing models address hedging of future pricing, greater flexibility, and potentially cheaper renewable energy. Many of these rely on virtual net metering – the mechanism provided by a retailer where renewables generated on one site can be netted off the bills of other sites. Unfortunately no Victorian electricity retailers have come forward as of 2017 to offer this, partly due to the large initial cost. However, in New South Wales, some projects are going ahead³³.

GreenPower™ increases the amount of renewable energy built and generated above the Renewable Energy Target (through provision of Large-scale Generation Certificates) through a thoroughly audited process. However according to Choice

“no matter how many people choose to buy GreenPower, it's unlikely to push Australia's emission reductions beyond what the government has already committed to at the international climate change conference in Paris”³⁴

In 2016-17 GreenPower™ was estimated to cost Darebin City Council over \$300,000. In the context of the urgent action required in relation to the Climate Emergency these funds could currently be better spent on advocacy, local energy efficiency and renewable measures and exploring alternative renewable energy purchasing. To maximise the efficacy of its expenditure, Council could take advantage of energy efficiency (Victorian Energy Efficiency Certificates) and renewable energy (Small-scale Technology Certificates) credits.

Melbourne Renewable Energy Purchasing Group

Three councils (City of Melbourne, Yarra City Council, and Moreland City Council) and a number of other large organisations and businesses have formed a purchasing group that will go to tender for a retailer / developer to deliver renewable energy over the long term. This provides price certainty for both the retailer / developer and the consumer. They will purchase 110GWh of energy from new large-scale renewable energy facilities. The power purchasing agreement will be long-term, and the councils will have 100% of their electricity use supplied through this agreement. The main aim of this project is to drive new investment above and beyond the Renewable Energy Target (RET).

³³ <http://reneweconomy.com.au/byron-shire-to-be-first-in-australia-to-pilot-virtual-net-metering-74516/>

³⁴ <https://www.choice.com.au/home-improvement/energy-saving/reducing-your-carbon-footprint/articles/greenpower-renewable-energy>

5.3.4 Objectives and Action

OBJECTIVES

1. Speed the switch of the Darebin Council and community to 100% renewable energy use.
2. Increase solar PV on rooftops across Darebin.
3. Switch from gas to renewable electric power.

ACTIONS

Council corporate actions

Strategies	Timeframe	Action
Install solar PV on Council properties and infrastructure	2017-2022	<ul style="list-style-type: none"> ▪ Install 440kW of solar PV on council buildings over 5 years. ▪ If local electricity trading/Virtual Net Metering becomes available, in light of the new Feed-in-tariff, review this target with a view to expanding it based on the roof space available and battery pricing. ▪ Investigate solar paths and roadways for trial in Darebin.
Purchase renewable energy	2017-2018 Ongoing	<ul style="list-style-type: none"> ▪ Actively explore with NAGA, other alliances and Councils the prospect of purchasing renewable energy through one of the emerging models available to Councils. ▪ Reallocate current funds required for GreenPower purchase (\$300,000) to more strategic action and review if impact or pricing changes.
Phase out natural gas use from Council buildings	2019	<ul style="list-style-type: none"> ▪ Develop a natural gas exit strategy for Council buildings.
Advocate for Government action and support	Ongoing	<ul style="list-style-type: none"> ▪ Advocate for actions in the “What do we need others to do” section”.

Council supporting the community

Strategies	Timeframe	Action
Double the installation of solar PV in Darebin through residential, school, business and community energy programs - from 19,000 kW to 38,000kW by 2022	2017-2019 & 2020-2022 2017-2022	<ul style="list-style-type: none"> ▪ Deliver an expanded Solar Saver Program to install 11,000kW solar on homes, organisations, schools and businesses, including community energy projects over 5 yrs. The program is proposed to be delivered over 2 cycles. ▪ Deliver a Solar Bulk Buy Program – 1000 households over 5 years ▪ Deliver a Solar Program for 20 businesses at 250kW through Environmental Upgrade Agreements.
Explore options for solar + battery programs and residential energy efficiency retrofits through rates schemes and Bulk Buys.	2019-2022	<ul style="list-style-type: none"> ▪ When the economics, technology and market signals are appropriate, explore how Council can encourage the uptake of batteries potentially through an extended Solar + Battery + Energy Efficiency Retrofits Bulk Buy program.

Promote switching from gas to electric appliances	2018 2018 - 2022	<ul style="list-style-type: none"> ▪ Provide information to promote switching from gas to electric appliances. ▪ Explore hosting a 'Get off gas' bulk-buy program for hot water heat pumps, reverse cycle conditioning and induction stove tops
---	---------------------	---

What do we need others to do?

Darebin community

- Install solar PV at home, work, school and on community facilities
- Install supporting battery technology when appropriate
- When buying electricity, buy 100% renewable
- Real estate agents: encourage landlords to provide comfortable, low cost, marketable homes by installing on-site renewables
- Help facilitate community owned renewable energy projects for those who rent or have limited solar access
- Advocate for 100% renewable energy in the electricity grid

State Government

- Adopt and reach 100% renewable electricity targets at emergency speed.
- Consider solar access rights or appropriate compensation mechanisms.
- Streamline grid connection regulation and costs and recognise the benefits of decentralised energy.
- Ensure fair solar feed-in-tariffs
- Fund and support local government and community renewables projects

Federal Government

- Extend the Renewable Energy Target beyond 2020 and establish a new goal of 100% renewable energy at emergency speed.
- Together with COAG, establish a nationwide minimum and fair solar feed-in-tariff for all solar households.
- Together with COAG amend the National Electricity Rules and other regulation to:
 - mandate energy efficiency greenhouse gas emissions reduction and climate change considerations.
 - facilitate community renewable energy market participation and the facilitation of local energy trading (Virtual Net Metering) across boundaries and sites.
 - Consider "5 minute pricing" for the National Energy Market (NEM) rather than the current 30 minute pricing which excludes battery and fast responding technologies.
 - Ensure genuine community benefit in market changes.
- Facilitate, fund and support local government and community renewables projects
- Streamline grid connection regulation and costs, whilst recognising the benefits of decentralised energy.

5.4 Key direction # 4 – Zero emissions transport

5.4.1 Context

Transport is a growing cause of carbon emissions, and about half of Australia's emissions from transport are from cars. As part of our Climate Emergency Plan we have to tackle transport and eliminate the emissions associated with it.

In Darebin, 15% of the community's emissions are from transport compared to the Australian average of 18% of emissions from transport³⁵. As a third of trips made by Darebin residents are less than five km, there is a huge opportunity to support walking and cycling to reduce these emissions. Encouraging car sharing and low / zero emissions vehicles for the remaining journeys that need a vehicle will further reduce our emissions.

Australia is ranked last out of 16 major OECD countries for energy efficiency in the transport sector,³⁶ and has the ninth-highest transport emissions per capita in the world³⁷. Other countries are way ahead of us. 80% of the global car market is covered by mandatory light vehicle CO2 emissions standards. Unfortunately, the Australian market is not. This risks Australia becoming a "dumping ground" for polluting cars not permitted in other large car markets.³⁸

Electrification of transport

New Zealand has announced a target of doubling the number of electric vehicles on their roads every year, aiming for 64,000 electric vehicles by 2021³⁹, and Norway plan to ban the sale of internal combustion engine vehicles by 2025⁴⁰.

The most effective way to decarbonise transport is to reduce private vehicle use as much as possible, and change the fuel we use – moving from fossil fuels to electrification and renewable fuels. This goes hand-in-hand with eliminating the emissions intensity from our electricity supply by switching to renewables.

Electrification of transport is a critical step in order to reduce Council's and the community's transport emissions. Electric vehicles produce no tailpipe emissions and lower lifecycle emissions⁴¹. The Victorian Government⁴² ran a trial of electric vehicles in 2012. The Victorian Government provides minimal support for electric vehicles with a small registration discount of \$100 for hybrid and electric vehicles.

Public transport & active transport

Locally, it is important to provide infrastructure and support for walking, cycling and public transport, to ensure our community has viable, attractive travel options other than car travel. Car sharing services provide an efficient way of using cars and car sharing programs have demonstrated success in reducing private car ownership⁴³. To assist car sharing to succeed it needs to be integrated with high quality public transport (for the regular journeys commuting to work) and located where there is a higher residential and commercial density, and a good pedestrian and cycling environment⁴⁴.

³⁵ Climate Council 2016 <https://www.climatecouncil.org.au/transport-emissions-and-climate-solutions>

³⁶ The Path Forward for Electric Vehicles in Australia, 2016

³⁷ Climate Council 2016 <https://www.climatecouncil.org.au/transport-emissions-and-climate-solutions>

³⁸ Ibid. Countries and regions as diverse as the United States, Europe, Japan, Korea, China, India, Canada and Mexico have standards in place

³⁹ ReNew Issue 138

⁴⁰ <https://electrek.co/2016/12/13/norway-all-electric-vehicles-100000/>

⁴¹ <http://www.theicct.org/electric-vehicles>

⁴² Victorian Government Electric vehicles Mid-Term Trial

http://economicdevelopment.vic.gov.au/_data/assets/pdf_file/0004/1092568/Electric-Vehicle-trial-mid-term-report.pdf

⁴³ Over 1000 Cars and No Garage: How Urban Planning Supports Car(Park) Sharing; Jennifer Ken & Robyn Dowling in urban Policy and Research, 2016, Vol 34, No 3. Pp.256-268.

⁴⁴ Ibid

Australia has a low ratio of spending on public transport with only 50c spent on public transport for every \$1 spent on roads⁴⁵. However, research has found that where investment is directed away from roads and parking and towards public and active transport, equivalent mobility can be achieved, whilst also reducing overall public and private spending on transport and reducing greenhouse gas emissions⁴⁶. New public transport infrastructure in the form of the Gold Coast Light Rail recently led to a 25% increase in public transport use on the Gold Coast, with 6.18 million trips taken in its first year of operation⁴⁷.

Benefits of zero emission travel

Social, health and economic benefits of a sustainable transport system

As carbon emissions are reduced by lowering the emissions in our transport system, some added benefits include:



REDUCTION OF AIR POLLUTION

As car use is reduced and the fuel that is used is decarbonised, this process often leads to lower amounts of other air pollutants such as nitrous oxide and particulates. It's been estimated that there are around 3,000 deaths a year in Australia that are attributable to air pollution (*Environmental Justice Australia, 2014*).



INCREASED ROAD SAFETY

As more people walk and ride bikes there is a corresponding increase in the awareness of how to drive safely around people who are walking and cycling.



PHYSICAL HEALTH BENEFITS OF ENABLING MORE WALKING AND CYCLING

In 2008, it was estimated that the total economic cost of physical inactivity to the Australian economy was \$13.8 billion each year (*Medibank Private (October 2008): The cost of physical inactivity*).



SOCIAL EQUITY IN MOBILITY

14% of Darebin households do not have a vehicle (compared to 9.5% for Melbourne) (*ABS 2011 census*), so for Darebin residents in particular, improving non-car forms of transport will be beneficial for a larger proportion of our population and increase accessibility to daily needs



ECONOMIC BENEFITS OF REDUCING TRAFFIC CONGESTION

The annual avoidable cost of traffic congestion in Australian cities will rise to over \$20 billion by 2020 (*Commonwealth of Australia BITRE (2007): Estimating urban traffic and congestion cost trends for Australian cities, Working Paper No.71 p92*).

5.4.2 Supporting policies

Local

Going Places – the Darebin Transport Strategy 2007 – 2027 seeks to create sustainable, accessible travel for Darebin residents, and guides Council action on transport in Darebin. This is complemented by the *Darebin Safe Travel Strategy 2010-2015*, *Darebin Cycling Strategy 2013 – 2018*, the *Car Sharing Policy 2015*, and will be joined by a *Walking Strategy in 2017*.

Aims include increasing the proportion of trips made by walking, cycling and public transport. This will reduce the trips made by car, and so reduce our carbon emissions despite the expected growth in population and in travel.

⁴⁵ Climate Council

⁴⁶ Climate Council 2016 <https://www.climatecouncil.org.au/transport-emissions-and-climate-solutions>

⁴⁷ Ibid

State

Plan Melbourne is the Victorian Government's metropolitan planning strategy, guiding how Melbourne will grow and change to 2050. This provides a long-term vision for housing, increasing jobs and liveability, integrating public transport and infrastructure and addressing climate change in Melbourne. It was published in 2014 and is currently being refreshed following further public consultation.

The *Refresh Discussion Paper* published in 2015 prioritises a number of rail projects with significance for Darebin: the Melbourne Metro Rail project, removal of level crossings, and the Mernda Rail Extension project. In addition, funding has been allocated for cycling and walking, led by a new body: Active Transport Victoria. The concept of 20 minute neighbourhoods is continued, supporting the Darebin Transport Strategy objective to support "local living" to reduce the need to travel long distances to access daily needs.

In January 2017, the Victorian government announced that all trams in Melbourne will be run on 100% renewables from a large scale solar farm by the end of 2018, resulting in a reduction of more than 80,000 tonnes of greenhouse gas emissions every year. Two tram routes run through the Darebin municipality, so thousands of residents and workers will benefit from emissions-free travel.

In addition to this, the Victorian government has committed to a renewable energy target of 25% by 2020, and zero net emissions by 2050.

Federal

The Australian Government *Urban Transport Strategy 2013* acknowledges transport is an integrated system that needs long-term planning.

The federal government consulted on a vehicle CO2 emissions standard in December 2016 – March 2017. The consultation paper set a 2020 start time and proposes three possible standards. The most stringent standard still leaves us lagging four years behind the EU by 2025, so nothing below this standard would be adequate.

What does a zero emissions transport system look like?

- Walking and cycling are prioritised in planning, making both safer
- Good, reliable, affordable public transport is available
- Planning policies will ensure jobs, amenities, essential services, shops are accessible by low carbon forms of transport
- Personal transport use is lower, with electric cars forming the majority of car sharing (car clubs, car next door, ride share).
- Transport by car is electric powered. Charging points are a standard part of new developments, there is on-street charging for those who don't have private car space, plus rapid charging and battery swap at convenient locations.
- The majority of freight is transported by rail, the rest on zero emission vehicles.
- Increased sourcing of local materials in the products we buy means freight has less distance to travel.
- More teleconferencing and flexible work patterns to reduce the peak time commute

5.4.3 Darebin and Zero emissions transport

There is limited data available to track changes in transport use, however, between 2006 and 2011 there was a 34% increase in the share of walking, cycling and public transport journeys to work in Darebin⁴⁸, and private vehicle kilometres per person decreased by 32% between 2007 and 2009⁴⁹.

Bike use increased by 130% between 2006 and 2012 in Darebin⁵⁰, however only 4.3% of the employed population travel to work by bike⁵¹, so the potential to increase the shift from cars (54% of travel to work) to bike is significant. Cycling has become safer due to increased infrastructure, such as supporting cycling on and off road paths, missing links and known conflict points on popular on-road routes, and as a result of training to increase riders' skill, knowledge and awareness.



78% of households own at least one motorised vehicle, with vehicle ownership increasing between 2006 and 2011. Over the period 2012-14, 74% of kilometres travelled by residents of Darebin were by car⁵².

Building on the consistent annual investment in walking infrastructure around key destinations in Darebin over many years, a Principle Pedestrian Network has now been developed to prioritise future works. The focus will continue to be on works that make it safer, easier and more pleasant to walk, including improving footpaths in activity centres, providing pedestrian crossings on busy roads, increasing greenery on walking routes and upgrading links to public transport and other popular destinations.

To encourage behaviour change towards sustainable forms of transport, Council runs and facilitates a number of activities and programs including providing a bike valet at our festivals, bike rides as part of Music Feast, support for organisations to run Ride to Work Day events, and a program of activities for Walk to School Month.

A number of car sharing approaches are available for the Darebin community – 'car next door' provides a peer to peer service, a variety of ride / lift share services allow individuals to arrange to share individual trips, and membership of a car share company gives the ability to hire a car locally for discrete journeys. These services all reduce the need for private car ownership, and in doing so address issues around parking demand, and reduce the number of vehicle trips made. There is an increasing demand in the community for car share vehicles so during 2016 Council installed 15 new car share spaces in Darebin.

According to electric vehicle infrastructure-mapping website plugshare.com, there are two publically available charging points in the Darebin municipality – one a fleet provider in Preston, and the other Melbourne City Football Club in Bundoora (La Trobe University site).

The State Government is responsible for managing public transport and certain roads, including arterials, in Victoria. Council works with the relevant authorities to improve public transport access and facilities, and to seek improvements to public transport. Changes to State managed roads are made through VicRoads.

⁴⁸ Australian Bureau of Statistics, Census Journey to Work 2011

⁴⁹ VISTA 2009

⁵⁰ Darebin Council Super Tuesday counts 2006 to 2012

⁵¹ ABS Journey to Work data, Census of Population and Housing, 2011

⁵² VISTA 2012-14 provisional figures

5.4.4 Objectives and Action

OBJECTIVES

1. Reduce the number of private vehicle kilometers travelled in Darebin by increasing the share of public transport use, walking and cycling.
2. Expand availability of car share services in Darebin
3. Advocate for improved frequency and accessibility of public transport
4. Increase use of electric vehicles
5. Advocate for higher vehicle emissions standards to be implemented by federal government

ACTIONS

Council corporate actions

Strategies	Timeframe	Action
Upgrade Council's vehicle fleet with lowest emission vehicles	2017 2018 Ongoing	<ul style="list-style-type: none"> ▪ Review fleet policy for standard purchases to be hybrids or meet highest possible level of environmental standards. ▪ Explore electric vehicle options for fleet ▪ Partner with others to look at public charging options ▪ Partner with others to explore electric car share options ▪ Explore lower emission options for heavy fleet including electric and hydrogen fuel alternatives.
Increase number of staff walking, cycling and using public transport for commuting and work trips	Ongoing	<ul style="list-style-type: none"> ▪ Continue the Green Travel program, which incentivises staff to use sustainable forms of transport to commute ▪ Continue to provide electric bikes/Myki cards for work travel.
Advocate for state and national government action and support	Ongoing	<ul style="list-style-type: none"> ▪ Advocate for actions in "What do we need others to do" section.

Council supporting the community

Strategies	Timeframe	Action
Deliver behaviour change, education and marketing programs to increase the uptake of zero/lowest emissions modes of transport	Ongoing	<ul style="list-style-type: none"> ▪ Continue to offer programs to increase the safety and confidence of children and adults riding a bike ▪ Continue to create targeted programs supporting walking, cycling and public transport
Improve the walkability of our city, public transport nodes, interchanges and access to public transport services	Ongoing	<ul style="list-style-type: none"> ▪ Implement Master Plans for JUMP (High Street Preston Junction), Thornbury, Fairfield Village Streetscape (Station Street), Reservoir streetscape and the Retail Activity Centres Strategic Review ▪ Continue to audit and implement recommendations on the Principle Pedestrian Network

Create a cohesive and safe high quality network of bicycle routes to key destinations including workplaces, schools, shops and services	2017 2018/19	<ul style="list-style-type: none"> ▪ Implement the remaining recommendations from the Darebin Cycling Strategy Technical Report to improve Key and Local Cycling Corridors ▪ Develop a new Darebin Cycling Strategy to encourage more cycling and make cycling safer
Support and collaborate with car share companies to achieve an expansion of the car share network	2017	<ul style="list-style-type: none"> ▪ Review the Darebin Car Share Policy and create a long term strategy to increase car share use in place of private car use ▪ Mandate car sharing parking provisions for future master plans through a planning control as appropriate e.g. car sharing spaces in lieu car parking, or Development Contributions Plan
Increase uptake of electric vehicles in Darebin	Ongoing First by end 2017	<ul style="list-style-type: none"> ▪ Specify conditions under which new developments are required to install electric vehicle charge conduits in new residential and workplaces developments ▪ Purchase and install public electric vehicle charging points

What do we need others to do to make this happen?

Darebin Community

- Create a safe and respectful environment for pedestrians and cyclists
- Try walking or cycling instead of driving for shorter trips
- When planning your journey, consider the public transport option instead of driving.
- Be an ambassador for zero/lowest emissions travel and share your travel choices with others
- Consider buying electric/lowest emissions vehicles when replacing a vehicle
- Consider using car share or ride share services as an alternative to owning a car

State Government

- Switch the electrified train system to 100% renewable electricity
- Cooperate and collaborate with councils across Melbourne on walking and bicycle projects to ensure consistency and continuity
- Lead the development of bicycle routes and fund bicycle infrastructure
- Increase the frequency, convenience and quality of public transport services for the whole community (especially to improve gaps in the north of the municipality) and facilitate high speed rail services
- Update the planning scheme to require new developments to have features and facilities for sustainable transport modes, including home/business electric vehicle charging
- Update building regulations to support home and business electric vehicle charging stations
- Shift freight from road to rail
- Make bicycle education a key part of the school curriculum
- Support electric vehicles and facilitate the transition to electric vehicles through planning and resourcing of public charging infrastructure
- Introduce electric buses across the public transport system
- Ensure public transport is powered by renewable energy

Federal Government

- Switch the electrified train system to 100% renewable electricity
- Fund walking and cycling infrastructure

- Fund and/or build a renewable energy powered fast rail system so that the bulk of interstate air travel can be eliminated
- Build comprehensive electrified rail capacity for moving freight across Australia
- Prioritise funding of significant public transport infrastructure over road spending and invest in and facilitate interstate high speed rail services
- Update Australian Standards to prioritise safety for walking and cycling
- Provide tax incentives for lowest emission vehicles e.g. fringe benefit tax exemption for lowest emission vehicles and remove tax incentives that encourage unnecessary driving and vehicle purchase
- Introduce vehicle CO2 emissions standards starting in 2018 and rapidly reducing the minimum to get up to speed with the vast majority of the global car market.
- Decarbonise the electricity grid through committing to 100% renewable energy
- Develop an Electric Vehicle Strategy to increase the uptake of electric vehicles, provide confidence to the electric vehicle supply market and address regulatory and transition to electric vehicles issues.

5.5 Key direction # 5– Waste minimisation

5.5.1 Context

Everything that we, as individuals, choose to waste has environmental impacts ‘upstream’ (in its production before use) and ‘downstream’ (when it is recycled or sent to landfill). Often small things have big impacts. For example, a single empty aluminium drink can requires 40-50 times its own weight in ore, water, chemicals, coal, and greenhouse gases to produce. Recycling a single can saves the same amount of electricity as a television uses in three hours. There are many areas where we create waste unnecessarily. Of Australia’s entire food production industry, including farming and production, one third of the production is wasted, and for every five bags full of groceries brought into the average Australian home, one is “thrown out” with the contents unused⁵³.

Waste minimisation is an important response to the Climate Emergency as eliminating waste means that our response to climate emergency can be more efficient and cost effective. Whenever we buy a product, we are not only creating emissions to create and transport it, but also to dispose of it. When organic waste decomposes in landfills, it releases methane and other greenhouse gases. Approximately 2.8% of Australia’s greenhouse gas emissions are from waste⁵⁴. Nationally, greenhouse gas emissions from waste have declined, mainly due to more effective capture of the methane released. However, waste is increasing, so we have a great opportunity to reduce waste and subsequently reduce emissions.



⁵³ Food waste avoidance benchmark study

<http://www.lovefoodhatewaste.nsw.gov.au/portals/0/kit/print/120437LFHWBenchmarkStudyColourPress.pdf>

⁵⁴ Department of Climate Change and Energy Efficiency, National Greenhouse Gas Inventory, 2010:

<http://ageis.climatechange.gov.au/>

The greenhouse gas savings that can be achieved through waste minimisation come from a variety of activities.

- Reducing waste that goes to landfill.
- Recycling – materials that are recycled and reused reduce the emissions generated by creating products out of virgin materials and divert those materials from landfill.
- Green and food waste recycling – diverting this from landfill and into composting will reduce emissions from this source, and compost can be used to create healthy plants in urban areas, so combating the urban heat island effect, absorbing carbon emissions and offsetting any emissions from composting process.
- The capture of methane emitted by landfill sites.

The treatment of waste will also be considered in drawdown action.

5.5.2 Supporting policies

Local

The *Darebin Waste and Litter Strategy 2015-25* has a vision for Darebin to be a cleaner, more liveable and healthier place, with reduced litter and waste.

State

State legislation is designed to implement the policy *Getting full value: the Victorian Waste and Resource Recovery Policy*⁵⁵ and the *Draft State-wide Waste and Resource Recovery Infrastructure Plan 2013-43*⁵⁶. A significant change in the state-wide policy is that there are no longer numeric waste diversion or resource recovery goals, which have been commonly used since the early 1990s. The focus is now on optimising environmental, economic and social outcomes.

The *Metropolitan Waste and Resource Recovery Strategic Plan* articulates the long term direction for resource recovery and waste management in metropolitan Melbourne. Darebin City Council is a member council of the Metropolitan Waste and Resource Recovery Group (MWRRG) and contributes to strategic development, technical input, education, projects and also participates in regional contracts. Council works with neighbouring and regional councils, MWRRG, Sustainability Victoria, EPA Victoria and others on waste minimisation and enforcement initiatives.

Federal

The *National Waste Management Policy: Less Waste, More Resources*⁵⁷ was introduced in 2009. The main practical implication of this policy for local government in Victoria is the development of national product stewardship schemes for greater recovery of items such as e-waste (electronic waste) - (implemented), tyres (under development) and paint (proposed). The national waste policy sets a broad direction until 2020, again with no targets.

5.5.3 Darebin and Waste

Waste to landfill from Council's waste collection accounts for 1% of Darebin's community emissions. Although a small amount, there are many opportunities to reduce emissions and gain other financial and environmental benefits from reducing waste in Darebin. The waste for commercial, industrial and construction activities, collected privately has not been able to be quantified and is not included in this report. Key Darebin industries such as manufacturing, retail trade, accommodation and food services are notably high waste generators. Council's Sustainable Leaders in Manufacturing program is working with businesses to reduce waste.

⁵⁵ <http://www.depi.vic.gov.au/environment-and-wildlife/sustainability/waste-management-and-resource-recovery/?a=182537>

⁵⁶ <http://www.sustainability.vic.gov.au/~media/resources/documents/our%20priorities/integrated%20waste%20management/swwrip/iwm%20draft%20swrrip%202013-2043%20-%20sections%201%20to%208%20-%20sept%202013.pdf>

⁵⁷ <https://www.environment.gov.au/protection/national-waste-policy>

Council's kerbside waste and recycling services are focused and designed around kerbside collection for residential properties. These services are provided to over 60,000 households. Darebin currently provides limited services based around the residential services model to non-residential premises including businesses, schools, public buildings and recreational reserves.



Darebin is part of a waste landfill contract put together by the Municipal Waste and Resource Recovery Group (MWRRG) –together with 28 local councils in the region. Darebin's kerbside waste currently goes to a landfill with high levels of environmental engineering and landfill gas energy recovery that is better than EPA Victoria's Best Practice requirements. Methane capture at the landfill site Darebin disposes of its waste at is 80%. This is well above the national average which was 28% in 2008.⁵⁸

In 2013 a Darebin waste audit of 300 waste trucks was carried out, to identify the contents of a typical household waste bin. The audit showed that 43% of materials currently going to landfill are recyclable or compostable. There is a huge opportunity here to ensure waste gets treated in a way that has lower carbon emissions by correctly separating it.

Reducing green and food organic waste by avoiding creating the waste or composting on site will give the best results. As over 40% of waste in the household waste bin is food and garden waste, at home composting, worm farming or similar offer potential significant opportunities.

Outlook Environmental, a social enterprise, manage the Darebin Resource Recovery Centre (DRRC) under contract to Council and has a contractual obligation and commercial incentive to recover materials where they can. This means that materials which can be recycled cheaper than what sending them to landfill costs are typically recycled. DRRC recovers about 40% by weight of materials coming onto the site with a residual 9,000-10,000 tonnes of waste landfilled each year.

⁵⁸[http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~Waste%20emissions%20\(6.6.6\) ~emissions from landfill](http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/1370.0~2010~Chapter~Waste%20emissions%20(6.6.6)~emissions%20from%20landfill)

In council operations, the most recent 2012/13 audit of Council's Preston municipal offices indicated that 80% of waste (by volume) was diverted from landfill. Expenditure on environmental goods as a percentage of total Council expenditure increased to 21% in 2013/14, showing that this approach is having some effect, but there's still room for improvement.

What's in household waste?

- Food makes up a large proportion of waste. In Darebin, food waste is around 38% by weight and almost all of this food waste (92%) is home compostable. This high proportion of food waste is despite Council promoting at home management of food and over 40% of Darebin households reporting that they use compost bins or worm-farms.
- Compostable garden waste in Darebin's waste bins contributes a further 4% by weight to the waste stream. This garden waste could be recovered through the existing green waste recycling bin service. This is only about half the amount of garden waste found on average in metropolitan Melbourne's kerbside waste - reflecting Darebin's high uptake of the green waste recycling service (over 60% of households use the service).
- Just over 10% of the contents of Darebin's waste bins are comprised of recyclable paper, plastics and packaging containers. This is well below the metropolitan average, reflecting high kerbside recycling rates in Darebin.
- One audit suggests as much as 8% by weight of waste is comprised of nappies. This is consistent with audits in similar areas that found nappies make up between 5-10% by weight of the household waste bin.
- Overall, around 50% of Darebin's kerbside waste could be recycled instead of being sent to landfill by home composting, using household recycling bins and green waste recycling bins.

5.5.4 Objectives and Action

OBJECTIVES

1. Reduce the amount of waste to landfill overall
2. Divert food waste from landfill
3. Reduce contamination of green waste and recycling
4. Divert recycling from landfill

ACTIONS

Council corporate actions

Strategies	Timeframe	Action
Enable and support council staff to reduce their waste	Ongoing	<ul style="list-style-type: none"> ▪ Continue to expand waste and recycling practices throughout Council buildings and venues. ▪ Embed strong environmental procurement practices to reduce waste creation. ▪ Continue to reduce waste from council operations. ▪ Continue actions to reduce council's paper use.
Advocate for Government action and support	Ongoing	<ul style="list-style-type: none"> ▪ Advocate for actions in "What do we need others to do section".

Council supporting the community

Strategies	Timeframe	Action
Prompt the community to engage in waste reduction, divert recycling from waste, and reduce contamination of recycling bins	Ongoing	<ul style="list-style-type: none"> ▪ Undertake waste and recycling audits to provide data on waste and recycling behaviours and inform contamination education programs. ▪ Continue to provide prompt and efficient information on waste reduction and recycling options to the community. ▪ Develop and implement community engagement programs on reducing waste and recycling. ▪ Continue to provide the community with options for hard waste collections that separate recyclable materials. ▪ Progressively replace larger and obsolete waste bins with 80L bins as standard. ▪ Partner with agencies such as MWRRG, Sustainability Victoria and EPA Victoria in community programs, grants and other opportunities to reduce waste creation. ▪ Develop and implement options for identifying, educating and potentially penalising those who misuse waste and recycling systems. ▪ Investigate waste service charges or incentives to discourage waste generation.

Improve recycling	Ongoing 2018-2020	<ul style="list-style-type: none"> ▪ Continue to introduce wider range of recycled materials at the DRRC. ▪ Develop a best practice recycling contract to provide service excellence for resource recovery for the Darebin community.
Reduce food waste to landfill	2018-2020 Ongoing	<ul style="list-style-type: none"> ▪ Investigate providing food waste service options to residents. ▪ Continue to encourage residents to reduce food waste through avoidance, home composting systems and participation in programs / workshops.

What do we need others to do to make this happen?

Darebin Community

- Reduce the amount of waste produced by reducing unnecessary consumption and packaging
- Reduce food waste and compost food scraps in your own compost bin or a community composting project
- Get information from Council on what can be recycled and ensure you're disposing of waste in the correct bin

State Government (including MWRRG)

- Undertake feasibility studies and provide funding for innovative waste projects
- Provide support and solutions for reducing waste to landfill.
- Facilitate the transition to universal organic waste collection services, incorporating food waste, biochar and waste to energy projects.
- Adopt and enforce the highest levels of resource recovery before landfill and energy recovery from landfill as specifications in regional waste contracts.

Federal Government

- Expand the product stewardship scheme (where those involved in producing, selling, using and disposing of products have a shared responsibility to ensure that those products or materials are designed and managed in a way that reduces their impact throughout their lifecycle, on the environment) to include more products
- Provide a greater focus and increased spending on waste avoidance and reduction education, information and programs

5.6 Key direction # 6 – Fossil fuel divestment

5.6.1 Context

Fossil Fuel Divestment is a subset of ethical investment and is the removal of investment from companies involved in extracting fossil fuels and also the institutions who provide funding to these companies. This can be most effective when linked with advocacy action requesting the institution to stop investing in or funding fossil fuel projects. Essentially you are “letting your money talk”.

In a Climate Emergency world – this makes sense on two levels, it is aiming to stop the extraction of fossil fuels by reducing available funds and it is also recognising that screening investments for climate risk is good long term financial management. On the positive side there are more and more investment opportunities in climate positive investments such as renewable energy.

5.6.2 Supporting policies

Local

Darebin Council supports the removal of investment assets including stocks, bonds, and investment funds from companies involved in extracting fossil fuels, in an attempt to reduce climate change. Council has adopted a policy to guide how Council invests its funds to ensure that it does not support the fossil fuel industry directly and influences investment by financial institutions away from the fossil fuel industry. This involves a positive screening approach for Council’s investment with financial institutions to:

- actively invest with fossil free financial institutions within the Darebin City Council Investment Policy parameters
- advocate for fossil free financial institutions to improve their credit rating and financial rate of return.

Council will continue to review divestment opportunities and share advocacy campaigns with other councils and organisations.

Other Governments and institutions

There are many other local governments across Australia who have taken divestment action. To our knowledge the ACT government is the only higher level of government who has publically divested funds from fossil fuel companies.

There are many public institutions including Latrobe University who have divestment policies and this is a growing trend.

Local Government investment is regulated through State Government legislation in the Local Government Act which limits financial investment opportunity.

Some investors are calling for better disclosure of portfolio emissions intensities and emissions reduction targets so that investors can make more informed choices. This could be regulated but is more likely to result from consumer action.

5.6.3 Objectives and Action

OBJECTIVES

1. Stop extraction of fossil fuels through divestment and advocacy
2. Encourage others to act on fossil fuel divestment

ACTIONS

Council corporate actions

Strategies	Timeframe	Actions
Fossil fuel divestment	2017 Ongoing	<ul style="list-style-type: none"> ▪ integrate Council's Investment Policy and Fossil Fuel Investment Policy into one comprehensive policy. ▪ actively invest with fossil free financial institutions within the Darebin City Council Investment Policy parameters. ▪ advocate for fossil free financial institutions to improve their credit rating and financial rate of return. ▪ partner with relevant fossil fuel divestment campaigns. ▪ encourage other local governments, organisations and institutions to act on fossil fuel divestment.
Advocate for Government action and support	Ongoing	<ul style="list-style-type: none"> ▪ Advocate for actions in "What do we need others to do" section.

Council supporting the community

Strategies	Timeframe	Actions
Create awareness about divestment and campaigns	ongoing	<ul style="list-style-type: none"> • Provide information sessions on divestment and relevant campaigns

What do we need others to do to make this happen?

Darebin Community

- If you are lucky enough to have investments or superannuation – consider investing this ethically – check out the Market Forces website
- Be a conscious consumer – ask your finance institution what their policy is on fossil fuel divestment
- Consider joining campaigns that are looking to stop extraction of fossil fuels

State Government

- Consider fossil fuel divestment
- Phase out extraction of fossil fuels in Victoria

Federal Government

- Consider fossil fuel divestment
- Phase out extraction of fossil fuels in Australia

5.7 Key direction # 7 – Adaptation and resilience

5.7.1 Context

Whilst we are taking action to avoid catastrophic climate change, it is equally important to plan for the warming that is already occurring and that will continue to occur, even while Council and the community are taking action to eliminate emissions and take the excess carbon dioxide out of the air. Council will need to support the community to prepare for and adapt to the new conditions that a changing climate will bring.

Climate adaptation measures are required to protect Council's assets and minimise disruption to the local economy. Extreme weather events, storms and floods will impact on both public and private assets and infrastructure. This includes roads and associated infrastructure, power lines, water supply, public transport networks, buildings, parks, and open space.

What is the urban heat island effect?

Heatwaves are a prolonged period of excessive heat. Climate change is expected to lead to more intense and more frequent extreme heat events in Victoria⁵⁹. In urban areas, particularly the inner and middle ring Melbourne councils, the impacts associated with heatwaves are exacerbated by the absorption of solar radiation by buildings and infrastructure, leading to localised warming of the surrounding area. It is known as the urban heat island (UHI) effect.

Urban form can play a significant role in influencing both the day and night-time surface and air temperatures, with significant variations between differing urban forms in close proximity. Research by Nigel Tapper of Monash University highlights the significant contribution that even small areas of urban greening can make to surface and air temperatures during heatwave events⁶⁰.

Trees can reduce temperatures by 2-3 degrees by providing shading and reducing ground surface evaporation under the tree canopies⁶¹.

Increasing both canopy cover and density in locations and contexts which result in significantly cooler microclimates will reduce the effects of the UHI.

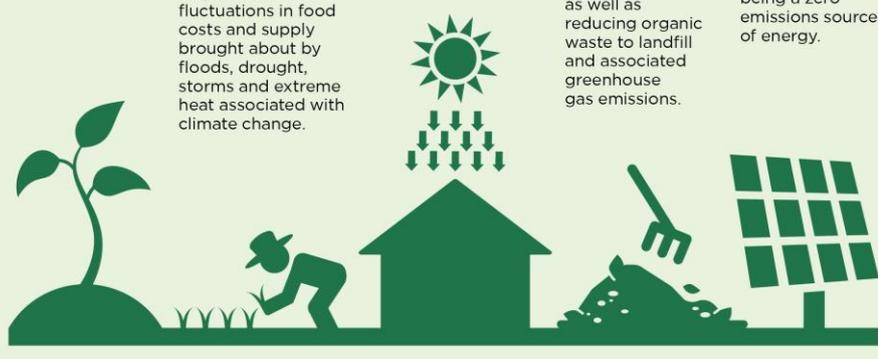
Multiply the benefits

Many adaptation strategies also reduce emissions, which provide the best value for money and most equitable solutions.

Multiply the benefits - mitigation and adaptation

Actions which both reduce greenhouse gas emissions and support communities to adapt to new climate conditions may be more cost effective and deliver multiple social and environmental benefits:

PLANTING trees can reduce the severity of the urban heat island effect as well as absorbing carbon.	GROWING and sourcing food locally can help reduce reliance on the greenhouse-gas-intensive globalised food system and help resilience to fluctuations in food costs and supply brought about by floods, drought, storms and extreme heat associated with climate change.	HOME INSULATION both reduces the impact of heatwaves on occupants as well as reducing energy use.	RECYCLING FOOD WASTE through composting provides compost for food growing as well as reducing organic waste to landfill and associated greenhouse gas emissions.	SOLAR PANELS allow households to cool or warm their homes in a cost effective way, as well as being a zero emissions source of energy.
---	--	---	--	--



The infographic features five green icons on a light green background. From left to right: a small tree growing from a mound of earth; a person in a hat kneeling to plant a seedling; a house with a sun above it and arrows pointing down to its roof; a hand using a pitchfork to turn a pile of compost; and a solar panel array.

⁵⁹ Heat Health Plan for Victoria (2015) <https://www2.health.vic.gov.au/public-health/environmental-health/climate-weather-and-public-health/heatwaves-and-extreme-heat>

⁶⁰ Tapper, N. (2014) Tackling Urban Heat. Professor Nigel Tapper's presentation at the City of Moreland (25 June 2014) on urban heat island effects.

⁶¹ Darebin Urban Forest Strategy 2013

5.7.2 Supporting policies

Local

Many Darebin Council policies support our adaptation to the climate:

- A key strategic area of the *Heatwave Strategy 2013-17* is to reduce heatwave effects through urban design and maintenance. Planning for and managing issues of heatwaves will be incorporated into all Council policies and strategies concerning the Public Realm, Open Spaces, Parks and Leisure. The Heatwave strategy also seeks to encourage safe behavior during heatwave conditions and facilitate partnerships between care and emergency planning systems.
- *Watershed: Towards a Water Sensitive Darebin 2015-2025* commits Council to developing Darebin as a water sensitive city that values water and manages it wisely to enhance liveability, support a healthy environment and build resilience to drought and climate change. It includes water conservation, water quality and liveability targets. The Darebin drainage study which is currently being finalised complements the strategy.
- The *Urban Food Production Strategy 2014-18* aims to support the creation of local food systems in Darebin, as well as across other Melbourne urban and peri-urban areas and regional Victoria. The aim is to reduce our reliance on globalised conventional food systems which are highly vulnerable to the impacts of climate change and contribute significantly to greenhouse emissions worldwide.



- The *Open Space Strategy 2007-17* details a range of actions including sustaining partnerships to manage natural heritage sites, maintaining ecological and recreational values of creek corridors, planning for open space contributions and engaging the community in assessing and maintaining open space quality. This strategy is being reviewed in 2017.

- The vision of the *Urban Forest Strategy 2013-28* is to create a healthy, diverse and resilient Urban Forest. The aim is to increase tree coverage on public lands in the City of Darebin to at least 25% over the 15 years of the plan. Council will focus on planting species with a high tolerance for a range of climactic conditions, including increasingly hotter temperatures and variable rainfall.
- The vision for the *GreenStreets Streetscape Strategy 2012-20* is also to create a healthy and diverse street tree population, as well as including water sensitive urban design (WSUD) and/or passive irrigation technology in at least 20% of all streetscape trees planted annually, increasing the percentage cover of permeable surfaces in the streetscape by 15% by 2020 and providing at least one new community garden facility each year until 2020. The *GreenStreets Streetscape Strategy* works hand in hand with the *Water Sensitive Darebin* and *Urban Forest* strategies to ensure trees in the public realm are adapted to a changing climate. For example, 100% of new or replacement trees planted by Council have either no irrigation need (beyond establishment), or can survive with passive irrigation, or irrigation from alternative water sources.
- Through the *Darebin Natural Heritage Strategy 2015-2025*, Council is committed to working with land managers and the community to value, nurture and care for our natural heritage assets for current and future generations. The impacts of a changing climate will be felt on natural heritage sites across Darebin. This needs to be taken into account when making decisions about re-vegetation programs and maintenance plans for natural heritage sites and creek catchments.

Darebin is also participating in the Resilient Melbourne Strategy. It is a metropolitan wide strategy to enhance and improve the capacity of individuals, institutions, businesses and systems within metropolitan Melbourne to adapt, survive and thrive no matter what kind of chronic stresses and acute shocks they experience.

State

Victoria's Climate Change Adaptation Plan⁶² sets out the Government's four-year plan of action to help Victorian communities meet the challenges of the threat. The Plan highlights the importance of a strong and sustainable partnership between state and local governments in dealing with the challenges of adapting to climate change in Victoria

The Victorian Government *Better Apartment Design Standards* were implemented in the Victoria Planning Provisions and all planning schemes in March 2017. These give planners more say in multi dwelling apartment design, including mandatory minimum energy efficiency and open space requirements, such as the provision of trees / urban greening.

Federal

The *National Climate Resilience and Adaptation Strategy* sets out how Australia is managing climate risks for the benefit of the community, economy and environment. It identifies a set of principles to guide adaptation practice and resilience building, and outlines the Government's vision for the future.

⁶² <http://www.climatechange.vic.gov.au/news/victorias-climate-change-adaptation-plan>

5.7.3 Darebin and Adaptation

Of the nine Melbourne municipalities in the Northern Alliance for Greenhouse Action (NAGA) Darebin has been found to be among the most vulnerable to both flooding and heatwaves.⁶³

The most disadvantaged and vulnerable in our community are those who will be most impacted by the effects of climate change (such as heatwaves, flood damage to housing and disruption to essential services) and the least equipped to adapt. Sections of Darebin's population are significantly more vulnerable to the impacts of heatwaves. These include older people (65 years and older), children under 5 years old, pregnant or nursing mothers, people with pre-existing medical conditions, such as diabetes, heart disease or mental illness, and people with a disability. The risk is compounded in disadvantaged groups such as low income earners, people living in poorly insulated housing or without air-conditioning, who are homeless or have limited access to transport. Preston and Reservoir, areas of high relative socioeconomic disadvantage⁶⁴, also scored the highest heat related vulnerability index rating in a heat vulnerability study undertaken by Monash University in 2013⁶⁵. Adaptation planning and action will need to specifically address the complex needs of these at-risk populations.

The impact of flooding and heatwaves on businesses can be severe and include lost revenue through the disruption of travel and movement of goods, decreased staff reliability and comfort, increased operating costs and reduced efficiency.

Council is working with Melbourne Water and the local community to reduce flood risk in Darebin, where nearly 5,000 households are at risk⁶⁶. Council will deliver, support and advocate for initiatives to increase permeability of ground cover, detain and reuse water on-site and provide drainage infrastructure to convey and slow flood water and reduce the likelihood of flood damage.



⁶³ Adaptation in the North – An Integrated Regional Vulnerability Assessment Volume 1 (2015)

⁶⁴ Darebin Heatwave Strategy 2013. The SEIFA Index of Disadvantage measures the relative level of socio-economic disadvantage based on a range of attributes including income, low educational attainment, unemployment, and jobs in relatively unskilled occupations. East Preston and East Reservoir have high SEIFA disadvantage rating compared with Northcote, Fairfield and Alphington

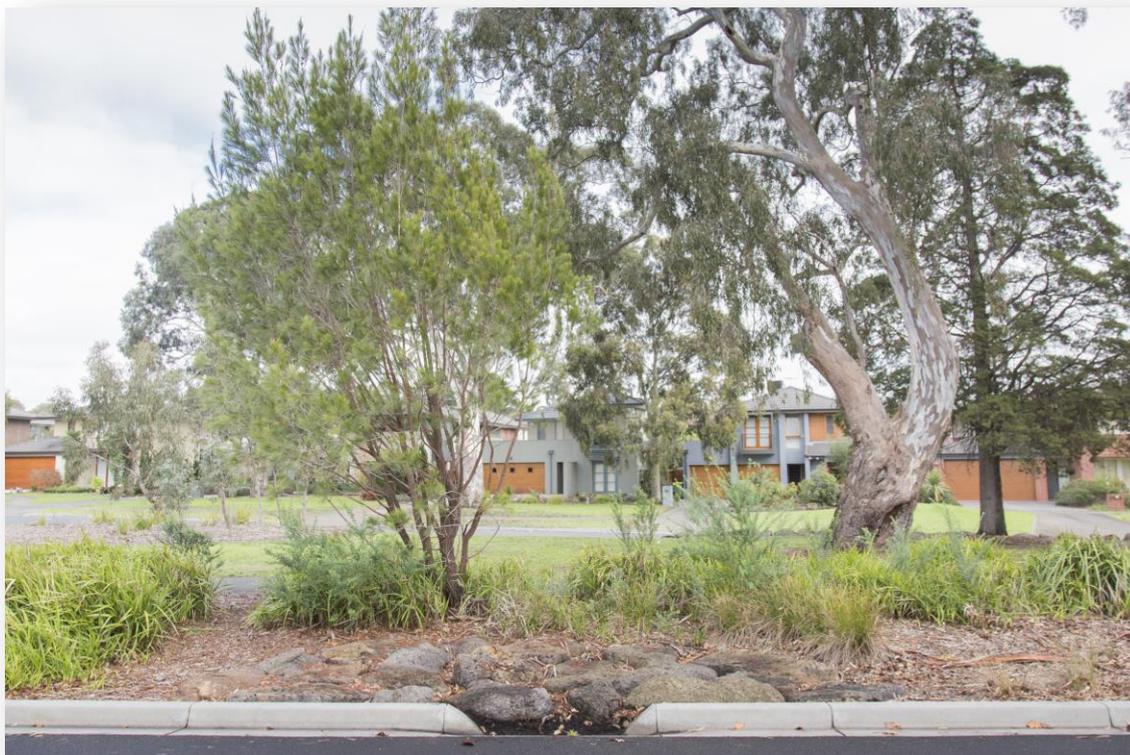
⁶⁵ <https://www.nccarf.edu.au/content/spatial-vulnerability-analysis-urban-populations-extreme-heat-events-australian-capital>

⁶⁶ Adaptation in the North – An Integrated Regional Vulnerability Assessment Volume 1 (2015)

Darebin has conducted a climate change risk assessment to identify the key risk areas and vulnerabilities and prioritise adaptive actions (*Climate Change and Peak Oil Adaptation Plan 2009*)

In response to a need for additional open spaces and natural environments, Council have committed to the policy principle of a net increase in green open space in Darebin. A Darebin Nature Trust will be formed in 2017 to ensure that green space provision parallels Darebin's growth and achieves best practice outcomes for our environment and growing community.

There are limitations to Council's influence and impact on private tree coverage. In the northern areas of Darebin where the impact of the urban heat island effect has been assessed as more severe than other areas, the private canopy may well be decreasing as private landowners capitalise on increasing land values through subdivision and higher density developments.



Council faces a range of challenges in supporting healthy natural landscapes and trees. Urban soils are generally poor and compacted and may lack the necessary structure and microbial population to support tree health over the long term. Applying ecological solutions to managing weeds and disease will help optimise urban soil health and microbiology, which in turn supports climate and water sensitive vegetation, healthy ecosystems and biodiversity. Many of Darebin's main parks and open spaces such as Darebin Parklands and All Nations Park are located on old landfill sites which present additional challenges when maintaining and enhancing tree populations and natural landscapes, thus requiring site specific approaches.

Given local government is on the frontline in dealing with the impacts of climate change, it has a key role in ensuring that the local context is adequately considered in the overall adaptation response and it involves the local community directly in efforts to facilitate effective change. Local Government can advocate effectively to state and federal governments about the on-the-ground needs of local communities to inform an integrated overall response.

5.7.4 Objectives and Action

OBJECTIVES

1. Minimise the urban heat island effect and the impact of heatwaves on Darebin's most vulnerable residents
2. Create a flood and drought resilient city through integrated solutions to water management
3. Create public open space which meet the diverse needs of the community and incorporates climate and water sensitive vegetation, healthy ecosystems and biodiversity
4. Implement community based local food systems which reduce reliance on the carbon-intensive global food system
5. Enhance and increase the community capacity to support one another during extreme events

ACTIONS

Council corporate actions

Strategies	Timeframe	Action
Develop water systems to support a resilient city	2015-2025	<ul style="list-style-type: none"> ▪ Reduce Council's annual potable water use. ▪ Increase Council's annual use of water from alternative sources. ▪ Reduce the number of assets and properties at risk of flooding.
Protect water for the environment and liveability	2015-2025	<ul style="list-style-type: none"> ▪ Ensure that all new or replacement trees use little or no water or alternative water sources for irrigation. ▪ Ensure that all sports grounds, courts, fields, courses and areas have either warm season grass, no irrigation need, alternative water irrigation or are treated to reduce water use. ▪ Investigate/implement large scale stormwater harvesting and increase permeable surfaces to relieve flooding in high-risk areas. ▪ Implement programs and works to protect and improve the health of Darebin's waterways and waterbodies ▪ Implement good urban design incorporating WSUD and ESD practices and principles.
Reduce the Urban Heat Island (UHI) effect	Ongoing 2017	<ul style="list-style-type: none"> ▪ Continue to implement Urban Forest and Green Streets strategies planting thousands of trees per year in parks and on nature strips to increase the canopy to over 25%. ▪ Promote and encourage Green roofs, walls and facades. ▪ Implement legislation and programs to protect significant trees. ▪ Review the Open Space Strategy. ▪ Work with federal and state governments, electricity distribution companies and developers to develop underground electricity supplies to protect tree canopies.

Work with other local governments on regional resilience projects	Ongoing	<ul style="list-style-type: none"> Contribute to and participate in the metropolitan wide Resilient Melbourne Strategy.
Advocate for state and federal government action and support	Ongoing	<ul style="list-style-type: none"> Advocate for actions in “What do we need others to do section”.

Council supporting the community

Strategies	Timeframe	Action
Develop water systems to support a resilient city	2015-2025	<ul style="list-style-type: none"> Work with State Government and others to support reduction of residential and business potable water use
Develop a Water Smart Community	2015-2025	<ul style="list-style-type: none"> Work collaboratively with agency partners, Councils, regional bodies and the Darebin community on water projects. Undertake education and information programs on water smart actions and initiatives
Apply adaptation standards to all new developments	Ongoing 2017 Ongoing	<ul style="list-style-type: none"> Implement minimum standards of energy performance, water efficiency, stormwater management and urban ecology as specified in GC42 ESD policy. Apply the DELWP <i>Better Apartment Design Standards</i> in the assessment of apartment building applications Implement holistic and integrated adaptation actions in all Urban Renewal projects, including the Northland Urban Renewal Precinct and TW Blake Reserve Renewal Apply principles of Food Sensitive Planning and Urban Design to urban renewal projects
Support urban food production	Ongoing	<ul style="list-style-type: none"> Identify suitable sites in pocket parks and other streetscapes which have the required resident support for fruit and nut trees Explore opportunities to develop urban food production sites on Council land as demonstration sites for integrated food growing, water and waste management

Reduce the Urban Heat Island (UHI) effect	2017	<ul style="list-style-type: none"> Establish Darebin Nature Trust to improve Darebin's open space provision and protect/enhance local biodiversity.
	2018	<ul style="list-style-type: none"> Undertake tree canopy coverage assessment to determine change from 2012.
	Ongoing	<ul style="list-style-type: none"> Continue to work with community, 'friends of' and stationeers groups and schools to increase tree coverage on public land
	2017	<ul style="list-style-type: none"> Educate and support residents and businesses to plant climate resilient trees on private land.
	2019	<ul style="list-style-type: none"> Partner with educational institutions / universities to undertake / access research on new tree species suitable to Melbourne's changing climate and share with the community. Investigate partner programs which subsidise home retrofits for disadvantaged community members. Investigate feasibility of engaging a consultant to undertake a study of microclimates in key Darebin locations to validate the impact of adaptation measures designed to lessen the UHI effect during heatwaves.
Ensure community infrastructure can withstand the impacts of extreme weather events	Ongoing	<ul style="list-style-type: none"> Continue to implement regional adaptation solutions through NAGA, in line with the 2015 NAGA Integrated Regional Vulnerability Assessment report findings and management actions.
Work with residents and businesses to provide practical advice and steps to adapt to climate change and minimise the impact of extreme temperatures	2017	<ul style="list-style-type: none"> Run education programs on retrofit measures which will protect residents from heatwaves and extreme weather events.
	Ongoing	<ul style="list-style-type: none"> Continue support to businesses to become more resilient through the Sustainable Leaders in Manufacturing (SLIM) and We are Greening our Business programs.
	2017	<ul style="list-style-type: none"> Investigate joining the ASPIRE program to facilitate industrial ecology partnerships between/ across Darebin businesses as well as Melbourne more widely.

What do we need others to do to make this happen?

Darebin Community

- Increase tree coverage, plants and food gardens on your property
- Support Council's street tree planting and other greening programs (for example by participating in community planting days)
- Manage your nature strip
- Share sustainable gardening knowledge, skills and resources with neighbours
- Invest in housing design features which minimise the impact of extreme temperatures e.g. home insulation, window shades, door and window seals, reflective / white roofs.
- Grow more of your own food or join a community food growing garden

State Government

- Take into account the severity and frequency of climate change induced flooding events when managing drainage, river flows and waterways.
- Resource Melbourne Water to undertake flood protection works within the city to reduce the number of properties at risk of flooding.
- Promote and encourage green roofs, walls and facades
- Introduce a mandatory energy rating scheme for all homes – required whenever a home is purchased / sold and rented.
- Recognise urban agriculture in the State Planning Policy Framework so it can be integrated in the Metropolitan Planning Strategy, and included in the Darebin Planning Scheme
- Review standards for tree clearing of powerlines in urban settings to improve canopy cover.

Federal Government

- Ensure well-resourced research into what is needed to adapt to climate change in different sectors
- Use climate resilience as a key factor when assessing funding bids for infrastructure projects against

5.8 Key direction # 8 – Engaging the community

5.8.1 Context

While the Plan has outlined programs that Council will undertake to support community action, Council are working more broadly to raise awareness of the Climate Emergency and the variety of ways the community can make a difference.

In 2013, just under half of Australians surveyed by the Climate Institute felt that the things they do on a daily basis contribute to climate change, and just over half felt that their daily actions can help address climate change⁶⁷. Three years later, 68 % of people thought individuals and households should be contributing to action on climate change and 72 % are using energy efficient devices in their homes. 85% see a product being environmentally friendly in terms of production, packaging and recyclability as quite or very important, holding equivalent status to price⁶⁸.

Only 8 % of people say they do not think climate change is occurring, those who do think it's occurring went up from 64% in 2012 to 77% just four years later. The Australian public are on board. So why isn't more being done? Of the Australian public, 90% believe responsibility rests with the federal government to at least some level, with 67% thinking the federal government should take the leading role. And only 19% consider the national government to be doing a good job in this regard, with one third viewing their performance as fairly poor or terrible⁶⁹.

However, in many cases, the Climate Institute found people feel they are simply not given enough clarity about what they could be doing about climate change:

“When I think of things about climate change, it's a big unknown. Everyone's an expert on these things and it's hard to know who to trust.” Brisbane focus group participant, 18-54 year olds

“Perhaps what needs to be promoted is the action that we can take. I hear lots of news that is all about fear mongering. Tell me something that we can actually take action on. We hear about recycling and low-energy bulbs, but surely there's more that we can do.” Melbourne focus group participant, 25+ year olds

“Oh, not again – I'm sick and tired of hearing about it. I'd like some simple, practical ideas.” Newcastle focus group participant, 55+ year olds

Local government can play a role in being a trusted organisation to support the community to take action on the Climate Emergency, whether it's finding the best deal on solar panels, improving cycling infrastructure, facilitating the community to share local solutions with each other or encouraging people to engage with state and federal governments.

5.8.2 Supporting policies

All current Council strategies and policies supporting this plan have strategies that aim to promote action amongst individuals and organisations in Darebin. The Darebin Energy Foundation in the next section is a key initiative to support this. Additionally a Council Environmental Engagement Strategy will be adopted by 2018 and will outline strategies to engage the community in environmental action.

While not yet pursuing a climate emergency approach, the state government has committed to reaching net zero carbon emissions in Victoria by 2050, and as part of this they have launched

⁶⁷ http://www.climateinstitute.org.au/verve/_resources/TCI_ClimateOfTheNation2013_web.pdf

⁶⁸ http://www.climateinstitute.org.au/verve/_resources/COTN_2016_Final_WEB_260916.pdf

⁶⁹ Ibid

a voluntary climate change pledge program for all Victorians called TAKE2⁷⁰. It enables state and local government, businesses, community, educational organisations and individuals in Victoria to pledge their commitment to take action on climate change.

Living Sustainably: the Australian Government's National Action Plan for Education for Sustainability (2009)⁷¹ sets out a framework for national action. It focuses on 'Demonstrating Australian Government leadership', 'Reorienting education systems to sustainability', 'Fostering sustainability in business and industry' and 'Harnessing community spirit to act'.

5.8.3 Engaging and supporting Darebin community action

Council is involved in a number of activities to engage the community in climate action. Our Sustainable Homes and Communities Program, run in partnership with Banyule Council for the last 11 years, empowers residents and community groups to lead and deliver positive environmental initiatives in their local area. As well as workshops and events, the Community Leaders in Sustainability course builds skills and training in project management, leadership, grant writing, marketing and communication, building partnerships, effective group work and covers a range of aspects of environmental sustainability. It results in participants developing and leading their own projects in their community. Some of these projects include:

- Utilising Google Maps community editing capability to integrate Darebin's bike routes
- WeCycle - retrofitting old bicycles and giving them to people in need / people from disadvantaged communities
- Speaking of Sustainability – a sustainability related toastmasters group
- Establishing a seed bank at Northcote Library Food Garden
- Establishing a community garden near the Bell St station

Sustainability News provides emailed tips and advice to subscribers to help them reduce their impact, and promotes case studies of sustainable living and working.

Council events such as the Backyard Harvest Festival, the Homemade Food and Wine Festival and the Kite Festival provide residents with an engaging way of thinking about climate change issues. Weeding and revegetation activities provide residents with direct contact with nature.

Council runs networking events for the Green Business Network, and industry forums on sustainability. The business Solar bulk-buy program and LED light retrofits have been promoted to business across Darebin, and over 100 businesses are now displaying 'We are Greening our Business' stickers, illustrating to everyone their commitment to protecting the environment. Over 100 businesses are listed under the Green Business category. Finding suitable low cost accommodation for new green and sustainable businesses to locate in Darebin is a challenge that the council is committed to working on.



A new clause in our Local Planning Framework commits developers to incorporate environmentally sustainable designs into their projects.

⁷⁰ <https://www.take2.vic.gov.au/>

⁷¹ <https://www.environment.gov.au/system/files/resources/13887ab8-7e03-4b3e-82bb-139b2205a0af/files/national-action-plan.pdf>

Council supports Sustainability Victoria's Resource Smart program which is delivered by CERES to some schools in Darebin.⁷² The program provides support for schools to be more sustainable, a way of tracking their progress, and certification upon achieving a target. Council also visits schools and receives visits from schools to provide environmental education.

Council supports environmentally sustainable development through its energy efficiency program for its own buildings, and through adopting an ESD (environmentally sustainable development) policy in 2016. This policy references the BESS (Built Environment Sustainability Scorecard) tool for planning applicants to use to assess their development against. (BESS) is an assessment tool created by local governments in Victoria. It assists builders and developers to show how a proposed development demonstrates sustainable design at the planning permit stage⁷³.

We know that access to nature creates an appreciation for nature and willingness to take action to protect it⁷⁴. However with the development of high rise or multi-dwelling living, changing demographics and an overall increase in population, more of Darebin's residents do not have access to private open space. As a result, public open spaces are becoming more important to the health, socialisation and recreation of the community. Darebin's Open Spaces Strategy and new Darebin Nature Trust will seek to increase access to public open spaces.



Darebin has an active community with many individuals and groups working to take action on climate change.

Organisations such as Transition Darebin, DCAN (Darebin Climate Action Network), and the various friends' and stationeers groups provide practical action and engage the community on climate change issues. The Darebin Environment Reference Group (DERG) provides advice and feedback to Council regarding environmental issues. Many other organisations such as schools, kindergartens and church groups are also taking action on climate change.

⁷² <http://www.resourcesmartschools.vic.gov.au/>

⁷³ <http://bess.net.au/>

⁷⁴ <http://www.washington.edu/news/2016/06/03/finding-connections-to-nature-in-cities-is-key-to-healthy-urban-living/>

Council provides community grants: both cash grants of up to \$6000 and facility hire grants to the value of \$6000. 'Sustainable and resilient neighbourhoods' is one of four priority areas that is provided funding. Council provides support and advice for groups seeking funding from other government and philanthropic grant processes. Larger community ideas can also be considered through the annual Council budget process.

In the consultation to develop this action plan, participants indicated that they wanted more information and engagement with Council on climate change and what they can do to reduce their emissions.

The Darebin Energy Foundation, discussed in the next section will further focus on accelerating sustained and meaningful action with the community (residents, businesses, education and other organisations) to reduce Darebin's greenhouse emissions and embed community resilience to climate change.

Greening Google Maps

This community project came out of the Community Leaders in Sustainability program. Greening Google Maps aims to increase the accessibility and availability of cycling information to those living in or journeying through the City of Darebin area. Whilst Council produces a number of paper maps or PDFs (TravelSmart), many people first turn to publically available mapping platforms such as Google Maps for information on cycle paths and bike infrastructure.

The founders of this project discovered that bike paths on Google maps were not up to date. Utilising Google Maps community editing capability, they integrated Darebin's bike routes, cycle friendly streets and public bike parking (such as Parkiteer bike cages). This is an important way to encourage cycling in Darebin, as some people may have seen the lack of cycling routes advertised on Google Maps as a barrier to taking up cycling. Improving this information removes that barrier and encourages sustainable transport choices.

5.8.4 Objectives and Action

OBJECTIVES

1. Increase climate change and climate emergency knowledge and action amongst residents
2. Increase climate change and climate emergency knowledge and action amongst businesses
3. Support community groups working on climate action to be productive and work well together

ACTIONS

Council corporate actions

Strategies	Timeframe	Actions
Maintain staff awareness programs on climate change	Ongoing	<ul style="list-style-type: none"> ▪ Use internal communications such as e-newsletter and events to advise staff on our climate change policies relevant to their work and how they can make practical changes to restore a safe climate. A high percentage of staff live in Darebin and can disseminate information to broader communities.
Promote sustainable buildings and infrastructure	2017 2017/18	<ul style="list-style-type: none"> ▪ Promote new ESD local planning policy (GC42) to, and provide ESD training for, architects and building designers operating in Darebin. ▪ Promote our energy efficiency and renewables work on our buildings through onsite posters.
Advocate for Government action and support	Ongoing	<ul style="list-style-type: none"> ▪ Advocate for actions in “What do we need others to do section”.

Council supporting the community

Strategies	Timeframe	Actions
Work directly with residents to give them practical ways to contribute to the restoration of a safe climate and adapt to climate change (Note the next section on the Darebin Energy Foundation also responds to this issue.)	Ongoing 2017 March 2017	<ul style="list-style-type: none"> ▪ Continue funding for the Sustainable Homes and Communities Program to support the community to take action on climate change. ▪ Provide monthly Sustainability News e-newsletter to subscribers and promote it to new subscribers. ▪ Provide regular stories for Darebin Community News – the Council’s quarterly community wide newsletter and regular features for Council social media platforms. ▪ Pilot a series of workshops in cafes on environmental topics, focusing at least three on climate change, delivered by and for the community. ▪ Pilot a version of the Community Leaders in Sustainability program that has been tailored for a community in East Reservoir, to widen the reach of such activities.
Provide climate change and climate emergency education through events – both those specifically organised by Council to	Annual 2017	<ul style="list-style-type: none"> ▪ Continue to run Backyard Harvest to celebrate and educate on home grown food, giving residents the tools to be more resilient in the face of climate change impacts. ▪ Explore Arts and Environment programs to

raise awareness, and general events.	Ongoing 2017	engage new people not already involved in the climate movement. <ul style="list-style-type: none"> Continue to promote climate emergency action at the Kite Festival, which is attended by up to 16,000 people. Plan and run climate emergency awareness activities at CALD community events.
Recognise and celebrate community action and provide residents and business with direct experiences of exemplars of climate emergency actions	2018 2017	<ul style="list-style-type: none"> Continue to run the biennial Sustainability Awards to promote and celebrate action on the Climate Emergency and other environmental issues. Sign up to Take 2, promote to others and promote Council pledges.
Work directly with businesses to support and incentivise them to take practical steps to reduce their own carbon emissions and adapt to climate change	2017 2018 Annual Ongoing	<ul style="list-style-type: none"> Expand reach of sustainable business program with increased resourcing. Investigate how Council can incentivise businesses to take up energy efficiency and solar projects by providing interest-free loans and support from beginning to end of works. Promote Ride to work. Facilitate peer-to-peer learning amongst businesses through Green Business Networking events. Continue to facilitate green sticker / certificate program so businesses can promote their environmental actions.
Provide a facilitating role between the many climate change groups and campaigns in Darebin, to help them maximise their effectiveness	2017 2018 Ongoing 2017	<ul style="list-style-type: none"> Bring groups together for an event around World Environment Day to better enable them to work together and use each other's strengths to further their shared agendas. Facilitate community energy projects where there is community interest. Continue to provide community grants to support local community action on climate change. Assess, through the Interim Darebin Energy Foundation, what support can be provided to groups.

What do we need others to do to make this happen?

Darebin Community

- Participate in Council and community facilitated activities to learn more about environmental sustainability and the role individuals and households can play in reducing our impact on the environment
- Share information, concerns, and solutions with neighbours, friends, colleagues
- Join / support local environmental groups
- Work with Council to bring the Climate Emergency message to the broader community

State Government

- Provide funding for local government environmental education initiatives and grants to support greater collaboration between groups in identifying and addressing the most important challenges and opportunities across Darebin
- Provide funding for community energy projects
- Ensure policy consistency with a climate emergency approach to reduce uncertainty for businesses making investments

Federal Government

- Demonstrate policy leadership in best practice ESD for new buildings and upgrades to existing buildings
- Actively and accurately communicate, and support community understanding of climate change science
- Legislate for accurate and thorough product labelling and labelling relating to emissions impact of product throughout its lifecycle
- Ensure policy consistency to reduce uncertainty for businesses making investments

5.9 Key direction # 9 – Darebin Energy Foundation

5.9.1 Context

Council is establishing the Darebin Energy Foundation (DEF) to accelerate sustained and meaningful action with the community (residents, businesses, education and other organisations) to engage with the climate emergency challenge. The Foundation will have a strong focus on our most vulnerable and socio- economically disadvantaged communities. The Foundation will work with Council, community groups, other governments, authorities, private sector and other organisations to achieve this aim.



5.9.2 Supporting policies

Darebin Council adopted the following roles for DEF in the Terms of Reference for the foundation in February 2017. In the formation of the foundation these will be revised to align with Council's Climate Emergency commitment.

The foundation will:

- Facilitate a Darebin climate think tank to develop local zero emissions and resilience proposals and solutions.
- Harness and encourage community participation and investment (volunteering and donation).
- Develop and contribute to programs that educate and mobilise the community on the above issues.
- Develop and trial innovative programs and delivery mechanisms which can be scaled up to achieve significant change.
- Advocate to governments and industry to increase climate change action and funding for community and local government action.
- Advocate to the State and Federal Governments regarding policies and issues that support the purpose of the Foundation.
- Work to ensure there are sustainable long term funding and resourcing commitments from Council to drive down emissions and embed climate resilience in our community, with a strong focus on our most vulnerable communities.

- Work with Council to deliver identified actions of the Climate Emergency Plan including, but not limited to, community-owned renewable energy projects.
- Devise and apply for other sources of funding (e.g. grants, fee for service etc.) that improve effectiveness and financial sustainability of the Foundation.

The Terms of Reference clarify that the Foundation will complement and enhance Council’s work on climate change and will not “double up” on action.

5.9.3 Objectives and Action

OBJECTIVES

1. Accelerate sustained and meaningful action with the community to engage with the Climate Emergency challenge.

ACTIONS

Council actions

Strategies	Timeframe	Actions
Establish Darebin Energy Foundation (DEF) and Climate Think Tank.	2017	<ul style="list-style-type: none"> ▪ Establish DEF in 2017 to determine the most effective long term foundation governance model for Council consideration by February 2018. ▪ Revise Terms of Reference to ensure alignment with the Climate Emergency commitment.
	2018	<ul style="list-style-type: none"> ▪ Set up the Climate Think Tank as the first Darebin Energy Foundation action October/November 2017.
	Ongoing	<ul style="list-style-type: none"> ▪ Implement final model for Foundation in 2018. ▪ Provide ongoing support to DEF following establishment.

What do we need others to do to make this happen?

Darebin Community

- Consider joining the Darebin Energy Foundation board or the Climate Think Tank
- Support or participate in Darebin Energy Foundation initiatives

State Government

- Provide funding and support for Darebin Energy Foundation initiatives

Federal Government

- Provide funding and support for Darebin Energy Foundation initiatives

6. Measuring and reporting on progress

The Climate Emergency Plan covers the next five years, from 2017 to 2022. A major review of the plan will be commenced in 2021 and the plan for next period will be established. This will be timely as the cost and efficiency of the low carbon technologies is rapidly improving and the 2020 -2025 period is considered a pivotal time in the transition to zero carbon energy, housing and transport.

Council will annually report on the progress of the implementation of the plan. Reporting will include actions undertaken and emission reduction projections in line with the zero emissions targets. The actions Council is proposing are ambitious; nevertheless the following shows that those actions Council has direct control over when combined with the current commitments by State and Federal Governments are only likely to result in 13% reduction of Darebin community emissions.

This reinforces the urgency of our advocacy and mobilisation regarding the Climate Emergency, to effect the urgent change that needs to happen at state, national and global levels as soon as possible.

The following emission savings have been calculated using a Victorian emissions intensity of 0.9789 t CO₂e/MWh of electricity (assumed 31% renewables by 2022).

Energy Efficiency Activity	tonnes	% savings
1.1 Victorian Energy Efficiency Scorecard – voluntary use of scorecard will improve transparency and incentive to upgrade (350 houses)	175	0.02%
1.2 Energy Standards 6 star with BESS – all new housing and major renovations to 6 stars (500 renovations)	813	0.07%
1.3 Business energy efficiency upgrade – work with on LED lighting, coffee timers, air-compressors etc (120 businesses)	1,800	0.16%
1.4 Council Operations – annual energy efficiency program on buildings (5 years)	1,103	0.10%
1.5 Council Operations – LED upgrade to VicRoads shared V-level streetlights (1,500 lights)	640	0.06%
	4,530	0.39%

Renewable Energy Activity	tonnes	% savings
2.1 Expanded Solar Saver program – solar installed by Council and repaid by ratepayers over 10 years –11,000kW	14,150	1.23%
2.2 Solar on large business sites – through rates Environmental Upgrade Agreements (20 sites x 250kW)	6,432	0.56%
2.3 Darebin solar bulk-buy (1,000 homes)	3,859	0.33%
2.4 Darebin homes & businesses – business as usual solar installations (1,100 homes/businesses)	7,075	0.61%
2.5 Council Operations – install solar on council buildings (440kW)	566	0.05%

2.6 Victorian Renewable Energy Target (31% renewables by 2022 – with emissions intensity saving 0.1731t/MWh)	110,467	9.56%
	142,548	12.34%

Transport Activity	tonnes	% savings
3.1 Avoided car trips – proportion of doubling of walking, cycling & PT as percentage of trips by 2027	1,776	0.15%
3.2 Electric vehicles powered by renewable energy replacing internal combustion engine (150 electric vehicles)	336	0.03%
3.3 Car sharing – adding 10 car share bays per year (50 care share bays)	300	0.03%
	2,412	0.21%

Waste Minimisation Activity	tonnes	% savings
4.1 Reduce food in landfilled kerbside waste (25% reduction)	1,125	0.10%
4.2 Reduce recyclables in landfilled kerbside waste (25% reduction)	219	0.02%
4.3 Reduce contamination - general recycling (33% reduction)	265	0.02%
4.4 Reduce contamination – green waste (33% reduction)	183	0.02%
	1,792	0.16%

Totals by 2022	152,384	13.10%
-----------------------	----------------	---------------

7. Resourcing

The current budget allocation for the Climate Emergency plan implementation is \$427,000 including \$127,000 for direct programs and \$300,000 for the purchase of GreenPower (paid across the organisation as part of electricity purchase.) This funding will be reapportioned in line with recommended strategic directions.

Additional resourcing requirements include:

- \$20 million for the expansion of the Solar Saver program, with this divided into two \$10 million programs proposed for consideration in the 2018 – 2019 and 2020 – 2021 budgets. Recruitment and special scheme administration would be undertaken in the preceding year. These funds would be recouped via the special rates scheme but there would be a cost to the Darebin budget of borrowing charges (if applicable) and forgone interest.
- Capital funding to be considered in the annual budget include:
 - Council building energy efficiency fund - \$1 million is proposed over the 5 year plan period. These works would have a minimum 10 year payback in reduced energy costs.
 - Additional funding to support high quality ESD outcomes in Council buildings
 - The 440kw solar proposed for council buildings is estimated to cost \$660,000 over the 5 year plan period. These installations would average a 7 year payback in reduced energy costs.
 - Streetlight upgrades of cost shared lights with VicRoads are estimated to cost \$780,000, with a 10 year payback in reduced energy costs. They are dependent on VicRoads cofunding the upgrades.

Additional programs including purchase of electric vehicles will be costed and considered for future budgets.

CONTACT US

274 Gower Street, Preston
PO Box 91, Preston, Vic 3072
T 8470 8888
F 8470 8877
E mailbox@darebin.vic.gov.au
darebin.vic.gov.au



National Relay Service
TTY dial 133 677 or
Speak & Listen 1300 555 727
or iprelay.com.au, then enter
03 8470 8888



Speak Your Language
8470 8470