



Glossary

Adaptation - Climate change adaptation is a response to global warming and climate change, that seeks to reduce the vulnerability of social and biological systems to relatively sudden change and thus offset the effects of global warming.

Carbon emissions - Carbon dioxide (CO₂) is a colourless odour and non-poisonous gas formed by combustion of carbon and in the respiration of living organisms and is considered a greenhouse gas. Emissions means the release of greenhouse gases and/or their precursor into the atmosphere over a specified area or period of time.

Clean fuels - Clean fuels are fuels that replace pollutant fuels (petrol and diesel). They include compressed natural gas (CNG), liquefied petroleum gas (LPG), city diesel, hydrogen, alcohol fuels, and rechargeable batteries.

Embodied energy - a way of expressing the energy that was used in the making of a product. Also known as embedded energy it is an attempt to measure the total of all energy necessary for the entire product lifecycle. This lifecycle includes raw material extraction, transport, manufacture, assembly, installation, disassembly, deconstruction and/or decomposition.

Emissions intensity - An emission intensity is the emission rate of a given pollutant relative to the intensity of a specific activity.

Greenhouse gas - A greenhouse gas (GHG) is a gas in an atmosphere that absorbs and emits radiation within the thermal infrared range. This process is the fundamental cause of the greenhouse effect.

GWh - A gigawatt hour is equal to 1000 Megawatt hours (Mwh).

KWh - The kilowatt hour is a composite unit of energy equivalent to one kilowatt (1 kW) of power sustained for one hour.

MWh - A megawatt hour is equal to 1000 Kilowatt hours (Kwh).

Mitigate - Climate change mitigation consists of actions to limit the magnitude or rate of long-term climate change. Climate change mitigation generally involves reductions in human emissions of greenhouse gases.

Net zero emissions - Carbon neutrality, or having a net zero carbon footprint, refers to achieving net zero carbon emissions by balancing a measured amount of carbon released with an equivalent amount sequestered or offset, or buying enough carbon credits to make up the difference.

Offsets - A carbon offset (or carbon credit) is generated from an activity that prevents, reduces or removes greenhouse gas emissions from being released into the atmosphere to compensate for emissions occurring elsewhere.

P.V - A typical photovoltaic system employs solar panels, each comprising a number of solar cells, which generate electrical power.

Renewable energy - Renewable energy is energy that is collected from renewable resources that are naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat.

Storm surge - A storm surge, storm flood or storm tide is a coastal flood of rising water commonly associated with low pressure weather systems, the severity of which is affected by the shallowness and orientation of the water body relative to storm path, as well as the timing of tides.

Tonnes of CO₂ - a term used to express amount of carbon dioxide emissions equivalent. Equal to 1,000kg.

Urban heat island effect - Refers to when an urban area is significantly warmer than its surrounding rural areas due to human activities. The main cause of the urban heat island effect is from the modification of land surfaces.



Executive Summary

Climate change poses one of the biggest threats to our future. How we respond will determine the future wellbeing and prosperity of our organisation and the community. We cannot wait for others to take action on climate change; the science is very clear that we must start to reduce our emissions and prepare for the future now.

Kingston's commitment to addressing climate change is defined in the 2017-21 Council Plan, with the objective to leave a positive legacy for future generations. Council needs to respond in a flexible manner to the effects of a changing climate.

The City of Kingston has undertaken a detailed corporate carbon emissions inventory with the intent to mitigate the effects of climate change through the reduction of greenhouse gas emissions. The total current carbon emissions attributable to Kingston's corporate activities were 18,600 tonnes in 2016. Facility electricity and street lighting are the largest sources of emissions.

By implementing the reduction measures identified in this strategy, Council could reduce emissions by up to 30 per cent whilst reducing ongoing corporate energy use and costs.

The total emissions attributable to the Kingston community were 1,610,000 tonnes in 2016. Electricity was the largest source of emissions, with transport, natural gas and waste less significant sources of emissions. There is an opportunity for Council to assist our community to reduce emissions through the delivery of programs.

The Climate Change Strategy sets a clear framework to guide Council and the community towards reduced energy use and carbon emissions to mitigate the effects of and be adaptable to climate change.

The strategy seeks to achieve this by:

- providing a current overview of emissions for the Kingston local government area, including Council's corporate emissions
- setting a benchmark and methodology to report on future emissions
- analysing potential emissions reduction actions
- providing carbon emissions reduction targets
- providing actions and opportunities for Council and the Kingston community to reduce carbon emissions
- providing a clear pathway for the City of Kingston to adapt to climate change.

Through a number of achievable actions, implementation of the strategy will:

- reduce corporate emissions by 30 per cent per cent by 2020
- aim to be completely powered by clean and renewable electricity by 2050
- aim to achieve corporate zero net emissions by 2050
- support our community to reduce emissions by 20 per cent by 2025.



Introduction

The City of Kingston recognises the need to act on climate change. Council's Climate Change Strategy incorporates new policy and technological progress since the original Energy Efficiency Strategy (2012) was adopted, and sets ambitious targets for corporate carbon reduction and actions and recommendations to assist our community.

The Climate Change Strategy will guide Council and the community towards reducing carbon emissions and outlines the next steps required for Kingston to adapt to the effects of climate change.

The strategy provides a framework within which Kingston can respond to the challenges presented by climate change. The actions contained in the strategy broadly fall under the themes of climate change mitigation and adaptation.

Climate change mitigation refers to efforts to reduce or prevent emission of greenhouse gases. Mitigation can mean using new technologies and renewable energies, making older equipment more energy efficient, or changing management practices or consumer behaviour. This strategy outlines a number of recommendations to reduce greenhouse gas emissions.

Adaptation is the principal way to deal with the impacts of a changing climate. It involves taking practical actions to manage risks from climate impacts, protect communities and strengthen the resilience of the economy. Adaptation is a shared responsibility. Governments at all levels, businesses and households each have complementary roles to play. Individuals and businesses will often be best placed to make adaptation decisions that reduce climate risks to their assets and livelihoods.



The City of Kingston as a municipality is in a transformative phase that presents both opportunities and challenges in preparing for climate change. With Melbourne facing a growing population estimated to increase to 7.7 million people by 2051, all local councils are faced with the challenge of how to accommodate more people.

For Kingston, this means planning for an additional 22,641 people by 2031.

As decades-old Council buildings and facilities reach the end of their life, new community buildings take their place. New businesses, including a host of new cafes and restaurants, have opened their doors bringing a renewed life and activity to our shopping strips.

Our sporting facilities are being steadily upgraded to meet growing demand. More people living and working in Kingston has seen an increased number of cars on the road and a greater demand for parking in our neighbourhoods.

There is major revitalisation occurring at key sites, including the Clayton Business Park, former Phillip Morris factory, Gas and Fuel in Highett and planned investment at Moorabbin Airport. Council is also investing millions of dollars to ensure our infrastructure is in top shape to keep our city running smoothly¹.

The transformative change occurring across the municipality provides the opportunity to ensure that climate mitigation and adaptation measures are integrated into all Council practices to build an adaptable and resilient community.



1 City of Kingston Council Plan 2017 -2021



Context

Countries and communities around the world are already experiencing climate change impacts, these include droughts, floods, more intense and frequent natural disasters, and sea level rise. Our community in Kingston is also vulnerable to these impacts. Locally, the severity and frequency of hot days is predicted to increase, as well as more frequent and intense downpours, leading to the risk of flooding and extreme storm surge events.

GREATER MELBOURNE HAS BEEN GETTING WARMER AND DRIER. IN THE FUTURE THE REGION CAN EXPECT:

- temperatures to continue to increase year round
- more hot days and warm spells
- fewer frosts
- less rainfall in winter and spring
- more frequent and more intense downpours
- harsher fire weather and longer fire seasons
- rising sea level
- increased frequency and height of extreme sea level events
- warmer and more acidic seas

Source: [climatechange.vic.gov.au/___data/assets/pdf_file/0019/60742/Greater-Melbourne.pdf](https://www.climatechange.vic.gov.au/___data/assets/pdf_file/0019/60742/Greater-Melbourne.pdf)

Over the past 100 years, global surface air temperatures have risen by almost 1°C. Both the atmosphere and the oceans have warmed. Human activity is causing climate change through our release of greenhouse gases from the burning of fossil fuels, land use change and agriculture. Atmospheric concentrations of carbon dioxide are now more than 40 per cent higher than they were before industrialisation. In the Greater Melbourne region, the rate of warming has increased since 1960. Rainfall has declined since the 1950s, especially in autumn. The sea level today in the Melbourne region is approximately 225 mm higher than in 1880².

Climate change is not just an environmental problem. The effects of climate change present substantial risks to our health and wellbeing, economy and whole society. These impacts are likely to include loss of life, physical and mental health impacts, reduced primary production, property

damage, coastal inundation and loss of power, transport and communications infrastructure. There will also be adverse impacts on biodiversity, habitat, health of ecosystems and significant changes to our waterways³.

At a local level the effects of Climate Change are felt with an increase in hot days and heatwave events, more intense rain and flooding and storm surge and sea level rise. The City of Kingston manages 13km of low laying foreshore that is increasingly vulnerable to sea level rise. There is development pressures for tourism, recreation, residential and commercial uses both on and adjacent to the foreshore. The impacts of climate change are likely to reshape the Bay as we know it. Increased wave action, storm surges and sea level rise will alter sand movements and increase erosion rates. Combined with population pressures, catchment

² Victorian State Government. Climate-ready Victoria: Greater Melbourne. November 2015 https://www.climatechange.vic.gov.au/___data/assets/pdf_file/0019/60742/Greater-Melbourne.pdf

³ https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Completed_inquiries/2010-13/extremeweather/report/c03



degradation and ageing infrastructure the impacts on our coastline will escalate in coming years.

Increased flooding also as a result of major storm events also poses a significant risk to Kingston with the projection of more intense rain and flooding. This poses a risk both to council infrastructure and the community health and safety.

The frequency and severity of heatwaves is anticipated to increase posing a serious threat to vulnerable members of our community including the elderly and those on low incomes. Coupled with rising electricity and gas prices it is expected that this will have a significant impact on the ability for some members of our community to heat and cool their properties.

Mindful of the above, it is considered that Kingston has both an opportunity and an obligation to mitigate carbon emissions and also adapt to climate change. By building our community's resilience to climate change, we will be able to better navigate the uncertainties and effects of a warming planet.

Federal Government Response

In late 2015, 195 countries made a landmark agreement at the United Nations Climate Change conference in Paris to avoid dangerous climate change by limiting global warming to well below 2°C. Under the Paris Agreement, Australia has committed to reduce emissions by 26 to 28 per cent below 2005 levels by 2030. Australia's domestic climate change policies includes the Emissions Reduction Fund, which involves incentives for emissions reduction activities across the Australian economy.

Australia's energy sector is undergoing a transition to a lower emissions future, and this involves several initiatives: The Renewable Energy Target; The National Energy Productivity Plan; The Australian Renewable Energy Agency; and the Clean Energy Finance Corporation.

Due to a range of market and other factors,

energy analysts are now forecasting significant price increases in the coming years⁴. The Federal Government has released forecasts indicating further increases in wholesale electricity prices of 27-33 per cent. It is important for local governments to reduce their exposure to the risks of energy price increases by using less energy and generating localised renewable energy.

Victorian Government Response

Climate Change Act 2017

The Climate Change Act 2017 (Vic) sets a long-term emissions reduction target of net zero greenhouse gas emissions by 2050 and five yearly interim emissions reduction targets. The policy objectives include building the resilience of the state's infrastructure, built environment and communities through effective adaptation and disaster preparedness action, and to promote and support the state's regions, industries and communities to adjust to the changes involved in the transition to a net zero greenhouse gas emissions economy.

Victoria's Climate Change Framework

Victoria's Climate Change Framework (VCCF) articulates the Victorian Government's long-term vision and approach to climate change, including an interim emissions reduction target for 2020 and net zero target by 2050, the Climate Change Act 2017 (see above). The VCCF also describes the transition required across different sectors of the economy and challenges to be addressed in doing this.

Victorian Energy Efficiency Target

The Victorian Energy Efficiency Target aims to reduce greenhouse gas emissions by placing a liability on large energy retailers to purchase and surrender Victorian energy efficiency certificates (VEECs).

Each VEEC represents one tonne of greenhouse gas reduction, and can be created through undertaking energy saving activities. The scheme reduces the cost to households (and large energy users from August 2017) of implementing recognised energy reduction activities by placing a value on the greenhouse gas reduction and creating a market for the certificates.

Victorian Renewable Energy Targets

In June 2016, the Victorian Government committed to renewable energy generation targets for Victoria of 25 per cent by 2020 and 40 per cent by 2025. The Renewable Energy (Jobs and Investment) Bill 2017 will legislate the Victorian Renewable Energy Targets, demonstrating Victoria's leadership on renewable energy.

TAKE2 Pledge

TAKE2 is the Victorian Government's collective climate change initiative. It supports Victorian individuals, business, government, educational and community organisations to take meaningful action to reduce climate change. It starts by making the TAKE2 pledge online, which is a promise to take action on climate change. Using lists of tailored actions on the website, individuals and businesses select what they can, will or already have done to reduce climate change.

Council has recently demonstrated its commitment to tackling climate change by taking the pledge. The mitigation measures in this strategy demonstrate councils efforts to limit global warming below the 2°C threshold as set at the United Nations Climate Change conference Paris Agreement.

Local Government Bill 2018

The Local Government Bill 2018 includes in its overarching principles "the economic, social and environmental sustainability of the municipal district, including mitigation and planning for climate change risk, is to be promoted".

⁴ Clean Energy Council <http://www.cleanenergycouncil.org.au/policy-advocacy/electricity-prices.html>





Our journey

Kingston has a long history of responding to climate change through improved energy efficiency, with the most recent strategy released in 2012 with a focus on reducing corporate energy use.

2012-2017	2017	2017	2018-2025	FUTURE AND ONGOING
Energy Efficiency Strategy 2012-2017	Emissions profile	TAKE2 Pledge	Climate Change Strategy 2018-2025	Climate Change Adaptation
» Implementation of corporate energy use reduction projects	» Corporate emissions » Community emissions	» Council commitment to tackling climate change	» Corporate emissions reduction » Community emissions reduction	» Urban forests » Coastal management » Resilient infrastructure » Emergency management » Sustainable development » Health and Wellbeing » Flooding » Green infrastructure » Biodiversity

Figure 1 Our Journey

Council recognised the need to build on energy efficiency options to include setting carbon emissions targets, and as such, an emissions profile was developed in 2017 to determine what our corporate and community emissions are and where we should prioritise our actions. This has led to the development of a Climate Change Strategy (this document), and consideration of ways we can help our community adapt to climate change impacts in the future.

In 2012, annual emissions were approximately 20,000 tonnes CO₂e, reducing to 18,600 tonnes CO₂e in 2017. This represents a reduction in emissions of approximately 8 per cent through the life of the 2012-2017 Energy Efficiency Strategy. This reduction has been achieved despite a number of new major Council buildings being constructed that have cumulatively contributed additional energy use and emissions across the organisation.



Efficient chiller at the 1230 Nepean Hwy, Cheltenham Municipal Office.



Some key achievements in emissions reduction through 2012 - 2017 include:

- Energy efficiency upgrades at Kingston Arts Centre and Town Hall, with a resulting 175 tonnes CO₂e per annum reduction.
- Major Heating, Ventilation and Air Conditioning (HVAC) upgrades at the 1230 Nepean Highway, Cheltenham office. This included installation of high efficiency chillers and new building management controls installed and commissioned, resulting in 545 tonnes CO₂e per annum reduction.
- 152kw of solar installed across Council assets. (190 tonnes CO₂e in reductions annually).
- Internal lighting upgrades at 1230 Nepean Highway, with state of the art LEDs, with organic response sensors resulting in 302 tonnes CO₂e reduction per annum.

Our emissions

The total emissions attributable to Council's corporate activities were 18,600 tonnes CO₂e in 2016. This is equivalent to the annual emissions of almost 4,000 cars.

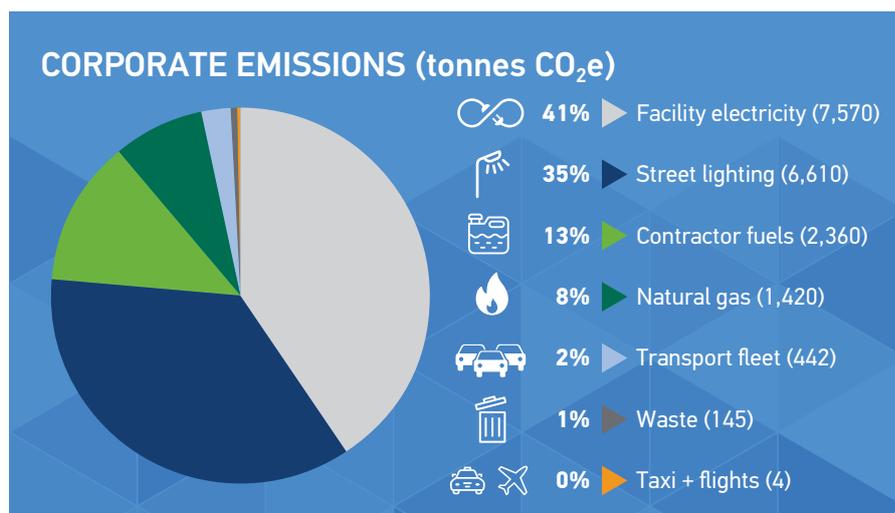


Figure 2 Council emissions breakdown

Corporate emissions

The key sources of emissions were:

- Facility electricity – Council manages over 200 facilities including municipal offices, child care centres, leisure centres, community buildings and public amenities such as toilet blocks and BBQs. The cumulative electricity consumption from these facilities was the largest source of corporate emissions, representing an annual cost of approximately \$762,000. This is a significant cost risk to council as council is exposed to rising electricity costs through its contracts.
- Street lighting – the largest single consumer of electricity, making it a primary focus for emissions reduction action. It represents an annual cost of approximately \$459,000. A project to transition to efficient LED luminaires begins in 2018.
- Contractor fuels – this includes direct emissions from contractor vehicles including cleaning, mowing, street sweeping and tree removal services. The majority (62 per cent) of these emissions were from municipal waste collection contractors.
- Natural gas – many of the facilities managed by Council also consume natural gas. While gas consumption makes up 37 per cent of the energy consumed by the facilities (annual cost approximately \$212,000), it contributes less to the overall emissions inventory due to the relatively lower emissions intensity compared to electricity. Leisure centres were the primary consumers of natural gas at over 85 per cent of the total consumption. This represents a significant cost risk with gas prices projected to increase drastically over the next five years.



When examining Council facilities (see Figure 3) there are a range of high energy users. The two leisure centres, Waves and Don Tatnell, consume a large amount of natural gas from pool heating. They also require a significant amount of electricity to run pumps and other associated equipment. Large office buildings such as the municipal offices, city hall, family and children’s centres, pavilions and libraries are also high energy users. Street lighting accounts for a significant amount of emissions (which, as discussed above, is being addressed as a high priority).

- Vehicle fleet, waste, taxis and flights – together these emissions sources contributed just over three per cent to the corporate emissions inventory.

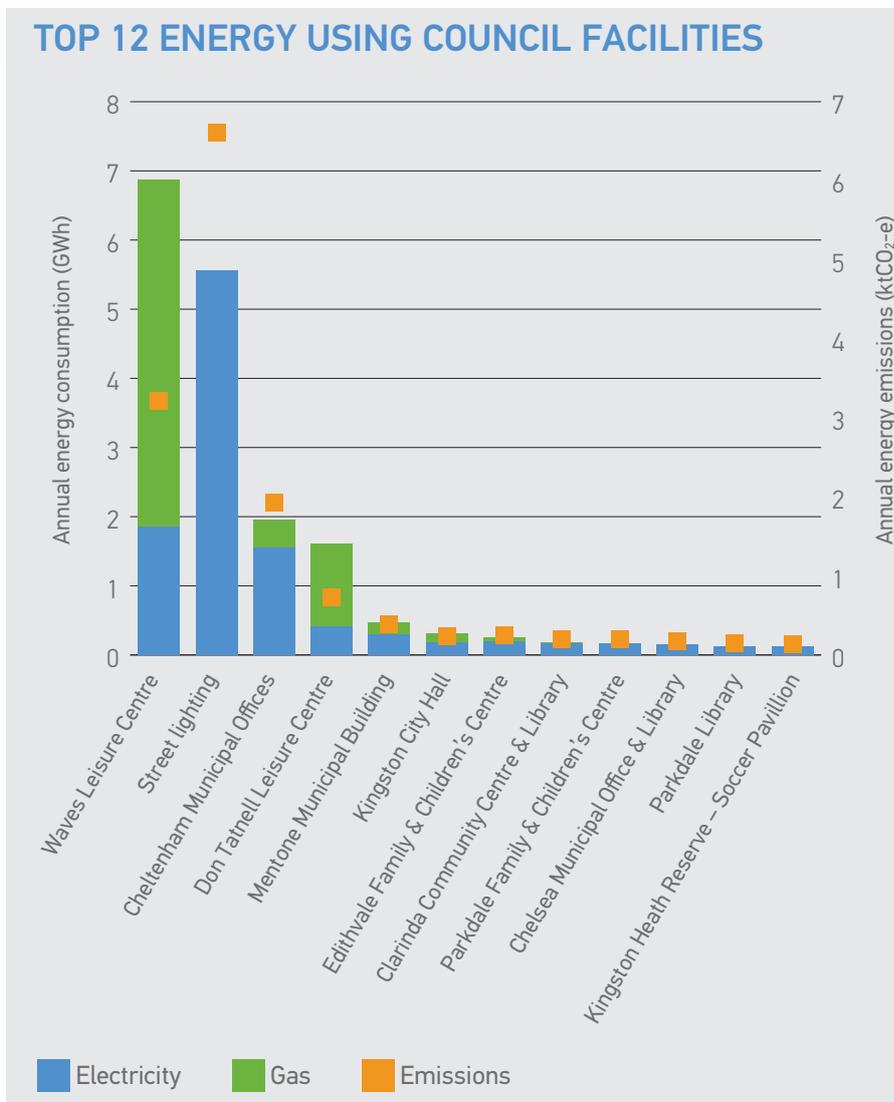


Figure 3 Top 12 energy using Council facilities

GREENHOUSE GAS EMISSIONS FROM ENERGY

Electricity consumed in Kingston is from the Victorian electricity grid. This electricity is highly emissions intensive, as the majority is sourced from the combustion of brown coal. As a result, every unit of energy sourced from electricity results in almost six times the emissions compared to sourcing the same amount of energy from natural gas, as shown from the emissions factors below:

Electricity – 1.19 kgCO₂e/kWh Natural gas – 0.20 kgCO₂e/kWh

Note that renewable energy sources such as solar panels provide the opportunity for very low emissions energy. The emissions factor for the Victorian electricity grid has slowly and steadily decreased in recent years (compare the above 2016 figure to 1.45 kgCO₂e/kWh in 2000).

4 Clean Energy Council <http://www.cleanenergycouncil.org.au/policy-advocacy/electricity-prices.html>

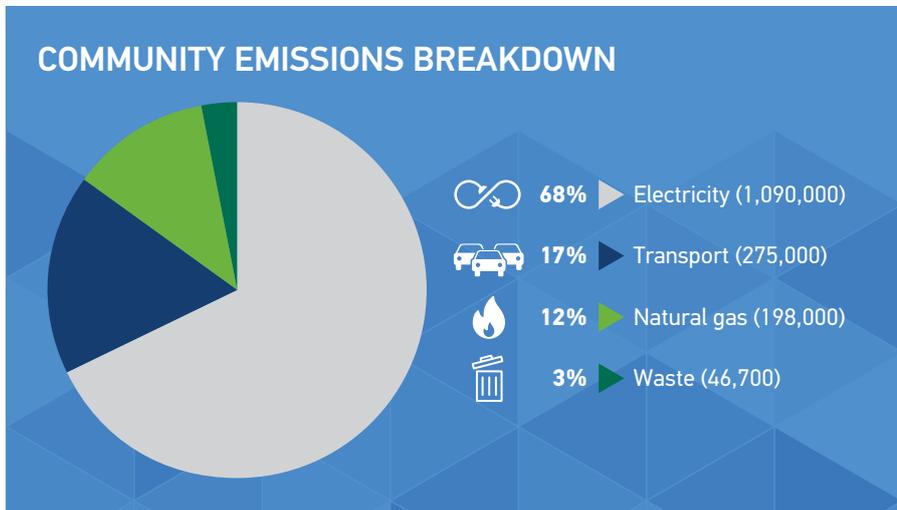


Figure 4 Community emissions breakdown

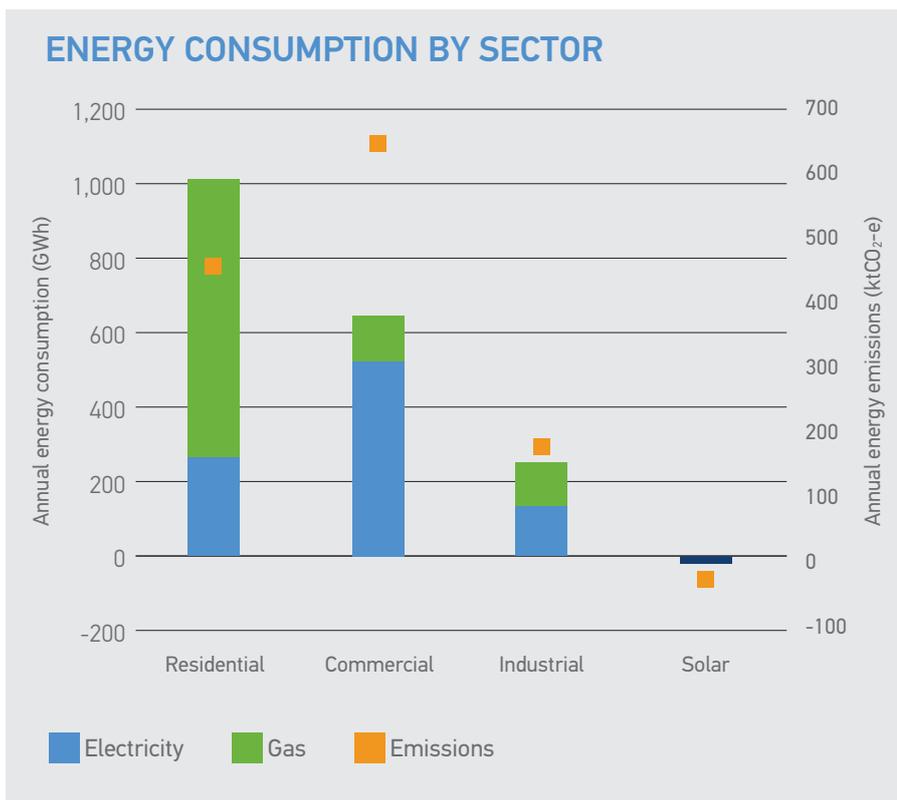


Figure 4 Community emissions breakdown

Community emissions

The total emissions attributable to the Kingston community were 1,610,000 tonnes CO₂e in 2016. Key sources of emissions included:

- Electricity - contributing the majority of emissions at 68 per cent. Over half of this was from the commercial sector (see Figure 5).
- Transport - Fossil-fuel powered transportation modes (including cars, motorcycles and public transport) contributing the second largest source of emissions in Kingston. Of these emissions, almost 90 per cent were due to journeys in cars, reflecting the dominant use of this mode (cars were used for 82 per cent of all kilometres travelled).
- Natural gas - Equating to over half of all energy consumed by the community in Kingston. Natural gas has a lower emissions intensity than electricity, so contributes less to the overall emissions inventory
- Waste - The lowest contributor of emissions at 3 per cent. This includes emissions from waste generated by residents and businesses and collected by Council waste contractors. It does not include the total emissions from landfills within the municipality, where the landfills are receiving waste from outside of the municipality. It also excludes commercial waste.

The commercial sector is the highest contributor to community emissions. It has a lower overall energy consumption compared to residential but a higher emissions intensity due to its high use of electricity. Residential gas use is high in the Kingston area, but has a lower intensity than electricity. In 2016 there were 5,650 residential solar PV installations. Solar PV energy was estimated to contribute approximately 21 GWh across the community⁵. Note that this is shown as a negative value in Figure 5, as it represents energy generation and emissions abatement (rather than energy consumption and emissions generation).

5 Clean Energy Regulator (2017) Postcode data for small-scale installations. Accessed 1 June 2017 at <http://www.cleanenergyregulator.gov.au/RET/Forms-and-resources/Postcode-data-for-small-scale-installations#Postcode-data-files>. This value was based on the deemed Small Generation Units from the installation of solar PV systems (SGUs) in Kingston postcodes to the end of June 2016.



Our vision

Based on the global climate change context, national and state priorities, as well as local issues and our current carbon emissions, Council has developed a vision to:

Build climate resilient environments, infrastructure, facilities and communities through the reduction of carbon emissions and an increasing focus on renewable energy generation.

Our priorities

EMISSIONS

Increase energy efficiency and productivity.

Transition to a clean and renewable electricity supply.

Switch to clean fuels.

Purchase offsets where required.

ADAPTATION

Embed climate change considerations into Council's operations, policies and plans.

Manage risks to Council built and natural assets and services from climate change.

Mitigate and adapt to the effects of climate change for future generations.



Our commitments

To demonstrate our leadership, Council is committing to the following three targets.

- | | |
|----------|--|
| A | To reduce corporate emissions by a minimum of 30 per cent by 2020 |
| B | Aim to achieve corporate zero net emissions by 2050 in line with current State Government Policy

The aim of zero net emissions is to achieve Carbon neutrality, or having a net zero carbon footprint. This could be done through the purchase of clean energy through our procurement of renewable electricity and gas and using offsets to buy carbon credits to make up the difference. |
| C | To support our community to reduce emissions by 20 per cent by 2025⁶ |

6 This is consistent with the Victorian Government 2020 emissions reduction target of 15-20% below 2005 levels as outlined in Victoria's Climate Change Framework





Meeting our commitments

Council is committed to reducing our corporate emissions by 30% by 2020. Council has direct control over its emissions. Reducing corporate emissions demonstrates leadership, improves financial sustainability, and reduces future exposure to energy price increases.

Figure 6 demonstrates that our emissions reduction target of 30 per cent by 2020 is achievable by implementing the actions described.

This commitment will be achieved through the following actions:

ACTION	EMISSIONS REDUCTION
Street lighting upgrade – stage 1 - replacing 7000 public street lights (2018)	14.8%
Street lighting – stage 2 - replacing 1,000 decorative lights and 4,000 VicRoads lights (2019-2020)	7.52%
Council offices lighting upgrades	2.75%
Install 1MW of solar PV on Council buildings	
A rooftop solar feasibility assessment will prioritise the order of installations.	6.45%
TOTAL Emissions reduction	31.52%

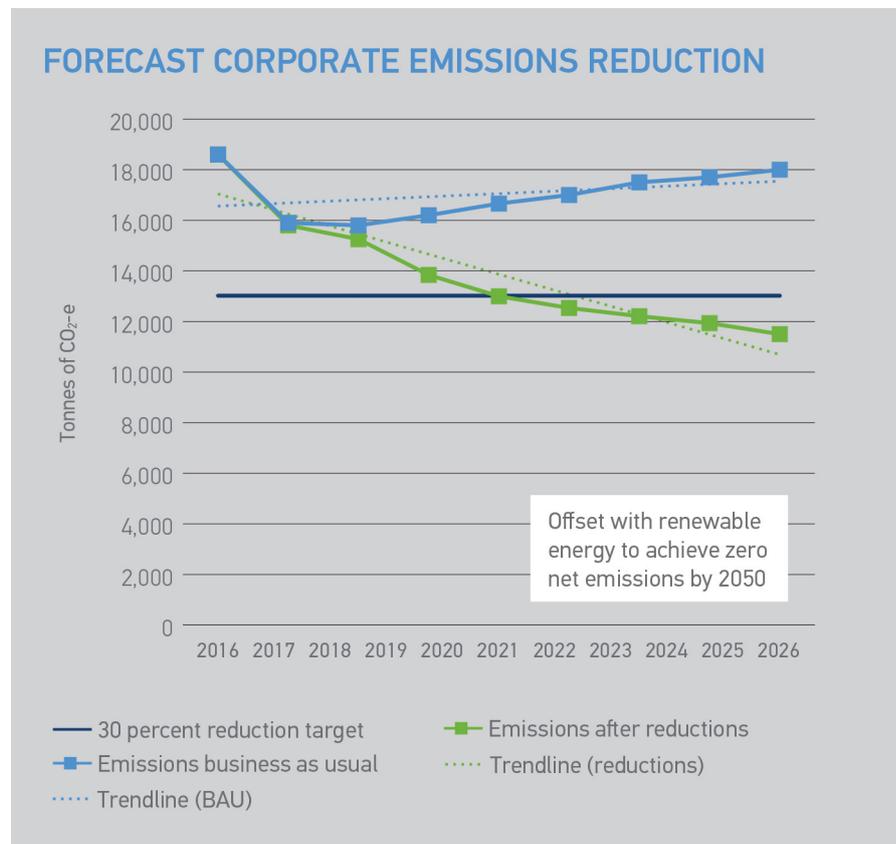


Figure 6 Forecast emissions reduction



Best Practice and Policy Development - further actions

A range of additional projects will be undertaken by Council with a view to further contributing to emissions reduction across Council's operations and the achievement of zero net emissions by 2050. These projects include;

- [Developing and implementing a new internal Environmentally Sustainable Policy for new Council buildings and renovations](#)

The existing internal ESD policy will be reviewed and updated and applied to all new Council buildings, maintenance and renovations, along with allocation of resources to ensure effective implementation.

- [Setting emissions standards for contractor vehicles](#)

Contractor vehicles were identified as making a significant contribution to Council's carbon emissions. Procurement opportunities to specify improved standards will be investigated.

- [Continuing improved efficiency of Council fleet vehicles](#)

Council will continue to downsize fleet vehicles, improve fleet efficiency and investigate the feasibility of electric or more efficient heavy fleet vehicles.

- [Ongoing monitoring and reporting of energy use across Council buildings](#)

Council will continue to monitor and report on energy use across all buildings and identify opportunities for improvement.

- [Ongoing efficiency upgrades across Council buildings.](#)

Investigation of energy efficiency upgrades will continue. Approximately 100 tonnes of carbon emissions can be saved for every \$100,000 invested (along with associated electricity cost savings). Projects with a return on investment within 10 years will be investigated.

- [Reduce embodied energy exposure](#)

Ensure that reduce, reuse and repair principles are used when considering procurement. Creating processes, tools and systems that facilitate sharing across the organisation (where possible).



Towards zero

To achieve carbon neutrality (zero net emissions), Council would need to obtain offsets or invest in large scale renewables.

The purchasing of renewable electricity has the ability to offset all energy-related emissions (up to 70%). Approximately 6-8MW of energy can be purchased for a reduction of 8-10kt CO₂e. However, purchase of renewable electricity (e.g. green power) comes at a higher cost, and as such investing in actions that reduce electricity demand and therefore save money, are considered a higher priority.

Large scale solar

Council has committed in the Green Wedge Plan (2012) and the Council Plan, to investigate the feasibility of large scale solar PV on closed landfills in the green wedge. Other local government areas are investing in similar schemes, such as Sunshine Coast Council in Qld, and Newcastle City Council in NSW. Pre-feasibility work has demonstrated that delivering a 5MW large scale solar plant is viable within the City of Kingston. This could provide a variety of options for Council to either generate or purchase renewable electricity.

Offsets

A carbon offset is used to assign a value to a metric ton of greenhouse gas emissions.

Council could purchase carbon offsets from a third party helping to fund a project that will either reduce or sequester carbon emissions from the atmosphere in another location. As a result of purchasing a carbon offset from a third party you are effectively 'offsetting' some or all of your own carbon emissions. This cost however would be on top of the existing (and potentially increasing) cost of electricity.



TRANSITION

KINGSTON

**creating local
sustainable
communities**

**Australian
and farm
Working to**

Dr Kelly Donati
Dr Nick Rose

Presented to JBWere
Friday, 26 Oct 2018



Supporting our community

Council is committed to supporting our community to reduce emissions and reduce energy use (and therefore power bills), but Council's direct influence is limited. However we heard through the consultation process that the community wants strong leadership and support to take immediate action. Council also has a role in supporting our community to adapt to a climate change future.

Policy and Advocacy

- South East Councils Climate Change Alliance (SECCCA) - ongoing

Council will continue membership with the South eastern Councils Climate Change Alliance and participation in relevant projects for the Kingston community.

- Environmentally Sustainable Design (ESD) Local Policy – Amendment C165

Council is developing an Environmentally Sustainable local planning policy to ensure new developments/buildings are energy efficient and climate resilient.

- Urban Cooling – 2018/19

An urban cooling strategy will be developed to ensure our city is resilient and liveable in light of future climate change.

- Climate Change Adaptation – 2018/19

Council will develop a climate change adaptation plan to support our community to adapt to the effects of climate change, such as more frequent heatwaves and increased storm intensity.

Facilitation, information and support

- Microgrid Technology

Council will investigate the potential application and feasibility of Microgrid technology across households and businesses in the City of Kingston.

- Renewable electricity

Council will support and encourage community owned renewable energy projects where appropriate.

- Finance mechanisms

Council will investigate ways to support our commercial and industrial sector to improve energy efficiency, and increase renewable energy generation, such as retrofit assistance and finance mechanisms.

- Residential solar

Council will continue to investigate avenues to increase the uptake of residential solar, including solar and renewables promotion, solar facilitation for renters, solar purchase through rates for low income earners, and bulk buy schemes.

Target: Number of residential solar PV installations to increase from 5,650 (17,500kw approx.) in 2016 to 10,000 (30,000kw approx.) in 2025.



MICROGRID TECHNOLOGY

Microgrids are one way to enable solar PV and battery storage sharing. Microgrids are small scale private local electric power grids or networks with the capacity to be controlled and coordinated. As with other grids, they consist of distribution (e.g. electrical cabling), electricity generation and grid regulation.

Sharing solar PV generation and battery storage across a number of households or businesses has the potential to leverage opportunities and help manage some of the risks inherent in the changing electricity sector.

It can help sidestep network limits on distributed energy resources and enable residential customers to generate, store and use more of their own solar PV.

Moreover, aggregated storage capacity has the ability to reduce peak demand, thus actively assisting network utilities to manage challenging periods of variable power production and overall activity on the grid.

Microgrids can also provide other benefits, such as reducing the total capital costs for households and utilities. An example is where a new residential development uses on-site generation and storage to reduce consumption and guarantee a maximum peak demand. This in turn can reduce both the sizing of distribution infrastructure (the poles and wires) and the costs associated with connecting to the broader network.

CLIMATE CHANGE ADAPTATION

We need to prepare for anticipated climate change impacts so that the City of Kingston remains a healthy, prosperous, safe and vibrant place to work, live, and play, and maintains a thriving natural environment.

Adaptation is a complex challenge for Council and the community. The impacts of climate change are unlike anything we have experienced before, and what we know about the scale and timing of impacts is constantly evolving. As such, we need flexible and robust policies, plans and actions that will equip us to successfully adapt to a range of possible futures.



Monitoring and evaluation

Delivery of the broader objectives of this Strategy, as well as individual Actions identified this report, will require ongoing evaluation and reporting.

It is proposed that:

- An internal Action Plan be developed to map out operational and financial obligations over the life of the Strategy (2018 – 2025).
- Council continue to monitor and report on both community and corporate emissions on a biannual basis as well as promote progress on key actions to the community.
- Regular feedback and emissions data will be provided to key facility managers within the organisation.
- Undertake biannual review of the economic viability of solar PV on Council Buildings to ensure new technology is considered and, where appropriate, incorporated into the delivery program
- An evaluation and review of this strategy and associated priorities will be completed before 2025.



City of
KINGSTON