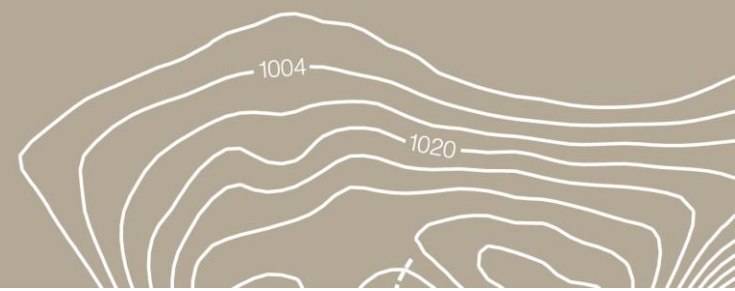


Western Alliance for Greenhouse Action

The WAGA Councils Emissions Reduction Projects and Achievements

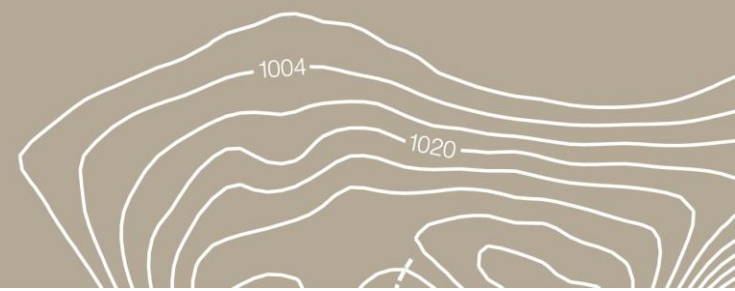
December 2016

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Western Alliance for Greenhouse Action (WAGA)

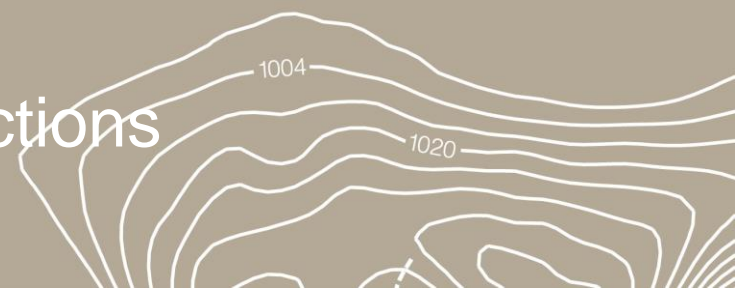


WAGA is ...

Brimbank City Council
City of Greater Geelong
Hobsons Bay City Council
Maribyrnong City Council
City of Melton
City of Moonee Valley
Moorabool Shire Council
Wyndham City



Greenhouse Gas Emissions Reductions



The WAGA councils are reducing greenhouse gas emissions through changeover to energy efficient street lights, building and fleet upgrades and programs to assist residents and businesses switch to solar power and become energy efficient.

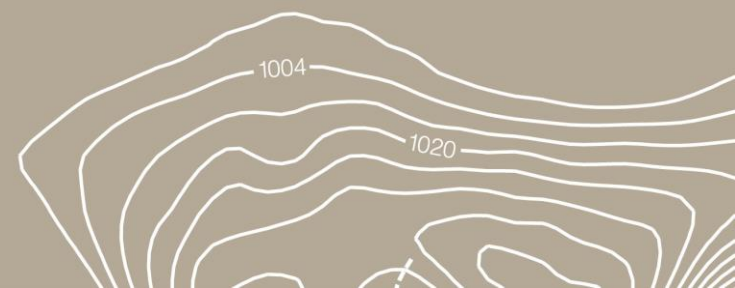
Savings measured so far are outlined below.

Actions	Total regional emissions reductions per annum (Tonnes CO2-e)	Emissions in equivalent number of households per annum*
Street light replacement**	12,502	1,617
Corporate solar and energy efficiency programs	11,163	1,444
Industry and business programs	7,200	931
Residential programs	1,562	202
Total	32,427	4,194

*The average household in the WAGA region generates 7.73 tonnes of CO2 per annum (Low Carbon West Baseline Emissions, 2012).

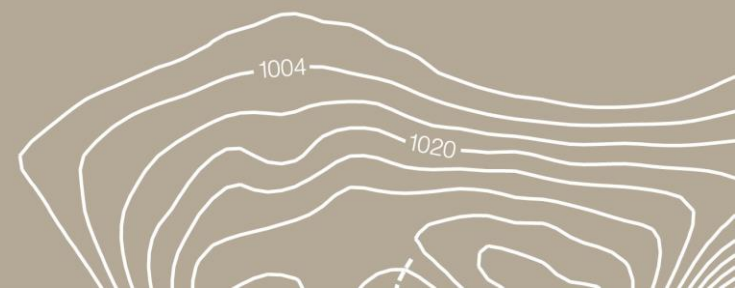
**See page 16 for an explanation of how emissions reductions for street light changeovers are calculated.

WAGA Councils' Emissions Reduction Plans



Councils	Emissions Reduction Targets	Greenhouse Strategies
Brimbank City Council	Council operations: 50% below 2011 levels by 2022	Greenhouse Reduction Strategy 2013-2023 (Council and community)
City of Greater Geelong	Council operations: Target to be set by the Greenhouse Strategy 2016	Draft Greenhouse Strategy 2016 (Council and community)
Hobsons Bay City Council	Council operations: Zero net emissions by 2020 Community: Zero net emissions by 2030	Corporate Greenhouse Strategy 2013-2020 Community Greenhouse Strategy 2013-2030
Maribyrnong City Council	Council operations: Carbon neutral by 2015 Community: Carbon neutral by 2020	Becoming Carbon Neutral: Corporate Action Plan Zero Net Emissions by 2020
Melton City Council	Council operations: 10% reduction by 2015, zero net emissions by 2025. Target currently being revised; investigating science-based target.	Greenhouse Action Plan 2011-2015 (Environment Plan currently being prepared for delivery in early 2017)
Moonee Valley City Council	Council operations: Zero net emissions by 2020 Community: Zero net emissions by 2020	Greenhouse Strategy 2010 (Council and community, currently under review)
Moorabool Shire Council	No specific target	Draft Sustainable Environment Strategy (Council and community)
Wyndham City	Council operations: 12% below 2014/15 levels by 2020 (excluding the Refuse Disposal Facility), 95% by 2040 Community: At least 55,000 tonnes avoided from residential and business sectors through the Low Carbon West strategy by 2020; zero net emissions from electricity use in the municipality by 2040	Environment and Sustainability Strategy 2016-2040 (Council and community)

Changeover to Energy Efficient Street Lights



Lighting the West

26,053 street lights were upgraded to energy efficient luminaires in 2015-16 through 'Lighting the West', one of the largest street lighting changeovers in Australia. It was undertaken by Wyndham, Hobsons Bay, Moonee Valley and Maribyrnong with funding support from the Australian Government through the Community Energy Efficiency Program (CEEP).

Powering Down

11,622 street lights were upgraded in 2012-16 through Brimbank's corporate energy efficiency project, also supported with CEEP funding.

LEADS (Lead, Educate, Advocate, Demonstrate Sustainability)

3,825 street lights were upgraded in 2014-16 through Melton's LEADS project (combined with energy efficiency improvements for nine Council buildings and a community engagement program) also supported with CEEP funding.

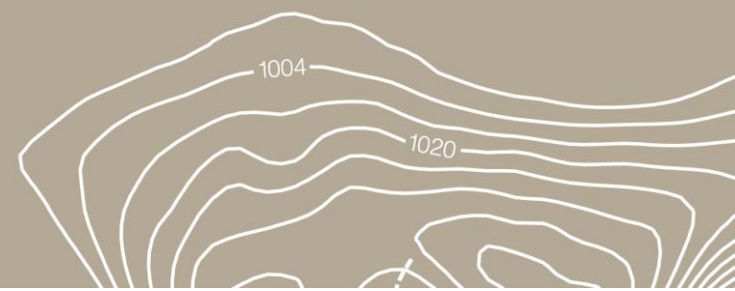
City of Greater Geelong's street lighting plan

24,000 street lights in Geelong are planned for conversion to energy efficient LEDs within the next five years.

Moorabool Shire Council's street lighting plan

Council has agreed in principle to a bulk street lighting upgrade in 2017-18.

Brimbank City Council – Actions



As well as upgrading streetlights, Brimbank has undertaken the following actions to reduce its own emissions and help the community become energy efficient:

Upgrades to council facilities as part of the Powering Down project with funding support from the Australian Government:

- Heating, Ventilation and Air Conditioning (HVAC) upgrade at (former) Sunshine Municipal Offices
- Lighting and insulation retrofit at (former) Keilor Municipal Offices
- HVAC upgrade at Deer Park Library
- Cogeneration installation at Sunshine Leisure Centre

Energy focused workshops as part of the annual Brimbank Environmental Events Calendar

School Sustainability Resource that aligns with the Victorian school curriculum (Years Foundation to 6), available to all 70 schools in Brimbank. It can be replicated by any local government using Creative Commons Attribution.

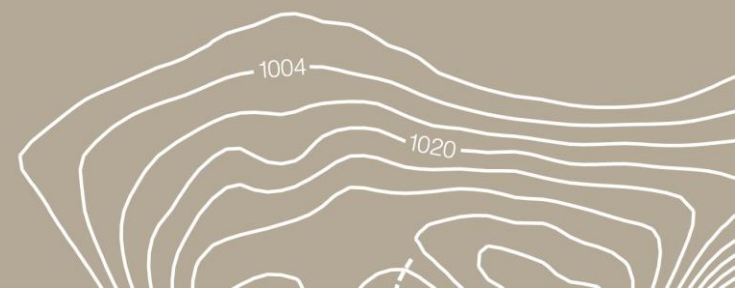
Energy Saver Kits available to borrow from Brimbank’s five public libraries, including books, a ‘powermate’ electricity monitor, digital thermometer, stop watch and Lux meter to assist householders.

Environmental Education officers to provide education on energy efficiency in the home alongside other sustainability topics for Brimbank residents

The Brimbank Sustainable Living Expo held each year, with an Environment Department staff providing information on energy efficiency practises. In 2016, this popular Council event attracted over 3,000 people.



City of Greater Geelong – Actions



Some of Geelong's key carbon mitigation projects are:

ecoChallenge at Home, a residential program that has installed 51 solar systems, saving 230 tonnes of CO₂-e.

Council building retrofits with solar panels, energy efficient air conditioning and lighting systems. **Cogeneration** was installed at the Splashdown Aquatic Centre, saving 650 tonnes of CO₂-e when operating at full capacity.

Sustainable Buildings Policy: minimum sustainability standards for Council's new buildings, renovations and retrofits of existing buildings, building maintenance and minor upgrades.

ReGreening Geelong. ReGreening Geelong (Newtown) is a bio-sequestration revegetation project that uses native tree species to absorb and offset carbon emissions generated by Council.

Future Proofing Geelong. The FPG vision is that by 2030, Geelong is internationally recognised as one of the world's most sustainable cities. The program focuses on three key themes; becoming more sustainable, more liveable and more productive. From 2016, the Council is offering **Environmental Upgrade Agreements (EUAs)** to businesses to provide cost-effective finance for upgrades to their premises.



Hobsons Bay City Council – Actions



In addition to upgrading street lights, Hobsons Bay carbon mitigation projects include:

Council Building Retrofits. Council continues to retrofit existing buildings with solar panels, energy efficient air conditioning and lighting systems.

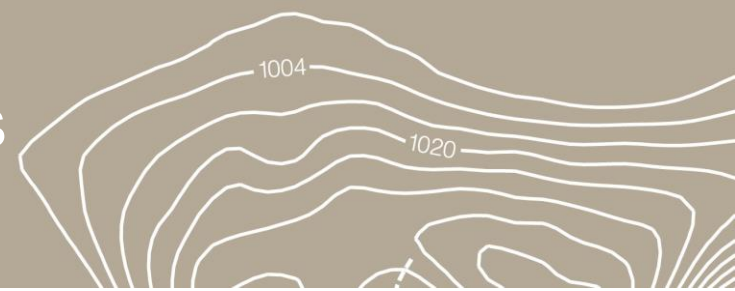
Residential solar bulk-buy program, through the independent energy experts, Positive Charge. The program enables community members to access special pricing on quality, fully installed solar power systems. In 2015-16, more than 170 Hobsons Bay residents installed solar panels on their homes saving approximately 825 tonnes of greenhouse gas emissions.

My Smart Garden. This is a popular regional program undertaken in collaboration with Moonee Valley and Maribyrnong councils. It is a free program that helps residents grow food, shelter their home from the elements, create homes for local wildlife, use water wisely and recycle wastes. These are personal actions residents can take to conserve resources and energy that also lead to greenhouse gas emissions reductions. My Smart Garden is evaluated bi-annually.

LightSmart. Council's LightSmart Program targets local businesses and supports the retrofit of buildings with energy efficient lights. Results have included payback periods of less than a year and thousands of dollars saved in electricity bills for local businesses. The program has provided a greenhouse reduction of 700 tonnes per annum.

Environmental Upgrade Agreements (EUAs) are now offered to Hobsons Bay businesses.

Maribyrnong City Council – Actions



Maribyrnong achieved ‘zero carbon’ status in 2015. Its street lighting upgrades contributed, but Council has also undertaken the following projects:

Energy Performance Contract targeting four large buildings, and a Sustainable Building Management Plan, involving sustainability audits and improvements to Councils’ buildings

Energy efficiency incorporated into Council’s fleet, with a move from 6 cylinder to 4 cylinders for passenger vehicles and small commercial vehicles and a trial of fully electric vehicles in the Parking and Local Laws department’s

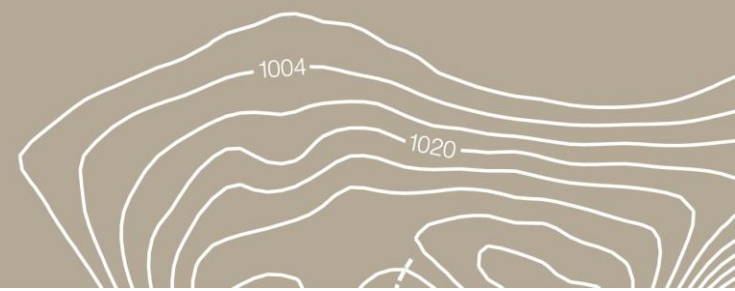
Solar on Council buildings with a total of 170KW installed so far and further installations planned for a total of about 260KW. Together with efficiency upgrades, council energy projects on its buildings have so far saved \$64,000 and 350 tonnes of CO₂-e and have produced 290MWh of energy.

Maribyrnong Aquatic Centre upgrades, including: VSDs, LED lights, a Building Management System (BMS), a visual display in the admin office for climate control in most rooms at the Centre, sealing and draught proofing, 26 check electricity meters installed to monitor energy use from various systems, and four extra gas and water check meters installed for monitoring purposes

Council also runs a **residential solar bulk-buy program** with Positive Charge and promotes the **Sustainable Design Assessment in the Planning Process (SDAPP)** program and **Built Environment Sustainability Scorecard (BESS)** tool both internally for its planners and externally to developers. It also now offers **Environmental Upgrade Agreements (EUAs)** to its businesses.



Melton City Council – Actions



Melton's LEADS program, in addition to upgrading street lights, included:

Energy retrofits of nine key buildings with the installation of a BMS system in the Melton Civic Centre, pool blankets installed at Melton Waves and energy efficient HVAC and lighting replacements across the nine community facilities.

A local community engagement program, which focused on developing and supporting sustainability champions in the community to become energy literate and reduce their energy consumption at home and encourage their communities to do the same..

Melton is now offering further assistance to its community through a **residential solar bulk-buy program**, offered through Positive Charge.

The Council's sustainability efforts have garnered a number of important awards recently. The LEADS program won both the 2015 Keep Australia Beautiful (Victoria) Award for Local Government Partnerships and, in 2016, the Victorian Local Governance Association's (VLGA) inaugural CLIMATE Award in the Local Government category. This year, the Council was also a finalist for Keep Victoria Beautiful Sustainable City of the Year. These accolades follow multiple awards for the Melton Library and Learning Hub, the Council's sustainable design showpiece: the 2014 Victorian Architecture Award, Intergrain Time Vision Award and the international 'Global Design Is...' Award.



Moonee Valley City Council – Actions



Moonee Valley undertook the following projects in 2015-16 in addition to street lighting upgrades:

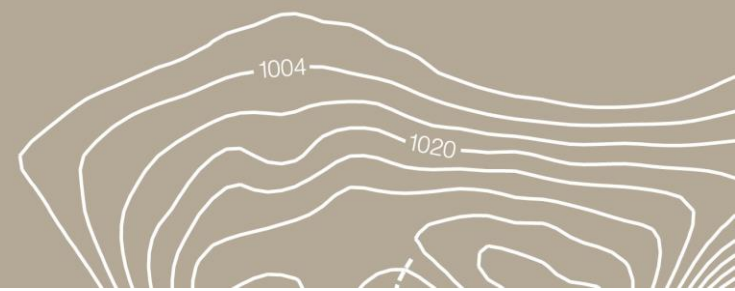
Reduced greenhouse gas emissions from Council buildings by 2,500 tonnes to 1,900 tonnes (down 48% since 2007), which was achieved in large part through the following measures:

- **A 100kW solar system for the Civic Centre** was commissioned.
- **A further 630 solar panels (160 kW) at nine other facilities** were installed.
- **Two buildings were draft-proofed and one building was retrofitted with ceiling insulation and double glazing.**
- **Purchasing carbon offsets**

19 sustainability events as part of Council's My Smart Garden program, the Sustainable Homes program, the Community Environment forums and the Schools Environment Network, engaging around 600 community members. The My Smart Garden program, run in collaboration with Hobsons Bay and Maribyrnong Councils, engages residents to garden sustainably through free gardening workshops and online resources, with around 56,000 downloads of online resources so far.

Residential solar bulk-buy program, through Positive Charge. In the first three months, 104 households have committed to install a system. This amounts to 303KW of solar PV installed, with total greenhouse gas emissions abated over life of solar systems of 8,420 tonnes (equivalent to taking around 1,800 cars off the road).

Moorabool Shire Council – Actions



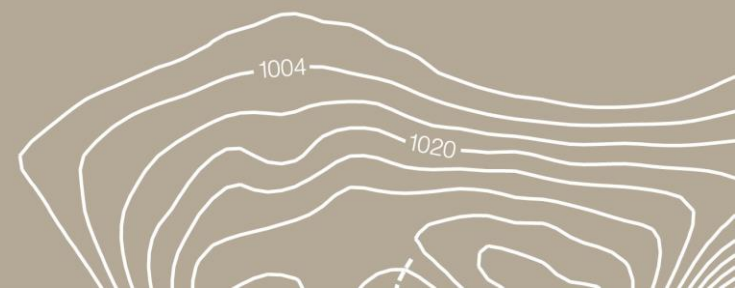
Moorabool has focused on conserving its natural environment and facilitating adaptation to climate change, most recently through the **Future Landscapes** project, a collaboration with Golden Plains Shire Council, City of Ballarat, Pyrenees Shire Council, Hepburn Shire Council, Deakin University and Cultivate, with Victorian Government funding. This project will help Councils in Victoria's Central Highlands better understand climate impacts to protect and improve agriculture and natural resources.

Council has also commenced to reduce its own impacts. It plans to **upgrade its three buildings that use the most power for energy efficiency** in the coming year, as well as change over to energy efficient street lighting.

As a first step, the Council has installed video-conferencing between its two principal offices in Ballan and Darley to reduce car travel and associated energy use.

Council has also **revised its fleet policy** to discourage purchase of 6-cylinder vehicles and encourage replacement with more fuel efficient 4-cylinder cars.

Wyndham City – Actions



Wyndham led the Lighting the West project for WAGA councils and has continued with the following actions to reduce its own emissions and assist the community:

Council building energy retrofits: LED lighting, energy efficient air conditioning and water heating

Metered lighting (i.e. parks lighting) upgrades to be completed in 2017

Large-scale solar and energy storage program to be completed in 2017

In 2015, Wyndham adopted an **ESD Framework for Council Buildings**. The Framework will help to reduce the carbon footprint of all new buildings and refurbishments. The policy is already embedding the Green Star and BESS sustainability framework into new projects.

Capture of landfill gas. In 2014-2015 LMS Pty LTD generated 9,737,443 KWh of energy from Wyndham's Refuse Disposal Facility's (RDF) landfill gas and captured 100,975 tonnes of CO₂. This was equivalent to powering 1,457 Wyndham houses or taking 36,954 cars off the road. 2014-2015 saw a 5% decrease in the volume of gas captured, to 44% of total CO₂ generation.

In 2015-16, Council offered a **residential solar bulk-buy program** through Positive Charge. More than 119 residents installed solar panels on their homes equating to 321KW of newly installed solar. **Environmental Upgrade Agreements (EUAs)** are also now offered to businesses.

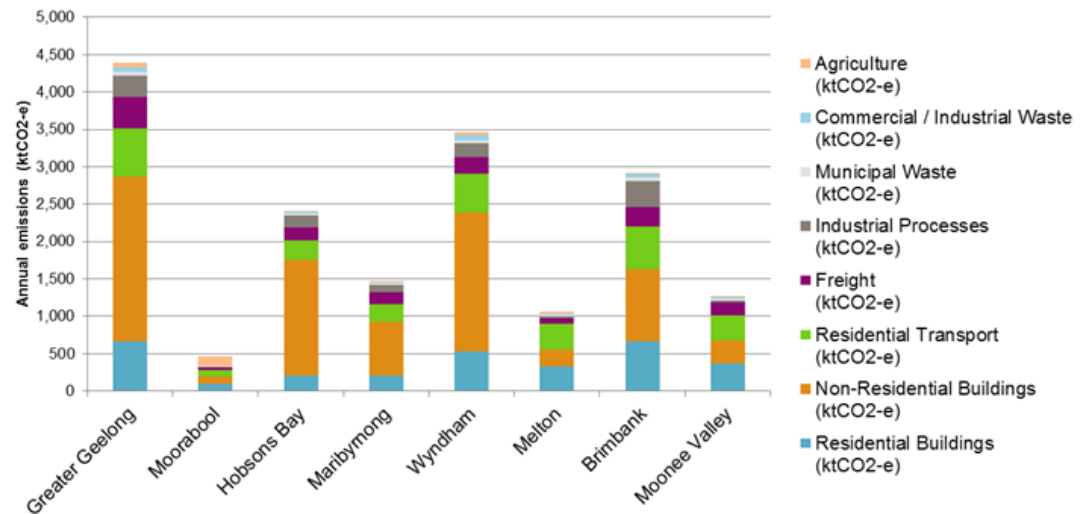


Low Carbon West – Regional Actions

Low Carbon West is a plan for transition to a low carbon economy in the west of Melbourne, developed by WAGA, LeadWest (the western Councils' economic development alliance) and Western Melbourne Regional Development Australia.

The plan demonstrates the WAGA councils' leadership and collaboration in addressing climate change with their communities across sectors and across the region.

Low Carbon West's baseline emissions profile for 2012 shows that most of the region's emissions (46%) are generated by non-residential buildings – mainly factories and facilities – followed by residential buildings (housing) and transport.

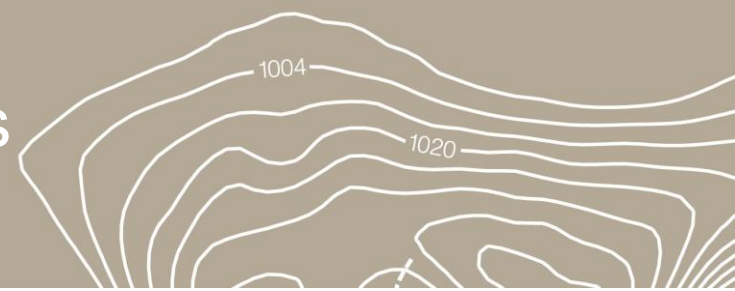


Accordingly, in addition to municipal-level action, in 2016 WAGA is focusing on how to help businesses reduce their emissions. The alliance is developing **a preferred providers' list for commercial solar PV and energy efficient lighting**, to be promoted to local businesses, and conducting **a feasibility study into options for large-scale renewable energy generation in the region**.

A couple of other collaborative actions undertaken in the region, which support Low Carbon West's objectives, are:

- **Carpool the West**, a journey-sharing scheme that could reduce each user's carbon footprint by 2.6 tonnes per annum with just two days a week carpooling. The organisations on board are Wyndham, Melton, Brimbank and Maribymong Councils, Mercy Health, Western Health, VicRoads, Victoria University and the Southern Metro Cemetery Trust.
- **Food to Green** trial. To understand issues associated with introducing food waste to green organics collections, the Metropolitan Waste and Resource Recovery Group (MWRRG) joined with three Councils – Brimbank, Moonee Valley and Wyndham – to develop and promote a food to green waste trial. The trial has been completed, but two of the Councils have now decided to implement the program throughout their municipality.

Explanation: Calculating Emissions Reductions for Street Lights



Lighting the West: 26,053 lights were changed over, saving 147,397 tonnes CO₂ over 20 years (7,369 tonnes on average per annum, although emissions can be expected to decrease each year as the emissions factor decreases) = **0.28 tonnes CO₂ saved per light per annum**

Powering Down (Brimbank): 11,622 lights were changed over, saving 3,800 tonnes CO₂ per annum = **0.32 tonnes saved per light per annum**

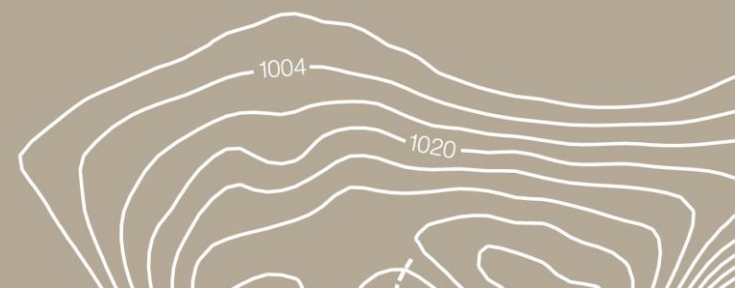
LEADS (Melton): 3,825 lights were changed over, saving 1,333 tonnes CO₂ per annum (observed) = **0.34 tonnes saved per light per annum.**

Differences between councils can be attributed to the lighting types installed. Changing an 80W mercury vapour to an energy efficient light – T5, Compact Fluorescent Lamp (CFL) or LED – will reduce energy usage by 68%, 62% and 77% respectively.

Lighting the West has a lower savings per light per annum, on average, because a large proportion of existing lights (about 40%) were changed to CFLs and T5s, which have a higher wattage than LEDs. Brimbank's lights were changed to T5s and LEDs with a higher proportion changed to LEDs. Melton has the highest savings because all lights are being changed to LEDs.



Further Information



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