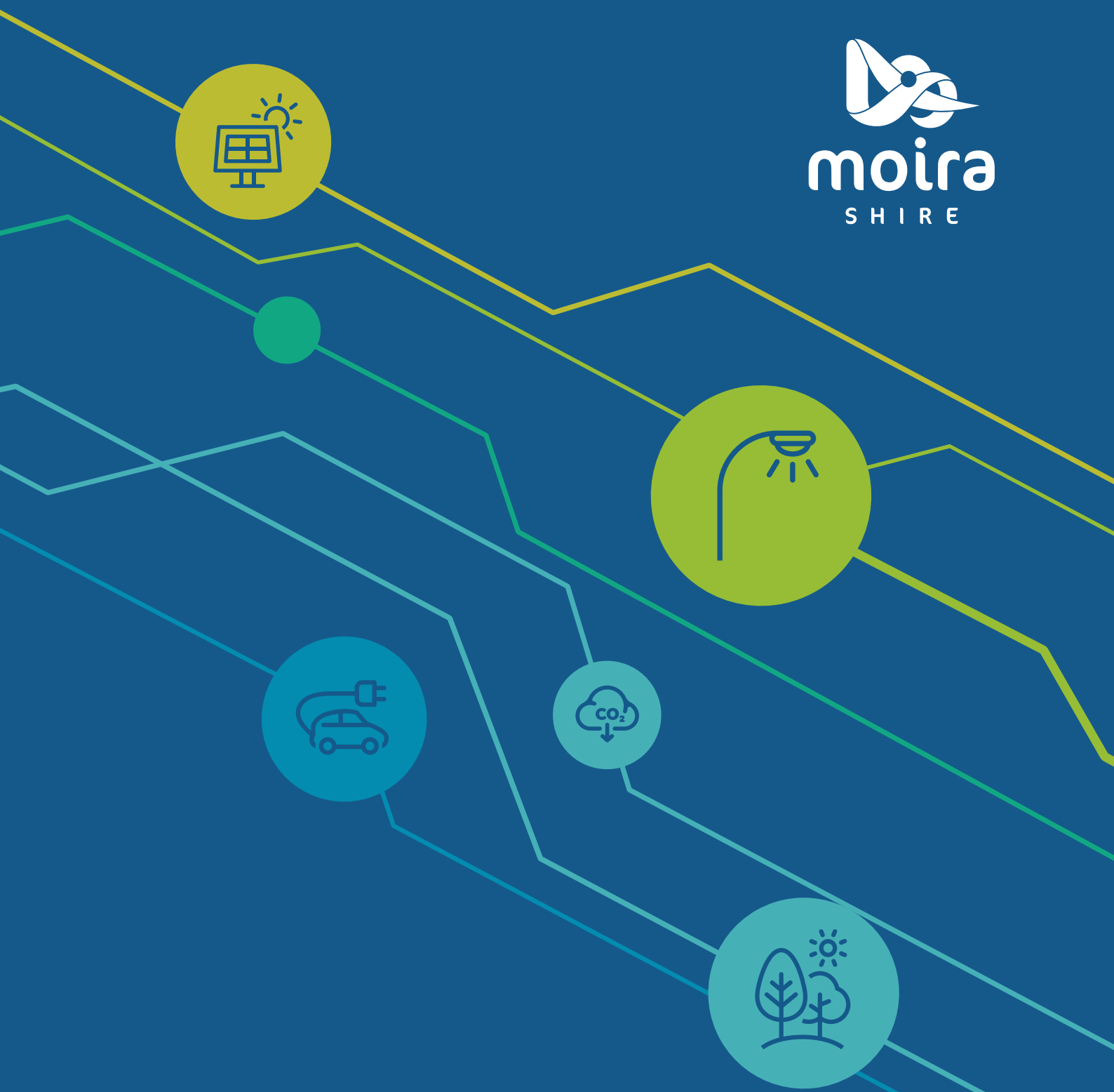


moira SHIRE

Corporate Emissions Reduction Plan

2018-2021

2021 target

Reduce emissions by 35 per cent below 2008-09 levels.

Priorities

1. Develop a low carbon workplace
2. Reduce emissions from waste
3. Reduce emissions from fleet
4. Reduce emissions from buildings
5. Reduce emissions from parks and reserves
6. Reduce emissions from street lighting
7. Monitor and evaluate

Our commitment to emissions reduction

Moira Shire Council began reducing greenhouse gas emissions through the Local Greenhouse Action Plan 2006. This action plan was developed in response to the Cities for Climate Protection campaign by ICLEI – Local Governments for Sustainability.

Council has undertaken a number of projects in recent years to reduce emissions (described on the following page) and is now well placed to take further significant steps in reducing emissions from operations, while securing financial benefits.

The Moira Shire Council Plan 2017-2021 has grown to include an environmentally dedicated strategy, A Clean Green Environment, which has 'efficient water and energy use by Council' as a performance indicator.

Additionally, the Moira Shire Council Environmental Sustainability Strategy 2017-2021 includes commitments to:

- Develop a corporate emissions reduction plan;
- Source 25 per cent of Council's electricity from renewables; and
- Reduce Council's emissions.

The Moira Shire Council Emissions Reduction Plan 2018-2021 compiles actions stemming from both strategies mentioned above.

This Plan is focused on corporate emissions as this is Council's primary responsibility. Council's role in assisting the community to reduce emissions is acknowledged in the Environmental Sustainability Strategy 2017-2021, however this is outside the scope of this plan.

Recent Council emission reduction projects

Energy efficient street lighting

In 2014-15, 1700 old street lights were replaced with highly efficient LEDs, abating more than 620 tonnes of CO_2-e per annum and reducing corporate emissions by 15 per cent. Prospective developers are now required to install highly efficient 'category P' lighting.

Funding: Community Energy Efficiency Program (Australian Government)

Cobram service centre solar project

The 76.56 kilowatt solar system installed at the Cobram Service Centre in 2017 is expected to abate 100 tonnes of CO_2-e per annum, reducing Council's emissions by more than 3 per cent. This building was identified as the Council building with the highest energy consumption.

Energy and water management software

For the past 10 years, Planet Footprint has enabled Council to accurately analyse and report on electricity, gas, and water consumption, identify high consumption assets, and develop projects that reduce consumption.

Kerbside organic service

The kerbside organics service introduced in 2014 in Cobram, Yarrawonga, Nathalia and Numurkah has resulted in 2700 tonnes of organic waste being processed into compost annually, reducing Council's CO_2-e by an estimated 800 tonnes per year.

Funding: The Back to Earth Initiative (Victorian Government)

Environmental sustainability reporting project

The collaborative climate change reporting project identified environmental sustainability indicators for six partner councils to create the corporate emissions profile, report annually, measure progress and plan for the future.

Funding: Victorian Climate Change Grants

Electric vehicle feasibility

Involving 11 Hume Region councils, the electric vehicle feasibility project is reviewing councils' fleet data (distances travelled, usage patterns, and financials) to determine if some vehicles are suitable for replacement with electric vehicles.

Funding: Collaborative Council Grants (Victorian Government)

Researching alternative options for renewable energy

The virtual renewable power stations project resulted in better understanding the potential to off-set local electricity consumption with large-scale, off-site renewable energy projects, and helped popularise this model of electricity and emissions off-sets in Victoria. Council's partner's in this project involved Swan Hill Rural City Council, Australian Renewable Energy Agency, and the Institute of Sustainable Futures.

Funding: Victorian Adaptation and Sustainability Partnership Grant

Staff Green Team

The Green Team, which is made up of Council staff, aims to change staff behaviours so that consumption of resources and energy is minimised in the workplace.

CO_2-e is carbon dioxide equivalent

Our Emissions Reduction Plan

AT A GLANCE

Our emission reduction targets

4657t CO_2-e

Where we were
2008-09

⬇26%

3452t CO_2-e

Street lighting energy savings

Fuel efficient fleet

Renewable Energy increase in Victorian electricity grid

Where we're at
2016-17

⬇35%

3027t CO_2-e

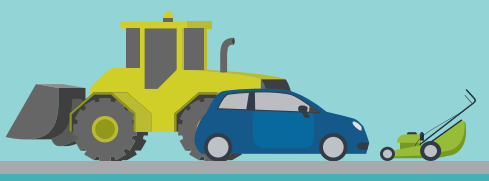
Building energy savings

Street lighting energy savings

Fuel efficient fleet

Investing in green power

Where we want to be
2020-21



Fleet

Includes emissions from passenger vehicles and plant equipment, such as road graders, mowers, and landfill compactors.

36%

1243t CO_2-e

Our journey so far:

10%

2006

Local Greenhouse Action Plan created. Target of 10% reduction in corporate emissions by 2010.

2008

Council started to record corporate emissions using the National Greenhouse Energy Reporting methodology.

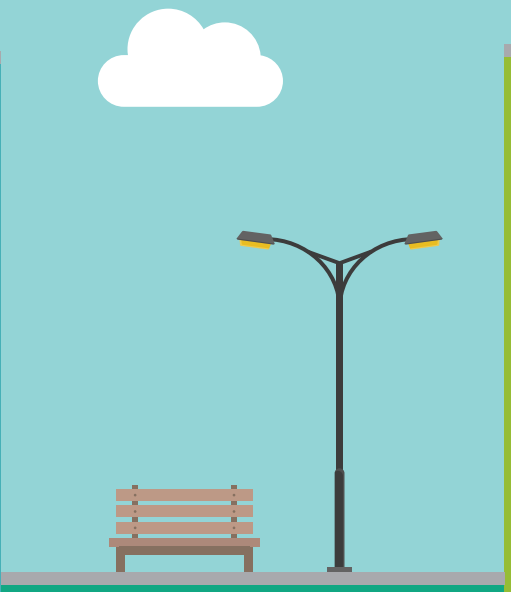
2012

Adoption of Council's first Environment Sustainability Strategy.

Major sources of greenhouse gas emissions from our organisation for 2016-17

3452t CO_2-e

moira SHIRE



Street Lighting

Includes electricity used by all street lights in the Moira Shire.

19%

656t CO_2-e

Buildings

Includes emissions from buildings where electricity and natural gas is paid by Council.

36%

1 242t CO_2-e

Parks and Reserves

Includes electricity consumed in park and toilet lighting, barbecues, and stormwater pumps.

9%

311t CO_2-e

2015

Street Lighting Upgrade completed (Watts Working Better). Emissions Reductions of 620t $C0_2$-e per annum.

2017

Installation of Council's first solar system on the Cobram Service Centre. Emissions reductions of 100t $C0_2$-e per annum.

35%

2018

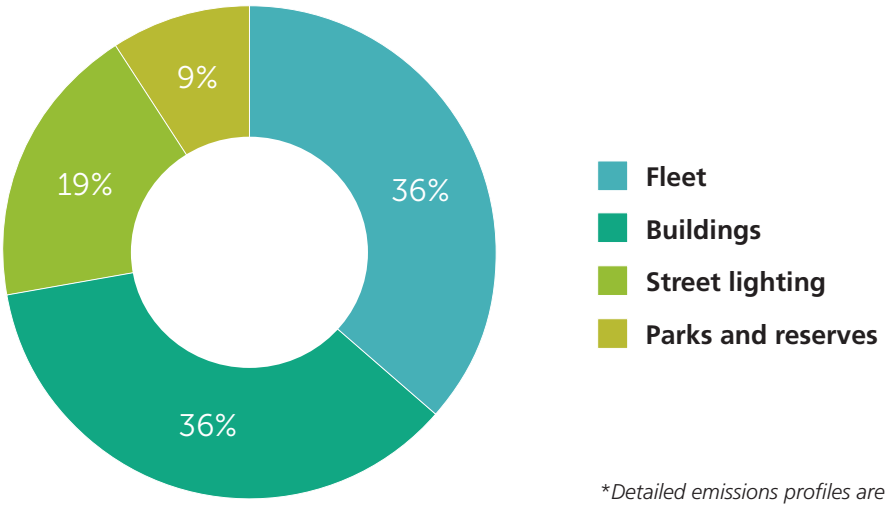
Development of Council's first Emissions Reduction Plan which includes a 35% reduction target below 2008-09 levels by 2021.

Emissions and targets

The National Greenhouse Energy Reporting (NGER) framework has been used to calculate Moira Shire Council's emissions and frame targets and reporting. Council's consumption of electricity, gas and water is measured with Planet Footprint software.

Although organic waste to landfill will be reduced and reported, emissions from waste are not included in the target because of calculation uncertainties. It is estimated that waste contributes to 40 to 50 per cent of Council's overall emissions.

Corporate emissions for 2016-17 (excluding waste)*: 3452 tonnes CO_2-e



**Detailed emissions profiles are in included on pages 12 and 13.*

Building and fleet are made up of a few large contributors, such as the Cobram and Numurkah service centres and diesel-fuelled plant equipment. Street lighting emissions for 2016-17 was low (19 per cent) compared with the 2013-14 (28 per cent; pre 'Watts Working Better' project). Parks and reserves emission contributions are evenly spread between several stormwater pumps, which make it difficult to target emission reduction efforts.

This emissions profile does not include Council owned buildings managed by a third party (e.g. kindergartens, stadiums and sporting facilities).

Emissions reduction targets across all government levels

Level	Short term	Long term
Australian Government	– 5% below 2000 levels by 2020[1] – 26-28% below 2005 levels by 2030[1]	– Limit an increase in global temperatures to 'well below' 2°C (aspirational goal of 1.5°C)[1]
Victorian Government	– 30% below 2015 levels by 2020[2] – 25% of electricity from renewables by 2020, and 40% by 2025[2]	– Net zero greenhouse gas emissions by 2050[2]
Moira Shire Council	– Greenhouse gas emissions are reduced by 35% (1600t CO_2-e per annum) below 2008-09 levels by 2021 – 25% of Council's electricity is from renewable sources[3]	– Net zero greenhouse gas emissions by 2050[3]

1 Reference: Australian obligation under the 2015 Paris Climate Change Agreement, Department of Environment: Australia's 2030 climate change target
2 Reference: Victorian Climate Change Act 2017
3 Reference: Moira Shire Council Environmental Sustainability Strategy 2017-2021

Emissions reduction pathway: priorities and actions

Priority 1
Develop a low carbon workplace

Encouraging Moira Shire Council's 250 staff to achieve a low carbon workplace will help reduce emissions. Our internal Green Team aims to increase environmental sustainability understanding, awareness and action in the workplace and at home.

Environmental sustainability achievements are often shared with staff members via the intranet and the staff newsletter.

Actions	
1.1	Continue to use the internal Green Team to raise awareness and encourage change
1.2	Facilitate staff education sessions to encourage low carbon behaviours
1.3	Report on the status of emissions reduction projects being implemented
1.4	Promote Council's commitment to reducing greenhouse gas emissions at our facilities to encourage users to make sustainable choices for transport, purchases, and avoiding waste
1.5	Consider signing a pledge that demonstrates Councils commitment to reducing greenhouse gas emissions (e.g. Take 2 - Victoria Government's collective climate change initiative)

Priority 2
Reduce emissions from waste

A practical method for calculating these emissions is not yet available to Council's and so emissions from waste has not been included in profiles and targets. Council always strives to reduce emissions from waste by reducing the amount of organic material sent to landfill. The kerbside organics service introduced in 2014 diverts 2700 tonnes of organic material from landfill each year.

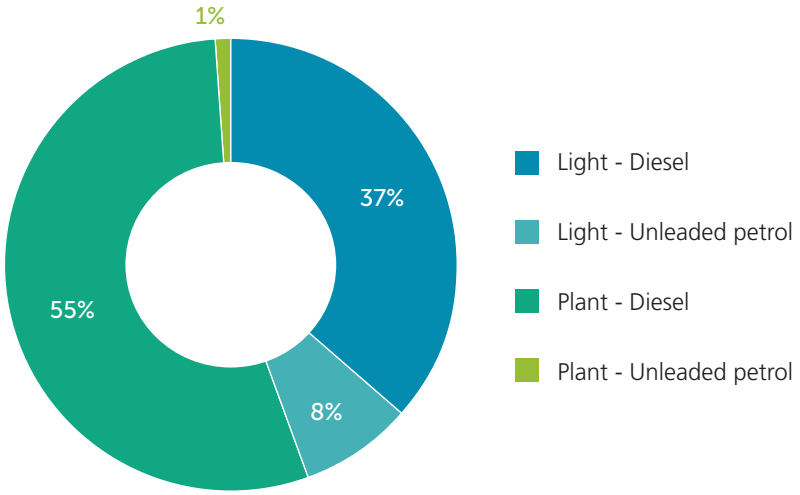
Actions	
2.1	Understand and apply a practical method for calculating emissions from waste
2.2	Further reduce amount of organics going to landfill (e.g. extend the kerbside organics program)
2.3	Continue to educate the community on the most appropriate waste disposal methods available, whether that is their kerbside bin, closest transfer station or drop-off point.
2.4	Work with event coordinators to reduce emissions and increase the use of carbon neutral products and services (e.g. organics bins, recycled paper bowls and plates)

Priority 3
Reduce emissions from fleet

Over 90 per cent of Council's fleet emissions are from diesel-fuelled vehicles. Most consumption is from large plant equipment (used to maintain roads and service the landfill), and utility vehicles used by outdoor staff.

When undertaking new fleet purchases, whole of life financial and environmental costs are important to consider; ensuring new fleet assets are the most cost-effective and emissions friendly option on the market.

Fleet emissions profile (tCO_2-e) 2016-17



Actions	
3.1	Investigate the use of alternative-fuelled vehicles and implement the findings from the electric vehicle feasibility project
3.2	Where viable, procure energy efficient fleet
3.3	Promote walking, cycling and carpooling options to staff
3.4	Provide incentives for staff to use more sustainable transport options (e.g. electric vehicle parking bays)

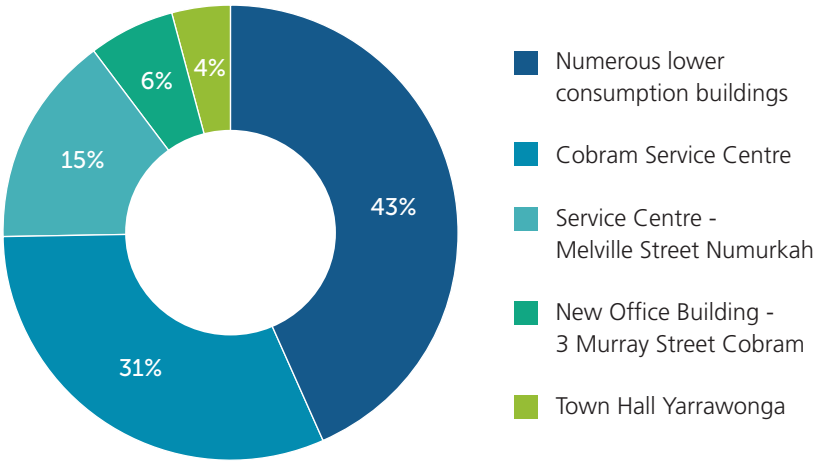
Priority 4
Reduce emissions from buildings

Four high-use buildings generate 57 per cent of Council's building emissions. Emissions from the Cobram Service Centre are expected to reduce by more than 100 tonnes of CO_2-e per annum (11 per cent of total building emissions) due to the solar system installed in 2017.

Rooftop solar presents the most compelling business case when looking to reduce emissions and operational costs (Discussion paper into electricity procurement in the Victorian local government sector, Victorian Greenhouse Alliances 2017). Unlike normal grid-delivered electricity, rooftop solar does not incur network, environmental, and retail fees.

Our priority is to exhaust this option along with complimentary energy-efficiency initiatives, such as lighting, heating, and cooling upgrades, before looking to source the remainder of electricity from other renewable sources. These options currently include entering into a power purchase agreement with a retailer, investing in a solar farm, or owning and operating Council's own solar farm.

Building emissions profile (tCO_2-e) 2016-17



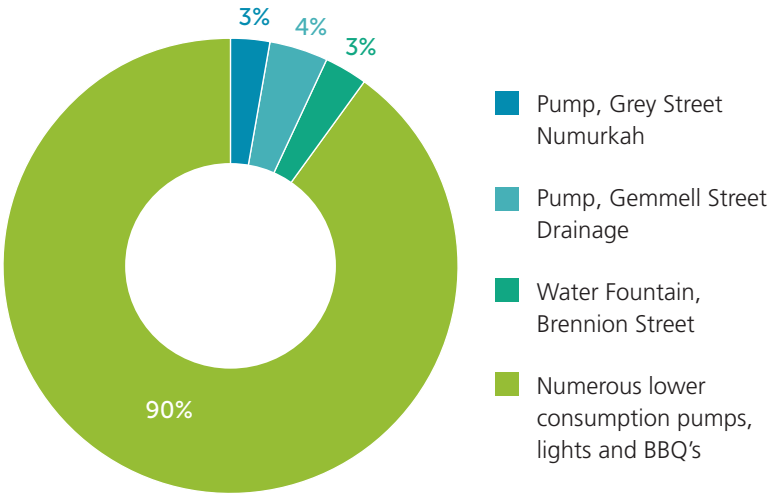
Actions	
4.1	Install rooftop solar and undertake energy efficiency measures on high priority buildings owned and managed by Council
4.2	Assist committees of management to improve energy efficiency and reduce emissions (e.g. solar, lighting upgrade)
4.3	Ensure all new buildings and building upgrades are designed to minimise energy use and incorporate renewable energy where possible
4.4	Improve the energy intelligence of buildings so that we know when the equipment inside our buildings is not operating efficiently, and which buildings need to reduce emissions further
4.5	Investigate alternative renewable energy options for buildings where rooftop solar is not viable

Priority 5

Reduce emissions from parks and reserves

Emissions from parks and reserves come from small assets that make up only 9 per cent of Council's total emissions profile. Consequently, emission reduction efforts targeted toward assets within this category will not have the same effect as efforts toward building, fleet, and street lighting.

Emissions from Parks & Reserves (tCO_2-e) 2016-17



Actions	
5.1	Reduce reliance on fossil fuel based electricity throughout Council's parks and reserves (e.g. energy efficient lights, pumps)
5.2	Investigate alternative energy procurement options (e.g. retailer aligned power purchase agreement, solar farm)

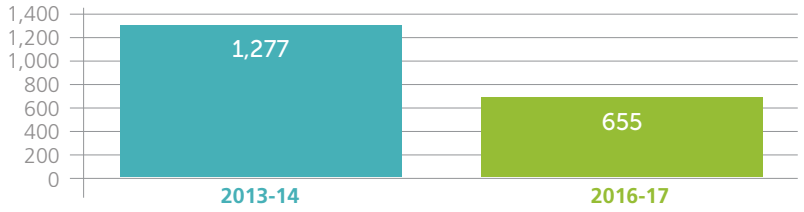
Priority 6
Reduce emissions from street lighting

Emissions from street lighting has reduced by over 620 tonnes per annum since the 2013-14 financial year due to the Watts Working better project, which involved replacing more than 1700 old street lights with highly efficient LEDs.

Although Council has already made significant progress within this area, there is still opportunity to reduce emissions from main road and decorative street lighting across the shire.

When considering efficient decorative options the aesthetic, social and historical vales of these lights will be taken into consideration.

Street lighting emissions reduction (tCO_2-e), pre and post Watts Working Better project



Actions	
6.1	Investigate the potential to reduce emissions from lighting that is shared with Vic Roads (e.g. energy efficient lighting)
6.2	As opportunities arise, work with Powercor to change inefficient street lights to more efficient, look for look alternatives

Priority 7
Monitor and evaluate

Council recognises the importance of monitoring, evaluating, and reporting for accountability and also for continuous improvement. The environmental services department will continue to collate, evaluate, and communicate Council's annual emissions profile including progress against targets.

The Environment Working Group will be used for internal consultation and reporting (across all departments) on implementation of this Emissions Reduction Plan 2018-2021.

The Collaborative Climate Change Reporting project has developed a set of environmental sustainability reporting indicators to help develop consistent reporting across the six councils involved. The Goulburn Broken Greenhouse Alliance will facilitate reporting at a regional scale.

Actions	
7.1	Continually review progress (as a snapshot annually and in detail every four years), including achievements against actions and a reassessment of priorities and actions (considering new information, drivers and trends).

Implementation of Emissions Reduction Plan 2018-2021

Priority 1: Develop a low carbon workplace						
Action		**Work Area**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
1.1	Continue to use the internal Green Team to raise awareness and encourage change	Environmental Services	✓	✓	✓	✓
1.2	Facilitate staff education sessions to encourage low carbon behaviours	Environmental Services	✓	✓	✓	✓
1.3	Report on the status of emissions reduction projects being implemented	Environmental Services	✓	✓	✓	✓
1.4	Promote Council's commitment to reducing greenhouse gas emissions at our facilities to encourage users to make sustainable choices for transport, purchases, and avoiding waste	Environmental Services	✓	✓	✓	✓
1.5	Consider signing a pledge that demonstrates Councils commitment to reducing greenhouse gas emissions (e.g. Take 2)	Environmental Services		✓		

Priority 2: Reduce emissions from waste						
Action		**Work Area**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
2.1	Understand and apply a practical method for calculating emissions from waste	Environmental Services	✓	✓		
2.2	Further reduce amount of organics going to landfill (e.g. extend the kerbside organics program)	Waste			✓	✓
2.3	Continue to educate the community on the most appropriate waste disposal methods available, whether that is their kerbside bin, closest transfer station or drop-off point	Community Development	✓	✓	✓	✓
2.4	Work with event coordinators to reduce emissions and increase the use of carbon neutral products and services (e.g. organics bins, recycled paper bowls and plates)	Economic Development	✓	✓	✓	✓

Priority 3: Reduce emissions from fleet						
Action		**Work Area**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
3.1	Investigate the use of alternative-fuelled vehicles and implement the findings from the electric vehicle feasibility project	Environmental Services	✓	✓		
3.2	Where viable, procure energy efficient fleet	Fleet	✓	✓	✓	✓
3.3	Promote walking, cycling and carpooling options to staff	Community Development	✓	✓	✓	✓
3.4	Provide incentives for staff to use more sustainable transport options (e.g. electric vehicle parking bays)	Economic Development		✓	✓	✓

Priority 4: Reduce emissions from buildings						
Action		**Work Area**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
4.1	Install rooftop solar and undertake energy efficiency measures on high priority buildings owned and managed by Council	Construction and Assets	✓	✓	✓	✓
4.2	Assist committees of management to improve energy efficiency and reduce emissions (e.g. solar, lighting upgrade)	Construction and Assets, Community Development		✓	✓	✓
4.3	Ensure all new buildings and building upgrades are designed to minimise energy use and incorporate renewable power where possible	Construction and Assets	✓	✓	✓	✓
4.4	Improve the energy intelligence of buildings so that we know when the equipment inside our buildings is not operating efficiently, and which buildings need to reduce emissions further	Operations		✓	✓	
4.5	Investigate alternative renewable energy options for buildings where rooftop solar is not viable	Environmental Services		✓	✓	

Priority 5: Reduce emissions from parks and reserves						
Action		**Work Area**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
5.1	Reduce reliance on fossil fuel based electricity throughout Council's parks and reserves (e.g. energy efficient lights, pumps)	Operations		✓	✓	✓
5.2	Investigate alternative renewable energy procurement options (e.g. retailer aligned power purchase agreement, solar farm)	Environmental Services		✓	✓	

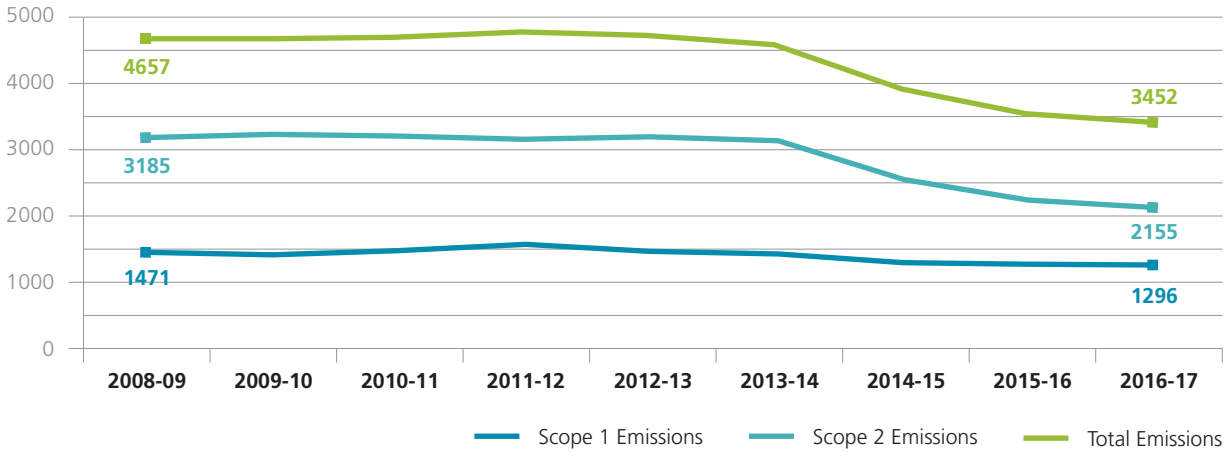
Priority 6: Reduce emissions from street lighting						
Action		**Work Area**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
6.1	Investigate the potential to reduce emissions from decorative lighting and lighting that is shared with Vic Roads (e.g. energy efficient lighting)	Environmental Services	✓	✓		
6.2	As opportunities arise, work with Powercor to change inefficient decorative street lights to more efficient, standard alternatives	Environmental Services	✓	✓	✓	✓

Priority 7: Monitor and Evaluate						
Action		**Work Area**	**2017-18**	**2018-19**	**2019-20**	**2020-21**
7.1	Continually review progress (as a snapshot annually and in detail every four years), including achievements against actions and a reassessment of priorities and actions (considering new information, drivers and trends)	Environmental Services	✓	✓	✓	✓

Detailed emissions profiles

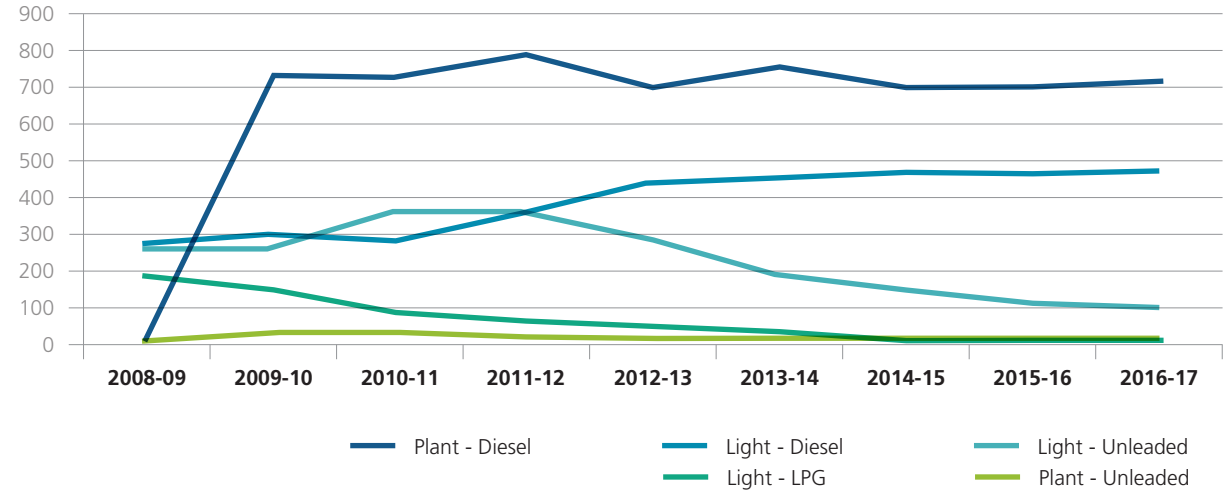
Measured according to the National Greenhouse and Energy Reporting (NGER) methodology.
CO_2-e is carbon dioxide equivalent.

Overall (scopes 1 & 2) emissions profile (tCO_2-e), Moira Shire Council (NGER)



Council has a typical local government profile. Most emissions (excluding waste) are generated by a small number of key buildings, street lighting and fleet.

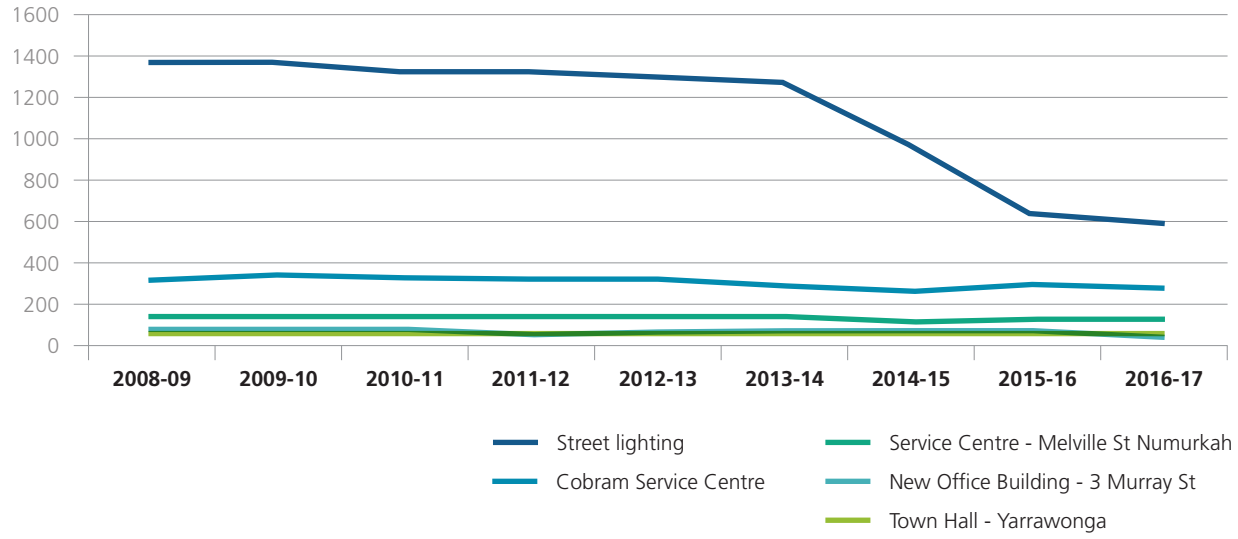
Scope 1 breakdown of emissions (tCO_2-e), Moira Shire Council (NGER)



Scope 1 (or direct) emissions are released into the atmosphere as a direct result of an activity, or series of activities, at a facility. Moira Shire Council's scope 1 emissions include those associated with fuel and gas consumption. Although waste emissions, such as those from landfill, are also considered scope 1 emissions (as per the NGER methodology), they will not be included in the Council emissions profile until a practical method is available.

Scope 1 emissions are largely made up of Council's light fleet and plant equipment. Over the past 10 years, Council has stopped using cars that use LPG and significantly reduced cars that use petrol: there has been a clear shift towards light fleet vehicles that use diesel.

Scope 2 breakdown of emissions (tCO_2-e), Moira Shire Council (NGER)



Scope 2 emissions are released to the atmosphere from the indirect consumption of an energy commodity (as per NGER methodology via the Clean Energy Regulator). Moira Shire Council's scope 2 emissions are from electricity consumption only, including street lighting.

Council's scope 2 emissions reduced by nearly 1000t CO_2-e between 2013-14 and 2015-16. This is largely attributed to the energy efficient street lighting (Watts Working Better) project, with over 1700 MV80 watt street lights replaced with highly efficient LEDs.

Note: *We would like to thank City of Melbourne for inspiration provided in the development of this plan.*

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