

# LOW CARBON WEST

**Business and Industry**  
Sector Report







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# 1. INTRODUCTION

Low Carbon West is a transitional strategy for the region encompassed by the municipalities in the Western Alliance for Greenhouse Action (WAGA).

The strategy will support the growth of this vibrant and diverse region while limiting the increase in greenhouse gas (GHG) emissions associated with that growth. Action to reduce emissions is necessary everywhere, but the opportunity and need for action are particularly clear in the WAGA region.

This is the fastest growing region in Australia, and its councils and stakeholders are well placed to demonstrate national leadership in responding to the threat of climate change. There is an opportunity to combine continued economic growth with improved carbon productivity; that is, reducing the level of carbon emitted for each unit of output across the region. Transitioning to a low carbon economy will provide a new engine for growth, creating jobs and investment opportunities.

Low Carbon West has been developed by the WAGA with project partners LeadWest and Regional Development Australia (RDA) Western Melbourne. AECOM and Arup were jointly commissioned as the project consultants and have led the consultation, analysis and strategy development. Over one hundred people provided feedback and input to inform the Low Carbon West plan.

The overarching strategy establishes a vision for a Low Carbon West. It presents a current and future business as usual (BAU) emissions baseline and establishes priority actions to reduce the region's emissions against this baseline.

It also sets out a clear implementation plan for identified sectors, including an approach for monitoring the success of the plan over time. It is hoped that the regional focus for Low Carbon West will facilitate collaboration and knowledge sharing between businesses, governments, and other stakeholders and act as a catalyst for direct regional and local action to reduce GHG emissions.

The strategy encompasses four sub-strategies for **business and industry, urban growth and development, transporting people and freight** and **communities**.

This report covers the business and industry sector.

**Section 2.0** describes the current community trends in the WAGA region, as well as the baseline and projected emissions.

**Section 3.0** outlines the initiatives already underway to reduce emissions.

**Section 4.0** provides an overview of the impact of proposed new actions on emissions in 2020.

**Section 5.0** describes actions in detail.

**Section 6.0** outlines how the sector actions can be implemented.

**Section 7.0** summarises the requirements for monitoring progress towards achieving Low Carbon West.



“The West delivers 14% of Victoria’s gross manufacturing output and 12% of the State’s manufacturing jobs.”  
(The Western Agenda)

## 2. BUSINESS AND INDUSTRIAL SECTOR CONTEXT

### 2.1. Business and industrial sector in the WAGA region

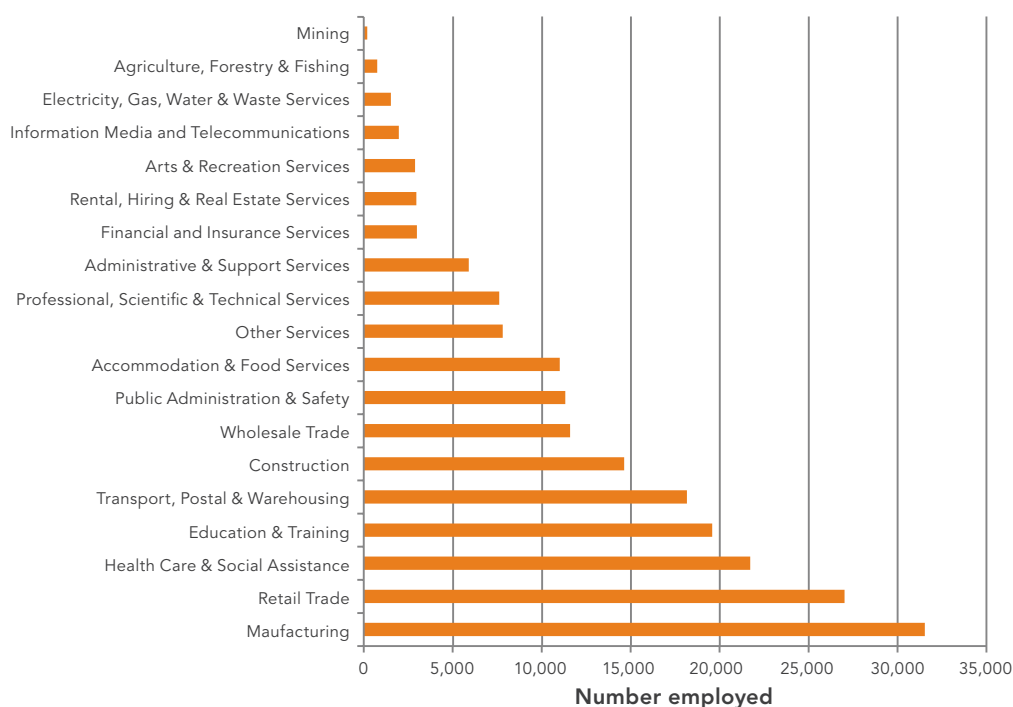
The WAGA region has a strong manufacturing, logistics and supply chain, freight and distribution base, and will continue to play a vital role in meeting Victoria’s industrial and logistics needs. The region is also home to a diverse, knowledge-driven economy, based on the production, distribution and use of knowledge and information.

Food-based manufacturing activities earn the region more than \$1 billion in inter-regional exports every year. There are emerging strengths in service exports as well as rapid growth in education and health. Professional services and construction both offer considerable scope for import replacement as the WAGA region grows. Retail is also expected to grow to support the wider economic growth expected in the region.<sup>1</sup>

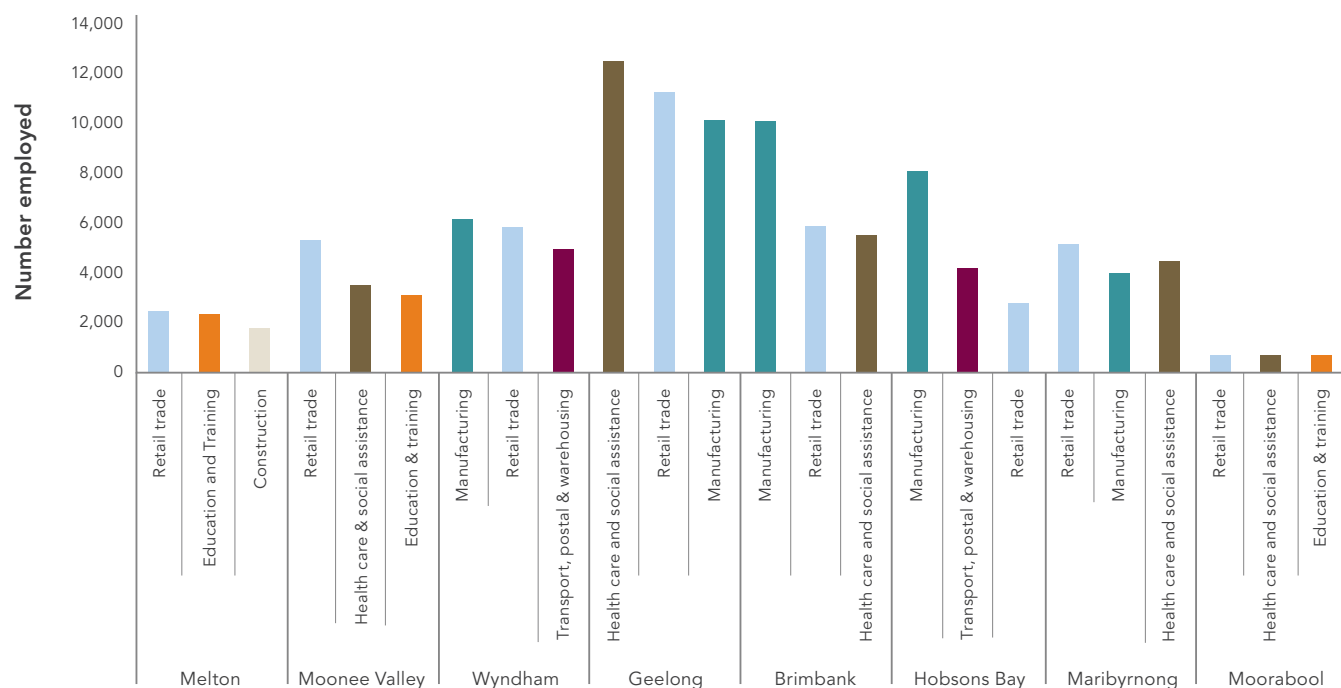
<sup>1</sup> A jobs and industry strategy for Melbourne’s West, Western Melbourne RDA, LeadWest, May 2013

The following figures provide a picture of the mix of business, commercial and industrial activities in the WAGA region. They show the breakdown of job types in the region as a whole and also the top three employers by business sector within each local government area to give a sense of the geographic spread of business activity. The figures illustrate the scale of the various business and industrial activities, although there is not necessarily a direct link between jobs and GHG emissions.

**Figure 1** Employment numbers by business sector in the West of Melbourne (REMPLAN, [www.remplan.com.au](http://www.remplan.com.au))

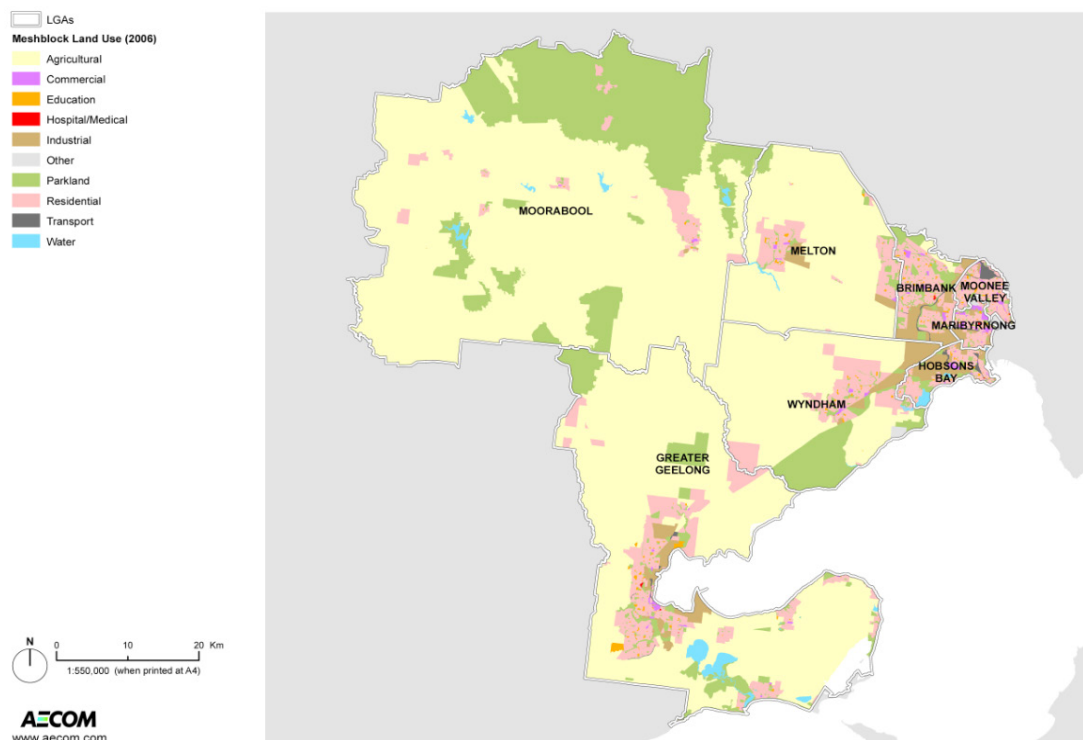


**Figure 2** Top three employment sectors by local government area – West Melbourne region (REMPLAN, [www.remplan.com.au](http://www.remplan.com.au))



To guide actions in Low Carbon West, it is important to understand not only the types and mix of business and industrial activities in the WAGA region, but also the locations of these activities. Different programs or actions are likely to be appropriate in different parts of the region. Figure 3 and Figure 4 provide an overview of the spatial distribution of business and industrial activities.

**Figure 3** Land Use for the WAGA region (2006)







CS

## Case Study: An Employment Precinct: East Werribee

The Werribee Employment Precinct is currently home to a number of research and development organisations including CSIRO Food and Nutritional Sciences, the Dairy Innovation Centre and Agrifood Technology. It is also home to educational facilities such as Victoria University, Melbourne University Veterinary Clinic, the new selective entry Suzanne Cory High School, and Mercy Health's Werribee Mercy Hospital.

In 2013 the Growth Areas Authority (GAA) developed a precinct structure plan (PSP), which sets a vision for the area to transition into a place in which people live, learn, work and play. It will be a vibrant, mixed use community precinct that is a focal point of economic, social, cultural and environmental excellence. Importantly, the site will continue to have a business focus, with areas set aside in the masterplan for 'commercial hubs' and 'industrial and business hubs'.

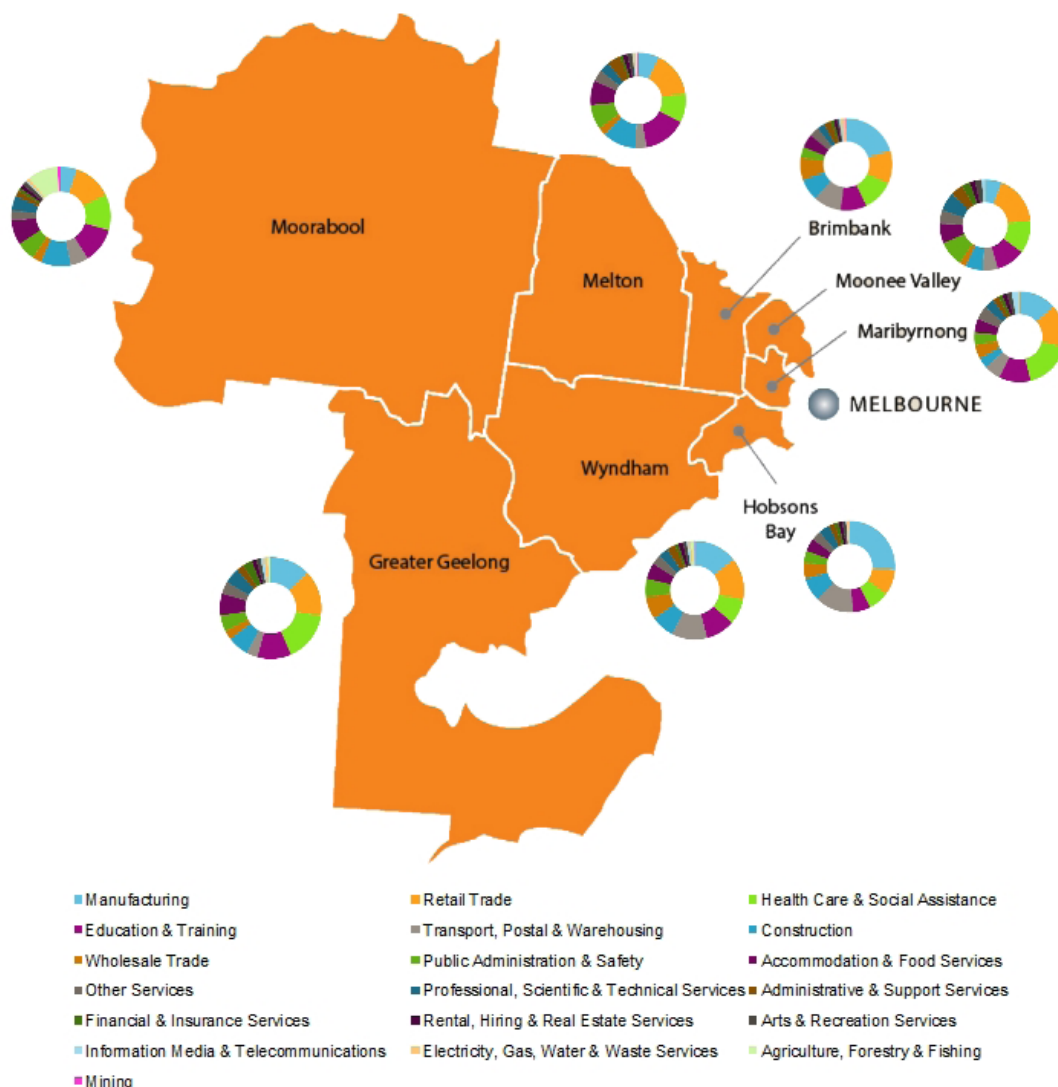
The area is one of Melbourne's six employment clusters and the vision is to create 58,000 jobs. Clusters such as East Werribee will be important vehicles for delivering some of the Low Carbon West actions.

**Sources:**

East Werribee Employment Precinct – Precinct Structure Plan, October 2013.

MPA website [http://www.mpa.vic.gov.au/east\\_werribee](http://www.mpa.vic.gov.au/east_werribee)

**Figure 4** Distribution of business and industrial activities by local government area (REMPLAN Economy Profile, Employment by Industry).



The breakdown of business and industry types as shown in Figure 1 and Figure 4 are based on the top 19 classifications within the Australian and New Zealand Standard Industrial Classification (ANZSIC, 1993). This classification system breaks down business types at three levels of classification (19 classifications, 45 classifications and 111 classifications). Each level provides greater detail relating to the specific activities of the classified businesses.

The ANZSIC classifications could be useful in considering the relevance of GHG reduction actions for specific business types. However, as emissions data is not collected based on

ANZSIC codes, there is no robust approach to apportion the regional baseline emissions to each of the various business classifications. Many of the business classifications have similar emissions profiles and similar opportunities for action, while some of the classifications are so specific that they are insignificant in the context of the regional emissions profile.

Because the manufacturing sector is regionally significant, this sector report places particular focus on emissions reduction actions in manufacturing.

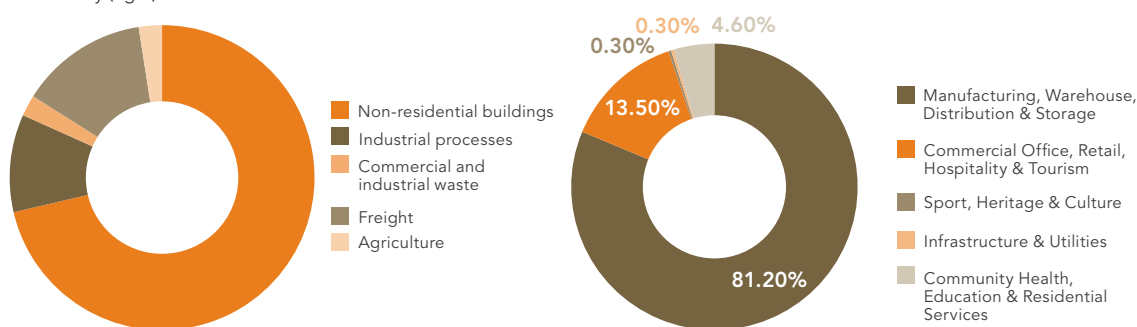
## 2.2. Understanding of sector emissions

The **Low Carbon West Regional Emissions Baseline Report** provides an overview of the baseline (2012) and projected (2020) emissions for the region and contains details on the source data and methodologies used.

The baseline report categorises the regional GHG emissions into eight categories. Five of these categories relate directly to business and industry: non-residential buildings, freight, industrial processes, commercial and industrial waste and agriculture. These categories are addressed by this sector strategy.

The total emissions attributed to business and industry in 2012 has been estimated at around **11,100 ktCO<sub>2</sub>-e**, or **64%** of the region's overall emissions. Figure 5 below shows how these emissions break down. As noted above, 81% of the emissions attributed to non-residential buildings actually relate to manufacturing, warehouse and distribution and storage businesses.

**Figure 5** Breakdown of business and industry emissions within the WAGA region (2012) (left) and further detail of emissions within the non-residential buildings sector only (right)



### 2.2.1 Non-residential buildings

Emissions in this sector are due to scope 1 emissions from the consumption of natural gas and scope 2 emissions from the purchase and use of grid electricity. Non-residential buildings in the region contribute **7,930 ktCO<sub>2</sub>-e** of greenhouse gas emissions in 2012. Of these emissions, 79% are attributable to electricity consumption, while only a small proportion relate to gas use.

Under 'business as usual', electricity and gas consumption in the business and industrial sector are assumed to grow according to local job projections. Assuming grid electricity emission factors do not change significantly over the next decade, non-residential building emissions are anticipated to increase by just less than 15% although this growth will not be evenly spread. Significant growth (31%) is anticipated in Wyndham. Hobsons Bay forecasts only a 3% job growth by 2020, but will continue to contribute 17% of WAGA's non-residential building emissions overall.

The total sectoral emissions were further segregated into different building types based on floor areas provided by the Victorian Valuer-General (2013). According to this data, the manufacturing, warehouse, distribution and storage industries account for 78% of the total non-residential floor space across the WAGA region. Applying an energy intensity factor to take account of the fact that different building types have different energy intensity, it has been estimated that manufacturing, warehouse, distribution and storage industries account for 81% of non-residential sector emissions.

Figure 6 2012 baseline emissions and 2020 projections for each LGA within non-residential buildings

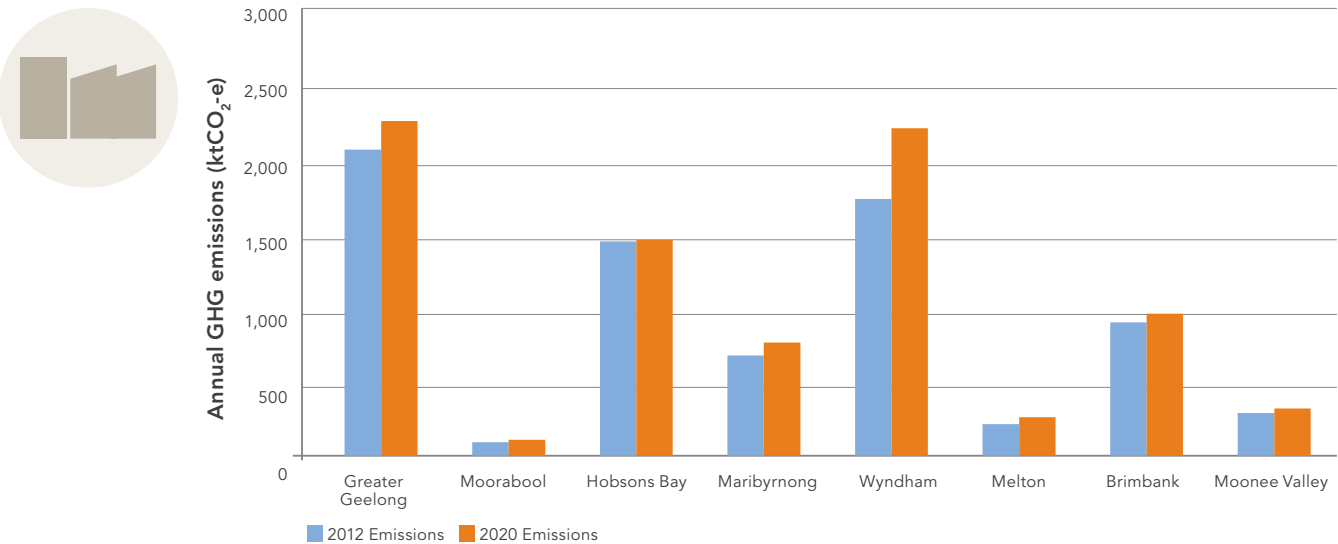
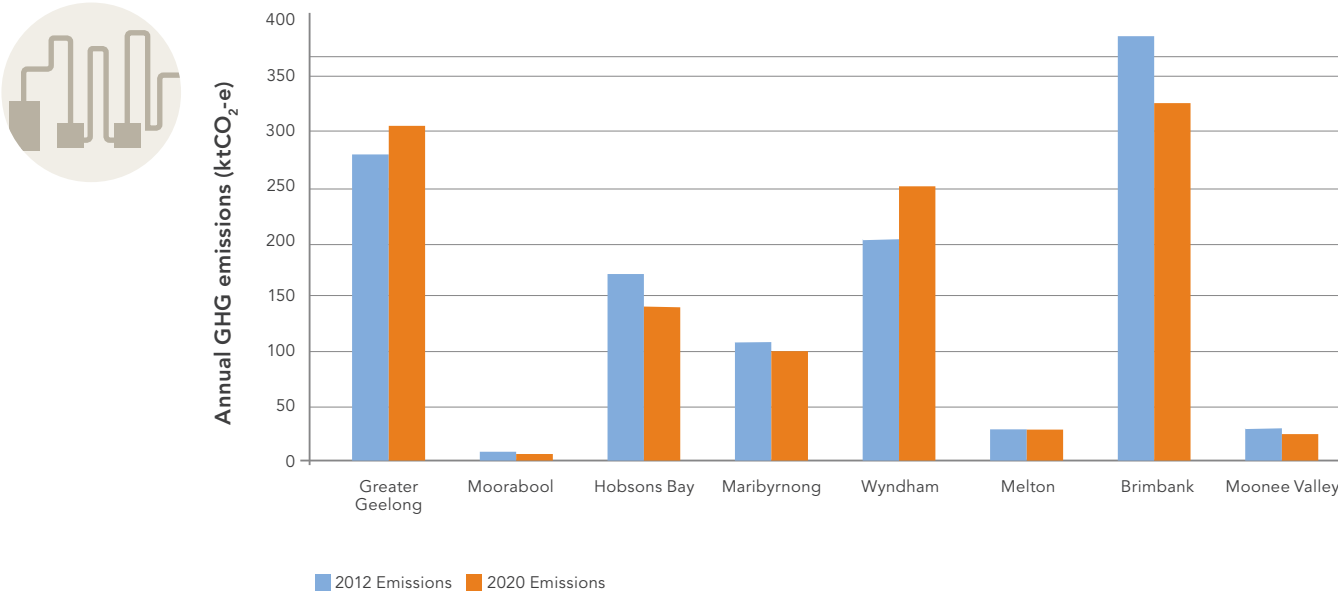


Figure 7 2012 baseline emissions and 2020 projections for each LGA from industrial processes



2.2.2 Industrial processes

Emissions in this sector are due to scope 1 emissions from the direct release of GHG into the atmosphere as a result of industrial processes. These are as defined and accounted for in the National Greenhouse and Energy Report Regulations 2008. Overall these emissions contribute around **1,150 ktCO<sub>2</sub>-e** of GHG emissions, or 10% of the total emissions for the business and industry sector.

Industrial processes emissions are anticipated to decrease by 4% in 2020. This decrease is attributed to a reduction in industrial activity in the WAGA region. This projection does reference specific cases of large business closures in the region. The three local government areas of Brimbank, Hobsons Bay and Greater Geelong are expected to contribute two-thirds of industrial process emissions for the region in 2020.

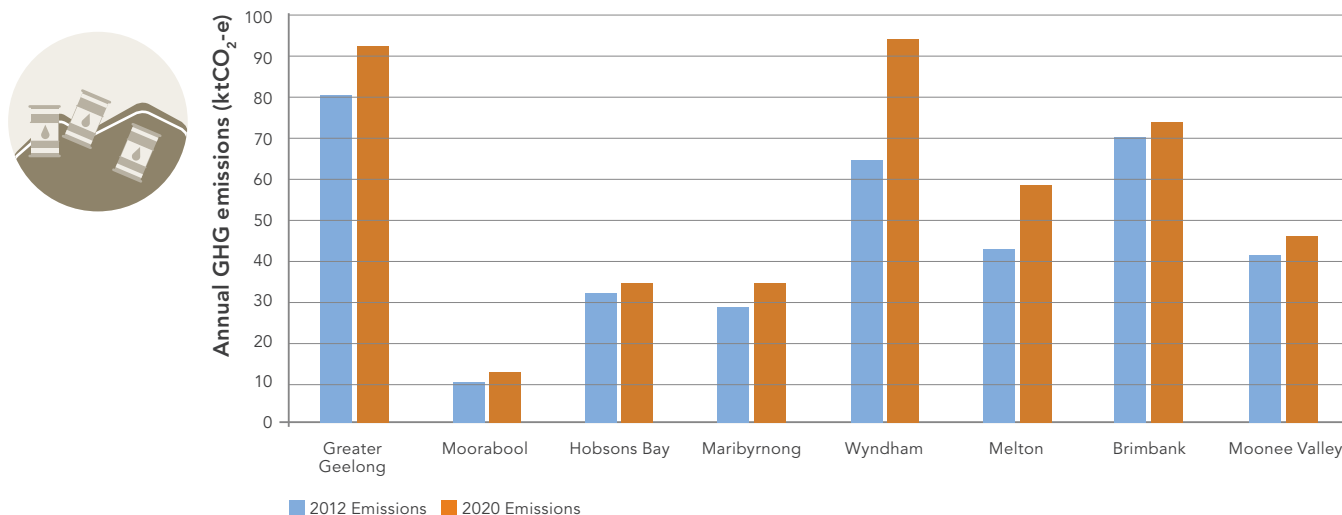
Whilst the data is derived from different sources, these scope 1 industrial emissions will link back to many of the same businesses that are contributing to the electricity demands highlighted under non-residential buildings (section 2.2.1). These two sets of emissions data together show how important the industrial and manufacturing sector is in the context of the WAGA region’s economic activity and overall GHG emissions.

### 2.2.3 Commercial and industrial waste

Commercial and industrial waste emissions (**249 ktCO<sub>2</sub>-e in 2012**) are scope 3 methane emissions from waste decomposing at landfills. Waste generation from the commercial and industrial sector is assumed to increase in line with growth in local jobs.

If current waste generation and recycling rates are maintained, the emissions from commercial and industrial waste sent to landfill are anticipated to increase by 17% by 2020. The most significant growth area is Wyndham, where emissions from commercial and industrial waste are projected to increase by 31%. Sectors with the highest rates of waste disposal to landfill are manufacturing, accommodation and food services, wholesale trade and arts and recreation.

**Figure 8** 2012 baseline emissions and 2020 projections for each LGA from commercial and industrial waste at landfill



### 2.2.4 Freight

Scope 1 emissions from the combustion of fuel by heavy vehicles account for around **1,500 ktCO<sub>2</sub>-e** of GHG emissions in the WAGA region annually in 2012. This accounts for road-based freight. Other forms of freight (e.g. rail) were excluded, as road freight accounts for 72% of all domestic freight movement in Victoria, according to 2007-08 data from the Bureau of Infrastructure, Transport and Regional Economics.

Road-based freight also has a higher carbon intensity compared to other transport modes, so should be the focus for action to reduce emissions.

Freight emissions are apportioned to each local government area in line with local jobs. Assuming the efficiency of heavy road vehicles does not change significantly over the next decade, freight emissions are projected to increase by 14% by 2020, based on expected growth in jobs.



## CS Case Study: Reducing emissions from freight – Linfox, Greenfox

Linfox is the largest privately owned supply chain solutions company in the Asia Pacific region. The company employs around 15,000 people, owns 1.8 million square metres of warehousing and operates nearly 5,000 vehicles across 11 countries. The business is headquartered in Moonee Valley.

Linfox has committed to improving carbon efficiency and reducing waste across its logistics operations. It has already reduced its rate of carbon emissions by 45% across all its operations since 2007 and is well positioned to achieve its 50% by 2015 reduction target. Linfox's emissions come mainly from diesel, with this constituting 80% of its emissions, followed by electricity at 13%.

#### Sources:

[http://pdf.aigroup.asn.au/environment/GreenFox\\_Sust\\_transport.pdf](http://pdf.aigroup.asn.au/environment/GreenFox_Sust_transport.pdf)  
<http://eex.gov.au/case-study/linfox-eco-driver-training/>

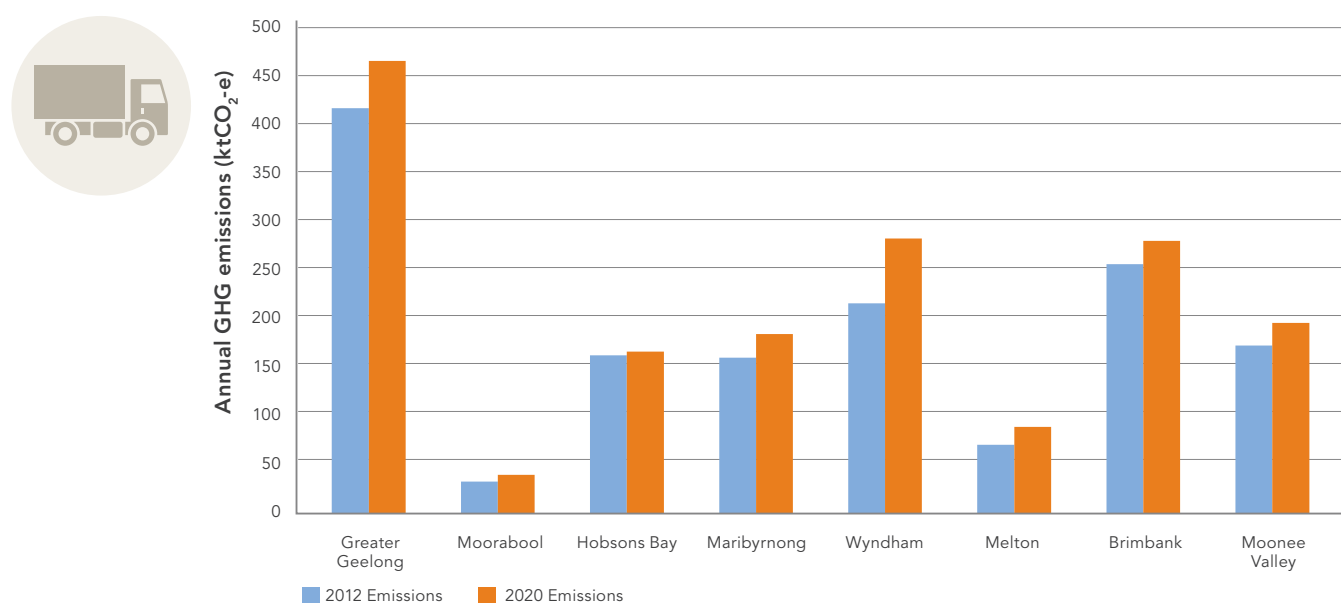
To reduce emissions, the company has a dedicated sustainability program called GreenFox, which includes the following initiatives:

- Eco-Driving training and practices
- Aerodynamic vehicle design
- Electricity savings
- Creating a green workplace culture through behaviour change

Under the Greenfox environmental program, the company is seeking to optimise the use of vehicles and encourage economical driving habits, which is expected to result in a cost savings of around 5%. The company is also considering innovative energy-saving measures such as the use of airbags between trailers. The aerodynamics of trucks is improved by closing the gap between the cabin and trailers, and between trailers. Continuous airflow improves the aerodynamics and reduces fuel use.



**Figure 9** 2012 baseline emissions and 2020 projections for each LGA from road-based freight



### 2.2.5 Agriculture

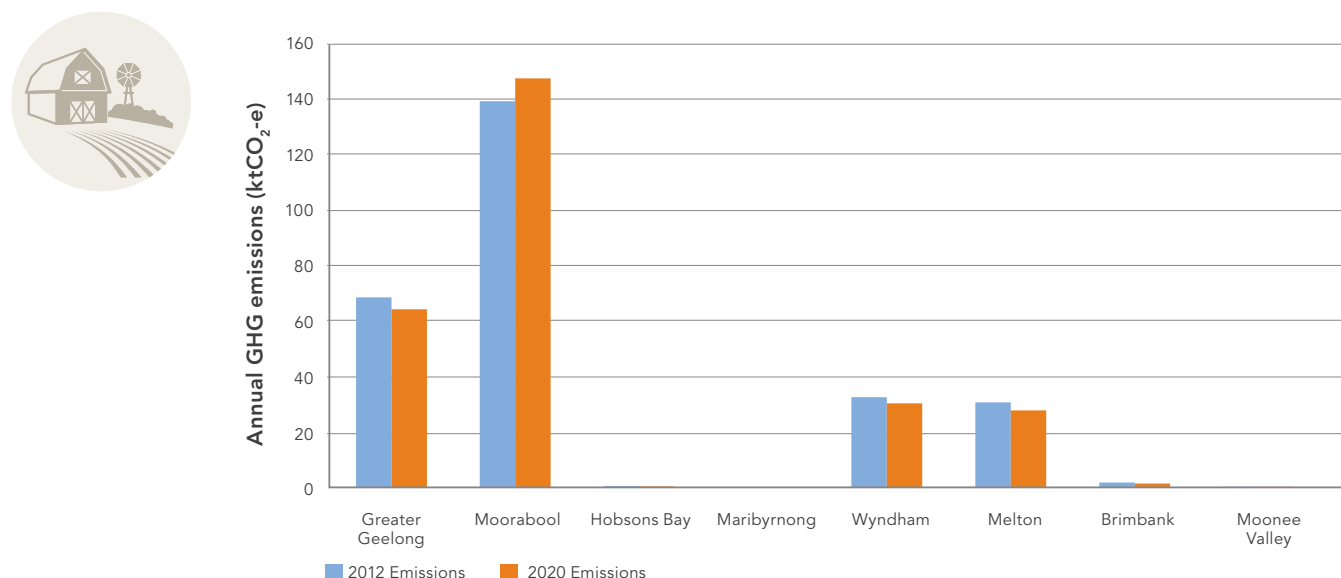
Scope 1 emissions from agricultural activities contributed around **273 ktCO<sub>2</sub>-e** in 2012. Agricultural emissions are defined as “emissions of methane and nitrous oxide only, from livestock, crops, agricultural and forest soils, and agricultural burning”

The growth in agricultural emissions is assumed to follow the change in jobs within the Agriculture, Forestry and Fishing sector. Therefore it is anticipated that there will be a

**1% decrease** in agricultural emissions by 2020 within the WAGA region.

The majority of agricultural emissions are from Moorabool and Greater Geelong, which together contribute 76% of the region’s 2012 agricultural emissions. Hobsons Bay, Maribyrnong, Brimbank and Moonee Valley contribute only 1% combined of the region’s emissions due to the limited agricultural activity in these municipalities. There are some agricultural emissions from both Wyndham and Melton.

**Figure 10** 2012 baseline emissions and 2020 projections for each LGA from agricultural activities



## 2.3. Key sub-sectors

Figure 5 shows that the vast majority of GHG emissions in the WAGA region come from non-residential buildings and more specifically the manufacturing, warehouse, distribution and storage sectors. Given the diversity of manufacturing businesses in the WAGA region, there is a need for different energy efficiency actions to address the different business

types. External resources such as the government Energy Efficiency Exchange website ([eex.gov.au](http://eex.gov.au)) can be referenced for sector-specific energy efficiency opportunities.

# 3

## 3. A PLATFORM FOR ACTION

The Low Carbon West strategy builds on climate change action already underway in the WAGA region. There are a number of existing business networks, associations and programs that WAGA can draw on to drive action to reduce emissions in the business and industrial sector. Relevant initiatives and synergies are highlighted below.

Initiative type and names	Partners involved	Low Carbon West Synergies
<b>Industrial precincts</b> <ul style="list-style-type: none"> <li>• Werribee Industrial Ecology Project</li> <li>• Living Brooklyn</li> </ul>	DPCD, councils, GAA, MPA, DBI  Brimbank, State, Businesses	<p>There are several existing industrial hubs in the WAGA region. These are either existing business networks or areas that are (or will be) precincts for businesses. Sometimes they are both. These established networks will be useful to build engagement around the Low Carbon West actions. Some businesses participating in these networks may want to act as business mentors, develop case studies or support the delivery of selected actions.</p>
<b>Green infrastructure / water</b> <ul style="list-style-type: none"> <li>• Greening the West</li> <li>• Living Brooklyn</li> </ul>	City West Water, Western Water, councils, Parks Vic, Vic Roads, community groups.	<p>Greening the West is an initiative that aims to deliver positive health and social outcomes for communities in Western Melbourne. It takes a regional approach to urban greening, fostering activities that deliver increased vegetation and promote access to and use of high quality green space.</p> <p>Living Brooklyn is profiled in the case study below this table.</p> <p>Whilst these two initiatives are focussed on green infrastructure, more broadly they are environmental programs that have attracted participation from businesses. These networks may be able to be leveraged to support delivery of the Low Carbon West actions.</p>
<b>Solar</b> <ul style="list-style-type: none"> <li>• Big Roofs</li> <li>• Solar EUAs</li> <li>• Solar Atlas Consortia</li> </ul>	City West Water, WAGA councils, CSIRO, Urban EP, Entura, Sustainable Melbourne Fund, solar suppliers.	<p>It is recognised that solar energy generation is a significant opportunity for the WAGA region. Work has already been undertaken to map the 'big roofs' (industrial and warehouse) of the WAGA region and to understand the potential to use these roofs for energy generation and for rainwater collection. WAGA is currently developing the Urban Sustainability Atlas, which could be used as an engagement tool with regional businesses, while the Sustainable Melbourne Fund is actively considering how it can fund solar power through a solar environmental upgrade agreements (EUAs).</p>

Initiative type and names	Partners involved	Low Carbon West Synergies
<b>Business Efficiency Networks</b> <ul style="list-style-type: none"> <li>• Smarter Resources Smarter Business</li> <li>• Australian Environment Business Network (AEBN®)</li> <li>• Business Efficiency Network (BEN)</li> </ul>	<p>Hume City Council and participating businesses for the Business Efficiency Network</p> <p>SV, Industry groups, DSDBI, VECCI for the SBSR initiative</p>	<p>The Smarter Resources, Smarter Business program administered by Sustainability Victoria will invest \$14 million over five years to help a variety of industry sectors use their resources more efficiently. The program focuses on two energy related categories:</p> <p>Energy and materials to help small to medium sized business be more competitive and productive</p> <p>Energy efficient office buildings to help commercial office building owners reduce energy use and costs while increasing tenant appeal and asset value</p> <p>The Smarter Resources, Smarter Business investigative work, data and case studies will provide real insight into the type of initiatives that are relevant and offer good payback in various business sectors. Further engagement with SV would be important to tailor efficiency programs to specific business sectors.</p> <p>The Australian Environment Business Network (AEBN®) is Australia's peak organisation that specialises in representing industry, business and councils across Australia on environmental and energy matters. They run business efficiency networks, events and forums. There are a number of smaller scale programs in Melbourne designed to increase business resource use efficiency which may serve as useful precedents.</p> <p>The Business Efficiency Network is a collaborative partnership between Hume City Council and a range of businesses within Hume who are committed to reducing both their operating costs and environmental impact.</p>
<b>Skills and training</b> <ul style="list-style-type: none"> <li>• GreenSkills</li> <li>• VIC 1000</li> </ul>	<p>TAFE, Green Traders, Trade Associations, Swinburne, Sustainability Victoria (SV), Northern Alliance for Greenhouse Action (NAGA)</p>	<p>GreenSkills is a Victorian Government-supported initiative that provides apprenticeship and traineeship programs with a focus on sustainability. Apprenticeships are delivered by TAFEs throughout Australia.</p> <p>The Vic 1000 project was delivered across the NAGA region in 2007-8. The project involved working with groups of small businesses to create 'sustained behavioural change' in relation to sustainability while at the same time providing cost savings, increased community involvement and reduced environmental impact.</p>
<b>Future proofing / resilience</b> <ul style="list-style-type: none"> <li>• Future Proofing Geelong</li> </ul>	<p>EPA Victoria, City of Greater Geelong, Geelong Manufacturing Council</p>	<p>Future Proofing Geelong has a vision that in 2030, Geelong will be internationally recognised as one of the world's most resilient cities through collaboration and innovation focussing on sustainability, liveability and productivity. The group wants to facilitate a transition to a low carbon economy. It is supporting Cleantech Innovations Geelong, an alliance of business and industry looking to develop markets for cleantech.</p> <p>The aim is to establish Geelong as a Centre of Excellence for cleantech in Australia, by attracting investment, creating jobs and building skills. Future Proofing Geelong has been recognised for its outreach activity to business and industry. It is well placed to advise or support business engagement with the Low Carbon West strategy.</p>

Initiative type and names	Partners involved	Low Carbon West Synergies
<b>Cleantech</b> <ul style="list-style-type: none"> <li>Auscleantech</li> <li>Future Proofing Geelong</li> </ul>	Auscleantech, Future Proofing Geelong	Australian CleanTech facilitates and delivers Australian Clean Technology investments on behalf of both investors and project proponents. In addition, Australian CleanTech provides services to Government agencies to help stimulate jobs, investment and trade in the cleantech industry. Future Proofing Geelong is advocating for cleantech in Geelong.
<b>Emissions accreditation schemes</b> <ul style="list-style-type: none"> <li>Victorian Energy Efficiency Target (VEET)</li> </ul>		<p>The Victorian Energy Efficiency Target (VEET) allows certain businesses, known as Accredited Persons, to create certificates when they help other businesses make energy efficiency improvements. Each certificate represents one tonne of greenhouse gas abated. The money the accredited business makes from selling its certificates can go towards a discount on the product or appliance installed. This discount is known as an Energy Saver Incentive.</p> <p>The VEET scheme in its current form is expected to close by the end of 2015.</p>



## Case Study: Living Brooklyn

The Living Brooklyn project has established a network of local businesses committed to engaging in open dialogue about the environment and exploring how they can work together to contribute to Brooklyn's future prosperity.

The project's early focus has been on developing a whole-of-water-cycle strategy for the Brooklyn Industrial Estate. The Integrated Water Management Strategy will enable businesses to make smarter use of alternative water sources and adopt more efficient methods for operational practices, such as dust suppression. The aim of the strategy

is to respond to the unique and complex interactions of the social, political and economic systems shaping existing behaviour and activities at Brooklyn Industrial Estate.

The existing state of Brooklyn Industrial Estate influences the productivity and prosperity of the broader area. Living Brooklyn aims to bring together the people who use, govern and deliver water at Brooklyn Industrial Estate to agree the best steps forward to remove the barriers to health and prosperity at Brooklyn using water as the catalyst for change. Integrated Water Cycle Management (IWCM) will be used as the lens to focus on alternative,

more sustainable approaches to water management that contribute to business health and success and more broadly Brooklyn's liveability.

More broadly, the Living Brooklyn network is promoting the concepts of industrial ecology amongst its members and considering synergistic opportunities relating to, for example, waste reduction and recovery, renewable energy and emissions reduction. Business networks such as Living Brooklyn will be key to realising many of the actions outlined in the Low Carbon West strategy.

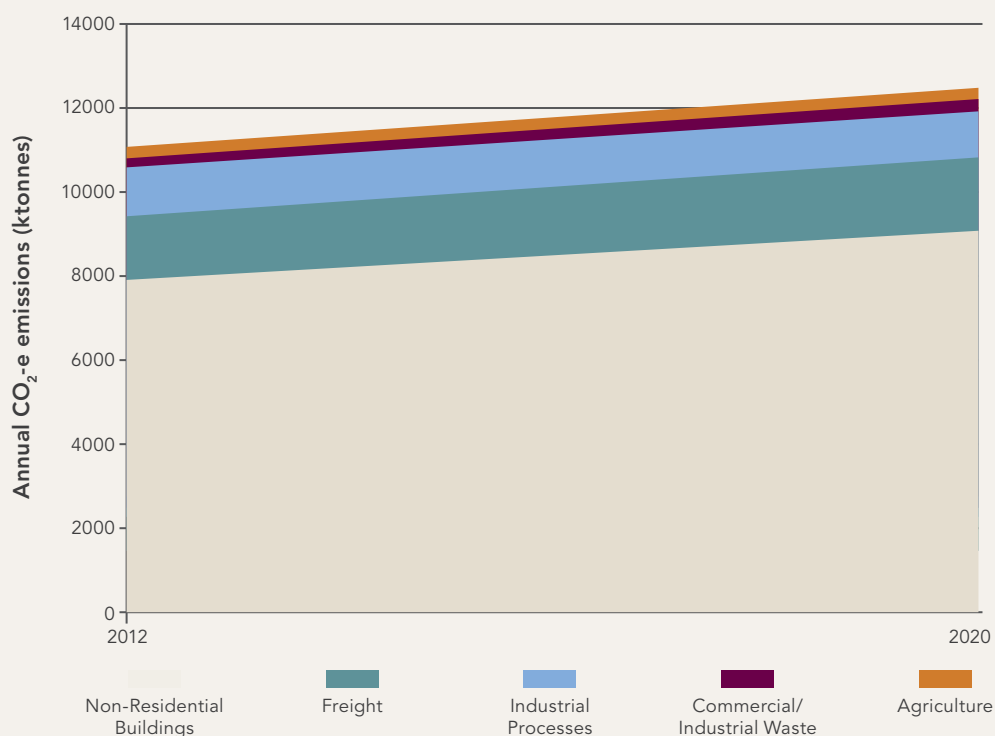
# 4

## 4. THE ROLE OF THE BUSINESS AND INDUSTRIAL SECTOR IN TRANSITION TO A LOW CARBON ECONOMY

### 4.1. Business as usual

The current (2012) and projected (2020) business and industrial emissions for the WAGA region are shown in Figure 11. The main source of emissions is non-residential buildings. A significant proportion of the emissions labelled as non-residential buildings are related to industry and manufacturing.

**Figure 11** Business and industry baseline and projected emissions, WAGA region

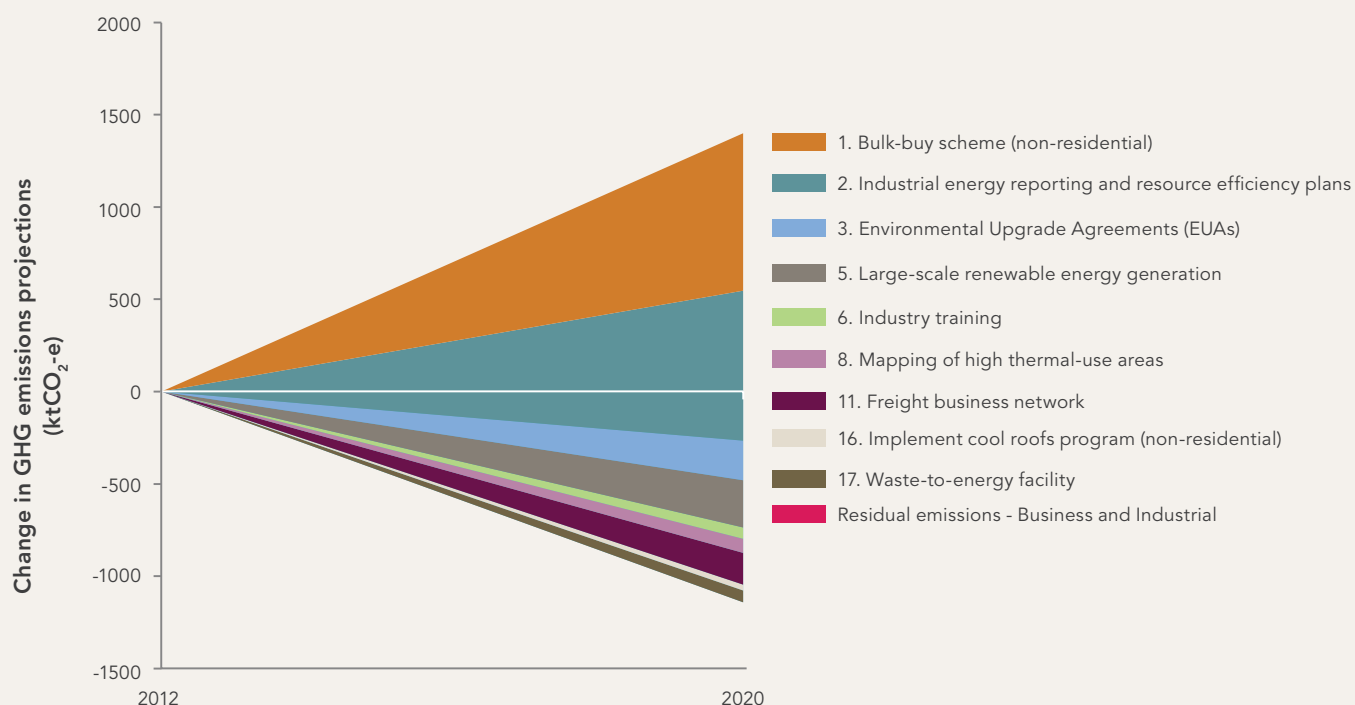




## 4.2. Best case

All of the actions outlined in section 5.0 have the potential to reverse the growth in GHG emissions for the region, as shown in Figure 13. The development of a regional freight consolidation centre has not been included in this figure as this would significantly increase emissions for the WAGA region but would bring wider economic benefit and would decrease emissions at the state level. All other actions should be progressed with actual emissions reductions tracked and publicised.

**Figure 12** Actions summary for business and industrial sector



# 5

## 5. ACTIONS THAT MAKE THE DIFFERENCE

### 5.1. Cross sector actions

Through the development of Low Carbon West, a long list of 57 regional actions across all sectors was produced. Surveys and discussion were used to reduce this list to a shortlist of 24 actions. There are [factsheets](#) available online for each of the shortlisted 24 actions. These detail how emissions reduction and costs have been estimated and include notes from consultation sessions, such as the strengths, weaknesses, opportunities and threats for each action.

Upon further consultation, several actions were removed from the shortlist, leaving 20 key actions that form the basis of Low Carbon West. Of these, there are ten actions related to the **business and industry** sector. These 20 actions were qualitatively assessed and prioritised based on the following indicators:

- **Emissions benefit** – What is the extent of the emissions that are avoided as a result of implementation?
- **Cost effectiveness** – What is the financial investment required to achieve the emission reductions?
- **Co-benefits** – Does implementing the action lead to benefits beyond emissions reductions, such as the creation of local jobs or local economic growth?
- **Speed of implementation** – How quickly can the actions be implemented and completed, particularly before 2020?
- **Business or stakeholder support** – How supportive would businesses and other key stakeholders be in progressing the action?
- **Leadership or innovation** – Does the action help the WAGA region become a leader or show innovation in the sector?
- **Ease of implementation** – How great are the barriers to implementation of the action?

The prioritised actions related to the **business and industry** sector are summarised over the page, and described in detail in **Section 5.2**. The RA number of each action refers to its priority ranking among the 20 shortlisted actions.

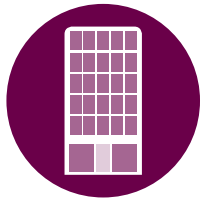
RA#	Actions – Communities	Brief description	Emissions benefit (ktCO2-e)	Focus	Emissions benefit	Cost effectiveness	Co-benefits	Speed of implementation	Business or stakeholder support	Leadership or innovation	Ease of implementation
1	Bulk-buy scheme (non-residential)	Create bulk-buy schemes for solar PV panels to be installed in new non-residential buildings	853	Business premises	H	H	H	H	H	M	M
2	Industrial energy reporting and resource efficiency plans	Establish a program for smaller industrial energy users to report on energy use and develop resource efficiency plans, and work with large industry energy users to sign up to voluntary agreements for emissions reductions	813	Business premises	H	H	H	H	H	M	M
3	Environmental Upgrade Agreements (EUAs)	Facilitate EUAs for energy efficient plant for both commercial buildings and industrial processing facilities	215	Business premises	H	H	H	H	H	M	M
5	Large-scale renewable energy generation	Advocate for Large-scale Renewable Energy Generation in WAGA region (large-scale solar)	257	Energy generation	H	L	H	L	M	H	L
6	Industry training	Fund and facilitate industry training for energy efficiency or building tune-ups	61.3	Business premises	M	H	H	H	H	M	M
8	Mapping of high thermal-use areas	Conduct mapping of demand for heating and cooling to identify priority areas for low carbon district heating. The heat map will be an enabler for investment in low carbon district generation.	76.4	Energy generation	M	H	H	M	H	M	M
11	Freight business network	Establish a regional network of freight businesses and implement a voluntary program for freight companies to track and reduce emissions	172	Freight	M	H	H	M	M	H	L
16	Implement cool roofs program (non-residential)	Implement a 'White Roofs' or 'Cool Roofs' program	31.8	Business premises	M	L	M	H	H	M	H
17	Waste-to-energy facility	Establish a waste-to-energy facility in the region	64.2	Energy generation	M	L	H	L	M	H	L
20	Advocacy for WIFT	Advocate for establishing a freight consolidation centre in the region, specifically the Western Interstate Freight Terminal (WIFT)	-1130*	Freight	L	M	H	L	H	H	L

\* This action would deliver an environmental benefit at a state and national level but would increase emissions within the WAGA region

#### Prioritisation Key

 High
  Medium
  Low

## 5.2. Detailing the actions



RA  
1

### Bulk-buy scheme (non-residential)



#### Specific

A program to drive greater uptake of photovoltaics (energy generation) on non-residential building roofs in the WAGA region, through improved procurement and delivery efficiency (bulk-buy). Creating a bulk-buy scheme for sustainable technology has potential to reduce the capital cost of installing the technology for individual consumers. This action focuses on installing solar PV panels and efficient lighting upgrades – specifically for non-residential buildings. The earlier Big Roofs project identified 14km<sup>2</sup> of unoccupied roofspace in the region.

#### Benefits

The potential emissions reduction associated with each technology can be determined by estimating the uptake of the program and determining the savings from PV panels or lighting upgrades. It was assumed for this analysis that uptake of the bulk-buy program is 30% of new floor area. The estimated emissions reduction would be **853 ktCO<sub>2</sub>-e**. This represents a **4.3% saving** across the WAGA region.

This would generate \$165 million per annum in energy cost savings for the WAGA region. Wider benefits would include jobs growth, particularly in sustainability and energy-efficiency advice, and material supply (particularly in renewable energy sector), increased quality of regional building stock and reduction in energy costs for industry.

#### Attainable

The potential benefits for bulk buy schemes should be re-tested due to the sharp decline in costs of PV panels and likely reduced profit margins as more panel suppliers are in the market. The financial benefit of bulk buy might be reducing as the base level costs of PV drop. In addition there is less uniformity in the non-residential market compared with the residential market, which may make it more challenging to establish a clear pipeline of projects. On a positive note, the Big Roofs of the West do lend themselves to solar technologies and the bulk buy scheme could be linked to a future solar Environmental Upgrade Agreement (EUA Program). Overall a bulk-buy scheme is expected to be a cost-effective action to implement, and demonstrates a medium level of innovation.

#### Scoping

Bulk-buy schemes will require significant direct engagement with potential customers and in the past have delivered lower than expected uptake. Limited success has been shown in Hobsons Bay and Moonee Valley at a residential level. WAGA should consider lessons learned from earlier regional bulk buy programs before progressing with this action. A scoping study should be undertaken to estimate the likely resource requirements and costs to administer such a program and to consider the effort required to re-build the reputation of bulk buy following previous projects in the region that have experienced limited success.

#### Collaboration

- Local government (or nominated lead agency) can be seen as the trusted advisor.
- There may be benefit in linking a business bulk buy program with earlier residential programs (e.g. EcoHome makeover / Sustainable Suburbs)
- Bulk buy could be promoted through industrial clusters or existing business networks
- Can work with the Sustainable Melbourne Fund for solar funding (EUAs)
- Can build on earlier work completed under the Big Roofs banner (Arup 2010)
- Potential to link with Australian manufacturers of solar (e.g. Tinto Solar)
- Possibility to use the program for skills transfer / regional skills development (e.g. automotive industry fund)

#### Potential Ownership

- WAGA – potential lead
- NAGA, EAGA, MEFL and YEF – potential collaboration
- Clean Energy Finance Corporation, Sustainable Melbourne Fund – potential funding source
- Big Roofs pilot companies - Toll Holdings, GPT, Goodman Property, K-Mart, Toyota, Dulux, Origin and Australand

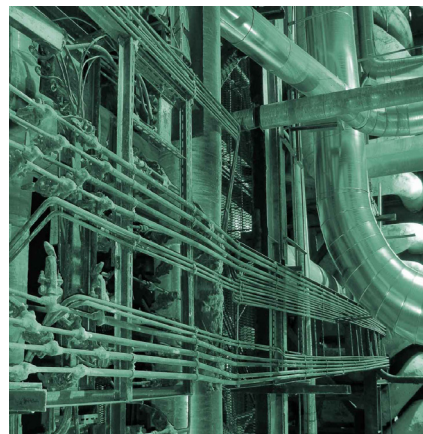
#### Timing

- Decision to proceed by mid-2015.
- Review points every 6 months
- High speed of implementation



RA  
2

## Industrial energy reporting and resource efficiency plans



### Specific

This action involves industrial energy users signing voluntary agreements to report on their energy use and identify and implement energy efficiency actions. This action is based on EPA's EREP program, which was a legislated program for larger industrial energy users and operated from 2008 to 2013. The program required facilities that consumed more than 100TJ of energy to report their energy use and identify and implement resource efficiency actions.

The program (and the earlier Industry Greenhouse Program) saw large industrial users reduce emissions by up to 40% (Blue Scope Steel) and 50% (Riverside Meats). The EPA Victoria Industry Greenhouse Program achieved 193 ktCO<sub>2</sub>-e reductions per year in the Western Metro Victorian region.

### Benefits

In estimating the savings from this action it was assumed that an average energy saving of 20% for any type of industry business was achieved for 50% of businesses (by floorspace). If this is achieved it would deliver an emissions reduction of **813 ktCO<sub>2</sub>-e** compared with the 2020 baseline, representing a **4.1% saving** across the WAGA region. It would also provide a reputational boost for many of the industrial operators in the WAGA region and also potentially deliver them cost savings, although the level of savings will depend on what businesses are currently paying for their electricity.

### Attainable

WAGA and supporting councils will need to resource staff to engage industry in signing voluntary agreements. Implementing this action will require resources to manage data, assess industry users. Industry would need to report and implement energy efficiency activities. The new program would need to ensure that reporting requirements for participants are not increased significantly. Where possible, the National Greenhouse and Energy Reporting (NGER) scheme or other existing internally-sourced data should be used as the basis for reporting.

The success of this action will also depend on integration with financial assistance and other drivers to encourage investment, such as Environmental Upgrade Agreements. Overall this scheme is expected to be a cost-effective action to implement, and demonstrates a medium level of innovation.

### Scoping

This program will deliver significant emissions reductions but will require significant resources to manage. However, success has been demonstrated by the former EREP program, with a number of companies within the region having reported carbon reductions or having established targets. These include Dow Chemicals (25% energy intensity improvement), Shell Refinery (30% of steam consumption savings), Incitec (12% reduction in energy per tonne of product manufactured) and Exxon Mobil (10% improvement in carbon emissions over the last decade).

### Collaboration

- Possible linkages with Business Efficiency Network (BEN) or Australian Industry Group (AIG) or Australasian Industrial Ecology Network
- Opportunities to work with universities to undertake assessments
- Could link with business awards, such as regional business awards, Premier's Sustainability Awards, local council business awards.
- Potential funding from Grow Your Own Business Program, Grow Me The Money

### Potential Ownership

- LeadWest / Open Innovation West

### Timing

- Decision to proceed by mid-2015
- Report 6 monthly
- High speed of implementation





RA  
3

## Environmental Upgrade Agreements (EUAs)



### Specific

Environmental Upgrade Agreements (EUAs) provide low cost long term finance for measures that improve the efficiency of commercial buildings. The funds are secured through the council rates mechanism, creating a three-way agreement between the council, the lender and the building owner. The City of Melbourne has established the Sustainable Melbourne Fund (SMF) to administer EUAs, and the EUA legislation is being considered to extend the mechanism to projects outside of the City of Melbourne. EUA finance of up to \$80 million is currently available through NAB, the Clean Energy Finance Corporation (CEFC) and Eureka Funds management for retrofits to improve performance of commercial buildings. This action relates to promoting EUAs to business and industry in the WAGA region.

### Benefits

This action can deliver a **215 ktCO<sub>2</sub>-e** reduction compared with the 2020 baseline (a **1.1% saving** across the WAGA region). The EUAs would drive an estimated \$40 million per annum in energy cost savings for the WAGA region, whilst also being cash flow positive for businesses as they are bank funded. The mechanism has already funded \$12 million of works in the commercial buildings sector (9 projects) in the City of Melbourne.

### Attainable

EUAs are developed to finance capital investments through loans that are paid back through energy savings, meaning that repayments may even be cost-neutral for businesses. As such, EUAs are a highly cost-effective mechanism to introduce in the region. There is bipartisan support to extend EUA legislation across Victoria. SMF has already set up a website, resources and contract structures.

For WAGA, there may be costs or resource requirements to promote EUAs to business and encourage take-up. Overall, this action would demonstrate a medium level of innovation.

### Scoping

There appear to be few barriers to the uptake of the use of EUA finance. However, uptake has fallen short of what was expected in the City of Melbourne. WAGA should investigate the reasons for this. For example some businesses have relatively easy access to low cost finance or pay extremely low long term negotiated rates for electricity. These factors impact on the attractiveness of EUA finance.

WAGA will need to stay up-to-date with the regulatory process (i.e. timing for the EUA legislation being extended to cover the WAGA region) and with the potential for using EUAs to fund solar projects. WAGA will also need to be clear on its own role and the role of councils in promoting EUA finance. Councils will need to approve and have relevant financial procedures for EUAs in place for this program to proceed in their municipalities.

If there is some uptake of EUA finance in the WAGA region, maintaining momentum will be key. This could extend to collecting and disseminating information and case studies and sharing good news stories (e.g. reduced running costs or increased rental incomes).

### Collaboration

- SMF can extend its administration service to cover WAGA
- Department of State Development, Business and Innovation can engage businesses
- Banks underpinning EUA finance might be able to advocate to their existing business customers
- The communication needs to be clear and simple

### Potential Ownership

- SMF
- WAGA, EAGA
- Councils

### Timing

- Immediate – build momentum from expected legislation change and from event in September 2014
- High speed of implementation



RA  
5

## Large-scale renewable energy generation



### Specific

This action requires WAGA to advocate for and support fundraising for a large-scale renewable energy generation plant (such as a solar power plant) within the WAGA region. Greater Geelong has already commissioned early feasibility studies, which identified a selection of viable generation sites within the municipality. The studies concluded that additional funding is likely to be required for a medium-scale generation plant to be developed.

### Benefits

Assuming that a 100MW of large scale solar (similar to the proposed facility in Mildura) is funded and operational by 2020, this could generate 200,000 MWh of renewable electricity per year and deliver a **257 ktCO<sub>2</sub>-e** reduction. (**1.3% saving** across the WAGA region). This would generate jobs in design, construction, project management and potentially manufacturing. It could be a flagship project for the WAGA region. Potentially, the installation could be on currently underutilised council-owned land; Geelong is considering its now-closed landfill site at Corio.

### Attainable

The total cost of a 100MW Solar Power Station is around \$275 million (Solar Systems power plant in Mildura). The Mildura plant required an initial \$15 million in funding to commercialise the project, and is finalising funding commitments of \$75 million from the Australian Government, and \$35 million from the Victorian Government. There are a number of other precedents in Australia that can be drawn on. This project would demonstrate a high level of leadership in Australia. However, this action would face several barriers including a high capital cost and the uncertainty of state and federal renewable energy policies.

### Scoping

WAGA has the opportunity to leverage existing studies in order to advocate for a renewable energy generation plant. Based on these studies, WAGA can facilitate collaboration between government and businesses to seek funding for a development in the region.

### Collaboration

Large scale renewable projects are being funded across the country, with a number of demonstration projects currently in operation. In Victoria, the government has committed \$50 million to establishing a large scale solar plant in Mildura. It is currently operating as a 1.5MW Demonstration Plant, and looking to be completed as a 100MW Solar Power Station.

A successful large scale renewable project would require close collaboration and engagement between a wide range of stakeholders, including energy companies, governments and the wider community.

### Potential Ownership

- WAGA
- CEFC
- Victorian Government
- SMF
- Energy companies and generators

### Timing

- Commencement of advocacy pending confirmation of government policies
- Report 6 monthly
- Low speed of implementation



RA  
6

## Industry training



### Specific

A regional fund and on-call advisors to deliver training and capacity building relating to energy efficiency and building tune ups. Activities could include building energy audits, training in building energy management, reporting and fault finding, guidance on overcoming common barriers (e.g. split incentives) and support to prepare business cases for investment in energy efficiency. The program should also allow for follow-up discussions in order to report successes and lessons learnt.

### Benefits

Emissions benefit has been estimated at **61.3 ktCO<sub>2</sub>-e** against the 2020 baseline. This represents a **0.3% saving** across the WAGA region.

Other benefits would include jobs growth, increased comfort of buildings, and cost reductions for businesses. The calculated emissions reduction would correspond to approximately \$11.6 million per annum in energy cost savings for the region.

### Attainable

Costs would include time to properly scope out the program, secure funds, promote the initiative (advertising, marketing and recruitment) and payment to suitably skills professionals to provide business support. Costs should also allow for follow-up to ensure businesses are progressing actions and to disseminate lessons learnt. Costs will ultimately depend on scale and reach of the program. This action is considered to have a medium level of leadership.

### Scoping

There are a number of organisations that have run (or are running) similar programs in the past. These include City West Water, Sustainability Victoria (Smarter Resources, Smarter Business) and the Department of State Development, Business and Innovation (DSDBI). WAGA could facilitate discussions with these organisations to understand future plans, funding commitments and lessons learnt. It is unclear which agency or body is best to lead this initiative. This needs to be clarified through a scoping process.

### Collaboration

This action presents opportunities for collaboration across numerous levels of government, agencies and business including Victorian State Government (DSDBI, Sustainability Victoria), councils, and agencies such as LeadWest who can promote through networks like Open Innovation West. The Sustainable Melbourne Fund has expressed interest in financing capital works associated with Low Carbon West. Businesses such as Qenos or Linfox could mentor to other businesses. Utility businesses, universities (research) and industry bodies such as AI Group, VECI, AIRAH and the South East Manufacturers Alliance may also be useful collaborators.

### Potential Ownership

- Federal – potential funders
- State – potential lead / potential funders
- WAGA – potential lead
- Councils – potential funders
- Business – support

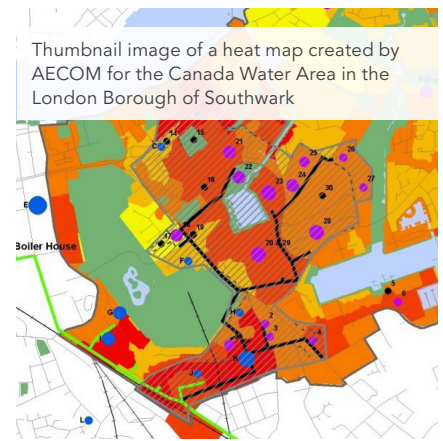
### Timing

- Decision to proceed by mid-2015
- Review points every 6 months
- High speed of implementation



RA  
8

## Mapping of high thermal-use areas



### Specific

This action focuses on the identification of opportunities for existing buildings to move away from grid electricity and use cogeneration or tri-generation for heating, cooling and electricity. In locations with the appropriate density and mix of energy demands, these technologies can be attractive low carbon energy sources, and can support a future transition to a fully renewable energy system. Cogeneration and trigeneration is carbon efficient compared to grid electricity in Victoria, which is largely powered by brown coal. The output of this action is a heat demand map for the WAGA region.

### Benefits

Heat maps are useful to show the 'sweet spots' for low carbon district heating and cooling. These are areas where there may be high demand for heating and/or cooling, and where multiple businesses can benefit financially from switching to a cheaper shared energy source. Cogeneration and trigeneration is best suited for co-located businesses or industries with high thermal demand.

### Attainable

Depending on the level of detail and granularity of the heat map, it may cost between \$100-200K to produce. Once the map is available, assuming it can be used to catalyse 8% uptake (based on electricity consumption), this will lead to about 12.9MW of installed power and would reduce energy costs for the WAGA region by \$17.3 million per annum. This amount of installed capacity would reduce annual emissions by **76.4 ktCO<sub>2</sub>-e**, a **saving of 0.4%** across the WAGA region. This action is considered to have a medium level of innovation.

### Scoping

The heat map itself will lead to minimal direct activity – it is an enabling first step. WAGA must consider the time and resources required to engage the industry to use the heat map and to drive follow-up action. Manningham City Council and the City of Melbourne are actively promoting cogeneration and trigeneration and would be able to point to many of the barriers to uptake. There is also significant international experience that can be drawn on. The project brief should require key questions to be addressed such as: what data should be used; whether the focus can be narrowed to known industrial areas; and how new development areas can be addressed through the mapping.

When assessing potential benefits of this action, WAGA should also consider other market factors and risks, such as rising gas prices.

### Collaboration

In Victoria, the Revitalising Central Dandenong project includes a Precinct Energy Project, which uses cogeneration to provide lower emission energy to the local community. Qenos has installed a 21MW cogeneration plant in Altona, which provides electricity and steam, reducing annual emissions by 100 ktCO<sub>2</sub>-e. There is a high potential for collaboration and engagement with similar businesses in the region.

### Potential Ownership

- Federal Government – potential funders
- State Government – potential lead / potential funders
- Energy companies and distributors – potential funders
- WAGA – potential lead
- Councils – potential funders
- Business – support

### Timing

- Decision to proceed by mid-2015.
- Consult on project brief
- Review points every 3 months
- High speed of implementation



RA  
11

## Freight business network



### Specific

This action is to establish a regional network of freight businesses, combined with reporting requirements, that has the potential to significantly reduce emissions associated with the sector. If combined with an effective program that promotes specific measures to assist freight companies it should be possible to drive significant emissions reductions in this sector, as evidenced by Linfox (see case study).

### Benefits

If half of the freight industry in the region (by share of emissions) sign up to the network and program, and each business targets a 20% reduction in emissions this would result in a saving of **172 ktCO<sub>2</sub>-e** compared with the 2020 baseline. This represents a **0.9% reduction** across the WAGA region. In addition, the action could potentially decrease freight traffic on roads and increase competition and efficiency of freight companies.

### Attainable

The primary cost for this initiative will be initiating, promoting and maintaining the program to encourage businesses to join the network. Individual businesses may incur additional costs associated with emissions reduction initiatives. However, actions are likely to reduce fuel costs, which should offset these capital outlays. Overall this action is considered to be cost effective and demonstrate a high level of leadership.

### Scoping

WAGA will need to consider further the potential of this action. There are no existing programs in the region that encourage individual freight businesses to report and manage their emissions, although in 2009, the Victorian Environmental Protection Authority (EPA) and the Victorian Trucking Association (VTA) established a pilot program, EcoStation, with emissions reduction as a central objective. The pilot program ceased in 2011. Individual businesses run their own programs and there are some success stories that can be shared. There is general agreement from the Low Carbon West consultation sessions that the business networking element of this action delivers more benefit than the reporting aspects, as some businesses may be resistant to additional reporting of emissions and sharing of business practices

### Collaboration

- Target smaller freight companies
- Promote the market benefits for leading businesses
- Programs (e.g. eco-driving) can be expanded to the community
- Avoid doubling up of current reporting and tracking by freight companies
- Build on current connections with freight industry leaders
- Data from the network / program can feed into broader transport policies

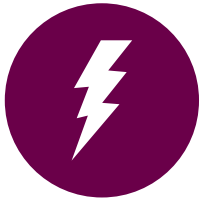
### Potential Ownership

- EPA
- LeadWest
- Freight business leaders
- WAGA as a minor partner

### Timing

- Scoping / discussion to commence immediately
- Decision to proceed by mid-2015.
- Review points every 6 months
- Medium speed of implementation





RA  
16

## Implement cool roofs program (non-residential)



### Specific

This action focuses on improving the energy efficiency of existing buildings through the use of white roofs to reduce summer demands for cooling. The action is to provide information and resources for businesses and industry to facilitate them investing in painting their roofs. Research conducted in Melbourne and internationally has shown that white roofs can reduce cooling demand, depending on the building type. This is due to the reflective nature of white roofs when compared with darker colours. According to a study by the University of Melbourne, white roofs for commercial buildings have 3-20% benefit on cooling loads.

### Benefits

Emissions benefit has been estimated at **31.8 ktCO<sub>2</sub>-e** against the 2020 baseline. This represents a **0.2% saving** across the WAGA region.

Other benefits would include economic growth (particularly regarding the paint industry and additional material purchases) and reductions in energy costs for industry.

### Attainable

This action is based on a simple concept that is easy to explain and publicise. Also, the program can be linked with the existing Urban Sustainability Atlas, highlighting areas of high solar radiation.

There are also a number of existing case studies that describe the benefits of cool roofs in industrial and non-residential buildings. The most well-known case study is Melbourne Airport's SkyCool roofing, which has contributed to reduced demand for heating and cooling energy. As such, this action is considered to have a medium level of innovation. However, due to high upfront cost and modest emissions benefit this action is considered to have a low level of cost effectiveness.

### Scoping

This action is mainly suited for large roof areas (factories, warehouses) that require cooling and thus specific engagement will be required in this sector. It should be noted that WAGA has undertaken the Big Roofs program in the past, which focussed on solar PV and rainwater harvesting potential. A 'cool roofs' program could extend this project or re-launch the project.

### Collaboration

There is no existing cool roofs program designed for a regional approach. Both the City of Greater Geelong and Wyndham City Council undertook investigations to understand urban heat island impacts. A cool roofs program can build on these studies.

The region should also consider opportunities to learn from facilities that have cool roofs installed, such as the Melbourne Airport and Dulux buildings. Cool roofs have also been investigated for commercial buildings by the City of Melbourne in conjunction with the University of Melbourne.

### Potential Ownership

- WAGA – potential lead
- Big Roofs pilot companies - Toll Holdings, GPT, Goodman Property, K-Mart, Toyota, Dulux, Origin and Australand
- Existing facilities with cool roofs

### Timing

- Decision to proceed by mid-2015.
- Review points every 6 months
- High speed of implementation



RA  
17

## Waste-to-energy facility



### Specific

The decomposition of organic waste in landfill releases methane, a greenhouse gas with 21 times the warming potential of carbon dioxide. The methane has a warming effect that endures in the atmosphere for several decades after waste is initially sent to the landfill. Waste-to-energy facilities can capture the methane gas to generate electricity. The action is to develop a business case for a waste-to-energy facility in the WAGA region.

### Benefits

Based on a plant electricity generation capacity of 50,000 MWh per annum, this action is predicted to result in **64.2 ktCO<sub>2</sub>-e** in emissions saving, representing **0.3% reduction** in emissions across the WAGA region. The assumed plant capacity aligns with the existing system at the Melbourne Water Western Treatment Plant. Emissions reductions are achieved through the production of renewable electricity for region.

To maximise the utilisation and efficiency of the plant, there is the potential to co-locate the facility with industrial growth areas that may require heating or cooling. This action will also result in a reduction in costs associated with waste disposal.

### Attainable

To establish a waste-to-energy facility, the region will need to invest in both a transfer station (for sorting) and a pelletising plant for organic waste (assuming the system is powered by garden waste). The region would also need to invest in an anaerobic digester to produce biogas, and a generator to produce electricity. The capital cost for these facilities is estimated at \$21 million. This action is considered to demonstrate a high level of innovation and leadership.

### Scoping

WAGA will need to engage the regional waste forums (including the Metropolitan Waste and Resource Recovery Group), businesses and community stakeholders in order to evaluate the potential for a waste-to-energy facility. There may be opposition from neighbours near any selected site, so effective consultation will focus on the needs of the community, businesses and the benefits of the system.

### Collaboration

The Melbourne Water Western Treatment Plant is currently the largest biogas power station in the southern hemisphere. A waste to-energy-facility is also being proposed for Ballarat, as part of a new industrial and commercial zone known as the Ballarat West Employment Zone. There may be opportunities for WAGA to leverage these existing initiatives.

There are also a number of existing regional waste forums, which could be vehicles to promote this action.

There are existing research & development and funding support from the Federal government. There are also regional waste funds that could fund this business case.

### Potential Ownership

- Regional waste forums
- WAGA

### Timing

- Decision to proceed by mid-2015
- Report 6 monthly
- Design and construction of the facility is expected to be a long-term project over several years
- Low speed of implementation



RA  
20

## Advocacy for the Western Interstate Freight Terminal (WIFT).



### Specific

Continue to promote the WAGA region as an ideal site for a freight intermodal transfer station. A freight consolidation centre such as the WIFT would bring together rail and large truck-based freight to a central facility for distribution to the Melbourne region. The centre reduces the demand for heavy trucks on road networks in Melbourne and shifts a degree of interstate freight mode share from trucks to rail, which is less emissions-intensive. This would reduce freight emissions at a state and national level.

### Benefits

Contrary to the other actions, the emissions benefit for a freight intermodal transfer station in the WAGA region would be felt at the state and national level and not at the regional (WAGA) level. The construction of the WIFT facility in the WAGA region would increase the freight emissions associated with the region. This is due to increased freight traffic on road networks within the region that are diverted from other parts of Melbourne. The increase in emissions for the WAGA region is significant at **1,130 ktCO<sub>2</sub>-e**, compared with the 2020 baseline. This amounts to a **6% increase** across the region. The development of the WIFT would significantly increase jobs growth, improve efficiencies for freight companies, deliver environmental benefits at a state and national level and reduce congestion and road accidents on major routes across Melbourne and Victoria.

### Attainable

The Victorian Government (through Major Projects Victoria) has already commissioned significant work to test the potential for the WIFT. If approved, it will be developed over the next 15 years or so and has been estimated to cost approximately \$850 million in capital construction costs.

As the action within this strategy refers to advocacy for the WIFT and not the construction of the facility itself, the major costs are associated with any research required to further build a compelling case to locate the intermodal freight terminal in the WAGA region. This action is expected to demonstrate a high level of leadership by the region.

### Scoping

If WAGA is to advocate for the WIFT it will need to be clear on the benefits for the region and should work to promote best environmental and energy practice for the proposed terminal. Some of the benefits include greater efficiencies in freight handling, opportunities to introduce alternatives for major freight travel, reduced waste, new employment and cost savings for freight businesses operating in Victoria.

With its focus on emissions, WAGA will need to be particularly clear on the emissions boundaries and the implications of the WIFT development on the Low Carbon West baseline. Wider regional transport studies can be used to guide how the emissions story for the WIFT should be communicated.

### Collaboration

- This action is closely aligned with ongoing work by MPV and others.
- Collaboration in terms of accounting for and distributing emissions fairly across the region, given that overall the WIFT will result in emissions reduction
- Potential increase in traffic congestion in certain areas

### Potential Ownership

- MPV
- LeadWest / Western Melbourne RDA
- councils / WAGA

### Timing

- Ongoing advocacy action
- Requires six monthly reporting of advocacy activity
- Low speed of implementation for the development and construction of the WIFT

# 6

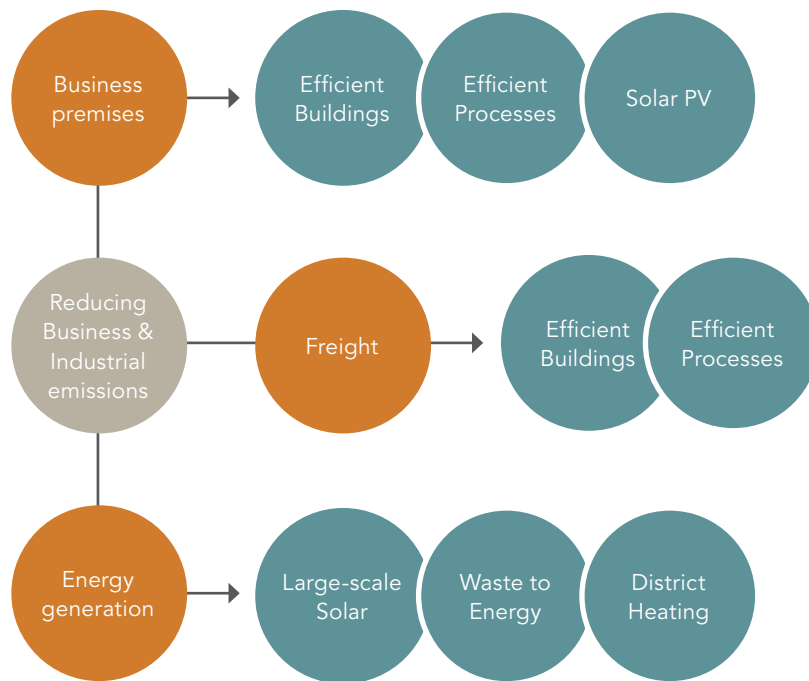
## 6. A PLAN FOR IMPLEMENTATION

Low Carbon West sets ten actions in the business and industrial sector to limit the increase in GHG emissions as the WAGA region grows. These actions can be coordinated through the following three programs:

1. Reducing business premises emissions
2. Reducing freight emissions
3. Stand-alone energy generation

Each of these programs will require a separate implementation plan detailing the agreed program components (initiatives or projects), program objectives, partners, advocacy approaches, funding requirements, milestones and steps for program monitoring and review.

An outline implementation plan for each of the three programs is included below.



**Figure 13** Showing the potential elements of a program focussing on reducing business and industrial emissions

Program 1: Reducing business premises emissions	
<b>Program objectives</b>	<ul style="list-style-type: none"> <li>• Improve business efficiency and create jobs</li> <li>• Establish business networks</li> <li>• Work towards delivering 66 ktCO<sub>2</sub>-e emissions savings per year, against the current emissions baseline</li> </ul>
<b>Program audience</b>	Businesses
<b>Program elements / initiatives</b>	<ul style="list-style-type: none"> <li>• Promote energy efficiency upgrades in commercial property</li> <li>• Promote installation of solar PV on commercial property</li> <li>• Promote improved efficiency in industrial premises and processes</li> <li>• Tailor material and training as relevant to various major business end sectors</li> <li>• Promote installation of solar PV for industrial premises (Big Roofs)</li> <li>• Promote low cost finance to deliver energy improvement works</li> <li>• Maintain network and key contacts, facilitate events and encourage knowledge sharing</li> </ul>
<b>The role of WAGA</b>	Lead facilitator, coordination, business case development, introduction to funders and measurement, verification and reporting.
<b>Key partners</b>	LeadWest, Sustainability Victoria, CEFC, Sustainable Melbourne Fund, other greenhouse alliances, solar installers, energy efficiency advisors, consultants.
<b>The role of key partners</b>	Key players will work together to ensure the financial and logistical viability of relevant energy-related upgrades for businesses.
<b>Timeline</b>	<p>Fund program scoping by April 2015, scoping to include securing partner buy-in and fund raising activities.</p> <p>Agree final program scope and develop program resources, including web presence by August 2015. Agree metrics for measuring program outcomes.</p> <p>Recruit program lead and support staff by October 2015.</p> <p>Launch program November 2015.</p> <p>Report six monthly until at least November 2018.</p>
<b>Program funding and resourcing</b>	<p>This is a major program that is outside the traditional domain of councils. These types of initiatives have traditionally been driven by state governments. To be successful the program requires two people full time with experience in energy efficiency, finance or business liaison.</p> <p>Funding for capital works can be leveraged from banks and other lenders and grant support may be available through DSDBI.</p>



## Program 2: Reducing Freight Emissions

<b>Program objectives</b>	<ul style="list-style-type: none"> <li>• Formalise freight transport network for the WAGA region</li> <li>• Encourage emissions-reducing practices through a collaborative freight business network</li> <li>• Work towards delivering 172 ktCO<sub>2</sub>-e emissions savings per year, against the current emissions baseline, assuming no WIFT</li> <li>• Advocate for the WIFT, ensuring clarity around the emissions story</li> <li>• Recalibrate regional emissions reductions reporting methods and targets if the WIFT becomes operational in the WAGA region.</li> </ul>
<b>Program audience</b>	Freight businesses
<b>Program elements / initiatives</b>	<ul style="list-style-type: none"> <li>• Advocate for developing a freight consolidation centre in the region</li> <li>• Establish a regional network of freight businesses</li> </ul>
<b>The role of WAGA</b>	Lead facilitator, coordination, reporting of results
<b>Key partners</b>	Freight businesses, consultants, Victorian Department of Transport, DSDBI
<b>The role of key partners</b>	The freight businesses will collaborate to establish and maintain the network. They will also provide inputs into the business case for the WIFT with support from consultants.
<b>Timeline</b>	<ul style="list-style-type: none"> <li>• Fund program scope by January 2015</li> <li>• Finalise program lead and support staff by April 2015</li> <li>• Establish the freight business network by July 2015</li> <li>• Commence advocacy program for WIFT by September 2015</li> </ul>
<b>Program funding and resourcing</b>	<ul style="list-style-type: none"> <li>• A designated council or WAGA resource (approximately one EFT position) will be required to manage and engage interested freight businesses and lead the advocacy program</li> </ul>

Program 3: Stand-alone energy generation	
<b>Program objectives</b>	<ul style="list-style-type: none"> <li>• Where viable, establish standalone low-carbon energy generation plants in the WAGA region</li> <li>• Work towards delivering 397 ktCO<sub>2</sub>-e emissions savings per year, against the current emissions baseline</li> </ul>
<b>Program audience</b>	Energy generators and distributors, businesses
<b>Program elements / initiatives</b>	<ul style="list-style-type: none"> <li>• Advocate for a waste-to-energy generation facility in the WAGA region</li> <li>• Advocate and support fund raising for a large-scale solar energy generator in the WAGA region</li> <li>• Conduct mapping of heating and cooling demand to identify priority areas for low carbon district heating</li> </ul>
<b>The role of WAGA</b>	Lead facilitator, coordination, business case development, fundraising, reporting
<b>Key partners</b>	Energy generators and distributors, Sustainability Victoria, CEFC, Sustainable Melbourne Fund, consultants
<b>The role of key partners</b>	The key partners will collaborate to develop business cases for the relevant low-carbon energy generation plants
<b>Timeline</b>	<ul style="list-style-type: none"> <li>• Confirm the project scope and funding by April 2015</li> <li>• Finalise program lead and support staff by September 2015</li> <li>• Commence advocacy programs and mapping of heating and cooling demand by November 2015</li> <li>• Commitment to establish relevant energy generation plants during 2016</li> </ul>
<b>Program funding and resourcing</b>	The program requires two people full time with experience in either standalone energy generation, finance or business liaison. Funding will be required for consultants to develop business cases and conduct mapping of heating and cooling demand. Funding for capital works can be leveraged from banks and other lenders, or through partnerships with energy companies.



## 7. MEASURING THE SUCCESS OF LOW CARBON WEST

Low Carbon West is a comprehensive plan for reducing regional GHG emissions in the WAGA region over the coming years. To understand the effectiveness of these actions in mitigating emissions, WAGA will develop a monitoring and evaluation plan towards the end of 2014. WAGA staff will be responsible for the measurement and evaluation of Low Carbon West, and progress reporting to the WAGA Executive Committee.

The monitoring plan will be delineated by sector and consist of a series of key performance indicators (KPIs) based on the actions prioritisation framework within Low Carbon West. In addition, the monitoring plan will define the reporting timeline and format. As the actions cover a breadth of sectors, the information sources to inform progress in each sector will also differ. A significant part of setting up the monitoring framework will be the identification of data sources. The data sources used to develop the 2012 current baseline provide the primary means of tracking the level of emissions reduction over the coming years.

The KPIs are likely to cover:

- Communications and advocacy with key stakeholders of Low Carbon West
- Engagement with industry through action implementation
- Co-benefits associated with implementation
- Number of projects identified, funded and implemented for each action
- Barriers or challenges associated with implementation
- Project case studies / fact sheets developed, in particular demonstrating leadership or innovation in the WAGA region
- Implementation resources and costs incurred and required over the coming year to support further implementation of Low Carbon West
- Overall energy and emissions savings by action, sector, by LGA and for the region.

Simple reporting templates will be set up to capture this information in a consistent format.



