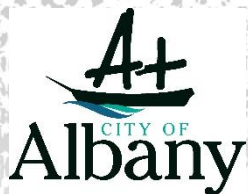


South Coast Alliance Regional Roadmap to Net - Zero Emissions



Prepared for

South Coast Alliance

| Version | Author | Date | Description of changes |
|---------|--------------------------|-----------------------|-----------------------------------|
| V0a-d | Ruby Finlen/Hannah Snape | 25/11/2021-23/02/2022 | Draft versions |
| V0f | Hannah Snape | 6/04/2022 | Update based on Workshop feedback |
| V0g | Charles Brodie | 11/04/2022 | Quality review |
| V1a | Hannah Snape | 11/04/2022 | Finalise for release to Alliance |
| V2a | Roman Aizengendler | 16/05/2022 | Revisions based on Council review |
| V3a | Matt Sullivan-Kilgour | 22/11/2023 | Removed watermark |

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Ironbark is a certified B Corporation. We have been independently assessed as meeting the highest standards of verified social and environmental performance, public transparency, and legal accountability to balance profit and purpose.



Ironbark Sustainability and the South Coast Alliance acknowledge the Noongar people, and their Elders, past, present, and emerging, as the Traditional Custodians of the lands on which we live, learn, and work.

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Executive Summary

Recognising the critical threat that climate change poses to local communities and livelihoods over the coming decades, the South Coast Alliance has commissioned this report to explore what might be needed for the South Coast Alliance region to play its part towards a zero emissions future. To explore the pathways to achieving this target, this Roadmap to Zero has been developed for the region.

The Roadmap is grounded in data analysis about the impact of various actions and is informed by targets set by the Western Australian, and Australian Governments. It considers the important role that the Alliance and member shires play in the Region, as well as the influence of external factors such as market forces, technology changes and state and federal policy.

Emissions in the South Coast Region were around 1.24MtCO_{2e} in the year 2018/19, and are expected to increase over the coming years. The major source of emissions for the region is agriculture, at just under 50% of the total. Agricultural practices release emissions through the use of topical fertilizers as well as through the effluent of livestock. Transport and electricity consumption each represent around a quarter of all emissions. Emissions from electricity are steadily declining as more renewables are introduced to the energy grid.

Emissions inventory (all figures in t CO_{2e})

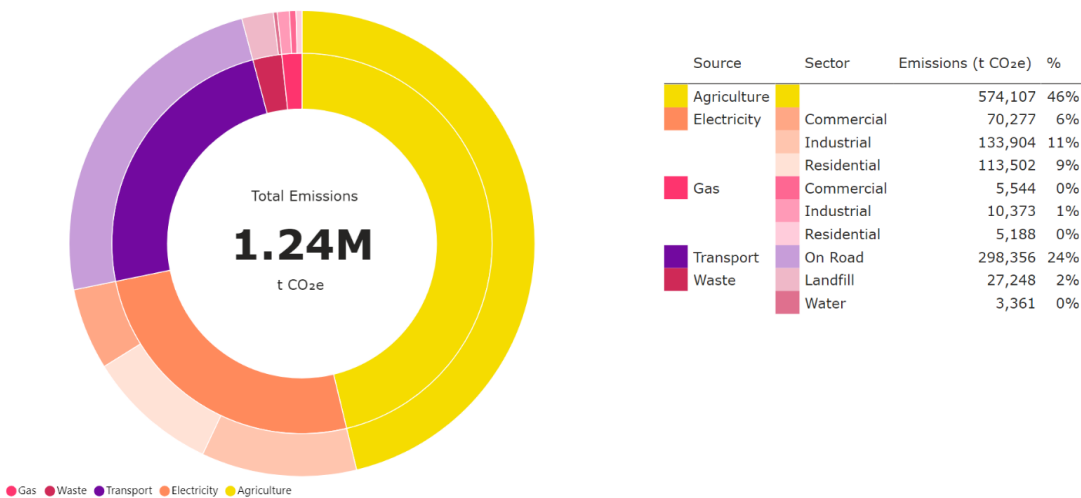


Figure 1: Community emissions profile for the South Coast Region (2018/19)

Through the development of this Roadmap, six core pathways for emissions reductions were identified: Agriculture, Transport, Households, Business, Industry and Waste. Within each of these pathways, there is a role for:

1. Local action
2. Alliance and Council action, and
3. Collaborative action.

Local action refers to actions taken by residents, businesses, industrial sites and farmers within the Region.

Alliance and Council action refers to action that could be taken by the Alliance and/or member shires individually. It considers the role of local governments in managing areas such as waste and town planning, whilst also providing community support and leadership.

Collaborative action refers to actions by those external to the Region, that has the potential to influence emissions within the Region, for example state and federal governments, car manufacturers, major supermarkets, and so on.

Emissions reduction pathways have been modelled across the six sectors, considering the impact of local and Alliance action. Collaborative action has not been modelled, due to the high potential for variation, however impact by external actors could reduce emissions beyond what is modelled. A consolidated pathway for regional emissions is shown at Figure 2.

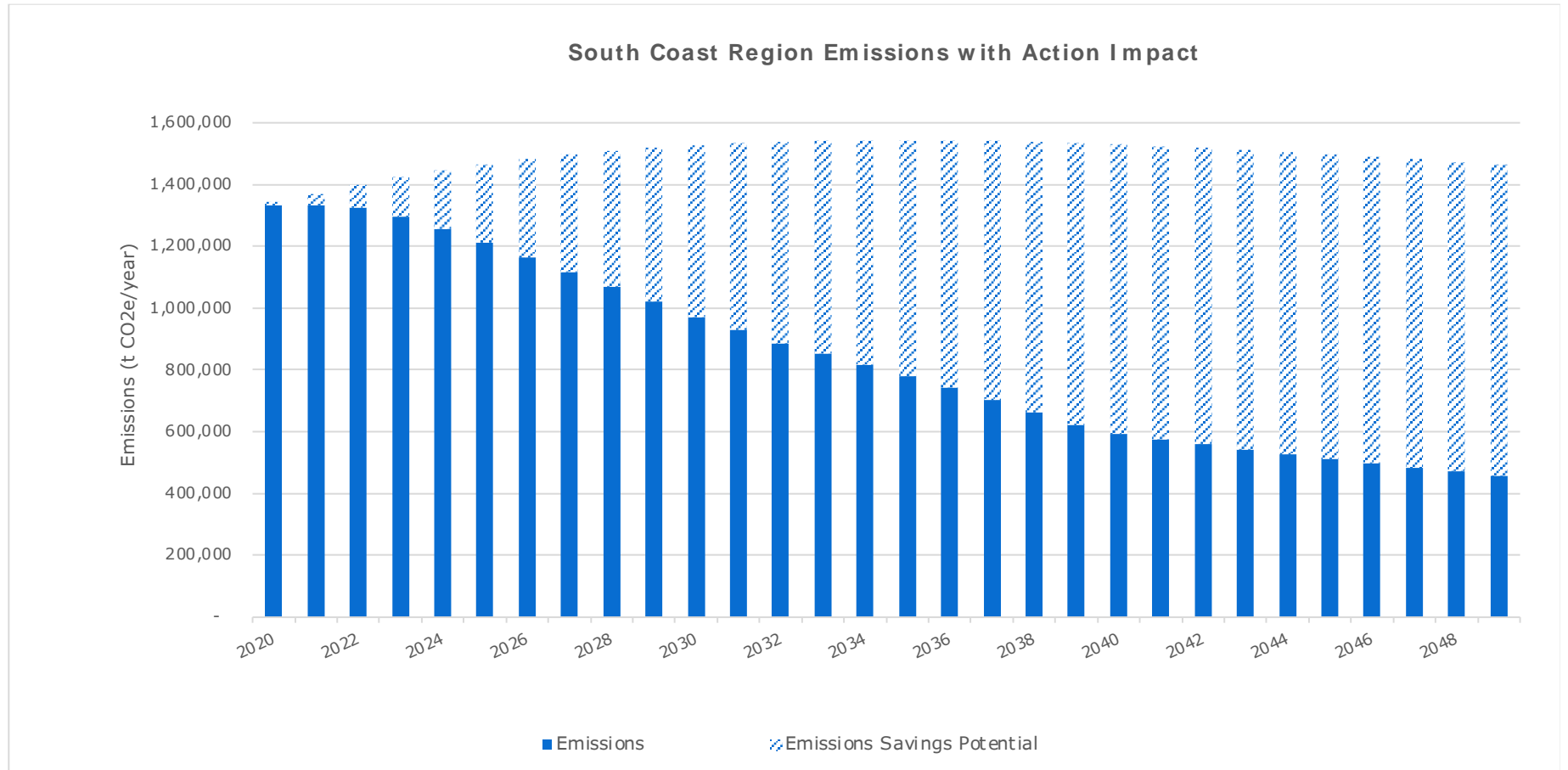


Figure 2: Emissions projections for the South Coast region, with potential impact of local and Alliance/council actions

1. Introduction

The South Coast Alliance (the Alliance) is a leader for sustainable and economic development through collaboration in regional Western Australia. A not-for-profit, incorporated organization, the Alliance has a membership base comprised of the elected members of four local government areas: the City of Albany, Shire of Denmark, Shire of Plantagenet, and Shire of Jerramungup (see Figure 1). The South Coast Alliance is working collaboratively with its four members – City of Albany, Shire of Denmark, Shire of Plantagenet, and Shire of Jerramungup - to act on climate change in the South Coast region.

Climate change poses a severe and long-term risk to the livelihoods and economy of Australia. In the South Coast region of WA, the impacts of climate change are likely to affect the region’s biodiversity and ecology, agriculture, nature-based tourism sectors, energy supply, urban form, and water supply. However, climate change also presents the opportunity for increased lifestyle migration and tourism, as the South Coast’s climate remains cooler, wetter, and greener than other regions in Western Australia.

The South Coast Alliance recognizes the urgency to act on climate change and reduce greenhouse gas emissions across the Alliance geography. The Alliance has identified the need to explore what might be required to achieve net-zero emissions by 2050. This target aligns with the Australian and Western Australian Governments net-zero emissions by 2050 targets.

To support the South Coast region to reach net-zero emissions by 2050, the South Coast Alliance has commissioned Ironbark Sustainability, an expert consultancy who specialize in achieving real action on climate for councils and their communities, to develop the Regional Net-Zero Emissions Roadmap.



Figure 3: The geography of the South Coast Alliance and its four local governments

1.1 About this Report

The Regional Roadmap to Net-Zero illustrates the pathways and recommended actions for the region to take as it transitions to a net-zero economy by 2050. It explores opportunities that will help the region transition to net-zero carbon emissions and provides the social, technical and policy foundations needed for empowered local communities and councils to make clear choices about their future.

This Roadmap builds on a number of initiatives implemented by the Alliance including the development of a Net-Zero Emissions reporting and monitoring framework and tools for use by the Local Governments to improve both knowledge and accountability.

The Roadmap is grounded in an understanding of current and projected emissions, reduction activities, trends, and potential actions. Detailed analysis has been carried out, drawing from a range of sources, including projected population changes and economic growth, understanding how government policies are expected to impact emissions, and changes to technology.

To understand how best to intervene in the current emissions trajectory and bring it down towards zero-net emissions, the report is informed by an evidence-base of the most effective government programs locally and internationally. The analysis is forward-looking and considers the need to drive innovation and assist the community to take up emerging opportunities and new technologies.

2. Background and Context

Climate change is a fundamental threat to landscapes, ecosystems, food security and economic growth on a global scale. The rapid acceleration of climate change is caused by human activity from burning fossil fuels (coal, oil, gas) for electricity, transport, industry, agriculture, land-use and forestry. When these fossil fuels burn, they emit greenhouse gases (GHG) – most commonly carbon dioxide – into the atmosphere, trapping the sun's heat and causing Earth's temperature to rise.

At the United Nations Framework Convention for Climate Change (UNFCCC) Paris Conference in 2015, the Australian Government signed an international agreement between 195 countries to keep any temperature rise "well below 2°C", and to drive efforts to keep warming below 1.5°C higher than pre-industrial levels. This Paris Agreement, entered into force on 4 November 2016, explicitly recognises and engages local and subnational governments and their critical role in supporting the transformation, including setting goals and strategies aligned with the science. Climate science tells us that warming beyond 1.5°C threshold is likely to have increasingly severe social, economic and environmental impacts, not least on a water scarce continent like Australia.

In Australia, we are already experiencing the impacts of climate change, with the increased frequency and intensity of extreme weather events including higher temperatures, longer heat waves, more extreme droughts, fire season, floods, and rising sea levels.

In the South Coast region of Western Australia, the impacts of climate change will adversely affect the region's biodiversity and ecology, agriculture, nature-based tourism sectors, energy supply, urban form and water supply. The South Coast is characterised by a diverse landscape of sprawling agricultural lands, an unspoiled coastline and a Mediterranean climate.

The South Coast region is home to approximately 60,000 residents, most of whom live in the City of Albany. The effects of a changing climate are already seen in longer fire seasons and more catastrophic fire events, as well as impacts on farm productivity and increased vulnerability of the electricity network to extreme weather. Over the last summer, south-western WA has experienced many of these impacts firsthand. In January 2022, Perth broke heatwave records with six consecutive days over 40°C, while in the Shire of Denmark, bushfires threatened biodiversity and people's homes and lives.

It is predicted that by end of century, the mean annual temperature for the South Coast region could increase by as much as 4.2°C in a high-emission scenario, and at the very least, we can expect to see an increase of 1.1°C. The number of days in a year above 35°C is projected to be up to 63 with high emissions¹. However, climate change also presents the opportunity for increased lifestyle migration and tourism, as the South Coast's climate remains cooler, wetter, and greener than other regions in Western Australia.

¹ Department of Primary Industries and Regional Development, Climate projections for Western Australia, Government of Western Australia, 15 April 2021, <https://www.agric.wa.gov.au/climate-change/climate-projections-western-australia> (accessed 31 January 2021)

2.1 Emissions Reduction Targets

In October 2021, the Australian Government committed for the first time to achieving net-zero emissions by 2050. The Western Australian Climate Policy (2020) has also established a long-term target of net-zero emissions by 2050 and a commitment to working with all sectors of the economy to achieve that goal. The Sectoral Emissions Reduction Strategies (SERS) roadmap will assist in this transition to a low emissions future by providing a framework for the public sector and individual private sectors to achieve the net-zero target.

In Western Australia, fourteen councils have made net-zero, emissions reduction or renewable energy commitments for their own operations and for the communities they serve, while eleven have declared a climate emergency. This includes the Shire of Denmark and the City of Albany, who declared a climate emergency in September 2019 and October 2020 respectively, as well as a number of other rural and semi-rural Councils.

Nationally, there are a handful of leading councils that are already carbon neutral for their corporate operations, and many have established ambitious targets for their communities that are based on science. In some instances, these Councils have more ambitious targets than the State and Federal Governments. Table 1 summarises the current targets and commitments across the difference levels of government in Australia.

Table 1: Federal, state and local government targets

| Government | Target |
|------------------------------------|---|
| Federal Government | 26-28% below 2005 levels by 2030 Net-zero emissions by 2050 |
| Western Australia State Government | Net-zero emissions by 2050 |
| Australian councils* | According to research undertaken by Beyond Zero Emissions and Ironbark Sustainability (2020-2021): <ul style="list-style-type: none"> • 24% Australian councils have corporate emissions targets profiled on their websites • 10% Australian councils have community emissions reduction targets • 25% Australian councils implement community emissions reduction actions |
| Western Australian Councils* | <ul style="list-style-type: none"> • 11 WA councils have declared a climate emergency • 4 WA councils have community emissions targets to reach net-zero by 2030 at the latest • 6 WA councils have corporate emissions reductions or plans to become net-zero organisations • 2 WA councils are already net-zero and have renewable energy targets |

* Other councils may have targets, but do not publicly display them

The South Coast Alliance is exploring what would be required to achieve net-zero emissions for the region by 2050. A science-derived target has also been developed for the

region, which means the global carbon budget has been scaled to the region using factors such as population, emissions sources, growth and socio-economic standing.

The carbon budget calculated for the region is 17.5MtCO₂e, which is roughly the same as around 15 years of current emissions in the region. If emissions are reduced linearly (i.e. by the same amount each year) until the carbon budget runs out, the budget will last until 2046. To do this, the region must reduce emissions by around 3.5% each year. In order to make the budget last out to 2050, there should be some years where emissions reduce by greater than 3.5%.

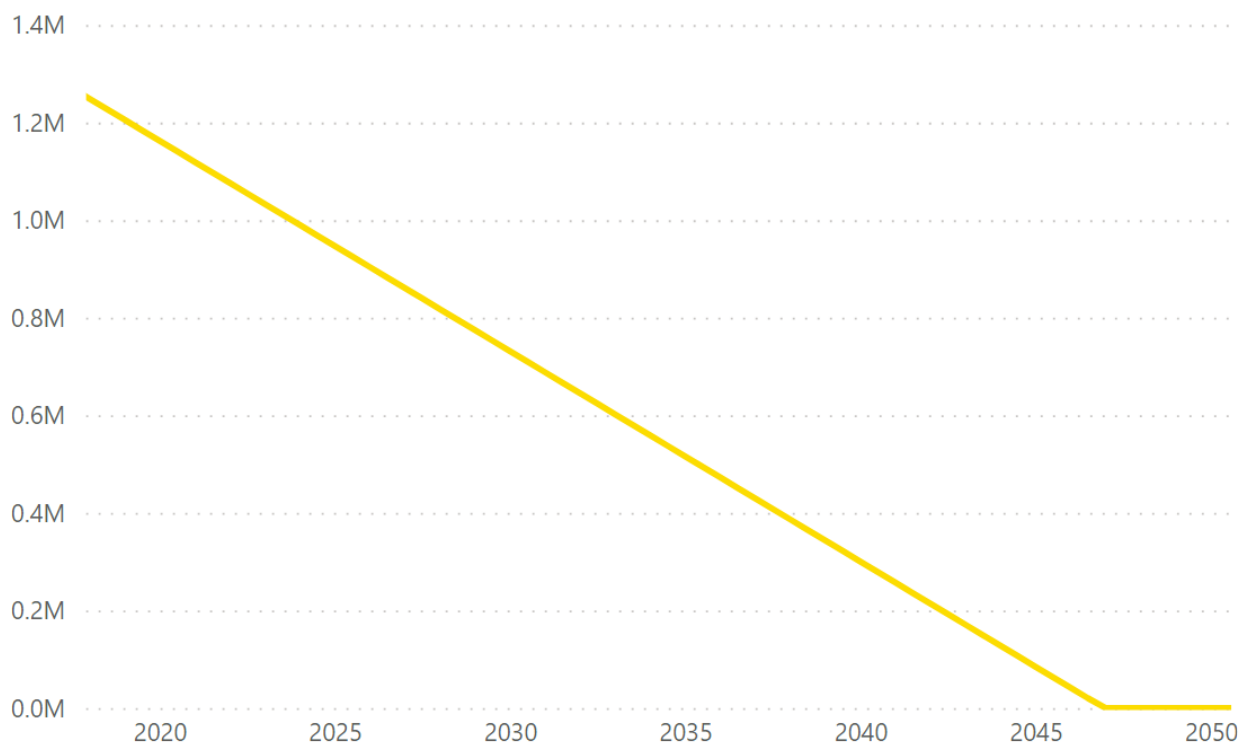


Figure 4: Emissions trajectory for the South Coast region if the science-derived target is achieved

3. A Net-Zero Emissions Future

3.1 What Does Net-Zero Emissions Mean?

The IPCC states that net emissions must be reduced to zero to stabilize global temperatures. The IPCC report also states that any scenario that does not involve a reduction to zero will not stop climate change.

The concept of Net-Zero Emissions describes a balance between the amount of greenhouse gases released into the atmosphere and the amount of greenhouse gases removed from it. Emissions are released through activities such as burning fossil fuels for energy, and then removed from the atmosphere through natural systems for example via forests and oceans. To re-establish this balance and for the South Coast Alliance to reach net-zero emissions by 2050, the region must significantly reduce the total emissions released. Carbon sequestration through land use change and other means can support a pathway to net-zero, but due to limitations of natural systems and relevant technology, it will not provide a complete solution.

3.2 South Coast Regional Emissions

In the year 2018/2019, the emissions of the South Coast Alliance geography (municipalities City of Albany, Shire of Denmark, Shire of Plantagenet, and Shire of Jerramungup) were around 1,240,000 tCO₂e.

Emissions inventory (all figures in t CO₂e)

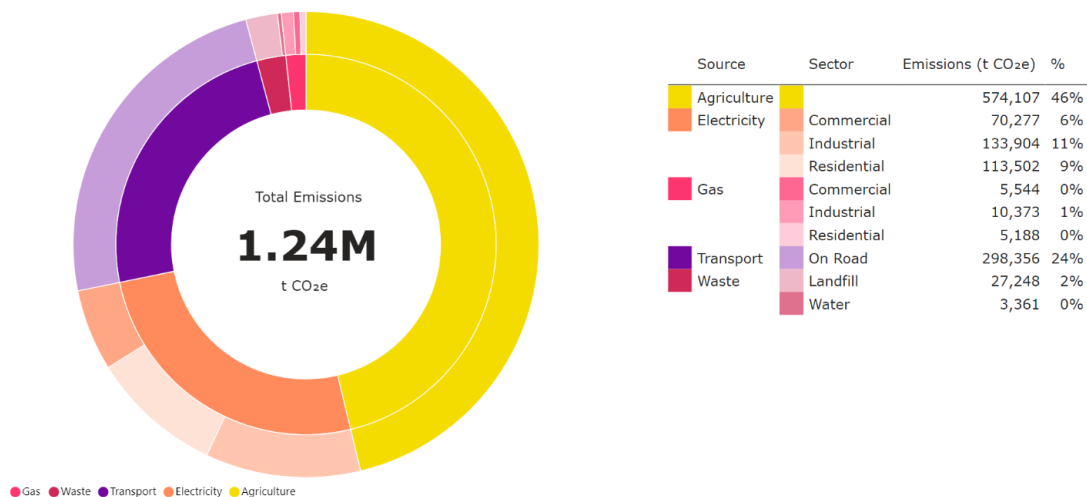


Figure 5: Community emissions profile for the South Coast Region, 2018/2019

The highest contributing source of emissions for the region is agriculture at around 46% of emissions. Electricity and transport comprised of 26% and 24% of total emissions respectively. The largest consumer of electricity was the industrial sector, however the residential and commercial sectors were also significant consumers. Emissions from waste and gas use are relatively low at 2% and 1% respectively.

Emissions within the South Coast Alliance are influenced by stakeholders and communities from outside the Alliance, for example by the emissions intensity of the energy grid or by energy used to manufacture products that are exported to other areas. Similarly, activities within the South Coast Alliance give rise to emissions outside of the Alliance boundary. For the purpose of this Roadmap, the focus is on reducing emissions that are shown in this emissions profile.

3.3 A Business-as-Usual Future

The South Coast Alliance has committed to a strategic goal of reducing greenhouse gas emissions from the current level of 1,240,000 t of CO₂e per annum in FY19 (see Figure 5) to net-zero by the year 2050 across the Alliance geography. This is in line with State and Federal Government targets, and is representative of South Coast councils' commitment to play their part in emissions reduction. It is also a proactive fulfilment of the Council of Australian Governments responsibilities associated with climate change actions.

Over the coming decades emissions in the South Coast region will be subject to upwards and downwards pressures. Trends influencing future emissions in the South Coast Region are explored at Table 2.

Table 2: Trends influencing emissions in the South Coast Region

| | |
|---|---|
| Population growth | Based on historic trends, the population of the South Coast Region is forecast to grow by around 7% in the next ten years ² . This growth will be reflected in increased energy consumption from housing, commercial activity and transport. |
| Economic growth | Increased economic activity is seen as a desired outcome or marker of success for most communities and, based on historical jobs data, it is expected that there will be continued economic growth in the South Coast Region in the coming decades. |
| Electricity grid emissions intensity | It is projected that the emissions intensity of the electricity grid in Western Australia will reduce to around half by the year 2050. This is based on historical data about the decline in the state's electricity emissions factor, and also considers current policy positions at the time of developing the Roadmap. |
| Technology improvements | Emerging technologies provide new opportunities for emissions reductions. As these technologies are refined and taken up, they will become cheaper, which is projected to further increase their take-up. Existing technology will also become more and more efficient, further reducing emissions. |
| Uptake of zero emissions transport | Electric passenger vehicles are projected to achieve cost-parity with internal combustion engine cars in around 2024. This is due to changes in the market as a result of other countries setting strong EV sales targets, and car manufacturers responding by dates to phase out the production of fossil fuel powered vehicles. |
| Uptake of renewables | Shires in the South Coast Region already have very high uptake of small-scale solar in relation to total dwellings, with over 25% of total dwellings in |

² Based on ABS Population Projections data

| | |
|--|--|
| | <p>both Plantagenet and Denmark having solar systems installed³ and 1 in 3 households in the City of Albany estimated to have rooftop solar. As further households and businesses install onsite renewables, emissions will reduce.</p> |
|--|--|

Based on these factors, total emissions are expected to increase. Of course, changes to the current state and federal policy environment will impact emissions, however this has not been modelled.

By sector, emissions related to transport and agriculture are expected to increase whilst emissions related to energy use in the residential, commercial and industrial sectors are expected to decrease. Emissions from waste are expected to remain relatively consistent.

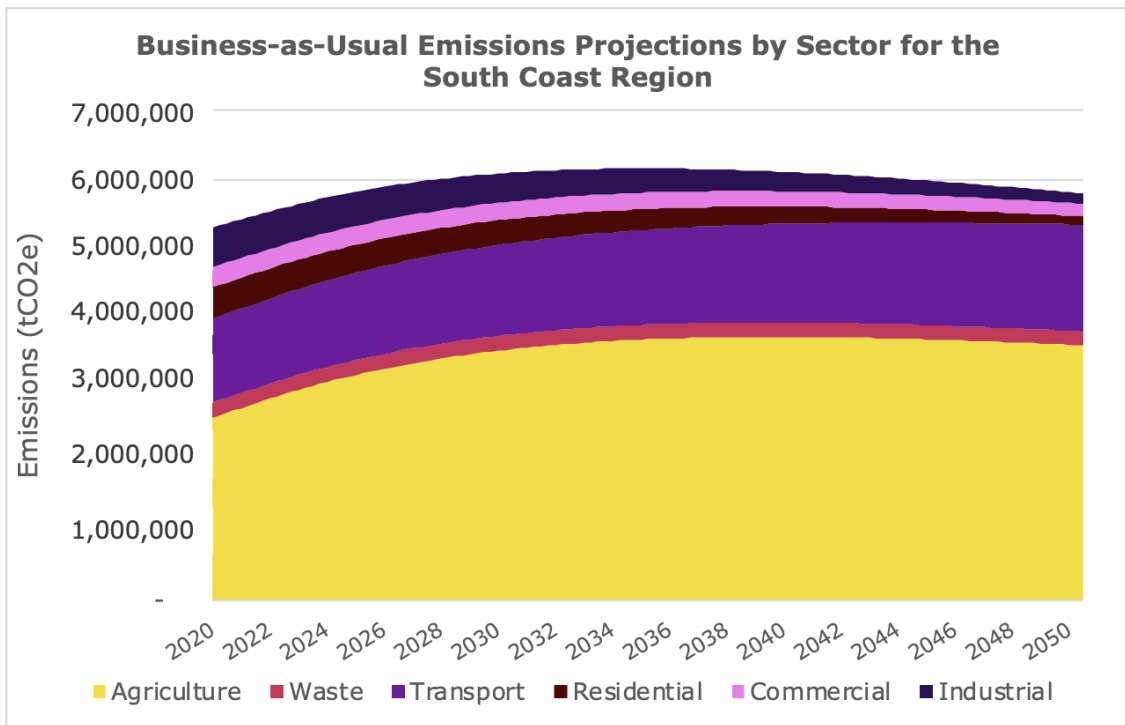


Figure 6: Emissions projected to 2050 under a business-as-usual scenario for the South Coast region

³ Australian PV Institute (APVI) Solar Map, funded by the Australian Renewable Energy Agency, accessed from pv-map.apvi.org.au on 4 April 2022

4. Pathways Towards Net-Zero Emissions

The trajectory of total emissions shows that under a BAU scenario, emissions would increase. However, when considering the potential impact of actions by the South Coast community and the Alliance, emissions could be reduced by around 1 million tCO₂e/year from BAU in the year 2050, if targeted action is undertaken. The trajectory shows that even with these actions being fully implemented, there will still be around 450,000 tCO₂e/year released in 2050. This gap in achieving net-zero highlights the potential role for state and federal governments and major industries to strive for action that is out of reach of communities and local governments.

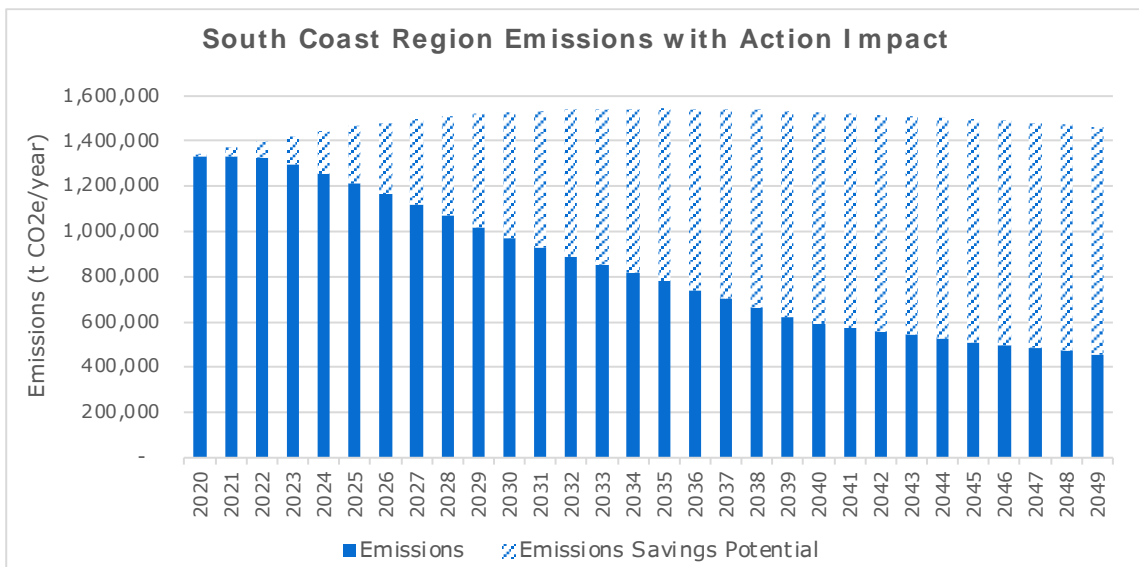


Figure 7: South Coast region emissions projections to 2050 including potential impact of local and alliance climate actions

Achieving net-zero emissions requires a collective effort from all levels of society. Local governments have a pivotal role to play, however they cannot achieve the target alone. The community must participate in decisions and behaviours to lower emissions, including industrial sites, businesses, residents and farmers. This Roadmap explores roles for the local community through “Local Action” recommendations, and roles for the South Coast Alliance and member shires through the “Alliance and Council” recommendations. These actions are modelled within each section to demonstrate the potential impact that the Region could see through these actions.

Outside of the South Coast region, several actors still have the ability to influence emissions. State and federal governments, energy distribution businesses and major corporations that have a presence in the region can all take action that would further reduce emissions and contribute towards a net-zero target. Suggestions have been made in the “Collaborative Action” recommendations.

Six core sectors have been identified to progress the South Coast region to a net-zero emissions economy by 2050. This involves changes across all levels of government, industry sectors, individuals, developers and from energy and transport providers.

Agriculture



Transport



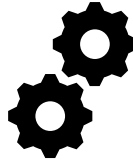
Households



Business



Industry



Waste



4.1 A Note on Land Use Change

Land use change refers simply to land being transformed from one type to another, for example this could include forest, crops, settlements or urbanisation, grassland, wetland or inert land such as rock or ice. The transformation may be due to human activities such as land clearing for settlements, or reforestation, or could occur due to bushfires or other natural events. Depending on how the land changes, it might release GHG emissions or remove them from the atmosphere.

Whilst presenting an exciting opportunity for reducing emissions, it can also be an expensive solution in terms of \$/tCO₂e abated, and it presents risks associated with bushfire and loss of productive land for agriculture.

5. Agriculture

Farming produces significant amounts of GHGs including carbon dioxide, nitrous oxide, and methane. In the South Coast region, agriculture is the highest source of emissions, responsible for 574,000 tCO₂e/year.

Arable land supports a broad range of primary industries across SCA shires, largely broadacre cropping and livestock⁴ as well as horticultural practices such as piggeries, poultry farms and grape growing. Despite the region's strong social and economic reliance on agriculture, the sector is highly exposed to climate change impacts, including extreme temperature, storms, water scarcity and the presence of pests, weeds and diseases. As climate change continues, these and other impacts will be exacerbated, ultimately affecting the prosperity of the region.

Farmers are already responding through initiatives such as Farmers for Climate Action, working with industry associations and independently setting and achieving ambitious emissions reductions targets. Coupled with a drive to explore innovative farming techniques, this culture of advocacy and knowledge and resource sharing is a valuable asset and significant opportunity for the sector to reach net-zero emissions.



⁴ Western Australian Government 2021, Regional Snapshot Brochure: Great Southern, Department of Primary Industries and Regional Development (WA), viewed 5 April 2022, <https://www.agric.wa.gov.au/crops/regional-snapshots-value-broadacre-agriculture-south-west-wa>

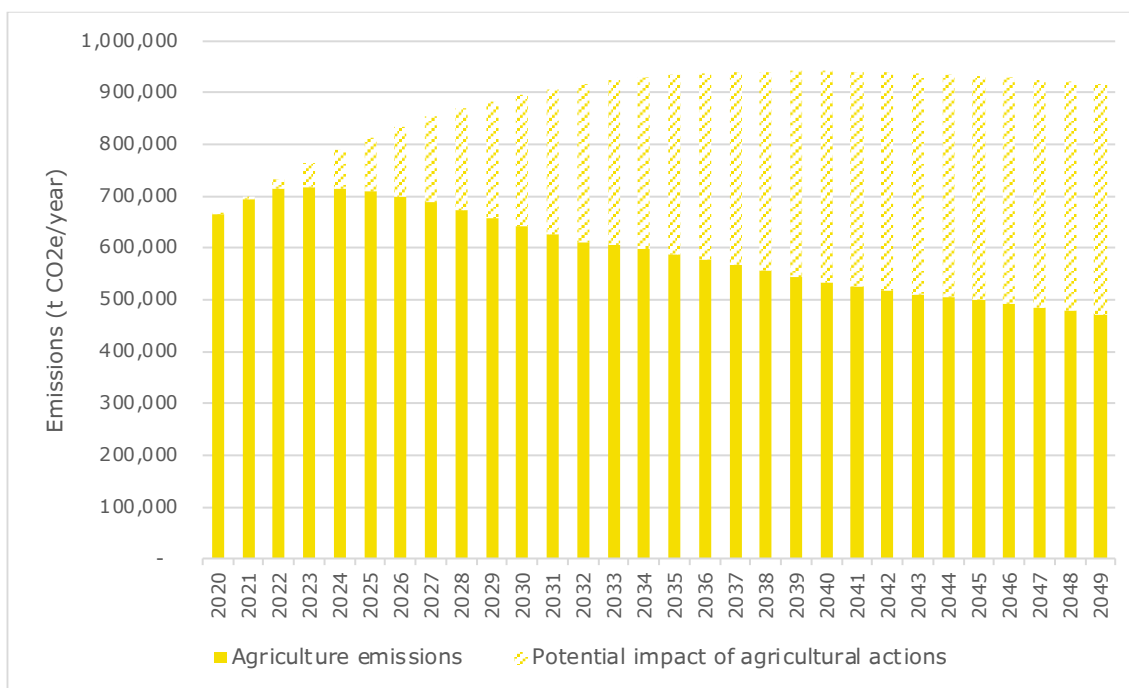


Figure 8: Agricultural emissions projections for the South Coast region, including the potential impact of local and alliance actions

In the South Coast region, based on the trends observed over the last 5 years, it is anticipated that ruminant farming (dairy, non-dairy cattle, and sheep) will continue to increase and therefore emissions will also continue to increase out to 2050 in a business-as-usual scenario. However, with targeted action, there is the potential to reduce this by about 50% by the year 2050.

5.1 Local Action for Agriculture

In Australia, ruminants spend the majority of their time in fields and therefore require a different dietary approach to their European counterparts. Various opportunities such as the use methane reducing feedstocks and regenerative agriculture can be considered appropriate technologies for the region. Such farming practices can have a significant effect on emissions reduction. Regenerative agriculture also supports the decline in fertilizer use which can save modest emissions.

Options for local landholders to reduce emissions are outlined at Table 3.

Table 3: Opportunities for local action to reduce emissions from agriculture

| | |
|---------------------------------|--|
| Regenerative agriculture | A holistic approach to farming with the aim to increase soil carbon content. Management actions are focused on: nutrient management, soil acidity management, new irrigation, and pasture renovation |
| Forest retention | Avoid land clearing where possible to support continued carbon capture by vegetation. |
| Nutrient management and | Nitrogen can efficiently be managed by attending to the Four R's: |

| | |
|---|--|
| avoiding fertilizer use | <p>Right source: matching fertilizer choices with plant needs.</p> <p>Right time and Right place: managing fertilizer applications to deliver nitrogen when and where crop demand is highest,</p> <p>Right rate: ending over-application of fertilizer as “insurance.”</p> |
| Supplementing feedstock with additives to reduce methane generation. | <p>For non-dairy cattle, seaweed supplementation is a promising new area that could be explored by farmers.</p> <p>For sheep and dairy cattle, farmers can explore eligible additives such as canola meal, brewers’ grain, dried distillers grain and hominy meal.</p> |
| Animal effluent management and methane flaring for dairy cattle and pigs | <p>Organic effluent generates biogas. Methane flaring captures and destroys the proportion of the biogas that is methane.</p> |

5.2 Alliance and Council Action for Agriculture

Although there are several options to explore emissions reductions and motivations to do so for the farming community, there are barriers to these being taken up at a large scale. Farmers, whilst fulfilling an essential role in the wellbeing of all Australians and in the national economy, experience significant challenges just in carrying out their day-to-day operations. This can include things like water security, climatic conditions, pests and disease, increasing cost of inputs and reducing price of outputs. With that in mind, the time and effort to research and implement new practices is rare. Furthermore, many of the proposed changes to practice are not well understood, and the risk if things go wrong can be high.

To support the agricultural community to better understand the costs, benefits, risks and opportunities associated with the emissions reduction actions outlined at Section 5.1, the Alliance and members can implement feasibility studies and pilot projects that provide proof-of-concept, further information and confidence in the actions. This work can build on regional partnership and agreements with other tiers of governments and sector leaders to identify opportunities to work together. This would ultimately lead to strengthened advocacy and support through information sharing and increased awareness around funding opportunities and strong business cases.

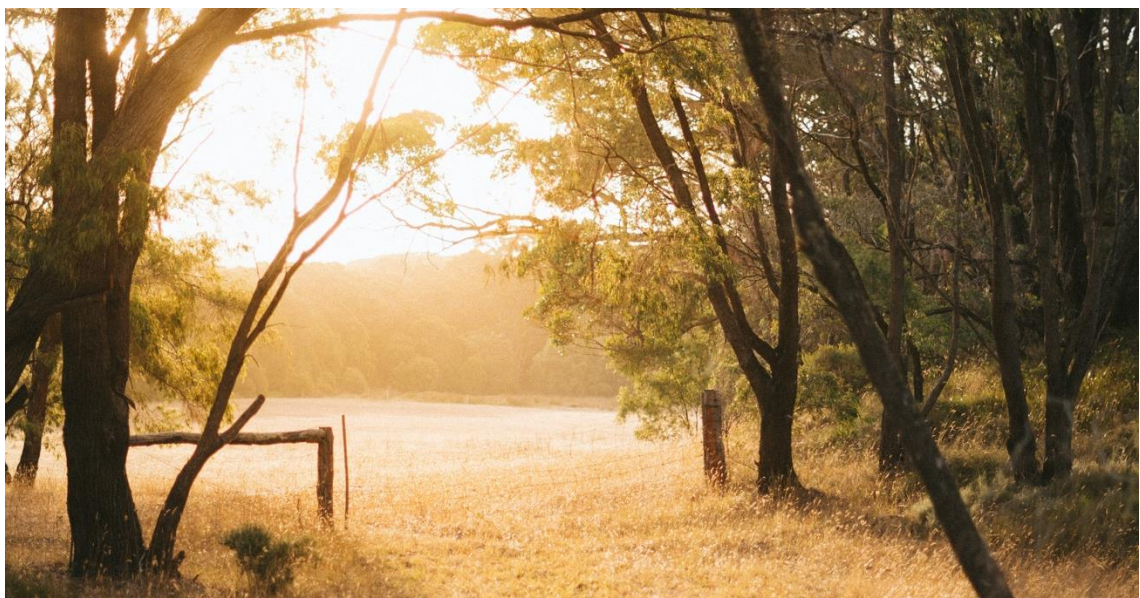
5.3 Collaborative Action for Agriculture

Outside of the Alliance and the community of the South Coast Region, there are actors who could play a part in the journey to net-zero emissions.

- AgZero2030:** Western Australian agricultural sector leaders who banded together in 2019 to promote action on climate change. They have established three core goals: Champion efforts in the WA agricultural sector to have net-zero greenhouse gas emissions (be carbon neutral) by 2030; Share positive stories from WA agriculture; and contribute to and promote good climate and agricultural policy. By continuing their role focussed on advocacy to all levels of government, leading the sector and promoting

climate-positive agricultural policy, there is scope for large-scale emissions reductions. This group has existing support from key members of the WA agricultural community, including Farmers for Climate Action, WA State Government and relevant industry peak bodies.

- **Meat and Livestock Association:** A meat and livestock representative association with strong economic and industry focus. The organisation provides resources for healthy soil management and emissions reduction, such as resources on dung beetles and carbon neutrality by 2030 targets. They take a holistic approach, considering economic sustainability (doubling red meat production), operating at the nexus of climate science and red meat value chain.
- **Farmers for Climate Action:** A national group of committed farmers and farming communities pushing for ambitious climate action. This group works through advocacy to state and federal governments, as well as working directly with agricultural producers to deliver education and foster networks and partnerships.
- **Western Australian Government:** The WA Government has launched a \$15 million Agriculture Climate Resilience Fund to help WA farmers and industry to respond to the challenges of climate change. Whilst largely focused on resilience as opposed to mitigation, this will provide much-needed support to the industry.
- **Livestock Carbon Project:** The Department of Primary Industries and Regional Development is supporting livestock producers and the wider industry to achieve carbon neutrality by 2030 through the new Livestock Carbon Project. The project will measure, research, develop and demonstrate carbon emissions mitigation and abatement through the Katanning Research Facility Carbon Neutral 2030 Demonstration Farm. This will support an adoption program for carbon neutral/low-carbon production by producers and build better information and technologies for WA production systems through a coordinated program of research and development, including on-farm activities.



6. Transport

In the South Coast region, transport is responsible for almost a quarter of all emissions. Being a rural area with often great distances to travel to access essential services, and limited public transport options, car ownership is unavoidable for many people.

Transport emissions have the greatest growth of emissions of all sectors. This is consistent with national emissions averages. There are numerous reasons for this increase but is generally due to population growth and cultural norms surrounding private vehicle ownership. The total number of all vehicles in Western Australia increased by almost 106,000 in the five years between 2016 and 2021, and their average age increased to 11.6 years⁵. Taking these factors into account, as the region's population continues to grow, we can expect to see more vehicles on the road. This includes both private commuter vehicles, which already account for approximately half of all regional emissions, as well as freight vehicles to deliver goods to these residents. Increasing vehicle numbers is somewhat mitigated by a natural transition towards more efficient vehicles, including hybrid and electric vehicles. These efficiencies are typically driven by vehicle manufacturers, market forces and government regulations specifying emissions standards.

Given the nation's reliance on road-based transport for commuting and freight, and the large travel distances within the South Coast region, transport-focussed sustainability programs have the opportunity to have significant and long-lasting impact. While Federal Government policies have been slow to support the adoption of electric vehicles, State Government investment and stakeholder support have seen increases in the awareness and infrastructure spending of this technology. Importantly, supporting the uptake of alternative energy vehicles also aligns with key Western Australian industry development and economic diversification goals, as well as the goals of associations such as RAC and the Australian Electric Vehicle Association.

⁵ Australian Bureau of Statistics, 2021 <https://www.abs.gov.au/statistics/industry/tourism-and-transport/motor-vehicle-census-australia/latest-release>

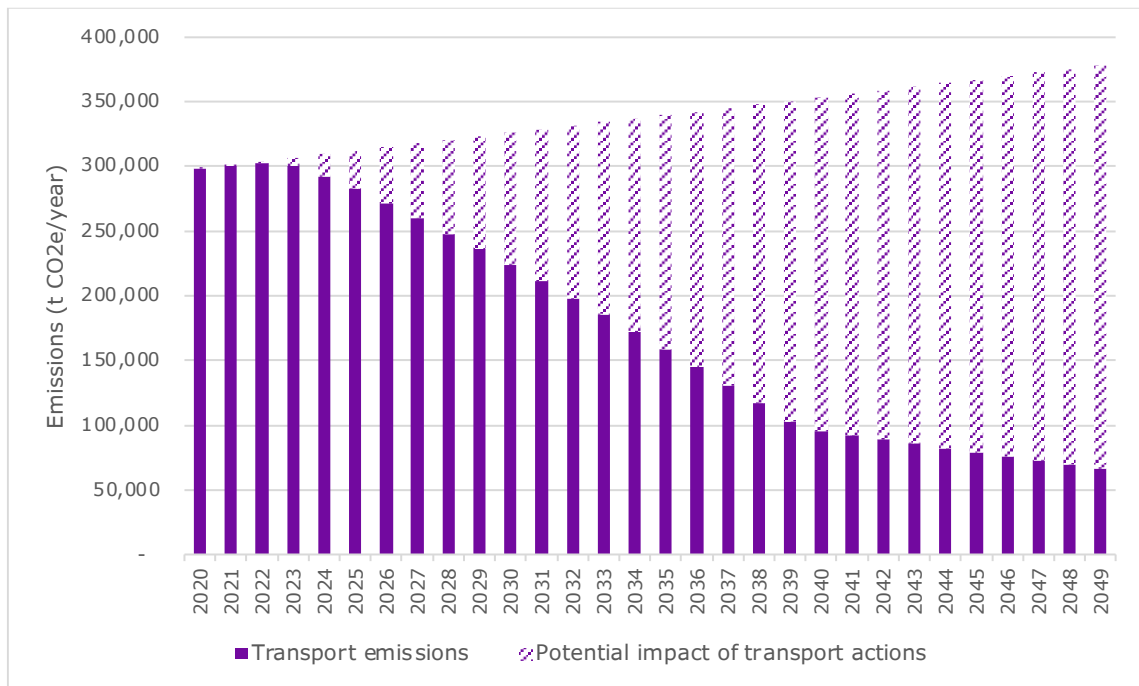


Figure 9: Transport emissions projections to 2050 for the South Coast region, including the impact of local and alliance action

Figure 9 outlines how, without intervention from councils and the community, emissions from the transport sector would rise by approximately 30% over the years to 2050. Early support to transition away from vehicles with internal combustion engines (ICE vehicles, that is, petrol and diesel vehicles), however, could see emissions reduced by around 75% by the year 2050. It should be noted that much of the action impact occurs between 2025 and 2040 when price parity occurs between EV and ICE vehicles and when EV’s enter the second-hand car market.

6.1 Local Action for Transport

For many people in the South Coast region, changing their transport methods is not easy or possible. However, where the opportunity is available, options are outlined at Table 4.

Table 4: Opportunities for local action to reduce emissions from transport

| | |
|---|--|
| Transition vehicles to EVs | The community can support zero emissions transport by choosing to purchase an equivalent electric vehicle at the point of upgrade or purchase, instead of an ICE vehicle. |
| Use alternatives to private vehicles | Where possible, the community can help reduce emissions by reducing trips taken in a private ICE vehicle, instead using other forms of transport such as public transport, cycling or walking. |

6.2 Alliance and Council Action for Transport

There are significant barriers for the local community in taking up EVs or alternative transport modes. Perhaps the greatest barrier to action at the time of developing this report, is the unavailability of EVs for sale in the region, and ability to service and repair them if they are acquired. Many models that are available can either be too expensive for consumers, or do not satisfy user requirements. Due to the large distances travelled by community members, there is also the barrier of range anxiety to overcome. Furthermore, public transport networks are relatively sparse, if not lacking completely, in certain pockets of the region.

Councils already have actions regarding transport and community support within their own strategies and plans, and these actions should be continued.

To address these barriers, and thereby improve the ability of the community to make better choices around transport, the following Alliance and Council actions can be considered:

Develop an integrated transport plan

Across four local governments, ensuring that public and community transport and EV charging networks are consolidated and aligned will ensure efficiency and improve services for the community. This is already being explored by some councils, but planning could be undertaken at a regional scale.

Advocate to local vehicle distributors to stock EVs

Currently, even if local consumers want to choose an EV over an ICE vehicle the opportunity is not available. The Alliance and councils could advocate for these to be stocked. This could lead to reduced wait times and community members having the option of purchasing an EV if they choose.

Replace Council Fleets with EVs

By upgrading council fleets to EVs, a market for distributing and servicing EVs locally will be created. This will require negotiation with local car yards, given some councils' buy-local policies, and could be supported by Federal funding. This action will demonstrate leadership to the South Coast community. As fleets continue to be upgraded, EVs will enter the second-hand market, providing more options for community members to purchase EVs.

Facilitate the installation of public use EV chargers

EV charging facilities not only supports the local uptake of EVs, but could support tourism from EV drivers. To facilitate the installation of public use EV chargers, the Alliance and/or councils could consider:

- Advocating to the State Government for more state-funded charge points
- Adopting internal guidelines or policy to strategically facilitate roll out of public EV charging stations (i.e., establish appropriate roles and processes for Council and potential charge point providers)
- Taking up opportunities for government grants and partnership with EV providers

- Advocating to other levels of government for increased investment in publicly available EV charging points.

Educate the community about EVs

As EVs become a viable option, the Alliance and councils could undertake a community education campaign to educate the South Coast community about the benefits of EVs and encourage their uptake.



6.3 Collaborative Action for Transport

In Australia, policy setting including taxes and tariffs, and regulations on tailpipe emissions, is an important tool for State and Federal governments in accelerating the transition from petrol vehicles to EVs. The Federal government is supporting the uptake of EVs through funding for charging infrastructure, incentives for fleet transitions such as the Future Fuel Fund being provided through the Australian Renewable Energy Agency (ARENA), and other strategic initiatives⁶, however more policies and tax treatments for the EV market in Australia can still be implemented.

The State Government has delivered an Electric Vehicle Strategy for Western Australia, that includes measures such as:

- Supporting the creation of an electric vehicle charging infrastructure network facilitating travel along the south-west coast to Esperance. This includes one charging station in Albany and one in Jerramungup, but none in Plantagenet or Denmark.

⁶ Australian Renewable Energy Association: <https://arena.gov.au/funding/future-fuels-fund>

- Achieving a minimum 25% electric vehicle target for new light and small passenger and small and medium SUV government fleet vehicles by 2025/26
- Developing and updating standards, guidelines and planning approvals
- Improving levels of stakeholder awareness and knowledge

Although a good start, establishing targets and actions to facilitate and support the uptake of EVs in the community would strengthen this strategy. This would build on the previous suite of actions and could see councils strive towards a certain quota of residents using EVs. This could be supported through local, or regional programs which prioritize education and incentives to encourage road users to upgrade their cars.

7. Households

In the South Coast region, households are directly responsible for almost 10% of total emissions, linked to the burning of fossil fuels for electricity and gas consumption. Being of low population density and with an urban environment heavily characterised by detached houses, residents within the alliance boundary typically live in purchased or mortgaged homes.

The South Coast region is already a leader when it comes to renewable energy. For example, the Albany Grasmere Wind Farm is responsible for producing roughly the equivalent of 80% of Albany’s annual electricity needs. Many people have also installed solar on their roof, with an estimated one in three properties in Albany already having installed rooftop solar. Under a business-as-usual scenario, the region’s already strong use of renewable energy alongside further efficiencies to the grid means that there is expected to be a decline in emissions to 2050.

This decline is supported by rising energy costs encouraging energy efficient behaviour and the purchase of energy efficient appliances, which have seen dramatic improvement in performance and efficiency recently. Similarly, the increased adoption of solar PV and batteries has contributed to an increase in renewable energy to the grid, as well as reduced demand on it at a household level. Lastly, given much of the emissions from household energy use are associated with heating and cooling, improvements in building performance have seen a reduction in energy demand.

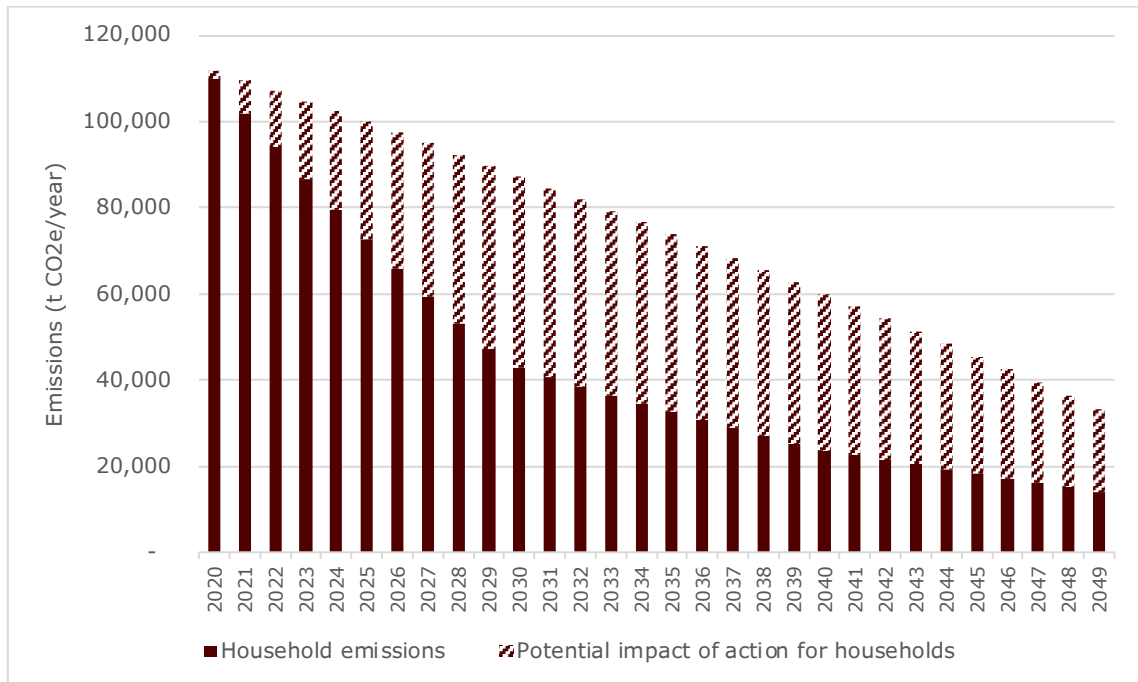


Figure 10: Household emissions projections for the South Coast region, including the potential impact of local and alliance actions

7.1 Local Action for Households

There are two key aspects to reaching net-zero emissions for the household sector: utilising renewable energy to eliminate the reliance on fossil fuels and reducing energy consumption through energy efficiency.

Given the presence of a strong renter population, it is important to acknowledge the adaptability of these key pathways for tenanted properties. This should be considered in specific program design and ensure that issues of split incentives are overcome so that both landlords and tenants can reap the benefits of energy-generating and energy efficient homes. In the case of all actions, under both an owner-occupier and renter scenario, cost savings will exist for residents. Accordingly, where community members are unsure about the cost effectiveness of such upgrades, appropriate guidance and education should be part of household emissions reduction programs.

| | |
|---|--|
| <p>Purchase and install renewable energy</p> | <p>Households can install solar PV systems onto their roofs or adjacent structure of a building, integrated into the buildings electricity system and connected to the electricity grid. This is a great opportunity, as there is a relatively short payback period, and it can reduce household energy bills. It is also a strong opportunity to prepare for an improving home battery business case.</p> <p>Where onsite solar cannot be installed due to space limitations, available capital, or other reasons, households can usually still choose to purchase renewable energy through their electricity retailer.</p> |
| <p>Energy efficiency upgrades</p> | <p>Households can retrofit their dwellings with more efficient fixtures, like insulation, draft sealing, and double glazing. They can also improve energy efficiency by transitioning to all electric appliances, and upgrading existing appliances such as heating/cooling, water heating, refrigerators, and TVs to at least a 2-star improvement over the average star rating.</p> <p>Building users or occupants can also change behaviour to lower energy use, such as through switching off lights, using less standby power, or selectively using high energy services like air conditioning and drying.</p> |

7.2 Alliance and Council Action for Households

In supporting households to reduce emissions, the Alliance and members must look not only at existing building stock, but also ensure that new buildings meet high standards so that new issues are not built in. As such, there are two proposed focus areas: Green building through strategic and statutory planning; and, Supporting building efficiency upgrades.

Green Building Through Strategic and Statutory Planning

One of the key roles of councils is in strategic town planning and implementing the planning scheme. Through both of these tools, improvements to new buildings can be made.

Developing more compact urban environments through strategic planning for infill will improve access to services, encourage more efficient development and reduce transport times. This aligns with the WA Government's Liveable Neighbourhoods initiative⁷.

In implementing the existing planning code, the Alliance and councils could ensure that local planning teams systematically assess building applications to ensure a consistently high standard of ESD practice is achieved. They could also work with local developers to facilitate and promote higher ESD standards, and potentially use promotions and awards to celebrate achievements in green architecture. It is noted, however, that this may require additional staffing resources from councils.

Finally, the Alliance and councils could seek amendments in the planning scheme which can facilitate increased liveability and require better ESD in buildings. This might be done through advocacy to the State Government or through revisions to Local Planning Schemes. Such advocacy could also relate to public housing projects developed by the State Government.

Building Efficiency Upgrades

To support building efficiency upgrades and installation of renewables by local communities, the Alliance and councils can deliver education programs and advice. This could take the form of websites and interactive portals, workshops or linking people through to energy experts. A component of this could celebrate on local energy efficient projects, and highlight best practice through examples and case studies. This would allow residents to better understand local opportunities and benefits associated with household energy efficient actions.

7.3 Collaborative Action for Households

The Western Australian Government announced a \$13 million Household Energy Efficiency Scheme in November 2021, focused on helping around 10,000 households over 4 years to reduce their energy bills. This program provides energy counselling and support to low-income households in particular, across the Synergy and Horizon Power distribution areas. Expanding this program to include additional geographies and consumer groups would enable a greater number of households to access this support.

The State Government also has a critical role to play in the approval of the planning scheme. By increasing standards at the state level to encourage low or zero emissions infrastructure and housing, all developers will be supported to build to a high ESD standard.

Similarly, there is a role for the Federal Government to strengthen provisions in the National Construction Code (NCC) for new buildings to increase the required NatHERS rating from 6 to 7 stars. There is advocacy underway by a number of Victorian Councils to see this change, demonstrating how local governments have the power to influence outside of their own jurisdiction.

⁷ Western Australian Government 2009, Liveable Neighbourhoods: a Western Australian Government sustainable cities initiative (January 2009 Update 02), Western Australian Planning Commission, viewed 6 April 2022, https://www.dplh.wa.gov.au/getmedia/1fc06abe-fc35-4c68-a7c6-ebc3007a62ac/FUT_LN_Liveable_Neighbourhoods_update_02

8. Businesses

Commercial and retail businesses are key to the livelihood, prosperity and liveability of Australia's regional communities as much as they are to our cities. They are also entities of various scales that can occupy large tracts of land, use high volumes of stationary energy and rely on the import of goods and services from abroad to satisfy local needs. As some sectors continue to expand in the region, such as accommodation and food services associated with a growing tourism sector, the energy consumed by businesses will continue to increase.

Despite the commercial sector accounting for a relatively small proportion of emissions, businesses have an important role to play in emissions reduction. Businesses provide leadership to the local community and by delivering a sustainable economy they can grow with confidence.

The South Coast region displays a healthy balance of business-types and industries spread across numerous sectors. The most significant sectors in the region from an employment perspective are education and training, health care and social assistance, retail trade, accommodation and food services and agriculture.

Businesses operating within the region are taking steps to reduce emissions. For example, the Coles Group and Woolworths have committed to net-zero carbon emissions by 2050 and 100% renewable electricity by 2025.

The Albany Chamber of Commerce and Industry and the Denmark Chamber of Commerce are both support local businesses, encourage participation in a local economy and provide services such as advocacy, networking and advice to businesses. Two schools in the region – Albany Senior High School and Great Southern Grammar School – have subscribed to the Climate Clever program and are aiming to reduce their GHG emissions.

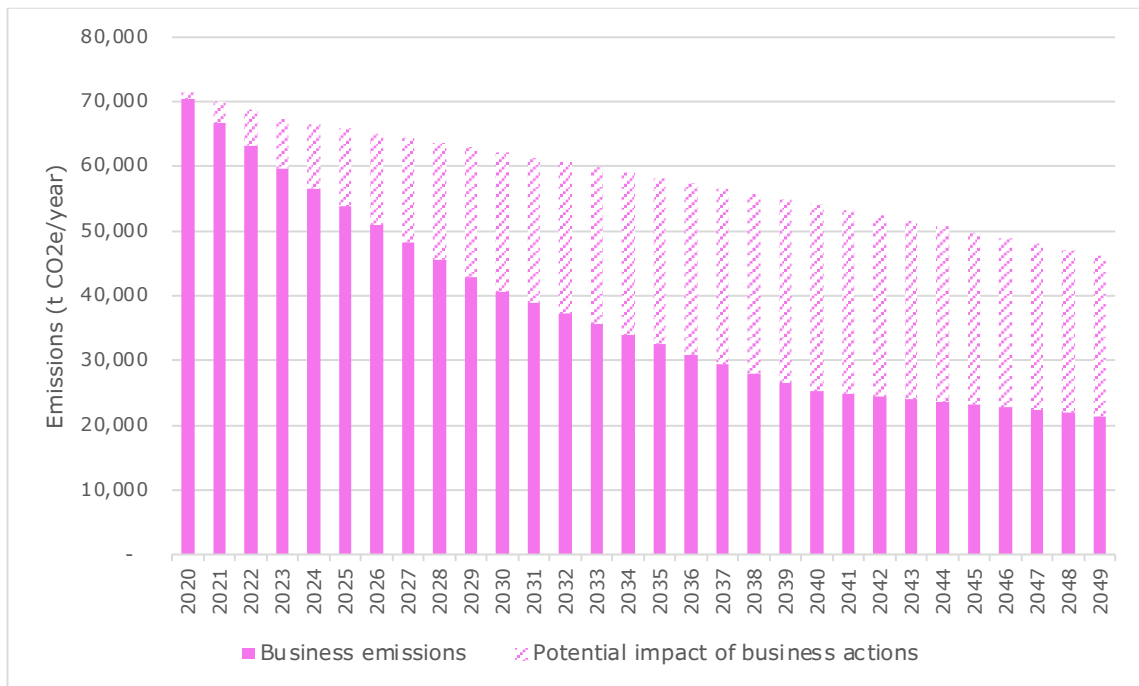


Figure 11: Business emissions projections for the South Coast region, including potential impact of local and alliance actions

Under a BAU scenario, emissions from businesses are expected to steadily decline over the next three decades. The reasons are similar to those discussed in Section 7, and are ultimately founded on technological improvements and reduced energy intensity of the electricity grid.

8.1 Local Action for Businesses

Similarly to households, there are two key ways that businesses in the South Coast region can support a transition to net-zero emissions. These are outlined at Table 5 and could be delivered by individual businesses as well as supported or championed by local chambers of commerce.

Table 5: Opportunities for local action to reduce emissions from businesses

| | |
|---|---|
| <p>Purchase and install renewable energy</p> | <p>Where businesses own their building, they can install solar PV systems onto their roof, integrated into the buildings electricity system and connected to the electricity grid. This is a great opportunity, as there is a relatively short payback period and it can reduce energy bills.</p> <p>Where onsite solar cannot be installed due to space limitations, available capital, or building tenure, businesses can sometimes still choose to purchase renewable energy through their electricity retailer. Similarly, businesses may be able to purchase carbon offsets if they are unable to generate their own, renewably sourced power.</p> |
| <p>Energy efficiency upgrades</p> | <p>Businesses can retrofit their building envelope, for example through installing insulation or draft sealing. They can also improve energy efficiency by transitioning to all electric appliances, and upgrading existing appliances such as heating/cooling, water heating, refrigerators, and lighting.</p> |

| | |
|--|--|
| | <p>Businesses can also focus on encouraging building users or occupants can change their behaviour to lower energy use, such as switching off lights or adjusting settings for heating and cooling. This may be through thermal comfort policies or automated building management systems.</p> |
|--|--|

8.2 Alliance and Council Action for Businesses

There are several barriers to businesses reducing emissions from their operations. Building tenure is a significant barrier that prevents many businesses from making crucial changes to the building envelope or installing rooftop solar. The time and capital required to make such changes where they are available is also a challenge for businesses, in particular following a period of pandemic where the tourism industry was exposed to times of financial uncertainty.

Although these are challenging matters that can't all be readily addressed by the Alliance, there are ways to provide support. As for households, part of the solution involves ensuring that all buildings from this point forward are built to high ESD standards. The Alliance and councils could also support businesses in existing buildings to transition to lower emissions energy and technology. As with other sectors, a strong opportunity remains for councils and the Alliance to play an advocacy role to encourage the State and Federal Governments to incentivise improvements to new and existing commercial buildings.

Demonstrating Leadership

Local governments are leaders in their communities, and one way the Alliance can demonstrate the benefits of green building, is by making upgrades to their own assets. This includes council halls, civic centres, leisure centres and council-owned facilities.

The Alliance could also promote community leaders, by sharing the stories of local businesses that have made energy efficiency upgrades or installed renewables and potentially extending this out to sponsor a sustainability category at local business awards. A record of such case studies would demonstrate to others what is possible to achieve and heighten ambition across the sector. It may also provide an avenue for knowledge sharing about funding streams.

Green Buildings through Statutory Planning

In implementing the existing planning code, the Alliance and councils could ensure that local planning teams systematically assess building applications to ensure a consistently high standard of ESD practice is achieved. They could also work with local developers to facilitate higher ESD standards. Again, it is noted that this may require additional staffing resources from councils to facilitate this.

The Alliance and councils could also seek improvements to the planning scheme. This might be done through advocacy to the State Government or through revisions to Local Planning Schemes. For example, changes might include ensuring that the planning code and local policies are as amenable as possible to sustainable actions, such as supporting rooftop solar within visual amenity clauses. Such changes in the Planning Scheme and associated policies and guidelines should be considered in conjunction with any revisions first required to the National Construction Code, as mentioned in Section 7.3.

8.3 Collaborative Action for Businesses

The impact of major retail businesses in Australia on emissions will be significant for every local government area in Australia. As noted above, Coles Group and Woolworths Group have established ambitious emissions reductions targets that will see 100% renewable energy powering stores by 2025. Wesfarmers (owners of Kmart, Officeworks and Bunnings) have also established a target of net-zero emissions by 2030.

Facilitate Power Purchase Agreements

As noted earlier, installing renewable energy isn't feasible for many businesses due to building tenure. Where possible, the Alliance could explore power purchase agreements (PPAs) for business so they are able to procure renewable energy. This would be most impactful if focussed on businesses with medium-high energy use and combined with a program that incorporated industrial energy users.

9. Industry

Emissions from industrial stationary energy use, largely manufacturing and construction, produce approximately 12% of the region’s footprint. While much of this is due to the burning of fossil fuels for electricity, industry is also the single greatest user of gas in the region.

Given the necessity for high volumes of energy and specific machinery, emissions from industry can be difficult to eradicate simply by limiting energy use and switching to on-site renewables. While common technologies for renewable electricity may not be sufficient to power large industrial facilities, using a combination of technologies such as energy efficient manufacturing processes, electrical machinery, hydrogen fuel and sourcing green electricity can significantly reduce operational emissions. Importantly, as the energy grid decarbonises and more opportunities for alternative fuels to replace gas become available, this sector is expected to see reduced emissions. This has already been acknowledged by the Shaping Western Australia’s Low Carbon Future which will seek to develop sectoral emissions reduction strategies for various key industries across Western Australia.

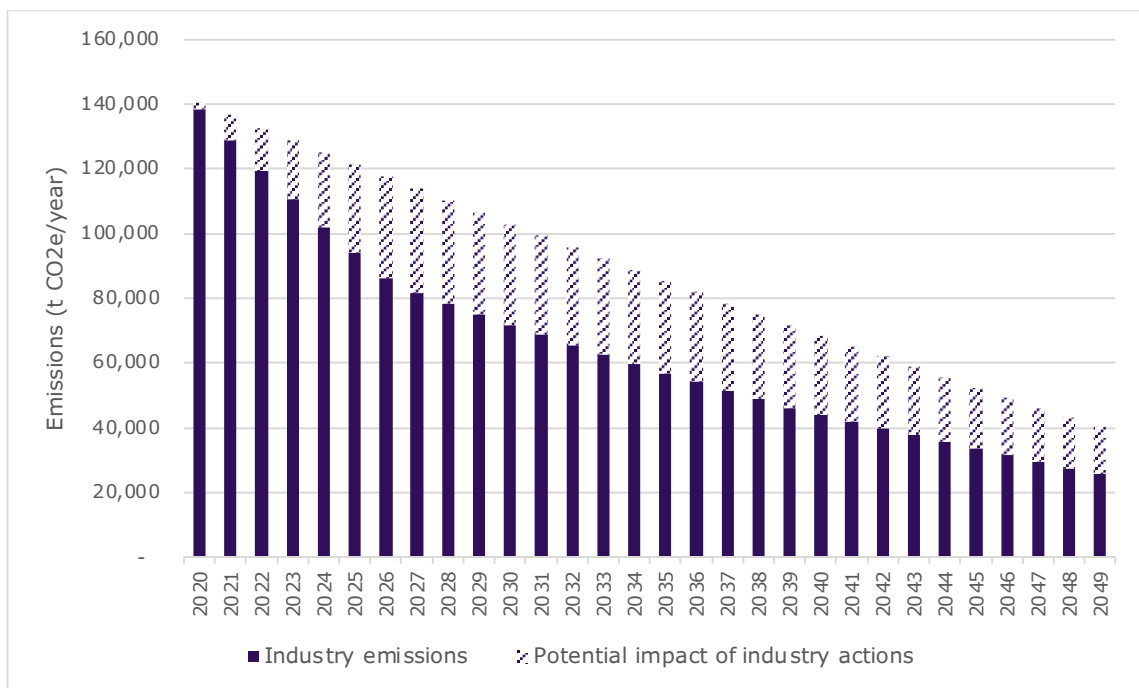


Figure 12: Industry emissions projections for the South Coast region, including the potential impact of local and alliance actions

9.1 Local Action for Industry

Options for industrial energy users to reduce emissions are outlined at Table 6.

Table 6: Opportunities for local action to reduce emissions from industrial energy

| | |
|---|--|
| Purchase or install renewable energy | Industrial energy consumers often have large roof spaces meaning there is the opportunity for solar PV systems of significant size. Where this isn’t possible, or electricity is required throughout the |
|---|--|

| | |
|--|--|
| | evening, power can be purchased through an electricity retailer or PPA to ensure it is sourced from renewables. |
| Industrial energy efficiency upgrades | Although there are often unique applications of machinery and technology, industrial energy consumers can ensure that at the point of purchase or upgrade they are making choices that consider the energy efficiency of these items. There are also considerable savings to be found by upgrading simpler technologies on industrial sites, such as ensuring all lighting is LED, hot water systems are efficient, and heating and cooling devices are upgraded to efficient options. |
| Transition from gas to electricity | There are alternatives to gas-powered machinery for some applications that allow a business to transition to fully electric operations, meaning this electricity can then be generated renewably. For some industrial applications, in particular processes requiring extremely high heat, there are not currently electric equivalents that are available or feasible. |

9.2 Alliance and Council Action for Industry

Whilst there are some easy wins for the sector, such as installing or purchasing renewables, or upgrading lighting to LED, some technology applications are unproven or not well understood. Furthermore, access to capital and financial feasibility can provide barriers.

When looking to support the sector, the Alliance and councils can offer facilitation and education.

Facilitating working groups with industrial consumers and peak bodies

This approach is best applied to the most significant energy users in the region and provides the opportunity for the Alliance to build relationships, understand challenges faced by businesses and support them to overcome these challenges. The Alliance could also support these consumers to enter into PPAs, by providing support to navigate the sometimes complex legal, contractual and energy market knowledge required. When it comes to industrial emissions, they are often managed by a small number of consumers each responsible for large emissions profiles, so working closely with these large consumers could provide a significant opportunity for emissions reductions.

Education

For the broader industrial sector, a one-to-many approach that educates consumers about PPAs, installed renewables and energy efficiency could be implemented.

Reducing emissions from road building

Councils are responsible for building new local roads and infrastructure within the community. By making simple changes to the design of footpaths and verges that reduce concrete use emissions can be saved. There are also options for altering the mixes for concrete and asphalt to include greater use of recycled materials.

9.3 Collaborative Action for Industry

Building 4.0 CRC

Building 4.0 CRC is an industry led research initiative co-funded by the Australia Government. The project aims to develop an internationally competitive, dynamic and thriving Australian advanced manufacturing sector, delivering better buildings at lower cost and the human capacity to lead the future industry. This includes three research streams, which are:

- new industry-wide culture, practices and standard protocols that will enable the transformation of the entire sector;
- new building processes and techniques through leveraging the latest technologies, data science and AI; and
- improvements to building “hardware” and processes, and their interaction with our digital and sectoral programs, to ultimately improve all aspects of the key building phases (development, design, production, assembly, operation, maintenance and end-of-life).⁸

As with other areas, an opportunity exists for industry awards to recognise leaders in this space. This could form a component of existing industry awards, or councils could collaborate to establish a new platform to celebrate innovative and sustainable practices.

Western Green Energy Hub project

The project is a large zero carbon green hydrogen and green ammonia project, proposed for the South Coast. Local (electricity) and export (hydrogen/ammonia) opportunity is proposed by the operator.

Western Australian State Government

The State Government has plans to develop sectoral emissions reduction strategies during 2022. This is likely to include significant support to the industrial sector and include a focus on large-scale solutions. The recently released, *Shaping Western Australia’s low-carbon future: Developing sectoral emissions reduction strategies to transition the economy to net-zero* highlights several key projects that transition industrial operations to renewable or hydrogen energy sources⁹.

Appropriate projects from these initiatives, as well as other innovative, local projects can be used and celebrated by councils and the Alliance to showcase best practice in the sector. Again, encouraging further interest in sustainable practices can be achieved by facilitating industry awards which seek to recognise leaders in this space. This could leverage off existing awards programs in the region such as the ACCI Great southern Business Awards.

⁸ Building 4.0 CRC, Accessed 7 April 2022, <https://building4pointzero.org/>

⁹ Western Australian Government 2021, *Shaping Western Australia’s low-carbon future: Developing sectoral emissions reduction strategies to transition the economy to net zero*, Department of Water and Environmental Regulation, accessed 6 April 2022, <https://www.wa.gov.au/system/files/2021-12/Shaping%20Western%20Australia%E2%80%99s%20low-carbon%20future.pdf>

10. Waste

Waste contributes directly to greenhouse gas emissions through the generation of methane from the anaerobic decay of waste in landfills, and the emission of nitrous oxide from wastewater facilities. In total, waste generated within the region makes up roughly 2% of total emissions.

Despite the relatively low percentage of emissions from landfill sites, waste management is a focus of all four Alliance LGA’s plans and strategies and some councils are proactively working in this space to reduce emissions associated with waste. Furthermore, the Western Australian Government has set a 20% reduction in waste by 2030 as part of the Waste Avoidance and Resource Recovery Strategy. Through a combination of waste avoidance, increased material recovery and energy generation from waste, the achievement of targets within this strategy will be a significant financial and environmental opportunity for all Western Australian communities.

For councils, waste management is seen as a core responsibility. Many councils already offer opportunities and incentives to the community for the correct separation of waste to ensure flow-on material recovery processes are simplified and cost effective. Experiences from other councils have shown introduction of FOGO collection services can reduce organics going into landfill by up to 80%. The provision of green waste and commingled recycling bins as well as technological solutions such as methane capture are already being utilised in the region. Other programs such as soft plastics, battery and light bulb recycling and converting green waste to biochar are also being utilised by the City of Denmark in conjunction with local circular economy actions such as the Garage Sale Trail and Responsible Cafes programs. Such leadership will continue to provide co-benefits to the community while ultimately supporting a closed loop local economy.

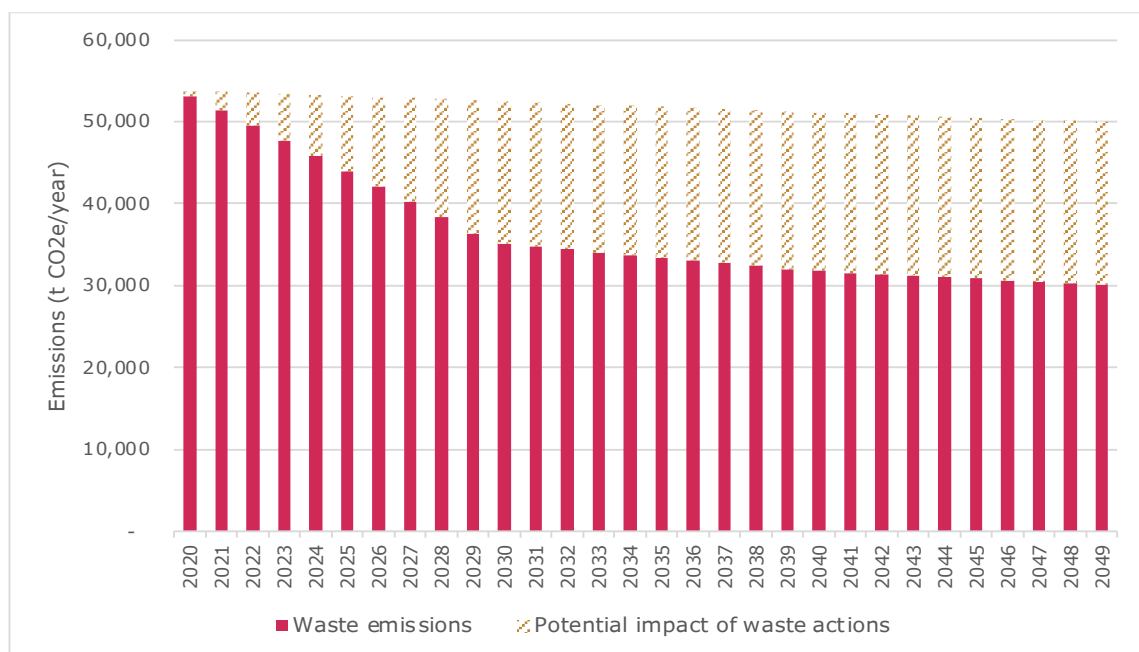


Figure 13: Waste emissions projections for the South Coast region, including the potential impact of local and alliance actions

10.1 Local Action for Waste

To support zero emissions waste in the South Coast region, councils can promote best practice for home composting, thus encouraging the local community to reduce waste. Councils can also support behavioural changes and implement practices including 'reduce, reuse, and recycle', alongside collecting FOGO for compost. This is already being done by some of the Alliance councils, and a strong opportunity exists to share knowledge on the impact of how existing projects are performing.

10.2 Alliance and Council Action for Waste

The four local governments in the Alliance already work together on waste management through the South Coast Sustainable Waste Alliance. Through this alliance the councils collaborate on landfill management, waste diversion programs (through recycling) and community education.

To further reduce emissions from waste, the Alliance could consider supporting the implementing a food organics and garden organics (FOGO) collection service for member councils that do not already run one. This would reduce emissions associated with household waste by diverting all organic waste to industrial composting facilities for reuse.

Consideration should be given to methods that convert methane to more environmentally friendly options for example methane capture at regional landfill sites, including advocacy for funding to support these programs.

10.3 Collaborative Action for Waste

The State Government has funding currently available to support the implementation of FOGO collection and management by local governments, through the \$20 million Better Bins Plus: Go FOGO program¹⁰. The City of Albany has already obtained funding for this program and is willing to share information to assist other councils to introduce a three bin kerbside waste collection system.

The WA Government has also developed a WasteSorted Toolkit to support local governments to communicate with their communities about waste avoidance and sorting¹¹. This work indicates strong interest in developing scalable solutions for recycling and waste management at a local level and suggests the value of ongoing State and Federal support and funding. As with other program areas, an opportunity exists to advocate for further work in this space. This may include the provision of FOGO options for business and industry sectors, where high volumes of materials otherwise destined for landfill can be recovered. Such work would build on the growing knowledge and resource base to improve waste management practice such as the Better Practice FOGO Services guide developed by the WA Government, WA Waste Authority, and WALGA with contributions from the City of Albany.

¹⁰ Western Australian Government 2022, *Better Bins Plus: Go FOGO*, Waste Authority, viewed 7 April 2022, <https://www.wasteauthority.wa.gov.au/programs/view/better-bins>

¹¹ Western Australian Government 2022, *WasteSorted Toolkit*, Waste Authority, viewed 7 April 2022, <https://www.wasteauthority.wa.gov.au/programs/view/waste-sorted>

Appendix A: Science-derived Target Methodology

Global Carbon Budget

The IPCC, the leading authority on current climate change scientific knowledge, has developed long-term emission scenarios which show a range of potential emissions trajectories and impacts based on highly detailed and rigorous modelling. These scenarios indicate the maximum total emissions allowable to limit the increase in global average temperatures to 2°C, which is considered the threshold for avoiding dangerous climate change. The IPCC reports that for climate stabilisation to occur (2°C), industrialised countries need to reduce their greenhouse gas emissions by approximately 85% by 2050.

Based on the above, the world’s “carbon budget” is the total volume of greenhouse gases that can be emitted while providing a degree of confidence that temperature rise will be limited to a relatively safe and manageable 2°C. The accepted global carbon budget established by the IPCC is 1,701 Gt CO₂-e for the period 2000-2050.

National Carbon Budget

There is no international agreement on the division of the global carbon budget between countries. In apportioning a national carbon budget, there are a number of approaches. The Australian Climate Change Authority (CCA) has used an approach that they consider fair and equitable. This approach ensures that:

- developing countries are initially allowed an increased per-capita carbon budget to allow for additional emissions whilst they grow their economy; and,
- high per-capita emitters (such as Australia) are allowed time to adjust to their reduced carbon budget, rather than setting them up to fail with an allowance that is considerably lower than their current emissions.



Based on this methodology, CCA recommended a national carbon budget of 10.1 Gt CO₂-e for the period 2013-2050.

Australia’s current targets for reducing greenhouse gas emissions are 26-28% reductions on 2005 levels by 2030 and net-zero emissions by 2050. In its 2015 reports to the Minister for the Environment on Australia’s future greenhouse gas emissions reduction targets, the CCA recommended that Australia commit to the following science-based targets:

- a 2025 target of 30% below 2000 levels; and
- further reductions by 2030 of between 40 and 60% below 2000 levels.

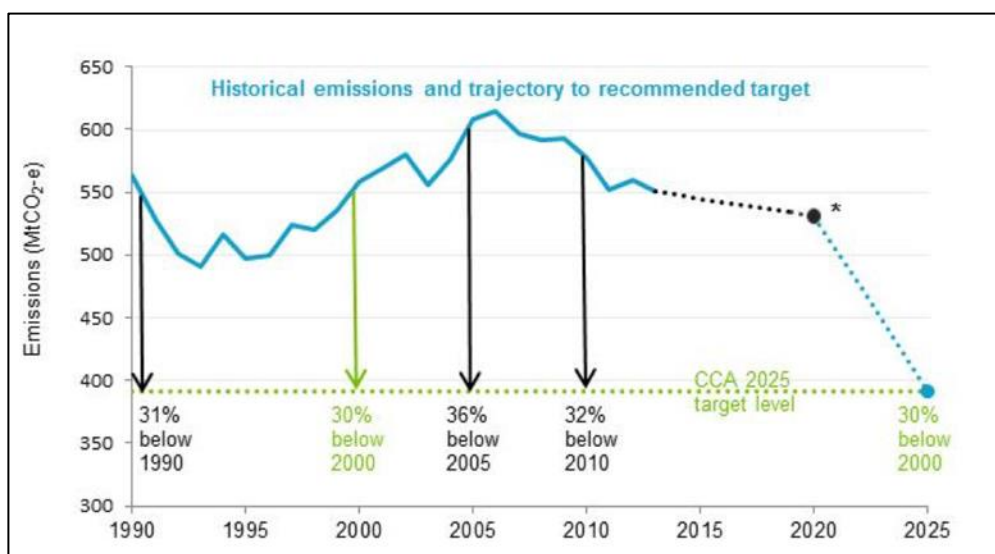


Figure 14: Historical emissions and trajectory to recommended target

Source: CCA 2015, *Final Report on Australia's Future Emissions Reduction Targets*, <https://goo.gl/s4CYvb>

The South Coast Alliance Carbon Budget

In determining a regional budget for greenhouse gas emissions, there are again a number of methodologies that can be employed. Most simply, it is possible to divide the national carbon budget according to population so that a municipality or region with a bigger population would be given a larger budget than a smaller municipality or region. However, this neglects a number of important factors that influence a region's ability to reduce emissions.

In developing a science-based target for the South Coast Alliance, Ironbark has applied the following considerations:

- Australia's current carbon budget is equivalent to CCA's national carbon budget minus all emissions that have occurred since the budget was derived, per the National Greenhouse Gas Inventory.
- The carbon budget is adjusted to account for the sources considered in South Coast Alliance's community emissions profile (agriculture, electricity, transport, waste, and gas). This is done by applying the proportions of each sector from the most recent National Greenhouse Gas Inventory.
- The Alliance's emissions for each sector are calculated as a proportion of the total national emissions for each sector.
- The municipal carbon budget for each sector is allocated to the Alliance based on this proportion. For example, if the Alliance's transport emissions account for 0.8% of national transport emissions, then the Alliance will be allocated 0.8% of the national carbon budget for transport. The budget allocated to the Alliance for each sector is then summed to generate the total carbon budget for the Alliance.

Scaling the Budget

Once a total carbon budget for the South Coast Alliance is calculated, further scaling factors are applied. These scaling factors are explained in the sections below.

SEIFA Scaling

The municipal carbon budget is scaled to account for socio-economic differences using the Socio-Economic Index for Areas (SEIFA) as follows:

- Municipalities with a lower than average SEIFA score (i.e. higher levels of disadvantage) are allocated a larger share of the national carbon budget.
- Municipalities with a higher than average SEIFA score (i.e. higher levels of affluence) are allocated a smaller share of the national carbon budget.
- This allows us to account for the fact that councils with a highly disadvantaged community are expected to find it more difficult to reduce emissions.

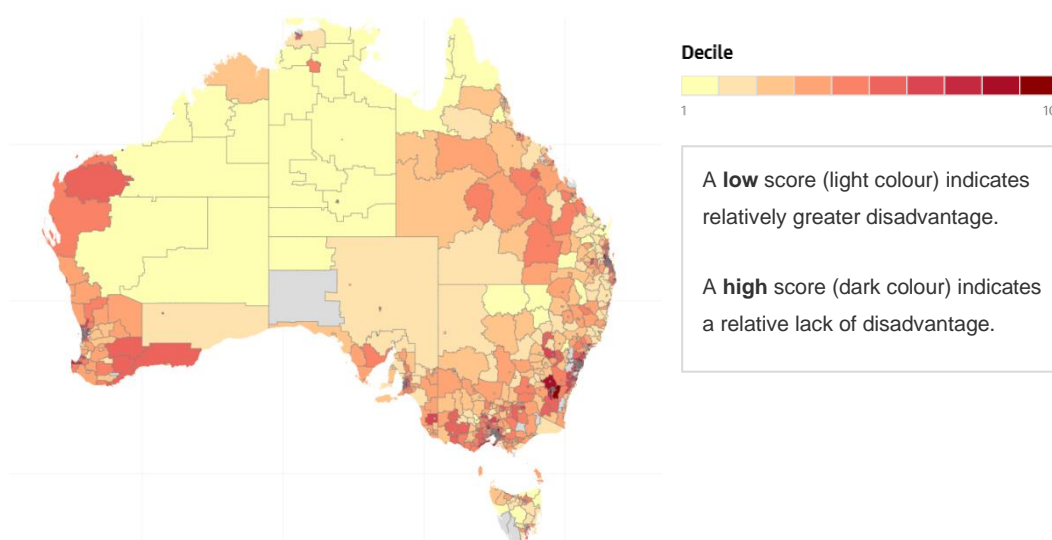


Figure 15: Relative advantage and disadvantage across Australia, ABS June 2016

Scaling for Growth

The regional carbon budget is then scaled to account for projected population growth as follows:

- Municipalities with a higher than average growth rate, based on normalised growth rates for all Australian municipalities between 2016 and 2018, are allocated a larger share of the national carbon budget.
- Municipalities with a lower growth rate are allocated a smaller share of the national carbon budget.
- This accounts for the fact that councils experiencing higher growth rates are expected to find it more difficult to reduce emissions.

Science-Derived Target for the South Coast Alliance

The calculated science-derived target for the South Coast Alliance is provided in Table 7.

Table 7: Scaled target for the South Coast Alliance

| | |
|--|------------|
| Remaining budget for the South Coast Alliance (t CO ₂ -e) | 17,470,283 |
| Remaining years without change (years) | 14.23 |
| Required linear rate of reduction (p.a.) | 3.51% |
| Required linear annual reduction (kt CO ₂ -e) | 43,130 |

The *Remaining budget* for the South Coast Alliance is 17,470,283 t CO₂-e from 2018/19.

The *Remaining years without change* or "*Runway*" (14.23 years) calculates how long this carbon budget would last, based on the emissions released in 2018/19.

The *Required annual reduction* and *Required rate of reduction* shows that the South Coast Alliance's emissions need to reduce by 43,130t CO₂-e (3.51%) per year to remain within the allocated budget.

An evidence-based action plan framed by the SDT will provide a pathway for Council to drive reductions at the required scale, but it will truly require a collaborative process between Council, community actors, and other government actors to achieve these targets in practice.

Appendix B: Analysis on Emissions Reduction Activities for SCA

This analysis presents several ways to look at the emissions reduction activities within the South Coast Alliance region, and how they compare beyond.

Reference Documents

The following reference documents were used for the councils within the South Coast Alliance:*

| Municipality | Document name | Weblink |
|--------------|--|---|
| Albany | City of Albany STRATEGIC COMMUNITY PLAN 2032 | https://www.albany.wa.gov.au/facilities/community/community-strategic-plan-2032.aspx |
| Albany | City of Albany CORPORATE BUSINESS PLAN 2021-25 | https://www.albany.wa.gov.au/documents/2140/corporate-business-plan-2021-2025 |
| Albany | Carbon Footprint Reduction Strategy | https://www.albany.wa.gov.au/documents/459/carbon-footprint-reduction-strategy |
| Denmark | SUSTAINABILITY ACTION PLAN | https://www.denmark.wa.gov.au/Profiles/denmark/Assets/ClientData/Shire_of_Denmark_Sustainability_Action_Plan_FINAL.pdf |
| Jerramungup | Shire of Jerramungup Corporate Business Plan | 943-draft-corporate-business-plan-2020-2024.pdf (jerramungup.wa.gov.au) |
| Plantagenet | Shire of Plantagenet 2026 Community Plan | https://www.plantagenet.wa.gov.au/documents/14/plantagenet-2026-strategic-community-plan |

From these references, the following activities were identified:

| Count by number of activities per council | Total activities |
|---|------------------|
| Albany City Council | 39 |
| Shire of Demark | 64 |
| Shire of Jerramungup | 1 |
| Shire of Plantagenet | 9 |

Analysis

Breakdowns between corporate and community focuses

The breakdown of focus for these activities, between corporate actions (reducing council's own emissions) and community (activities focused on reducing emissions from the broader community) is as follows:

* It should be noted that some reports and policies developed by South Coast Alliance councils have not been included in this report. This is due to selection of relevant strategies to compliment program areas which inform this Roadmap.

| Focus | Total activities | Proportion |
|-------------------|------------------|------------|
| Corporate focused | 46 | 23% |
| Community focused | 151 | 76% |

Targeted sectors

When looking at the sectors being targeted by the SCA, as compared to the broader Australian context. There are some notable differences in focus, as can be seen in the following table:

| Sector | General Australia | SCA |
|-------------------|-------------------|-----|
| All | 4% | 17% |
| Life Cycle | 0% | 10% |
| Land Use Change | 9% | 10% |
| Stationary Energy | 56% | 13% |
| Transport | 23% | 17% |
| Waste | 9% | 33% |

The standout differences here are the relatively low focus on stationary energy in the SCA region as compared to Australian municipalities in general, and the notably higher focus on waste. Transport and land use are similar. Additionally, there are more 'All' category activities in the SCA proportionally, which suggests more unfocused strategic objectives (activities that target all sectors simultaneously are more likely to be relatively ineffective).

Intraregional Analysis

Targeted sectors

The **focus of activities** for the region was in **waste** and in **transport**. Denmark had the most activities targeting these sectors overall, followed by Albany.

| Sector | Albany City Council | Shire of Denmark | Shire of Jerramungup | Shire of Plantagenet |
|-----------|---------------------|------------------|----------------------|----------------------|
| Waste | 4 | 9 | 0 | 2 |
| Transport | 4 | 4 | 0 | 1 |
| Total | 8 | 13 | 0 | 3 |

When looking at the different intervention types being deployed by the councils, we can see they are primarily employing, education, facilitation, and infrastructure improvements. The councils differ quite a lot in how they are approaching this, however.

Education interventions

Most councils employ education programs when targeting waste, while only Demark employs a program targeting transport.

| Sector | Albany City Council | Shire of Demark | Shire of Jerramungup | Shire of Plantagenet |
|-----------|---------------------|-----------------|----------------------|----------------------|
| | Education | Education | Education | Education |
| Waste | 2 | 5 | 0 | 1 |
| Transport | 0 | 1 | 0 | 0 |
| Total | 2 | 6 | 0 | 1 |

Facilitation interventions

Facilitation programs, which are heavily favoured in other Australian municipalities, and typically see substantially better cost effectiveness in impact, are generally not being employed in the SCA region. The key exception is Denmark, which has several programs focused on facilitation action adoption. This may make them a thought leader here.

| Sector | Albany City Council | Shire of Demark | Shire of Jerramungup | Shire of Plantagenet |
|-----------|---------------------|-----------------|----------------------|----------------------|
| | Facilitation | Facilitation | Facilitation | Facilitation |
| Waste | 0 | 2 | 0 | 0 |
| Transport | 0 | 2 | 0 | 1 |
| Total | 0 | 4 | 0 | 1 |

Infrastructure interventions

Both Albany and Denmark are involved in many infrastructure initiatives in both waste and transport.

| Sector | Albany City Council | Shire of Demark | Shire of Jerramungup | Shire of Plantagenet |
|-----------|---------------------|-----------------|----------------------|----------------------|
| | Facilitation | Facilitation | Facilitation | Facilitation |
| Waste | 4 | 9 | 0 | 2 |
| Transport | 4 | 4 | 0 | 1 |
| Total | 8 | 13 | 0 | 3 |

Appendix C: PETSEL Analysis for the Region

Ironbark has conducted a desktop PETSEL and stakeholder analysis, covering the political (policy), economic, social (local socio-demographics), technical, environmental, and legal external context that might impact emissions in the South Coast community. The analysis has also explored the actions of other stakeholders beyond the South Coast Alliance that will impact community emissions in the region. The following table provides a summary of this review and showcases existing or proposed emission reduction targets or actions, and potential opportunities for the Alliance to build on existing initiatives.

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|---|-------------------|---|---|--|
| <p>Agriculture, Forestry and Fishing</p> <p>This sector is the largest industry in the Shire of Plantagenet by percentage of employment (24.5%), and relatively high compared to other sectors in the City of Albany (6.8%) and the Shire of Denmark (9.1%).</p> | <p>Agriculture, Forestry, and Fishing</p> | <p>Regional</p> | <p>No sector wide targets for reduction, though some plantation companies have their own sustainability and environmental management plans.</p> | <p>Generally speaking, the industry is turning around towards a focus to environmental sustainability due to its strong reliance on the natural environment. This is driven by climate organisations and small groups of local farmers.</p> | <p>Opportunity to engage industry bodies, especially those with a focus on reducing sector-based emissions and tighten State and Federal commitments associated with climate action.</p> |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|--|---|-------------------|---|--|--|
| <p>Leeuwin Coast Aquaculture Aquaculture development and business at Emu Point producing oysters and mussels. Currently under construction.</p> | <p>Agriculture, Forestry, Fishing (aquaculture)</p> | <p>Albany</p> | <p>Carbon neutrality already achieved. Strong stewardship objectives as a for-profit company.</p> | <p>Economic aquaculture and employment opportunity. With emissions reductions and offsetting, the company became carbon neutral in 2020 with products declared Carbon Neutral by Climate Active.</p> | <p>Strong leadership case study for carbon neutral organisation within the Agriculture, Forestry and Fishing industry.</p> |
| <p>Oranje Tractor Wines Local carbon negative vineyard and winery.</p> | <p>Agriculture</p> | <p>Albany</p> | <p>Already achieved carbon negativity through soil carbon sequestration.</p> | <p>Many practices already underway, including regenerative agriculture and carbon counting exercise for soil carbon sequestration.</p> | <p>Case study and learning experiences from regenerative farming and organic farming practices.</p> |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|--|--------------------------------|-------------------|---|--|---|
| <p><u>Meat and Livestock Australia</u> A meat and livestock representative association with strong economic and industry focus. The organisation provides resources for healthy soil management, emissions reduction (ie resources on dung beetles and carbon neutral by 2030 targets) the CN30 is the industry's target to meet carbon neutrality. They take a holistic approach considering economic sustainability (doubling red meat production), operating at the nexus of climate science and red meat value chain. Emissions avoidance focus (genetics technologies), feed additives, legumes (have methane inhibitors) and carbon storage.</p> | Agriculture, Forestry, Fishing | National | The Australian red meat industry has set a target to be carbon neutral by 2030 (CN30). This means that by 2030, Australian beef, lamb and goat production, including lot feeding and meat processing, aim to make no net release of greenhouse gas (GHG) emissions into the atmosphere. | Significant research and resource tools for various low-emissions farming opportunities, as well as economic opportunities for various meat and livestock markets. | Potential program support partner for actions rollout to members and farmers in the region. |
| <p><u>Grain Industry Association of Western Australia (GIWA)</u> GIWA represents the entire grain supply chain in WA. Not-for-profit industry association with focus to support an effective and efficient Western Australian grain industry GIWA facilitates communication, information exchange, capacity building and grain supply chain solutions for Western Australia.</p> | Agriculture, Forestry, Fishing | State-wide | No specific targets for carbon neutrality, though support the aspirations of AGZero 2030. | Support for AGZero2030 indicates industry focus for emissions reduction. | Potential sector based advocacy role. Potential collaboration with partnering organisations to support, and promote trial technologies. |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|--|---|--------------------|--|--|--|
| <p>Department of Primary Industries and Regional Development The department works to develop and protects WA's agriculture and food sector and aquatic resources.</p> | <p>Agriculture, Forestry, Fishing (Government Department)</p> | <p>State-wide</p> | <p>No departmental targets for reduction, but work through its Katanning Research Farm seeks to quantify and reduce farm carbon footprint.</p> | <p>Research is currently being done at the department's Katanning research farm. The farm has a strategy to achieve carbon neutrality by 2030 and takes into account energy and emissions from various farm associated sources.</p> | <p>Partnership and collaboration with research teams from the Katanning research farm facility for further research, development, implementation and promotion of agricultural sustainability opportunities.</p> |
| <p>Wide Open Agriculture (WOA) WOA are a food and agriculture company operating throughout Western Australia creating food and drink products which utilise regenerative agriculture principles and low emissions techniques.</p> | <p>Agriculture, Forestry, Fishing (Government Department)</p> | <p>State-wide</p> | <p>In 2020, WOA signed a MOA with CBH Group to explore the feasibility of producing carbon neutral oats, barley and lupins in WA.</p> | <p>Current research into carbon neutral farming practices for grains, as well as utilising regenerative farming practices to achieve certified carbon neutrality.</p> | <p>Promotion and advocacy for carbon neutral and low emissions farming techniques.</p> |
| <p>Farmers for Climate Action Nation-wide farmer lead volunteer organisation that specialises in climate action by seeking to organise farmers, graziers and agriculturalists to lead climate solutions and advocate as a unified body. This is done through media, advocacy, farmer outreach, political engagement, partnership and campaigns.</p> | <p>Agriculture, Forestry, Fishing</p> | <p>Nation-wide</p> | <p>No internal targets but strong lobby to improve federal government climate targets.</p> | <p>Education opportunity for more sustainable and productive farming opportunities through provision of local and international resources</p> <ul style="list-style-type: none"> - social network of farmers to support a unified voice on calling for action against climate change - advocacy focus on rural and regional MPs <p>Currently calling on climate action to ensure a prosperous future for rural and regional Australia.</p> | <p>Significant advocacy potential through industry specific and local context understanding.</p> |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|---------------------------------------|---|---|--|---|
| <p>Fletcher International Exports Operator and owner of Narrikup Export Abattoir (lamb) which is a large export abattoir.</p> | <p>Agriculture, Forestry, Fishing</p> | <p>Shire of Plantagenet, owner by Fletcher International, with locations across Australia</p> | <p>No set targets.</p> | <p>No plans for adaptation or mitigation programs.</p> | <p>Major employer in the area, direct liaison with the company could assist with program rollout.</p> |
| <p>CBH Group CBH are a Western Australian Grain grower's cooperative with a strong sustainability agenda centred around the Sustainable Development Goals and social and environmental justice.</p> | <p>Agriculture, Forestry, Fishing</p> | <p>State-wide</p> | <p>Although the cooperative has no set targets, their sustainability objectives include:</p> <ul style="list-style-type: none"> • Prevent harm to the environment • Strive to enhance the communities in which the organisation operates • Reduce operational greenhouse gas emissions • Integrate sustainable development principles into operations • Implement sustainable consumption practices • Foster more sustainable behaviours and consumption patterns • Improve water use efficiencies and protect water quality <p>Reduce waste produced and maximise resource recovery and recycling</p> | <p>The group exhibits a potential advocacy (political and economic) opportunity to the greater agricultural market due to its representative and cooperative presence in the industry. With a wide member based reach, an opportunity for monitoring and evaluation of land quality and sustainability action uptake</p> | <p>The cooperative presents an opportunity to promote, educate and delivery actions related to agriculture focussed sustainability programs to its partner companies.</p> |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|--|---|-----------------------|---------------------------|---|--|
| <p><u>Australian Bluegum Plantations</u></p> <p>One of the world's largest plantation managers and woodchip exporters, the company holds over 31,000ha of blue gum plantations in the Albany region in addition to 54,000ha in SA and VIC. They are an exporter of up to 3.3 million GMT of material.</p> | <p>Agriculture, Forestry, Fishing</p> | <p>City of Albany</p> | <p>No set targets.</p> | <p>Strong economic opportunity (ongoing) for the region (120,000GMT stock pile capacity of woodchip and export >1M GMT PA). Some community engagement through community event sponsorships, school revegetation programs, school tour trips</p> <p>- emailed 31/11/21</p> | <p>Major industrial and forestry stakeholder, with opportunities for conservation and land management roles, land stewardship and leading in a 'best practice' capacity.</p> |
| <p><u>Albany Plantation Export Company</u></p> <p>Exporting agribusiness (10,000ha of blue gum in the region) managing the harvesting and processing of blue gum plantations to supply woodchips for the Asian paper pulp market.</p> | <p>Agriculture, Forestry, and Fishing</p> | <p>City of Albany</p> | <p>No future targets.</p> | <p>Strong economic security for the organisation and the region due to increasing demand by the Asian market. Despite clear-felling practices in operation, some work has been done in the past with Land for Wildlife for management of remnant native vegetation.</p> <p>The organisation's Environmental Policy mentions a commitment to environmental responsibility Emailed 30/11/21</p> | |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|---|-------------------|--|---|---|
| <p><u>AgZero2030</u></p> <p>AgZero2030 is an agriculture-led movement that started in WA and is focussed on progressing climate solutions for the sector. The AgZero2030 is a volunteer run advocacy movement.</p> | <p>Agriculture, Forestry, and Fishing</p> | <p>State-wide</p> | <p>Limit global warming to 1.5°C and achieve net-zero by 2030 at a sectoral level.</p> | <p>The AgZero2030 is supported by research, development and innovation focused organisations including NRM agencies, Department of Primary Industries and Regional Development, industry associations (Grain Industry Association of WA) and environmental lobbies (Farmers for Climate Action). AgZero2030 aims to:</p> <ul style="list-style-type: none"> • Champion efforts in the WA agriculture sector to have net-zero greenhouse gas emissions (i.e. be carbon neutral) by 2030 • Share positive stories from WA agriculture • Share existing tools and resources to support net-zero goal • Contribute to and promote good climate and agricultural policy • Support the agricultural industry and communities to adapt while protecting and preserving land and climate • Meet consumer preference • Retain market access • Retain access to capital investment • Contribute to work on the accessibility and uptake of relevant greenhouse gas calculators and carbon markets. | <p>Opportunity for advocacy through industry specific and local context understanding. Strong advocacy opportunity, including political pressure to all levels of government.</p> |
| <p><u>Stirlings to Coast Farmers</u></p> <p>Representative farmers' organisation with key aim to support members by providing high quality research outcomes that are locally relevant to the region.</p> | <p>Agriculture, Forestry, Fishing</p> | <p>Regional</p> | <p>No set targets.</p> | <p>The organisation provides key research, development and information role to advance cropping and livestock processes for farmers. This technological assistance can be used in conjunction with innovative and sustainable farming practices.</p> | <p>Potential support through a research role for innovative farming techniques in addition to 'on-the-ground' monitoring and evaluation of the impact of relevant programs.</p> |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|--------------------------------|-------------------|--|---|--|
| <p>National Farmers Federation Industry association supportive of an economy- and industry-wide aspiration of achieving net-zero emissions by 2050. The NFF support an economically feasible and appropriate transition to emissions reduction across various agricultural sub-sectors.</p> | Agriculture, Forestry, Fishing | Nation-wide | Supportive of an economy-wide aspiration of net-zero emissions by 2050. | <p>Industry support through supporting community understanding of agriculture. The organisation has an economic industry focus, and bring a strong sustainability agenda into this.</p> <p>The organisation has a conservative net-zero policy outcomes requests, including prioritising economic growth, improving soil carbon accounting, compensation due to land clearing legislation</p> | Program rollout partner and potential monitoring and evaluation opportunity as a direct contact with farmers. |
| <p>Port of Albany Bulk products import and export port. Main trades include grain and woodchips.</p> | Business & Industry | City of Albany | No set targets. | emailed for emissions and pathway information 6/12/21 | Major industry stakeholder and employer; an opportunity exists for direct engagement for sustainability program rollout. |
| <p>Building 4.0 CRC Building 4.0 CRC is an industry led research initiative co-funded by the Australia Government. The CRC aims to develop an internationally competitive, dynamic and thriving Australian advanced manufacturing sector, delivering better buildings at lower cost and the human capacity to lead the future industry.</p> <p>Value of this organisation is based on the fact that <u>30% of global greenhouse gas emissions are attributable to buildings.</u></p> | Business and Industry | State-wide | <p>Building 4.0 CRC takes a whole-of-system approach to improving efficiencies in the building industry. Specific targets include:</p> <ul style="list-style-type: none"> • Sustainability: Up to 50% reduction in CO2 emissions for more sustainable buildings • Exports: up to 25% increase in the export of building products and construction services • Cost: up to 30% reduction in project costs through digital technology and off-site manufacturing • Energy: 40% reduction in lifecycle costs through high-performing, efficient buildings. | <p>The building 4.0 CRC's three integrated research programs aim to deliver on:</p> <ul style="list-style-type: none"> • New industry-wide culture, practices and standard protocols that will enable the transformation of the entire sector • New building processes and techniques through leveraging the latest technologies, data science and AI; and <p>Improvements to building "hardware" and processes, and their interaction with our digital and sectoral programs, to ultimately improve all aspects of the key building phases (development, design, production, assembly, operation, maintenance, and end-of-life).</p> | <p>Opportunity to support initiative and collaborate with stakeholders to reduce emissions and waste in building industry.</p> <p>In line with Building 4.0 CRC targets, Council opportunities include:</p> <ul style="list-style-type: none"> • Improving Council policy and regulatory frameworks • Increasing communication to create a |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|--|--|------------------------|---|--|
| | | | | | <p>connected industry</p> <p>Foster an open collaborative, innovative, inclusive, gender diverse industry</p> |
| <p><u>Western Green Energy Hub project</u></p> <p>The project is a large zero carbon green hydrogen and green ammonia project, proposed for the south coast region of WA. Local (electricity) and export (hydrogen/ammonia) opportunity is proposed by the operator.</p> <p>A significant renewable energy contribution to state grid also exists as an opportunity.</p> | <p>Business & Industry, Other Renewable Energy</p> | <p>Neighbouring shires to SCA councils</p> | <p>No set targets.</p> | <p>The project is focussed on making a significant impact on the local renewable energy input to the state electricity grid. This includes 50GW upstream wind and solar for a total build out capital cost of AUD\$100billion. This would be considered a transformational green hydrogen project and rely on strategic partnerships between governments, local communities, technology leaders and investors. A significant indigenous community involvement and consultation component has already begun as part of this project.</p> | <p>Potential support for the project and case study as a leadership project to drastically change the stationary energy landscape of the region.</p> |
| <p><u>Oyster Harbour Catchment Group</u></p> <p>Community and volunteer-lead land management group with aim to foster a 'prosperous, vibrant community through natural resource management'</p> | <p>Conservation & Land Management</p> | <p>Regional (Oyster Harbour Catchment)</p> | <p>No set targets.</p> | <p>Social advocacy and environmental focus through the coordination of native and agricultural management projects</p> | <p>Potential advocacy opportunity to the local community as well as various levels of government.</p> |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|--|--------------------------------|-------------------|---|--|--|
| <p>Gilbert's Potoroo Action Group Not-for-profit, volunteer community group trying to save the Gilbert's Potoroo from extinction.</p> | Conservation & Land Management | Albany/regional | The action group fulfills its company aims by raising funds to assist in the recovery of Gilbert's Potoroo. They seek to provide responsible information to promote local, national and international awareness about natural conservation and the Gilbert's Potoroo. They also encourage volunteers to assist in Gilbert's Potoroo research and recovery programs. | No specific internal plans. | Strong advocacy opportunity, founded on conservation principles. |
| <p>South Coast NRM Natural resource management consultant with a leading presence in the South Coast region and support to AgZero2030.</p> | Conservation & Land Management | South Coast WA | Support of AgZero2030 targets. | Leaders in natural resource management. | Potential advocacy and education opportunities through technological understanding. |
| <p>Torbay Catchment Group Community-based volunteer organisation, whose primary focus is on protecting and restoring the health of the lands and waterways within the greater Torbay catchment and supporting a prosperous and sustainable community within the area.</p> | Conservation & Land Management | City of Albany | No set targets. | The organisation's vision and mission statements align with the promotion of sustainable land use and conservation principles. | Community engagement and advocacy opportunity exists through an existing network of members. |
| <p>Green Skills Environment and community projects managing company with aim to drive change towards a more sustainable community by promoting and demonstrating sustainability in action through employment opportunities and the provision of training, research and on-ground projects. They have offices in Albany and Denmark.</p> | Conservation & Land Management | Regional | No set targets. | Environmental management experience with strong reliance on social opportunities and infrastructure | Potential advocacy opportunity to local community members on natural environment conservation. |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|----------------------------------|-----------------------------------|---|---|---|
| <p>Gondwana Link Conservation agency working to connect land and community across the Great Southern region.</p> | Conservation & Land Management | Regional | No set targets. | Strong educational opportunity through First Nations' support and engagement. This includes social opportunity through collaboration between members and across the region, a capacity building focus and monitoring and evaluation processes and understanding (technological resources) | With a strong understanding of the natural environment of the region, the organisation can play an awareness raising and advocacy role to levels of government, as well as the community. As part of their ongoing work, environmental surveys can be used in a monitoring and evaluation capacity as part of program rollouts. |
| <p>Albany Bird Group The Albany Bird Group is non-for-profit community group dedicated to achieving conservation results for native birds and their habitats. They are a localised group forming BirdLife Western Australia, BirdLife Australia, and BirdLife International.</p> | Conservation and Land Management | Albany and Regional South-west WA | No set targets. | BirdLife Australia <u>supports</u> global greenhouse gas emission reductions and sequestration measures sufficient to achieve a global atmospheric CO2 concentration of 350ppm or less, and simultaneous policies to reduce non-CO2 greenhouse gasses. | Potential advocacy opportunity as well as potential monitoring and evaluation benefits. These primarily include those focussed on biodiversity and natural environment changes over time. |
| <p>Wildflower Society of WA Community organisation promoting the conservation and enjoyment of wildflowers in WA</p> | Conservation & Land Management | State-wide | No set targets. | The society has a strong conservation agenda and understands the implications of climate change on local biodiversity. This is reflected in some outreach work and resources for parents, teachers and professionals. | Potential advocacy opportunity to local community members and monitoring and evaluation of the local environment. |
| <p>Education and Training This is the largest sector by employment in the Shire of Denmark (12.4%), the third largest in the City of Albany (10%) and employs 7.9% of</p> | Education and Training | State-wide | No sector-wide targets, but some schools have subscribed to the Climate Clever Schools program which assists in monitoring, reducing, and education on emissions reduction. | | Further engagement with the sector and schools in the region to understand local youth values, ambitions and ideas for climate action. |

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| the population in the Shire of Plantagenet | | | | | |
| Climate Clever Schools (Albany) Albany Senior High and Great Southern Grammar schools have both subscribed to ClimateClever. This is a student-led program underpinned by data driven online tools to help students measure, manage and reduce school's carbon footprint. | Education and Training | Albany | Further clarification required. | Strong advocacy opportunity for the climate movement through leadership, research and pilot programs, as well as understanding the climate impact of the school. A strong education component for all students involved in the program also presents an opportunity. | Knowledge sharing and advocacy for other schools in the region to participate. |
| The Australian Federal Government The Department of Industry, Science, Energy and Resources leads the Australian Government's climate change strategies. | Government | National | <u>The Australian Government has formally committed to reduce greenhouse gas emissions to 26-28 per cent below 2005 levels by 2030.</u> In the longer term the government is planning to achieve net-zero emissions by 2050. | <u>Australia's Long-Term Emissions Reduction Plan</u> is a whole-of-economy plan to achieve net-zero emissions by 2050. The government has a technology-led approach and is investing in low emissions technologies to reduce Australia's emissions. This approach is relying on uptake of these technologies by the business sector and consumers. To drive this uptake, the government is facilitating several initiatives. These include the <u>Emissions Reduction Fund (ERF)</u> , <u>Climate Active</u> carbon neutral certification and <u>the Renewable Energy Target Scheme</u> . Australia's long-term actions are underpinned by several regulations: The <u>National Greenhouse and Energy Reporting (NGER)</u> scheme is a national framework for reporting greenhouse gas emissions, energy production and energy consumption. The <u>Safeguard Mechanism</u> requires Australia's largest greenhouse gas emitters to keep their net emissions below an emissions limit. | Opportunity to build on Federal Government programs and to seek out and apply for Federal Government grants to fund local climate action initiatives. |

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| | | | | <p>The <u>National Energy Productivity Plan</u> focuses on:</p> <ul style="list-style-type: none"> • Improving the efficiency of vehicles • Phasing down hydrofluorocarbons in refrigerators and air conditioners • Developing a strategy to improve the utilisation of solar power • Developing a low emissions technology roadmap. <p>The <u>National Climate Resilience and Adaptation Strategy</u> articulates how Australia is managing the risks of a variable and changing climate. It identifies a set of principles to guide effective adaptation practice and resilience building and outlines the Government’s vision for a climate-resilient future. The strategy details three objectives to enable more effective adaptation across Australia:</p> <ul style="list-style-type: none"> • Drive investment and action through collaboration • Improve climate information and services <p>Assess progress and improve over time.</p> | |
| <p>City of Albany</p> | <p>Government</p> | | <p>The City of Albany has set various targets to reduce its corporate and community emissions. These include:</p> <ul style="list-style-type: none"> • Reduce water usage • Reach net-zero greenhouse gas emissions • Develop sustainable, low waste circular economy | <p>Council have various strategies and policies to guide the organisation towards a zero carbon future. These include:</p> <ul style="list-style-type: none"> • Carbon Footprint Strategy: Strong alignment with Strategic Community Plan 2032 <ul style="list-style-type: none"> - Links to Global (SDGs) - Links to State (WA Recovery Plan) plans - Links to the City’s Revised Strategic Plan (2021): Three key objectives: Reducing water usage, working towards net-zero greenhouse gas emissions and the development of a sustainable, low waste, circular economy. - References a variety of actions | <p>Alliance member.</p> |

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| | | | | <p>within the following program areas: Energy Efficiency, Water Management, Fleet and Plan Management, Carbon Offsets, Waste Management</p> <ul style="list-style-type: none"> Climate Change Action Declaration: <ul style="list-style-type: none"> - Acknowledges collaboration with Youth Advisory Council - Acknowledges that climate change is occurring, requires immediate and urgent action, will continue to have significant effects on the Albany environment and that local government plays an important role in eliminating and reducing carbon emissions. Commitments include: <ul style="list-style-type: none"> - Measuring and reporting on corporate and community emissions and developing emission reduction targets - Developing a corporate energy plan to transition to renewable energy - Advocating to State and Federal government to implement key climate change actions in line with international agreements - Developing a climate change communication strategy to effectively engage, encourage and empower the Albany community on climate change actions - Continued engagement with young people and the Youth Advisory Council - Regular reviewing of the Climate Change Action Declaration to ensure actions within the declaration are undertaken Corporate Business Plan 2021-25 Several adaptation and mitigation focussed objectives, including: <ul style="list-style-type: none"> - focus on social connection - improved access to sport, recreation and fitness facilities - conservation of natural reserves | |

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| | | | | <ul style="list-style-type: none"> - land protection - reduction in water usage - greenhouse gas reduction - development of a circular economy - increase community readiness and resilience to natural disasters - encourage more people to use active and public transport | |
| <p>Great Southern Development Commission State government established development organisation</p> | Government | Regional | No set targets. | Strong economic support for all sectors | Potential advocacy opportunity to members and information collection from members regarding opportunities and barriers associated with various programs. |
| <p>WALGA - Western Australian Local Government Association WALGA is the peak industry body for WA local councils</p> | Government | State-wide | No specific sustainability agenda or endorsement of particular frameworks/targets. | WALGA offer strong support for sustainability measures including spearheading an agreement for over 40 Western Australian councils to move to 100% renewable energy (December 3/21). They can be considered a support network that can encourage collective action and advocacy. | Strong advocacy and partnership opportunity through more bottom-up information flows and liaison with other levels of government. |
| <p>Regional Development Australia Federal Government-supported network of committees to improve regional development within Australia with aim to provide advice to various levels of government on critical issues affecting regions, collaborate with stakeholders to identify economic opportunities and leverage private and public sector investment in regions, connect regional businesses, councils and industry sectors</p> | Government | Regional | No set targets. | Political advocacy role | Advocacy on behalf of regional voices to the Federal Government. |

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| with international trade partners, markets and investors, work closely with community leaders to identify funding sources and develop project proposals to support economic growth and promote awareness of government programs in the RDA community. | | | | | |
| <p>Shire of Denmark Alliance member local council with Sustainability Strategy endorsed in March 2021</p> | Government | Shire of Denmark | Targets are captured within the council's various sustainability strategies and action plans. | <p>Climate Emergency declared September 2019</p> <p>Sustainability Strategy 2021-2031</p> <ul style="list-style-type: none"> • Strong understanding of social and environmental impacts of climate change • Acknowledges climate change impacts are from human induced GHG emissions • Acknowledges there is government responsibility to all tiers to contribute to climate change adaptation strategies • Is based on the Ten Pillars of Sustainability, adapted from the One Planet Living Framework <p>Sustainability Action Plan</p> <ul style="list-style-type: none"> • Ten sustainability pillars are to be considered through the lenses of economy, environment, society • Local planning strategy updated to reflect sustainable design principles • Support sustainability projects through Community Financial Assistance Program • Promote partnerships with not-for-profits to leverage funding for sustainable enterprise activity • Provision of pathway for youth engagement in the sustainability arena • Develop a My Community platform incorporating a sustainable environmental section to encourage community members to volunteer | Advocacy and support to leverage off existing State and Federal initiatives of interest to Council. |

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| | | | | <p>with local community groups that care for the environment</p> <ul style="list-style-type: none"> Continue to develop educational programs to encourage community members to reduce, reuse, recycle Support government initiatives that enable community members to implement sustainable practices <p>Provision of web-based material on sustainable building options</p> | |
| Shire of Jerramungup | Government | Shire of Jerramungup | No strong sustainability focussed targets. | <p>Corporate Business Plan</p> <ul style="list-style-type: none"> Minimal discussion about sustainability and emissions reductions agendas <p>Economic Growth Project Plan 2016-2021</p> <ul style="list-style-type: none"> Abstract discussion on renewable energy initiatives and their impact on emissions reduction Shire has previously investigated establishing a biomass power system – various inhibitors stifled the project Several planned environmental projects are identified within the Shire’s Corporate Business Plan: <ul style="list-style-type: none"> Investigate alternative power opportunities such as wind and biomass Implement Regional Waste Management Plan including great organic waste recycling, establishing new and upgrading landfill sites <p>Develop natural resource management plan</p> | Further support for tightening sustainability ambitions and targets exists. |
| Shire of Plantagenet | Government | Shire of Plantagenet | Switch to 100% renewables (corporate facilities) (March 2022). | <p>Strategic Community Plan</p> <ul style="list-style-type: none"> No discussion on sustainability or emissions reduction <p>Policy Review – Vehicle Specifications minutes</p> <ul style="list-style-type: none"> “Whilst preference will be given to diesel vehicles...consideration will be given to Electric or Plug-in Hybrid Electric Vehicles if practicable. All vehicle purchased are to have fuel consumption of no more than 12L/100km”. The overriding principle in the selection of vehicles for inclusion in the Shire’s light vehicle fleet is ‘fit for purpose.’ | Further support for tightening sustainability ambitions and targets exists. |

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| | | | | <p>Corporate Business Plan 2019/20-2022/23</p> <ul style="list-style-type: none"> • Vision to build a sustainable community...where the natural environment is preserved • Sits below state average for 'promoting and adopting sustainable practices' metric (51% compared to 54% state average) • Sits below state average for 'efforts to reduce waste' (51% compared to 53% state average) | |
| <p>Health Care and Social Assistance</p> <p>This sector is the City of Albany's larger employer by population (13.1%), the second largest in the Shire of Denmark (11%) and the Shire of Plantagenet (10.1%). There are a total of seven hospital facilities located across the Great Southern health region.</p> | Health Care and Social Assistance | Regional | There are no set targets for industry as whole beyond a general commitment to reduce emissions as part of an Australia wide initiative. No set targets for local hospitals. | <p>Traditionally, the sector has struggled to reduce waste and emissions due to the necessity for single use sterilized components.</p> <p>Most industry associations play an advocacy role for more sustainable practices.</p> <p>In March 2021, the Australian Medical Association (AMA) called on the Australian healthcare sector to reduce its carbon emissions to net-zero by 2040 with an interim emissions reduction target of 80% by 2030.</p> <p>AMA has a policy that calls on the Australian Government to address climate change through mitigation, renewable energy, strategy, and to regard climate change in relation to human health.</p> <p>The AMA is also a member of Global Green and Healthy Hospitals and can influence members in sustainability activities.</p> <p>Furthermore, in March 2021, Doctors for the Environment, the Climate Justice Union, the Western Australian Council for Social Services, the Doctors Reform Society and the Climate</p> | The health impacts of climate change are well understood, and environmentally sustainable health systems have the capacity to improve, maintain and restore health while minimizing negative impacts on the environment. This can be explored further through engagement with organisations such as Doctors for the Environment, the Climate Justice Union, the Western Australian Council for Social Services, the Doctors Reform Society and the Climate and Health Alliance and individual key stakeholders in region such as: |

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| | | | | and Health Alliance, called on the WA Government to: <ul style="list-style-type: none"> Establish a sustainable development unit in the Department of Health to guide emissions reductions in healthcare. Development a Climate and Health Plan for WA, with a target of 80% emissions reduction from healthcare by 2030, and net-zero by 2040 No new fossil fuel developments 100% renewable energy for WA by 2030 | Denmark Hospital, Plantagenet Hospital, Jerramungup Health Centre, Rural Health West, and Albany Hospitals. |
| <p>Retail Trade</p> <p>The Retail Trade industry is a significant employer/industry in the region, making up approximately 12.1% total employment in the City of Albany and 9.4% in the Shire of Denmark.</p> <p>The region is home to several Big Box Stores including Coles, Target, Kmart, Officeworks, Woolworths, IGA, and Bunnings.</p> | Retail | Regional | Some of the big retailers have set renewable energy or net-zero emissions targets. These are listed under the individual retailers. | <p>The industry is primarily focused on reducing plastic waste.</p> <p>Members of retail industry groups are generally on commercial leases and commercial landlords are in control of emissions associated with the built environment in which retailers operate.</p> | <p>Opportunity to engage industry Bodies such as Australian Retailers Association (ARA) and National Retail Association (NRA).</p> |
| <p>Denmark Community Wind Farm</p> <p>Community energy infrastructure comprised of a 1.6MW wind farm, offering local energy and financial security for the community. Output of the wind farm is contracted to a third party electricity retailer under a long term PPA. The wind farm offers moderate renewable energy contribution to state grid</p> | Other Renewable Energy | Energy produced and supplied to the Denmark community | No set targets. | <p>The wind farm has provided a 2-3 year return on investment to community investors (116 total). It is the biggest single community project in town's history and its turbines generate approximately 50% of average annual domestic consumption. The Project is owned by the community (stakeholders), and all residents have access to 'home-grown' green energy.</p> <p>DCW Inc (Denmark Community Windfarm company) is a shareholder and returns all it's income from the windfarm back to the community via local enterprise projects</p> | Renewable energy supplies and leadership case study of local renewable energy. |

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| <p><u>Albany Grasmere Wind Farm</u></p> <p>The Albany and Grasmere Wind Farm is comprised of two adjacent wind power plants 12 kilometres south-west of Albany. It produces renewable energy equivalent to 80% of Albany's annual electricity needs. The wind farm is operated and maintained by Worley Power Services, an Australian owned company that engages a team of locally based technicians.</p> | Other Renewable Energy | City of Albany | No set targets. | <p>Wind power is completely renewable and produces zero emissions. The Albany Grasmere Wind Farm is:</p> <ul style="list-style-type: none"> • An 18-wind turbine wind farm with 35.4 MW of electricity generation capacity for Albany city • A "must see tourist attraction" with more than 200,000 visitors each year • A significant renewable energy contribution to state grid <p>Responsible for producing clean renewable energy equivalent to 80% of Albany's annual electricity needs.</p> | Renewable energy supplies and leadership case study of local renewable energy. |
| <p><u>Mt Barker Wind Farm</u></p> <p>Renewable energy infrastructure consisting of 2.4MW community wind farm. Output of the wind farm is contracted to a third party electricity retailer under a long term PPA. The wind farm provides a moderate renewable energy contribution to state grid.</p> | Other Renewable Energy | Energy produced and supplied to the Denmark community | No set targets. | The \$8.5million project was supported by 50:50 government funding. It is a 2.4 MW farm located on private sheep farm in the Denmark region. The facility is expected to reduce emissions by more than 8,000 tCO ₂ /year | Renewable energy supplies and leadership case study of local renewable energy. |
| <p><u>Coles Group</u></p> <p>The Coles Group is one of Australia's largest leading retail groups with Coles operating in the region.</p> | Retail | State-wide | Net-zero greenhouse gas emissions by 2050. | <p>In March 2021, Coles Group announced the following commitments:</p> <ul style="list-style-type: none"> • To deliver net-zero greenhouse gas emissions by 2050 • For the entire Coles Group to be powered by 100% renewable electricity by the end of June 2025, building on the progress already made towards this target through renewable power purchase agreements, onsite solar and agreements with renewable electricity generators. • To reduce combined Scope 1 and 2 greenhouse gas emissions by more than 75% by the end of FY30 (from a FY20 baseline) | Program rollout and consultancy due to the company's wide reach in the region. |

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| | | | | No specific waste reduction targets, but this has been identified as a focus | |
| <p>Woolworths Group</p> <p>The Woolworths Group is one of Australia's largest leading retail groups with business Woolworths operating in the South Coast region.</p> | Retail | Nation-wide | <p><u>Net positive carbon emissions by 2050.</u></p> <p>100% green electricity by 2025</p> <p>Zero food waste to landfill by 2025</p> <p>Reduce emissions from operations by 63% compared to a 2015 baseline by 2030.</p> <p>Reduce scope 3 emissions by 19% compared to a 2015 baseline.</p> <p>All new property developments will achieve a 4 Green Star design and as-built rating and a 5 Green Star minimum standard by 2025.</p> | <p>The majority of Woolworths' carbon emissions stem from its store operations, particularly refrigeration, with electricity consumption accounting for the greatest share.</p> <p>Over the next decade, the Woolworths Group will seek new opportunities to reduce emissions and enhance energy efficiency, in addition to the following existing initiatives:</p> <ul style="list-style-type: none"> • More than 120 of the Group's stores and two distribution centres are generating energy from solar panels. The Group's network of solar panels generated 16,466 megawatt hours in FY20 - equivalent to more than 2,600 Australian households' annual energy consumption. * • Replacing traditional lighting with LED has already lowered store energy consumption by 11 per cent on average across 820 sites, with more to be converted in the years ahead. <p>Investing in improved refrigeration systems, with those upgrades reducing carbon emissions and refrigeration leakage to 26 per cent below 2015 levels.</p> | Program rollout and consultancy due to the company's wide reach in the region. |
| <p>Wesfarmers</p> <p>Westfarmers is one of Australia's largest listed companies with many of its business operations in the South Coast region including</p> | Retail | Nation-wide | <p>All Wesfarmers businesses have target of Net-Zero scope 1 and scope 2 by 2030 – this includes Bunnings, Kmart, Officeworks.</p> <p>Wesfarmers Chemicals, Energy and Fertilisers (WesCEF) and Coregas have set an aspiration to achieve</p> | <p>Wesfarmers' Climate Strategy is focused on managing climate-related risks, identifying opportunities, and reducing emissions. Key strategies include:</p> <ul style="list-style-type: none"> • Improving the energy efficiency of the built environment through improved insulation and more efficient lighting and heating | |

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| Bunnings, Kmart, and Officeworks. | | | <p>net-zero Scope 1 and 2 emissions by 2050.</p> <p>Industrial and Safety (excluding Coregas) is targeting net-zero Scope 1 and 2 emissions by 2050.</p> | <ul style="list-style-type: none"> Increasing focus on solar passive design principles for all new stores Accelerating installation of solar generation on buildings where the rooftop is accessible under current leasing arrangements Increasing our focus on modal shifts for transportation and logistics emissions Procuring renewable energy via green procurement options now available in the market. | |
| <p><u>Bremer Bay Wind-Diesel System</u></p> <p>The power plant is a mixed energy generation facility comprised of a single wind turbine and diesel power station to replace previous grid power supply to Bremer Bay.</p> | Stationary Energy | Bremer Bay/Shire of Jerramungup | NA | The plant provides an emissions saving of 900t CO ₂ /year. Financial assistance was committed through Australian Government's Renewable Remote Power Generation Program and implemented by the Sustainable Energy Development Office. | Can be considered a case study or leadership example of a mixed-energy generation facility. |
| <p>Clean Energy Future Fund</p> <p>Launched in April 2020 and supports the implementation of innovative clean energy projects in Western Australia,</p> | Stationary Energy | State-wide | Support the research, development and construction of innovative clean energy projects across WA. | <p>The fund supports the implementation of innovative clean energy projects in Western Australia which offer high public value through contributing to one or more of the following outcomes:</p> <ul style="list-style-type: none"> Significant, cost-effective reduction in greenhouse gas emissions below projected (or baseline) emissions as a direct result of the clean energy project Design, deployment, testing or demonstration of innovative clean energy projects likely to deliver community benefits or lead to broad adoption and significant reductions in greenhouse gas emissions. <p>The Fund is focused on projects near the investment-ready stage so that our funding</p> | Potential partnership opportunity for local stakeholders wishing to explore innovative energy solutions for the region. |

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| | | | | can secure tangible emissions reductions, and applications with a strong potential for wider adoption. | |
| <p>Energy Transformation Strategy 2019-2021 The Strategy is the Government's work program to ensure the delivery of secure, reliable, sustainable and affordable electricity to Western Australians for years to come.</p> | Stationary Energy | State-wide | No set targets, but whole of system approach that considers the scale of social, political and financial investment to secure a reliable energy future in WA. | Strives to deliver a lower carbon energy sector. | Collaboration and advocacy opportunity to the State Government. |
| <p><u>Energy Policy WA (Government of Western Australia)</u> The organisation's role is to provide policy support and advice to the State Government to facilitate the delivery of sustainable energy services to Western Australians. This includes rule making and administration of the Wholesale Electricity Market (WEM), the Gas Services Information (GSI), and new rules to apply to the North West Interconnected System.</p> | Stationary Energy | State-wide | Range of policies as recommended to the State Government. | Funding for energy efficiency is supported by the Energy Minister through the \$13 million Household Energy Efficiency Scheme | Collaboration and advocacy opportunity to the State Government. |
| <p><u>Western Power</u> Energy distribution provider, starting to roll out LED lights across the 278,000 streetlights network. This is being done as part of ongoing infrastructure upgrades in the region.</p> | Stationary Energy | State-wide | No set targets, but variety of conservation (flora and fauna) transport (efficient fleet vehicle transition) and work in renewable energy (microgrids, community batteries, solar). | Progressive technological and infrastructure expansion to support a decarbonized grid. This includes trialling of shared batteries, micro-grid. They are early adopters of electric vehicles (metro fleet used hybrid vehicle) within the industry. | Direct partnership and best-practice case study. The organisation's wide community reach also offers a community advocacy opportunity. |

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| <p>Household Energy Efficiency Scheme State government funding for energy efficiency retrofits for vulnerable households. The scheme commenced in November 2021 and includes services such as household energy assessments, tailored education, LED lightbulb replacements and other low-cost energy efficient items.</p> | Stationary Energy | State-wide | Improving household energy efficiency across the region. | Financial support to households to perform energy efficiency retrofits. The program will be delivered by Western Australian NGOs. This is a \$13 million scheme and aims to ease the cost of living for 10,000 vulnerable households over four years. It will be delivered in partnership with NGOs, Synergy, Horizon Power and Energy Policy WA. | Potential program partner for energy efficiency in stationary energy-focused programs. |
| <p>King River Recreational Club Recreation and community centre</p> | Stationary Energy | Albany | No set targets. | No plans for emissions reduction or adaptation. | Some advocacy opportunity to local community members. |
| <p>Wave Energy Research Centre WA University-led, state supported renewable energy research institute with focus to provide multi-disciplinary research in three main interlinked research programs that support ocean renewable energy projects including: oceanography, hydrodynamics and geotechnics.</p> | Stationary Energy | State-wide | No set targets | No key plans, but research and development opportunities are significant for the industry, and for the region. | Partnership through innovation and best-practice leadership case study. |
| <p>Australian Electric Vehicle Association Volunteer run, nation-wide EV advocacy and association group supporting the uptake of electric vehicles across Australia.</p> | Transport | National | To take a leadership position by making a pledge to retire all ICE vehicles under their control by 2030. | Lobbying, community and political support to support the transition to electric vehicles as soon as possible. | Significant advocacy opportunity to automotive industry bodies, governments and the community. |
| <p>WA Electric Vehicle Strategy State-government developed strategy to prepare for the transition to low and zero-emission electric vehicles.</p> | Transport | State-wide | The strategy outlines a 25% EV target for government fleet vehicles by 2025/26. It is also working to create Australia's longest EV fast charging network with an expected completion of January 2024. | <p>The strategy support a transition to electric vehicles by providing a \$21 million investment by:</p> <ul style="list-style-type: none"> • Providing support for creation of EV charging infrastructure • Developing and updating standards, guidelines and planning approvals associated with EV infrastructure | Reference document. |

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| | | | | Improving the level of stakeholder awareness and knowledge | |
| <p><u>Waste Avoidance and Resource Recovery Strategy 2030</u> Updated waste strategy focussed on recycling, reducing waste generation, diverting construction and demolition waste and better managing commercial and industrial waste.</p> | Waste | State-wide | <p>The strategy has targets of:</p> <ul style="list-style-type: none"> • 10% reduction in waste generation per capita by 2025 • 20% reduction by 2030 <p>It proposes an incremental increase material recovery to 75% by 2030 and recommends that all waste is to be managed/disposed to better practice facilities by 2030</p> | The strategy has a focus on setting minimum standards in the waste sector by leading direction and outlining a community, health and sustainability vision. By outlining objectives, responsibilities and opportunities for sustainability within the waste management sector, it seeks to improve efficiencies in recycling and reducing waste to landfill. | Reference and starting document to recommend improvements to the waste streams of various government and private sectors and industries. |
| <p><u>Albany Chamber of Commerce and Industry</u></p> <p>The Albany Chamber of Commerce and Industry is a member run organisation with a focus on economic development for the South Coast Region. It aims to support businesses in Albany and the lower Great Southern by encouraging a vibrant and diverse economy by focussing on lobbying and advocating on important issues in the business community, providing input into policy development and reviews as well as keeping a focus on building business connections. They are the largest Chamber in the region, with upwards of 500 members.</p> | All | Regional | No set targets. | Economic support for all sectors and local member organisations. | Potential advocacy opportunity, MERL benefits |

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| <p><u>Albany Youth Advisory Council</u></p> <p>A community group for people who want to improve the quality and liveability of Albany for young people, with a focus on climate change strategy input.</p> | All | City of Albany | Assumed targets in line with Council's Climate Change Action Declaration. | Collaboration with Council in the development of the Climate Change Action Declaration. | Potential advocacy opportunity and engagement with group members. |
| <p><u>Bremer Bay Community Resource Centre</u></p> <p>Community resource, learning and social centre, primarily supported by the department of Primary Industries and Regional Development, the Department of Communities and Shire of Jerramungup, and the Departments of Human Services and Social Services. The organisation aims to provide access to government and community services and information, and undertake community, business and economic development activities.</p> | All | Shire of Jerramungup | No set targets. | Minor political leverage, mostly in the form of advocacy to local government. The resource centre also plays a significant social role as a social and community services provider. | The Resource Centre presents an advocacy opportunity to the Shire of Jerramungup council by bringing local needs to attention. It can also serve a knowledge conduit and capacity building platform to educate residents on various programs active in the region. |
| <p><u>Cities Power Partnership (CPP)</u></p> <p><u>Cities Power Partnership (CPP)</u> is Australia's largest local government climate network, with participants sharing information and building connections to accelerate local action. The City of Albany is a power partner.</p> | All | Nation-wide (though only the City of Albany is a member) | Not applicable. | <p><u>The City of Albany has pledged to:</u></p> <ul style="list-style-type: none"> • Install renewable energy on council buildings • Power council operations by renewable energy and set targets to increase the level of renewable power for council operations over time • Adopt best practice energy efficiency measures across all council buildings and support community facilities to adopt these measures • Support cycling through provision of adequate infrastructure | Continue to participate in CPP advocacy and promotion initiatives. |

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| | | | | <ul style="list-style-type: none"> Develop procurement policy to ensure practices of contractors and financiers align with aforementioned goals | |
| <p><u>Denmark Chamber of Commerce</u> Member funded organisation with focus on economic development and health for the South Coast Region. The organisation advocates for sustainable business growth across the Denmark region by providing member businesses with advocacy, networking, promotion and business support.</p> | All | Shire of Denmark | No set targets. | Economic support for all sectors and local member organisations. | Potential advocacy opportunity exists to discuss sustainability programs with its members. A monitoring and evaluation opportunity also exists to track the implementation of these programs. |
| <p><u>Jerramungup Community Resource Centre</u> Community resource, learning and social centre, primarily supported by the department of Primary Industries and Regional Development, the Department of Communities and Shire of Jerramungup, and the Departments of Human Services and Social Services to provide access to government and community services and information, and undertake community, business and economic development activities.</p> | All | Shire of Jerramungup | No set targets. | Minor political leverage, mostly in the form of advocacy to local government. The resource centre also plays a significant social role as a social and community services provider. | The Resource Centre presents an advocacy opportunity to the Shire of Jerramungup council by bringing local needs to attention. It can also serve a knowledge conduit and capacity building platform to educate residents on various programs active in the region. |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|--------|----------------------|---|---|--|
| <p>Denmark Community Resource Centre Community resource, learning and social centre, primarily supported by the department of Primary Industries and Regional Development. The centre offer a space for connection and collaboration within the community by providing a space for government services, transport services and hardship support.</p> | All | Shire of Denmark | No set targets. | Minor political leverage, mostly in the form of advocacy to local government. The resource centre also plays a significant social role as a social and community services provider. | The Resource Centre presents an advocacy opportunity to the Shire of Denmark council by bringing local needs to attention. It can also serve a knowledge conduit and capacity building platform to educate residents on various programs active in the region. |
| <p>Mount Barker Community Resource Centre Community resource, learning and social centre, primarily supported by the department of Primary Industries and Regional Development, the Department of Communities and Shire of Jerramungup, and the Departments of Human Services and Social Services. The organisation provides services to community members including: administration services, room hire, equipment hire, IT support, workshops, Centrelink agency services, food relief, emergency relief</p> | All | Shire of Plantagenet | No set targets. | Minor political leverage, mostly in the form of advocacy to local government. The resource centre also plays a significant social role as a social and community services provider. | The Resource Centre presents an advocacy opportunity to the Shire of Jerramungup council by bringing local needs to attention. It can also serve a knowledge conduit and capacity building platform to educate residents on various programs active in the region. |
| <p>Western Australian State Sustainability Strategy (2003) 2003 State Government Sustainability Strategy</p> | All | State-wide | <p>The strategy recommends that State Government building and landscaping projects will incorporate the principles of:</p> <ul style="list-style-type: none"> • solar orientation, • energy efficiency • waste recycling • water use efficiency • accessible design and sustainability innovations | This is an old (2003) strategy focussing on governance and its role in institutional change for improved and effective sustainability initiatives. While technically active, it has been superseded by a suite of new strategies. | Reference document. |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|---|--------|-------------------|--|---|---|
| | | | It also states that Government properties will demonstrate best practice in water use efficiency and that the number of cars in government fleet will continue to be reviewed to reduce transport associated emissions where possible. | | |
| <p>SERS Roadmap for Low Carbon Future (Shaping Western Australia's Low Carbon Future)</p> <p>This is a program currently in the preliminary stages for the release of a roadmap for Sectoral Emissions Reduction Strategies (expected to begin 2022)</p> | All | All | While the program has not fully been released, it is helping accelerate investment in low carbon technologies | <p>There will be several key aspects to the roadmap, including:</p> <ul style="list-style-type: none"> Shaping the State's sustainable future through Sectoral Emissions Reductions Strategies (SERS) Creating a credible sector-by-sector pathway to net-zero <p>The roadmap will unlock cost effective climate change abatement solutions and acknowledges the need for all sectors to transition towards net-zero emissions.</p> <p>Objectives of the strategies include:</p> <ul style="list-style-type: none"> To provide robust and credible emissions reduction pathways for Western Australia with tangible actions for reducing emissions consistent with the government's target of net-zero emissions by 2050 To recognise the importance of significant action this decade to reduce emissions, transition emissions-intensive industries and protect Western Australia's economy from carbon transition risks. | Collaboration opportunity during stakeholder engagement and consultation (to begin early 2022). |
| <p>Western Australia Climate Change Policy</p> <p>Policy provided by the Department of Water and Environmental Regulation (WA State Government).</p> | All | State-wide | For all sectors to achieve net-zero greenhouse gas emissions by 2050. | Underscores commitment to climate change adaptation and achieving net-zero emissions by 2050 to all sectors of economy. | NA |

| Stakeholder and Initiatives Overview | Sector | Primary geography | Targets for Reduction | Plans for Reduction and/or Adaptation informed by PETSEL | Opportunities for the Alliance |
|--|--------|-------------------|--|--|--------------------------------|
| <p>Western Australian Climate Policy November 2020 State Government Climate Policy which suggests increased investment in cleaner energy solutions and low-carbon industries.</p> | All | State-wide | Net-zero emissions by 2050. Bring forward Renewable Hydrogen Strategy's 2040 targets by a decade to support development of a renewable hydrogen industry | Strong economic and political support for all sectors. | NA |
| <p>WA Population Tomorrow WA government census data focussing on age and sex</p> | NA | NA | | | Population data resource. |