

South Coast Alliance Inc.

# CLIMATE CHANGE

Mitigation and Adaptation Strategies – Snapshot Report

June 2021



*Leading Sustainable Economic Development Through Collaboration.*



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## Executive Summary

In July 2015, the City of Albany, Shire of Denmark and Shire of Plantagenet signed a Memorandum of Understanding to form an alliance focused on the economic development and future prosperity of their communities. In 2019 the Shire of Jerramungup joined the alliance.

The resulting South Coast Alliance Inc. collaboration between the City of Albany and the Shires of Denmark, Jerramungup, and Plantagenet has a vision to *“lead sustainable economic development through collaboration”*.

These Local Governments are in the lower Great Southern area of Western Australia and together hold around 83% (and growing) of the Great Southern resident population.

International scientific consensus is that climate change is occurring, and it is driven by anthropogenic (human) causes, with human activities having a profound impact on the concentration of greenhouse gas emissions since the start of the industrial revolution. Ultimately, these activities, such as the burning of fossil fuels, land clearing and agriculture, have increased greenhouse gas concentrations in the atmosphere, leading to changes in the climate system over long periods of time.<sup>1</sup>

In the 20<sup>th</sup> century the impacts of climate change have become increasingly visible, with observed impacts including increases in global average air and ocean temperatures, rising global sea level, long-term sustained widespread reduction of snow and ice cover, and changes in atmospheric and ocean circulation and regional weather patterns, which influence seasonal rainfall conditions.

Australia is the driest inhabited continent on earth, and even in the absence of climate change is characterised by variability and extremes. With the impacts of climate change projected to place additional stress on our natural and human systems, there is a compelling need to address climate change.

Some impacts of climate change are already being felt by our community, including increasing temperatures, more droughts (farmers within the South Coast Alliance geography have been eligible for drought support for the past two years), more frequent and intensive natural disasters such as heatwaves and bushfires, and sea level rise, and associated increases in coastal erosion and inundation.

These impacts are predicted to increase in severity and frequency in the future, which will pose increasing risks to our community, environment, assets and infrastructure. The South Coast Alliance members are taking action, and seeking opportunities to do more to do more, to safeguard the future of their communities.

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<sup>1</sup> WALGA Corporate Adaptation Action Plan p11

This review seeks to capture the nature of climate adaptation or mitigation activities being undertaken by the Alliance, and other key regional stakeholders. It is a first draft intended to encourage collaboration and a shared sense of purpose across the Alliance, key regional stakeholders, industry and community. Mapping areas of focus across the geography of the Alliance also serves to highlight gaps and allow strategies to be developed that move the region more firmly towards a zero emissions outcome. This Climate Change Mitigation and Adaptation Strategies snapshot report helps to better understand the climate change actions and targets, policies and strategies that need further focus.

Alliance members believe that whilst they can only control adaptation and mitigation actions at their own corporate level, they have a significant leadership role to play within their communities, in sharing information, inspiring and encouraging others in a collaborative effort.

Alliance members have already taken action. This Review recommends further actions including:

1. Become a Climate Alliance under WALGA
  - a. Complete a “Roadmap to Zero” report to establish both base line measurements and a forward pathway to zero emissions.
  - b. Work together as Alliance partners to share lessons, technology and analysis including fleet review, energy audits and other mechanisms that can help to move the Alliance forward.
  - c. Explore financing options and the eligibility of projects to generate carbon credit income.
  - d. Establish a working group of key regional actors as a communication mechanism to encourage both the sharing of information and the development of collaborative partnerships.
2. Engage key industry partners to collaborate with us on the Zero Emissions journey, by providing information, encouraging collaboration, and developing opportunities that facilitate earlier investment (such as group buying, or financing mechanisms).
3. Develop a web-based dashboard that allows for tracking and accountability across climate change strategies and actions.
4. Engage the SCA community with a focused event that shares climate change information and strategies, creating momentum and improving the collaboration with our community members.

## About the South Coast Alliance Inc.

The South Coast Alliance Inc. (SCA) is an alliance between four Local Governments in the lower Great Southern region of Western Australia, working to collaborate on initiatives to improve the economic prosperity and wellbeing of their communities.

SCA is a not-for-profit incorporated association. It has a membership base made from the elected members of the City of Albany and the Shires of Denmark, Jerramungup and Plantagenet. SCA represents approximately 51,000 people<sup>2</sup> across all the Shires, geographically located across 17,500 km<sup>2</sup> in the region highlighted in Image 1.

Image 1: Geographical representation of SCA.



The nature of SCA role in the region is:

- GUIDING: Guiding vision and strategy
- SUPPORTING: Supporting aligned activities
- MEASURING: Establishing shared measurement practices
- ENGAGING: Cultivating community engagement and ownership
- ADVANCING: Advancing policy
- MOBILISING: Mobilising resources

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<sup>2</sup> ABS. (2020). Quarterly Population Estimates. [http://stat.data.abs.gov.au/Index.aspx?DatasetCode=ERP\\_QUARTERLY](http://stat.data.abs.gov.au/Index.aspx?DatasetCode=ERP_QUARTERLY)

## About the South Coast Alliance Inc.

The vision of SCA is to lead sustainable development through collaboration.

Strategic priority themes and goals of SCA are summarised as:

Strategic Theme	Goals
Advocacy	To positively influence policy and planning across all relevant Government spheres for the benefit of the South Coast Alliance geography.
	To proactively connect industry and the community with opportunities and resources to progress their ideas.
	To support multi-stakeholder partnerships working for the benefit of the community in the South Coast Alliance geography.
Economic Development	To lead the communication of regional sustainable development thinking, activating opportunities for our community.
	To proactively measure and communicate population level social outcomes, activating partnerships to address issues of concern.
	To lead the community by example, working to achieve zero carbon at an LGA organisational level.
Efficiency & Consistency	To share knowledge, opportunity, research and resources across the South Coast Alliance to maximise efficiency and collective action opportunities.
	To provide a forum for individual members to bring forward ideas for exploration that impact more than one LGA.
	To provide a forum for regional stakeholders to engage on issues that cover more than one LGA.
Effective Governance	Best practice governance processes are relevant, current and maintained.
	To apply appropriate outcome and measurement frameworks.
	Appropriately resource the SCA to achieve the strategic plan.

### A Changing Climate

Climate change is forecast to affect landscapes, ecosystems, food security and economic growth on a global scale. The State of the Climate report (2016) by the Bureau of Meteorology and CSIRO suggests a range of climate changes are occurring, many of which are affecting the South Coast Alliance geography. The Federal Government provides climate change projections for regions throughout Australia.<sup>3</sup> South Coast Alliance falls within the Southern and South-Western Flatlands West (SSFW) sub-cluster in southwest Western Australia, with a predominantly Mediterranean climate, high winter rainfall and little summer rainfall.

Current and anticipated climate changes include:

- Average temperatures will continue to increase in all seasons with very high confidence.
- More hot days and warm spells are projected with very high confidence. Fewer frosts are projected with high confidence.
- A continuation of the trend of decreasing winter rainfall is projected with high confidence (i.e., May-July rainfall has decreased by around 19% since 1970 in the south-west of Australia). Spring rainfall decreases are also projected with high confidence.
- Increased intensity of extreme rainfall events is projected with high confidence.
- Mean sea level is projected to continue to rise and the height of extreme sea-level events is also projected to increase, with very high confidence.
- A harsher fire-weather climate is projected in the future, with high confidence.

The impacts of climate change (and associated national and state policy responses) will affect the region's biodiversity and ecology, agriculture, nature-based tourism sectors, energy supply, urban form and water supply.

Some impacts of climate change are already being felt by our community, including increasing temperatures, more droughts (farmers within the South Coast Alliance geography are current eligible for drought support), more frequent and intensive natural disasters such as heatwaves and bushfires, and sea level rise, and associated increases in coastal erosion and inundation.

These impacts are predicted to increase in severity and frequency in the future, which will pose increasing risks to our community, environment, assets and infrastructure. The South Coast Alliance members are taking action, and seeking to do more, to safeguard the future.

Our response to these impacts includes both adaptation and mitigation measures, both of which are essential, and equally as important in addressing climate change.

1. **Climate change mitigation** involves actions that are intended to reduce our greenhouse gas emissions to minimise the severity of climate change or enhance the sinks for these emissions. For example, mitigation actions may include switching to renewable forms of

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<sup>3</sup> <https://www.climatechangeinaustralia.gov.au/>

energy such as wind and solar, and implementing energy efficiency initiatives, and supporting emission sinks such as investing revegetation and or modified landscape management (e.g., fire management) to improve carbon capture.

- 2. Climate change adaptation** consists of actions undertaken to reduce the consequences of the physical impacts of climate change, as well as to harness any opportunities as a result of these actions. Through adaptation actions we will become more prepared and able to adapt to the impacts of climate change, reducing our vulnerability. For example, adaptation actions may include building seawalls to protect infrastructure from erosion, raising the height of houses in flood prone areas, or behaviour change initiatives, such as monitoring vulnerable segments of the community during heatwaves.

Mitigation addresses reducing the causes of climate changes (greenhouse gas emissions), whereas adaptation addresses the impacts of climate change and associated risks and how we respond to them. For effective global mitigation it is important for everyone in the community, all businesses, and all levels of government to contribute to reducing emissions.

### The Role of Government

As a signatory to the Paris Agreement under the United Nations Framework Convention on Climate Change and the United Nations Sustainable Development Goals (SDGs), Australia has committed to taking action on climate change and to ensuring that mitigation and adaptation action is equitable and consistent with the aims of the SDGs.

The Paris Agreement aims to strengthen the global response to the threat of climate change by:

- holding the increase in the global average temperature to well below 2°C above pre-industrial levels
- pursuing efforts to limit temperature increase to 1.5°C.

In 2015 Australia committed to an economy-wide target to reduce greenhouse gas emissions by 26 to 28% below 2005 levels by 2030 and will submit its next commitment with a post-2030 target, to the UNFCCC in 2025.

The Paris Agreement expressly recognises the importance of engagement at all levels of government. As such, the management of climate-change risks is spread across the three tiers of government: Commonwealth, State and Territory and Local.

In 2012, the Councils of Australian Governments (COAG) formally agreed on the roles and responsibilities for climate-change adaptation in Australia.

### Federal

The Commonwealth Government is responsible for:

- Managing climate change science and national adaptation research to allow Australia to effectively adapt to the impacts of climate change;
- Providing leadership on national adaptation reform, and collaborating with States and Territories in setting and implementing national priorities and regional priorities;
- Managing climate change risks and impacts across the Commonwealth's portfolio of assets and programs; and
- Maintaining a strong, flexible economy and social safety net that will help Australia adapt to climate change impacts by ensuring resources are available to respond to climate change and can be deployed efficiently.

### Western Australian Government

The State and Territory Governments are responsible for:

- Providing local and regional science and information;
- Managing climate change risks and impacts across State and Territory assets and programs;
- Working with the Commonwealth to implement the national adaptation reform; and
- Encouraging climate resilience and adaptive capacity.

In August 2019, the WA Government set the aspiration of net-zero greenhouse gas emissions for WA by 2050 under the WA Climate Change Policy.

### Local Governments

Local Governments are on the frontline in addressing climate change impacts and have a critical role to play in ensuring that mitigation and adaptation responses are suitably tailored to the specific risks in our area, and that our local communities and stakeholders are consulted and involved in our efforts. We have a capacity to implement planning and development measures that reduce the impacts of climate change on all aspects of the community, and therefore have more hands-on responsibilities than the Commonwealth Government and complementary responsibilities to State and Territory governments.

Local Governments are responsible for:

- Administering relevant state and territory and/or Commonwealth legislation to promote adaptation as required including the application of relevant codes;
- Managing risks and impacts to public assets owned and managed by Local Governments;
- Managing risks and impacts to Local Government service delivery;
- Collaborating across Local Governments and with State and Territory Governments to manage risks of regional climate change impacts;
- Ensuring policies and regulations under their jurisdiction, including local planning and development regulations, incorporate climate change considerations and are consistent with State and Commonwealth Government adaptation approaches;

- Facilitating building resilience and adaptive capacity in the local community, including through providing information about relevant climate change risks;
- Working in partnership with the community, locally based and relevant NGOs, business and other key stakeholders to manage the risks and impacts associated with climate change; and
- Contributing appropriate resources to prepare, prevent, respond and recover from detrimental climatic impacts.

### WALGA Climate Change Action Framework

Western Australia Local Government Association (WALGA) developed [WALGA's Policy Statement on Climate Change \(2018\)](#), stating the following policy position:

***Local Government acknowledges:***

- The science is clear: climate change is occurring and greenhouse gas emissions from human activities are the dominate cause*
- Climate change threatens human societies and the earth's ecosystems.*
- Urgent action is required to reduce emissions, and to adapt to the impacts from climate change that are now unavoidable*
- A failure to adequately address this climate change emergency places an unacceptable burden on future generations.*

***Local Government is committed to addressing climate change.***

***Local Government is calling for:***

- Strong climate action, leadership and coordination at all levels of government*
- Effective and adequate funded Commonwealth and State Government climate change policies and programs*

WALGA has developed a Climate Change Action Framework that sets out a logical sequence of steps that Local Governments can follow to respond to climate change. The framework is intended to guide both Local Governments that are commencing their climate change journey, and those that are well progressed and are strengthening their approach.

The framework covers four action areas:

1. Primary – commitments that include declarations and policy development.
2. Secondary – core actions that include the key plans Council can adopt to address climate change causes and impacts.
3. Tertiary – special actions and projects that would usually be committed to through one of the core actions.
4. Integration – embedding all the climate change commitments, actions and projects in all Council policies, strategies, plans and activities.

When mapped against these four action areas the member councils of the Alliance report significant progress as follows:

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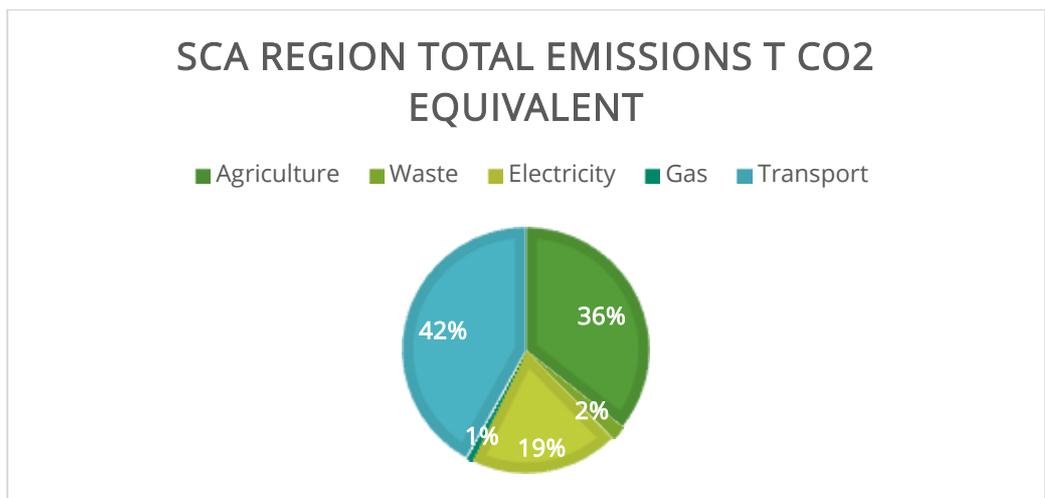
LGA	Primary				Secondary			Tertiary					Int.
	Declaration	Policy	Power Partnership	Join national Or international Organisation	Corporate Action Plan	CHRMAP	Community Action Plan	Urban Forest	Divestment	Risk strategy	Emission target	Regional Alliance	
Albany	✓	✓	✓		✓	✓						✓	✓
Denmark	✓	✓			✓	✓		n/a	✓	✓	✓	✓	
Jerramungup						✓		n/a				✓	
Plantagenet						n/a		n/a		✓		✓	✓

### The State of Play – Carbon Emissions

Australia's per capita greenhouse gas emissions were estimated at 13.44 t/capita in 2016<sup>4</sup>, utilising the metric 'carbon dioxide equivalents'. This is measured as the sum of all greenhouse gases per head of population.

Beyond Zero Emission estimates that for the South Coast Alliance geography, total carbon dioxide equivalents amounted to 1,582,600 t in 2018 or 31.42 t/capita<sup>5</sup>.

This is made up across the following segments:



Leadership, knowledge sharing, and collaboration provide opportunities to bring forward carbon emissions strategies.

Climate Change mitigation strategies utilised across the Alliance geography include actions to both reduce greenhouse gas emissions, and to others absorb greenhouse gas emissions. The later are generally being implemented by industry and not for profit actors.

Actions and opportunities identified for further action as provided in this review, encourage a focus on the most significant contributors to carbon emissions in the South Coast Alliance Geography.

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<sup>4</sup> <https://ourworldindata.org/co2/country/australia#per-capita-how-much-co2-does-the-average-person-emit>

<sup>5</sup> <https://snapshotclimate.com.au/>

<sup>6</sup> [snapshotclimate.com.au](https://snapshotclimate.com.au) Snapshot report V7M

## Transport

Transport contributes the highest level of emissions to the geography covered by Albany and Denmark and is the second highest contributor in Plantagenet and Jerramungup (behind agriculture).

At a strategic level, actions already being taken to identify and formulate strategies to reduce emissions across the corporate fleet:

Activity	Albany	Denmark	Jerramungup	Plantagenet
Emissions targets set		✓		
Base Line Measurements				✓
Passenger Vehicle fleet carbon emissions review and action plan	✓	✓		
Heavy vehicle fleet emissions review and action plan	✓	✓		

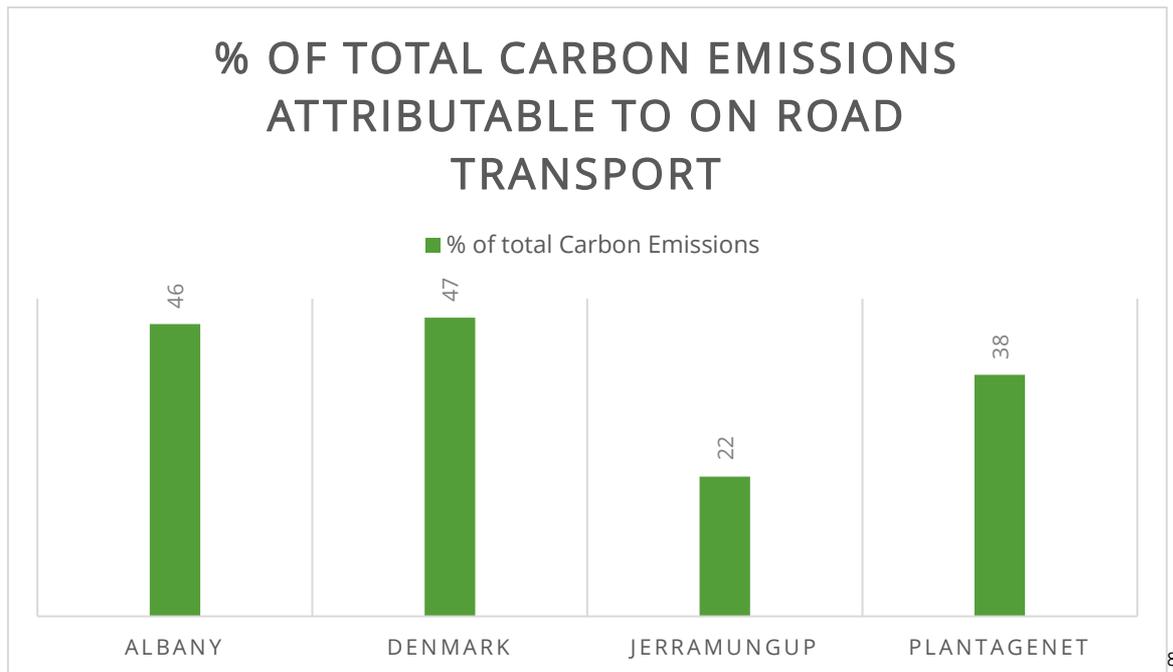
Across Australia, transport is the fastest growing and third largest source of emissions. Australia’s road vehicle fleet is one of the most energy – and emissions- intensive in the world.<sup>7</sup> Transport is also the fastest growing source of emissions, with the growth rate exceeding Australia’s population growth rate.

Without intervention the carbon emissions generated by transport will continue to increase, with research suggesting that immediate actions will be needed by government, industry and the community if transport is to play its part.

In 2018 (the most recent available), transports contribution to total carbon emissions within the Alliance geography was:

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<sup>7</sup> Climate Works Australia, Moving to Zero – Accelerating the Transition to Zero-Emissions Transport. June 2020 p4



Australia’s road vehicle fleet is one of the most energy and emissions intensive fleets in the world, with the average emissions intensity for passenger vehicles 45% higher than Europe.<sup>9</sup> Globally more than a dozen countries have taken steps towards the complete phasing out of fossil-fuel powered cars, including scheduled bans on new fossil-fueled cars sales in the United Kingdom, France, China and India. Other countries are incentivizing the purchase of electric cars, not just financially, but through the provision of infrastructure for charging, parking and priority road access.

We remain one of only six OECD countries without vehicle emissions regulations. As the population of the South Coast Alliance expands, demand for transport will increase, putting further pressure on the region’s ability to achieve net zero emissions.

Access to transport options impact access to employment, education and cultural activities, the cost of living and quality of life through air quality, noise, stress and time spent in transit. The absence of distributed public transport options means the South Coast Alliance population is heavily dependent on private vehicles, which is no doubt reflected in the emissions output.

Transport can contribute to a net zero emissions future by:

- reducing demand by avoiding transport trips where possible (behaviour change)
- shifting to lower emissions transport modes and efficient transport networks
- improving energy efficiency

<sup>8</sup> snapshotclimate.com.au 2018 municipal emissions snapshots

<sup>9</sup> Climate works P 16

- employing zero-emissions fuel sources through renewable powered or fueled electric, hydrogen and biofuel vehicles <sup>10</sup>

Electrification is the most mature and demonstrated technology for rapidly reducing transport emissions, and has been demonstrated as economically viable for cars, motorcycles, bicycles and buses. Whilst the upfront cost remains higher in Australia, the operating costs are less than half, on average. For high-mileage drivers electric vehicles are already cost-competitive when the total cost of ownership is taken into consideration. For all drivers this is expected to be achieved within the next few years as both the efficiency of vehicles and the cost of batteries improve.

Barriers to adoption include a lack of governments incentives to purchase electric vehicles, range anxiety in regional areas, accentuated by the lack of a comprehensive EV charging network.

It is also feasible that technology such as Uber Air could ultimately arrive in key regional areas, impacting the passenger transport landscape within the South Coast Alliance.

In 2019 Uber announced Australia as the first international market for Uber Air, with test flights due to start in Melbourne from 2020 and plans for commercial operations to commence from 2023, expanding to other Australian cities shortly thereafter.

With increasing wealth combined with the continued urbanisation of the Australian community, technology such as Uber Air could see a carbon neutral tourist landing at the local airport in the not too distant future. Movement towards zero carbon emissions as a region is likely to make this destination all the more attractive to climate conscious travellers.

Actions being taken, and opportunities identified for further action by Alliance members include:

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<sup>10</sup> Climate works Australia p11

Current State of Play	Established Opportunities	Emerging Opportunities	Recommended Actions
<p>5 Electric or hybrid Vehicles within the SCA vehicle fleet (all City of Albany).</p> <p>City of Albany and Shire of Denmark have completed a passenger vehicle fleet review for transition to electric vehicles. Some challenges identified.</p> <p>Current Base line emissions calculations not held.</p>	<p>Climate Works Benchmark indicates a requirement of 28% of total fleet as Electric Cars by 2030 to meet the 1.5C pathway towards net zero emissions.</p> <p>Technology to support the calculation of fleet contributions to the SCA carbon footprint,</p>	<p>Potential Alliance efficiencies in fleet analysis and group buying power.</p> <p>Potential to bring forward acquisitions utilising group financing mechanisms (provided supply chain able to secure vehicles).</p> <p>Improvements in technology making more acquisitions feasible.</p> <p>Emissions reduction carbon credit opportunities.</p>	<p>Working group to develop a shared vision, strategies, targets and supporting frameworks at the corporate level.</p> <p>To include base line calculations and a roadmap to achieving zero emissions.</p> <p>Funding mechanisms to be explored.</p>
<p>Alliance members progressing carbon emissions reduction strategy development individually. Supporting frameworks not yet embedded in planning policies.</p>	<p>LGAs share ideas and lessons on transport emissions issues and opportunities utilising the SCA and Regional Cities forums.</p>	<p>Regional Climate Alliance provides further impetus and resourcing.</p>	<p>Consider minimum electric vehicle charging station requirements in statutory planning for new building developments.</p>

Current State of Play	Established Opportunities	Emerging Opportunities	Recommended Actions
<p>Across the SCA landscape it is possible to access a total of 19 electric vehicle charging points, of which 15 are based at commercial accommodation or other businesses. Of these 2 appear to be fast charging.<sup>11</sup></p>	<p>The Qld Electric Super Highway provides fast charging infrastructure every 100-200kms from Coolangatta to Cairns, near amenities and tourist attractions, with power for the chargers sourced from green energy credits or offsets.</p>	<p>Continue to investigate and support the installation of vehicle charging stations at public venues (fast charge)</p> <p>Investment in charging infrastructure to enable broader take up of electric vehicles by the community</p>	<p>Through Regional Climate Alliance program, develop options for investment in charging infrastructure.</p> <p>Advocate for and identify funding pathways.</p>
<p>Shire of Denmark has electric bike to encourage transfer of short journeys from car to low carbon alternative.</p> <p>Consideration of cycleways in urban planning.</p>	<p>Active travel modes (walking, bike riding) provide opportunities to reduce emissions.</p>	<p>Include increase in cycle ways and footpaths in urban centres to encourage resident behaviour change.</p>	<p>LGAs share ideas and lessons learned.</p>

<sup>11</sup> <https://www.plugshare.com/>

Current State of Play	Established Opportunities	Emerging Opportunities	Recommended Actions
<p>No current action on the commercial fleet (road machinery etc)</p>	<p>Climate Works Benchmark indicates requirement of 24% of total commercial fleet as Electric vehicles by 2030 to meet the 1.5C pathway towards net zero emissions.</p>	<p>New technologies coming onstream.</p>	<p>Develop a shared vision of a desired Commercial fleet replacement strategy at the strategic level.</p> <p>Undertake base line measurement of carbon emissions.</p>
<p>Public Transport is provided by private companies within the SCA geography.</p> <p>Impact on the public transport fleet is thus limited to information sharing, leadership and potential funding collaborations.</p> <p>2016 census records show 1,236 workers travel from home LGA to different work LGA within the Alliance – this represents 6% of the total workforce.</p> <p>Some ride sharing is utilised (e.g., Denmark WA Carpool.</p>	<p>In Adelaide, Precision Buses is designing and manufacturing electric buses to use on public transport systems in five Australian states.<sup>12</sup> More than 30 cities around the world have pledged to buy only zero-emissions buses from 2025, including London, Los Angeles, Auckland, Jakarta and Moscow. Shenzhen has fully electrified its entire fleet of 16,000 electric buses in the past 8 years. In NSW the Government has announced plans to electrify its 8,000 Sydney bus fleet.</p>	<p>Greater communication and information sharing between stakeholders to accelerate adoption (group buying, strategic charging stations et al).</p> <p>Significant travel numbers to and from Plantagenet and Albany with 493 travelling to and 325 from P to A each day for work. This may provide an opportunity for consideration of a public bus route.</p>	<p>Collaborate with Loves Bus, public and school bus provider in the City of Albany to understand investment pathway for transition to electric bus fleet.</p>

<sup>12</sup> Climate Works Australia P 15

Whilst some move has been made to transition passenger vehicles to renewable energy, significant barriers remain for the heavy vehicle fleet in the South Coast Alliance, (including road works machinery). Identified barriers include finding space for batteries, limited charging infrastructure, and the sheer cost of transition.

Demand for freight is increasing with freight volumes in Australia expected to grow by 25% between 2018 and 2040, driven by a growing population, increasing trends in e-commerce and consumer expectations of fast delivery. Growing freight demand increases the importance of decoupling miles travelled with emissions growth.

Across Australia this means moving more freight from road to rail, however in a South Coast Alliance context this may not be possible (although advocacy to rail operators to strategically plan to achieve zero emissions through their rail infrastructure would be to the benefit of the regional emissions targets).

Other strategies include improving the efficiency of road freight through freight load-management technology, reducing unnecessary kilometres, and increased communication and coordination between stakeholders in the sector.

Strategies such as urban consolidation centres (whereby multiple freight companies deliver their goods to a single centre for customer pickup) are already employed in SCA member shires (such as the freight collections point at BP in Denmark).

Consumer demand for rapid goods delivery, and technology such as Drone delivery (e.g., Wing<sup>13</sup> that already delivers small packaged by drone in ACT and QLD) have implications for planning and a flow on effects for emissions.

Electrification has been demonstrated as economically viable for short-haul freight transport (e.g., vans), with products such as SEA E4V and SEA Ford Transit EV (produced in Australia) providing electric vans suitable for last-mile delivery and courier companies, and 12-15 seat commuter buses as public transport options.

Progress is being made in other areas, with SEA Electric (based in Victoria) currently working to electrify rubbish trucks.

Biofuel and hydrogen fuel sources are expected to play a larger role in heavy road vehicles but are not as yet mainstream. It is already possible in Europe and North America (but not yet

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<sup>13</sup> [https://wing.com/en\\_au/](https://wing.com/en_au/)

Australia) to purchase a semi-trailer truck capable of travelling up to 1900 km on a single tank of hydrogen (Nikola Motor Company).<sup>14</sup>

The South Coast Alliance has access to both biomass for biofuels (through its large agricultural sector) and hydrogen (through proximity to the ocean) which may present further industry development opportunities that support a zero emissions future.

Biofuels are fuels such as biodiesel and ethanol, which are produced from plant and animal matter. “Advanced” biofuels, made from biomass such as wood residues and waste are at an earlier stage of technological maturity. In some cases, biofuels can be used as a replacement for diesel and other high emissions fuels with minor modifications to the vehicle. This could be an important strategy for reducing the emissions of existing fleets, some of which have relatively long lifespans.

To this end the South Coast Alliance Inc. has commissioned an “Blue/Green Economy Opportunity Review” to assess commercial opportunities that may be present within the SCA Geography that support a sustainable future.

The impact on the SWIS due to the energy demand from electric vehicles, including commercial fleets, can be managed through a range of mechanisms and is not a barrier to adoption. Demand from bus and larger vehicle fleets can be mitigated with onsite depot energy storage and solar PVs and there are a range of mainstream grid stability technology solutions adopted in other geographies that are available to the SWIS. However, as demand for electrified transport options increases, coordination between transport and energy sector stakeholders will be required to achieve maximum efficiencies.

The South Coast Alliance membership can play an important role in supporting the uptake of available technologies through both its leadership and the provision of secondhand vehicles – government and business fleets serve as an important source to the second-hand market. Fleet procurement guidelines has a large influence on the future composition of Australia’s total vehicle fleet. Collaborations between industry and Local Government in the SCA region with a collective fleet procurement guideline that preferences electric vehicles (with supportive charging infrastructure) could have a substantive impact on the general uptake of low emissions vehicles in the region over time.

Charge Together Fleets is a program, co-developed by Evernergi and the Electric Vehicle Council with funding from ARENA, to assist businesses, governments and councils with electrifying their fleets. There are also online tools such as total cost of ownership calculators that compare electric vehicles to fossil-fueled vehicles.<sup>15</sup>

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<sup>14</sup> <https://nikolamotor.com/motor>

<sup>15</sup> for more information, visit: <https://fleets.chargetogether.org/>

The South Coast Alliance Inc. can also advocate to State and Federal Governments for mechanisms to accelerate electric vehicle uptake, including financial incentives and a charging network.

### Emissions Reduction Fund

#### Funding Green Vehicles

The Australian Government's Clean Energy Financing Corporation has completed research that shows that with the right combination of incentives, models and infrastructure, EV sales could surge from as early as 2021. It is thus providing a \$50 million CEFC-financed program to encourage business, government and not-for-profit fleet buyers to choose low emissions vehicles.

To be eligible for the CEFC finance, vehicles must meet a carbon emissions threshold that is 20 per cent below the most recently published Australian averages for new passenger and light commercial vehicles.

Average emissions per kilometre travelled for cars financed through the Eclix program are 27.1 per cent below the national average and 8.8 per cent below the eligibility benchmark. Light commercial vehicles financed are beating the average by 31.2 per cent and the benchmark by 14.0 per cent.

The CEFC finance is available through an Eclix sponsored, publicly-rated securitisation warehouse and presents an opportunity for the Alliance to review the SCA fleet and financing mechanisms together.

### Emissions Reduction Fund

The Emissions Reduction Fund aims to provide incentives for a range of organisations and individuals to adopt new practices and technologies to reduce their emissions. Road transport projects that reduce emissions by improving fuel efficiency and changing energy sources for vehicles may be able to register to earn Australian carbon credit units (ACCU) for emissions reductions. One ACCU is earned for each tonne of carbon dioxide equivalent (tCO<sub>2</sub>-e) stored or avoided by a project. ACCUs can be sold to generate income, either to the government through a carbon abatement contract, or in the secondary market.

Eligible activities that could be undertaken to reduce emissions include:

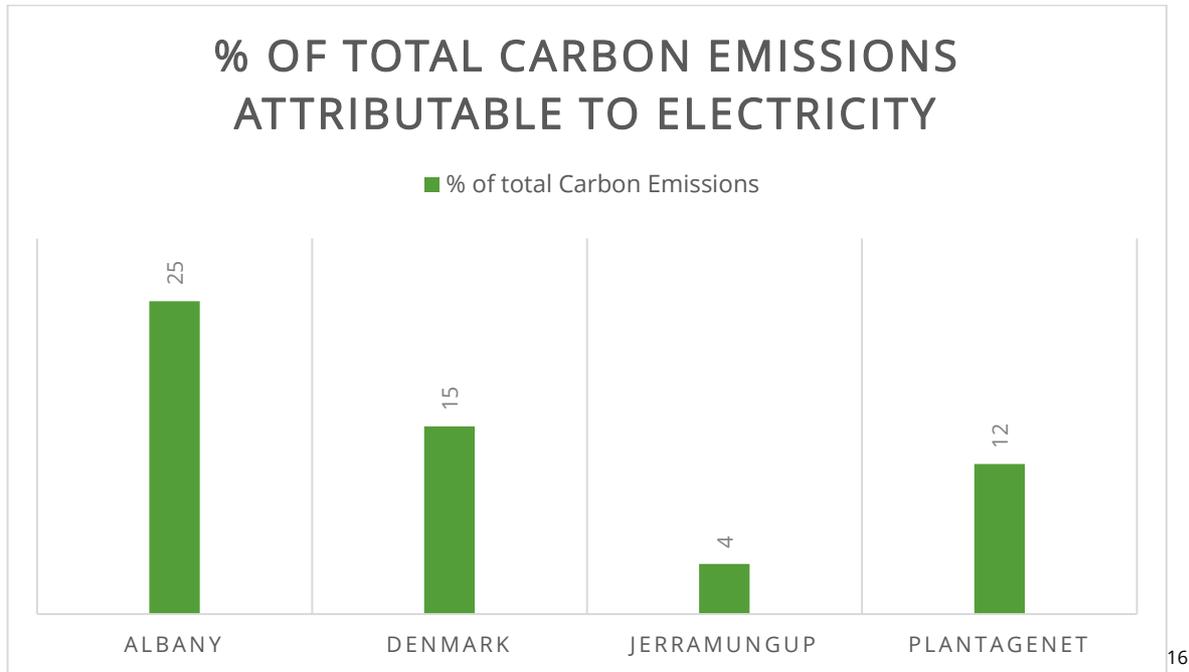
- replacing vehicles
- changing energy sources (fuel switching), or
- changing operational practices.

In most situations, for the vehicle replacement program to be eligible for carbon credits, you must have three years of relevant historical data to ensure that baseline data used for calculating abatement reflects the recent, actual performance of the vehicles.

This represents a real opportunity to improve the return on investment of a SCA fleet replacement.

## Electricity

In 2018 (the most recent available), Electricity’s contribution to total carbon emissions within the Alliance geography was:



The South Coast Alliance community is already a leader in the generation of electricity from renewable energy.

Synergy operates the following windfarms within the SCA:

### Albany Wind Farm

This farm sits 80m above the Southern Ocean. It’s such a prime location that there are only 7 days a year where the wind is not strong enough to turn the turbines. At the time of its installation in 2001 the farm was the largest of its kind in Australia. The turbines generate around 75 per cent of clean, green electricity for Albany.<sup>17</sup>

<sup>16</sup> snapshotclimate.com.au 2018 municipal emissions snapshots

<sup>17</sup> [https://www.westernaustralia.com/en/Attraction/Albany\\_Wind\\_Farm/56b2672cd5f1565045daa685](https://www.westernaustralia.com/en/Attraction/Albany_Wind_Farm/56b2672cd5f1565045daa685) accessed 1 June 2021

### Bremer Bay Wind-Diesel System

This installation provides almost half (40 per cent) of the town's annual electricity demands, reducing diesel consumption by about 40,000 litres.

In addition, there is:

### Denmark Community Wind Farm

This windfarm supplies about 50% of the Denmark community's electricity, preventing about 6000 tonnes of greenhouse gases entering the atmosphere – equivalent to taking about 1500 cars permanently off the road.<sup>18</sup> At the time of its original installation in 2003 it was the first community wind farm in Australia. It is owned by community members and reinvests profits back into the community.

### Mount Barker Wind Farm

The Mt Barker Windfarm was initiated and is managed by private investors. It was commissioned in March of 2011 and provides renewable energy to Synergy under a long-term power purchase agreement. The farm generates 8,400 megawatt hours of electricity each year and reduces greenhouse emissions by more than 8,000 tonnes annually. The output from the turbines can cater for the energy needs of the Mount Barker townsite (depending on wind conditions).<sup>19</sup>

In addition to wind and residential adoption of roof top solar, the SCA is also home to the Wave Energy Research Centre.

### Wave Energy Research Centre

The Wave Energy Research Centre (WERC) was established in 2018 at UWA Albany Campus, to drive development of the ocean energy sector. Its vision is to become a southern hemisphere focus for ocean energy and to this end it sits in the Australian Energy Ocean Energy Group, is a participant within the Blue Economy Cooperative Research Centre, and is collaborating with multiple stakeholders across the world, including wave energy developers Carnegie Clean Energy, CorPower Ocean and Bombora Wave power.

The three core research programs being undertaken by WERC are:

1. investigating and characterizing the wave and current conditions for successful deployment of wave energy converters (WEC) in coastal regions.
2. developing models to predict wave-WEC interactions and inform optimal WEC design for power generation and survivability.

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<sup>18</sup> <http://www.dcw.net.au/project.htm> accessed 1 June 2021

<sup>19</sup> Shire of Plantagenet, South Coast Alliance Energy Project – Shire of Plantagenet achievements to date and priority areas May 2021 P

3. developing foundation engineering solutions to meet the specific requirement of the marine renewable energy industry.

Significant activity is and has been occurring at a corporate level across the Alliance membership to conserve energy and move to carbon neutral energy generation. At a high level this can be indicated as:

Activity	Albany	Denmark	Jerramungup	Plantagenet
Emissions reduction target set		✓		
Emissions reduction Action Plan	✓	✓		
Emissions base line				✓ (2014)
Street Lighting emissions review and action plan	✓			
Council occupied building efficiency rating 6 star		✓	✓	
Council occupied building solar PV installation	✓	✓	✓	✓
Council owned (but not occupied) solar PV installation	✓		✓	✓
Member of Cities Power Partnership	✓			
WALGA Power Purchase Agreement	✓			

The Shire of Plantagenet were early movers with a Carbon Emissions and Energy Assessment completed in June 2014. This allowed the Shire to understand the carbon emissions generated from Shire operations. It included information on:

- Landfill emissions management
- Building energy assessments for core shire infrastructure including buildings, the swimming pool and saleyards.

Assessment of the data allowed for the identification of opportunities to reduce electricity with a reduction in carbon emissions related to electricity achieved from the upgrade of infrastructure, the installation of some solar PV and lower LED lighting at the saleyards and Shire admin building, and the installation of movement control lighting in some spaces.

The City of Albany has been proactive in sustainability and climate change initiatives. The City has developed and implemented their Environmental Policy (Climate Change) (2017) and Carbon Footprint Reduction Strategy (2014), through the installation of three rooftop solar PV systems, a biofuel system and LED lighting.

Two integrated renewable energy feasibility studies (2019) were undertaken to identify potential savings through energy efficiencies opportunities, tariff optimisation, and renewable energy solutions, focussed on 56 City assets.

The Blue Sky Renewables 'Integrated Renewable Energy System Feasibility Study', August 2019, identified a range of energy efficiency and renewable energy recommendations for the Albany Leisure and Aquatic Centre.

The Thales New Energy 'Renewable Energy Generation Feasibility Study' for City buildings final report was not completed, however the energy data calculated provided sufficient information to complete a business case.

A Sustainable Building Working Group (SBWG) (December 2019) was established to provide guidance for the development of the Corporate Renewable Energy Plan (CREP) following the recommendations of the feasibility studies. The CREP will be available for comment late 2021.

The 'Renewable Energy Installation on City Facilities' Business Case has been prepared by City officers and reviewed by the SBWG, to consider installation of rooftop solar photovoltaic systems on suitable City assets with an aspiration to transition corporate energy usage to 100% renewable energy.

Two feasibility studies were conducted on 56 City building, taking into consideration current and projected energy usage, tariff rates, energy efficiency opportunities, and recommendations for renewable energy system installations including virtual power plant scenarios.

Recommendations from the feasibility study included:

- Tariff optimisation opportunities (completed)
- Energy efficiency initiatives (including energy load anomalies, LED Lighting)
- Solar PV installations (commenced)

The Business Case proposes that the project could be implemented over three phases as follows:

Phase 1 – the installation of solar PV on city owned and operated assets. 11 buildings have been scheduled for solar PV over the next 5 years commencing with solar PV installation at the City of Albany Library. The installation program coincides with the Long-Term Financial Plan and the roof replacement schedule with \$240,000 allocated to solar panels and LED light replacements in the 20/21 budget.

Phase 2 – the installation of solar PV on City owned and leased buildings. Due to extensive changes to lease agreements and non-viability of a 'Virtual Power Plant', leased buildings will be reviewed again at completion of phase 1.

Phase 3 – Battery storage and VPP options will need to be reviewed again at the completion of Phase 1. It is envisioned that with the changing scope of the energy market and government policy that this may be more suitable in the next 5 years.

The installation of Solar PV would reduce GHG emissions and supports the delivery through the carbon footprint Strategy (2014), the City of Albany Environmental Policy – Climate Change (2017), and the City of Albany Climate Change Action Declaration (2020).

South Coast Alliance members, through the SCA Energy Project have agreed to build on the knowledge base and experience of the City of Albany to progress analysis and the development of a strategic implementation pathway across other member shires. This has a carbon emissions, community sustainability and financial motivation with the McKinsey Global Institute estimating that the internal rate of return from investing in technologies to improve energy efficiency in buildings is greater than 10%,<sup>20</sup> and generates an average of 14 job years of net employment for each \$1 million invested.<sup>21</sup>

The SCA has allocated \$57,500 plus in-kind resources amounting to approximately \$40,000 in the 2021 financial year to undertake a planning and coordinating role to support the further implementation of carbon emission reduction strategies.

In addition, the Shire of Plantagenet has allocated \$5,000 in the 2021/22 budget for an energy audit on its major buildings, and is also reviewing energy efficiency strategies and measures for the Mount Barker Memorial Swimming Pool as part of its redevelopment.

The City of Albany has also expressed interest in participating in the WALGA – Energy Sustainability and Renewable Project. By initially aggregating existing Power Purchase contracts into a volume predicated energy supply arrangement and cost savings can be immediately realised. The dual objective of renewable generation can then be phased in as new sources of renewable generation

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<sup>20</sup> McKinsey Global Institute, 2011, Resource Revolution: Meeting the World's Energy, Materials, Food and Water Needs, November 2011, <https://www.mckinsey.com/business-functions/sustainability/our-insights/resource-revolution>

<sup>21</sup> ibid

enter the grid. The collective WALGA project load profile can thereby be incrementally offset against Australian Carbon Credit Units (ACCUs) to offset emissions to achieve the net-zero target.

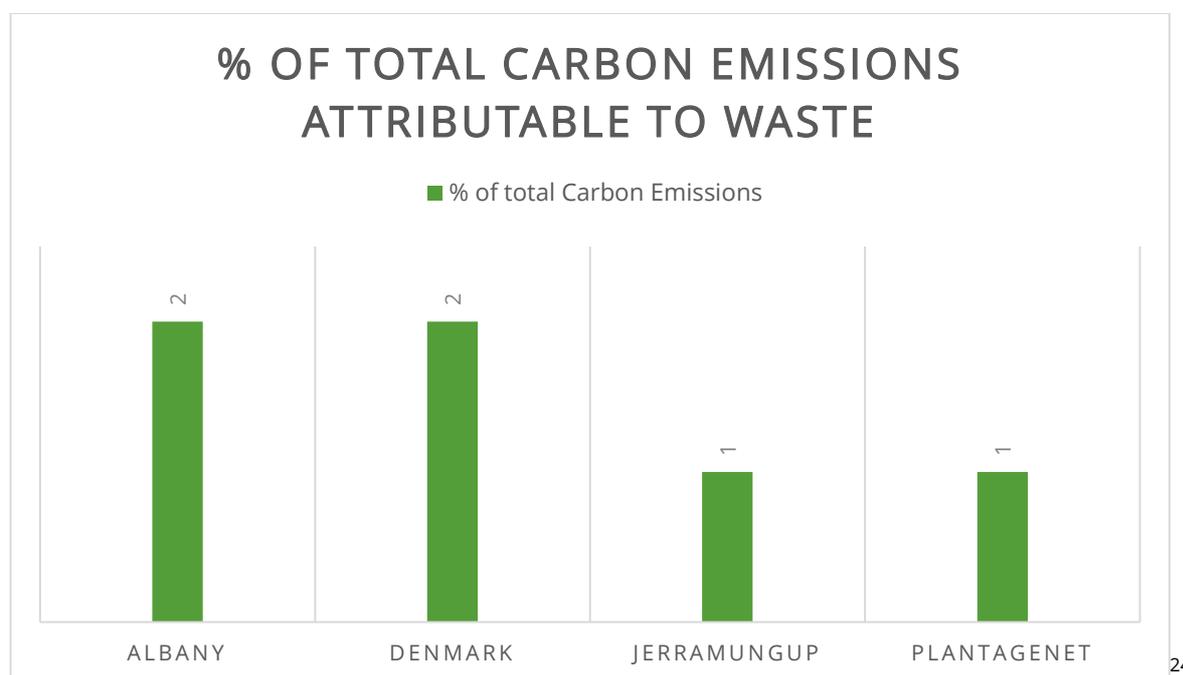
## Waste

Right now, Western Australia is close to leading the “wrong lists”. National figures from 2014–15 (the latest available is September 2018) show Western Australia had the highest rate of waste generation per capita in the nation, and the equal second lowest rate of resource recovery – 13 percentage points below the national rate.<sup>22</sup>

Reducing the amount of waste disposed of to landfill can have a significant impact on greenhouse gas emissions.

The WA State Governments’ Waste Avoidance and Resource Recovery Strategy 2030 introduces significant transformations aimed at WA becoming a circular economy, with a greater focus on avoidance as well as moving to targets for material recovery and environmental protection in addition to landfill diversion. A circular economy means transitioning from the current take-make-use and dispose system to a material efficiency approach which aims to keep products, components and materials at their highest utility and value for as long as possible.<sup>23</sup>

In 2018 (the most recent available), the contribution made by Waste to total carbon emissions within the Alliance geography was:



<sup>22</sup> Waste Avoidance and Resource Recovery Strategy 2030 – State Govt

<sup>23</sup> ibid

<sup>24</sup> snapshotclimate.com.au 2018 municipal emissions snapshots

As waste management is a primary Local Government responsibility, the South Coast Alliance membership has had a collective focus on this area for many years.

In late 2008, the Great Southern Group of councils developed a *Strategic Waste Minimisation Plan 2008 - 2013*. This Plan incorporated that City of Albany, Shire of Plantagenet and the Shire of Denmark. This was updated in 2014 with a strategic review completed by IW Projects that proposed a focus on the following Priority Wastes for the planning period 2014 to 2019:

- Packaging waste
- Household Hazardous Waste
- Electronic Waste
- Bulk Waste
- Organic waste.

From an Alliance perspective, the 2014 Strategic review recommended a continuation of Shared policies and learning with the quarterly Group meeting noted as a good forum to launch a renewed effort to improve waste diversion from landfill by working together on a range of waste minimisation activities.

The South Coast Sustainable Waste Alliance now operates with SCA member councils with a focussed effort on waste solutions. A series of actions are initiated and monitored, with a scorecard regularly updated and provided to the South Coast Alliance Management Committee.

The Priority Areas and Updated Actions of the South Coast Sustainable Waste Alliance are:

Priority	Updated Actions
1.1 To reduce waste generation through innovative education programs and advocacy to government and industry	1.1.1 Implement bin tagging program. 1.1.2 Develop combined social media campaign. 1.1.3 Host Regional Waste Summit 2021.
1.2 To improve processes by changing how we do business	1.2.1 Develop regional messages for regional bins.
2.1 To effectively manage current sites while planning for post-closure activities	2.1.1 Investigate Hanrahan Road & O'Neill Road lifespan extension and closure planning.
2.2 To identify and promote sustainable practices, innovative solutions and alternative treatments	2.2.1 Develop FOGO implementation plan for COA. 2.2.2 Assess suitability for FOGO in Shire of Denmark.
3.1 To review and improve current services and contract arrangements	3.1.1 Request information from Cleanaway on MRF auditing to identify recycling and contamination rates for each LG.

<p>3.2 To develop and foster innovative education programs and partnerships with our communities</p>	<p>3.2.1 Plan Not Waste Festival involvement. 3.2.2 Explore regional crossovers with Albany's Green Fair on the Square.</p>
<p>4.1 To identify and assess appropriate sites and determine suitability, logistics and transition planning</p>	<p>4.1.1 Review Site Selection Study. 4.2.2 Collate database of potential alternate waste treatment options.</p>
<p>4.2 To monitor performance against industry best practice</p>	<p>4.2.1. Annual Waste Census reporting.</p>
<p>5.1 To communicate with and gain support from Elected Members of the South Coast Alliance</p>	<p>5.1.1 Provide quarterly update to Economic Alliance. 5.2.1 Provide elected member briefings at least annually.</p>
<p>5.2 To deliver effective engagement and reporting with Alliance Partners and other Stakeholders</p>	<p>5.2.1 Provide quarterly update to the South Coast Alliance. 5.2.2 Regional Waste Summit 2021. 5.2.3 Social media campaign.</p>

Funds of more than \$1.4million have been allocated by Alliance members for the 2021 financial year for waste projects, including investigating Landfill Gas Extraction and new waste management options.

The State Governments strategy for 2030 is for WA to become a circular economy, with a greater focus on avoidance as well as moving to targets for material recovery and environmental protection in addition to landfill diversion. A circular economy means transitioning from the current take-make-use and dispose system to a material efficiency approach which aims to keep products, components and materials at their highest utility and value for as long as possible.

The creation of a circular economy with high-performing waste and recycling systems which see materials recovered, reused and recycled can harness the economic value of these materials that would otherwise be sent to landfill, and drive investment in infrastructure and jobs. It is estimated that for each 10,000 tonnes of waste recycled, 9.2 full-time equivalent jobs are created compared

to only 2.8 jobs for landfill (Access Economics, 2009)<sup>25</sup> an opportunity for lower Great Southern region.

The South Coast Alliance has commenced discussions with Main Roads in order to learn from and potentially leverage the work being done in the South West by the Sustainability Waste Alliance and the South West Gateway Alliance in relation to the Bunbury Outer Ring Road. This project is leveraging State and Federal funding to develop innovative circular economy products and initiatives suitable for roadworks. With the concurrent development of the Albany Ring Road there is an opportunity to pull some of this innovative work into Albany and support the development of a circular economy for waste product conversion to useable product, thereby reducing landfill further and saving resources.

Approximately 53,000 tonnes of waste from SCA member Shires, is collected and transported to the Hanrahan Waste Facility weighbridge at Albany, each year. This includes waste from Denmark and Jerramungup. In addition, the facility handles 6,265kg of household hazardous waste including from Denmark and Plantagenet.

A Waste Education Strategy Report is to guide future planning, in line with [City of Albany Community Waste Resources Strategy 2019-2026](#), aligning with the goals and targets of [WA Government's Waste Avoidance and Resource Recovery Strategy 2030](#).

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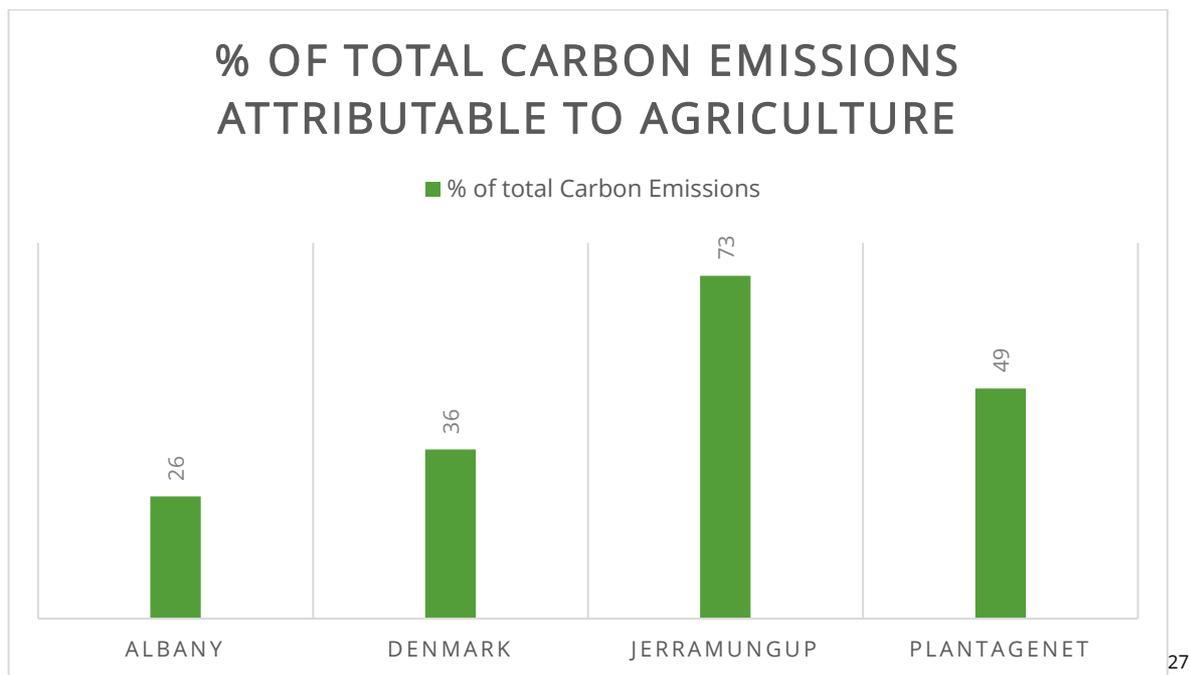
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[https://www.wasteauthority.wa.gov.au/images/resources/files/Strategic\\_Direction\\_Waste\\_Avoidance\\_and\\_Resource\\_Recovery\\_Strategy\\_2030.pdf](https://www.wasteauthority.wa.gov.au/images/resources/files/Strategic_Direction_Waste_Avoidance_and_Resource_Recovery_Strategy_2030.pdf)

## Agriculture

Agriculture currently accounts for approximately 13 per cent of Australia's total greenhouse gas emissions and 72 per cent of these are methane emissions from sheep, cattle and other ruminants.<sup>26</sup>

In 2018 (the most recent available), the contribution made by Agriculture to total carbon emissions within the Alliance geography was:



The high contribution of agriculture to the carbon emissions of the South Coast Alliance geography reflects the strong position of the agricultural industry within the economy. For the Alliance as a whole, *agriculture, forestry and fishing* is the third largest sector by both output and employment, contributing around \$1billion to the economy and around 10% of total employment. Across Australia around 70% of the total production of this sector is exported.<sup>28</sup>

By the beginning of 2021, the same percentage (70%) of Australia's two-way trade committed to net zero emissions. In addition, 2020 witnessed an explosion of global corporates committing to

<sup>26</sup> South Coast NRM Stories from the Land publication 1/2017

<sup>27</sup> snapshotclimate.com.au 2018 municipal emissions snapshots

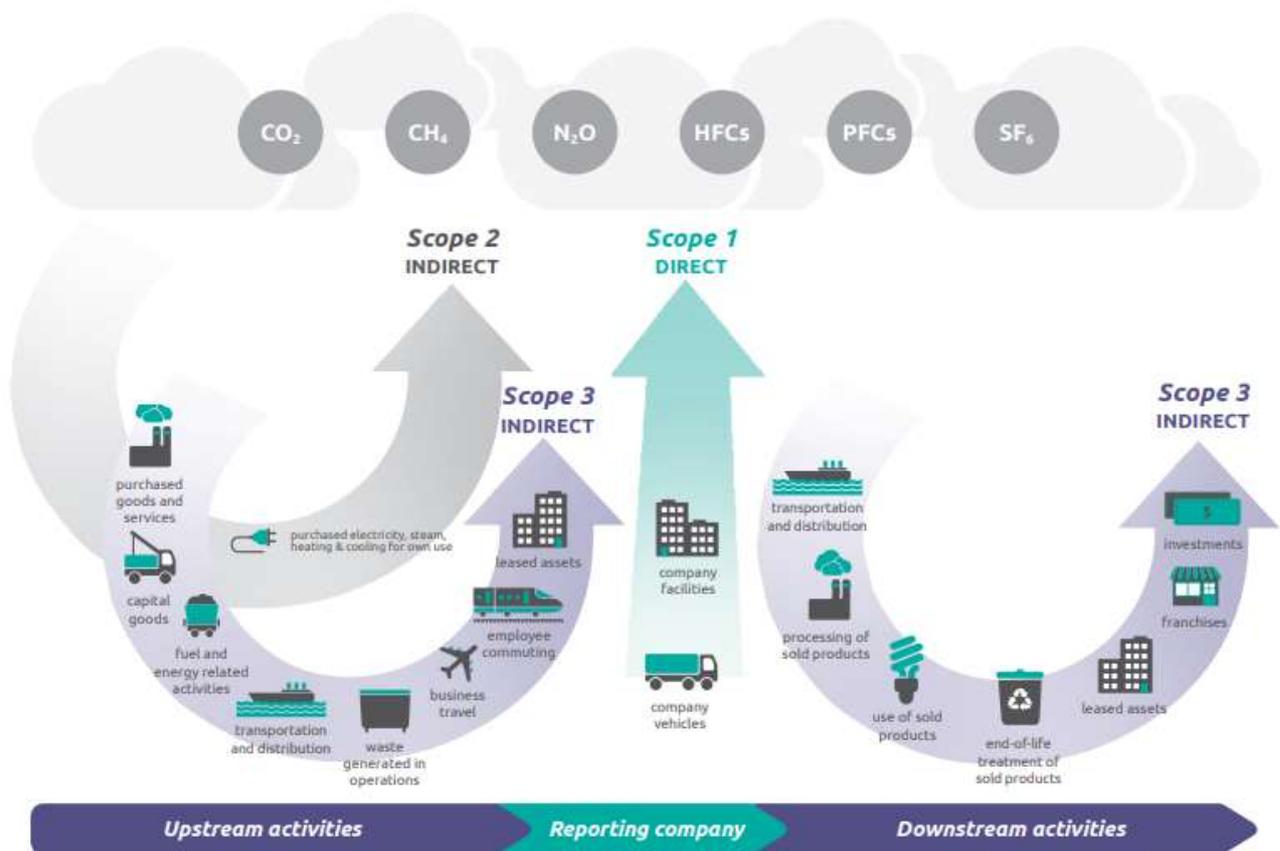
<sup>28</sup> <https://www.agriculture.gov.au/abares/products/insights/snapshot-of-australian-agriculture-2021#around-70-of-agricultural-output-is-exported>

reduce their emissions to net zero before 2050 (Apple, Microsoft, Google, Facebook, Amazon, BP, Shell, Unilever, Coca-Cola, Nestle, BHP, Telstra, Qantas and Australian Super).

Emissions targets presently include scope 1 and 2 emissions:

1. Scope 1 Emissions: Direct emissions from owned or controlled sources in an organisation/industry.
2. Scope 2 Emissions: Indirect emissions from the generation of purchased energy consumed by an organisation/industry.
3. Scope 3 Emissions: All other indirect emissions that occur in an organisation/industry value chain.

Figure 1 provides an overview of emissions across a value chain<sup>29</sup>.



This has implications for Australian industry with some commentators expecting Scope 3 emissions (measuring emissions generated from the supply chain) will be in place within 5 years. This will place significant pressure on our exports to achieve zero emissions in production.

<sup>29</sup> [https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard\\_041613\\_2.pdf](https://ghgprotocol.org/sites/default/files/standards/Corporate-Value-Chain-Accounting-Reporting-Standard_041613_2.pdf)

This is also an opportunity.

Significant land and sea-based assets are located within the region including a commercial port, a large aquaculture precinct, and emerging opportunities across the Blue Economy space that may also serve the agricultural sector by reducing vulnerability to any inclusion of Scope 3 carbon emissions in future trade transactions.

This includes the potential of FutureFeed, an innovative livestock feed supplement developed by CSIRO, Meat and Livestock Australia and James Cook University that utilises a specific type of seaweed which can increase production and reduce methane emissions simultaneously.

Private investors have already secured areas of the Albany Aquaculture Precinct to grow the seaweed *Asparagopsis*, which is the critical ingredient for FutureFeed. There is the opportunity to leverage of this initial investment, and CSIRO's interest in developing a feedstock for sheep, to place our livestock in a highly competitive position in a Scope 3 world.

The timber industry presents other opportunities with the interest in sustainable low carbon wood-based fibres increasing in recent years due to their lower carbon footprint and renewability.

It is now possible to transform wood into a new revolutionary material called nanocellulose: five times stronger than steel but also five times lighter. The first car made of nanocellulose was unveiled in Japan in 2019. A new generation of sustainable and circular wood-based textiles with a five-times lower carbon footprint than plastic fibers like polyester is now possible too. Engineered wood products, such as Cross Laminated Timber, are the most effective way to reduce the carbon footprint of buildings and the construction sector, currently dominated by concrete and steel.<sup>30</sup>

Crosslam Australia (based in Western Australia) commenced research on making CLT Panels in Australia in 2013. It produced its first CLT panel in 2015. Since then, further development of the manufacturing processes has taken place.

The South Coast Alliance has allocated \$70,000 in the 2021 financial year towards the exploration of opportunities across the Blue<sup>31</sup> and Green<sup>32</sup> economy that can create a sustainable future for

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<sup>30</sup> World Economic Forum, Why the World needs a 'circular bioeconomy' for jobs, biodiversity, and prosperity. 6 October 2020

<sup>31</sup> The term Blue Economy refers to the development of oceanic economic activities in an integrated and sustainable way. It is focused on capturing potential synergies and managing the trade-offs across industries to better address the growing threats now confronting oceans, and particularly those posed by climate change.

<sup>32</sup> A green economy is an economy that aims at reducing environmental risks and ecological scarcities, and that aims for sustainable development without degrading the environment.

our community. The report and recommendations are expected to be presented in September 2021.

There is also significant work occurring with other regional and state actors to identify and implement carbon emission abatement and mitigation strategies that could be actively supported by the Alliance.

For example:

- The McGowan government has pledged \$15M towards an Agricultural Climate Resilience Fund to aid industry carbon abatement and mitigation activities.
- Stirling to Coast Farmers work extensively with a core group of 85 of the larger mixed farming enterprises in the South Coast Alliance on a range of climate focused projects including:
  - adaptation of crop types and timing taking account of the changing climate
  - working with CSIRO on a predictive paster growth tool taking account of rainfall and other inputs
  - partnering as the South Coast hub of the Grower Group Alliance Drought Hub project
  - Water management projects including water capture and projects looking to improve water holding capacity of soils.
  - fertilizer and chemical use reduction projects
  - an innovative trial that places soil conditioner made of treated human waste combined with blue gum waste to sequester carbon and improve the productivity of the soils (as a side note, if this trial is successful, it could open up further circular economy opportunities with SCF believing they could repurpose the entire human waste generated from Albany for this purpose).
  - an innovative trial to inject a barley stubble pellet deep within the soil (about 30 cm depth) for both carbon sequestration and improved productivity. This is already being done in the Eastern States with wheat pellets.
  - Smart Farms project with hyper localized and connected weather stations to improve knowledge and preparedness.
  - Carbon offset income is not presently received however this is an opportunity.
- City of Albany
  - As part of its Urban Tree Strategy the City of Albany plants around 200 trees each year to sequester carbon for both replacements and regeneration. No carbon offset income is presently received.
- Gondwana Link
  - Education and extension – carbon forums
  - Grower Group education (catchment councils and others)
  - Partners to deliver carbon auditing
  - Partner with Greening Australia for regeneration of private land. This includes at least 12,500 hectares of regenerative carbon (for which carbon credit income may be received).

- Attracts international funding for projects focused on regenerative agriculture, especially carbon sequestration through vegetation growth for which carbon credits are received (forward pipeline of investment in the order of \$60million).
- South Coast Natural Resource Management
  - Through the Future Drought Fund assists with the development of drought management plans and supports community resilience through network development and support
  - Through Regional Land Partnerships climate action projects works to introduce farm audits including carbon emissions and sequestration outcomes.
  - Completes trials including a trial to test the impact of saltbush on reducing methane emissions by sheep. This trial supported the idea that inclusion of perennial shrubs in salt land as part of the farming system can make a major contribution to livestock productivity while reducing methane emission intensity.
  - Completes climate related research on Adapting to Climate variability recommending risk management strategies for the shellfish industry, commercial fisheries, and piggeries.
  - Supports revegetation for carbon sequestration and ecological outcomes.
  - Engagement and extension, demonstration sites and audits relating to water on farm.
  - Works with a range of partners in the regenerative agriculture space.
- Department of Primary Industries and Regional Development
  - The Katanning Research Station – carbon footprint audit completed with the Station being established as a demonstration farm for Carbon Neutrality.
  - completion of carbon footprint examples on a range of farm enterprises to provide case study guidance.
  - a range of climate related research projects
  - base line carbon emissions lifecycle calculations for livestock by LGA
  - High level overview of soil carbon sequestration opportunities using some of the known technologies.
  - methodology and measurement review for soil carbon capture

Significant opportunities exist to support the industry and industry bodies to progress towards carbon neutrality through supporting working groups, industry forums and other forms of information sharing.

Through collaboration with organisations such as DPIRD, CSIRO, Landcare, South Coast NRM, Meat & Livestock Australia (MLA) and Grains Research & Development Corporation (GRDC), SCA can engage in a strategic approach to delivery of extension that encourages and facilitates the adoption of innovative and sustainable farming practices among the regions agriculture producers.

Benefits to the region will include:

- Increased productivity of the agriculture sector

- Improved drought resilience through adoption of technologies and practices that boost soil health and improve soil moisture utilisation
- A reduction in GHG emissions
- Improved biodiversity

## Water

### Rising Oceans

Three of the four Local Governments within the Alliance are coastal.

In line with global mean sea level, Australian sea levels are projected to rise through the 21st century (very high confidence) and are very likely to rise at a faster rate during the 21st century than over the past four decades, or the 20th century as a whole, for the range of scenarios (high confidence). Ocean thermal expansion and glaciers and ice caps are the main contributors to global mean sea level change during the 20th century and are expected to be the major contributors during the 21st century, with additional contributions from the loss of mass from ice sheets, and changes in the mass of water stored on land. In addition, there is very high confidence that around Australia as atmospheric CO<sub>2</sub> levels continue to rise the oceans will become more acidic, to the detriment of marine life.<sup>33</sup>

Over the last several thousand years, sea levels were comparatively steady with fluctuation in sea level not exceeding 0.25 m on time scales of a few hundred years<sup>34</sup>. For the period 1966-2009, the average rate of relative sea-level rise for Australia, based on observations, was 1.4mm/year. By 2030 the projected range of sea-level rise for the coastline is 0.07 to 0.18m above the 1986-2005 level, with only minor differences between emissions scenarios.<sup>35</sup>

Rising sea levels necessitate planning for the protection of built assets and community.

As part of their adherence to State Planning Policy 2.6 0 State Coastal Planning Policy (SPP2.6) Shires have either commenced or completed a Coastal Hazard Reduction Coastal Hazard Risk Management and Adaptation Plan (CHMAP) that recognises the impact of climate change.

For example, The Shire of Denmark has a coastline covering 84 km. The majority of this land is contained within Conservation Reserves or National Parks, managed by the Department of Parks and Wildlife. The Shire manages four coastal reserves, located at:

- Ocean Beach (614 ha);
- Parry Beach (223 ha);
- Boat Harbour (59 ha); and,
- Peaceful Bay (83 ha).

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<sup>33</sup>

[https://www.climatechangeinaustralia.gov.au/media/ccia/2.2/cms\\_page\\_media/168/CCIA\\_2015\\_NRM\\_TR\\_Chapter%208.pdf](https://www.climatechangeinaustralia.gov.au/media/ccia/2.2/cms_page_media/168/CCIA_2015_NRM_TR_Chapter%208.pdf)

<sup>34</sup> *ibid*

<sup>35</sup> <https://coastadapt.com.au/>

The Shire's Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) addresses coastal hazards for two of the four coastal areas:

1. Ocean Beach: An east facing high-energy beach adjacent to the mouth of the Wilson Inlet. This is the main recreational beach for the town of Denmark.
2. Peaceful Bay: A settlement in the west of the Shire with a sheltered pocket beach (Peaceful Bay) and a longer eroding sandy beach to the east (Foul Bay). Facilities are used by locals, holiday makers and commercial fishers.

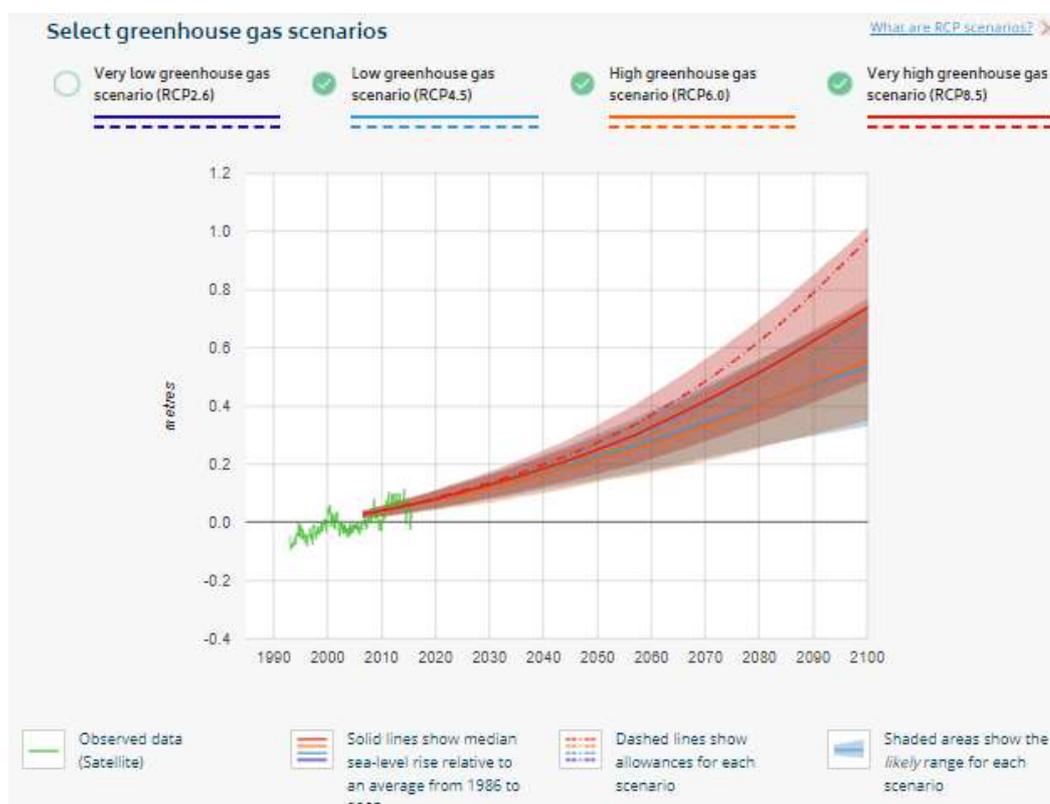
The CHRMAP addresses:

- Identification and assessment of coastal hazards
- Establishing the context of coastal asset values and community expectations
- Risk assessment of the potential impact of coastal hazards upon coastal assets
- Adaptation planning for both short term (ten year) and long term (100 year) planning horizons

Further work to model and understand the consequences of sea level rises on Alliance community members and infrastructure is yet to be completed, including developing projections for potential inundation.

The City of Albany has completed modelling on the stretch of coastline from Middleton Beach to Emu Point with risk management actions underway. Further work is dependent upon securing the required funding. There is an opportunity for the Alliance to collaborate in sourcing the required funding and completing a review of the southern coastline settlement areas as a package.

*CoastAdapt's Sea-level rise and You tool* projects the expected sea level rise for Denmark, Albany and Jerramungup under four different carbon emissions scenarios:



Across all three coastal areas sea level rises are anticipated for each of the potential scenarios.

Inundation maps are not available for the Alliance member shires and need to be commissioned in order to understand the potential impact of rising sea levels.

Climate change is particularly strongly impacting coastlines, small regional economies and vulnerable communities. The UWA Wave Energy Research Centre is undertaking an information session for key regional stakeholders in June 2021 to establish a shared understanding of the challenges and also the opportunities for Albany and the region. This is an invaluable opportunity for the Alliance to continue to build knowledge on this area of impact.

All alliance coastal Shires (Jerramungup, Albany and Denmark) are members of the South Coast Management Group, a regional collaboration that developed *SOUTHERN SHORES 2009-2030 A Strategy to Guide Coastal Zone Planning and Management in the South Coast Region of Western*

*Australia.*<sup>36</sup> Section 7.3 of this document specifically deals with collective strategies and actions related to climate change and coastal impacts.

South Coast Management Group (SCMG) has successfully operated as a forum for coastal and marine management issues and provided community workshops on coastal management for many years.

### Water Security

In interviews with regional stakeholders in the agricultural sector, water security is highlighted as the principal concern. A range of water efficiency, catchment and technology solutions (such as on farm desalination) are being utilised.

For Alliance member Denmark, the drying climate and growth in population have increased the need for potable water security, with construction of a new water pipeline to connect Denmark to the Lower Great Southern Towns Water Supply Scheme (LGSTWSS), which currently supplies drinking water to Albany, Mt Barker, Kendenup and Narrikup commenced in 2021<sup>37</sup>.

The Shire of Plantagenet has developed a Water Strategy with plans to utilise recycled wastewater for use on the Souness Park sporting precinct and in 2020 finalised an agreement with Water Corp for the use of recycled effluent water for this purpose. This recycled water would supply nearly 100% of the irrigation needs and free up around 153k/day of potable water for drinking supplies.

The agreement to use recycled water terminates after ten years which provides a deadline for the securement of alternative water supplies to allow the Shire to be self-sufficient. Various options are available, however the base requirement is an upgrade of the chlorination system at the Mount Barker Wastewater treatment plant, at a rough estimate of \$750,000.

In 2021 the Shire engaged UWA to explore options for improvement of the wastewater treatment system at the Mount Barker Regional Saleyards including exploration of the treatment options to facilitate the reuse of treated water, and the potential to reuse the treated water for wash down of the saleyards.

The City of Albany is similarly moving away from irrigating public open spaces with scheme water and moving towards water harvesting, with a report under preparation to identify future public open space water supply sources.

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<sup>36</sup> [http://www.rdagreatsouthern.com.au/pdf/scmg2009\\_southern-shores\\_lo.pdf](http://www.rdagreatsouthern.com.au/pdf/scmg2009_southern-shores_lo.pdf)

<sup>37</sup> Collaboration with Water Corporation and the Department of Water

There is the opportunity for Alliance members to share experience, learnings and strategies to maximise the available water resource to maintain green public spaces, and to partner with industry on water solutions especially in drought years.

### Potential SCA Emissions Reduction Projects

Many potential SCA emissions reductions projects such as building retrofits, waste treatment (landfill and water), street lighting LED projects and others may be eligible as Emissions Reduction Projects and thus able to earn Carbon Credits (which may in turn improve the financial viability of bringing investments forward).

It is important to note that eligibility for consideration as a new project that generates ACCUs through the Emissions reduction fund requires that a final investment decision has not already been made. An investment decision is a decision by the decision-making body of an organisation regarding how, when, where and how much capital of the organisation will be spent on investment opportunities. In the context of the Emissions Reduction Fund (ERF), this would be a decision to invest in any aspect of activity/activities as part of an ERF project). This decision often follows research to determine costs and returns for options.

It will be important for SCA members to examine the Local Government governance or legal situation regarding the point at which a recorded investment decision represents a commitment to making the investment.

Relevant examples to the SCA given by the Emissions Reduction Fund are:

1. Local Government Council X has undertaken a feasibility study for the upgrade of street lighting to more energy efficient technology. A project to undertake the activity was publicly announced and subsequently included in budget proposals that were approved by Council X. In the case of Council X, approval of budget proposal papers authorises possible funding allocation but does not commit the council to spend the allocated funding, and therefore would not in itself fail the newness requirement. Council X runs a tender process and selects the successful tenderer with whom terms and conditions of the contract for carrying out the project are negotiated within the parameters set out in the approved budget. However, until a contract is signed, the authorised delegates of the Council have the final decision about whether the project will go ahead and the terms of the contract. When the authorised delegates of Council X decide to enter into a specific contract with the successful tenderer and subsequently the contract for the project is executed, it would be considered that a final investment decision had been made and the project would likely fail the newness requirement if the contract were executed before the project is registered as an Emissions Reduction Fund project.
2. Company Y has been investigating upgrading a suite of office buildings under an Emissions Reduction Fund project. It has undertaken scoping and research to ascertain project costs and has investigated legal right issues and drawn up draft agreements to transfer the required rights from third parties. It has presented the project including budget figures to its company board and they have endorsed it. Executives of Company Y have started to talk to potential suppliers of equipment and services to conduct the upgrade. Under Company Y's governance arrangements, none of these decisions or activities commit Company Y to undertake the project and are therefore not considered final investment

## Potential SCA Emissions Reduction Projects

decisions. Once agreement has been reached with a particular supplier and terms and conditions for the provision of upgrade services are agreed in principle and reflected in a draft contract, the updated proposal and the draft contract is put before Company Y's board. The board approves the proposal and authorises nominated executives to execute the contract. The board's decision would be considered a final investment decision and the project would likely fail the newness requirement if this decision were made before the project is registered as an Emissions Reduction Fund project.

### Permitted Activities

There is a wide scope of work that would need to be completed by SCA and SCA membership that by themselves would not indicate a project has started:

- conducting a feasibility study for the project
- planning or designing the project
- obtaining regulatory approvals for the project
- obtaining consents relating to the project
- obtaining advice relating to the project
- conducting negotiations relating to the project
- sampling to establish a baseline for the project

### Increased Fire Risk

A harsher fire-weather climate is projected in the future, with high confidence. From an emergency management perspective, bushfire remains the highest natural hazard risk to the community. The Denmark and Plantagenet Bushfire Management Plan for example, notes that The Shire is faced with an increased bushfire risk to people and property due to (amongst other demographic characteristics) a drying climate combined with development in high fuel load areas (Rural Urban Interface).

All four Local governments are participating in the state-wide Bushfire Risk Management (BRM) planning program. This program assesses assets over four categories (cultural, economic, environmental and human settlement) within each of the Local Governments for Bushfire risk. Bushfire mitigation treatments are then designed, where possible to attempt to reduce this risk.

A very significant 84% of assets assessed across all four Local governments have returned a high or above risk rating.

The region is becoming increasingly popular as a place to live and as tourist destination development is pushing further into the heavily vegetated areas of these Local Governments, pressure is increasing on emergency services infrastructure from both a response and evacuation capacity perspective.

The City of Albany and The Shires of Plantagenet and Denmark recently collaborated on the Bushfire Resilience in the Great Southern (BRIGS) project. BRIGS attempted to further understand risk profiles, Bushfire mitigation treatments and their effectiveness in reducing the radiant heat impacts upon assets and evacuation capability across 8 precincts in the three Local Governments.

It was Identified, as in the BRM Planning process all three Local Governments were exposed to significant bushfire risk, with limited opportunities to address portions of that risk.

The Shire of Jerramungup, being some distance away, has completed its own review of Bushfire risk and mitigation. The climate alliance provides an opportunity for the Shires to share tools and learnings and collaborate on initiatives where that is practical.

## Information Sharing

### Dashboard Project

Data visualisation and communication can serve as both an engagement and advocacy tool, encouraging industry and community to contribute to a net zero emissions future.

The Dashboard Project will provide a platform for the SCA Climate Alliance to collect data on the actions that SCA members are taking towards climate mitigation, improving transparency with real time communication to residents and decision makers.

By communicating what has already been accomplished and what SCA LGs plan to do next, the community can make sense of the bigger and smaller actions being achieved, allowing visualisation of the bigger picture and progression of climate action.

A dashboard is a resource that will make SCA part of an international data-focused community that believes that elevating data literacy can drive social change.

Primary purpose of dashboard	Support SCA project implementation, evaluation and communication
Key audience	SCA Board; Staff of LG member organisations; Community members
How will dashboard be accessed?	Desktop computer, smartphone or tablet
Software Options	Envisio; Camms; Clearpoint; Power BI Premium

A ‘Roadmap to Zero’ analysis, to be commissioned by the Alliance, is intended to explore what a Net Zero Emissions goal means, and why it might specifically be important for the South Coast Alliance community. Roadmap to Zero analysis completed for other communities has provided those communities with information on different approaches that might be pursued – a Business as Usual approach, a Local Action approach, and a Collaborative Action approach. It discusses how these approaches might play out in key domains of the region’s economy. It also considers what the priorities are for action associated with these approaches.

This report will help to shape the custom metrics built into and tracked through the Dashboard. Custom metrics will allow SCA to monitor how they are tracking against plan and how much still needs to be done to reach their goals. Agreeing on indicators and target levels will be a key stream of the project, that will help to ensure that the SCA Climate Alliance is implemented successfully.

Potential indicators may include:

Indicator	Source	Measurement
Water quality	Water Corporation; South Coast NRM	<ul style="list-style-type: none"> <li>Catchment, rivers and wetland condition</li> <li>Estuary condition</li> <li>Total volume annual streamflow</li> </ul>
Rates of recycling	Shires	
Reduced greenhouse gas emissions		<ul style="list-style-type: none"> <li>Level of greenhouse gas emissions</li> </ul>
Flora and fauna surveys	South Coast NRM; Landcare; Catchment Groups	
Soil health	Catchment groups; South Coast NRM; DPIRD; collaboration with soil testing agencies such as Nutrien Ag Solutions	<ul style="list-style-type: none"> <li>Soil organic carbon</li> <li>Water repellence</li> <li>Exposure to wind erosion</li> <li>Cation Exchange Capacity (CEC)</li> <li>Soil nitrate</li> <li>Levels of <i>Mycorrhiza</i></li> <li>Salinity (sodium saturation)</li> <li>Groundwater quality</li> </ul>
Sea levels	Bureau of Meteorology SEAFRAME stations	<ul style="list-style-type: none"> <li>Sea surface temperature</li> <li>Acidification</li> <li>Sea level</li> </ul>
Construction of public charging infrastructure for electric cars		<ul style="list-style-type: none"> <li>Number of charging points for electric cars in public areas</li> <li>Number of electric vehicles registered for SCA LGs residents (full electric + rechargeable hybrid)</li> </ul>
Energy audits	Audits	<ul style="list-style-type: none"> <li>Energy consumption of city-owned properties</li> <li>Greenhouse gas emissions from energy consumption</li> </ul>
LED street lighting	Shire	<ul style="list-style-type: none"> <li>Electricity consumption for street and outdoor lighting</li> <li>Greenhouse gas emissions from energy consumption</li> </ul>
Utilisation of renewable energy		<ul style="list-style-type: none"> <li>% Of energy consumption generated from renewables</li> </ul>
Climate change education		<ul style="list-style-type: none"> <li>Youth climate summits</li> <li>Number of schools collaborating</li> <li>Community education events</li> <li>Shire staff education</li> </ul>
Reducing the environmental impact of events	Shires	<ul style="list-style-type: none"> <li>Survey of organisations licensed to hold events to calculate carbon footprint of events</li> </ul>

## Information Sharing

Climate criteria for procurement	Shires	<ul style="list-style-type: none"> <li>• Tenders using climate criteria as a minimum requirement or benchmark</li> <li>• Proportion of purchases where climate criteria have been taken into account</li> </ul>
Opportunities for community members to influence the development of sustainable and clean solutions		<ul style="list-style-type: none"> <li>• Number of opportunities provided to community for participation in initiative development</li> <li>• Number of community members involved in events</li> </ul>
Waste management	Shires	<ul style="list-style-type: none"> <li>• Rates of recycling</li> <li>• Volumes of waste sent to landfill</li> <li>• Volumes of waste recovered/reused/repurposed</li> <li>• % Of waste placed in wrong bins</li> </ul>

The Dashboard Project will provide SCA with data that can be used to create and strengthen partnerships between industry and Government, by providing focus and accountability for a shared goal. Research has found that citizens can be incentivized to change behavior by appealing to them at an organisational, financial, cognitive and/or emotional level<sup>38</sup>. Transitioning to a zero-carbon economy requires full community participation and providing data facts can be an important tool for creating a culture of collective civic responsibility.

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<sup>38</sup> PREVENT Waste Alliance. (2020). Factsheet 09 | How can citizens be incentivised to separate packaging waste at the source? [https://prevent-waste.net/wp-content/uploads/2020/11/FS09\\_Citizens.pdf](https://prevent-waste.net/wp-content/uploads/2020/11/FS09_Citizens.pdf)

## Annexure A – Planning References

Shire	Policy alignment	Strategic alignment
City of Albany	<ul style="list-style-type: none"> <li><a href="#">Environmental Policy (Climate Change) (2017)</a></li> <li><a href="#">Carbon Footprint Reduction Strategy (2014)</a></li> <li><a href="#">Sustainable Communities</a></li> </ul>	<p><a href="#">Corporate Business Plan 2019 -2023.</a></p> <p><i>Objective 2 – Smart Prosperous &amp; Growing:</i></p> <p>2.2 To develop a smart city that supports economic growth.</p> <p><i>Objective 3 – Clean, Green &amp; Sustainable:</i></p> <p>3.1 To preserve and protect our built and natural environment in a changing climate.</p> <p>3.2 To build, maintain and renew city assets sustainably</p> <p>3.3 To identify and deliver improvements in sustainability within the City and wider community</p>
Shire of Denmark	<ul style="list-style-type: none"> <li><a href="#">Sustainability Strategy 2021 - 2023</a></li> <li><a href="#">Climate Change Action</a></li> <li><a href="#">Water Efficiency Action Plan 2017 – 2022</a></li> <li><a href="#">Policy Number 40: Rainwater Tanks and Greywater Re-use Systems</a></li> </ul>	<p><a href="#">Denmark 2027 - Strategic Community</a></p> <p><i>N2.0 Our Natural Environment:</i></p> <p>N2.3 To reduce human impact on natural resources, reduce waste and utilise renewable energy.</p> <p>N2.4 To acknowledge and adapt to climate change.</p> <p><i>L5.0 Our Local Government:</i></p> <p>N2.3 To embrace change, apply technological advancement and pursue regional partnerships that drive business efficiency</p>
Shire of Jerramungup	<p><a href="#">Local Planning Policy No 17 Water Conservation</a></p> <p><a href="#">Shire of Jerramungup Community Plan 2016-2026</a></p>	<p><a href="#">Shire of Jerramungup Corporate Business Plan 2020-2024.</a></p> <p><i>Strategic Direction 1: Environment:</i></p> <p>Aspiration 1.1 Environmental Stewardship – To be an industry leader in implementing new technology and initiatives which deliver environmental benefits to the region.</p> <p>1.1.1 Invest in and advocate for renewable and energy efficient options for Council buildings.</p> <p>1.1.5 Development of modern, accessible, cost effective and innovative waste disposal options</p>

## Annexure A – Planning References

Shire of Plantagenet	<a href="#">Town Planning Scheme Policy No. 21 Water Efficiency in Residential Development</a>	<a href="#">Plantagenet 2026 Strategic Community Plan.</a>  <i>Outcome 2.8: Awareness of an appropriate response to effects of climate variation.</i>  Strategy 2.8.1: Support community education and promotion of energy and water efficiency.  Strategy 2.8.2: Investigate and adopt energy efficiency practices in Council operations.  Strategy 2.8.3: Investigate green energy initiatives.
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Government	Initiative	Initiatives
Federal	<a href="#">Energy Policy Blueprint</a> – Pillar 3. Meeting our International Commitments Key objectives <ul style="list-style-type: none"> <li>• Reduce emissions by 26–28% below 2005 levels by 2030</li> <li>• Continue to grow a strong economy</li> </ul>	<ol style="list-style-type: none"> <li><b>1. Encouraging emissions reduction across the economy</b> <ul style="list-style-type: none"> <li>• Climate Solutions Fund</li> <li>• Safeguard Mechanism</li> <li>• Renewable Energy Target</li> <li>• Voluntary carbon neutral certification</li> <li>• Energy performance standards for appliances, lighting and equipment</li> <li>• Building energy efficiency ratings and disclosure Hydrofluorocarbon phase-down</li> </ul> </li> <li><b>2. Accelerating technological solutions</b> <ul style="list-style-type: none"> <li>• Commonwealth direct investment through ARENA and the CEFC</li> <li>• Long term emissions reduction strategy</li> <li>• National Hydrogen Strategy</li> <li>• National Electric Vehicle Strategy Emissions data reform</li> </ul> </li> <li><b>3. Playing our part in shaping a better future</b> <ul style="list-style-type: none"> <li>• UNFCCC and Paris Agreement processes</li> <li>• Building developing countries’ emissions measurement and reporting capability</li> <li>• Asia-Pacific Rainforest Partnership / Global Forest Observation Initiative</li> <li>• International Partnership for Blue Carbon</li> <li>• Climate development assistance</li> </ul> </li> </ol>

<p>Western Australia</p>	<p><a href="#"><u>Energy Transformation Strategy: A brighter energy future</u></a></p> <p><a href="#"><u>Distributed Energy Resources Roadmap</u></a></p>	<p>Key deliverables (selected):</p> <ul style="list-style-type: none"> <li>• Roll out of standalone power systems in communities – comprising solar panels, a battery and a back-up generator.</li> <li>• Continue to trial new energy technologies</li> <li>• A lower carbon energy sector</li> <li>• Opportunities for regional growth</li> <li>• Opportunities to lead renewable energy technology development</li> </ul>
	<p><a href="#"><u>Diversify WA Economic Development Framework</u></a></p>	<p>Diversify WA matches Western Australia’s competitive strengths to global mega-trends, identifying <b>Energy</b> as one of six priority economic sectors that are key to building a more resilient, sustainable and stronger economy.</p>



Annexure B WALGA Action Framework

LGA	Primary					Secondary			Tertiary					Int.
	Declaration	Policy	Power Partnership	Emergency Declaration	Join national or international Organisation	Corporate Action Plan	CHRMAP	Community Action Plan	Urban Forest	Divestment	Risk strategy	Emission target	Regional Alliance	Embedding in policies
Albany	✓	✓	✓			✓	✓		✓				✓	✓
Denmark	✓	✓		✓		✓	✓		n/a	✓	✓	✓	✓	
Jerramungup							✓		n/a				✓	
Plantagenet							n/a		n/a				✓	

