Ironbark Sustainability

South Coast Alliance Regional Community Roadmap to Zero

City of Albany

Shire of Denmark

Shire of Jerramungup

Shire of Plantagenet

Workshop Preparation

Purpose

What can your Council and the Alliance do for your community to help the region meet net zero by 2050?

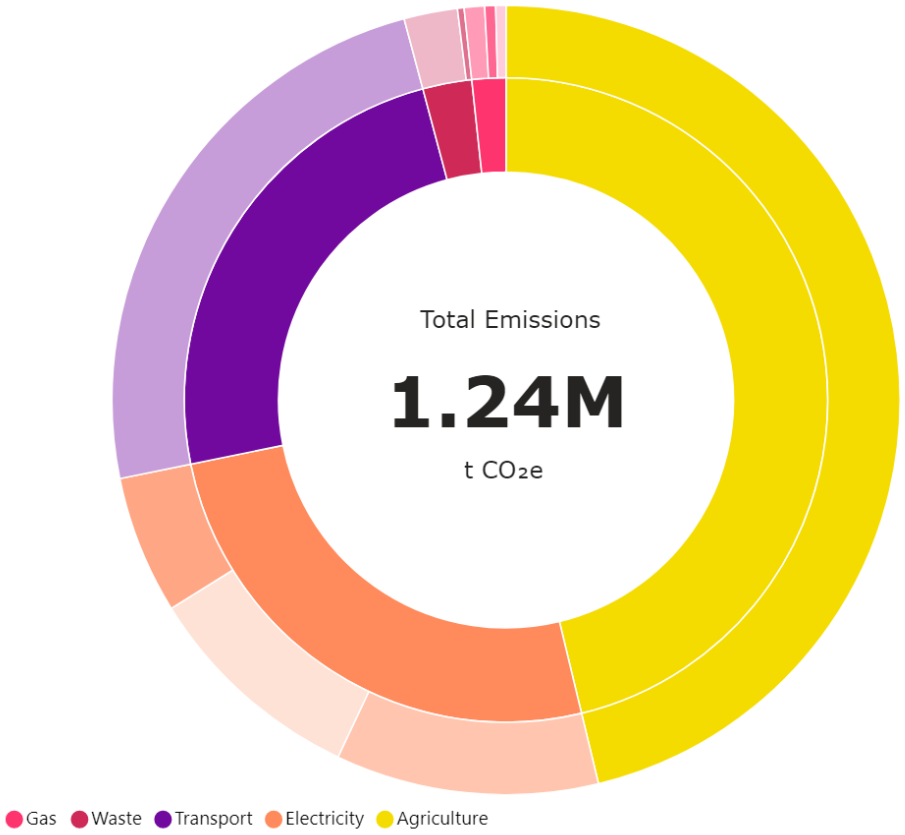
Preparation

In preparation for this workshop, please take the time to review these slides and come to the workshop having reflected on:

- What is the role of community in reducing emissions for each of the pathways to net zero?
- What is the role of the Alliance and Council in reducing emissions for each of the pathways to net zero?
- What has been successful in the past? What has not? Why?
- What are some of the barriers both perceived and experienced around emissions reduction actions and activities?

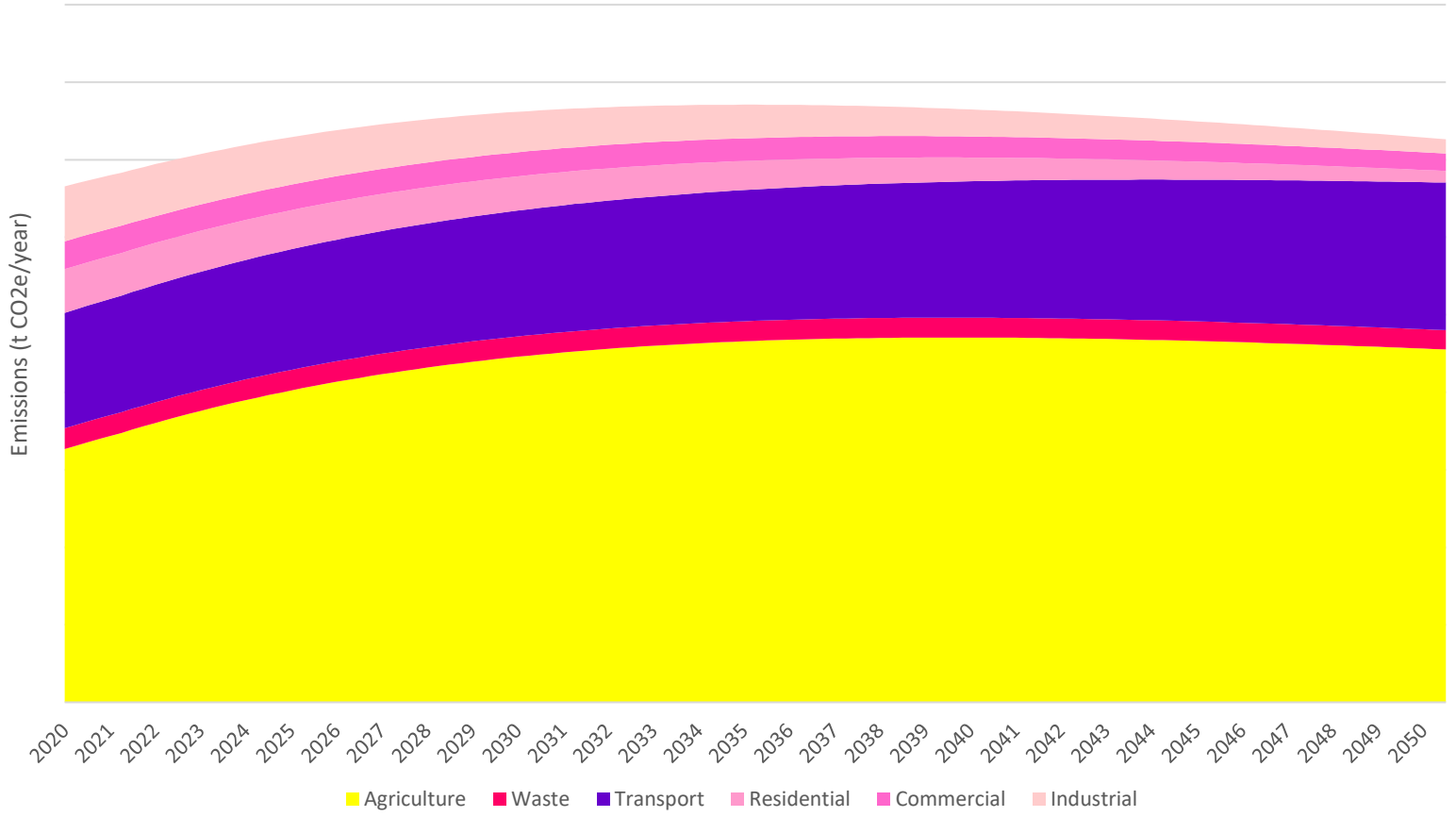
The SCA Community Emissions Profile

Emissions inventory (all figures in t CO_2e)



Source	Sector	Emissions (t CO_2e)	%
Agriculture		574,107	46%
Electricity	Commercial	70,277	6%
	Industrial	133,904	11%
	Residential	113,502	9%
Gas	Commercial	5,544	0%
	Industrial	10,373	1%
	Residential	5,188	0%
Transport	On Road	298,356	24%
Waste	Landfill	27,248	2%
	Water	3,361	0%

Regional Business-as-Usual Emissions Trajectory to 2050



Regional Business-as-Usual Emissions Trajectory to 2050

Over the coming decades emissions in the South Coast region will be subject to upwards and downwards pressures.

Upwards pressures, include:
- Population growth
- Economic growth
- Rising car usage and ownership

Downwards pressures include:
- Technology improvements and efficiencies
- The uptake of electric vehicles
- Electricity grid emissions intensity
- Installation of renewable energy systems

Based on these and possibly other factors, such as changing state and federal policy environments, total emissions are expected to increase. By sector, emissions related to transport and agriculture are expected to increase whilst emissions related to energy use in the residential, commercial and industrial sectors are expected to decrease. Emissions from waste are expected to remain relatively consistent.

Pathways for Action

- Zero Emissions Agriculture
- Zero Emissions Transport
- Zero Emissions Households
- Zero Emissions Businesses
- Zero Emissions Industry
- Zero Emissions Waste
- Land-Use Change

Zero Emissions Agriculture

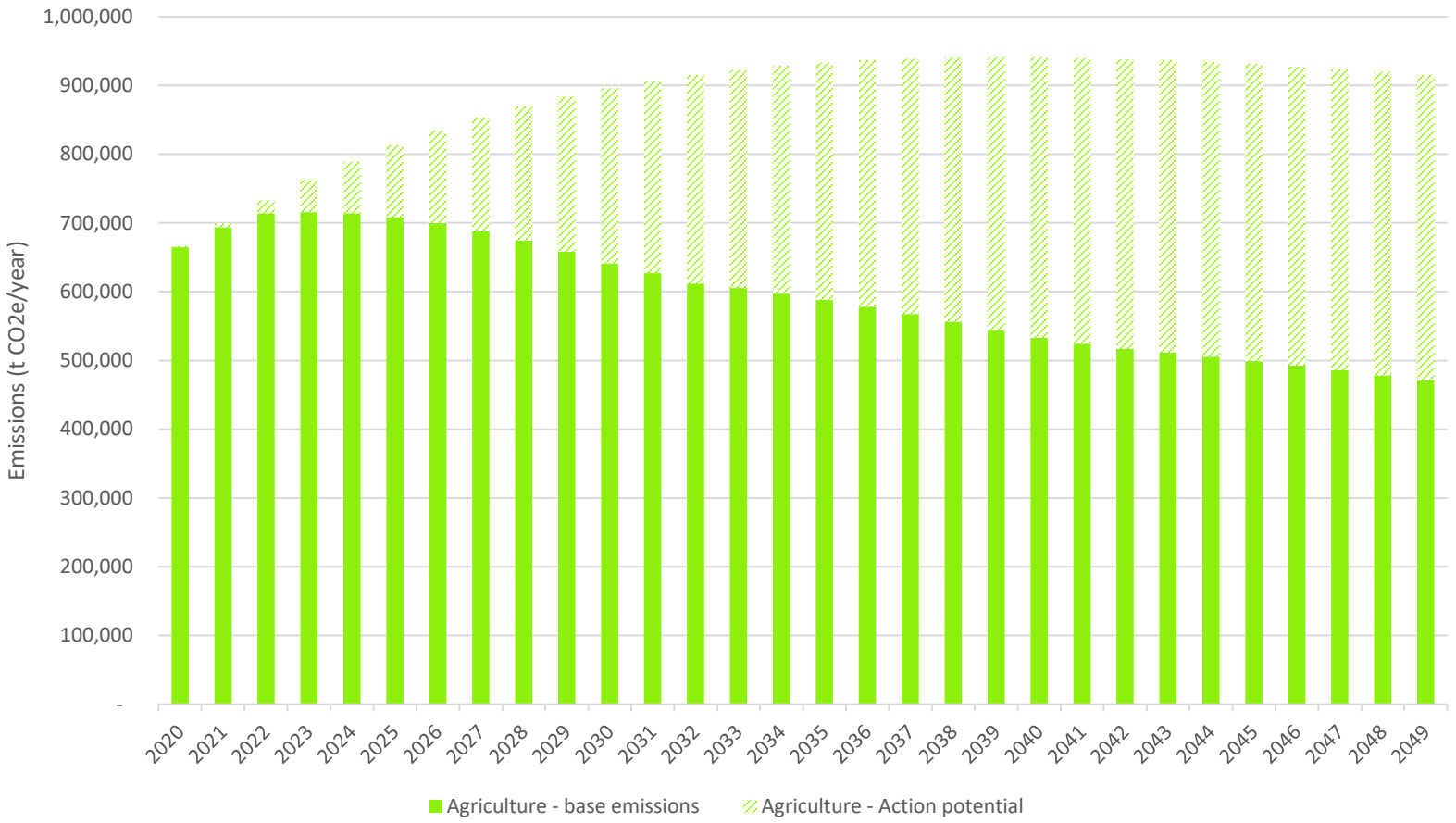
Why is Agriculture important in reaching net zero emissions by 2050?

Farming produces significant amounts of GHGs including carbon dioxide, nitrous oxide, and methane, and yet, the agricultural industry is highly susceptible to the impacts of climate change.

Agriculture and the South Coast Alliance

Agriculture is the region's largest land manager and has the potential to offset agricultural emissions, and emissions from other sectors that will struggle to get to net zero with existing technologies. Farms and the wider agricultural industry are key drivers of the economy yet also account for nearly half of the regions emissions (46%). There is no question that farming enterprises need to be both profitable and sustainable in order to support the regions livelihood into the future. Therefore, reducing emissions associated with agriculture lead the pathway to net zero.

Zero Emissions Agriculture



Initial modelling shows that these actions will have a moderate impact on emissions reductions.

Zero Emissions Agriculture

Recommendations for Local Action

Regenerative agriculture
A holistic approach to farming with the aim to increase soil carbon content. Management actions are focused on: nutrient management, soil acidity management, new irrigation, and pasture renovation

Forest retention Avoid land clearing where possible to support continued carbon capture by vegetation.

Nutrient management and avoiding fertiliser use
Nitrogen can efficiently be managed by attending to the Four R's: Right source: matching fertilizer choices with plant needs. Right time and right place: managing fertilizer applications to deliver nitrogen when and where crop demand is highest, Right rate: ending over-application of fertilizer as "insurance."

Supplementing feedstock with additives to reduce methane generation for non-dairy cattle.
Seaweed supplementation is the most progresses and promising technology in Australia.

Modify feedstock for sheep and dairy cattle with eligible additives including canola meal, brewers' grain, dried distillers' grain, and hominy meal.

Animal effluent management and methane flaring for dairy cattle and pigs.
Organic effluent generates biogas. Methane flaring captures and destroys the proportion of the biogas that is methane.

Recommendations for Councils and the South Coast Alliance
- Explore with pilots and feasibility studies

Zero Emissions Agriculture

Recommendations for Collaborative Action

The South Coast Alliance, Local, State, and Federal government can work with industry and researchers to implement pilot and feasibility studies to develop solutions for livestock and crop emissions.

Zero Emissions Transport

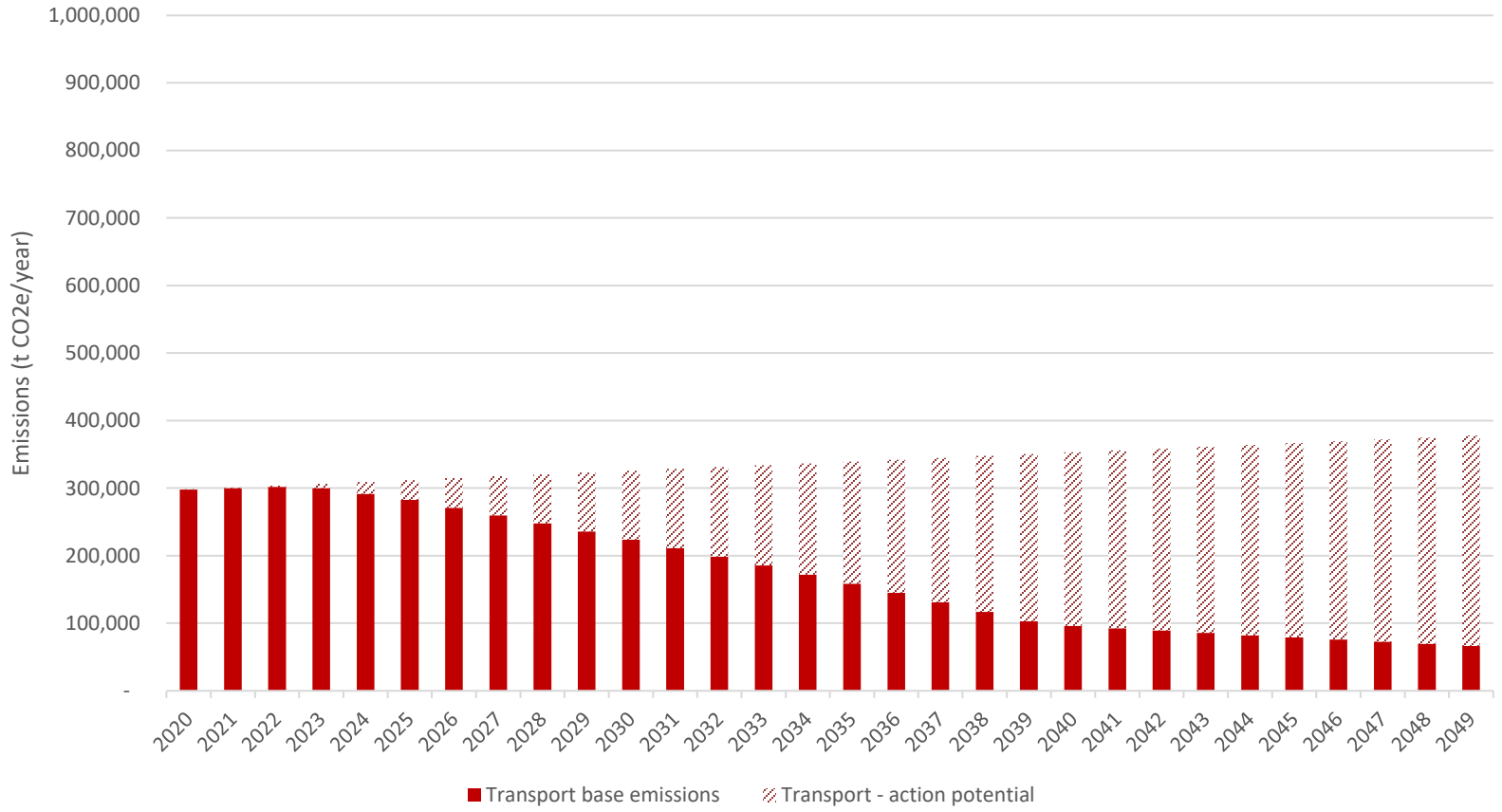
Why is Transport important in reaching net zero emissions by 2050?

Unlike most other emissions sources, the total volume of CO_2-e gases from transport continues to rise in Australian municipalities. This is due to a variety of factors including social norms supporting personal ICE vehicle adoption, great travel distances and inefficiencies within public transport networks. These barriers need to be addressed to promote transport options that eliminate tailpipe emissions by 2035 in order to reach net zero by 2050. These alternatives may include active transport, public transport, car share networks and transitioning towards alternative energy freight and commuter vehicles.

Transport and the South Coast Alliance

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

Zero Emissions Transport



Initial modelling shows that this program will have a relatively high impact on emissions reductions.

Zero Emissions Transport

Recommendations for Local Action

Transition vehicles to EVs
The community can support zero emissions transport by switching out ICE (Internal Combustion Engine) passenger and heavy vehicles with their equivalent electric model.

Mode shift from private vehicles
Where appropriate, the community can help reduce emissions by changing trips from being a private ICE vehicle, to using other forms of transport such as public transport, bikes, and walking.

Zero Emissions Transport

Recommendations for Collaborative Action

Facilitate the installation of public use EV chargers
To facilitate the installation of public use EV chargers, the Alliance and Council can:

- Adopt EV internal guidance / policy to strategically facilitate roll out of public EV charging stations (i.e., establish appropriate roles and processes for Council and potential charge point providers)
- Take up opportunities for government grants and partnership with EV providers
- Advocate to other levels of government for increased investment in publicly available EV charging points.

Replace Council ICE vehicles with EVs including:

- Private vehicles
- Buses
- Garbage trucks

Facilitate the uptake of EVs in the community through:

- Education – promotion of electric vehicle benefits
- Facilitation – facilitate creation of EV bulk buy programs and;
- Offer incentives and grants for the purchase of EVs

Zero Emissions Households

Why are households important in reaching net zero emissions by 2050?

Household energy consumption reliant on a fossil-fuel heavy grid continues to remain a prevalent problem for community emissions. Despite some emissions savings technologies being beyond the comprehension of consumers, households are well placed to take action to make significant changes to their emissions footprint.

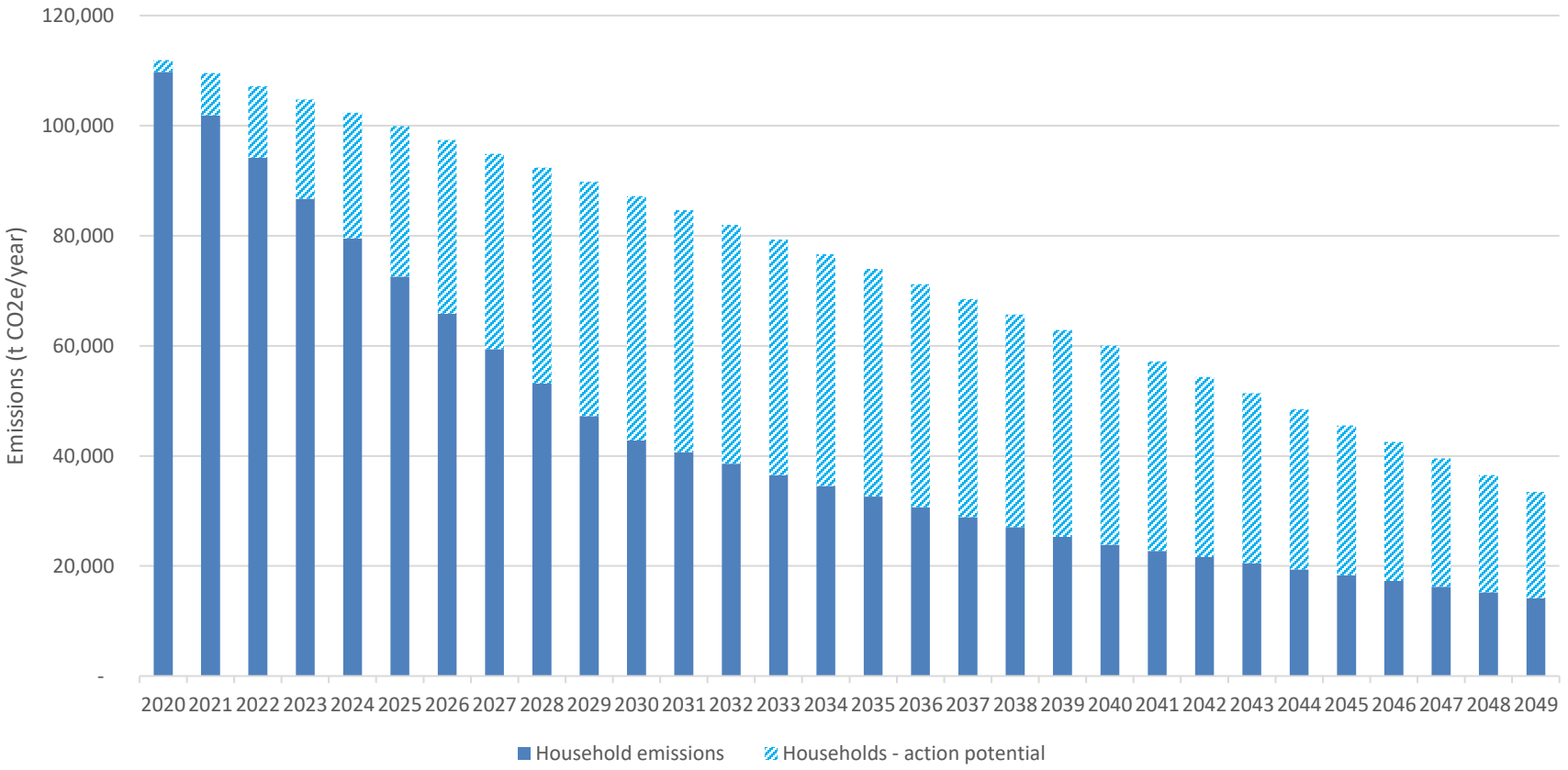
Households in the South Coast Alliance

Being of low population density and with an urban environment heavily characterised by detached houses, residents within the alliance boundary typically live in purchased or mortgaged homes.

There are two key aspects to reaching net zero emissions for the household sector: utilising renewable forms of energy to eliminate the reliance on fossil fuels and reducing energy consumption through energy efficiency. While residential emissions account for only 9% for the South Coast regions total emissions profile, home owner-occupiers and renters have capacity to directly reduce the amount of energy consumed in their homes.

The South Coast region is already a leader when it comes to renewable energy. For example, the Albany Grasmere Wind Farm is responsible for producing roughly 80% of Albany's annual electricity needs. Under a business-as-usual scenario, the region's already strong use of renewable energy alongside additional changes to the grid means that there is a decline in emissions to 2050. Leveraging off the experience of such projects, community groups have seen growing interest and robust businesses cases around reducing fossil fuel household energy use.

Zero Emissions Households



Initial modelling shows that this program will have a relatively high impact on emissions reductions, and will deliver important co benefits for the community.

Zero Emissions Households

Recommendations for Local Action

Purchase and install renewable energy
Households can install solar PV systems onto their roofs or adjacent structure of a building, integrated into the buildings electricity system and connected to the electricity grid.

Energy efficiency upgrades
Households can retrofit their dwellings with more efficient fixtures, like insulation, draft sealing, and double glazing. They can also improve energy efficiency by transitioning to all electric appliances, and upgrading existing appliances such as heating/cooling, water heating, refrigerators, and TVs to at least a 2-star improvement over the average star rating.

Zero Emissions Households

Recommendations for Collaborative Action

Green Building Design

To support net zero building design, Councils and the Alliance can:

- Advocate for zero emissions buildings and for increase of the minimum standard for 7 stars NatHERS
- Introduce and implement new policy or regulations for zero emissions buildings
- Require new residential and commercial buildings to achieve a high level of energy efficiency
- Provide incentives in the planning scheme to increase adoption rates
- Deploy resources to increase the enforcement of NCC and planning requirements. This may take the form of an ESD officer working in conjunction with surveyors
- Work within the existing planning process to systematically assess commercial building applications to ensure a consistently high standard of ESD practice is achieved
- Promote high performance buildings/ratings within community

Building Efficiency Upgrades

To support building efficiency upgrades, Councils and the Alliance can:

- Retrofit housing through EUAs
- Provide education and advice to the community via workshops, online resources (including web content, videos and recorded webinars) on behavior change, creating an all-electric, energy savvy housing, and buying GreenPower energy kits to lend from local libraries

Councils and the Alliance can support households to purchase and install renewable energy through education programs for community groups on solutions and benefits of Community Solar, and facilitate community groups to establish installations

Zero Emissions Businesses

Why are Businesses important in reaching net zero emissions by 2050?

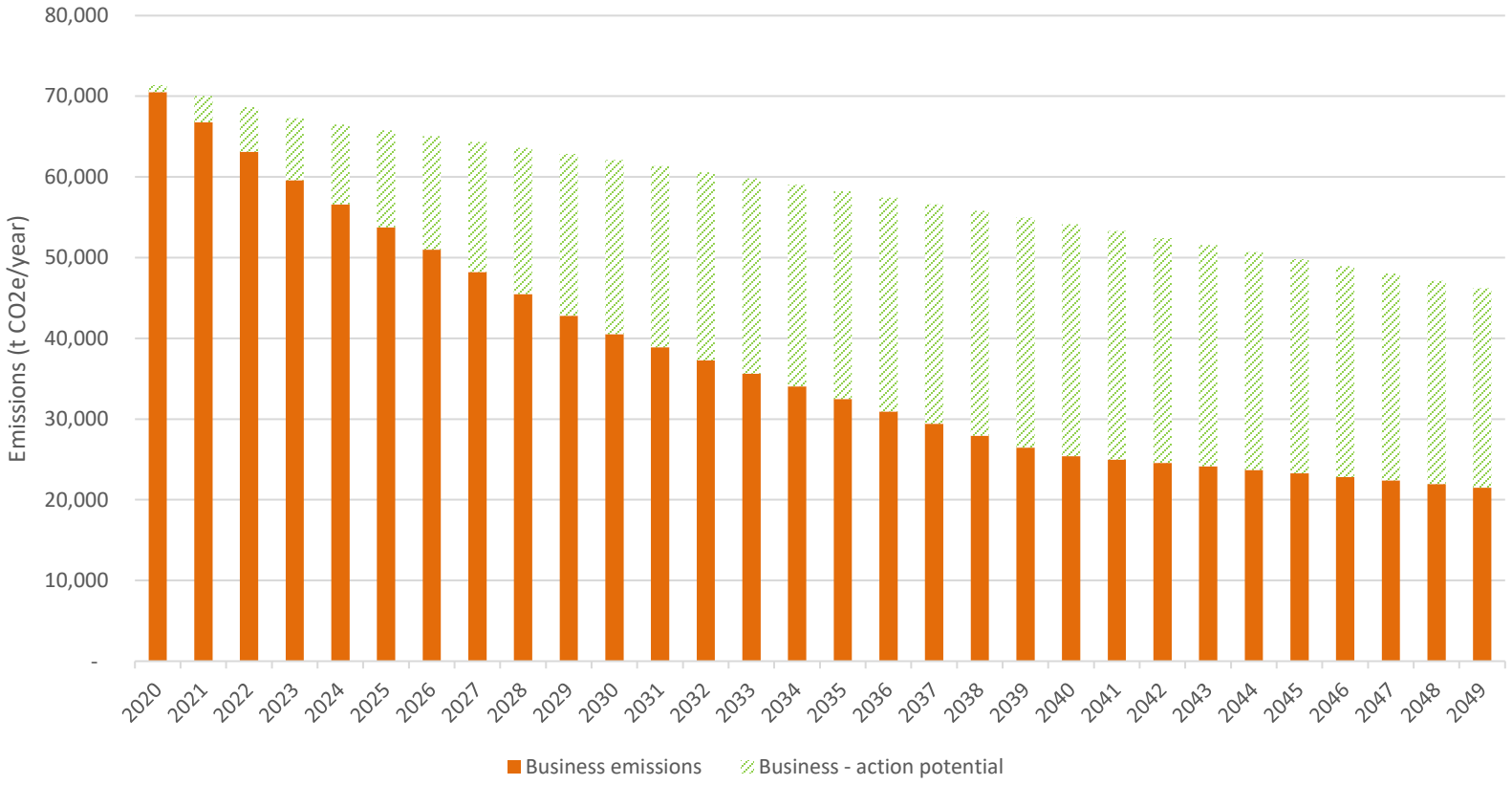
Despite accounting for a relatively small proportion of emissions compared to other sectors, businesses have an important role to play in emissions reduction due to their ability to band together and support programs that would be beyond the reach of a single organisation. They also have specific opportunities available to them not available to other sectors of the community, such as close relationships with certain sectors of the community, government and associated businesses.

Businesses in the South Coast Alliance

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

Fortunately, businesses in the region and their representative organisations are well versed and have been proactive with emissions reduction programs. For example, Meat and Livestock Australia, an association representing the industry has a set a target of being carbon neutral by 2030 despite maintaining a strong economic and industry focus. Working as an association would support smaller member businesses achieve emissions reduction by pooling resources and offering technological and administrative support, thereby overcoming hurdles in a strategic and supportive way.

Zero Emissions Businesses



Initial modelling shows that this program will have a relatively high impact on emissions reductions.

Zero Emissions Businesses

Recommendations for Local Action

Building efficiency upgrades
Businesses can retrofit their dwellings with more efficient fixtures, like insulation, draft sealing, and double glazing. They can also improve energy efficiency by transitioning to all electric appliances, and upgrading existing appliances such as heating/cooling, water heating, refrigerators, and TVs to at least a 2-star improvement over the average star rating.

Purchase and install renewable energy
Businesses can install solar PV on commercial facilities within the region's boundaries.

Zero Emissions Businesses

Recommendations for Collaborative Action

Green Building Design

To support green building design for businesses, Councils and the Alliance can:

- Advocate for zero emissions buildings and for increase of the minimum standard for 7 stars NatHERS
- Introduce and implement new policy or regulations for zero emissions buildings
- Require new commercial buildings to achieve a high level of energy efficiency
- Provide incentives in the planning scheme to increase adoption rates
- Provide streamlined assessments and other concessions for high performance buildings
- Work with developers to pioneer zero net emissions buildings
- Deploy resources to increase the enforcement of NCC and planning requirements. This may take the form of an ESD officer working in conjunction with surveyors
- Work within the existing planning process to systematically assess commercial building applications to ensure a consistently high standard of ESD practice is achieved
- Promote high performance buildings/ratings within community

Install Renewable Energy

To support businesses to purchase and install renewable energy, Councils and the Alliance can:

- Install solar PV systems on community facilities
- Facilitate commercial enterprises to install solar PV onto their roofs
- Deliver programs with shortlisted suppliers and legal assistance for reducing split incentives
- Educate community groups on solutions and benefits of community solar

Zero Emissions Industry

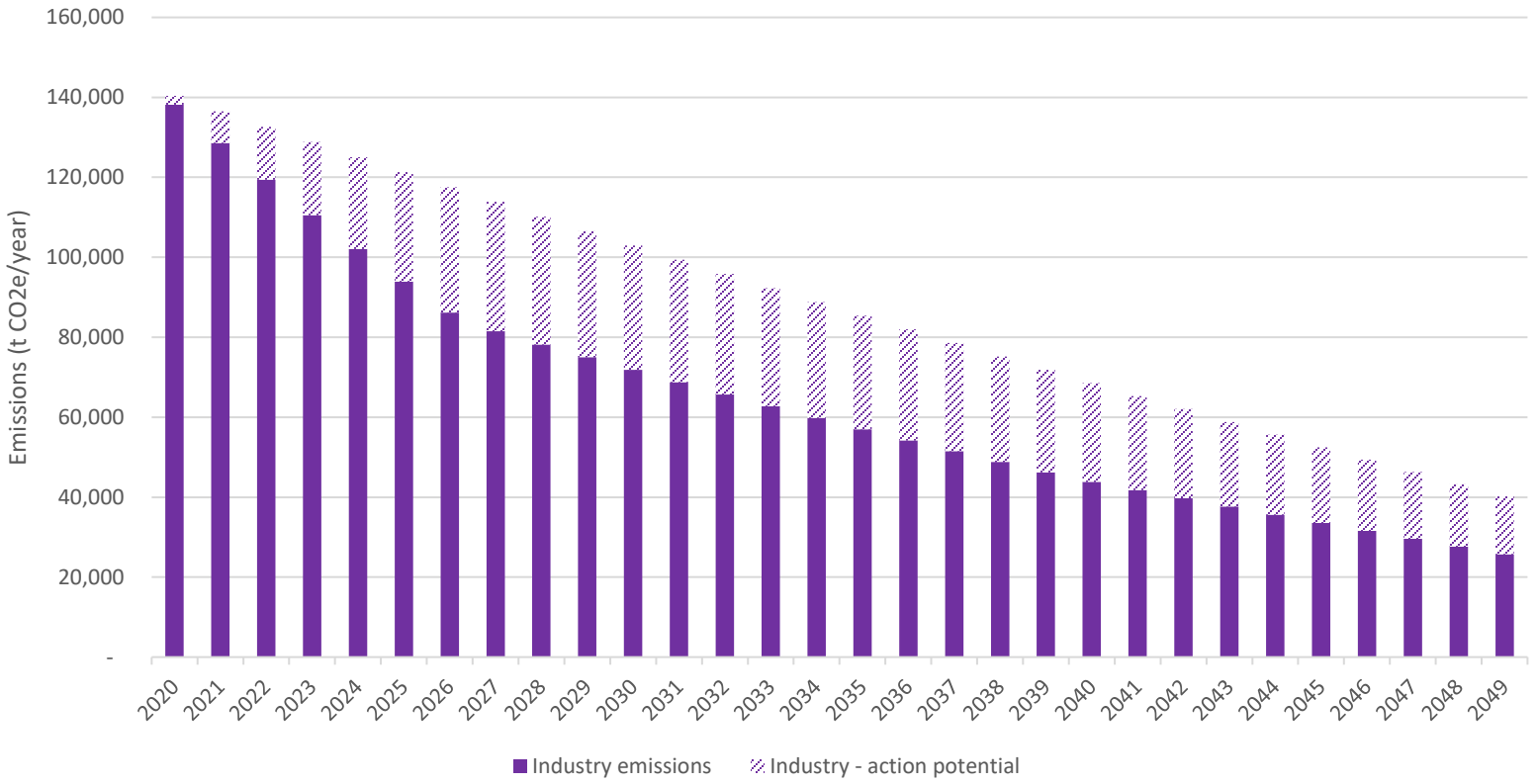
Why is Industry important in reaching net zero emissions by 2050?

GHG emissions from industry primarily come from burning fossil fuels for energy, as well as GHG emissions from certain chemical reactions necessary to produce goods from raw materials along the supply chain.

Industries in the South Coast Alliance

In the South Coast region, 12% of total emissions come from the industrial sector. Improvements in industrial processes, alongside the decarbonisation of electricity and increase in green hydrogen will see a decrease in BAU emissions out to 2050.

Zero Emissions Industry



Initial modelling shows that this program will have a relatively high impact on emissions reductions.

Zero Emissions Industry

Recommendations for Local Action

Industrial efficiency upgrades
Local industry can degasify and increase their energy efficiency.

Recommendations for Collaborative Action

Offsets and abatements
- Secure PPAs for Renewable Energy. This action combines the actions of energy efficiency integration and degasification
- Facilitate renewable energy group PPAs for industrial organisations with 'mid-sized' electricity demand (less than 40 GWh p.a.)

Energy Efficiency Integration and Degasification
To support energy efficiency integration and degasification, the Alliance and Councils can facilitate working and educational groups.

Improve Industrial Processes
Use of Fly Ash and Recycled Aggregate in Concrete - Using fly ash and other low emissions materials in road construction.

Zero Emissions Waste

Why is Waste important in reaching net zero emissions by 2050?

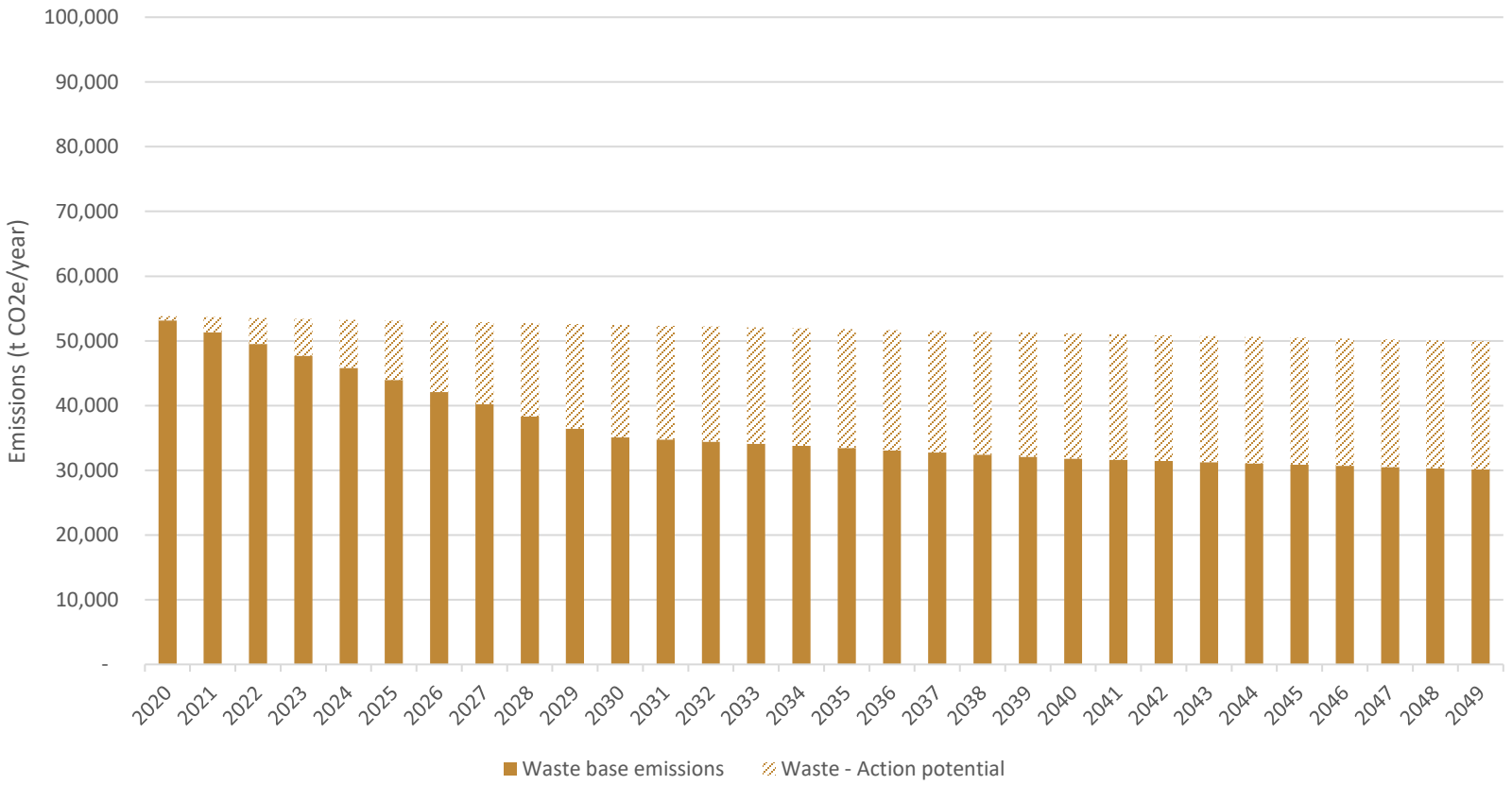
Waste contributes directly to greenhouse gas emissions through the generation of methane from the anaerobic decay of waste in landfills, and the emission of nitrous oxide from our solid waste combustion facilities.

Waste in the South Coast Alliance

In the South Coast region, roughly 2% of emissions come from waste and landfill.

Waste management is a core focus of all four Alliance LGAs plans and strategies. Furthermore, the WA Government has set about a 20% reduction in waste by 2030 as part of the Waste Avoidance and Resource Recovery Strategy.

Zero Emissions Waste



Initial modelling shows that this program will have a relatively high impact on emissions reductions.

Zero Emissions Waste

Recommendations for Local Action

The local community can help reduce waste by implementing individual, household, and business practices through behavioural changes and implementing practices including 'reduce, reuse, and recycle', alongside collecting FOGO for compost.

Recommendations for Collaborative Action

Methane Flaring

To support waste treatment, Councils and the Alliance can:
- Advocate for, and install methane flaring in landfills

Waste diversion

To support waste diversion, Councils and the Alliance can:
- Work with businesses to explore and implement waste reuse processes
- Collect FOGO and divert from landfill
- Implement food waste recycling

Land Use Change

Why is Land Use important in reaching net zero emissions by 2050?

Land use change is a process where human activities transform the natural landscape, emphasising the functional role of land for economic activities such as forestry and deforestation. Forestry activities remove carbon from the atmosphere by way of sequestration whereas deforestation activities release carbon into the atmosphere, causing emissions associated with land use change to dramatically fluctuate.

Land Use in the South Coast Alliance

In the South Coast region, Australian Bluegum Plantations and Albany Plantation Export Company are major industrial and forestry stakeholders who hold forestry tenure to over 40,000 hectares of plantations combined, presenting opportunities for conservation and land management roles, land stewardship and leading in a 'best practice' capacity.

Land Use Change

Recommendations for Community Action

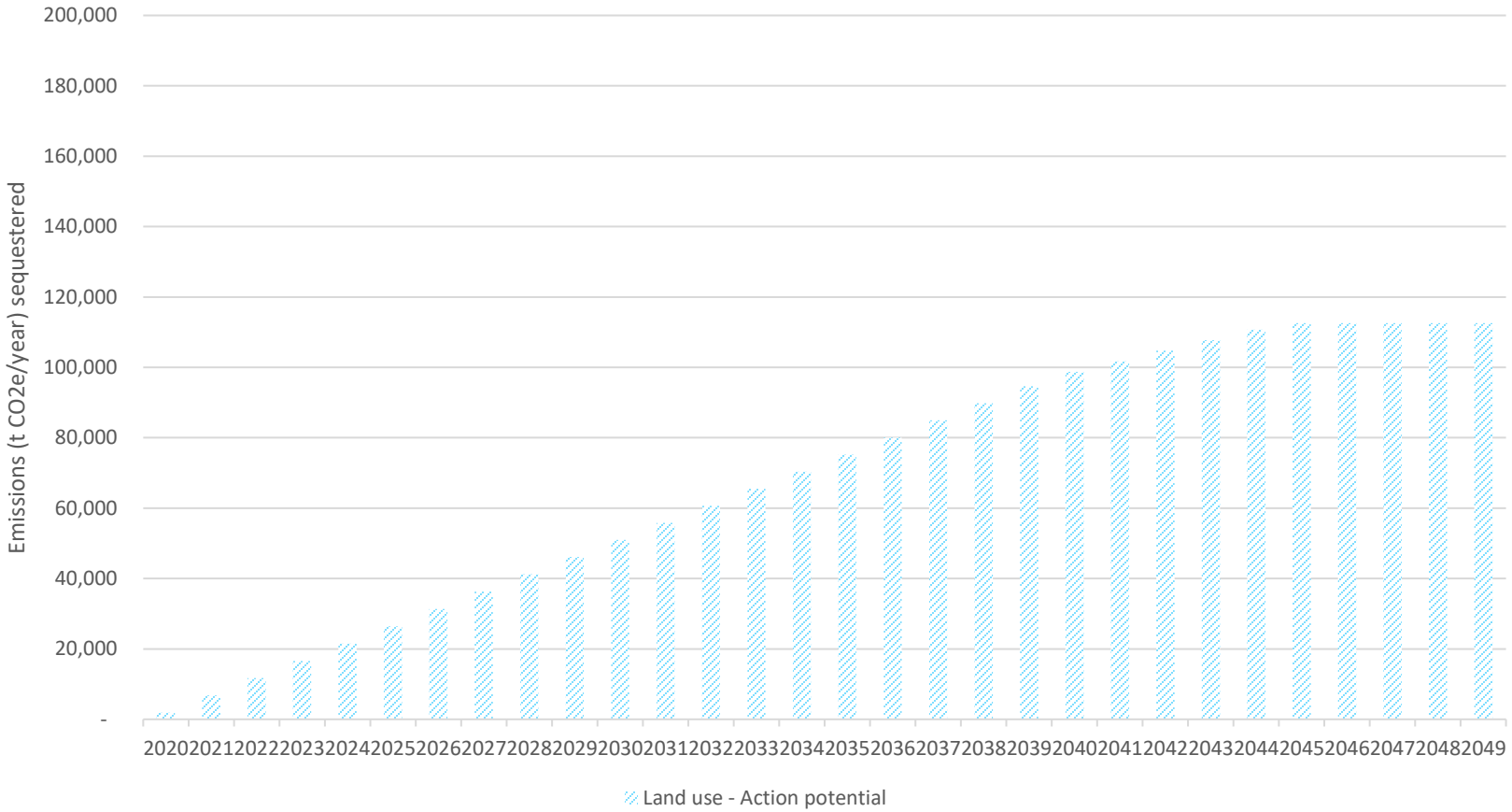
Forest retention, restoration, and afforestation

Trees and vegetation sequester carbon from the atmosphere. Landholders can plant native trees on private land and protect existing forest fragments from land clearing.

Recommendations for Collaborative Action

To support forest retention and afforestation activities, Council and the Alliance can improve tree cover on both Council and private land by advocating for tree planting activities, alongside supporting pilot and feasibility studies.

Land Use Change



Initial modelling shows that this program will have a will sequester relatively high tonnes of emissions.