

Report on the operation of the *Climate Change and Greenhouse Emissions Reduction Act 2007* (South Australia)

Prepared under **section 7** of the
Climate Change and Greenhouse Emissions Reduction Act 2007 (South Australia)

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Government of South Australia

Department for Environment
and Water

Department for Environment and Water

Government of South Australia

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81-95 Waymouth St, ADELAIDE SA 5000

Telephone +61 (8) 8204 1910

Facsimile +61 (8) 8463 6999

ABN 36702093234

www.environment.sa.gov.au

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Report prepared by:

Climate Action and Landscape Services Branch, Corporate, Heritage & Climate Action Division.

Report on the operation of the *Climate Change and Greenhouse Emissions Reduction Act 2007* – December 2025, Government of South Australia, through Department for Environment and Water, Adelaide.

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Executive Summary

South Australia's *Climate Change and Greenhouse Emissions Reduction Act 2007* (the Act) provides a legislative framework for government to work with business and the community to reduce greenhouse gas emissions and build resilience to the impacts of climate change.

On 27 March 2025, the Act was amended to strengthen requirements around government planning, risk assessment and action on climate change; to amend the objects; and to reflect the following greenhouse gas emissions targets for South Australia:

- reduce net greenhouse gas emissions in the State to an amount that is at least 60% below 2005 levels by 31 December 2030 (the 2030 target)
- achieve zero net greenhouse gas emissions within the State by 31 December 2050 (the SA target)
- achieve 100% net renewable electricity generation by 2027 (the renewable electricity target).

Under the Act, a section 7 report is required every two years on the operation of the Act in relation to targets. This section 7 report relates to the 2024 and 2025 calendar years, and reports on progress against the latest targets set after the Act amendments in 2025.

Net greenhouse gas emissions have reduced by 55% in South Australia between 2004-05 and 2022-23 (latest figures). This is significant progress towards South Australia's legislated 2030 target and SA target.

Since the previous report, several key policies and practical measures have been developed or significantly updated to progress South Australia's reduction of greenhouse gas emissions, in particular:

- Amendments to the *Climate Change and Greenhouse Emissions Reduction Act 2007*
- South Australia's Net Zero Strategy 2024-2030
- Climate Ready Government initiative
- South Australia's Transport Strategy 2025
- South Australia's Waste Strategy 2025-2030
- Amendments to the *Environment Protection Act 1993*
- Growing Carbon Farming Demonstration Pilot
- The emPowering SA program
- Energy Masters project
- Green Iron and Steel Strategy
- South Australia's State Infrastructure Strategy 2025
- *Biodiversity Act 2025*
- Greater Adelaide Regional Plan 2025
- An Industry Climate Change Conference held in May 2025 to connect industry, business, and governments on building a strong net zero emissions future.

1 Introduction

The [*Climate Change and Greenhouse Emissions Reduction Act 2007*](#)¹ (the Act) provides for measures to develop and implement strategies to reduce greenhouse gas emissions, foster renewable sources of energy, and facilitate adaptation to climate change.

On 27 March 2025, the Act was amended to strengthen requirements around government planning, risk assessment and action on climate change; to amend the objects; and to include the following updated targets for South Australia:

- reduce net greenhouse gas emissions in the State to an amount that is at least 60% below 2005 levels by 31 December 2030 (the 2030 target)
- achieve zero net greenhouse gas emissions within the State by 31 December 2050 (the SA target)
- achieve 100% net renewable electricity generation by 2027 (the renewable electricity target).

This report has been prepared in accordance with section 7 of the Act. This is the ninth report on the operation of the Act and provides information about the reporting period for the 2024 and 2025 calendar years. To meet the requirements of section 7 (see Appendix A), this report covers:

1. assessment of the effectiveness of initiatives adopted in order to achieve the SA target
2. targets and determinations made during the reporting period
3. progress to achieve the 2030 target, the SA target and the renewable electricity target
4. sector agreements entered into during the reporting period
5. levels of greenhouse gas emissions and use of renewable and non-renewable electricity sources and development of technologies to reduce or remove greenhouse gas emissions
6. offset programs and the national emissions trading scheme, inter-governmental agreements, and significant national or international commitments during the reporting period
7. information on relevant rates, trends or impacts associated with climate change.

This report uses data from the State and Territory Greenhouse Gas Inventories (STGGI) 2023, which was published in May 2025. These are the most recent emissions figures provided by the Australian Government.

The preceding eight section 7 reports were completed from 2009 to 2023 and are available on the [Department for Environment and Water website](#)².

¹<http://www.legislation.sa.gov.au/LZ/C/A/CLIMATE%20CHANGE%20AND%20GREENHOUSE%20EMISSIONS%20REDUCTION%20ACT%202007.aspx>

² <https://www.environment.sa.gov.au/about-us/our-reports/climate-change-greenhouse-emissions-reduction-reports>

2 Greenhouse gas emissions

This section presents an assessment of the progress being made to achieve South Australia's greenhouse gas emissions targets, a summary of levels of greenhouse gas emissions and development of technologies to reduce or remove greenhouse gas emissions (section 7 (2b), (2c) and (2f)).

2.1 2022-23 greenhouse gas emissions and progress towards the SA target and the 2030 target

The SA target under the Act is "to achieve zero net greenhouse gas emissions within the State by 31 December 2050." The 2030 target under the Act is "to reduce net greenhouse gas emissions in the State to an amount that is at least 60% below 2005 levels by 31 December 2030."

Under the Act, net greenhouse gas emissions refer to greenhouse gas emissions after:

- a) determining the amount of total greenhouse gas emissions attributable to the State, including any removals of greenhouse gas emissions from the atmosphere due to activities within the State; and
- b) deducting from the amount described above, any emissions offsets from outside of the State.

Climate change initiatives put in place by government and other public and private sector organisations have contributed to the net greenhouse gas emissions reduction of 55% between 2004-05 and 2022-23. During this period no offsets were used from outside the state.

South Australia will need to reduce emissions by a further 5% to achieve the net greenhouse gas emissions reduction target of at least 60% by 2030.

In 2022-23, South Australia emitted 16.3 million tonnes of carbon dioxide equivalent (CO₂-e) and South Australian greenhouse gas emissions per capita were 8.8 tonnes of CO₂-e. This is lower than Australia's per capita greenhouse gas emissions of 16.2 tonnes of CO₂-e per capita³.

The greenhouse gas emissions presented in this report are not comparable to those published in previous section 7 reports. The Australian Government regularly revises inventory emission factors and methodologies and subsequently revises figures back to 1990 to ensure time series consistency. See Appendices B and C for more information on greenhouse gas emissions sources and technical notes on the inventory, respectively.

2.2 Sources of greenhouse gas emissions

Sources of greenhouse gas emissions in the South Australian inventory include: Transport; Agriculture; Energy industries; Industrial processes; Fugitive emissions; Manufacturing industries and construction; Other energy sectors; Waste; and Land use, land use change and forestry (LULUCF) (see Figure 1).

³ <https://www.dcceew.gov.au/sites/default/files/documents/nggi-quarterly-update-dec-2023.pdf>

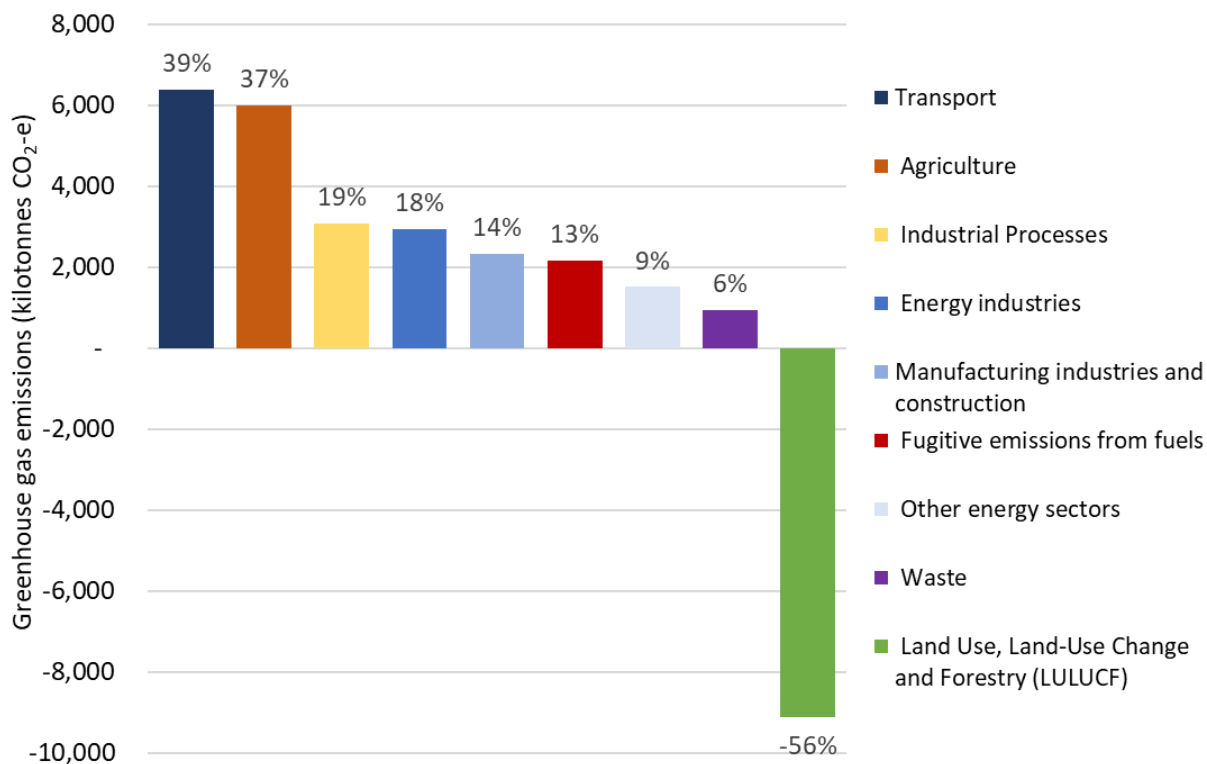


Figure 1: South Australian greenhouse gas emissions per cent contribution to total net emissions by source in 2022-23⁴

The **Energy sector** contributed the most greenhouse gas emissions to total net state greenhouse gas emissions (94%). This is comprised of 39% from **Transport** emissions; 18% from **Energy industries** (majority from electricity generation); 14% from **Manufacturing industries and construction**; 13% from **Fugitive emissions from fuels** (oil, gas and solid fuels industries) and 9% from **Other energy sectors** (including fuel combusted for energy in the residential, commercial and agriculture sector).

The **Agriculture sector** contributed 37% to total net state greenhouse gas emissions. This included emissions from livestock industries (enteric fermentation and manure management) and agricultural soils and soil applications, such as fertiliser usage. Emissions from agriculture are impacted by a range of factors, including market conditions and seasonal climatic conditions such as drought.

The **Industrial processes sector** contributed 19% to total net state greenhouse gas emissions. This includes emissions from the food and beverage industry, and the metals, chemicals and minerals (e.g. cement) industries. These emissions source also includes emissions from the consumption of halocarbons in refrigeration and sulphur hexafluoride in electricity supply and distribution.

The **Waste sector** contributed 6% to total net state greenhouse gas emissions. The majority of emissions from this source are from municipal solid waste disposal and wastewater treatment and discharge. Emissions from solid waste disposal are influenced by methane recovery and recycling rates and alternative waste treatment options. Changes in estimates for wastewater treatment and discharge

⁴ <https://www.greenhouseaccounts.climatechange.gov.au/>

emissions are largely driven by changes in industry production, population loads on centralised treatment systems and the amount of methane recovered for combustion or flaring.

The **Land use, land use change and forestry (LULUCF) sector** includes both greenhouse gas emissions sources and sinks (i.e. sequestration of carbon) and when combined provided a net figure of -56%. The sources of greenhouse gas emissions include deforestation activities. Sinks include regrowth on deforested land, plantations and natural regeneration, activities on cropland and grassland and a small amount from harvested wood products. This sector experiences large fluctuations over time in sources and sinks from land management activities. Greenhouse gas emissions from this source can also often reduce or increase over the whole time series from year to year due to improvements in methodologies.

Appendix B provides a detailed breakdown of greenhouse gas emissions by sector.

2.3 Change in greenhouse gas emissions since the 2004-05 base year to 2022-2023

Progress towards net greenhouse gas emissions targets is achieved through a combination of reducing emissions (including sinks) and preventing increases. From the 2004-05 base year to 2022-23, net greenhouse gas emissions have decreased by 55%.

Figure 2 shows the change in South Australian net greenhouse gas emissions since 2004-05, alongside gross state product (GSP). Since 2004-05, net greenhouse gas emissions have reduced while the GSP has continued to increase by 44%.

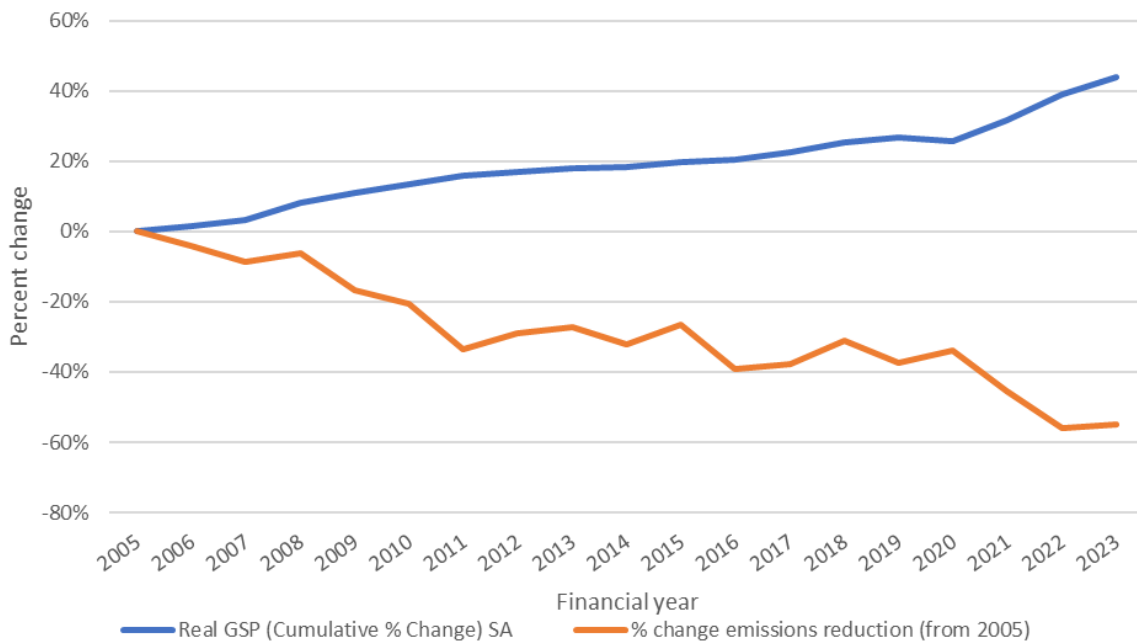


Figure 2: South Australian per cent change in GSP and greenhouse gas emissions, since 2004-05 ⁵

2.4 Drivers of change in net greenhouse gas emissions from the 2004-05 base year to 2022-23

The changes observed over the measurement period are the net effect of increases and decreases in the different sources. Greenhouse gas emissions sources that contributed materially to the decrease in

⁵ State and Territory Greenhouse Gas Inventory and Australian Bureau of Statistics State Accounts, 2022-23 financial year

emissions include: Land use, land use change and forestry (LULUCF); Energy industries (driven by an increase in renewable generation); Fugitive emissions from fuels; and Agriculture (reduction in enteric fermentation emissions) and Other energy sectors. Sources that materially contributed to the increase in emissions include: Industrial processes (products used as substitutes for ozone depleting substances); Transport; Waste; Agricultural soils; Manure management; and Manufacturing industries and construction.

The change in greenhouse gas emissions sources and sinks and their contribution to the increase or decrease in emissions from the 2004-05 to 2022-23 is outlined in Table 1. Appendix B provides a more detailed breakdown of greenhouse gas emissions by sector.

Drivers of reduced net greenhouse gas emissions 2004-05 to 2022-23

The main contributors to overall reductions in net greenhouse gas emissions since 2004-05 are:

1. LULUCF, with an increase in sinks contributing 58% of total net greenhouse gas emissions reduction. This is mainly due to plantations and natural regeneration of forest land, regrowth on deforested land, as well as cropland and land being converted to wetland.
2. Fuel combustion in energy industries, which contributed 35% of total net greenhouse gas emissions reduction. This was mainly due to the increase in renewable energy generation and the reduced greenhouse gas emissions intensity of non-renewables.
3. Fugitive emissions from fuels, which contributed 8% of total net greenhouse gas emissions reduction. This is likely to have been driven by a combination of changes in technology as well as the reduction in coal mining and natural gas extraction in South Australia.
4. Enteric fermentation, which contributed 3% of total net greenhouse gas emissions reduction. This is likely to be driven by the reductions in the numbers of livestock over this period. Reduction in livestock numbers has occurred as a result of drought and market conditions in South Australia. Stock numbers are expected to recover.

Drivers of increased greenhouse gas emissions 2004-05 to 2022-23

The main contributors to increases in greenhouse gas emissions over this period are:

1. Products used as substitutes for ozone depleting substances (ODS), including hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs), contributed a 3% increase due to the use of these substitutes, which are greenhouse gases, steadily causing emissions to rise.
2. Transport contributed a 2% increase mostly due to heavy-duty trucks, and buses and light commercial vehicles.
3. Emissions from Solid waste disposal contributed a 1% increase.
4. Other contributing sources include Agricultural soils (1% increase), Manure management (0.3% increase) and emissions from fuel combustion in Manufacturing industries and construction (0.1% increase).

Table 1: Changes in greenhouse gas emissions sources and sinks and their contribution to change from 2004-05 to 2022-23⁶

Source of greenhouse gas emissions	Greenhouse gas emissions (kilotonnes CO ₂ -e)			Contribution to increase or decrease (%)		% Change in emissions	
	2004-05	2022-23	Change in emissions			2004-05 to 2022-23	
Energy industries	9,940	2,948	↓ -6,991	↓	35%	↓	-70%
Manufacturing industries and construction	2,326	2,340	↑ 15	↑	-0.1%	↑	0.6%
Transport	6,013	6,394	↑ 382	↑	-2%	↑	6%
Other energy sectors	1,720	1,510	↓ -209	↓	1%	↓	-12%
Fugitive emissions from fuels	3,695	2,160	↓ -1,535	↓	8%	↓	-42%
ENERGY SECTOR	23,694	15,352	↓ -8,341	↓	42%	↓	-35%
Minerals industry	1,099	872	↓ -225	↓	1%	↓	-21%
Products uses as ODS substitutes	281	796	↑ 516	↑	-3%	↑	183%
All other Industrial Processes*	1,524	1,405	↓ -118	↓	1%	↓	-8%
INDUSTRIAL PROCESSES SECTOR	2,904	3,074	↑ 171	↑	-1%	↑	6%
Enteric fermentation	4,661	3,975	↓ -684	↓	3%	↓	-15%
Manure management	513	578	↑ 66	↑	-0.3%	↑	13%
Agricultural soils	840	1,104	↑ 265	↑	-1%	↑	32%
All other Agriculture*	167	340	↑ 174	↑	-1%	↑	103%
AGRICULTURE SECTOR	6,180	5,998	↓ -181	↓	1%	↓	-3%
Solid waste disposal	604	730	↑ 128	↑	-1%	↑	21%
Waste water treatment and discharge	223	190	↓ -32	↓	0.2%	↓	-15%
All other Waste*	13	23	↑ 11	↑	-0.1%	↑	77%
WASTE SECTOR	840	944	↑ 105	↑	-1%	↑	12%
LULUCF SECTOR (net)	2,444	-9,111	↓ -11,554	↓	58%	↓	-473%
Total net greenhouse gas emissions	36,063	16,257	↓ -19,805		100%	↓	-55%
Total (gross) greenhouse gas emissions without removals[#]	36,063	25,368	↓ -10,694		100%	↓	-30%

Notes: Totals may not sum due to rounding; *Includes all other small sources of greenhouse gas emissions and confidential data; [#]Removals include LULUCF sector where a net sink for that year. In 2004-05 the LULUCF sector was a net source.

⁶ <https://www.greenhouseaccounts.climatechange.gov.au/>

3 Renewable electricity targets

This section presents an assessment of the progress being made to achieve the renewable electricity target, and a summary of the use of renewable and non-renewable electricity sources within the State (section 7 (2b), (2c) and (2f)).

3.1 Progress against the renewable electricity target under the Act

The renewable electricity target under the Act is “to achieve 100% net renewable electricity generation in the State by 31 December 2027.” Under the Act, net renewable electricity generation means the contribution of renewable electricity generated in South Australia after taking into account non-renewable electricity generated in South Australia and interconnector flows over the course of a financial year (See Appendix D for more information).

South Australia’s net renewable electricity generation was 69.7% in 2023-24. South Australia will need to further increase net renewable electricity generation by 30.3% to achieve the renewable electricity target⁷.

3.2 Gross renewable electricity generation in 2023-24

The Australian Energy Market Operator (AEMO) publicly reports South Australia’s energy registered capacity and generation figures for 2023-24 which are provided in Table 2. According to the Australian Energy Market Operator, South Australia generated 10,400 GWh of renewable electricity in 2023-24. The amount of total gross South Australian renewable electricity generation for the 2023-24 year was 74.3%⁷.

Table 2: South Australian registered capacity and local generation by electricity source in 2023-24⁸

⁷ Department for Energy and Mining uses adjusted data from the Australian Energy Market Operator (AEMO) South Australian Electricity Report (SAER) to calculate renewable energy generation. Numbers may not match exactly due to rounding.

⁸ Australian Energy Market Operator (AEMO) South Australian Electricity Report, December 2024.

Fuel Type	Registered capacity (MW)	Generation (GWh)	Generation % of total
Gas	2,569	3,303	23.6%
Wind	2,770	6,330	45.2%
Diesel + Other non-scheduled generation (ONSG)	497	122	0.9%
Rooftop Photovoltaic (PV)	2,469	2,566	18.3%
PVNSG	596	476	3.4%
Solar	791	1,028	7.3%
Storage - Battery	1,044	193	1.4%
Total	10,736	14,018	100%
Energy imports	-	1,677	-
Energy exports	-	750	-
Net energy imports	-	927	-

3.3 Factors that have contributed to progress in renewable electricity generation

Several factors have contributed to progress in renewable electricity generation: structural drivers of progress, and the sensitivity of these drivers to changes in context (contextual drivers).

Structural drivers are the mechanics of change, not the cause, and include:

- increased renewable electricity generation
- decreasing electricity generation from non-renewables
- reduced South Australian electricity demand
- increasing capacity of residential and utility scale batteries.

Contextual drivers include:

- relative market prices of electricity
- commercial decisions to invest in renewable power plants and battery storage
- national schemes (for example, Renewable Energy Target scheme)
- increased capacity of interconnectors
- incentives provided by the Government of South Australia (for example, solar feed-in tariff legislation)
- providing greater certainty of process and supportive policy for windfarm developments in rural areas
- changes in costs of technology.

4 Effectiveness of South Australia's climate change initiatives in achieving the SA target

This section presents an assessment of the effectiveness of the initiatives that are being adopted in order to achieve the SA target (section 7 (2a)).

4.1 Effectiveness and overview of key initiatives

Climate change initiatives put in place by government and other public sector and private sector organisations have contributed to the net greenhouse gas emissions reduction of 55% from the 2004-05 base year to 2022-23. As outlined in section 2.4, a significant portion of greenhouse gas emission reduction within South Australia is attributable to changes in the land use, land use change and forestry (LULUCF) sources and sinks and in energy industries sources.

Key initiatives relevant to the reporting period include:

Cross-cutting policies, plans and programs

- The *Climate Change and Greenhouse Emissions Reduction Act 2007* was amended in 2025 to enshrine the state's current greenhouse gas emissions reduction and renewable electricity targets in law and to strengthen requirements around government planning, risk assessment and action on climate change.
- South Australia's Net Zero Strategy 2024–2030, released in 2024, outlines the government's objectives, policy priorities and actions to reduce greenhouse gas emissions across the economy while creating new jobs, developing new industries, supporting wellbeing, and enabling decarbonisation beyond our borders.
- The Climate Ready Government initiative, launched in 2024, outlines how the South Australian public sector will lead by example by managing climate related risks and reducing greenhouse gas emissions in its operations. The initiative has two key components – climate risk management requirements, and a Net Zero Emissions for Government Operations Program.
- The *Environment Protection Act 1993* was amended, with changes coming into effect in 2024, to clarify the Environment Protection Authority's (EPA) regulatory authority for climate change mitigation and adaptation. Preliminary work is underway to inform the drafting of a climate change Environment Protection Policy which will be used to provide clarity and certainty on its regulation of greenhouse gas emissions and climate adaptation requirements.
- South Australia's Small Business Strategy 2023-2030 outlines how the government's policies and programs will support and empower small businesses. The strategy aims to create jobs, build our economy and future-proof South Australia's small businesses, and includes a theme on 'boosting business sustainability.'
- The Business Sustainability Program has provided guidance to more than 650 South Australian businesses on implementing more circular and sustainable business practices, including grants and in-kind support, advice and guidance.

- The Small Business Sustainability Support program has supported 154 small and family businesses to improve their understanding of energy efficiency opportunities and sustainability through the program.

Energy and electricity

- The *Hydrogen and Renewable Energy Act 2023* and regulations commenced on 11 July 2024 and introduced a fit-for-purpose regulatory framework for large scale hydrogen and renewable energy projects in South Australia. The framework facilitates the development of a sustainable industry that provides the best outcomes for communities, respects Native Title and delivers net environmental benefit.
- Construction on stage 1 of the multi-billion-dollar interconnector, Project Energy Connect (PEC), between South Australia and New South Wales (NSW), has been completed. The transmission line from Robertstown to the border and on to Buronga in NSW is operational, allowing an extra 150MW of electricity to flow, effectively increasing the capacity on the existing Victoria-South Australia interconnector. The new interstate link has reduced wind curtailment enabling large scale wind farms to generate greater output into the network.
- Through the emPowering SA program, the South Australian Government is delivering a fleet of 18 community battery storage assets across South Australia that directly benefit low income and vulnerable South Australian households. Two community batteries, emPowering Magill and emPowering Edwardstown, were deployed under the program in 2024, and a further 16 will roll out across 2025 and 2026.
- The South Australian Retailer Energy Productivity Scheme (REPS) continued to support households and businesses to reduce their energy costs while also maximising the benefits to the power system. Changes to the REPS were implemented during 2024 to improve outcomes and access for identified priority customers. The 2024 REPS Annual Report (published September 2025) showed the 2024 total annual energy productivity published target of 3,437,500 gigajoules was achieved.
- A total of \$20 million has been allocated from the Business Growth Fund for a new Powering Business Grants round, to support South Australian small and medium businesses and not-for-profit organisations to invest in energy efficient equipment or improvements to reduce and manage energy use and costs. Eligible businesses can apply for a grant ranging from \$2,500 to \$75,000.
- The state government continues to advance its commitment to high-penetration renewable energy and battery storage in remote communities across South Australia. Significant upgrades to the Central Powerhouse in Umuwa, located in the APY Lands, have been successfully completed, including a 3MW solar farm and a 1MW battery system. This upgrade has an average renewable penetration of 28% and an annual fuel saving of approximately 700,000 litres. Building on this progress, two new renewable power stations have recently been upgraded or built:
 - In 2023–24, 64kW solar panels were installed at Manna Hill, complementing the existing battery system.
 - In April 2025, the Oodnadatta Renewable Power Station was commissioned, featuring a 570kW solar installation and a 1MWh battery system. This new station is expected to provide up to 75% of the community's energy needs from renewable sources.
- The South Australian Government partnered with SA Power Networks to establish the \$13.8 million Energy Masters project. Energy Masters aims to demonstrate the benefits of residential demand flexibility and smart home energy management for both households and the grid as a whole, in ways that could avoid or delay electricity network build costs, reduce the need for additional grid

scale generation and storage, improve electricity market efficiency, improve the use of rooftop solar in the home, and reduce energy bills and emissions.

- The South Australian Government has continued to support the installation of home batteries. According to SA Power Networks, as of April 2025 there were 49,275 South Australian homes with one or more residential batteries installed. These batteries have a combined capacity of more than 620 megawatt-hours, which is over twice the capacity of the AGL Torrens Island battery, currently South Australia's largest grid-scale battery.
- South Australia's Virtual Power Plant (SA VPP) has continued to grow in solar system installations and signups, with tenants in nearly 7,000 SA Housing Trust homes now benefitting from SA VPP.

Transport

- In partnership with the Royal Automobile Association (RAA), the Government of South Australia's Statewide Electric Vehicle Charging Network is complete. The Statewide Charging Network provides more than 550 charging points across 144 locations throughout South Australia, with 75% of charging sites located in regional townships along highways, in tourism hotspots and at popular holiday accommodation sites.
- The South Australian Government provided funding for Electric Vehicle Smart Charging Trials, which focused on demonstrating how electric vehicle charging can be integrated into the grid to realise electricity cost savings for all South Australians. All trials are now complete, with final reports due for submission.
- South Australia's Transport Strategy was released, providing a 30-year vision for the state's transport system, aiming to enhance connectivity, accessibility, safety, prosperity, and sustainability. The strategy includes a strategic response to adopt a comprehensive approach to decarbonisation and environmental sustainability to meet South Australia's greenhouse gas emissions reduction targets and net zero goals. This includes strategic actions to transition the state's transport fleets to sustainable alternatives, support a shift to lower-emissions transport and reduce reliance on private vehicles, and to use low-emission technologies when delivering transport infrastructure.
- The 2024-25 State Budget included \$5 million to complete planning for bus and depot infrastructure to support transition to a zero-emissions public transport bus fleet, and \$2 million to deliver planning studies to identify solutions to support transition to a zero-emissions public transport rail fleet.
- The state government has ordered sixty brand new 100% full battery electric buses, to be delivered progressively throughout the second half of 2025 and early 2026.
- Following the conversion of 50 railcars, Adelaide Metro's non-electrified rail lines are now serviced entirely by hybrid-diesel railcars since early 2025, reducing fuel consumption by between 700,000 and 1 million litres of diesel each year.
- The Department for Infrastructure and Transport is implementing several initiatives to enhance South Australia's public transport system, including:
 - A Regional Review which is focusing on identifying key needs and gaps in current services for regional communities.
 - A Northern Adelaide Transport Study to consider the key issues and opportunities to improve transport to support liveability, population and economic growth, including consideration of mass transit options which support emissions reduction.

- Development of a Public Transport Strategy that will set the vision for public transport in South Australia for the next 30 years.
- A new Freight and Supply Chain Strategy was released in June 2024, which supports measures to reduce the emissions intensity of freight decarbonisation and climate change response as a core element.
- As of 30 June 2025, the state government's passenger and light commercial motor vehicle fleet consisted of 7,113 vehicles, 65.8% of which qualify as low emissions.
- The South Australian Government is also implementing initiatives to encourage active travel opportunities:
 - An Active Travel Design Guide was released in September 2024, to provide information to practitioners on embedding convenient and attractive walking and cycling infrastructure in new development.
 - In March 2025, the South Australian Government announced \$2 million through the State Bicycle Fund to support 21 projects to improve cycling infrastructure across 14 councils. Through the National Road Safety Program and in partnership with the Australian Government, \$37 million was allocated for improvements to footpaths and cycleways.
 - The South Australian Government continues to deliver the Way2Go program, which provides support to local primary schools to promote safer, greener and more active travel among students and their communities. In 2025, 60 primary schools will participate in the Way2Go Bike Ed program.

Agriculture and land use

- The South Australian Government continues to work with the agriculture sector to reduce net emissions. Examples include: a project on Low Emissions Intensity Farming Systems through the Grain Research and Development Corporation; a collaboration with Meat and Livestock Australia to measure and monitor emissions from the livestock sector; and a Natural Capital and Emissions Baseline Report for Kangaroo Island.
- The Department of Primary Industries and Regions SA (PIRSA), in partnership with Grain Producers SA, is supporting 58 farms across the state to undertake emissions accounts, with a focus on grains.
- The Growing Carbon Farming Demonstration Pilot funded six projects from across the state with up to \$100,000 each to implement commercial carbon farming methodologies that demonstrate carbon farming methods with the greatest relevance to South Australian production systems.
- The state's first dedicated Biodiversity Act 2025 was introduced to help conserve, protect and restore biodiversity in a changing climate, including native vegetation which helps contribute to lower greenhouse gas emissions.
- The following initiatives have been delivered under the Blue Carbon Strategy for South Australia 2020-2025:
 - On ground works for a partnership with The Nature Conservancy to restore and enhance 12,400 hectares of mangroves and saltmarsh habitats located 50 km north of Adelaide in the Adelaide International Bird Sanctuary were completed in 2024-2025. The project has been successfully registered under the Australian Carbon Credit Unit (ACCU) Scheme.
 - South Australian Research and Development Institute (SARDI) and the University of Adelaide, with support from the Department for Environment and Water, have secured funding to

extend seagrass restoration near Port Gawler, north of Adelaide, which builds on other work funded by the South Australian Government along the metropolitan coastline.

Industry, built environment and waste

- The Green Iron and Steel Strategy was released in 2024, to position South Australia as a competitive producer of low carbon iron and steel. The strategy aims to enhance South Australia's comparative advantage, establish local green steel industry foundations, and ensure a sustainable, long-term industry and shared prosperity.
- The Moomba Carbon Capture and Storage project commenced operation in September 2024 and is currently injecting 1.7 million tonnes per year of carbon dioxide (CO₂) into the depleted oil and gas fields of the Cooper Basin for permanent storage.
- South Australia's State Infrastructure Strategy 2025 was released, which presents opportunities to drive economic growth, prosperity, and liveability to 2045. The strategy includes climate-related recommendations, including: to develop a South Australian infrastructure decarbonisation policy to manage greenhouse gas emissions across the asset lifecycle; and develop an Infrastructure Sustainability Framework that provides guidance on incorporating sustainability standards and reporting across all stages of the infrastructure lifecycle.
- South Australia's Advanced Manufacturing Strategy (2023) and Advanced Manufacturing Action Plan (2024) identify key areas of competitive advantage for the state and align them with strategic priorities that represent significant enablers of growth. Manufacturing is a major enabler of South Australia's industrial transformation and will contribute to increasing the state's economic complexity, unlocking the full potential of opportunities in renewables, hydrogen, and minerals, and supporting connections to green global value chains and the transition to net zero.
- South Australia launched an online, on-demand Learning Hub for Energy Efficient Construction called the 'Net Zero Energy Builder.' The Net Zero Energy Builder links to free government and industry resources, case studies, and nationally curated continuing professional development options for building, design, trade and regulator professionals. The site showcases South Australia's nationally respected Net Zero Homes – Skills Training course, which includes unique modules on design and construction of high-performing, efficient 7-star-plus homes, and integrating energy-efficient appliances, rooftop solar PV and storage to achieve true net zero outcomes.
- South Australia adopted the National Construction Code 2022 energy efficiency provisions on 1 October 2024. Concessions to assist industry with the transition to the new requirements apply to some developments including:
 - on small or irregular allotments (frontages 10m or less or area less than 300 sqm)
 - in cooler Climate Zone 6
 - with homes manufactured off-site
 - for workers or tourist accommodation.
- The Renewal SA Strategic Plan 2023-2026 includes actions to develop an agency-wide sustainability strategy, establish a dedicated team, embed environmental, social and economic sustainability targets into all new projects and demonstrate new housing initiatives that influence the private sector to deliver carbon neutrality.
- The Greater Adelaide Regional Plan, released in March 2025, includes objectives to strengthen climate-smart planning, building and design policies; design of urban communities that are walkable, connected neighbourhoods; and facilitation of green technologies and industries.

- The Urban Greening Strategy for metropolitan Adelaide, released in March 2025, focusses on increasing tree canopy, cooling the city and boosting biodiversity. In particular, the strategy includes a 30% urban tree canopy cover target for metropolitan Adelaide. This target is also included in the Greater Adelaide Regional Plan, providing a consistent region wide approach.
- The Kangkanthi Clinical Services Building at the Queen Elizabeth Hospital (opened in 2024) is the first major public healthcare building in Australia to be all-electric, with no natural gas used within the building.
- South Australia's first all-electric hospital, including its aged care services, opened on Kangaroo Island in 2025, phasing out gas to both lower greenhouse gas emissions and reduce costs. SA Health has further commitments for a 100% electrified New Women's & Children's Hospital (2026).
- The draft Accelerating SA's transition to a circular economy: South Australia's waste strategy 2025–2030 went out for public consultation in mid-2025, with the strategy to be finalised and released by the end of 2025.
- The Beyond Recycling: Moving SA Towards a Circular Economy (2024) discussion paper explored a variety of policy and legislative measures to support a circular economy in South Australia. Circular economy and waste minimisation practices help reduce greenhouse gas emissions. Policy measures under consideration will primarily be implemented through a review of the Environment Protection (Waste to Resources) Policy 2010.
- Expansion of the range of products banned under the Single-use and Other Plastic Products (Waste Avoidance) Act 2020 has continued. The following dates are key milestones: March 2022 (expanded polystyrene cups, bowls, plates, clamshell containers and oxo-degradable plastic products), September 2023 (pizza savers, plastic stemmed cotton buds, single-use plastic bowls and single-use plastic plates), and September 2024 (plastic barrier bags, plastic film shopping bags, single-use plastic hot and cold beverage containers and their attachments (such as lids and beverage plugs), single-use plastic food containers used for ready-to-eat foods, other expanded polystyrene consumer food and beverage containers and meat trays, plastic balloon sticks and ties, plastic confetti, and plastic food bag tags). The third stage of bans (announced in November 2022) covering soy sauce fish, prepacked EPS food containers and attached plastic straws and cutlery came into effect in September 2025.
- A suite of waste and recycling guides have been developed to support implementation of better practices including: Waste and Recycling Business Essentials; Waste and Recycling: Office Basics and Office Case Study; Waste and Recycling Procurement and Contracts; Government Office Waste: Strategy and Better Practices Guide; and a 'Sustainable Kerbside Service' model better practice guide and toolkit for local councils.
- The South Australian Government supports the establishment of a national product stewardship regulatory scheme covering solar photovoltaic system including battery energy storage systems. Where there is no action or plan from the Australian Government to undertake this approach, the South Australian Government is considering nationally aligned legislative reform to establish state-based mandatory product stewardship framework and regulations, prioritising battery types with the highest risk profiles.
- A trial for the safe collection of embedded battery products was held at four locations across South Australia in late 2024, in a partnership between the state government, Adelaide Hills Region Waste Management Authority, Campbelltown City Council, the City of West Torrens and the Northern Adelaide Waste Management Authority. The South Australian Government is progressing and finalising an interim measure to establish community disposal points for end-of-life embedded

battery products in the State until an effective product stewardship scheme is in place for all batteries.

Other initiatives

- The South Australian Government hosted the second SA Industry Climate Change Conference (ICCC), in partnership with the Premier's Climate Change Council, in 2025. The event included presentations from, and panel discussions with, business, industry and government leaders to share practical case studies on greenhouse gas emissions reduction and climate adaptation measures.
- The SA Health Climate Change and Health Framework was launched in May 2025 to deliver an environmentally sustainable, low carbon and climate-resilient public health system.
- Procurement SA is building on its Green Procurement Guideline and actively working toward the establishment of an ESG (environment, social, governance) strategy for government procurement that will help support emission reduction outcomes.
- The Department for Infrastructure and Transport has introduced a Sustainable Procurement Policy which ensures sustainability risks and opportunities are identified as part of procurement planning, and appropriate measures are implemented to address risks and realize opportunities.

5 Targets and determinations

This section reports on any determination or target made or set under section 5 during the reporting period (section 7 (2b)).

Amendments were made to the Act in March 2025 and resulted in the changes outlined below.

The principal target under the Act (the SA target) is to achieve zero net greenhouse gas emissions within the State by 31 December 2050.

The following are related targets under the Act:

- to reduce net greenhouse gas emissions in the State to an amount that is at least 60% below 2005 levels by 31 December 2030 (the 2030 target)
- to achieve 100% net renewable electricity generation in the State by 31 December 2027 (the renewable electricity target).

The Minister must set interim targets under the Act for the reduction of net greenhouse gas emissions in this State to be achieved by:

- a) 31 December 2035; and
- b) 31 December 2040; and
- c) 31 December 2045.

The setting of an interim target must:

- a) be expressed as the extent to which the amount of the State's net greenhouse gas emissions is to be reduced in relation to 2005 levels; and
- b) be such that the interim target set in relation to each date constitutes a greater reduction in net greenhouse gas emissions in the State than a target set in relation to any preceding date (including the 2030 target); and
- c) include an indicative interim target for the date that next follows the date in relation to which the interim target is being set.

An interim target must:

- a) in relation to the target to be achieved by 31 December 2035—be set on or before 31 December 2030; and
- b) in relation to the target to be achieved by 31 December 2040—be set on or before 31 December 2035; and
- c) in relation to the target to be achieved by 31 December 2045—be set on or before 31 December 2040.

6 Climate change sector agreements

This section reports on any sector agreements between the Minister and any other person or entity entered into under the Act during the reporting period (section 7 (2e)).

6.1 Climate change sector agreements

The *Climate Change and Greenhouse Emissions Reduction Act 2007* (SA) (the Act) provides for the government to enter into sector agreements with people, organisations, and industry or business groups to meet targets set under the Act to facilitate climate change mitigation or adaptation. Typically, the agreements commit the parties to collaborate and work in partnership to deliver the objectives of the agreement.

Active [climate change sector agreements](#) are published on the website of the Department for Environment and Water.⁹

Climate change sector agreements entered into during 2024-25

Two climate change sector agreements were entered into during this reporting period to support regional climate partnerships:

- [Resilient South](#)
- [Resilient Hills & Coasts](#).

Climate change sector agreements concluded during 2024-25

Two climate change sector agreements were concluded during this reporting period with the following regional climate partnerships:

- Northern and Yorke
- Resilient East.

The state government is engaging with relevant parties on exploring the renewal of these agreements.

⁹ <https://www.environment.sa.gov.au/topics/climate-change/government-action-on-climate-change/sector-agreements>

7 Offset programs and national emission trading scheme

This section reports on any emissions offset programs established or recognised under the Act during the reporting period, and on progress in establishing a national emissions trading scheme (section 7 (2g)).

There were no offset programs or national emissions trading scheme established or recognised under the Act during the reporting period.

The current Australian Government uses a 'portfolio of measures' to achieve net zero emissions, including carbon markets through the Safeguard Mechanism and the Australian Carbon Credit Unit (ACCU) Scheme, rather than a broad national emissions trading scheme.

8 Intergovernmental agreements

This section presents a report on any inter-governmental agreements relevant to climate change entered into by the South Australian Government during the reporting period (section 7 (2h)).

No new agreements were entered into during the reporting period.

9 International commitments

This section presents a report on any significant national or international commitments or agreements relevant to climate change made or entered into during the reporting period (section 7 (2i)).

9.1 New international commitments and agreements

State of California – Letter of Cooperation

On 15 May 2024, the Premier of South Australia signed a Letter of Cooperation with California alongside the Acting Governor of California. Both states have agreed to work together on:

- Developing world-leading clean renewable hydrogen projects for the production of green hydrogen and other low and zero carbon fuels.
- Advancing the clean energy transition and integration into their respective grids.
- Exchanging leading practices on regulations and standards-setting to support the development of a clean renewable hydrogen industry.
- Advancing large-scale renewable energy generation and storage.
- Supporting the decarbonisation and electrification of buildings, industry, and transportation.
- Supporting technologies to achieve better energy efficiency and demand management.
- Exchanging best practices on policies to support the uptake of zero emission vehicles.
- Exploring cooperation on strategies to further the transition of high emitting industries.
- Accelerating concrete actions across our similar Mediterranean climates to protect communities and adapt to current and future climate impacts.
- Nature-based solutions to improve ecological function and to help address climate change.
- Methane mitigation.
- Research and industry partnerships in low carbon technologies.
- Strengthening critical minerals supply chains.

Mediterranean Climate Action Partnership

In March 2024, South Australia joined the Mediterranean Climate Action Partnership (MCAP). Launched in November 2023 at COP28 in Dubai, MCAP is a global alliance of subnational governments with mediterranean climates, working together to adapt to the increasing climate threats of drought, wildfire, and heat. In Dubai, 14 inaugural members representing regions in Africa, Australia, Europe, and North and South America, including Victoria and New South Wales. South Australia joined as the 15th member, coinciding with the Letter of Cooperation with California, which has played an early leadership role in MCAP.

MCAP governance is member-led, comprising a Leadership Council. MCAP's focus is on sharing practices and learning from peer leaders facing similar climate risks, with an emphasis on three areas: drought, wildfire and extreme heat. Working groups, composed of technical experts from across the

global membership. Delegates from South Australia attended the first annual convening in Barcelona in May 2024 and the second annual convening in Cape Town in May 2025.

9.2 Existing international commitments

Net Zero Futures Policy Forum

Last reporting period, the South Australian Government joined the Net Zero Futures Policy Forum. The Forum is an international partnership of governments committed to addressing the practical challenges of achieving net zero emissions. The Forum is open to state/sub-regional governments at the forefront of global decarbonisation efforts including transition to net zero. It is facilitated and co-chaired by the New South Wales and Scotland governments and was previously supported by the Climate Group and Under2 Coalition. The South Australian Government is currently the Forum's Secretariat as of July 2025.

Under2 Coalition / Under2MOU

The Government of South Australia is an Under2 Coalition Steering Group Member.

The coalition is made up of more than 220 governments who represent over 1.3 billion people and 43 per cent of the global economy. Governments share expertise on innovative policy, report on measurable climate actions, and drive greenhouse gas emission reduction initiatives.

South Australia is a signatory to the Global Climate Leadership Memorandum of Understanding (the Under2 MOU) which aims for sub-national governments to reduce their greenhouse gas emissions towards net zero by 2050.

South Australia contributes to the Under2 Ambition Tracker, which is an annual survey to assist in tracking progress of net zero emissions.

States and Regions Compact

South Australia participates in the Climate Group States and Regions Alliance; Network of Regional Governments for Sustainable Development (nrg4SD); R20-Regions of Climate Action (R20); and the CDP (formerly the Carbon Disclosure Project).

South Australia contributes to the Annual Disclosure Report which provides a transparent, global picture of the impact, progress and climate action driven by state and regional governments.

RegionsAdapt

In 2015, South Australia joined RegionsAdapt, a forum to exchange experiences and best practices on adapting to climate change. Regional governments collaborate, exchange knowledge and share best practice on adaptation and resilience to climate change. The practices include: developing a sub-regional plan or strategy on adaptation; concrete actions; and reporting data on the progress of the adaptation annually through the States and Regions Compact reporting platform.

10 Impacts of climate change

This section presents information on any relevant rates, trends or impacts associated with climate change, with particular reference to any identified or assessed impacts of climate change on South Australia or any expected future impacts of climate change that have emerged or become increasingly relevant during the reporting period (section 7 (2j)).

10.1 Climate projections in South Australia

The [Guide to Climate Projections for Risk Assessment and Planning in South Australia 2022](#)¹⁰ provides a summary of the changes in climate that are projected to occur in South Australia over the coming 80 years. They use NARCLiM1.5 data at grid resolutions of 10 km and 50 km. Updated NARCLiM 2.0 projections are currently being processed to update South Australia's climate projections. NARCLiM 2.0 has higher resolution simulations and improved simulation of precipitation, temperature, and climate extremes. Following the processing of this data, it will replace NARCLiM 1.5 and be made available through the Department for Environment and Water's interactive online mapping tool so users can view projected changes for locations such as council areas, regional town and landscape regions. These updates will be made available in late 2025.

Based on the *Guide to Climate Projections for Risk Assessment and Planning in South Australia 2022*, projections for South Australia indicate that:

- maximum, minimum and average temperatures will increase
- the frequency of very hot days will continue to increase, and heatwaves will get longer and hotter
- warming conditions will reduce the frequency of frost events
- average annual rainfall will decline
- the amount of rain falling, and the frequency of extreme rainfall events will increase
- the time spent in drought will increase
- sea level will continue to rise
- sea surface temperatures will continue to rise, and acidity will continue to increase
- harsher fire weather will be experienced, and fuels will be drier and more ready to burn.

In 2023, the Department for Environment and Water launched a new online mapping tool that provides information on the likely future changes in South Australia's climate to help councils, regions, industry, and climate adaptation leaders to plan for our future.

The national Climate Change in Australia website is another source of information which provides three levels of regional detail in South Australia.

The Goyder Institute for Water Research has developed projections for individual weather stations across the state's natural resources management regions that extend to 2100, for 'intermediate' and

¹⁰<https://data.environment.sa.gov.au/Content/Publications/Guide%20to%20climate%20projections%20for%20risk%20assessment%20and%20planning%20in%20South%20Australia%202022.pdf>

'high' emissions pathways. This information can be accessed through the [Goyder Institute for Water Research website](#)¹¹ and the Government of [South Australia's Enviro Data SA website](#)¹².

10.2 Impacts of Climate Change in South Australia

South Australians are faced with challenges from climate change including sea level rise, reduced average rainfall, intensification of storm events, increasing sea temperatures, and more frequent and severe heatwaves, bushfires and droughts. These changes are impacting on agricultural production, public health, community wellbeing, natural landscapes and wildlife habitats including marine environments, and public and private infrastructure, particularly in coastal areas.

Further information on the condition of rainfall, temperatures and sea levels and other projected trends under a changing climate can be found in the Department for Environment and Water's [trend and condition report cards](#)¹³.

More information on work to understand impacts of climate change can be found in the [Climate Change Science and Knowledge Plan for South Australia 2022](#)¹⁴, which identifies work underway to inform climate change risk assessment, mitigation, planning and adaptation responses in South Australia.

¹¹ <https://goyderinstitute.org/project/development-of-an-agreed-set-of-climate-projections-for-south-australia/>

¹² <https://data.environment.sa.gov.au>

¹³ <https://www.environment.sa.gov.au/about-us/our-progress/state-report-cards>

¹⁴

<https://data.environment.sa.gov.au/Content/Publications/Climate%20change%20science%20and%20knowledge%20plan%20for%20South%20Australia%202022.pdf>

11 CSIRO report

Under Section 7(5) of the Act, a report from the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is required in every second Section 7 report.

A separate report prepared by the CSIRO for this Section 7 report is included as Appendix C (separate document).

Appendix A : Section 7 of the Climate Change and Greenhouse Emissions Reduction Act 2007 (SA)

7—Two-yearly reports

- (1) The Minister must, on a two-yearly basis, prepare a report on the operation of this Act.
- (2) The report must include—
 - (a) an assessment of the effectiveness of the initiatives that are being adopted in order to achieve the SA target; and
 - (b) a report on any determination or target made or set under section 5 during the reporting period; and
 - (c) an assessment of the progress being made to achieve the targets set by or under section 5; and
 - (e) a report on any sector agreement between the Minister and any other person or entity entered into under this Act during the reporting period; and
 - (f) a summary of—
 - (i) the levels of greenhouse gas emissions, and of the use of renewable and non-renewable electricity sources, within the State (as determined or estimated at the time of reporting); and
 - (ii) the development of technologies to reduce greenhouse gas emissions or to remove greenhouse gases from the atmosphere; and
 - (g) a report on any emissions offset programs established or recognised under this Act during the reporting period, and on progress in establishing a national emissions trading scheme; and
 - (h) a report on any inter-governmental agreements relevant to climate change entered into by the South Australian Government during the reporting period; and
 - (i) a report on any significant national or international commitments or agreements relevant to climate change made or entered into during the reporting periods; and
 - (j) information on any relevant rates, trends or impacts associated with climate change, with particular reference to any identified or assessed impacts of climate change on South Australia or any expected future impacts of climate change that have emerged or become increasingly relevant during the reporting period.
- (2a) For the purposes of subsection (2)(f)(i), information on the levels of greenhouse gas emissions must include—
 - (a) the level of net greenhouse gas emissions within the State; and
 - (b) the total amount of greenhouse gas emissions attributable to the State, without taking account of any removals of greenhouse gas emissions from the atmosphere due to activities within the State, or any emissions offsets from outside the State.
- (2b) For the purposes of a report under this section, without limiting the manner in which levels of greenhouse gas emissions or renewable electricity generation or use may be expressed, the report must, in providing information in relation to those matters, where relevant, express the information using an appropriate unit of measurement (and not just express the relevant information by reference to a percentage).
- (3) The Minister must cause a copy of the report to be laid before both Houses of Parliament within 6 sitting days after the report is prepared.
- (4) The first report under this section must be completed and tabled in Parliament by the end of 2009.
- (5) The first report under this section, and thereafter every alternate report, must incorporate a report from—
 - (a) the CSIRO; or
 - (b) if the CSIRO is unwilling or unable to provide a report—an independent entity designated by the Minister by notice in the Gazette,

that assesses the extent to which any determination or target made or set under section 5 is being achieved and, if it appears relevant, should be revised.
- (6) In this section—

CSIRO means the Commonwealth Scientific and Industrial Research Organisation.

Appendix B : Review of greenhouse gas emissions sources by sector

This Appendix presents the 2022-23 South Australian greenhouse gas inventory by sector. It presents the 2004-05 to 2022-23 inventory, the changes during this period, and graphics, data and summary statistics for each of the sectoral categories.

B.1 All greenhouse gas emissions

The South Australian inventory from 2004-05 to 2022-23 is presented in Figure 4, by sectoral source, including:

- energy sector (including energy industries; manufacturing industries and construction; transport; fugitive emissions from fuels; and other energy sectors)
- industrial processes sector
- agriculture sector
- waste sector
- land use, land use change and forestry (LULUCF) sector which is a net calculation of both greenhouse gas emissions sources and sinks.

The black line in Figure 4 shows total net greenhouse gas emissions.

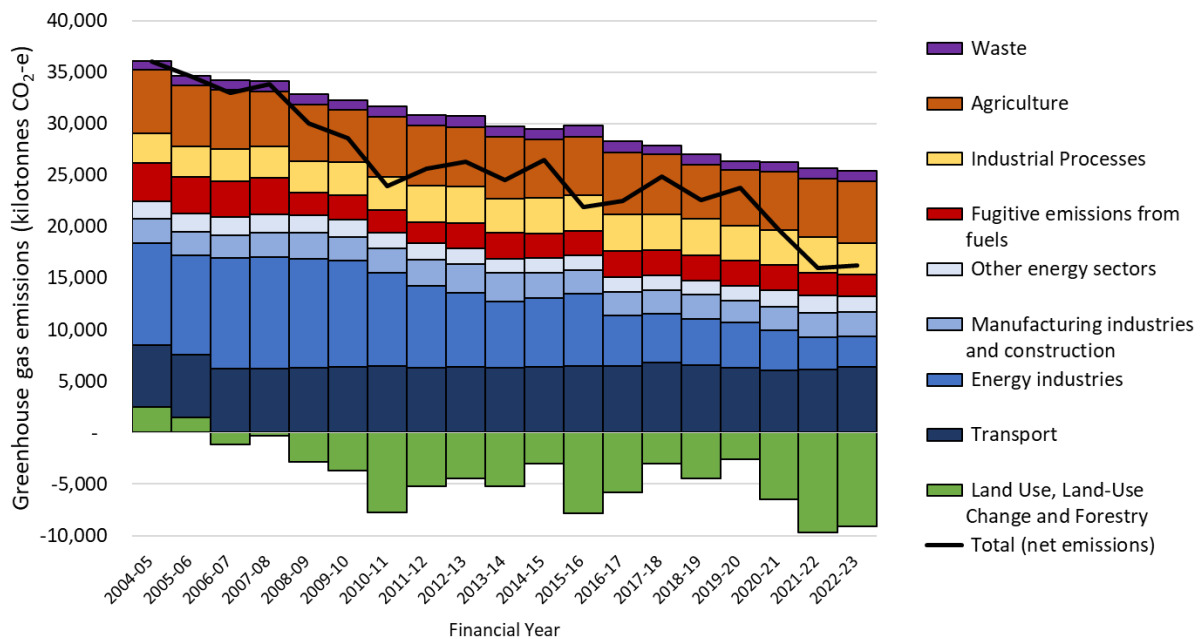


Figure 3: South Australian greenhouse gas inventory by greenhouse gas emissions source from 2004-05 to 2022-23¹⁵

¹⁵ <https://www.greenhouseaccounts.climatechange.gov.au/>

Table 3: South Australian greenhouse gas inventory by sectors, per cent change in greenhouse gas emissions from 2004-05 base year to 2022-23¹⁶

Source of greenhouse gas emissions	Greenhouse gas emissions (kilotonnes CO ₂ -e)		% Change to 2022-23
	2004-05	2022-23	2004-05 to 2022-23
Energy	23,694	15,352	-35%
Industrial processes	2,904	3,074	6%
Agriculture	6,180	5,998	-3%
Waste	840	944	12%
LULUCF (net)	2,444	-9,111	-473%
Net greenhouse gas emissions	36,063	16,257	-55%

Note: Totals may not sum due to rounding

The following sections in this appendix provide detailed graphics, data and summary statistics about each of the categories. All data is sourced from the South Australian Greenhouse Gas Inventory 2023¹⁷.

B.2 Energy sector

Energy sector greenhouse gas emissions are presented in Figure 5 and Figure 6 and are broken down into the following components:

- Energy industries – the combustion of fuel in electricity generation, petroleum refining, gas production and solid fuel manufacture.
- Transport – road transportation (passenger cars, trucks, and buses), domestic aviation, domestic navigation and pipeline transport.
- Manufacturing industries and construction – direct greenhouse gas emissions from fuel combustion in manufacturing industries, ferrous and non-ferrous metals production, plastics production, construction and non-energy mining.
- Other energy sectors – direct fuel combustion in the residential, commercial and institutional sectors, including energy used in mobile equipment in agriculture, forestry, fishing and military sectors.
- Fugitive emissions from fuels – greenhouse gas emissions other than energy use including in mining activities and oil and gas sector operations (including venting, flaring, exploration, extraction, production, processing and transmission).

¹⁶ <https://www.greenhouseaccounts.climatechange.gov.au/>

¹⁷ <https://www.greenhouseaccounts.climatechange.gov.au/>

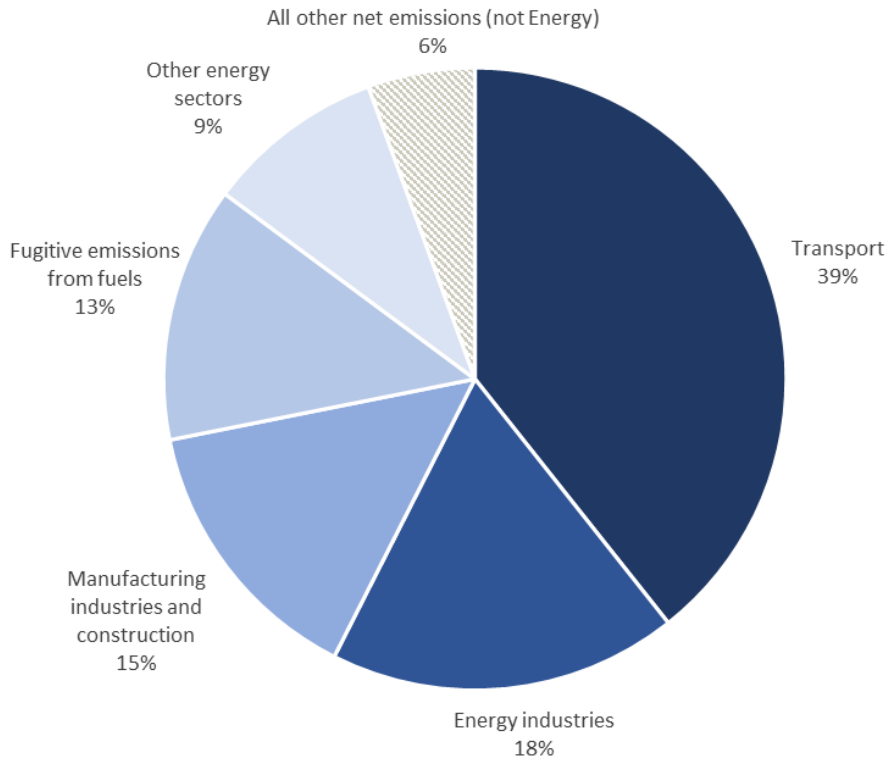


Figure 4: South Australian energy sector greenhouse gas emissions relative to all other net emissions, 2022-23

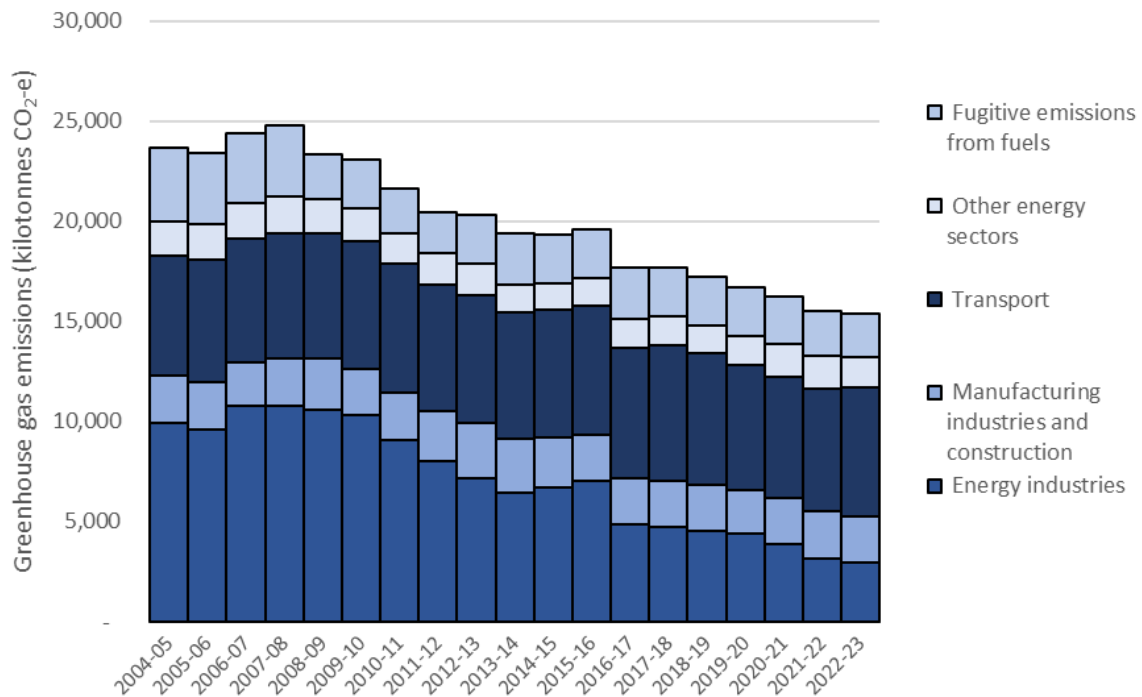


Figure 5: South Australian energy sector greenhouse gas emissions in kilotonnes CO₂-e by source of emissions, 2004-05 to 2022-23

Table 4: South Australian energy sector greenhouse gas emissions by source of emissions, per cent change from 2004-05 base year to 2022-23

Source of greenhouse gas emissions	Greenhouse gas emissions (kilotonnes CO ₂ -e)		% Change to 2022-23
	2004-05	2022-23	2004-05 to 2022-23
Energy industries	9,940	2,948	-70%
Manufacturing industries and construction	2,326	2,340	1%
Transport	6,013	6,394	6%
Other energy sectors	1,720	1,510	-12%
Fugitive emissions from fuel	3,695	2,160	-42%
Energy sector	23,694	15,352	-35%

B.3 Agriculture sector

Agriculture sector greenhouse gas emissions are presented in Figure 7 and Figure 8, broken down into the following components:

- Enteric fermentation – greenhouse gas emissions associated with microbial fermentation during digestion of feed by ruminant (mostly cattle and sheep) and some non-ruminant domestic livestock.
- Manure management – greenhouse gas emissions are produced from the decomposition of the organic matter remaining in manure under anaerobic conditions. These conditions occur when large numbers of animals are managed in a confined area where manure is typically stored in large piles or lagoons.
- Agricultural soils – greenhouse gas emissions associated with the application of fertilisers, crop residues and animal wastes to agricultural lands and the use of biological nitrogen fixing crops and pastures.
- Remaining emissions from agriculture – greenhouse gas emissions from Field burning of agricultural residues, Liming (emissions associated with the use of limestone and dolomite) and Urea application (emissions associated with adding urea to soils for fertilisation).

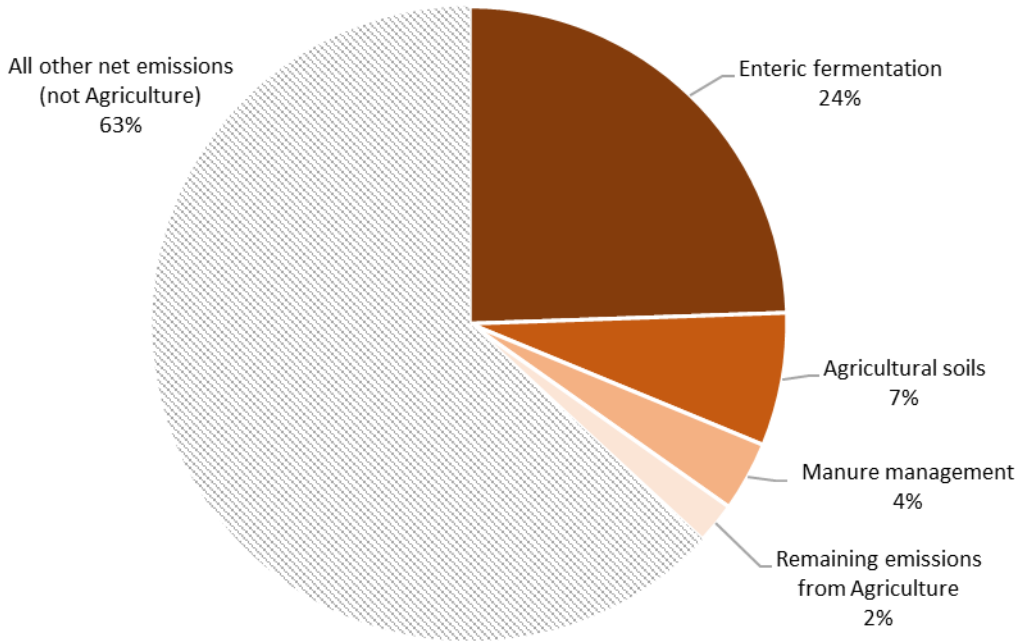


Figure 6: South Australian agriculture sector greenhouse gas emissions relative to all other net emissions, 2022-23

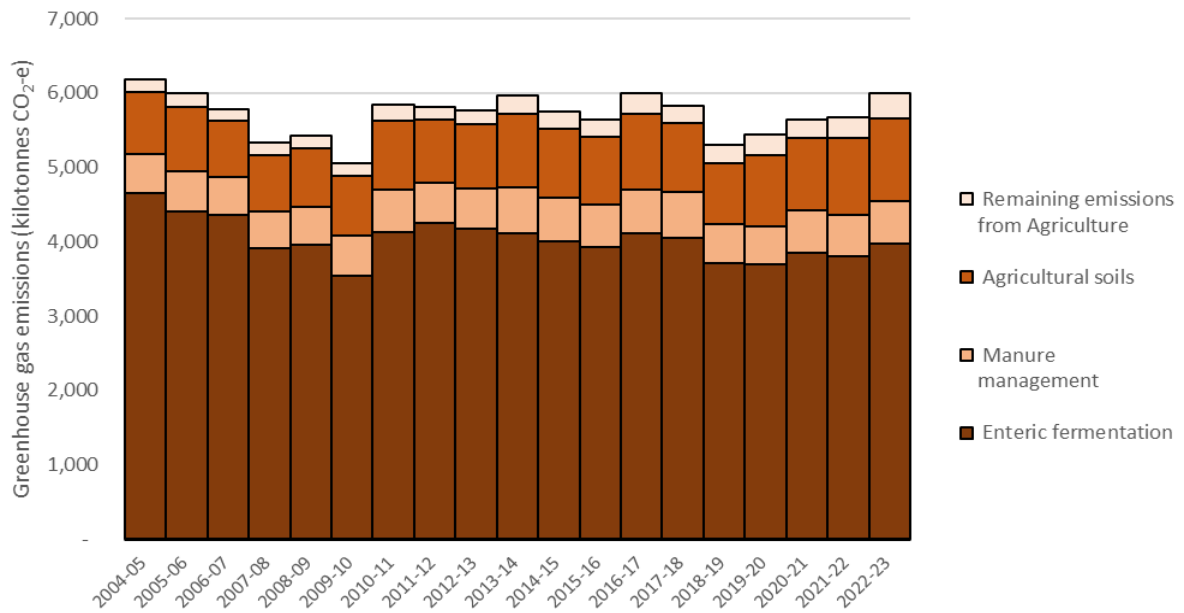


Figure 7: South Australian agriculture sector greenhouse gas emissions in kilotonnes CO₂-e by source of emissions, 2004-05 to 2022-23

Table 5: South Australian agriculture sector greenhouse gas emissions by source of emissions, per cent change from 2004-05 base year to 2022-23

Source of greenhouse gas emissions	Greenhouse gas emissions (kilotonnes CO ₂ -e)		% Change to 2022-23
	2004-05	2022-23	2004-05 to 2022-23
Enteric fermentation	4,661	3,975	-15%
Manure management	513	578	13%
Agricultural soils	840	1,104	32%
Remaining emissions from agriculture:	168	340	102%
Field burning of agricultural residues	42	59	43%
Liming	50	40	-20%
Urea application	76	240	218%
Agriculture sector	6,180	5,998	-3%

B.4 Industrial processes sector

Greenhouse gas emissions from industrial processes sector are presented in Figure 9 and Figure 10 and are broken down into the following components:

- Mineral industry – carbon dioxide (CO₂) from cement clinker and lime production, the use of limestone, dolomite and other carbonates in industrial smelting and other processes, soda ash production and use and magnesia production.
- Product uses as ODS (ozone depleting substances) substitutes – This sub-sector comprises emissions of synthetic gases from the use of hydrofluorocarbons (HFCs) in refrigeration and air conditioning, foam blowing, fire extinguishers, aerosols/metered dose inhalers and solvents.
- Emissions from chemical and metals industry (confidential data). Key categories in the Australian metals sector are iron and steel and aluminium production. Key categories for Australia in the chemicals sector are CO₂ from ammonia production, N₂O from nitric acid production, and HFCs from fluorochemical production. Emissions estimates are not disclosed for these sources due to confidentiality provisions and cannot be confirmed to apply to South Australia.
- Remaining emissions from industrial processes:
 - Non-energy products from fuels and solvent use - CO₂ emissions arising from the oxidation of lubricants, as well as emissions from solvent use, road paving and other activities.
 - Other product manufacture and use - emissions from the consumption of SF₆ in use in electricity supply and distribution and miscellaneous uses including eye surgery, tracer gas studies, magnesium casting, plumbing services, tyre manufacture and industrial machinery equipment. Emissions of N₂O from aerosol products and anaesthesia are estimated but are confidential and are included in the Nitric acid production emissions.
 - Other industrial processes – CO₂ from the consumption of CO₂ in the food and beverage industry, and the use of sodium bicarbonate.

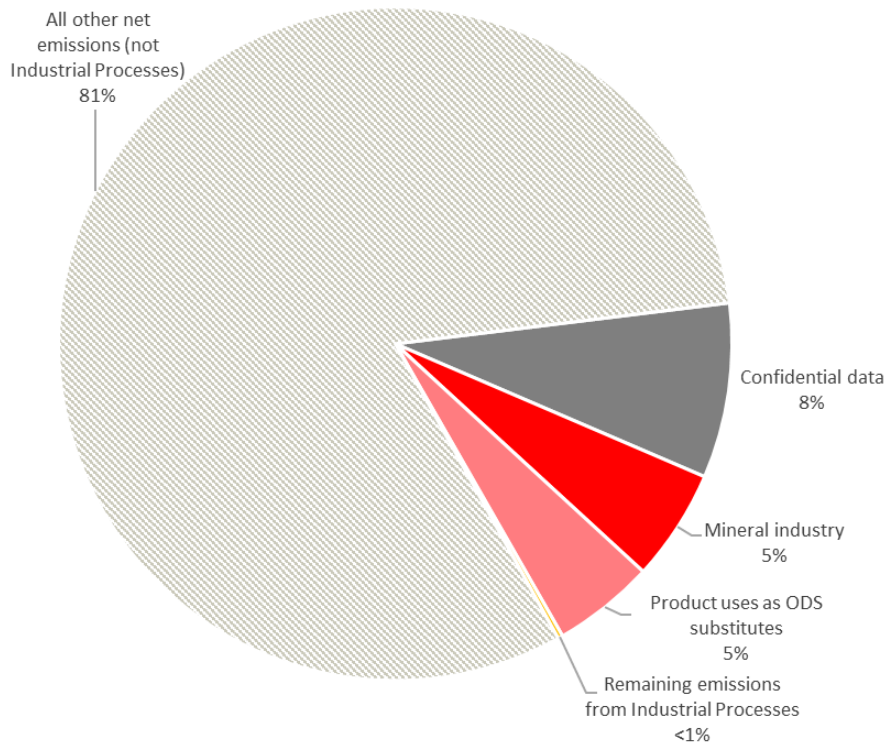


Figure 8: South Australian industrial processes sector greenhouse gas emissions relative to all other net emissions, 2022-23

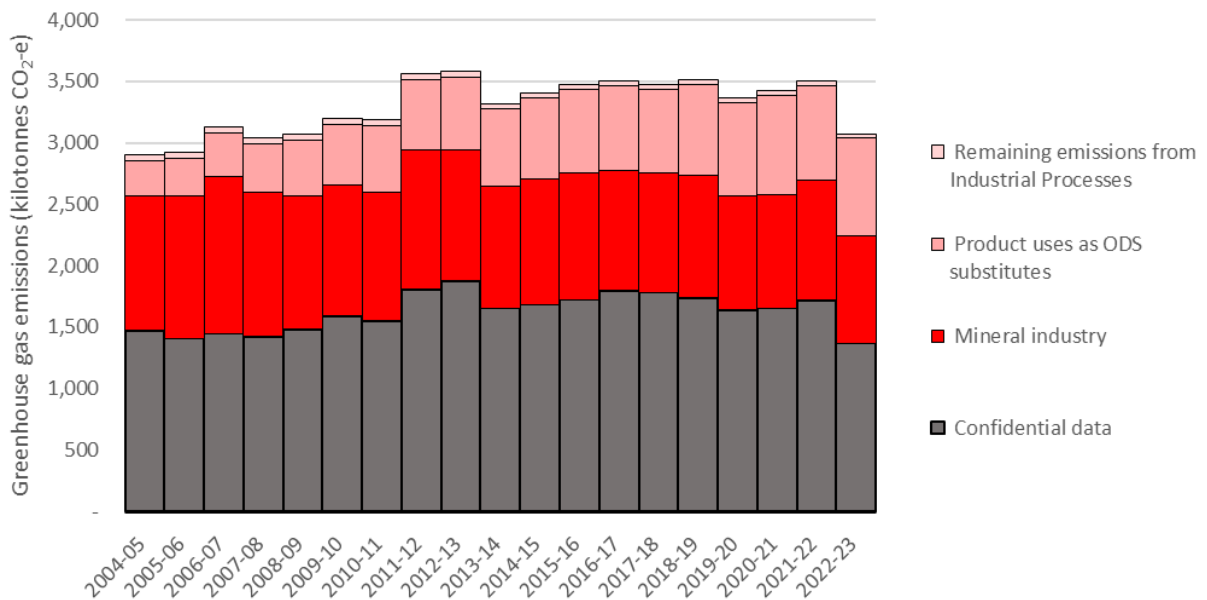


Figure 9: South Australian industrial processes sector greenhouse gas emissions in kilotonnes CO₂-e by source of emissions, 2004-05 to 2022-23

Table 6: South Australian industrial processes sector greenhouse gas emissions by source of emissions, per cent change from 2004-05 base year to 2022-23

Source of greenhouse gas emissions	Greenhouse gas emissions (kilotonnes CO ₂ -e)		% Change to 2022-23
	2004-05	2022-23	2004-05 to 2022-23
Mineral industry	1,099	872	-21%
Chemical Industry	C	C	NA
Metals industry	C	C	NA
Product uses as ODS substitutes	281	796	183%
Remaining emissions from industrial processes:	51	38	-25%
Non-energy products from fuels and solvent use	17	16	-2%
Other product manufacture and use	15	10	-33%
Other industrial processes	19	12	-37%
Industrial processes sector	2,904	3,074	6%

Notes: NA not applicable; C refers to greenhouse gas emissions estimates not available due to confidentiality provisions.

B.5 Land Use, Land Use Change and Forestry (LULUCF) sector

Greenhouse gas emission sources and sinks from the land use, land use change and forestry (LULUCF) sector are presented in Figure 11 including each of the subcategories separated by sources and sinks. The principal drivers of change in carbon fluxes across the landscape relate to losses and gains of woody vegetation. *Land converted to forest land* and *harvested wood products* are always sinks while *land converted to cropland* and *grassland* are always sources (deforestation). However, all of the remaining categories can have both sources and sinks contributing to any one year. For example, *forest land remaining forest land* was primarily a sink until 2005, only featuring as a source in 1998 and 2000, however since then it has been both a source and a sink.

The LULUCF subcategories are as follows:

- Forest land includes all lands with a tree height of at least 2 metres and crown canopy cover of 20% or more, and lands with systems with a woody biomass vegetation structure that currently falls below but which, in situ, could reach the threshold values of the definition of forest land. Forest land remaining forest land includes plantations, harvested native forests and other native forests (regeneration after harvest). Emissions from fuelwood consumption and biomass burning in forests (controlled burning and wildfire) are also included as well as the removals associated with post-fire recovery. Land converted to forest land includes grassland, croplands, settlements and wetlands (tidal marsh) on which forest is identified to emerge. These changes include plantations and forest regrowth on land previously cleared for other uses, environmental plantings and the regeneration of forest from natural seed sources. Permanent losses of woody vegetation that have been classed as forest land are reported under forest conversion to other land use classifications.
- Cropland includes all land that is used for continuous cropping and those lands managed as crop-pasture (grassland) rotations. Non-CO₂ emissions from cropland remaining cropland are reported in the Agriculture sector. This sector comprises greenhouse gas emissions and removals from cropland remaining cropland and forest land converted to cropland and

wetlands converted to cropland. Since 1990, there has been no significant consistent trend in emissions, with transient variations driven by fluctuations in climatic conditions and shifts in management practices.

- The grassland category represents a diverse range of climate, management and vegetation cover. It also includes increases and decreases in sub-forest forms of woody vegetation (shrubs). This sector comprises greenhouse gas emissions and removals from grassland remaining grassland and forest land and wetlands converted to grassland. Changes in carbon stocks in grassland remaining grassland are largely affected by changes in land management practice and climatic factors.
- For the sub-sectors forest land converted to cropland and forest land converted to grassland, the total greenhouse gas emissions associated with the transition from forest to non-forest land use include the immediate loss of carbon as trees are cleared and burned, as well as an ongoing loss of soil carbon as it decays to a new equilibrium stock level and other ongoing emissions and removals associated with the new land use.
- Settlements are areas of residential and industrial infrastructure, including cities and towns, and transport networks. This sector comprises greenhouse gas emissions and removals from settlements remaining settlements and forest land and wetlands converted to settlements. The land converted to settlements subcategory comprises mangrove and other forest land converted to settlements and wetlands (tidal marsh) converted to settlements. Conversion of tidal marsh is assumed to occur along with any clearing of mangroves for settlements – as such the trends are identical. The key drivers of variation over the time period have been urbanisation and population growth.
- Wetlands include areas of perennial lakes, reservoirs, swamps and major water course areas. Land areas that meet the definition of forest land, such as mangroves, are reported under the forest land category. Wetlands remaining wetlands include tidal marshes and seagrass meadows. Estimates include net changes in sparse vegetation, loss of seagrass beds due to capital dredging and nitrous oxide emissions from aquaculture operations.

The subcategories *wetland remaining wetland*, *land converted to wetland* and *settlements remaining settlements* have been omitted from Figure 11 due to insignificant contributions from 2004-05 to 2022-23.

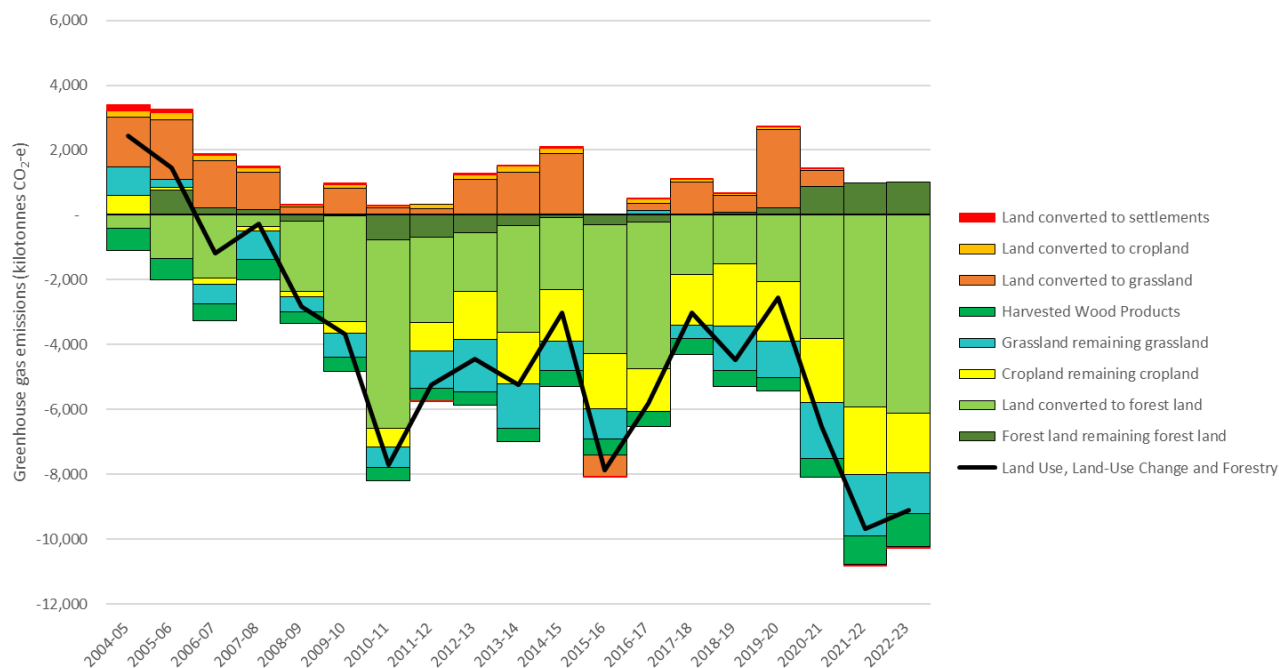


Figure 10: South Australian land use, land use change and forestry sector greenhouse gas emissions in kilotonnes CO₂-e, by sources and sinks from 2004-05 to 2022-23

Table 7: South Australian land use, land use change and forestry sector greenhouse gas emissions by sources and sinks, per cent change from 2004-05 base year to 2022-23

Source of greenhouse gas emissions	Greenhouse gas emissions (kilotonnes CO ₂ -e)		% Change to 2022-23
	2004-05	2022-23	2004-05 to 2022-23
LULUCF sources	3,540	1,168	67%
LULUCF sinks	-1,097	-10,279	-837%
Net LULUCF	2,444	-9,111	-473%

Notes: Totals may not sum due to rounding

B.6 Waste sector

Waste sector greenhouse gas emissions are presented in Figure 12 and Figure 13, and are broken down into the following components:

- Solid waste disposal – emissions resulting from anaerobic decomposition of organic matter in landfills.
- Waste water treatment and discharge – emissions resulting from anaerobic decomposition of organic matter in sewerage facilities (including on-site systems such as septic tanks) during treatment and disposal of wastewater.
- Biological treatment of solid waste - the anaerobic decomposition of organic material in composting and anaerobic digester facilities.
- Incineration and open burning of waste (confidential data) – emissions resulting from incineration of solvents and clinical waste.
- Other waste (confidential data)

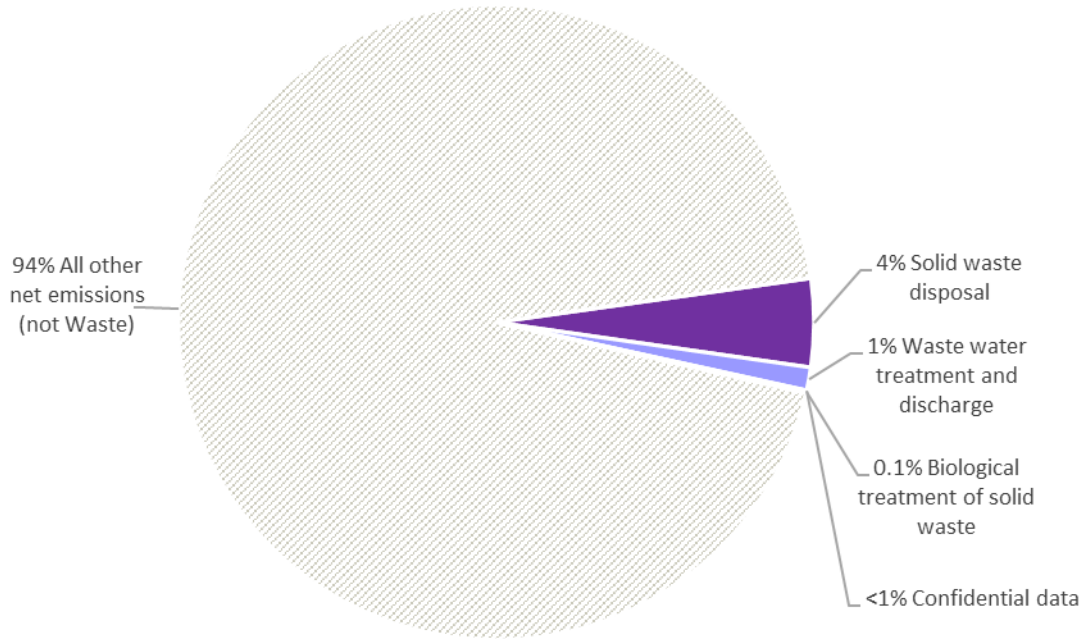


Figure 11: South Australian waste sector greenhouse gas emissions relative to all other net emissions, 2022-23

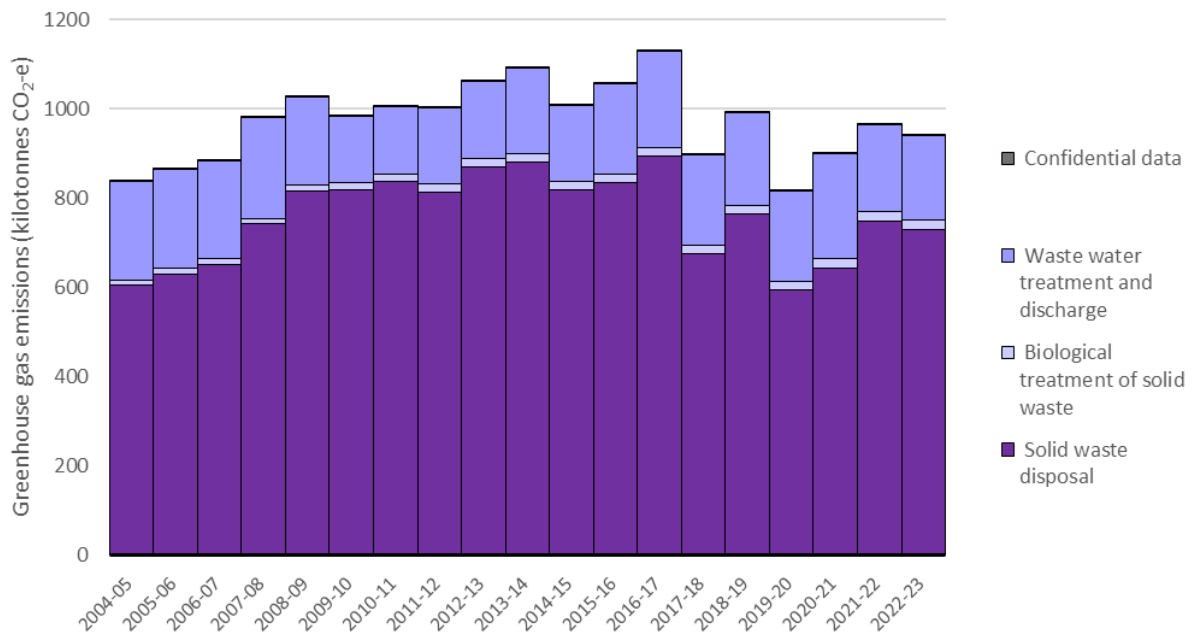


Figure 12: South Australian waste sector greenhouse gas emissions in kilotonnes CO₂-e by source of emissions, 2004-05 to 2022-23

Table 8: South Australian waste sector greenhouse gas emissions by source of emissions, per cent change from 2004-05 base year to 2022-23

Source of greenhouse gas emissions	Greenhouse gas emissions (kilotonnes CO ₂ -e)		% Change to 2022-23
	2004-05	2022-23	2004-05 to 2022-23
Solid waste disposal	604	730	21%
Wastewater treatment and discharge	223	190	-15%
Biological treatment of solid waste	11	20	85%
Incineration and open burning of waste	C	C	NA
Other waste	C	C	NA
Waste sector	840	944	12%

Notes: NA is 'not applicable'; C refers to greenhouse gas emissions estimates not available due to confidentiality provisions.

Appendix C : CSIRO Review of Progress to Achieving Targets Under Section 7 of the Climate Change and Greenhouse Emissions Reduction Act 2007

(See separate document)

Appendix D : Technical notes

A review of the progress towards the greenhouse gas emissions target includes technical issues such as those related to methods and data sources. The technical points that influenced the interpretation and comparability of the estimates of progress are outlined below.

- This is the ninth section 7 report on the operation of the Act. The first was prepared in 2009.
- The Australian Government produces all states' and territories' greenhouse gas inventories and publishes them with a two year delay.
- States' and territories' greenhouse gas inventories are developed by the Australian Government in accordance with international guidelines and protocols. The estimates are derived from multiple data sources most of which are collected for other purposes, such as agriculture surveys. Data is collected specifically for greenhouse gas monitoring from Australia's large emitters, excluding governments, under the *National Greenhouse and Energy Reporting Act 2007*.
- The Australian Government regularly revises inventory greenhouse gas emission factors and methodologies when new information or more accurate methodologies become available. Under the United Nations Framework Convention on Climate Change rules, the government is required to revise figures back to 1990 to ensure time series consistency. The estimates in the current South Australian inventory supersede all previously published estimates. These revisions can lead to changes in annual greenhouse gas emissions reduction due to methodology change. Consequently, the greenhouse gas emissions presented in this report are not comparable to those published in previous section 7 reports.
- The Department for Energy and Mining (DEM) calculates progress towards the renewable electricity generation target based on the amount of renewable electricity generated in South Australia as a proportion of total electricity generated in South Australia plus net electricity imports from other states. DEM uses adjusted data from the Australian Energy Market Operator (AEMO) South Australian Electricity Report (SAER) to calculate renewable energy generation from wind, solar, and small non-scheduled renewable generation. The renewable component of the small non-scheduled generation figure is not published by AEMO in the SAER.