AUSTRALIA

Climate Transparency

CLIMATE TRANSPARENCY REPORT **COMPARING G20 CLIMATE ACTION AND RESPONSES TO THE COVID-19 CRISIS** 2020

This country profile is part of the **Climate Transparency Report 2020**. Find the full report and other G20 country profiles at: www.climate-transparency.org

PER CAPITA GREENHOUSE GAS (GHG) EMISSIONS ABOVE G20 AVERAGE

Australia's emissions per capita are nearly three times higher than the G20 average. Total emissions have increased by 2.6% since 2012.

Data for 2017. Sources: UN Department of Economic Social and Affairs Population Division, 2020; Gütschow et al., 2019

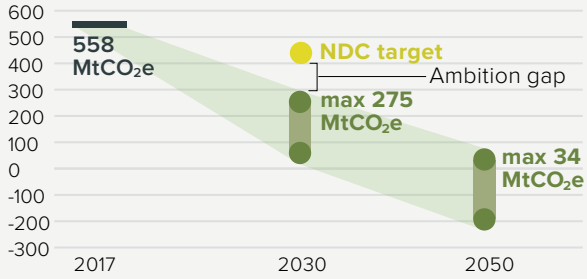
GHG emissions (incl. land use) per capita (tCO_2e/capita)[1]

NOT ON TRACK FOR A 1.5°C WORLD

1.5°C

Australia's 'fair-share' range is below 275 $MtCO_2e$ by 2030 and below 34 $MtCO_2e$ by 2050 (excl. land use) to be compatible with the Paris Agreement 1.5°C limit. Australia's 2030 national emissions reduction target is to reduce emissions 26 to 28% below 2005 by 2030 (incl. land use). Australia is not on track to achieve this insufficient target.

Australia's 1.5°C 'fair-share' pathway ($MtCO_2e$/year)[1&2]



Source: Climate Action Tracker, 2020a

KEY OPPORTUNITIES FOR ENHANCING CLIMATE AMBITION

ADOPT A NET-ZERO TARGET

Australia lacks sectoral mitigation policies and emissions are rising in the industry and transport sectors. It could enhance its NDC target and adopt a net-zero emissions target with sectoral strategies and policies, as part of its Long-Term Strategy.

STOP FOSSIL FUEL EXTRACTION

Emissions from fossil fuel extraction and export are increasing, with no plan to stop. With vast renewable energy potential, well-developed infrastructure and advanced skills, Australia should be positioning itself to export renewable energy carriers and zero emissions products instead.

MOVE TO RENEWABLE ENERGY

Renewable energy is the cheapest generation source, but investment is declining due to lack of policy direction: the 2020 target was met in 2019, but no post-2020 target is planned. Australia should transition to 100% renewable electricity generation in the 2030s and phase out coal by 2030 as part of a green recovery.

Sources: Climate Action Tracker, 2020a; 2020b; CER, 2019; Clean Energy Council, 2020a, 2020c; Australian Climate Roundtable, 2020

RECENT DEVELOPMENTS

Australia's so-called "technology-neutral" approach continues to support the fossil fuel industry over a transition to renewable energy. The "First Low Emissions Technology Statement" reflects the government's pro-gas and carbon capture and storage position, without excluding coal. The National Hydrogen strategy also follows a technology-neutral approach and risks propping up the fossil fuel industry.

The government plans to change the remit of the Clean Energy Finance Corporation (CESP) to allow it to invest in gas-fired power generation, in a move towards a gas-led COVID-19 recovery, selecting fossil fuel stakeholders for advice on climate policy and on COVID-19 recovery.

The government has excluded ratcheting up its NDC target and adopting a long-term net-zero greenhouse gas emissions target, despite all states and mainland territories having adopted net-zero targets for 2050 or earlier, with broad support from a wide range of stakeholders.

Sources: Australian Government, 2020b, 2020a, 2020d; Climate Action Tracker, 2020a; COAG Energy Council, 2019a; Mazengarb, 2019; Morton and Murphy, 2019; Australian Climate Roundtable, 2020.

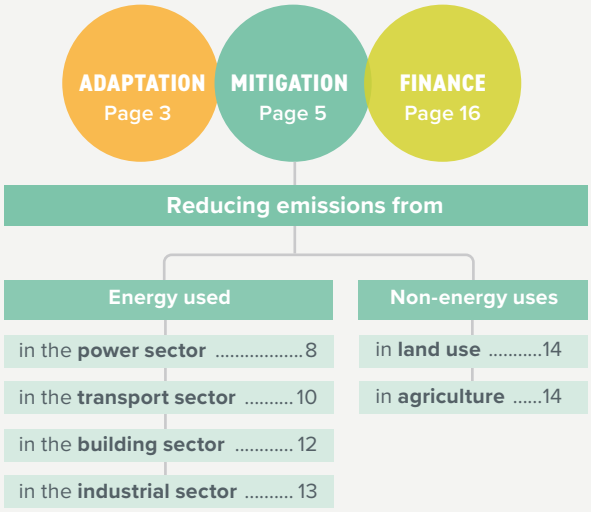
CORONAVIRUS RECOVERY

Instead of initiating a "green" recovery, the government is adopting a gas-led recovery, locking in a fossil-fuel-based trajectory. Its national COVID-19 Commission Advisory Board is led by a fossil fuel and mining CEO who has ruled out "a green recovery per se". It recommends underwriting a gas pipeline, increasing domestic gas supply, and subsidies for gas-fired power generation. The Prime Minister supports this gas sector expansion, ignoring research showing the socio-economic benefits of a green recovery.

Sources: Climate Council, 2020; Crowe, 2020; Karp, 2020; Murphy, 2020

CONTENTS

We unpack Australia's progress and highlight key opportunities to enhance climate action across:



LEGEND

Trends show developments over the past five years for which data are available. The thumbs indicate assessment from a climate protection perspective.

Decarbonisation Ratings[4] assess a country's performance compared to other G20 countries. A high score reflects a relatively good effort from a climate protection perspective but is not necessarily 1.5°C compatible.

Policy Ratings[5] evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.

SOCIO-ECONOMIC CONTEXT

Human Development Index

The Human Development Index reflects life expectancy, level of education, and per capita income. Australia ranks very high.

Data for 2018. Source: UNDP, 2019

Gross Domestic Product (GDP) per capita

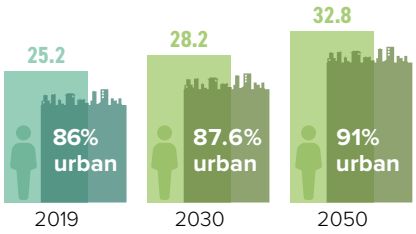
(PPP constant 2015 international $)

Data for 2019. Source: The World Bank, 2020

Population and urbanisation projections

(in millions)

Australia's population is expected to increase by about 30% by 2050, and become more urbanised.



Sources: The World Bank, 2019; United Nations, 2018

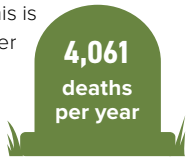
Death rate attributable to air pollution

Ambient air pollution attributable death rate per 1,000 population per year, age standardised

0.1 AUSTRALIA

0.1–1.1 G20 RANGE

Over 4,061 people die in Australia every year as a result of outdoor air pollution, due to stroke, heart disease, lung cancer and chronic respiratory diseases. Compared to total population, this is still one of the lower levels in the G20



Data for 2016. Source: WHO, 2018

JUST TRANSITION

FOSSIL FUEL INTENSIVE

Australia's energy system is fossil-fuel-intensive: its economy relies heavily on fossil fuel exports and is the largest exporter of coal and gas (LNG).

Some states have instigated just transition initiatives for rural regions with job losses from retiring coal-fired power plants, such as the Latrobe Valley Worker Transfer Scheme in Victoria and the Collie Delivery Unit in Western Australia. Australia needs a coherent national just transition strategy in coordination with a green economic recovery to accelerate a transition to renewable energy and regional employment opportunities. It also needs national plans to phase out coal-fired power by 2030, and transition away from fossil fuel exports by 2050.

Its abundant renewables potential presents unique opportunities for zero emissions energy exports via green hydrogen or electricity, and high energy intensive products, which could be developed in coal-dependent regions.

References: Climate Action Tracker, 2020b; WA Government, 2020

1. ADAPTATION
ADDRESSING AND REDUCING VULNERABILITY TO CLIMATE CHANGE

PARIS AGREEMENT **Increase the ability to adapt to the adverse effects of climate change and foster climate resilience and low-GHG development.**

VULNERABLE TO CLIMATE CHANGE

Australia's natural environment, society, and economy are exposed to severe impacts including sea-level rise and extreme weather events such as drought, heat waves, and bushfires which are becoming more intense and frequent, affecting ecosystems, health, human productivity, agriculture, nature-based tourism, coastal infrastructure, and financial stability.

EXTREME BUSH FIRES

The **unprecedented bushfires** in 2019/20 that burned 7.4 million hectares of forest by February 2020 and the **recurring major bleaching events of the Great Barrier Reef** highlight the country's vulnerability.

COST OF EXTREME WEATHER

On average, 46 fatalities and almost USD 2.4bn losses occur annually due to extreme weather events.

Sources: Hare et al., 2019; Australian Government, 2020c

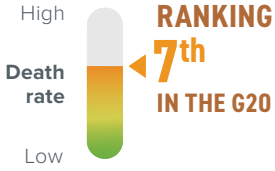
ADAPTATION NEEDS

Climate Risk Index

Impacts of extreme weather events in terms of fatalities and economic losses that occured. All numbers are averages (1999-2018).

Annual weather-related fatalities

0.21 PER 100,000 INHABITANTS



RANKING 7th IN THE G20

Source: Based on Germanwatch, 2019

Annual average losses (USD mn PPP)

0.25 PER UNIT GDP (%)

RANKING 4th IN THE G20

Source: Based on Germanwatch, 2019

Exposure to future impacts at 1.5°C, 2°C and 3°C

Impact ranking scale:

Very low · Low · Medium · High · Very high

		1.5°C	2°C	3°C
WATER	% of area with increase in water scarcity	!	!	!
	% of time in drought conditions	!	!	!
HEAT AND HEALTH	Heatwave frequency	!	!	!
	Days above 35°C	!	!	!
AGRICULTURE – Wheat	Reduction in crop duration	!	!	!
	Hot spell frequency	!	!	!
	Reduction in rainfall	!	!	!

Source: Water, Heat and Health: CA research. Agriculture: Arnell et al., 2019

Note: These indicators are national scale results, weighted by area and based on global data sets. They are designed to allow comparison between regions and countries and therefore entail simplifications. They do not reflect local impacts within the country. Please see technical note for further information.

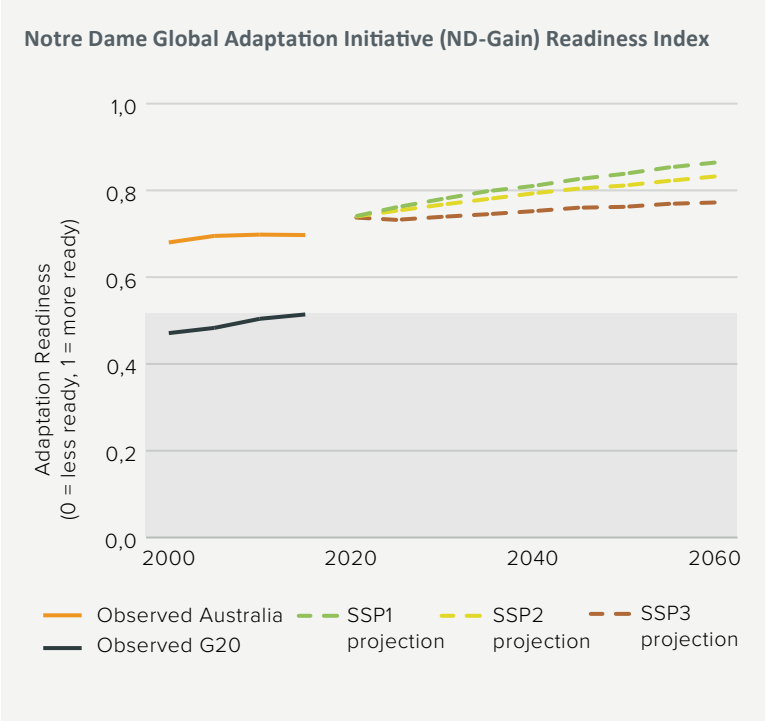
CORONAVIRUS RECOVERY

Economic recovery efforts are not geared towards a "green" recovery in Australia. The national COVID-19 Commission Advisory Board has recommended government support for a gas-led recovery, not climate change resilience. COVID-19 was the second 2020 national crisis to hit Australia after the bushfires, and has slowed bushfire recovery efforts. Economic recovery funds must be directed towards building climate resilience. Australia does not have an overall up-to-date assessment of impacts and risks.

References: Carter, 2020; Australian Climate Roundtable, 2020

Adaptation readiness

The figure shows 2000-2015 observed data from the ND-GAIN Index overlaid with projected Shared Socioeconomic Pathways (SSPs) from 2015-2060.



Australia scored well above the G20 average in 2015 in terms of adaptation readiness owing to strong scores in governance and economic readiness. Adaptation challenges still exist – as evidenced by the sweeping bushfires of 2019/2020 – but the country is well positioned to adapt if it puts in place measures compatible with SSP1, and SSP2 (initially). Less stringent measures, as represented by SSP3, do not strengthen its ability to adapt in the period to 2060.

The readiness component of the Index created by the Notre Dame Global Adaptation Initiative (ND-GAIN) encompasses social economic and governance indicators to assess a country's readiness to deploy private and public investments in aid of adaptation. The index ranges from 0 (low readiness) to 1 (high readiness).

The overlaid SSPs are qualitative and quantitative representations of a range of possible futures. The three scenarios shown here in dotted lines are qualitatively described as a sustainable development-compatible scenario (SSP1), a middle-of-the-road (SSP2) and a 'Regional Rivalry' (SSP3) scenario. The shaded area delineates the G20 average in 2015 for easy reference.

Source: Andrijevic et al., 2019

ADAPTATION POLICIES

National Adaptation Strategies

Document name	Publication year	Fields of action (sectors)												M&E process
		Agriculture	Biodiversity	Coastal areas and fishing	Education and research	Energy and industry	Finance and insurance	Forestry	Health	Infrastructure	Tourism	Transport	Urbanism	Water	
National Climate Resilience and Adaptation Strategy	2015	●	●	●		●		●	●	●			●	●	Evaluate progress towards building resilience and adaptation to climate change and review our plans and actions

Nationally Determined Contribution (NDC): Adaptation

Targets	Actions
Not mentioned	Not mentioned

2. MITIGATION
REDUCING EMISSIONS TO LIMIT GLOBAL TEMPERATURE INCREASE

PARIS AGREEMENT

Hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit to 1.5°C, recognising that this would significantly reduce the risks and impacts of climate change.

EMISSIONS OVERVIEW

CO_2 DECREASE EMISSIONS

Australia's GHG emissions are not on track for a 1.5 'fair-share' pathway. Emissions excluding land use have increased by 32% between 1990-2017 and by 3% since 2010. The government's climate target for 2030 (-26 to -28% from 2005 levels) is not in line with a 1.5°C 'fair-share' pathway.

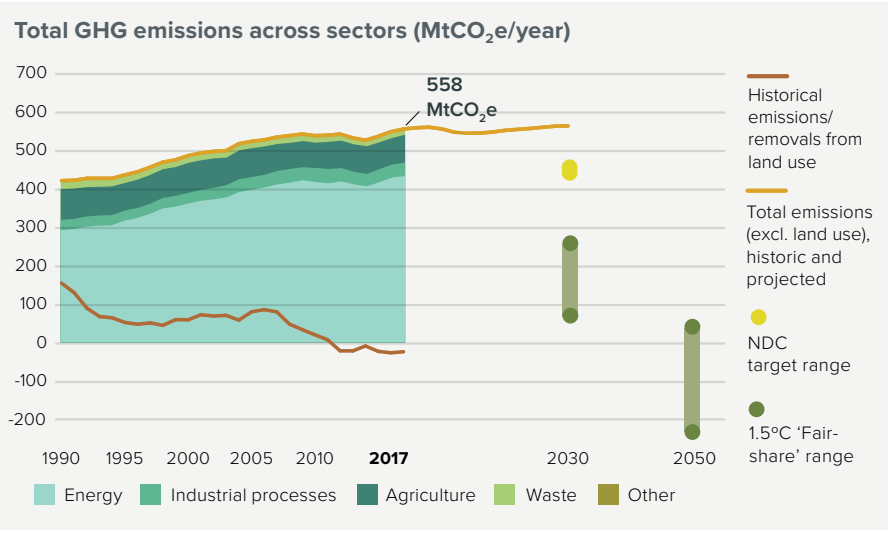
Source: Climate Action Tracker, 2020

1.5°C COMPATIBILITY

In 2030, global CO_2 emissions need to be 45% below 2010 levels and reach net-zero by 2050. Global energy-related CO_2 emissions must be cut by 40% below 2010 levels by 2030 and reach net-zero by 2060.

Source: Rogelj et al., 2018

GHG emissions across sectors and CAT 1.5°C 'fair-share' range ($MtCO_2e$/year)

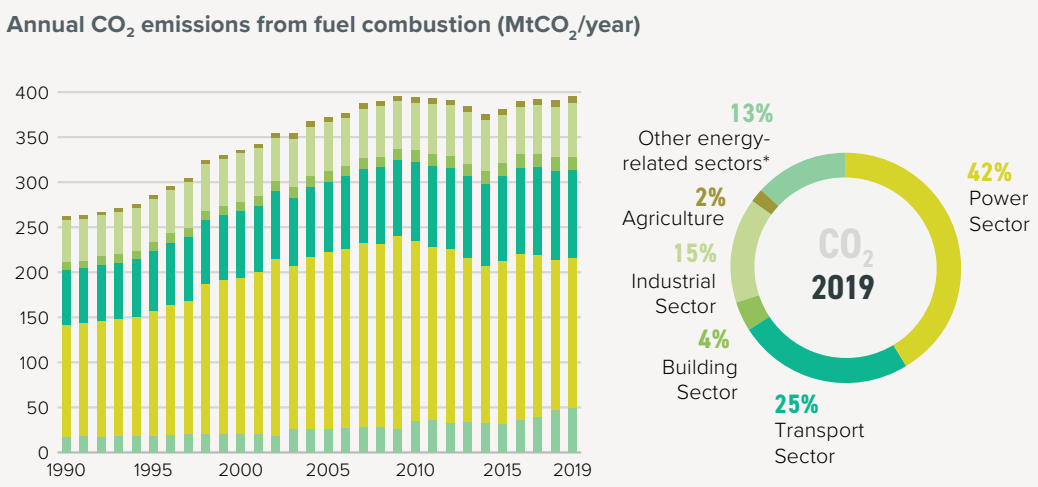


Australia's emissions (excl. land use) increased by more than 30% between 1990 and 2017. Under current policies, emissions will not decrease rapidly enough to achieve even its insufficient NDC target. The energy sector dominates emissions, followed by industry and transport. **Australia will need to scale up climate action across all sectors to meet its NDC, with even more effort required to become 1.5°C 'fair-share' compatible.**

Note: Australia's 2018 GHG Inventory projects only a potential 3 $MtCO_2e$ decline in emissions (excl. LULUCF) in 2019. Source: Department of Industry Science Energy and Resources, 2020

Sources: Gütschow et al., 2019; Climate Action Tracker, 2020

Energy-related CO_2 emissions by sector



** 'Other energy related sectors' covers energy-related CO_2 emissions from extracting and processing fossil fuels.*

Due to rounding, some graphs may sum to slightly above or below 100%.

The largest driver of overall GHG emissions are CO_2 emissions from fuel combustion. In Australia, they have remained almost stable over the last decade. The largest reduction in recent years coincided with the passing of carbon pricing legislation in 2012, and the subsequent increase from 2015 onwards coincides with its repeal in 2014. Electricity and transport are the largest contributors, with a 42% and 25% share respectively. Emissions from the energy sector have increased by 50% over the past five years.

Source: Enerdata, 2020

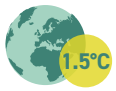
CORONAVIRUS RECOVERY

Beyond Zero Emissions' Million Jobs plan shows that transition to a zero carbon economy could create 1.8 million jobs over five years in renewable energy, energy efficiency and low emissions projects, including more than 140,000 jobs in utility-scale renewable energy and more than 180,000 jobs in zero emissions buildings. The renewable energy sector could employ 44,000 people by 2025 (now at 25,000).

References: Climate Council, 2020; Crowe, 2020; BZE, 2020; Clean Energy Council, 2020b

ENERGY OVERVIEW

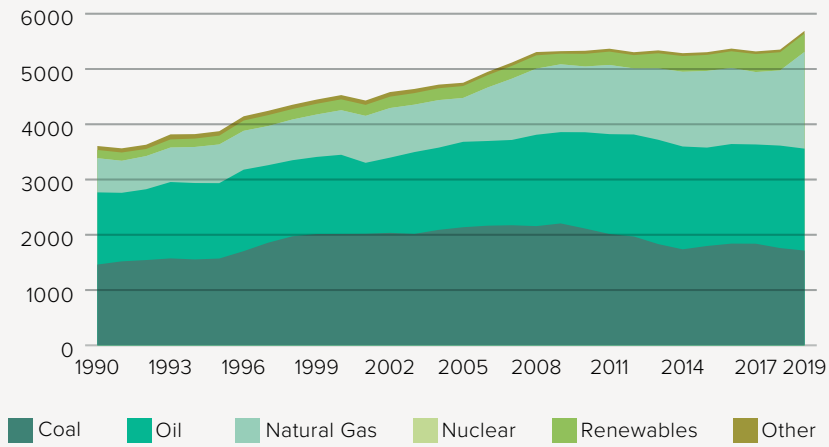
Fossil fuels make up 93% of Australia's energy mix, one of the highest in the G20. The shares of coal, gas and oil are roughly equal; while natural gas has increased to 31% in 2019, coal has decreased slightly to 30%. The carbon-intensity of the energy mix has decreased over the past two years, but is still much higher than the G20 average. The share of renewables has not increased and, at only 6%, is lower than the G20 average.

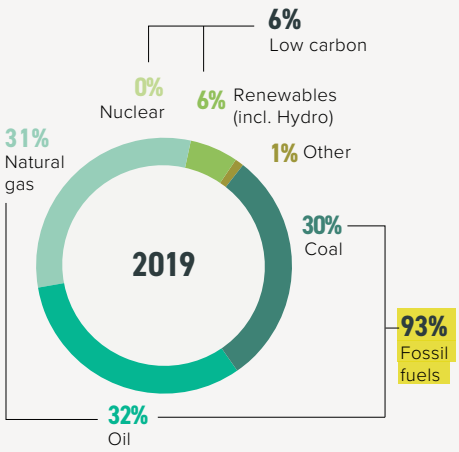


The share of **fossil fuels in the global primary energy mix needs to fall to 67% by 2030 and to 33% by 2050** (and to substantially lower levels without Carbon Capture and Storage).
Source: Rogelj et al., 2018

Energy Mix

Total primary energy supply (PJ)





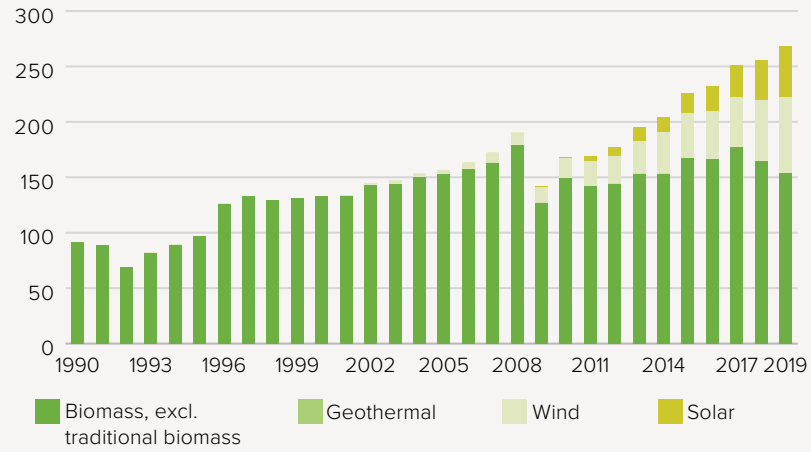
Source: Enerdata, 2020

Due to rounding, some graphs may sum to slightly above or below 100%.

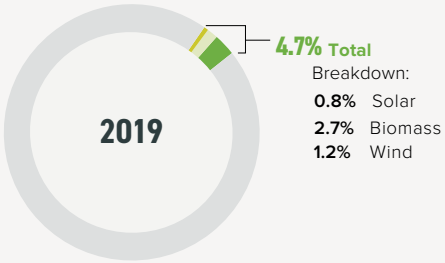
The fuel mix for all energy supply, including energy for electricity generation, heating, cooking, and transport fuels. Fossil fuels (oil, coal and gas) make up 93% of Australia's energy mix, one of the G20's highest levels. The ramp up of natural gas by 29% from 2018 to 2019 has changed the energy mix, with its share rising from 25% in 2018 to 31% in 2019.

Solar, Wind, Geothermal, and Biomass Development

Total primary energy supply (TPES) from solar, wind, geothermal and biomass (PJ)



Solar, wind, geothermal and biomass account for 4.7% of Australia's energy supply



Source: Enerdata, 2020

Large hydropower and solid fuel biomass in residential use are not reflected due to their negative environmental and social impacts.
Due to rounding, some graphs may sum to slightly above or below 100%.

Decarbonisation rating: RE share of TPES compared to other G20 countries

5-year trend (2014-2019): Medium

Current year (2019): Low

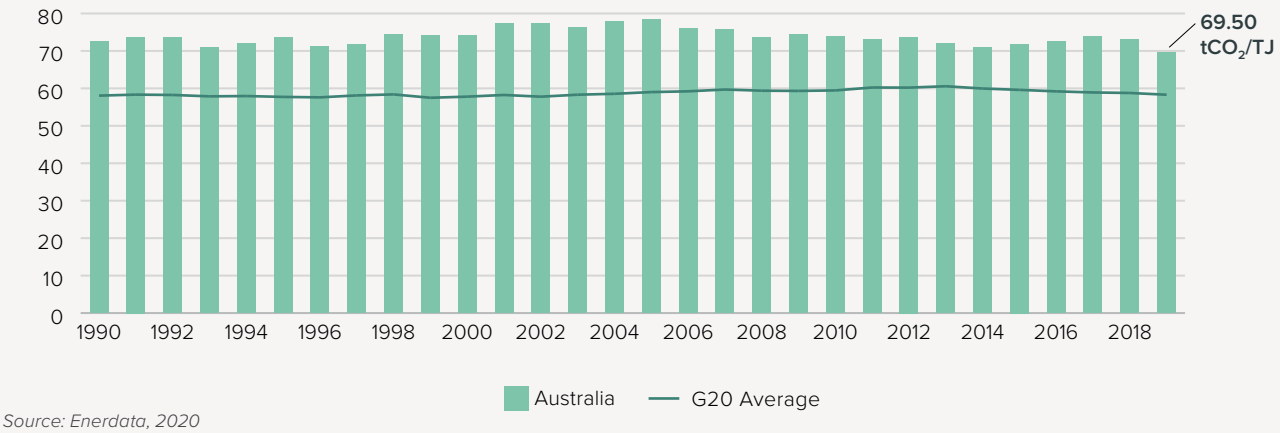
Source: own evaluation

Solar, wind, geothermal and biomass make up 4.7% of Australia's energy supply, lower than the G20 average of 6.4%. The share in total energy supply has increased 22.8% from 2014-2019, compared to the 28.1% in the G20 over the same period. Biomass (for electricity and heat) still makes up the largest share of 2.7%.

Source: Enerdata, 2020

Carbon Intensity of the Energy Sector

Tonnes of CO_2 per unit of total primary energy supply (tCO_2/TJ)



Source: Enerdata, 2020

Decarbonisation rating: carbon intensity of the energy sector compared to other G20 countries

5-year trend (2014-2019): Low

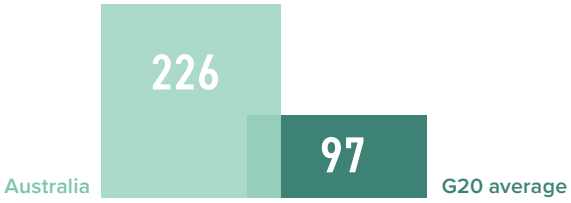
Current year (2019): Low

Carbon intensity is the CO_2 emitted per unit of energy supply. In Australia, carbon intensity has been constant at around 70-72 tCO_2 over the last five years, declining to 69.5 in 2019 from a drop in coal as natural gas increased, but still higher than the G20 average– indeed, the third highest in the G20.

Source: Enerdata, 2020

Energy supply per capita

(GJ/capita)



Sources: Enerdata, 2020

TPES per capita (GJ/capita): 5-year trend (2014-2019)

-1% Australia | +1.9% G20 average

The level of energy use per capita is closely related to economic development, climatic conditions and the price of energy.

Energy use per capita in Australia is 226 GJ/capita, well above the G20 average, but is decreasing (-1%, 2014-2019) in contrast to the increasing G20 average (+1.9%).

Decarbonisation rating: energy supply per capita compared to other G20 countries

5-year trend (2014-2019): Medium

Current year (2019): Low

Source: own evaluation

Energy intensity of the economy

(TJ/PPP USD2015 millions)

Data for 2018. Source: Enerdata, 2020

Energy intensity of the economy: 5-year trend (2013-2018)

-11.2% Australia | -11.6% G20 average

This indicator quantifies the energy used for each unit of GDP, closely related to the level of industrialisation, efficiency achievements, climatic conditions or geography. Australia's energy intensity, just below the G20 average, is decreasing at a similar speed (-11.2%, 2013-2018) as the G20 (-11.6%, 2013-2018).

Decarbonisation rating: energy intensity compared to other G20 countries

5-year trend (2013-2018): Medium

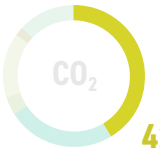
Current year (2018): Medium

Source: own evaluation

POWER SECTOR

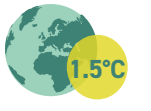
Emissions from energy used to make electricity and heat

Australia still produces 57% of its electricity from coal. The government has no plans to phase out coal, nor is it supporting the acceleration of a transformation towards renewables – now the cheapest source of power generation. Instead it wants to support development of gas and new coal-fired power generation.



Share in energy-related CO_2 emissions from electricity and heat production

Source: Enerdata, 2020



COMPATIBILITY

Coal and decarbonisation

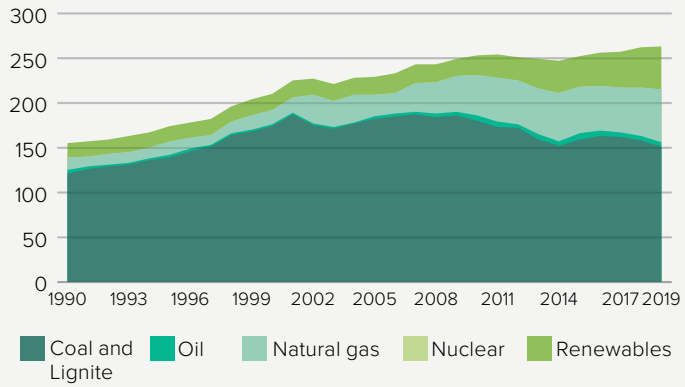
Worldwide, **coal use for power generation needs to peak by 2020**, and between 2030 and 2040, all the regions of the world need to phase out coal-fired power generation. **Electricity generation has to be decarbonised before 2050**, with renewable energy the most promising alternative.

References: Climate Analytics, 2016; Climate Analytics, 2019; Rogelj et al., 2018

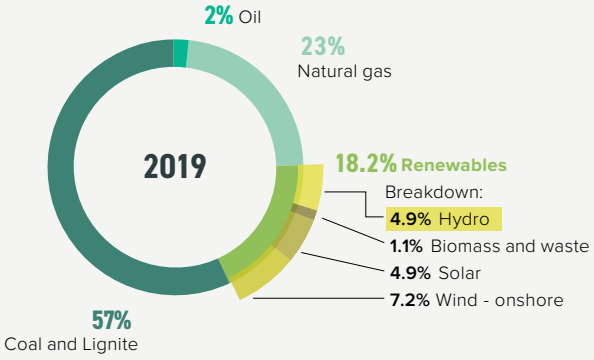
STATUS OF DECARBONISATION

Electricity mix

Gross power generation (TWh)



Source: Enerdata, 2020

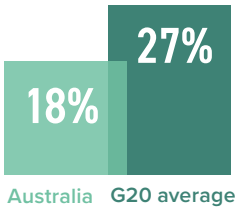


Due to rounding, some graphs may sum to slightly above or below 100%.

Australia generates 82% of its electricity from fossil fuels, mainly from coal (57%). The use of natural gas has been increasing over recent years, and represents 23% of generation. Renewable electricity is also increasing and makes up nearly 20% of the power mix, although it is still less than the G20 average (25%).

Share of renewables in power generation

(incl. large hydro)



Source: Enerdata, 2020

Share of renewables in power generation: 5-year trend (2014-2019)

+30% Australia

+19.5% G20 average

Decarbonisation rating: share of renewables compared to other G20 countries

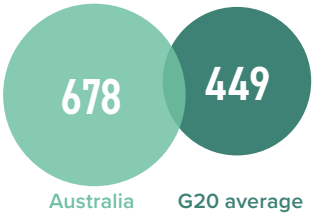
5-year trend (2014-2019): Medium

Current year (2019): Low

Source: own evaluation

Emissions intensity of the power sector

Country vs G20 average (gCO_2/kWh)



Source: Enerdata 2020

Emissions intensity: 5-year trend (2014-2019)

-10.5% Australia | -10.3% G20 average

For each kilowatt hour of electricity, 678g CO_2 are emitted in Australia. This is far higher than the G20 average, and it is decreasing at a similar rate to the G20 average. The emissions intensity is high because of the high share of fossil fuels in the power mix, and particular the high share of coal.

Decarbonisation rating: emissions intensity compared to other G20 countries

5-year trend (2014-2019): Medium

Current year (2019): Low

Source: own evaluation

POLICY ASSESSMENT

Renewable energy in the power sector

Low

The renewable energy target of 33 GWh of electricity from renewable energy by 2020 was met in 2019, and has not yet been replaced. Investment in renewable energy has declined. Renewable energy projects in the second quarter of 2020 saw a 46% fall from the first quarter (52% lower than the 2019 quarterly average). There were only three projects committed with 410 MW of new capacity. Policy uncertainty, regulatory risks, and lack of investment in the grid are slowing down investment in the renewable energy sector.

References: Own evaluation, based on Climate Action Tracker, 2019; CER, 2020; Clean Energy Council, 2020c

Coal phase-out in the power sector

Low

The government encourages utilities to extend coal-fired power generation to continue beyond their shutdown dates, it has considered support for a new coal-fired power plant, and offers incentives to fossil fuel generation through a power subsidy scheme. There is no federal policy to plan for a transition away from coal.

References: own evaluation

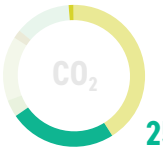
TRANSPORT SECTOR

Emissions from energy used to transport people and goods

Emissions from transport are still on the rise. 84% of passenger transport is by private car, and 62% of freight transport goes by road in Australia. Both sectors are still dominated by fossil fuels, and electric vehicles make up only 2% of car sales. In order to stay within a 1.5°C limit, passenger and freight transport need to be decarbonised.

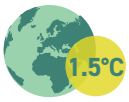
Share in energy-related CO_2 emissions from transport sector

Source: Enerdata, 2020



1% Electricity-related emissions

25% Direct emissions



COMPATIBILITY

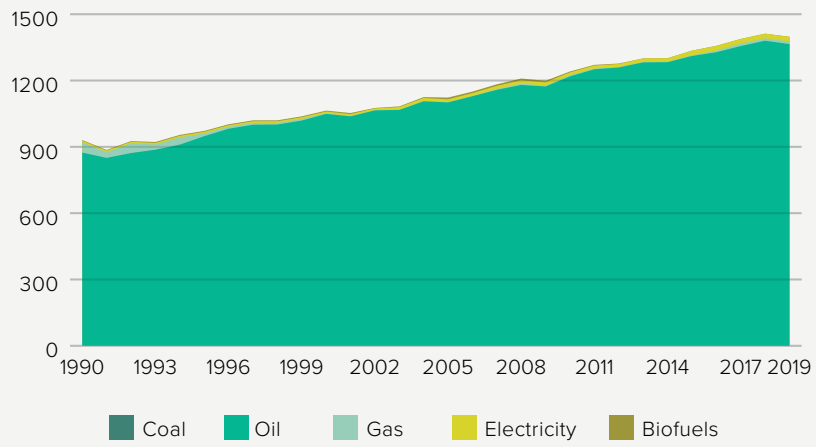
The share of low-carbon fuels in the transport fuel mix must increase to about 60% by 2050.

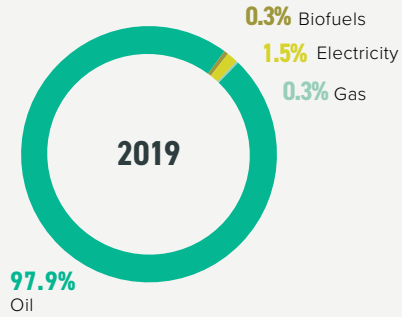
Source: Rogelj et al., 2018

STATUS OF DECARBONISATION

Transport energy mix

Final energy consumption of transport by source (PJ/year)





Source: Enerdata, 2020

Due to rounding, some graphs may sum to slightly above or below 100%.

Electricity and biofuels make up only 1.8% of the energy mix in transport.

Transport emissions per capita

excl. aviation (tCO_2/capita)

Data for 2018. Sources: Enerdata, 2020; The World Bank, 2019

Transport emissions: 5-year trend (2013-2018)

+2.3% Australia

+5.5% G20 average

Decarbonisation rating: transport emissions compared to other G20 countries

5-year trend (2013-2018): Medium

Current year (2018): Very low

Source: own evaluation

Aviation emissions per capita[6]

(tCO_2/capita)

Data for 2017. Source: Enerdata, 2020

Aviation emissions: 5-year trend (2012-2017)

+11.2% Australia | +18.7% G20 average

Decarbonisation rating: aviation emissions compared to other G20 countries

5-year trend (2012-2017): Medium

Current year (2017): Very low

Source: own evaluation

Motorisation rate

762 VEHICLES PER 1,000 INHABITANTS (2016)

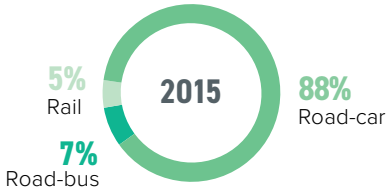
Source: Vieweg et al., 2018

Market share of electric vehicles in new car sales (%)

Electric Vehicle Council, 2020

Passenger transport

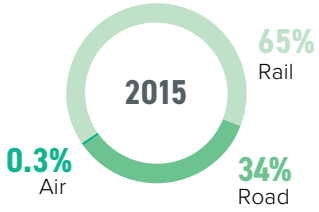
(modal split in % of passenger-km)



Data for 2015. Source: Vieweg et al., 2018

Freight transport

(modal split in % of tonne-km)



Data for 2015. Source: Vieweg et al., 2018

POLICY ASSESSMENT

Phase out fossil fuel cars

Low

Australia has no target to phase out fossil fuel cars. The government set up a Ministerial Forum to consider fuel efficiency standards for light vehicles, but has not taken any decisions on imposing a standard. The Australian national government announced they are developing a national electric vehicle strategy in the 2019 Climate Solutions Package, aimed to reduce 10 $MtCO_2e$ by 2030, but no strategy has been released.

Source: own evaluation

Phase out fossil fuel heavy-duty vehicles

Low

Australia does not have any plans to phase out emissions from freight transport, and there are no efficiency or emission standards for heavy duty vehicles.

Source: own evaluation

Modal shift in (ground) transport

Low

There is no longer-term strategy for promoting a modal shift, and no progress made in this area in the past year. The 10-year rolling Infrastructure Investment Programme (2019/20, approx. USD 70bn), mainly targets road infrastructure, and some rail projects. The government is supporting public transport infrastructure in Sydney, Melbourne and Perth, and faster rail connections through the 2017 National Rail Programme (approx. USD 7bn).

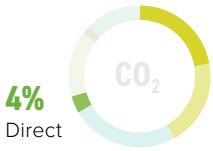
Source: own evaluation

BUILDING SECTOR

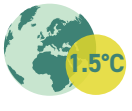
Emissions from energy used to build, heat and cool buildings

Australia's building emissions – counting heating, cooking but also electricity use – per capita are nearly three times the G20 average. Australia's policies are not sufficient to reduce emissions as required for a 1.5°C compatible pathway.

Building emissions occur directly (burning fuels for heating, cooking, etc) and indirectly (grid-electricity for air conditioning, appliances, etc.)



Source: Enerdata, 2020



Global emissions from buildings need to be halved by 2030, and be 80-85% below 2010 levels by 2050, mostly through increased efficiency, reduced energy demand and electrification in conjunction with complete decarbonisation of the power sector.

Source: Rogelj et al., 2018

STATUS OF DECARBONISATION

Building emissions per capita

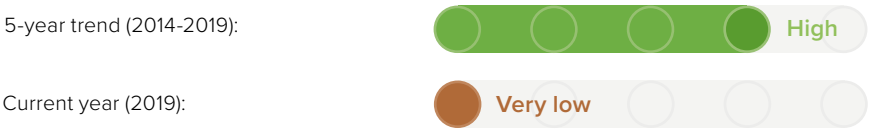
(incl. indirect emissions) (tCO_2/capita)

Building-related emissions per capita are nearly three times the G20 average. This reflects the high fossil fuel share of the electricity mix. In contrast to the G20 average, Australia has managed to decrease the level by 11.3% (2014-2019).

Source: Enerdata, 2020

Building emissions: 5-year trend (2014-2019)

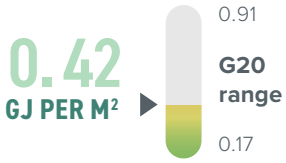
Decarbonisation rating: building emissions compared to other G20 countries



Source: own evaluation

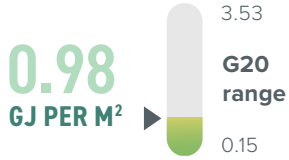
Residential buildings

Energy use per m²



Commercial and public buildings

Energy use per m²



Building emissions are largely driven by how much energy is used in heating, cooling, lighting, household appliances, etc.

In Australia, energy use per m² is in the middle range of the G20 countries.

Source: Castro-Alvarez et al., 2018

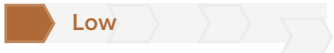
POLICY ASSESSMENT

Near zero energy new buildings

Australia's policies focus on commercial buildings. The current National Construction Code only covers energy efficiency standards in commercial buildings, but the update in 2022 is expected to include rental properties. The Commercial Buildings Disclosure Programme requires sellers and lessors to disclose the energy efficiency rating of large office spaces. The National Carbon Offset Standard is a voluntary measure for businesses to reduce or offset emissions. The government has introduced the Energy Efficient Communities Programme – which first committed to AUD50 million, but now AUD40 million – offers grants to support businesses and community groups to lower their energy bills. The Trajectory for Low-emissions Buildings addendum provides a timeline for expanding the scope of current policies. **The fact that Australia does not have a policy or target for zero energy new buildings is concerning as buildings are long-lived assets and fossil fuels continue to supply a majority of the electricity generation mix.**

Reference: own evaluation, based on Climate Action Tracker, 2020b; COAG Energy Council, 2019b

Renovation of existing buildings



There is no national strategy for energy retrofitting of buildings, although the Trajectory for Low-emissions Buildings policy addendum recognises energy efficiency requirements are needed for renovations.

Reference: own evaluation

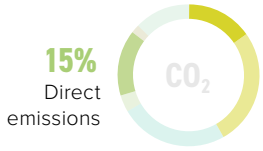
INDUSTRY SECTOR

Emissions from energy in the industrial sector

Industry makes up 15% of direct emissions and 14% of indirect electricity-related CO_2 emissions in Australia.
Australia lacks effective policies to increase the energy efficiency of the industry sector nor any effective policies to reduce emissions and to decarbonise the sector.

Share in energy-related CO_2 emissions from industrial sector

Source: Enerdata, 2020



Industrial emissions need to be reduced by 65-90% from 2010 levels by 2050.

Source: Rogelj et al., 2018

STATUS OF DECARBONISATION

Industry emissions intensity[7]

(tCO_2e/USD2015 GVA)

Data for 2016. Sources: Gütschow et al., 2019; Enerdata, 2020

Industry emissions: 5-year trend (2011-2016)

-20% Australia | -12% G20 average

Decarbonisation rating: emissions intensity of industry compared to other G20 countries

Source: own evaluation

Carbon intensity of cement production[8]

($kgCO_2$/tonne product)

Data for 2016. Sources: CAT Decarbonisation Data Portal, 2020; Climate Action Tracker, 2020

Carbon intensity of steel production[8]

($kgCO_2$/tonne product)

Steel production and steelmaking are significant GHG emission sources, and challenging to decarbonise.

Data for 2016. Sources: World Steel Association, 2018; CAT Decarbonisation Data Portal, 2020

POLICY ASSESSMENT

Energy Efficiency

Low

There are no plans for an overall strategy to decarbonise the industry sector. The National Energy Productivity Plan (NEPP) aims to improve energy productivity (economic output per unit of energy used) by 40% between 2015 and 2030. Yet, there have been no policies that have significantly increased industry energy efficiency, such as high-efficiency standards and regulation, encouragement for energy management or energy auditing.

Source: Climate Action Tracker, 2020b

LAND USE SECTOR

Emissions from changes in the use of the land

NET SINK OF EMISSIONS

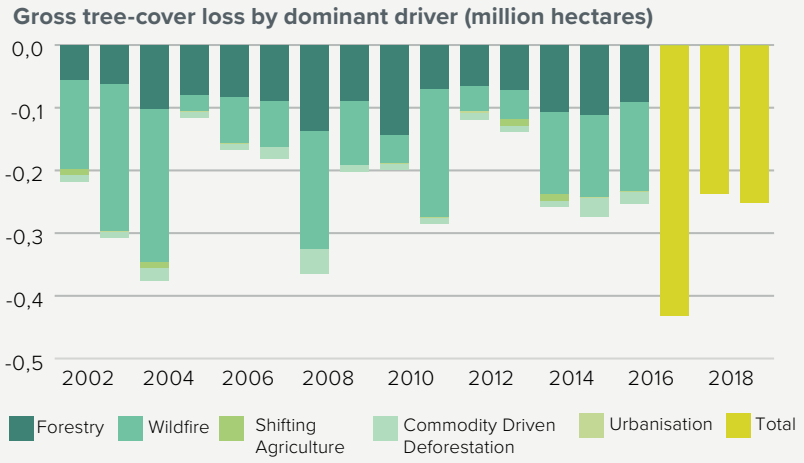
To stay within the 1.5°C limit, Australia needs to stop deforestation. Emissions in this sector are highly uncertain, and Australia needs to ensure the sector remains an emissions net sink.

1.5°C COMPATIBILITY

Global deforestation needs to be halted and changed to net CO_2 removals by around 2030.

Source: Rogelj et al., 2018

Global tree-cover loss



This indicator covers only gross tree-cover loss and does not take tree-cover gain into account. It is thus not possible to deduce from this indicator the climate impact of the forest sector. 2000 tree cover extent – >30% tree canopy.

Source: Global Forest Watch, 2019

From 2001 to 2018, Australia lost 4.39 Mha of tree cover. This does not take tree-cover gain into account. Not captured by the graph is the unprecedented forest fires of 2019/20 that burnt an estimated 7.4 Mha of forest.

Source: Australian Government, 2020c

POLICY ASSESSMENT

Target for net-zero deforestation

Low

Australia's deforestation levels are high compared to world standards, particularly the deforestation levels in the state of Queensland. Forest fires are not accounted for in national emissions inventory and the government assumes equivalent emissions (around 830 $MtCO_2e$ based on the fires in 2020 up to 11 February) will be sequestered by forest regrowth. Yet, the scale and intensity of the fires affect the rate of forest regrowth and carbon sequestration.

Sources: Climate Action Tracker, 2020b; Australian Government, 2020c

AGRICULTURE SECTOR

Emissions from agriculture

DIETARY SHIFTS ARE NEEDED

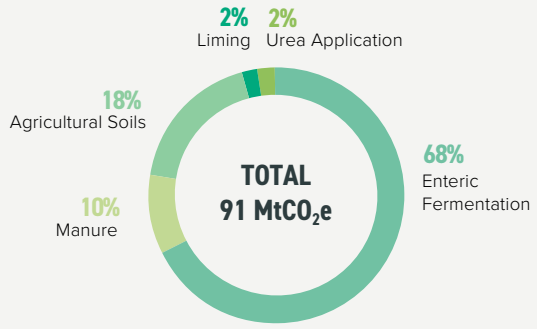
Australia's agricultural emissions are mainly from digestive processes in animals (mainly cattle) and livestock manure. A 1.5°C 'fair-share' compatible pathway requires behavioural and dietary shifts and less fertiliser use.

1.5°C COMPATIBILITY

Methane emissions (mainly enteric fermentation) need to decline by 10% by 2030 and by 35% by 2050 (from 2010 levels). Nitrous oxide emissions (mainly from fertilisers and manure) need to be reduced by 10% by 2030 and by 20% by 2050 (from 2010 levels).

Source: Rogelj et al., 2018

Emissions from agriculture (excluding energy)



Source: Department of Industry Science Energy and Resources, 2020

In Australia, the largest sources of GHG emissions in the agricultural sector are digestive processes in animals (enteric fermentation), agricultural soils and livestock manure. Dietary changes and efficient use of fertilisers as well as reductions in food waste could help reduce emissions from this sector.

Due to rounding, some graphs may sum to slightly above or below 100%.

MITIGATION: TARGETS AND AMBITION

The combined mitigation effect of nationally determined contributions (NDC) submitted by September 2020 is not sufficient and will lead to a warming of 2.7°C by the end of the century. This highlights the urgent need for all countries to submit more ambitious targets by 2020, as they agreed in 2015, and to urgently strengthen their climate action to align to the Paris Agreement's temperature goal.

AMBITION: 2030 TARGETS

Nationally Determined Contribution (NDC): Mitigation

Targets

Implement an economy-wide target to reduce greenhouse gas emissions by 26-28% below 2005 levels by 2030 (including LULUCF).

Actions

Not specified

Climate Action Tracker (CAT) evaluation of NDC and actions

	Critically Insufficient
	Highly Insufficient
●	Insufficient
	2°C Compatible
	1.5°C Compatible
	Role Model

NDCs with this rating are in the least stringent part of a country's 'fair-share' range and not consistent with holding warming below 2°C let alone with the Paris Agreement's stronger 1.5°C limit. If all government NDCs were in this range, warming would reach over 2°C and up to 3°C.

The Australian government has not implemented an effective climate policy. On the contrary, it has initiated a gas-led recovery and continued support for the coal industry, with renewable energy investments having dropped to 2017 levels. The government has shown no intention of updating its Paris Agreement target nor adopting a net-zero emissions target. Instead the Australian government intends to meet the NDC with "carry over" surplus emission units from the Kyoto Protocol which would significantly lower actual emission reductions.

Evaluation as at October 2020, based on country's NDC. Source: Climate Action Tracker

TRANSPARENCY: FACILITATING AMBITION

Countries are expected to communicate their NDCs in a clear and transparent manner in order to ensure accountability and comparability.

The NDC Transparency Check has been developed in response to Paris Agreement decision (1/CP.21) and the Annex to decision 4/CMA.1. While the Annex is only binding from the second NDC onwards, countries are "strongly encouraged" to apply it to updated NDCs, due in 2020.

NDC Transparency Check recommendations

For more visit www.climate-transparency.org/ndc-transparency-check

To ensure clarity, transparency and understanding, it is recommended that Australia provides additional detailed information in the upcoming NDC Update (compared to the existing NDC), including:

- Specify base-year emissions, given they are revised frequently with updated inventories, leading to changes in the quantification of the ambition level
- Specify implementation period and budget approach
- Provide details on planning process and public engagement indeveloping the NDC Update, ensuring buy-in from a wide range of stakeholders

AMBITION: LONG-TERM STRATEGIES

Status	To be delivered before COP26
2050 target	No intention to adopt a 2050 target
Interim steps	-
Sectoral targets	-
Net-zero target	Rejected setting a net-zero target

The Paris Agreement invites countries to communicate mid-century, long-term, and low-GHG emissions development strategies by 2020. Long-term strategies are an essential component of the transition toward net-zero emissions and climate-resilient economies.

3. FINANCE
MAKING FINANCE FLOWS CONSISTENT WITH CLIMATE GOALS

PARIS AGREEMENT

Make finance flows consistent with a pathway towards low-GHG emissions and climate-resilient development.

NO EXPLICIT CARBON PRICE

Australia spent USD 7.2bn on fossil fuel subsidies in 2019, nearly 80% on petroleum and 20% on electricity. Australia's carbon tax was repealed in 2014 leading to a lack of carbon pricing from 2015 onwards.

1.5°C COMPATIBILITY

Investment in green energy and infrastructure needs to outweigh fossil fuel investments by 2025.

Source: Rogelj et al., 2018

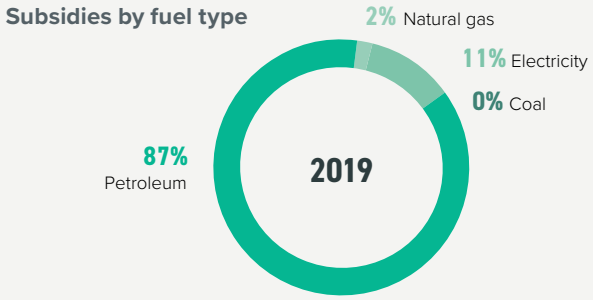
FISCAL POLICY LEVERS

Fiscal policy levers raise public revenues and direct public resources. Critically, they can shift investment decisions and consumer behaviour towards low-carbon, climate-resilient activities by reflecting externalities in the price.

Fossil Fuel Subsidies

Source: OECD-IEA Fossil Fuel Support database, 2020

Fossil Fuel Subsidies by fuel type

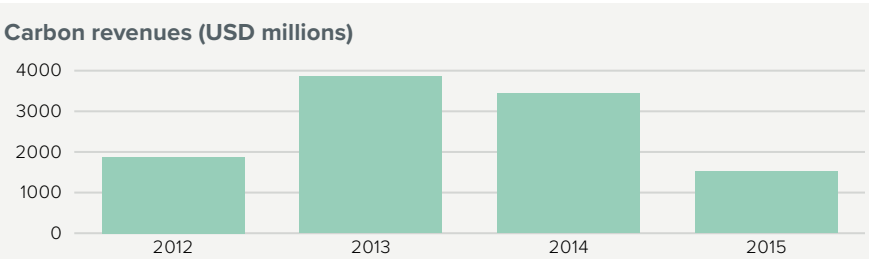


Source: OECD-IEA Fossil Fuel Support database, 2020
Due to rounding, some graphs may sum to slightly above or below 100%.

In 2019, Australia's fossil fuel subsidies totalled USD 7.2bn (compared to USD 5.4bn in 2010, with limited annual fluctuations in between compared to other G20 countries). Of the subsidies quantified, 69% were for the consumption of fossil fuels, and the remainder for their production. The highest amount of quantified subsidies was for petroleum, at USD 6.3bn. The measure resulting in the highest support is the fuel tax credit scheme, granting on-road heavy transport and off-road users excise tax rebates, particularly benefiting the mining sector (USD 3bn).

Carbon Pricing and Revenue

In 2015, Australia ended its national carbon tax, having repealed the legislation the year before. No carbon taxation or emissions trading schemes, whether at national or subnational level, are currently under consideration.



Source: I4CE, 2019.

CORONAVIRUS RECOVERY The economic stimulus funds in Australia have not been targeted at a green recovery. The Australian government announced AUD 213.6bn (roughly USD 155bn) targeted at welfare recipients and subsidies to support businesses with wages. The Reserve Bank of Australia announced AUD 105bn for government to assist banks lending to businesses. The COVID-19 economic recovery funding announced to date does not relate to emissions mitigation efforts. The government wants to support a gas-led recovery. The advisory commission appointed by the government is dominated by fossil fuel and mining interests and is asking for direct subsidies for gas expansion (supply, pipelines, power generation).

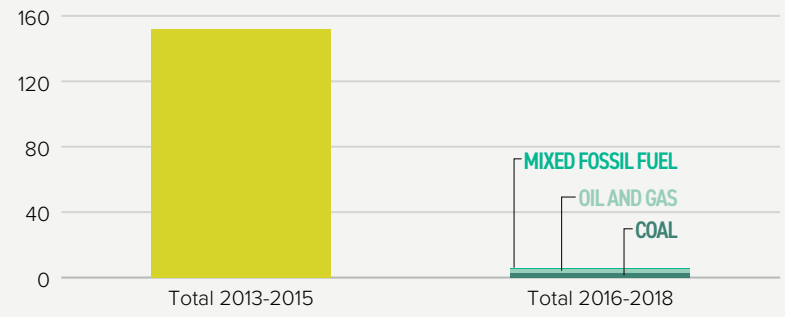
Reference: Karp, 2020

PUBLIC FINANCE

Governments steer investments through their public finance institutions including via development banks, both at home and overseas, and green investment banks. Developed G20 countries also have an obligation to provide finance to developing countries, and public sources are a key aspect of these obligations under the UNFCCC.

Public finance for fossil fuels

Public finance provided to fossil fuels (in USD millions)



The database used to estimate public finance for fossil fuels is a bottom-up database based on information that is accessible through various online sources and is, therefore, incomplete.

Source: Oil Change International, 2020

Between 2016 and 2018, Australia provided an average of USD 3m per year in public finance for the coal sector, USD 2m per year for the oil and gas sector and another USD 1m per year for mixed fossil fuels, totalling around USD 6m per year. Public fossil fuel finance flows mostly through its ECA Export Finance and Institution Corporation (EFIC). Australia was able to continue to support coal projects due to the loopholes existing in the ECAs OECD Coal-Fired Electricity Generation Sector Understanding. Compared to Australia's public finance support provided to fossil fuels in the previous period 2013-2015 (USD 152m annually), recent years have seen substantial progress made by the country in reducing public finance support to fossil fuels. However, the government is discussing new fossil fuel subsidies in the context of a gas-led COVID-19 recovery.

Provision of international public support

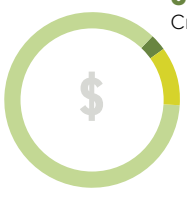
(annual average 2017 and 2018)

Climate finance contributions are sourced from Party reporting to the UNFCCC.

Bilateral, regional and other channels

Annual average contribution **118.82 MN USD**

Theme of support



8% Cross-cutting

18% Mitigation

74% Adaptation

Multilateral climate finance contributions

Annual average contribution **120.85 MN USD**

Theme of support

100% Cross-cutting

Core / General Contributions

Annual average contribution **393 MN USD**

Australia is ranked 8th (out of a comparison of 9 countries) in providing climate finance in 2017-18 through bilateral flows and multilateral climate funds in absolute values. The country does, however, perform better relative to GDP for its multilateral climate fund contributions (where it falls 4th). Australia reports much of its finance as cross-cutting, contributing to both adaptation and mitigation, with an increase in bilateral and a small decrease in multilateral climate funds since the 2015/16 period. It did not pledge to the Green Climate Fund at the end of 2019 during its first replenishment, choosing rather to support projects in the region bilaterally.

FINANCIAL POLICY AND REGULATION

Financial policy and regulation

Through policy and regulation governments can **overcome challenges to mobilising green finance**, including: real and perceived risks, insufficient returns on investment, capacity and information gaps.

Category	Instruments	Objective	Under Discussion/ implementation		None identified	
Green Financial Principles	n/a	This indicates political will and awareness of climate change impacts, showing where there is a general discussion about the need for aligning prudential and climate change objectives in the national financial architecture.	●			
			Mandatory	Voluntary	Under Discussion/ implementation	None identified
Enhanced supervisory review, risk disclosure and market discipline	Climate risk disclosure requirements	Disclose the climate-related risks to which financial institutions are exposed			●	
	Climate-related risk assessment and climate stress-test	Evaluate the resilience of the financial sector to climate shocks			●	
Enhanced capital and liquidity requirements	Liquidity instruments	Mitigate and prevent market illiquidity and maturity mismatch				●
	Lending limits	Limit the concentration of carbon-intensive exposures				●
		Incentivise low carbon-intensive exposures				●
	Differentiated reserve requirements	Limit misaligned incentives and channel credit to green sectors				●

In 2017, Australia's Prudential Regulation Authority (APRA) called for implementation of the recommendations of the Taskforce of Climate Related Financial Disclosure, while the Council of Financial Regulators established a Climate Change Working Group to coordinate action across the Australian financial system. The APRA stated its views on climate change as a "material" physical and transition risk that will be considered much more closely in its monitoring of banks, insurers, and asset managers. In July 2018, the Reserve Bank of Australia joined the Network for Greening the Financial System (NGFS). In March 2019, Australia's Sustainable Finance Initiative (ASFI) was launched. A committee of 18 experts from banks, insurers, and industry groups, the ASFI aims at developing a sustainable finance roadmap to reshape the Australian financial system and align it to the long-term needs of the society, the environment, and the economy. The Reserve Bank of Australia, as well as APRA and the Australian Securities and Investments Commission (ASIC), will be embedding the assessment of climate risk into their activities.

Nationally Determined Contribution (NDC): Finance

Conditionality	Not applicable
Investment needs	Not specified
Actions	Not mentioned
International market mechanisms	Not mentioned

ENDNOTES

For more detail on the sources and methodologies behind the calculation of the indicators displayed, please download the Technical Note at: www.climate-transparency.org/g20-climate-performance/g20report2020

1 'Land use' emissions is used here to refer to land use, land use change and forestry (LULUCF). The Climate Action Tracker (CAT) derives historical LULUCF emissions from the UNFCCC Common Reporting Format (CRF) reporting tables data converted to the categories from the IPCC 1996 guidelines, in particular separating Agriculture from Land use, land use change and forestry (LULUCF), which under the new IPCC 2006 Guidelines is integrated into Agriculture, Forestry, and Other Land Use (AFOLU).

2 The 1.5°C 'fair-share' ranges for 2030 and 2050 are drawn from the CAT, which compiles a wide range of perspectives on what is considered fair, including considerations such as responsibility, capability, and equality. Countries with 1.5°C 'fair-share' ranges reaching below zero, particularly between 2030 and 2050, are expected to achieve such strong reductions by domestic emissions reductions, supplemented by contributions to global emissions, reduction efforts via, for example, international finance. On a global scale, negative emissions technologies are expected to play a role from the 2030s onwards, compensating for remaining positive emissions. The CAT's evaluation of NDCs shows the resulting temperature outcomes if all other governments were to put forward emissions reduction commitments with the same relative ambition level.

3 In order to maintain comparability across all countries, this report utilises the PRIMAP year of 2017. However, note that Common Reporting Format (CRF) data is available for countries which have recently updated GHG inventories.

4 The Decarbonisation Ratings assess the current year and average of the most recent five years (where available) to take account of the different starting points of different G20 countries.

5 The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement, the IPCC's 2018 SR15 and the Climate Action Tracker (2016). The table below displays the criteria used to assess a country's policy performance.

6 This indicator adds up emissions from domestic aviation and international aviation bunkers in the respective country. In this Country Profile, however, only a radiative forcing factor of 1 is assumed.

7 This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.

8 This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).

On endnote 5.	Low	Medium	High	Frontrunner
Renewable energy in power sector	No policy to increase the share of renewables	Some policies	Policies and longer-term strategy/ target to significantly increase the share of renewables	Short-term policies + long-term strategy for 100% renewables in the power sector by 2050 in place
Coal phase-out in power sector	No target or policy in place for reducing coal	Some policies	Policies + coal phase-out decided	Policies + coal phase-out date before 2030 (OECD and EU28) or 2040 (rest of the world)
Phase out fossil fuel cars	No policy for reducing emissions from light-duty vehicles	Some policies (e.g. energy/emissions performance standards or bonus/malus support)	Policies + national target to phase out fossil fuel light-duty vehicles	Policies + ban on new fossil-based light-duty vehicles by 2035 worldwide
Phase out fossil fuel heavy-duty vehicles	No policy	Some policies (e.g. energy/emissions performance standards or support)	Policies + strategy to reduce absolute emissions from freight transport	Policies + innovation strategy to phase out emissions from freight transport by 2050
Modal shift in (ground) transport	No policies	Some policies (e.g. support programmes to shift to rail or non-motorised transport)	Policies + longer-term strategy	Policies + longer-term strategy consistent with 1.5°C pathway
Near zero energy new buildings	No policies	Some policies (e.g. building codes, standards or fiscal/financial incentives for low-emissions options)	Policies + national strategy for near zero energy new buildings	Policies + national strategy for all new buildings to be near zero energy by 2020 (OECD countries) or 2025 (non-OECD countries)
Energy efficiency in Industry	0-49% average score on the policy-related metrics in the ACEEE's International Energy Efficiency Scorecard	50-79% average score on the policy-related metrics in the ACEEE's International Energy Efficiency Scorecard	80-89% average score on the policy-related metrics in the ACEEE's International Energy Efficiency Scorecard	Over 90% average score on the policy-related metrics in the ACEEE's International Energy Efficiency Scorecard
Retrofitting existing buildings	No policies	Some policies (e.g. building codes, standards or fiscal/financial incentives for low-emissions options)	Policies + retrofitting strategy	Policies + strategy to achieve deep renovation rates of 5% annually (OECD) or 3% (non-OECD) by 2020
Net-zero deforestation	No policy or incentive to reduce deforestation in place	Some policies (e.g. incentives to reduce deforestation or support schemes for afforestation /reforestation in place)	Policies + national target for reaching net-zero deforestation	Policies + national target for reaching zero deforestation by 2020s or for increasing forest coverage

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