

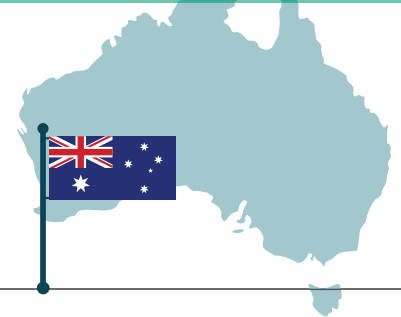


BROWN TO GREEN:

2019

THE G20 TRANSITION TOWARDS A NET-ZERO EMISSIONS ECONOMY

AUSTRALIA



Australia's greenhouse gas (GHG) emissions are – per capita – well above the G20 average.

Total emissions have decreased by 7% since 1990 (incl. land use), and excluding land use emissions have increased by 33% since 1990.

Greenhouse gas (GHG) emissions (incl. land use) per capita¹
(tCO₂e/capita)



Data for 2016
Source: CAT 2019;
PRIMAP 2018;
World Bank 2019

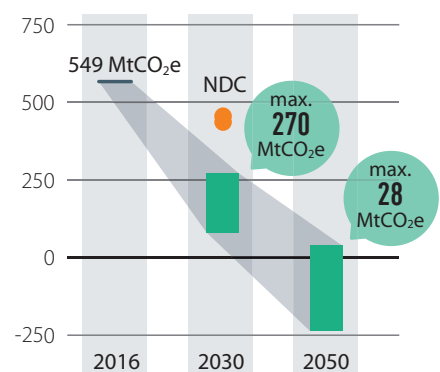
Trend (2011–2016) **-11%** **-1%**



Australia is not on track for a 1.5°C world, not even for its insufficient 2030 NDC target.

Australia's fair-share range is below 270 MtCO₂e by 2030 and below 28 MtCO₂e by 2050. Under Australia's 2030 NDC target, emissions would only be limited to 436–448 MtCO₂e. 1.5°C-compatibility can be achieved via strong domestic emissions reductions, supplemented with contributions to global emissions-reduction efforts. All figures are drawn from the Climate Action Tracker and exclude land use.

1.5°C compatible pathway²
(MtCO₂e/year)



Source: CAT 2019

Recent developments³



In April 2019, the Australian government approved the controversial opening of the Carmichael/Adani coal mine, one of the last known untapped coal reserves.



The 2019 Climate Solutions Package fails to clarify how Australia will meet its NDC. The government wants to rely on 'carry over' units from the Kyoto Protocol.



Based on its 2019 Government Budget, Australia will no longer provide funds to the Green Climate Fund (GCF).

Key opportunities for enhancing climate ambition³

Australia's energy sector is the second most carbon intensive in the G20

→ **Develop a strategy and plan to phase out coal by 2030 and for 100% renewable electricity generation in the 2030s.**



#1

Transport emissions are far above G20 average and few policies are in place

→ **Adopt vehicle emissions standards and a target for the phase-out of sales of new fossil fuel cars by 2035 at the latest.**



#2

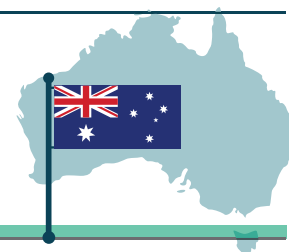
Australia's energy supply per capita is more than twice the G20 average

→ **Adopt better energy efficiency standards for appliances and buildings, and policies to encourage energy management in industrial and commercial facilities.**



#3

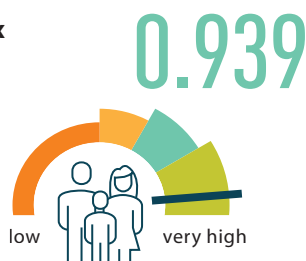
AUSTRALIA – SOCIO-ECONOMIC CONTEXT



Human Development Index

The Human Development Index reflects life expectancy, level of education, and per capita income. Australia currently ranks third overall on the index, and first among the G20 nations.

Data for 2017 | Source: UNDP 2018



Gross Domestic Product (GDP) per capita

(PPP US\$ const. 2018, international)



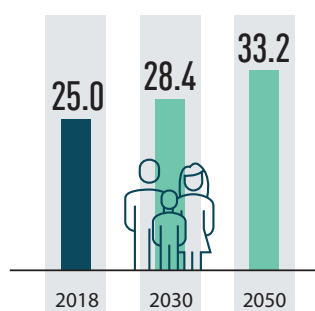
Data for 2018 | Source: World Bank 2019

Population projections

(millions)

Australia's population is expected to grow by a third by 2050.

Source: World Bank 2019

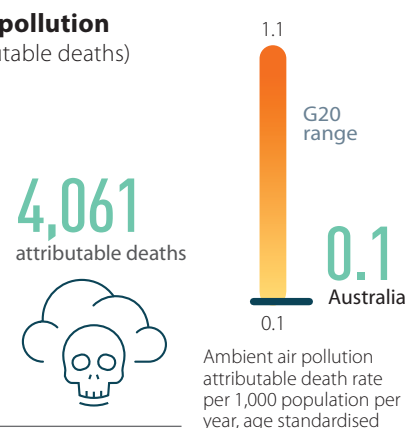


Death through ambient air pollution

(total ambient air pollution attributable deaths)

Around 4,000 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 the total population, this is at the lower end of the G20 range.

Data for 2016
Source: World Health Organization 2018



JUST TRANSITION³

Australia continues to make progress at state level on ensuring a just transition; however, it lacks a national strategy. The state of Victoria continues to implement the AUS\$266 million transition package it announced to support the Latrobe Valley after the sudden closure of the Hazelwood coal-fired power station in 2017.

The scheme to transfer Hazelwood workers to other coal-fired power stations has not met its employment targets. However, the broader regional development and economic diversification plans have increased employment in the area. A more permanent transition scheme is needed for Victoria, given that there are three other large coal-fired power stations

slated to close in the coming decades, and the Latrobe Valley Authority, the entity tasked with managing the transition, is funded only until June 2020. The state of Western Australia is developing a Just Transition Plan for its coal workers in the Collie region.

A national strategy is needed to ensure a clear phase-out plan and schedule in line with the Paris Agreement and a just transition for all affected regional and local communities to avoid adverse economic impacts on local economies.



Legend for all country profiles

Trends

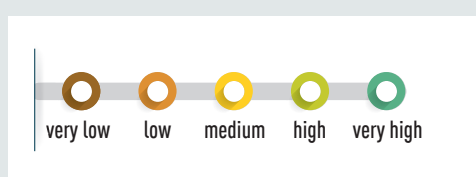


The trends show developments over the past five years for which data are available.

The thumbs indicate assessment from a climate protection perspective.

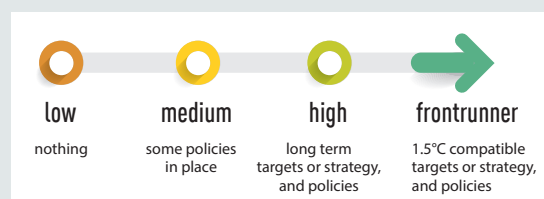
Decarbonisation Ratings⁴

These ratings assess a country's performance compared to other G20 countries. A high scoring reflects a relatively good effort from a climate protection perspective but is not necessarily 1.5°C compatible.



Policy Ratings⁵

The policy ratings evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.



For more information see the Annex and Technical Note

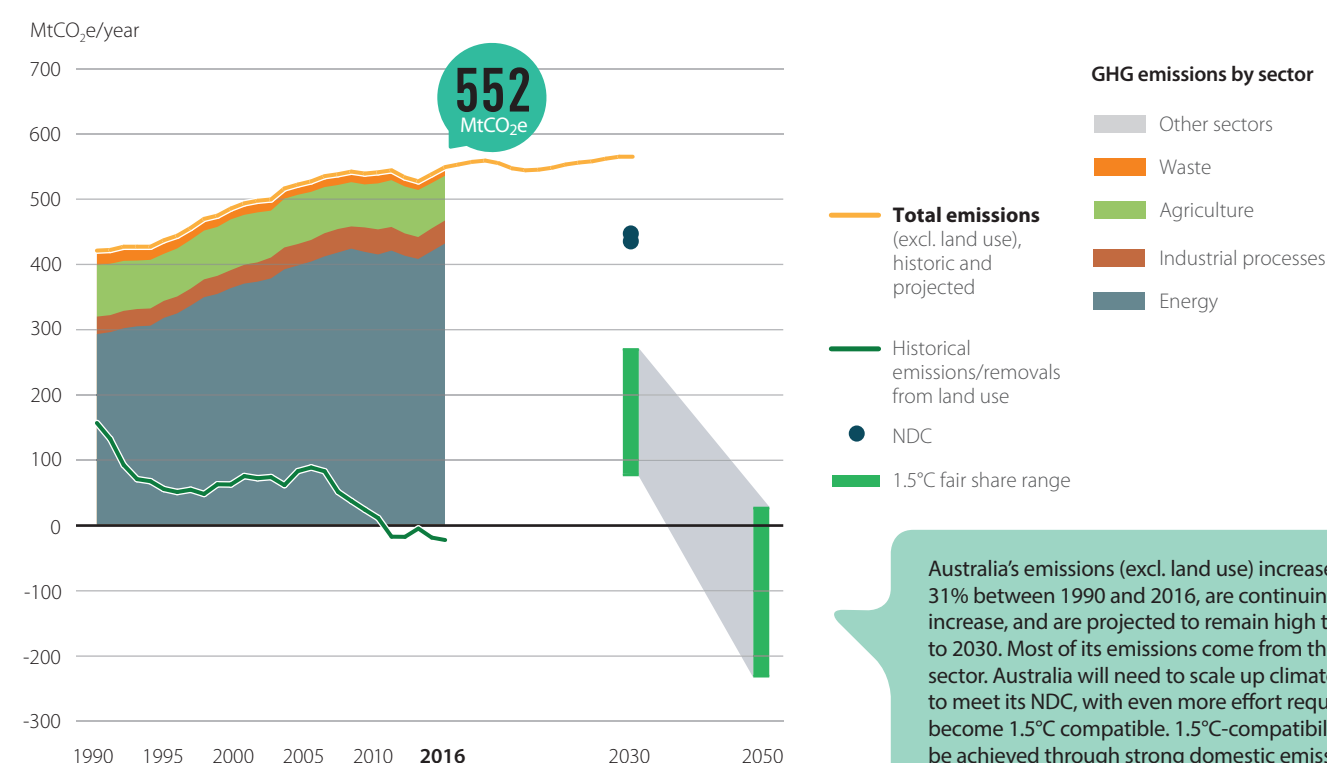
MITIGATION BIG PICTURE

! Australia's GHG emissions have increased by 31% between 1990 and 2016 and the government's climate target for 2030 (-26-28% from 2005 levels) is not in line with a 1.5°C pathway.

In 2030, global GHG emissions need to be 45% below 2010 levels and reach net zero by 2070.



Source: IPCC SR1.5 2018

Total GHG emissions across sectors²

Source: PRIMAP 2018; CAT 2019

Australia's emissions (excl. land use) increased by 31% between 1990 and 2016, are continuing to increase, and are projected to remain high through to 2030. Most of its emissions come from the energy sector. Australia will need to scale up climate action to meet its NDC, with even more effort required to become 1.5°C compatible. 1.5°C-compatibility could be achieved through strong domestic emissions reductions. This could be supplemented with contributions to global emissions-reduction efforts.

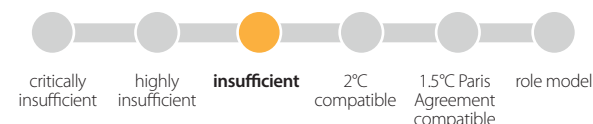
Nationally-determined contribution (NDC): Mitigation

Targets	Implement an economy-wide target to reduce greenhouse gas emissions by 26-28% below 2005 levels by 2030
Actions	Actions not specified

Source: UNFCCC, NDC of respective country

Long-term strategy (LTS) to be submitted to the UNFCCC by 2020

Status	No action
2050 target	–
Interim steps	–
Sectoral targets	–

Climate action tracker (CAT) evaluation of NDC²

Source: CAT 2019

Source: UNFCCC, LTS of respective country

MITIGATION ENERGY



AUSTRALIA

! Fossil fuels still make up around 92% of Australia's energy mix (including power, heat, transport fuels, etc). This is one of the highest levels in the G20. Energy supply from renewables has only recently begun to pick up speed.

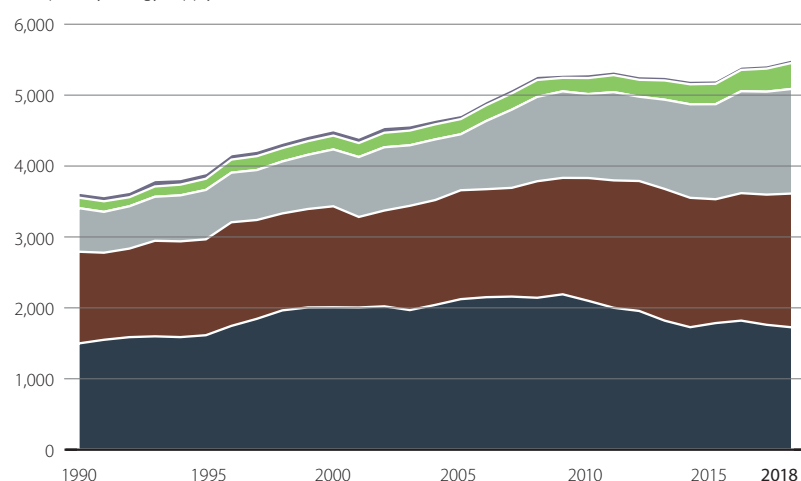
The share of fossil fuels globally needs to fall to 67% of global total primary energy by 2030 and to 33% by 2050 and to substantially lower levels without Carbon Capture and Storage.

1.5°C⁶

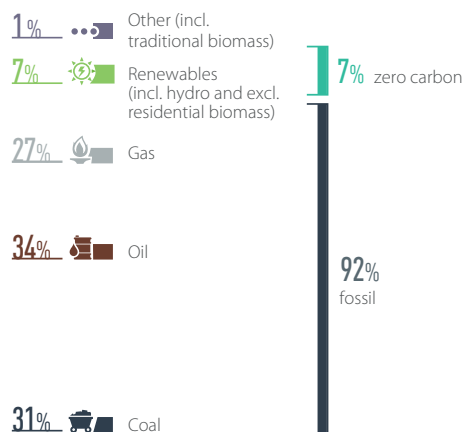
Source: IPCC SR1.5 2018

Energy mix⁷

Total primary energy supply (PJ)



Share in 2018

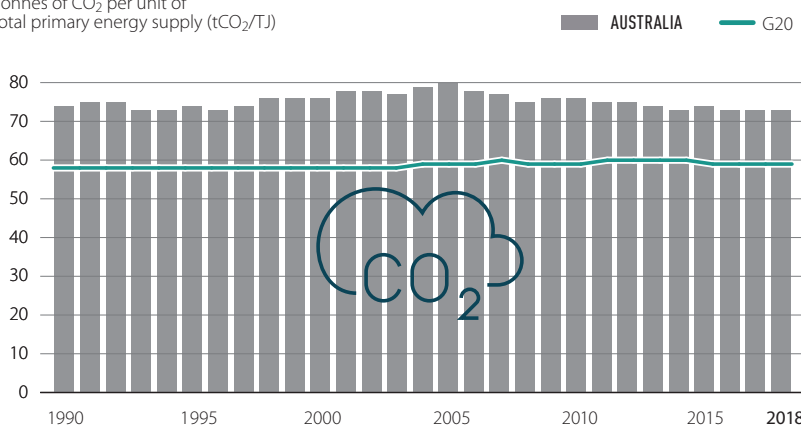


Source: Enerdata 2019

This graph shows the fuel mix for all energy supply, including energy used for electricity generation, heating, cooking, and transport fuels. Fossil fuels (oil, coal and gas) still make up 92% of the Australian energy mix, which is one of the highest levels in the G20. The increased energy supply over the last decades has been covered mainly by oil and gas, not renewables.

Carbon intensity of the energy sector

Tonnes of CO₂ per unit of total primary energy supply (tCO₂/TJ)



Source: Enerdata 2019

Rating of carbon intensity compared to other G20 countries⁴

Rating trend (2013-2018)



Rating current level (2018)



Source: own evaluation

Carbon intensity shows how much CO₂ is emitted per unit of energy supply. Australia's carbon intensity is 73 tCO₂/TJ, the 2nd highest in the G20, reflecting the high share of fossil fuels in the energy mix. Carbon intensity dropped only slightly (2013-2018).

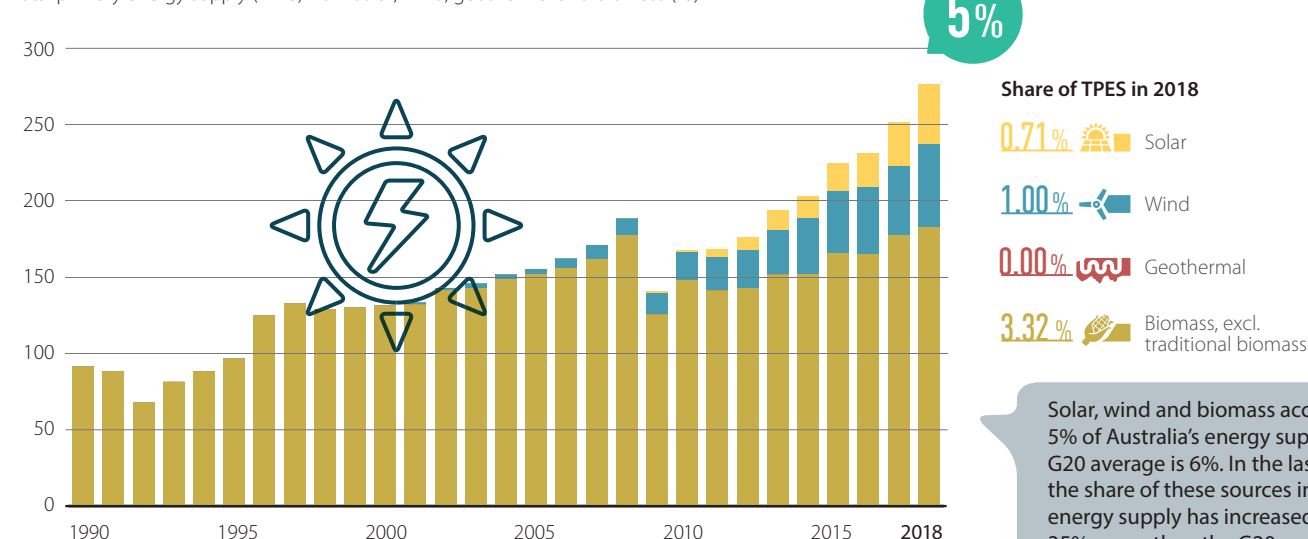
MITIGATION ENERGY



AUSTRALIA

Solar, wind, geothermal and biomass development⁸

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



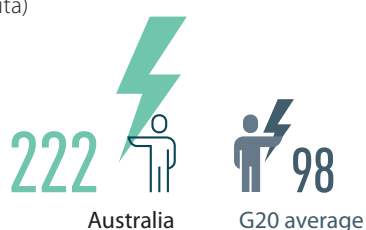
Source: Enerdata 2019

Rating of share in TPES compared to other G20 countries⁴

Source: own evaluation

Energy supply per capita

Total primary energy supply per capita (GJ/capita)

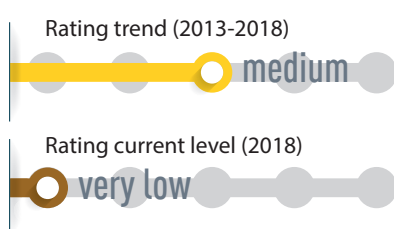


The level of energy supply per capita is closely related to economic development, climatic conditions and the price of energy.

Energy supply per capita in Australia is 220 GJ/capita, more than double the G20 average, and is decreasing only slightly (-2%, 2013-2018).

Trend (2013-2018) -2% +1%

Data for 2018 |
Source: Enerdata 2019;
World Bank 2019

Rating of energy supply per capita compared to other G20 countries⁴

Source: own evaluation



MITIGATION ENERGY



AUSTRALIA

! Australia uses high amounts of energy, both per capita and per GDP unit. CO₂ emissions from energy have not yet peaked; in particular, the rising transport emissions are alarming.

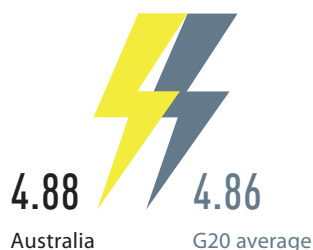
Global energy and process-related CO₂ emissions must be cut by 40% below 2010 levels by 2030 and reach net zero by 2060.

1.5°C⁶

Source: IPCC SR1.5 2018

Energy intensity of the economy

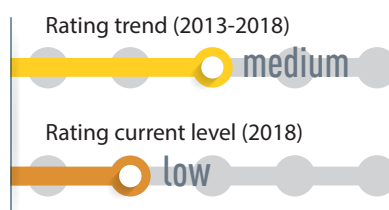
(TJ/PPP US\$2015 million)



Trend
(2013-2018) -7% -12%

Data for 2018 | Source: Enerdata 2019; World Bank 2019

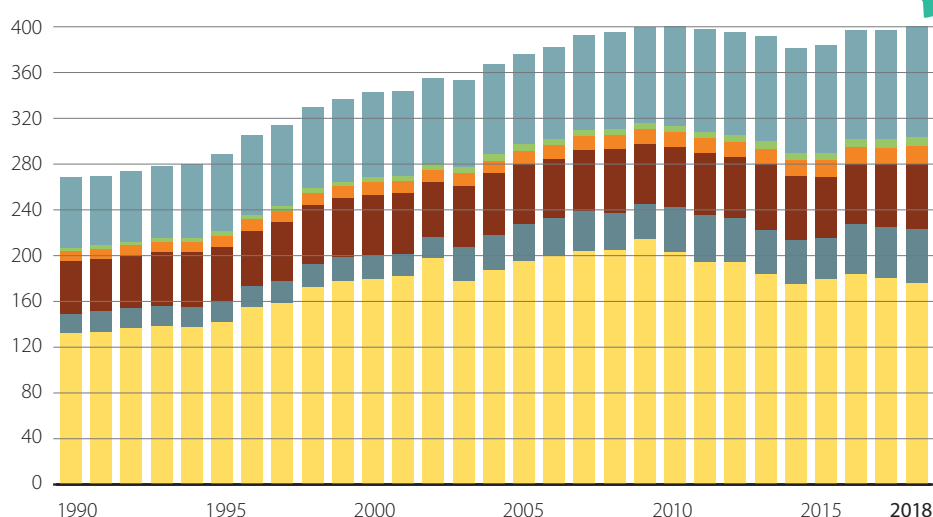
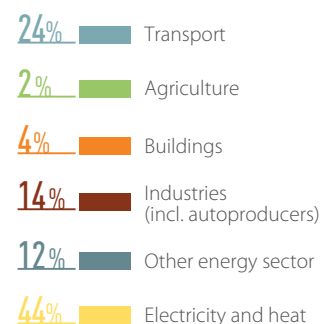
This indicator quantifies how much energy is used for each unit of GDP. This is closely related to the level of industrialisation, efficiency achievements, climatic conditions or geography. Australia's energy intensity is close to the G20 average but is decreasing at a rate slightly below (-7%, 2013-2018) the G20 average.

Rating of energy intensity compared to other G20 countries⁴

Source: own evaluation

Energy-related CO₂ emissions⁹

CO₂ emissions from fuel combustion (MtCO₂/year)

Share of total energy-related CO₂ emissions in 2018

Source: Enerdata 2019

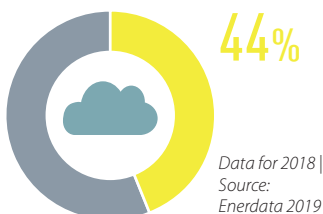
The largest driver of overall GHG emissions are CO₂ emissions from fossil fuel combustion. In Australia, they have remained almost stable over the last decade, with only minor ups and downs. The largest reduction in recent years coincided with the passing of carbon pricing legislation in 2012, and the subsequent increase from 2015 onwards coincides with its repeal in 2014. Electricity and transport are the largest contributors.

MITIGATION POWER SECTOR



AUSTRALIA

! Australia still produces 60% of its electricity from coal and the government has no plans to phase it out, nor is it supporting the development of renewables.

Share in energy-related CO₂ emissions

Coal must be phased out in the EU/OECD no later than 2030, in the rest of the world no later than 2040. Electricity generation needs to be decarbonised before 2050, with renewable energy the most promising option.⁵

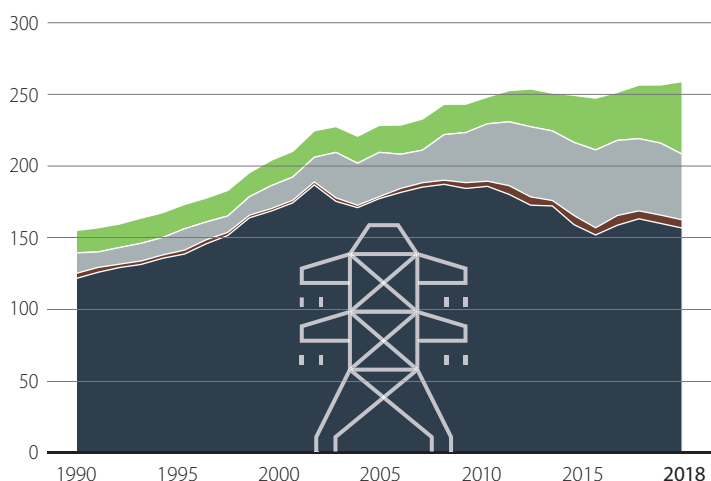
1.5°C⁶

Source: IPCC SR1.5 2018; Climate Analytics 2016; Climate Analytics 2019

STATUS OF DECARBONISATION

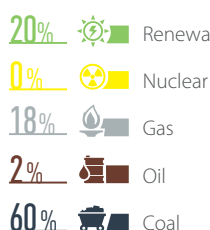
Power mix

Gross power generation (TWh)

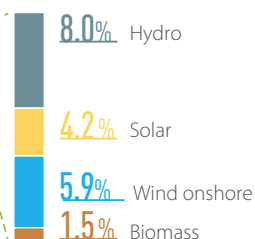


Source: Enerdata 2019

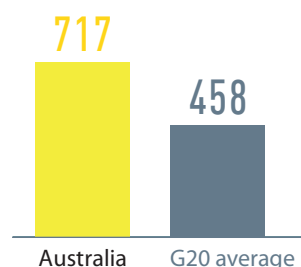
Shares in 2018



Renewables shares



Australia generates 80% of its electricity from fossil fuels (the G20 average is 63%), mainly from coal. However, the use of renewable electricity is increasing and now makes up almost 20% of the power mix – although it is still less than the G20 average (25%).

Emissions intensity of the power sector (gCO₂/kWh)

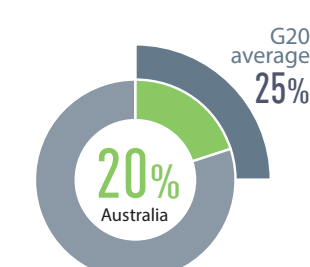
Data for 2018 | Source: Enerdata 2019

Trend (2013-2018)

Rating of emissions intensity compared to other G20 countries⁴

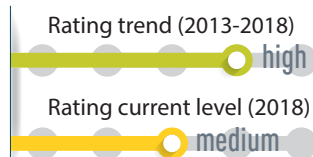
Source: own evaluation

Share of renewables in power generation (incl. large hydro)



Data for 2018 | Source: Enerdata 2019

Trend (2013-2018)

Rating of share of renewables compared to other G20 countries⁴

Source: own evaluation

For each kilowatt hour of electricity, 717 gCO₂ are emitted in Australia. This is well above the G20 average, reflecting the high share of fossil fuels in the power mix. Emissions intensity has dropped only marginally (-6%, 2013-2018) due to the growth of renewables.

MITIGATION POWER SECTOR



AUSTRALIA

POLICIES⁵

Renewable energy in the power sector



The Renewable Energy Target scheme, Australia's primary renewable support tool, will expire in 2020, and will not be replaced. The latest available data shows a 21% decline in renewable energy investment in Australia over the 2018/19 financial year, demonstrating the importance of having a robust post-2020 renewable energy target in place.

Source: own evaluation

Coal phase-out in the power sector



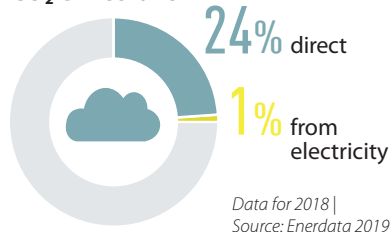
There is no coal phase-out policy. While the market views new coal plants as unviable, the federal government continues to promote coal. Australia has a current (2018) share of 60% of coal in power generation and projects still a high share of 49% in 2030.

Source: own evaluation

MITIGATION TRANSPORT SECTOR



! 88% of passenger transport is by private car, and Australia has the highest per capita aviation emissions in the G20. The transport sector is still dominated by fossil fuels, and Australia has no policies for reducing emissions from transport. In order to stay within a 1.5°C limit, passenger and freight transport need to be decarbonised.

Share in energy-related CO₂ emissions

Data for 2018 |
Source: Enerdata 2019

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

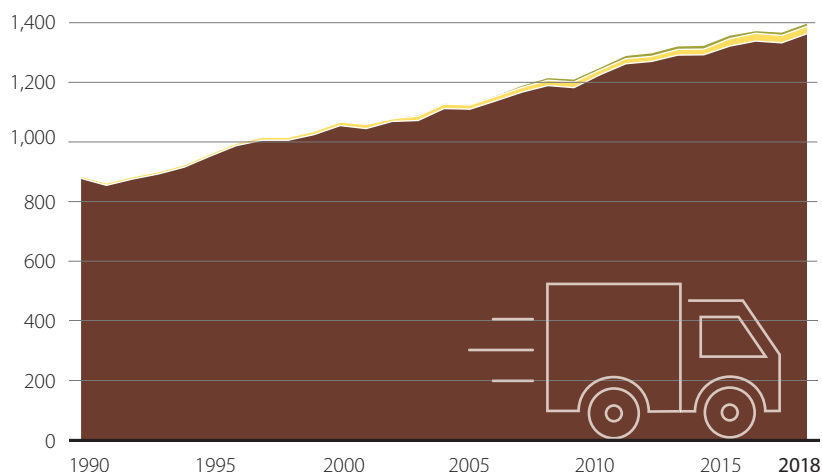
1.5°C⁶

Source: IPCC SR1.5 2018

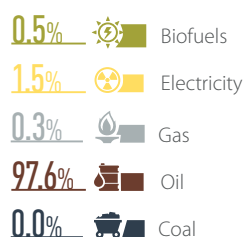
STATUS OF DECARBONISATION

Transport energy mix

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



Share in 2018



Electricity and biofuels make up only 2% of the energy mix in transport.

Source: Enerdata 2019

MITIGATION TRANSPORT SECTOR

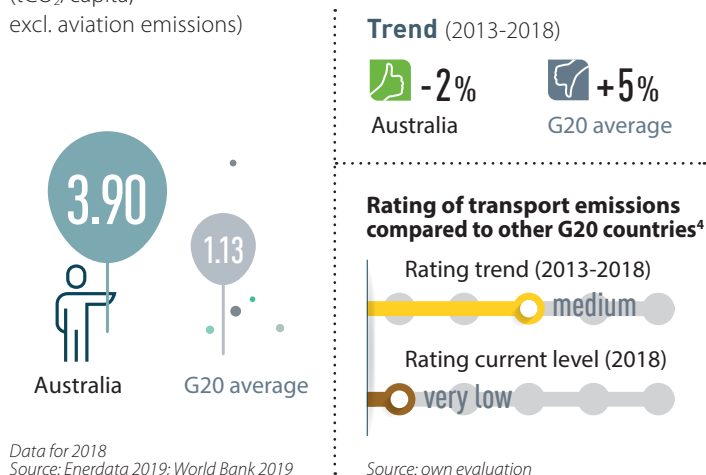


AUSTRALIA

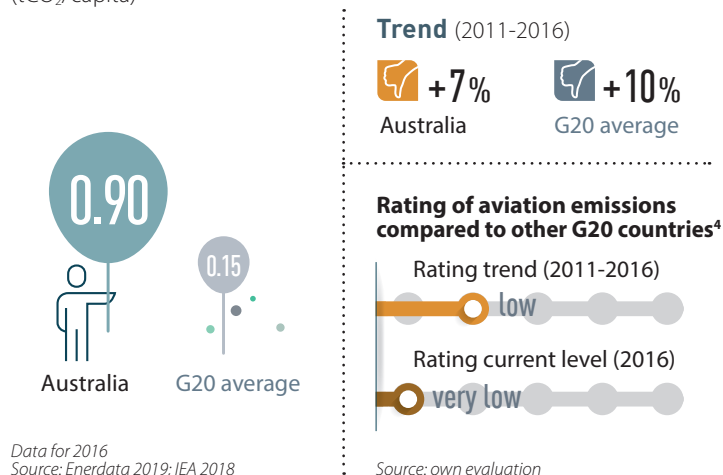
STATUS OF DECARBONISATION (continued)

Transport emissions per capita¹⁰

(tCO₂/capita,
excl. aviation emissions)

Aviation emissions per capita¹¹

(tCO₂/capita)



Motorisation rate

(vehicles per 1,000 inhabitants)



Market share of electric vehicles in new car sales

(%)



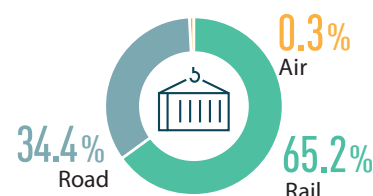
Passenger transport

(modal split in % of passenger km)



Freight transport

(modal split in % of tonne-km)

POLICIES⁵

Phase out fossil fuel cars



Australia has no target to phase out fossil fuel cars. The 2019 Climate Solution Package refers to the development of a national strategy for electric vehicles (EV), but without providing a timeline. The government has not yet adopted any efficiency or emissions standards for cars.

⚠️ The previous Environment Minister committed to present a national EV strategy in 2020, but since her replacement no such timeline has been discussed.

Source: own evaluation

Phase out fossil fuel heavy-duty vehicles



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



The 10-year rolling Infrastructure Investment Program (2019-20, approx. US\$70bn), mainly targets road infrastructure. The government is supporting public transport infrastructure in Sydney, Melbourne and Perth, and faster rail connections through the 2017 National Rail Program (approx. US\$7bn). However, there is no longer-term strategy for promoting a modal shift.

⚠️ The government claims that funding for rail projects will be considered under the Infrastructure Investment Program, but there have been no firm commitments as yet.

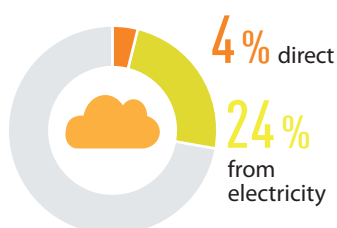
Source: own evaluation

MITIGATION BUILDINGS SECTOR



AUSTRALIA

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

Share in energy-related CO₂ emissions

Data for 2018 | Source: Enerdata 2019

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

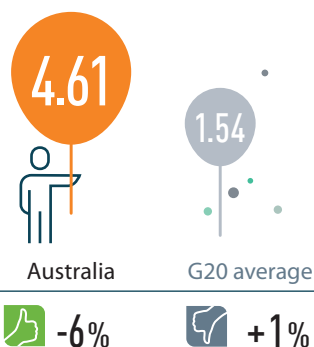
1.5°C⁶

Source: IEA ETP B2DS scenario assessed in IPCC SR1.5 2018

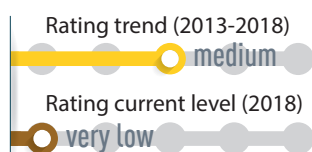
STATUS OF DECARBONISATION

Building emissions per capita

(incl. indirect emissions)
(tCO₂/capita)



Trend (2013-2018)

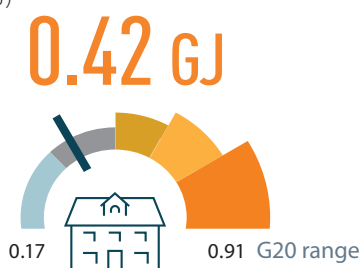
Rating of building emissions compared to other G20 countries⁴

Source: own evaluation

Data for 2018 | Source: Enerdata 2019; World Bank 2019

Residential buildings: energy use per m²

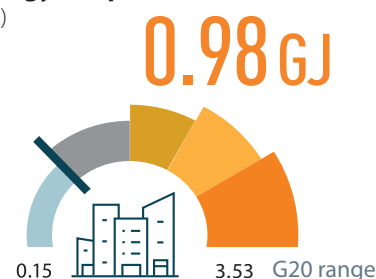
(GJ)



Data: year different per country | Source: ACEEE 2018

Commercial and public buildings: energy use per m²

(GJ)



Data: year different per country | Source: ACEEE 2018

Building-related emissions per capita are more than three times the G20 average. This partly reflects climatic conditions (eg air conditioning) but also low insulation standards and the high level of floor area per person. In contrast to the G20 average, Australia has managed to reduce emissions by 6% (2013-2018).

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 G20 countries.

POLICIES⁵

Near-zero energy new buildings



The Council of Australian Governments committed in 2019 to the further tightening of building code regulations and to address residential energy efficiency standards in the next National Construction Code update due in 2022. The current NCC, updated in May 2019, covers commercial buildings only.

! There is no target for zero-energy new buildings, creating a substantial risk that future measures will lack effectiveness.

Source: own evaluation

Renovation of existing buildings



There is currently no national strategy for energy retrofitting of buildings, although there is a commitment under the recently adopted 'Trajectory for Low Energy Buildings' to adopt timelines for measures for existing commercial and residential buildings some time in 2019.

! Inherent in a commitment to "adopt timelines for measures" in 2019 is a substantial risk that such timelines and associated measures are lacking in ambition.

Source: own evaluation

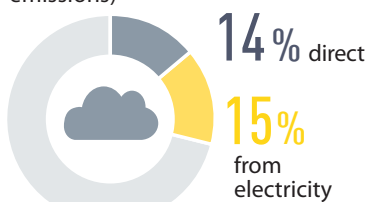
MITIGATION INDUSTRY SECTOR



AUSTRALIA

! Industry-related emissions make up almost third of CO₂ emissions and Australia has no policies to decarbonise the sector, as required for a 1.5°C pathway.

Share in energy-related CO₂ emissions (not including process emissions)



Data for 2018 | Source: Enerdata 2019

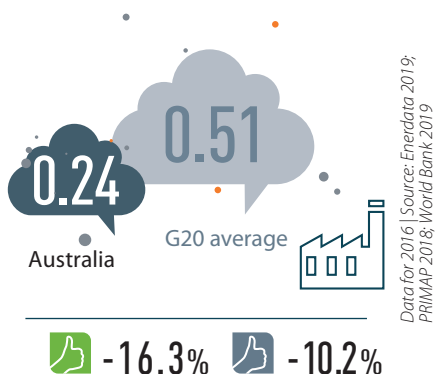
Global industrial CO₂ emissions need to be reduced by 65–90% from 2010 levels by 2050.

1.5°C⁶

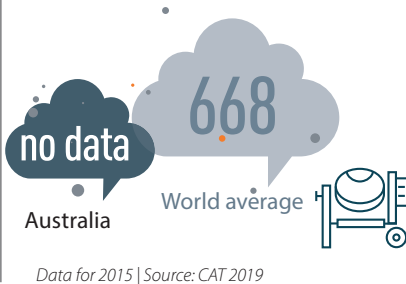
Source: IPCC SR1.5 2018

STATUS OF DECARBONISATION

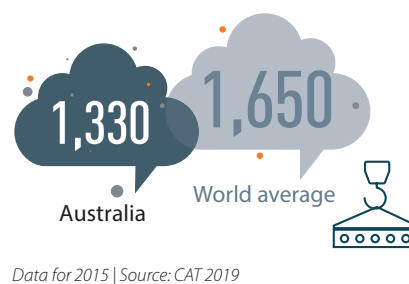
Industry emissions intensity¹²
(tCO₂e/US\$2015 GVA)



Carbon intensity of cement production¹³
(kgCO₂/tonne product)



Carbon intensity of steel production¹³
(kgCO₂/tonne product)



Trend (2011–2016)

Rating of emissions intensity compared to other G20 countries⁴



Source: own evaluation

When comparing industrial emissions based on the data used here with the gross value added (GVA) from the industry sector, Australia performs comparatively well within the G20.

Steel production and steelmaking are significant GHG emission sources, and are challenging to decarbonise. Australia's steel industry is slightly less emissions intensive than the world average.

POLICIES⁵

Energy efficiency



Australia's manufacturing industry is very energy intensive compared to other G20 countries, and is effectively standing still, while other countries are improving. Mandatory energy efficiency policies in Australia cover only 11–25% of total energy use (as of 2017). An overall strategy to decarbonise the industry sector is not in sight.

Source: own evaluation



MITIGATION LAND USE



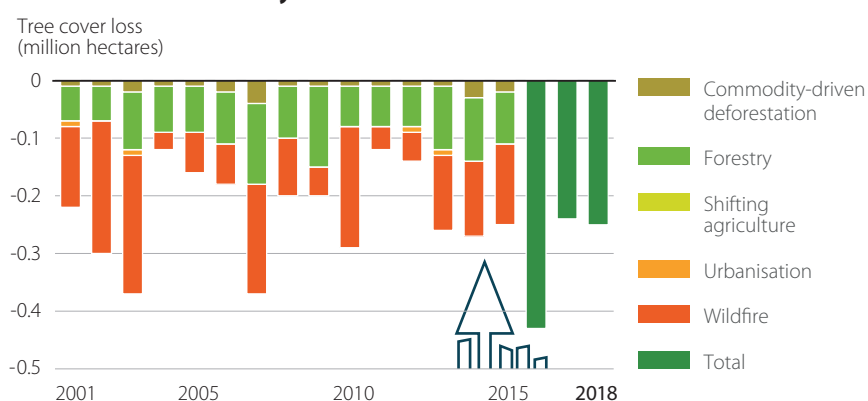
AUSTRALIA

! In order to stay within the 1.5°C limit, Australia needs to halt deforestation.

Global deforestation needs to be halted and changed to net CO₂ removals by around 2030.

1.5°C⁶

Source: IPCC SR1.5 2018

Gross tree cover loss by dominant driver¹⁴

Source: Global Forest Watch 2019

Note: 2000 tree cover extent | >30% tree canopy | these estimates do not take tree cover gain into account

POLICIES⁵

(Net) zero deforestation



With strong government focus on supporting the forest and timber industries, there are no policies to achieve (net) zero deforestation. Australia is the only developed country deforestation hotspot in the world, with estimates that 3-6 million hectares of forest could be lost by 2030 in Eastern Australia, while more than 7.7 million hectares have been cleared since 2000.

Source: own evaluation

From 2001 to 2018, Australia lost 4.45Mha of tree cover, equivalent to a **11% reduction since 2000**. This does not take tree-cover gain into account. The largest proportion of forest loss was lost due to wildfires.

MITIGATION AGRICULTURE



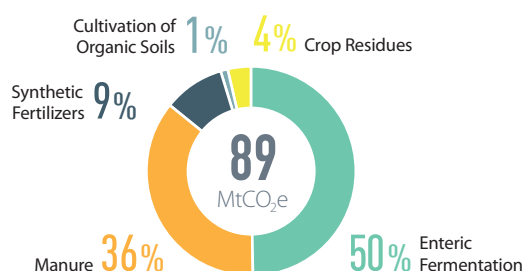
! Australia's agricultural emissions come mainly from digestive processes in animals (mostly cattle) and livestock manure. A 1.5°C pathway requires behavioural and dietary shifts, and more efficient fertilizer use.

Global 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 fertilizers and manure) need to be reduced by 10% by 2030 and by 20% by 2050.

1.5°C⁶

Source: IPCC SR1.5 2018

GHG emissions from agriculture (not including energy)



Data for 2016 | Source: FAOSTAT 2019

In Australia, the largest sources of GHG emissions in the agricultural sector are digestive processes in animals (enteric fermentation), livestock manure, and – to a lesser extent – synthetic fertilizers. More efficient use of fertilizers and diet changes, as well as reductions in food waste, could help reduce emissions from the agricultural sector.

ADAPTATION

- Australia is vulnerable to climate change and adaptation actions are needed.
- On average, 48 fatalities and losses amounting to US\$2.4 billion occur yearly due to extreme weather events.
- With global warming, society and its supporting sectors are increasingly exposed to severe impacts such as extreme heat.
- With a 3°C warming, Australia would experience around 135 days per year when temperatures are above 35°C.



ADAPTATION POLICIES

Nationally-determined contribution: Adaptation

Targets	Not mentioned
Actions	Actions mentioned but not further specified

Source: UNFCCC, NDC of respective country

National adaptation strategies

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

Source: own research

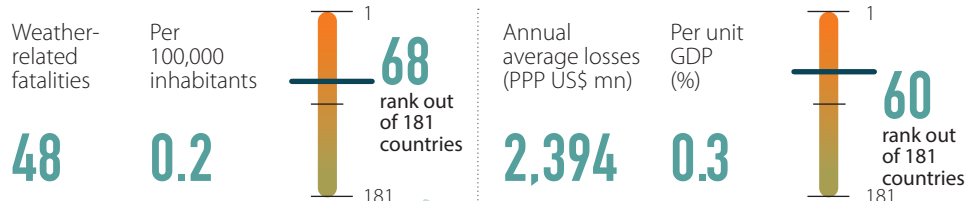


ADAPTATION NEEDS

Climate Risk Index for 1998-2017

Impacts of extreme weather events in terms of fatalities and economic losses that occurred

Global Climate Risk Index 2019 | All numbers are averages (1998-2017)



Source: Germanwatch 2018



Australia has already been struck by extreme weather events such as extreme heat, wildfires, droughts and storms. In January 2019 Australia experienced the hottest months in its history, when the mean temperature exceeded 30°C. As highlighted by the numbers from the Climate Risk Index, such extreme weather events result in fatalities and economic losses. Climate change is expected to worsen the intensity, frequency and impacts of such events.

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

		1.5°C	2°C	3°C
Water 	% of area with increase in water scarcity	Low	Medium	High
	% of time in drought conditions	Low	Medium	High
Heat & Health 	Heatwave frequency	Low	Medium	High
	Days above 35°C	Very high	Very high	Very high

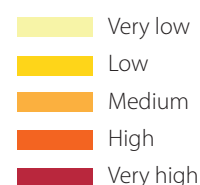
Source: own research

Agriculture 	Wheat		1.5°C	2°C	3°C
		Reduction in crop duration	Low	Low	Low
		Hot spell frequency	Low	Medium	Very high
		Reduction in rainfall	Low	Low	Low

Source: Based on Arnell et al 2019

Overall, with rising temperatures, all sectors are adversely affected. In the water sector, water scarcity and time spent in drought conditions increase significantly. The frequency of heat waves increases significantly, together with an increase in the number of days with temperatures above 35°C.

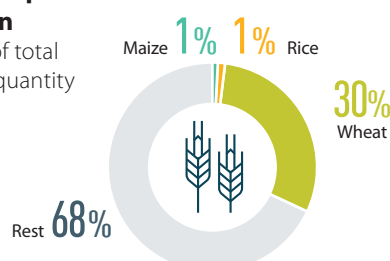
Impact ranking scale



Blank cells signify that there is no data available

National crop production

(share in % of total production quantity in tonnes)



Data for 2017 | Source: FAOSTAT 2019

Wheat represents the largest proportion of crop production out of the four crops analysed (maize, rice, soybeans, wheat). It experiences a slight reduction in crop duration and rainfall and is affected by a drastic increase in hot spell frequency.

FINANCE



Australia spent US\$7.5bn on fossil fuel subsidies in 2017, mostly on petroleum and electricity use, while the carbon tax was repealed in 2014.

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



1.5°C⁶

Source: IPCC SR1.5 2018

Nationally-determined contribution: Finance

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

Source: UNFCCC, NDC of respective country

Financial policy and regulation supporting a brown to green transition

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		Not 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.	X			
			Mandatory	Voluntary	Under discussion	Not identified
Enhanced supervisory review, risk disclosure and market discipline	Climate risk disclosure requirements	Disclose the climate-related risks to which financial institutions are exposed				X
	Climate-related risk assessment and climate stress-test	Evaluate the resilience of the financial sector to climate shocks				X
Enhanced capital and liquidity requirements	Liquidity instruments	Mitigate and prevent market illiquidity and maturity mismatch				X
	Lending limits	Limit the concentration of carbon-intensive exposures				X
		Incentivise low carbon-intensive exposures				X
	Differentiated Reserve Requirements	Limit misaligned incentives and canalise credit to green sectors				X

Source: own research



In 2017, Australia's Prudential Regulation Authority (APRA) called for implementation of the recommendations of the Task-force 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 Australian Senate engaged the private sector via a report and public hearing that sought private sector submissions on carbon risk disclosure. 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.

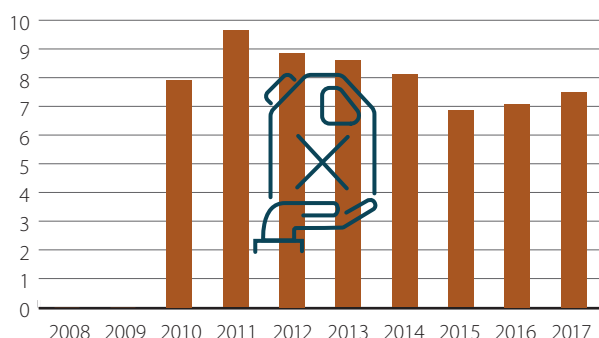
FINANCE

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 prices.

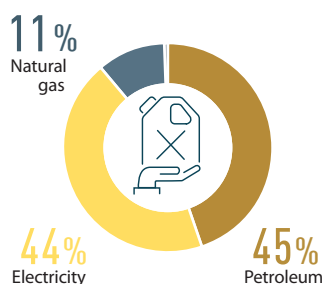
Fossil fuel subsidies

US\$ billions



Source: OECD-IEA 2019

Subsidies by fuel type

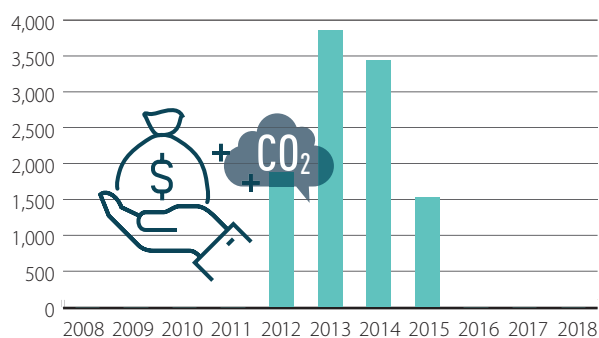


Data for 2017 | Source: OECD-IEA 2019

In 2017, Australia's fossil fuel subsidies totalled US\$7.5bn (compared to US\$7.9bn in 2010, with limited annual fluctuations between 2010 and 2017, compared to other G20 countries). Of the subsidies quantified, 86% were for the consumption of fossil fuels, and the remainder for production. The highest amount of subsidy was for petroleum, at US\$5.3bn. 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, which has particularly benefited the mining sector (US\$4.2bn).

Carbon revenues

Carbon revenues (US\$ millions)
from explicit carbon pricing schemes

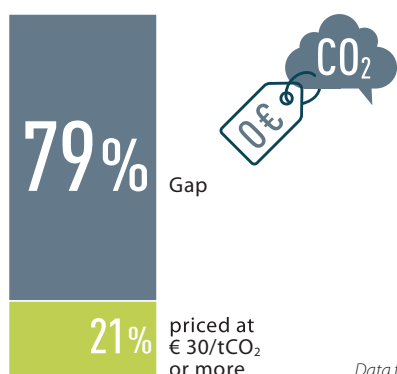


Source: IACE 2019

In 2015, Australia phased out its national carbon tax. No carbon taxation or emissions trading schemes are currently planned, whether national or subnational.

Carbon pricing gap¹⁵

% of energy-related CO₂ emissions



Data for 2015 | Source: OECD 2018

Only 21% of Australia's CO₂ emissions are priced at EUR30 or higher (the low-end benchmark), creating a carbon pricing gap of 79%. This gap is higher than the G20 average of 71%. The price covers not only explicit carbon taxes but also specific taxes on energy use and the price of tradable emission permits.

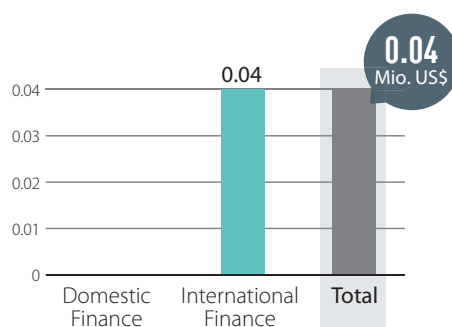
FINANCE

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 coal¹⁶

(million US\$)



In 2017, Australia's Export Finance and Insurance Corporation (EFIC) provided a US\$81,000 loan for coal mining in China.



Data year: 2016-2017 average
Source: Oil Change International 2019

Commitments to restrict public finance to coal and coal-fired power¹⁷

MDB level	National development agencies and banks	Domestic export credit agencies	Export credit restriction in OECD	Comment
—	—	—	X	Australia is part of the OECD agreement for export credit agencies to restrict coal financing.

X yes

— no

— not applicable

Source: own research

Provision of international public support¹⁸

Australia is ranked 8th as a provider of climate finance in 2015-16 through bilateral flows and 7th through the multilateral climate funds in absolute values. However, it performs much better relative to GDP for its multilateral climate fund contributions. Australia reports its finance as cross-cutting, contributing to both adaptation and mitigation, with a reduction in bilateral climate funds and an increase in multilateral climate funds since the 2013-2014 period. Climate change is a divisive election issue in Australia and announcements during early 2019 suggest that Australia will not replenish the Green Climate Fund in 2019, rather supporting projects in the region bilaterally.

Obligation to provide climate finance under UNFCCC

YES

NO



United Nations
Framework Convention on
Climate Change

Bilateral climate finance contributions

Annual average contribution
(mn US\$, 2015-2016)

95.16

Source: Country reporting to UNFCCC

Theme of support

Mitigation	Adaptation	Cross-cutting	Other
0%	0%	100%	0%

Multilateral climate finance contributions

Annual average contribution
(mn US\$, 2015-2016)

126.78

See Technical Note for
multilateral climate funds
included and method to
attribute amounts to countries

Source: Country reporting to UNFCCC

Theme of support

Adaptation	Mitigation	Cross-cutting
0%	0%	100%

Core/General Contributions

Annual average contribution
(mn US\$, 2015-2016)

351.99

Source: Country reporting to UNFCCC

ENDNOTES



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 emission 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.

The 2030 projections of GHG emissions are from the CAT's June 2019 update and are based on implemented policies, expected economic growth or trends in activity and energy consumption.

The CAT methodology does not consider GHG emissions from LULUCF due to the large degree of uncertainty inherent in this type of data, and also to ensure consistency and comparability across countries.

- 3) See the Brown to Green 2019 Technical Note for the sources used for this assessment.
- 4) The Decarbonisation Ratings assess the relative performance across the G20. A high scoring reflects a relatively good efforts from a climate protection perspective but is not necessarily 1.5°C compatible. The ratings assess both the 'current level' and 'recent developments' to take account of the different starting points of different G20 countries. The 'recent developments' ratings compare developments over the last five available years (often 2013 to 2018).
- 5) The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement, the Special Report on 1.5°C of the International Panel on Climate Change (2018), and the Climate Action Tracker (2016): 'The ten most important short-term steps to limit warming to 1.5°C'. The table below displays the criteria used to assess a country's policy performance. See the Brown to Green Report 2019 Technical Note for the sources used for this assessment.

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)
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
Energy efficiency in industry	No policies	Mandatory energy efficiency policies cover more than 26-50% of industrial energy use	Mandatory energy efficiency policies cover 51-100% of industrial energy use	Policies + strategy to reduce industrial emissions by 75%-90% from 2010 levels by 2050
(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

ENDNOTES (continued)

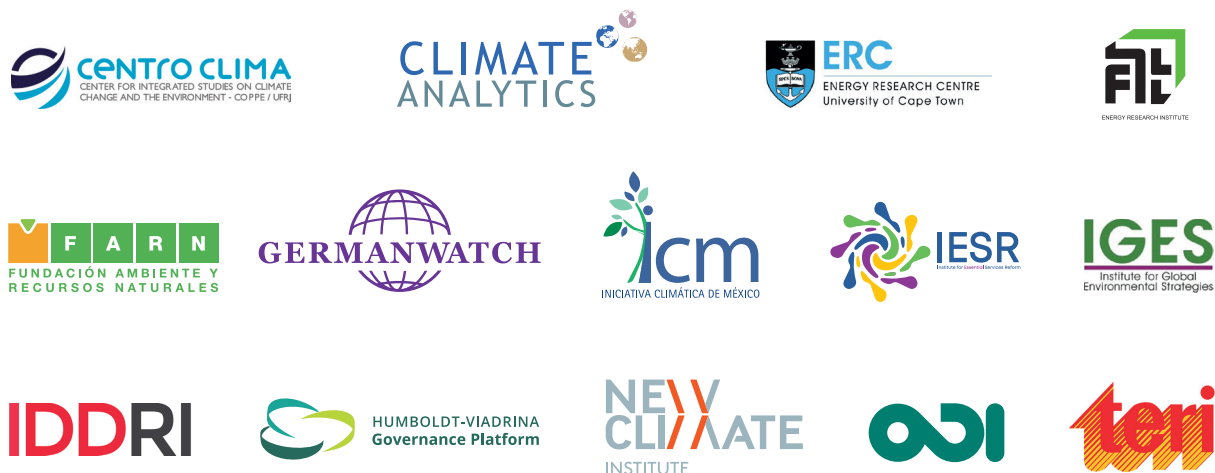


- 6) The 1.5°C benchmarks are based on the Special Report on 1.5°C of the International Panel on Climate Change (2018). See the Brown to Green 2019 Technical Note for the specific sources used for this assessment.
- 7) Total primary energy supply data displayed in this Country Profile does not include non-energy use values. Solid fuel biomass in residential use has negative environmental and social impacts and is shown in the category 'other'.
- 8) Large hydropower and solid fuel biomass in residential use are not reflected due to their negative environmental and social impacts.
- 9) The category 'electricity and heat' covers CO₂ emissions from power generation and from waste heat generated in the power sector. The category 'other energy use' covers energy-related CO₂ emissions from extracting and processing fossil fuels (e.g. drying lignite).
- 10) This indicator shows transport emissions per capita, not including aviation emissions.
- 11) This indicator adds up emissions from domestic aviation and emissions from international aviation bunkers in the respective country. Emissions by aircrafts in the higher atmosphere lead to a contribution to climate change greater than emissions from burning fossil fuels. In this Country Profile, however, only a radiative forcing factor of 1 is assumed.
- 12) This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.
- 13) This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).
- 14) 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. The definition of 'forest' used for this indicator is also not identical with the definition used for the indicator on page 3.
- 15) 'Effective carbon rates' are the total price that applies to CO₂ emissions, and are made up of carbon taxes, specific taxes on energy use and the price of tradable emission permits. The carbon pricing gap is based on 2015 energy taxes and is therefore likely to be an underestimate, as taxation has tended to increase in countries over time.
- 16) The database used to estimate public finance for coal is a bottom-up database, based on information that is accessible through various online sources, and is therefore incomplete. For more information, see to the Brown to Green 2019 Technical Note.
- 17) See the Brown to Green 2019 Technical Note for the sources used for this assessment.
- 18) Climate finance contributions are sourced from Biennial Party reporting to the UNFCCC. Refer to the Brown to Green Report 2019 Technical Note for more detail.

For more detail on the sources and methodologies behind the calculation of the indicators displayed, please download the Technical Note at: <http://www.climate-transparency.org/g20-climate-performance/g20report2019>

CLIMATE TRANSPARENCY

Partners:



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<http://www.climate-transparency.org/g20-climate-performance/g20report2019>

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