



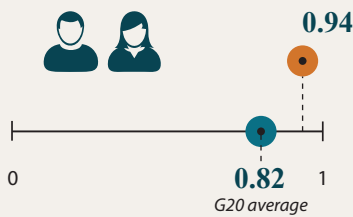
BROWN TO GREEN: G20 TRANSITION TO A LOW CARBON ECONOMY

Australia



This country profile assesses Australia's past, present and indications of future performance towards a low-carbon economy by evaluating emissions, decarbonisation, climate policy performance and climate finance. The profile summarises the respective findings from, amongst others, the Climate Change Performance Index (CCPI, operated by Germanwatch and Climate Action Network Europe), the Climate Action Tracker (CAT, operated by Climate Analytics, NewClimate Institute, Ecofys and the Potsdam Institute for Climate Impact Research), and analyses from the Overseas Development Institute (ODI).

Human Development Index



Source: UNDP, data for 2015

Share of global GHG emissions



Source: World Bank Indicators, data for 2012

GHG emissions per capita (tCO₂e/cap)



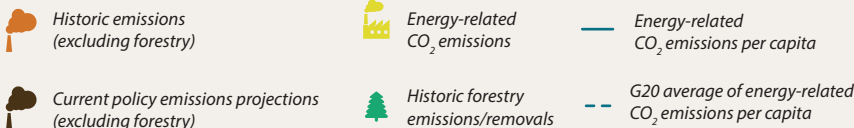
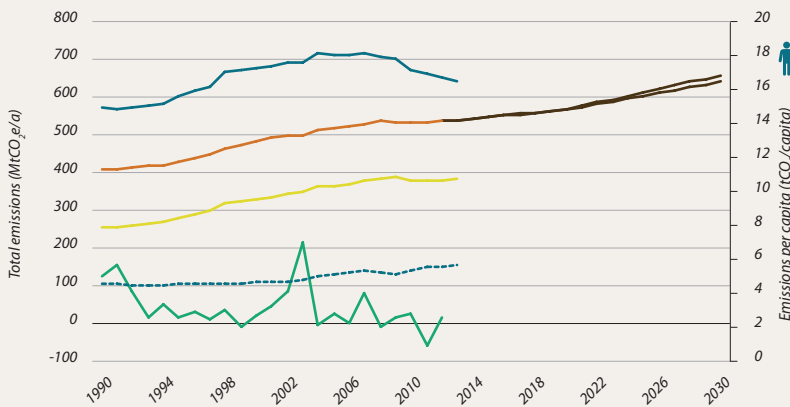
Share of global GDP



Source: IEA, data for 2013

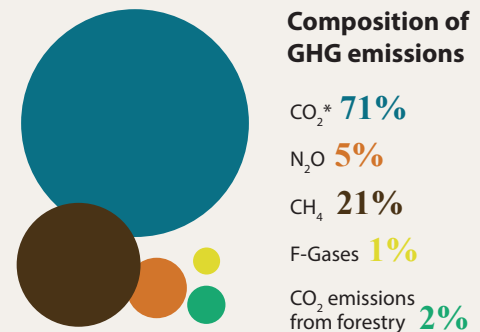
GDP per capita

GREENHOUSE GAS (GHG) EMISSIONS



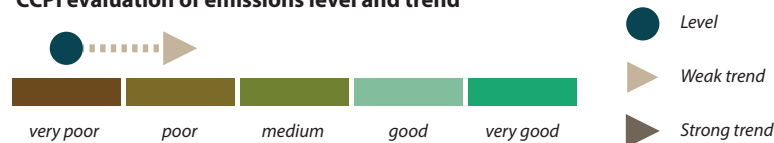
Australia's greenhouse gas (GHG) emissions rose steadily until 2008, when they levelled out. Emissions are expected to continue to increase until 2030. Emissions from land use, land-use change and forestry (LULUCF) strongly varied in the past, but no longer contribute much. Energy-related carbon dioxide (CO₂) emissions account for two-thirds of Australia's GHG emissions. CO₂ per capita emissions began decreasing after 2007, but remain high above the G20 average. The CCPI ranks Australia as among the worst performers due to its high emissions level. The five-year trend gives some positive indications for the future.

Composition of GHG emissions



*CO₂ emissions excl. LULUCF
Source: Annex I countries: UNFCCC (2015);
Non-Annex I countries: IEA (2014) and CAT (2015)

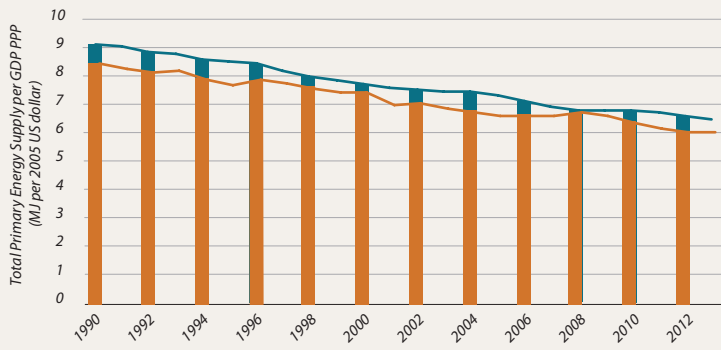
CCPI evaluation of emissions level and trend



Sources: Past energy related emissions from the Climate Change Performance Index (CCPI); past non-energy and future emissions projections from the Climate Action Tracker (CAT). CCPI calculations are primary based on the most recent IEA data; CAT calculations are based on national policies and country communications.

DECARBONISATION

Energy intensity of the economy



Energy intensity
Average energy intensity in G20

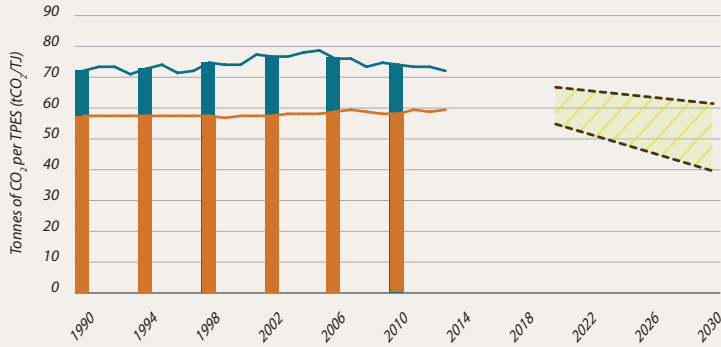
Source: CCPI, 2016

The energy intensity of Australia's economy (TPES/GDP) fell gradually from 1990 to 2012, reaching, in 2013 around 6 TJ per million US\$, slightly below the G20 average. The CCPI ranks the country's energy intensity as relatively poor. Data from the last five years indicate a positive trend.

CCPI evaluation of energy intensity of GDP



Carbon intensity of the energy sector



Carbon intensity (past trend)
Average carbon intensity in G20
Global benchmark for a 2°C pathway

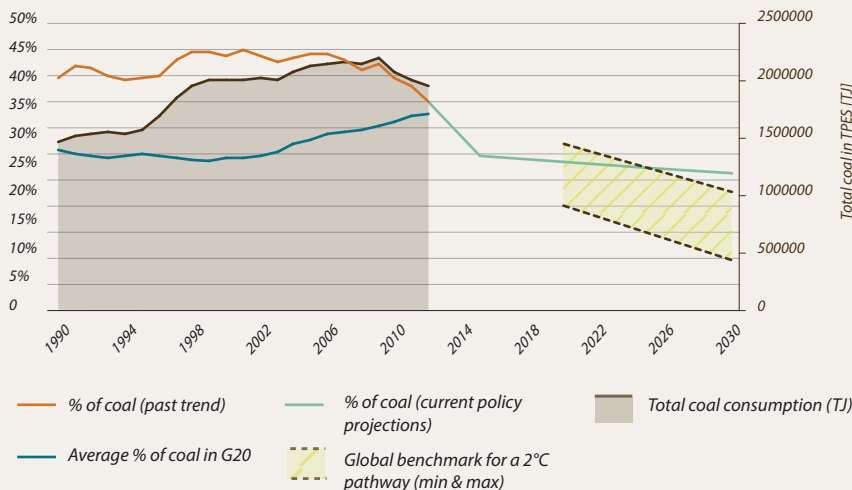
Sources: Past: CCPI; future projections: CAT

The carbon intensity of primary energy supply (CO₂/TPES) is high above the G20 average. Starting at 71 tCO₂ per TJ in 1990, the intensity slowly increased and peaked in 2005. Afterwards, carbon intensity dropped again to the 1990's level, still leaving Australia ranking very poorly, with an improving trend, according to the CCPI.

CCPI evaluation of carbon intensity of energy sector



Share of coal in Total Primary Energy Supply (TPES)

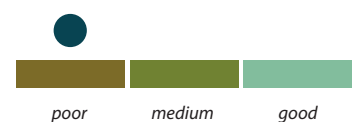


Source: CAT



Australia has a large coal industry, which is reflected in its energy mix. In recent decades, the share of coal in Australia's total primary energy supply varied between 40% and 46%. Since 2006, the share has been decreasing and is now down to 37%, close to the G20 average. Projections assume the share will further decrease in the future. It is nevertheless concerning that Australia will remain only slightly under the maximum value for a 2°C compatible pathway.

Evaluation of coal share in TPES

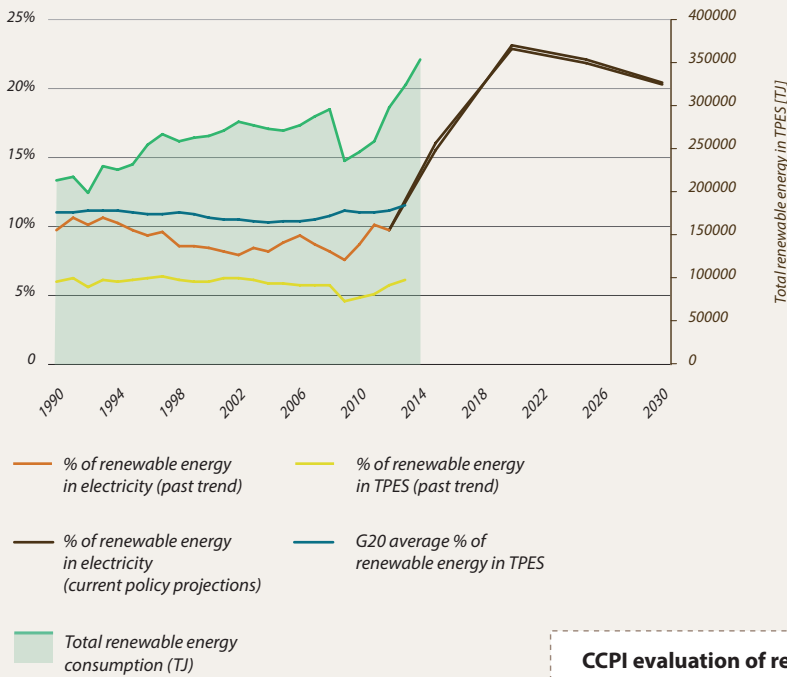


Source: own evaluation

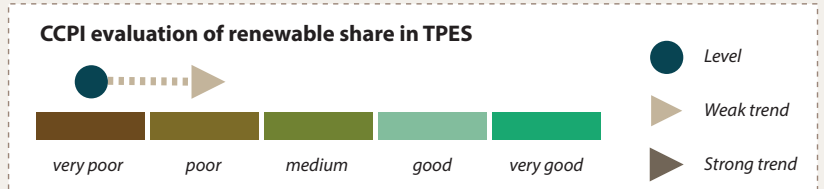
Renewable energy in TPES and electricity sector



The share of renewable energy in electricity has varied between 7-11% over the last decades. While there is no visible change in the share at the moment, this is expected to increase in the coming years and reach a level of 20% in 2030. The share of renewables in Australia's energy supply has remained constant at a level of 4-6% and is well below the G20 average. Accordingly, the CCPI ranks Australia's level of renewables as still relatively poor, though the trend shows a slightly positive development.

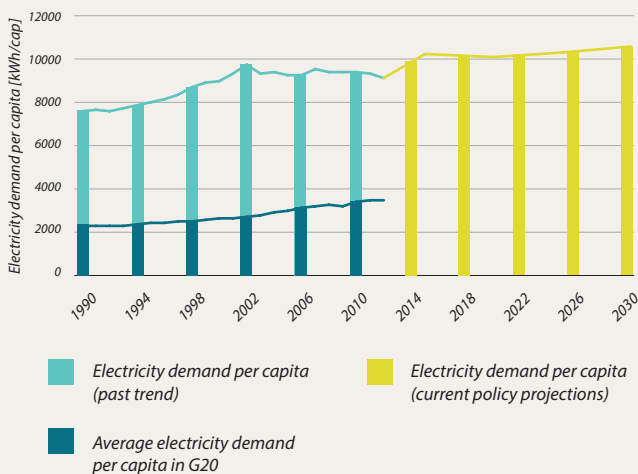


Sources: CCPI and CAT



Electricity demand per capita

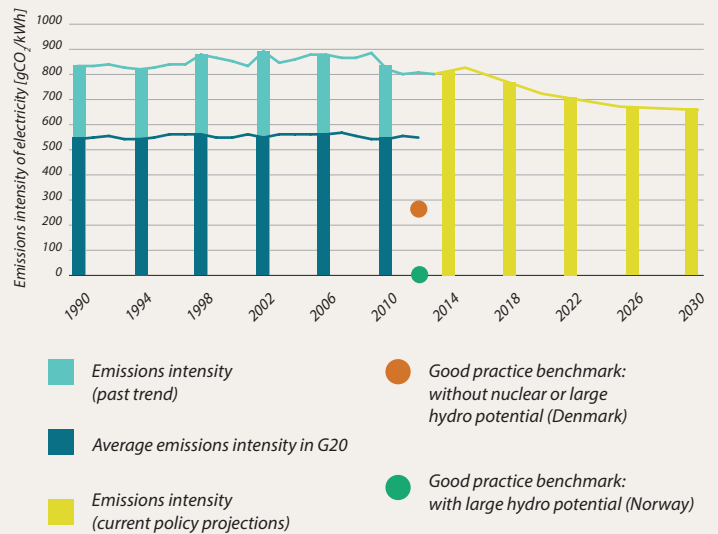
The electricity demand per capita continuously increased since 1990, peaking in 2002. Since then, the electricity demand only slightly decreased to 9083 kWh, far above the G20 average. It is expected that electricity demand will rise again in the next years to levels above 10,000 kWh per capita.



Source: CAT, 2015

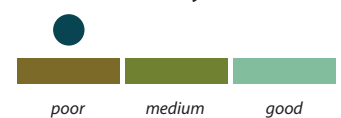
Emissions intensity of the electricity sector

Between 1990 and 2009, Australia's electricity emissions intensity varied between 800 and 900 gCO₂ per kWh. Since 2009, it slightly declined, but is still high compared to other G20 countries. Projections show emissions will drop further, but will still remain high.



Source: CAT, 2015

Evaluation of the electricity emission intensity



Source: own evaluation

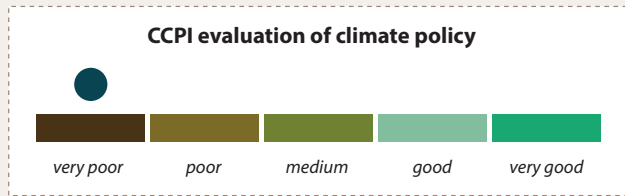
CLIMATE POLICY PERFORMANCE

Checklist of the climate policy framework

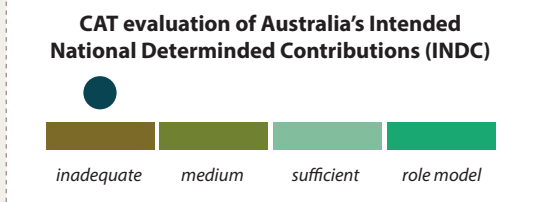
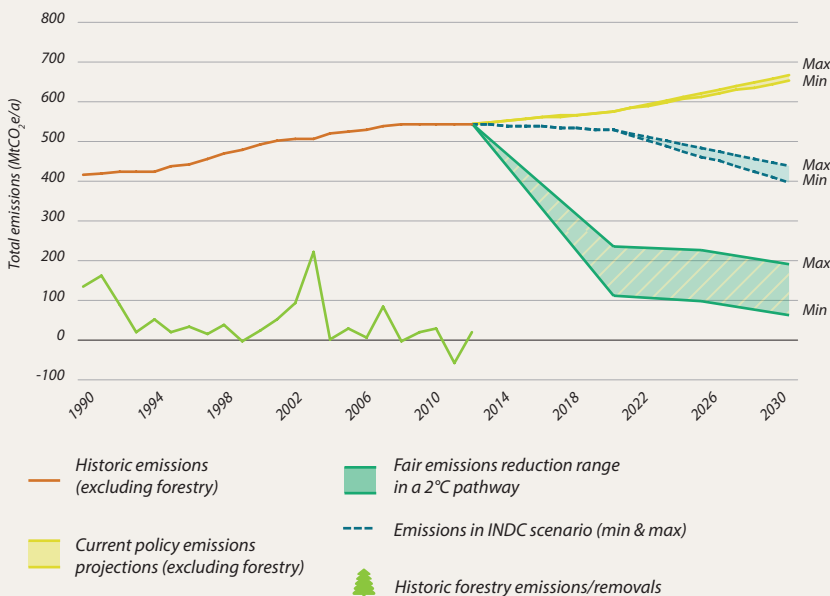
Low emissions development plan for 2050*	✓
2050 GHG emissions target	✓
Building codes, standards and incentives for low-emissions options	✓
Support scheme for renewables in the power sector	✓
Emissions performance standards for cars	✓
Emissions Trading Scheme (ETS)	✓
Carbon tax	✗

* Understood as decarbonisation plans and not specifically as the plans called for in the Paris Agreement

Source: Climate Policy Database, 2016



Compatibility of national climate targets (INDCs) with a 2°C scenario

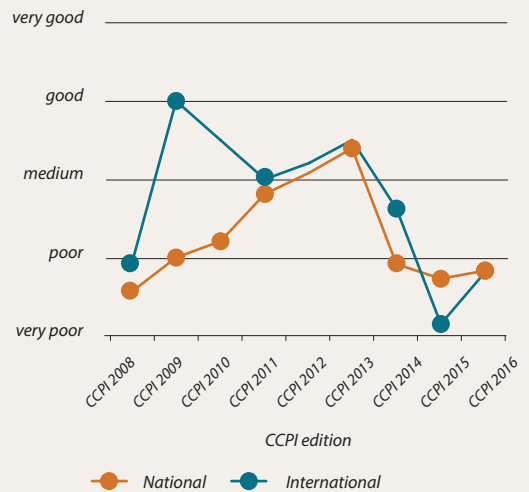


Source: CAT, 2015

Climate policy evaluation by experts

CCPI experts say Australia's climate policy is characterised by inconsistency on a national and international level. After receiving the worst possible rating for international climate policy in the CCPI 2015, Australia slightly improved in 2016. But the experts' overall evaluation remains relatively low, ranking Australia as a very poor performer. Alongside the US, Australia is one of the few countries that requested the UNFCCC not to publish its GHG emissions data for the most recent year.

The CCPI evaluates a country's performance in national and international climate policy through feedback from national energy and climate experts.



Source: CCPI, 2016

Australia submitted its Intended Nationally Determined Contribution (INDC) on 11 August 2015. The Climate Action Tracker rates as "inadequate" Australia's 2030 target to reduce greenhouse gas (GHG) emissions by 26–28% from 2005 levels by 2030, including Land Use, Land Use Change and Forestry (LULUCF). If all governments showed similar low ambition, global average warming would likely exceed 3–4°C. Australia's target for 2030 is close to its GHG emissions in 1990, ranging from +5% to -5% compared with 1990 levels, after excluding LULUCF.

With currently implemented policy measures, Australia's emissions are on course to rise to more than 61% above 1990 levels by 2030, equivalent to an increase of around 27% above 2005 levels. To meet its target, Australia will have to reduce its emissions by an average annual rate of 2% until 2030. Instead, under current policies, emissions are on course to rise by an average rate of 1.5% a year. Australia reserves the right to adjust its target, which adds to the level of uncertainty of the country's pledge.

FINANCING THE TRANSITION

Investment attractiveness



Allianz Energy and Climate Monitor

MEDIUM

RECAI* (E&Y index) Category (own assessment)

MEDIUM

Trend**



*Adapted from RECAI and re-classified in 3 categories (low, medium, high) for comparison purposes with Allianz Monitor.

**Taken from RECAI issue of May 2016

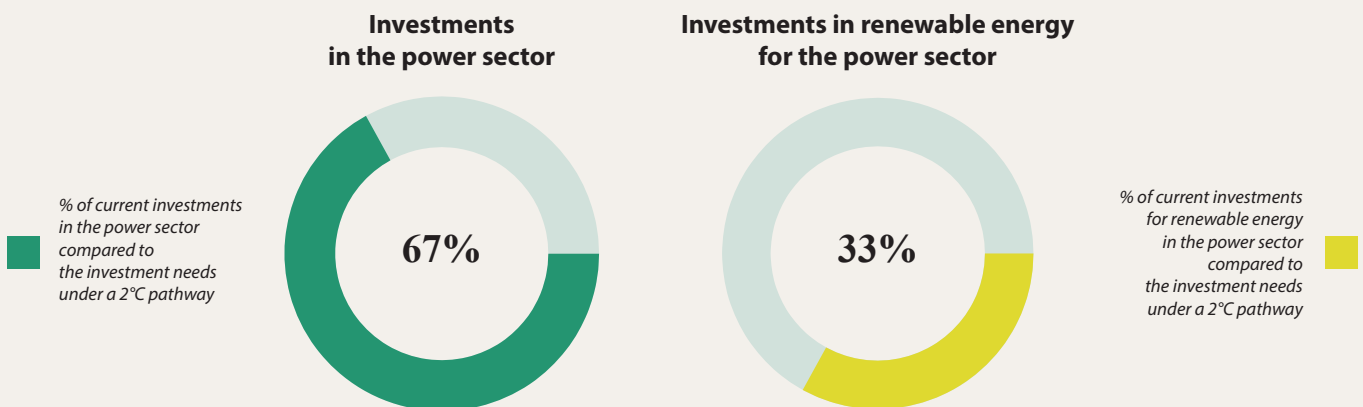
Climate Transparency rates Australia's investment attractiveness as medium, due to inadequate (long term) support policies for ambitious renewables targets and the prolonged policy uncertainty resulting from volatile political support for substantive climate change policy. In general, Australia has excellent national investment conditions and a high market absorption capacity.

Sources: Allianz Energy and Climate Monitor and RECAI reports

The Allianz Energy & Climate Monitor ranks G20 member states on their relative fitness as potential investment destinations for building low-carbon electricity infrastructure. The investment attractiveness of a country is assessed through four categories: Policy adequacy, Policy reliability of sustained support, Market absorption capacity and the National investment conditions. The Renewable Energy Country Attractiveness Index (RECAI) produces score and rankings for countries' attractiveness based on Macro drivers, Energy market drivers and Technology-specific drivers which together compress a set of 5 drivers, 16 parameters and over 50 datasets.

Historical investments in renewable energy and investment gap

This section shows Australia's current investments in the overall power sector (including distribution and transmission) as well as in renewable energy expressed as the share of the total annual investments needed to be in line with a 2°C compatible trajectory



Source: Adapted from WEIO, 2014⁽¹⁾

⁽¹⁾ WEIO (2014) compares annual average investments from 2000 to 2013 with average annual investments needed from 2015 to 2030 under a 2°C scenario

Carbon pricing mechanisms

Emissions Trading Schemes (ETS)

An ETS caps the total level of GHG emissions and allows industries to trade allowances based on their marginal abatement cost. By creating a supply and demand for allowances, an ETS establishes a market price for GHG emissions.

Carbon Tax

A Carbon tax directly sets a price on carbon by defining a tax rate on GHG emissions or – more commonly – on the carbon content of fossil fuels. Unlike an ETS, a carbon tax is a price-based instrument that pre-defines the carbon price, but not the emissions reduction outcome of a carbon tax.

Following the abolishment of the Australian Carbon Pricing Mechanism in 2014, Australia has introduced a "Safeguard Mechanism" that came into force in 2016, to limit and price emissions. The mechanism is a baseline and credit ETS that covers 50% of the country emissions and under which businesses that produce over 100,000 tonnes of GHG emissions each year have their emissions capped.



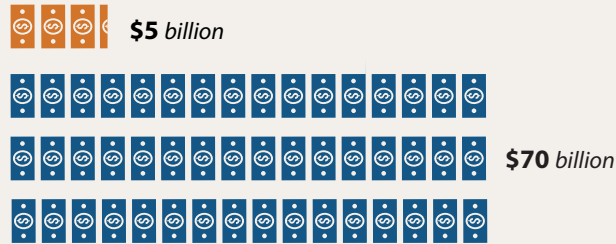
Sources: World Bank and Ecofys, 2016; other national sources

Fossil fuel subsidies

In its G20 country progress report (September 2015), Australia stated it has no domestic fossil fuel subsidies that are inefficient or encourage wasteful consumption. In 2011, Australia phased out the crude oil excise exemption for condensate, estimated to be at US\$500 million per annum. OECD data also shows that the exploration and prospecting deduction for mining, quarrying and petroleum countries, estimated to provide a benefit of US\$300 million, was phased out in 2013. Nevertheless, ODI estimates suggest that the Australian federal government provides over US\$5 billion in national subsidies for fossil fuel production (oil, gas and coal) in the form of tax subsidies as well as direct budgetary spending. Further, at COP21, Australia opted out of signing the “fossil fuel subsidy reform” communiqué led by New Zealand.

Average annual national subsidies (2013-14)*

 **Australia**
 **G20 total**



% of government's income from oil and gas production (2013)*



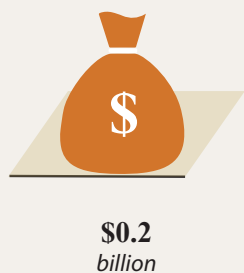
Source: ODI, 2015

*The indicators above refer only to subsidies for fossil fuel production, and include direct spending (e.g. government budget expenditure on infrastructure that specifically benefits fossil fuels), tax expenditure (e.g. tax deductions for investment in drilling and mining equipment) and other support mechanisms (e.g. capacity mechanisms).

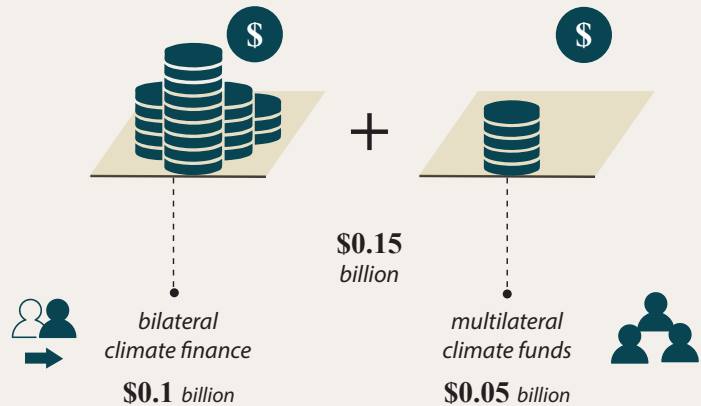
Public climate finance

Australia has made the smallest pledge to the GCF of all the G20 countries with climate finance obligations. However, Australia has co-chaired the Fund twice, signalling political commitment to its success. It was the sixth largest G20 provider of climate finance in 2013-14. Australia's aid spending, which includes its climate finance commitments, has fallen to historic lows since 2013. Australia's contribution includes funding for relatively efficient coal technologies.

Green Climate Fund pledge



Average climate finance provided (2013-14)



Source: ODI, 2016