



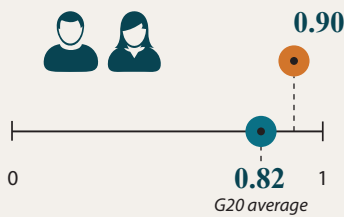
BROWN TO GREEN: G20 TRANSITION TO A LOW CARBON ECONOMY

United Kingdom

This country profile assesses the United Kingdom'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, Ecofys and PIK), 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)

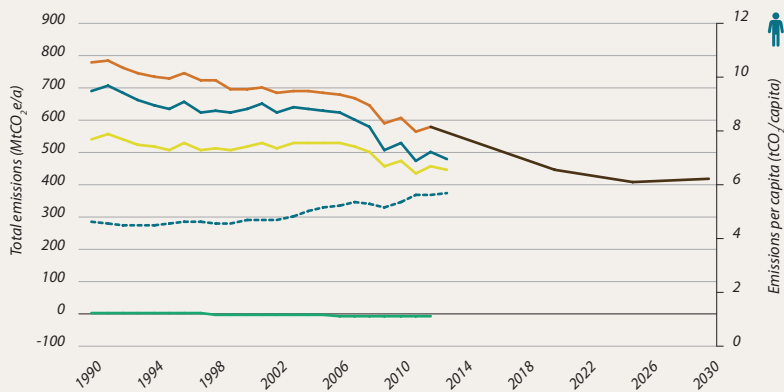


Share of global GDP



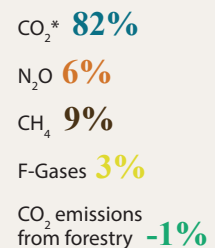
Source: IEA, data for 2013

GREENHOUSE GAS (GHG) EMISSIONS



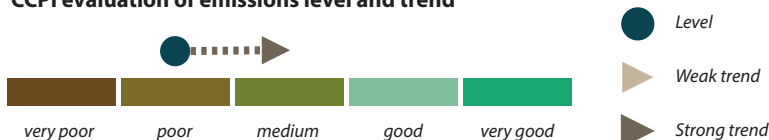
Greenhouse gas (GHG) emissions, and energy-related carbon dioxide (CO₂) emissions, have steadily decreased since 1990. Further GHG mitigation can be expected in the coming decade. Emissions from land use, land-use change and forestry (LULUCF) are close to zero, in the negative range. Energy-related CO₂ emissions per capita have steadily decreased since 1990, from a very high level of almost 10 tCO₂, to 7t CO₂ in 2013, but are still above the G20 average. UK emissions are rated as relatively poor in the CCPI, with a positive trend.

Composition of GHG emissions



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

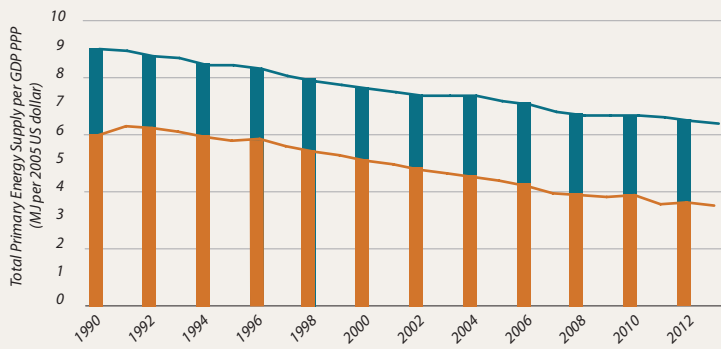
CCPI evaluation of emissions level and trend



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

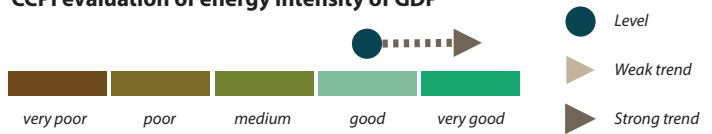
Energy intensity of the economy



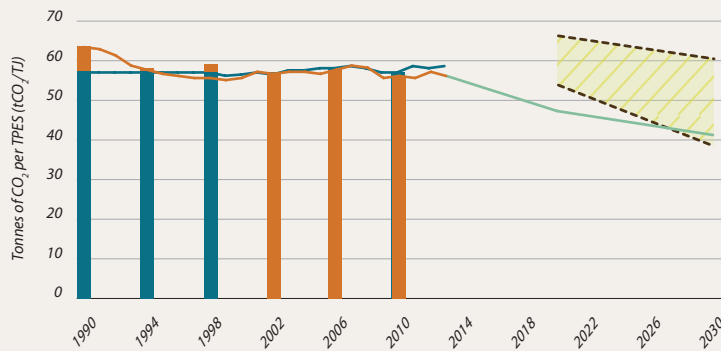
Energy intensity
Average energy intensity in G20

Source: CCPI, 2016

CCPI evaluation of energy intensity of GDP



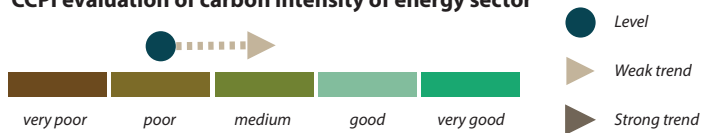
Carbon intensity of the energy sector



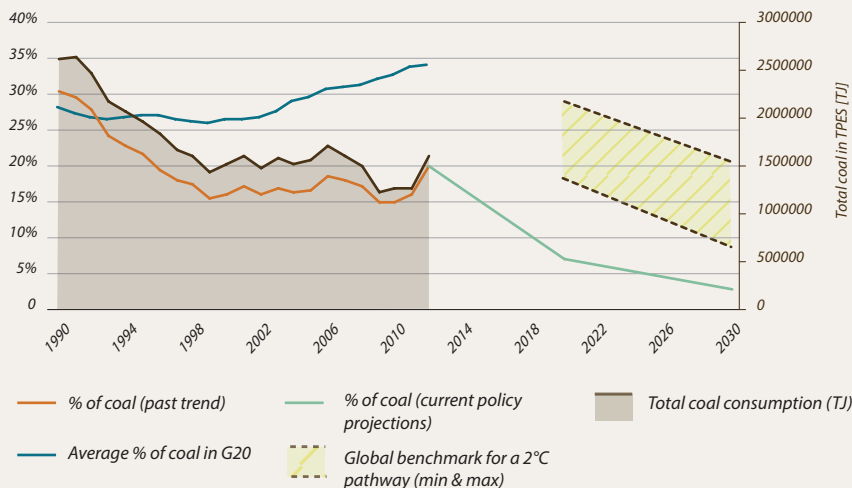
Carbon intensity (past trend)
Average carbon intensity in G20
Carbon intensity (current policy projection)
Global benchmark for a 2°C pathway

Sources: Past: CCPI; future projections: CAT

CCPI evaluation of carbon intensity of energy sector



Share of coal in Total Primary Energy Supply (TPES)



Source: CAT



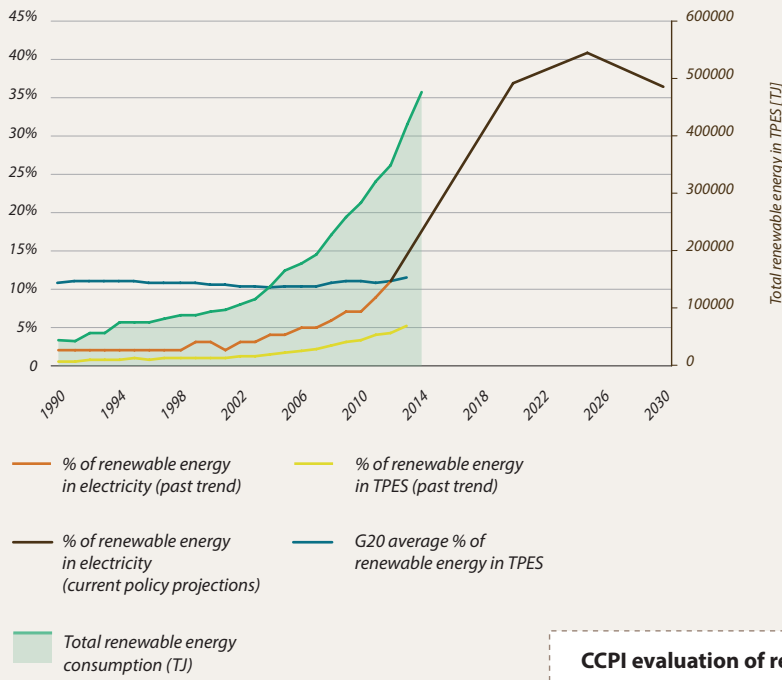
After the UK cut the share of coal in primary energy supply between 1990 and 1999, the share has varied between 15% and 20%, clearly below the G20 average. According to future projections, the share will further decline until 2030 and will stay in line with a 2°C-compatible development.

Evaluation of coal share in TPES



Source: own evaluation

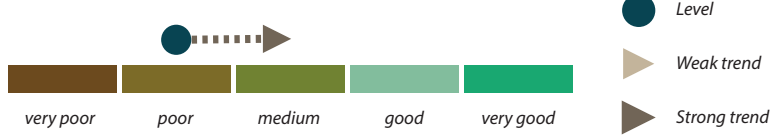
Renewable energy in TPES and electricity sector



Sources: CCPI and CAT

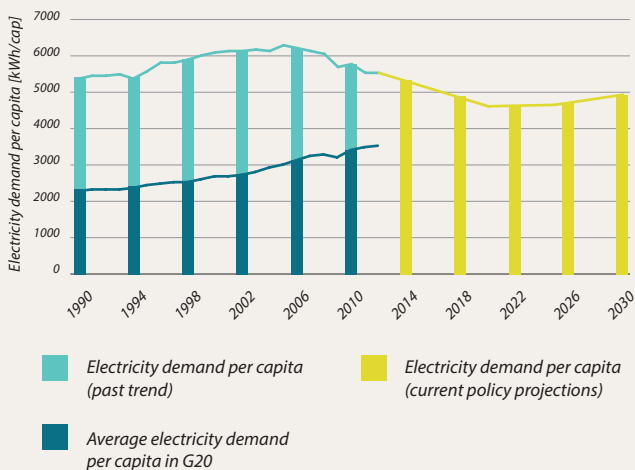
The share of renewable energy in electricity, at around 2% in 1990, has increased since 2002, up to 11% in 2012. A strong rise in the coming years to a level of around 40% is expected. The share of renewables in the country's total primary energy supply is far below the G20 average but as it has climbed up to a share of 2% in 2005 for the first time, an increase is visible. The CCPI evaluates the country's level of renewable energy as poor, but, due to the recent increase, a positive trend can be observed.

CCPI evaluation of renewable share in TPES



Electricity demand per capita

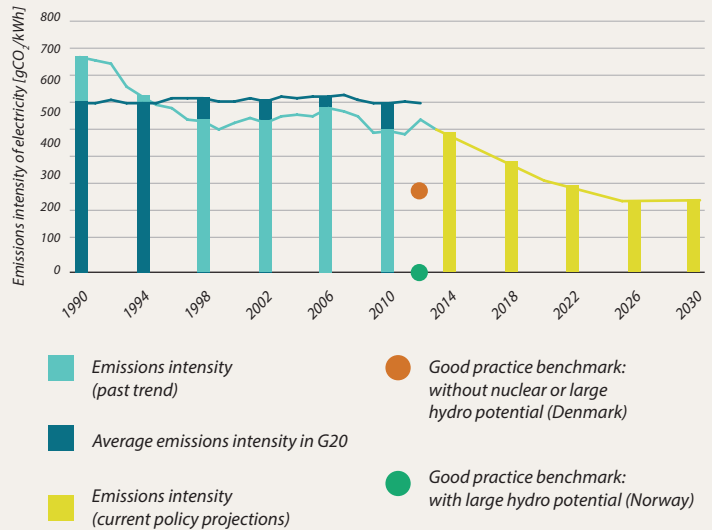
The UK's electricity demand per capita was at a very high level in 1990, compared with other G20 countries. It increased further until the middle of the 2000s, when it dropped back to the previous level. Future projections show the British electricity demand per capita, although decreasing, will remain very high until 2030.



Source: CAT, 2015

Emissions intensity of the electricity sector

The United Kingdom has decreased its electricity emissions intensity between 1990 and 2012. Nonetheless, emissions intensity in the electricity sector is nearly twice as high as Denmark's, a good practice benchmark country with no large hydropower potential or nuclear power. However, the country's emissions intensity is expected to drop and reach Denmark's level by 2030.



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	✓

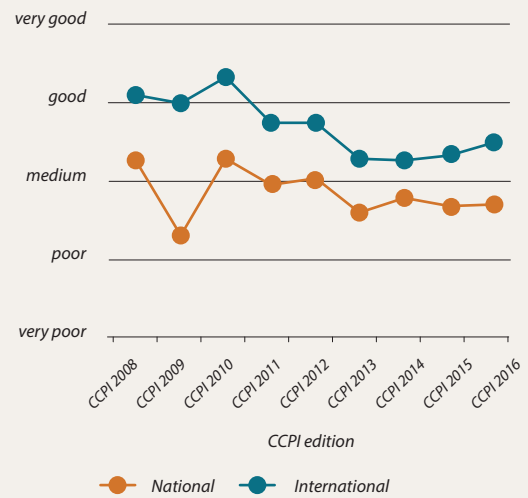
* Understood as decarbonisation plans and not specifically as the plans called for in the Paris Agreement

Source: Climate Policy Database, 2016

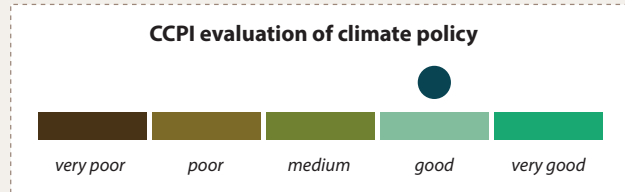
Climate policy evaluation by experts

While the UK's international climate policy evaluation deteriorated in earlier CCPI editions, minor improvements have been visible since 2013. National experts still criticise the UK's unconstructive role within the EU, although some changes could be expected, as result of overall political changes in the country. The CCPI 2016 ranks the UK's national climate policy performance at a below-average level, but in the overall policy ranking, the country performs relatively well.

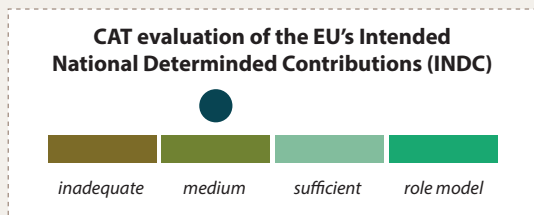
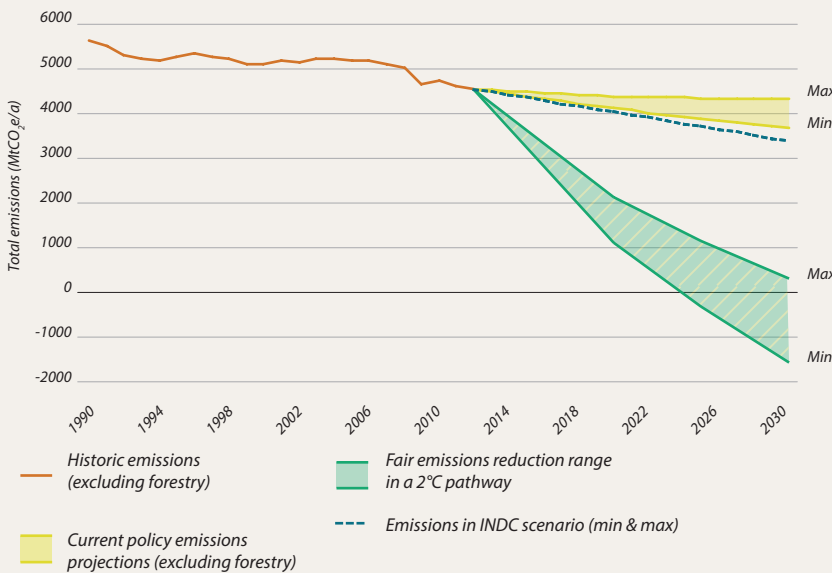
The CCPI evaluates a country's performance in national and international climate policy through feedback from national energy and climate experts.



Source: CCPI, 2016



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



Source: CAT, 2015

As an EU member state, the UK did not submit its own Intended Nationally Determined Contribution (INDC) or emissions reduction target for COP21.

Under its INDC, on 6 March 2015 the EU proposed a binding, economy-wide target to cut domestic greenhouse gas emissions by at least 40% below 1990 levels in 2030. No individual EU member state has its own INDC.

The Climate Action Tracker (CAT) rates the EU emissions target as "medium", meaning the INDC is inconsistent with limiting warming below 2°C. It would require other countries to make a comparably greater effort, and much deeper emissions reductions.

The overall level of GHG emissions reductions proposed in the EU28 INDC does not fall within the range of approaches for fair and equitable emission reductions. Current policies are projected to reduce domestic emissions by 23–35% below 1990 levels in 2030, and do not put the EU on a trajectory towards meeting either its 2030 or 2050 targets. The EU's Emissions Trading Scheme is an important instrument to achieve its 2020 and 2030 targets. However, an accumulated surplus of emissions allowances could dilute the 40% GHG target by 7% in 2030. It is therefore important that the EU creates a robust market reserve for eliminating that surplus, to keep in line with the 40% GHG target.

FINANCING THE TRANSITION

Investment attractiveness



Allianz Energy and Climate Monitor

HIGH

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

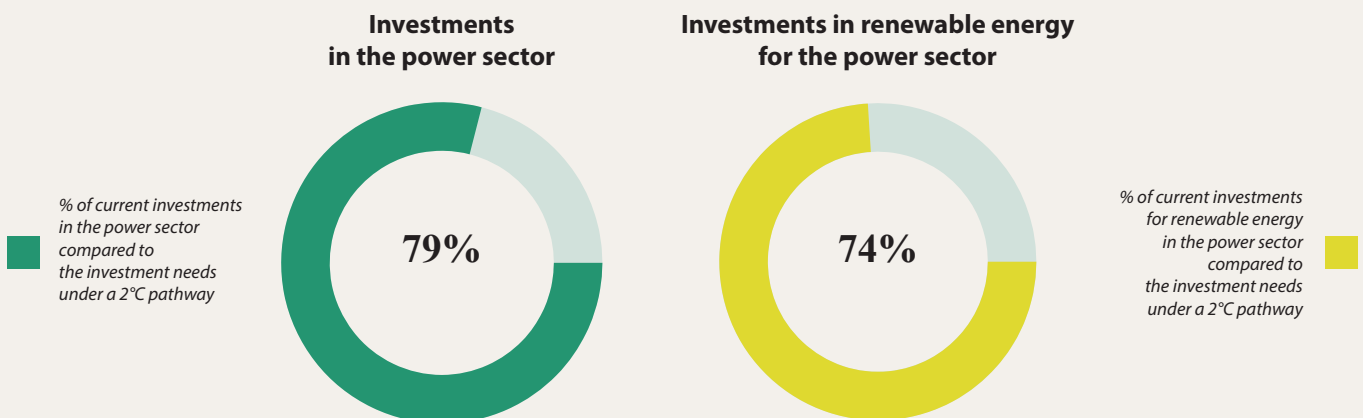
Climate Transparency rates the United Kingdom's investment attractiveness as medium to high, due to overall good performance in all parameters of attractiveness. However, low policy predictability, due to a guarded government approach, pulls the scores down. The latest referendum on EU membership and the uncertainty surrounding the upcoming negotiation process with the EU might negatively affect investment attractiveness in the short and medium term.

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 the UK'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.

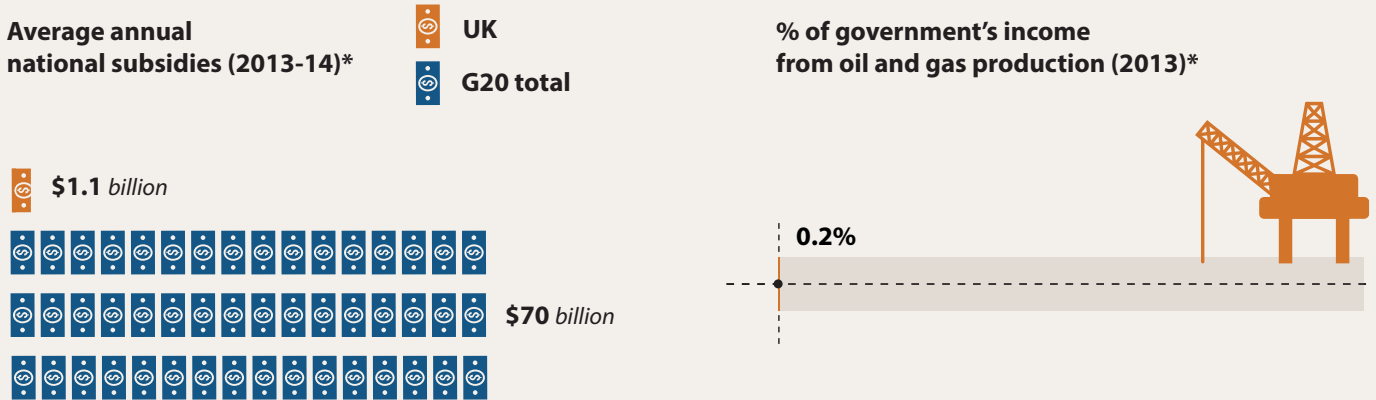
In April 2013, the UK introduced a national carbon price floor – the Climate Change Levy Carbon Price Support Rate (CPSR) – which requires domestic fossil fuel generators to pay a tax covering 13% of the UK's GHG emissions, in addition to paying the EU allowance price.



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

Fossil fuel subsidies

The UK is the only major industrialised economy that sharply increased its support to fossil fuels in recent years by reducing taxes and increasing subsidies on fossil fuel production. In its G20 progress report, the UK maintains it has no fossil fuel subsidies, as it defines subsidies as government action to lower pre-tax price to consumers below international market price. However, in 2013 and 2014, the UK made several changes to its tax regime for oil and gas to include concessions for incentivising production by allowing offset of capital costs, exemption of a portion of company profits, and other allowances. Budgetary support for R&D for fossil fuels was US\$76 million in 2013.

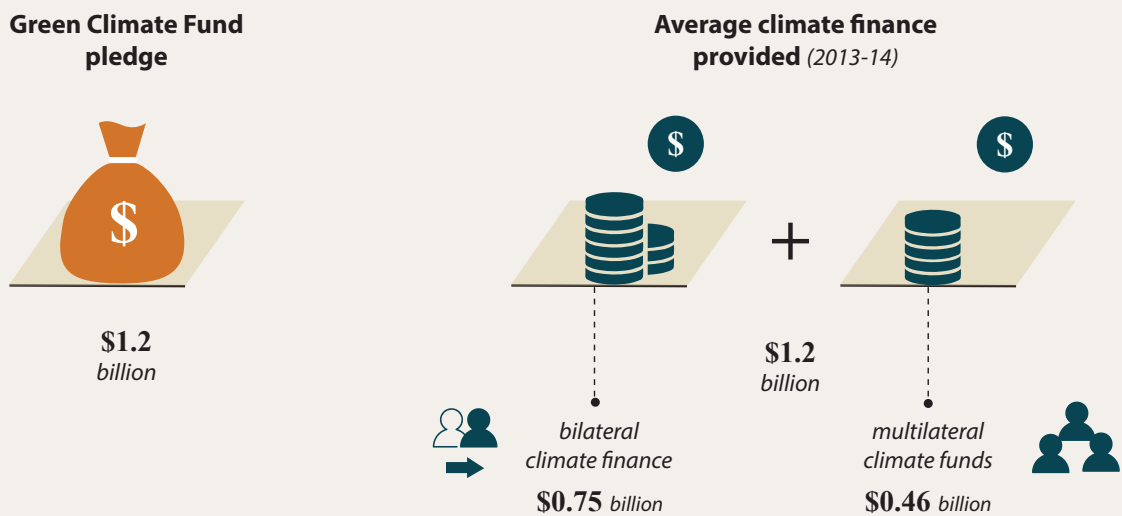


Source: ODI, 2015

*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

The UK has made the largest pledge to the GCF as a proportion of GDP. Its reported climate finance commitments were the fourth largest amongst G20 donors, relative to GDP. Its contribution, through the International Climate Fund, was established in 2011 as a new budget line item jointly managed by the Department of Energy and Climate Change, the Department for International Development, and the Department of Environment, Food and Rural Affairs. Most of these funds are spent through multilateral institutions.



Source: ODI, 2016