

UNITED KINGDOM



CLIMATE TRANSPARENCY REPORT: COMPARING G20 CLIMATE ACTION TOWARDS NET ZERO

2021

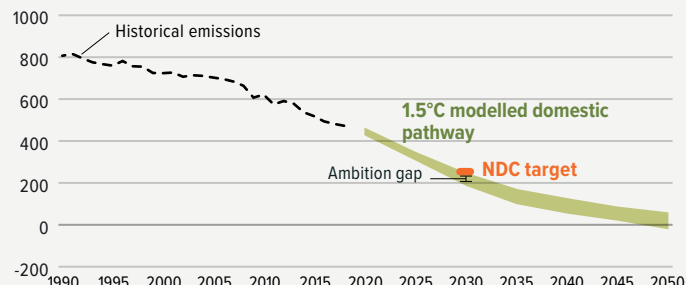
ON TRACK FOR A 1.5°C WORLD

1.5°C

The UK's national target is to reduce emissions 68% below 1990 levels, or approximately 255 MtCO₂e, by 2030. To keep below the 1.5°C temperature limit, the UK's 2030 emissions would need to be around 200 MtCO₂e (or 75% below 1990 levels), leaving an ambition gap of 55 MtCO₂e. All figures exclude land use emissions.

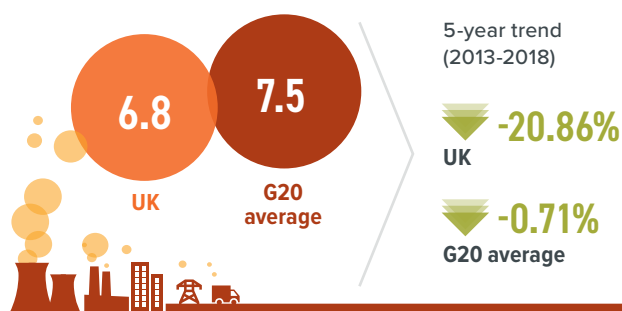
Gütschow et al., 2021; Climate Analytics, 2021

1.5°C compatible emissions pathway (MtCO₂e/year)¹



PER CAPITA GREENHOUSE GAS (GHG) EMISSIONS BELOW G20 AVERAGE

GHG emissions (incl. land use) per capita (tCO₂e/capita)² in 2018



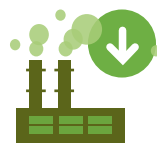
The UK's per capita emissions are 0.91 times the G20 average. Total per capita emissions have decreased by just under 21% between 2013 and 2018.

Climate Action Tracker, 2021; Gütschow et al., 2021; United Nations, 2019

KEY OPPORTUNITIES FOR ENHANCING CLIMATE AMBITION



The 2021 cancellation of the Green Homes Grant creates a substantial gap in UK green buildings policy; **a comprehensive successor to fast-track buildings decarbonisation is urgently required.**



Committing to a 2035 phase-out of unabated gas from the power sector as recommended by the Committee for Climate Change.



Matching the UK aviation industry's commitment to achieve net zero emissions by 2050 with government policy.

Sustainable Aviation, 2021; Climate Change Committee, 2021

RECENT DEVELOPMENTS



The announcement of strong domestic 2030 and 2035 **emissions reduction targets of 68% and 78%** below 1990 levels, respectively, makes the UK a global frontrunner in this regard.



The **UK's Transport Decarbonisation Plan** includes a proposal to phase out the sale of fossil fuel cars and vans by 2030, heavy-duty vehicles by 2040, achieving a net zero emission rail network by 2050 and net zero domestic aviation emissions by 2040.



The UK government recently announced a GBP 16bn joint **investment into the oil and gas extraction industry** and signed an agreement to allow drilling activities to continue in the North Sea. In July 2021, approval for the development of a new North Sea oilfield was granted by the government.

Ambrose, 2021; UK Government, 2021e



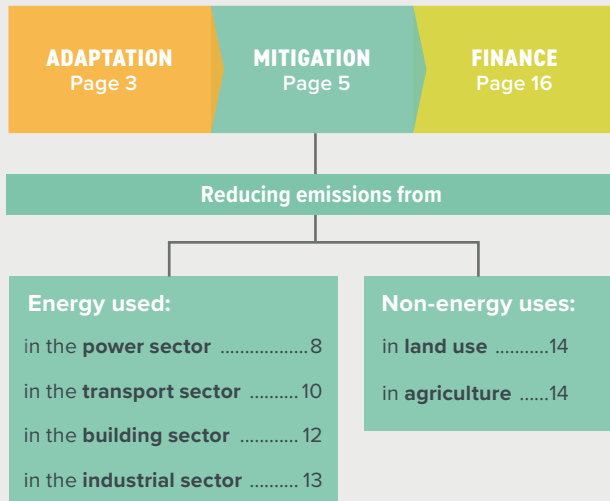
CORONAVIRUS RESPONSE AND RECOVERY

The UK government's pledge to "Build Back Greener" from the COVID-19 crisis has not yet been matched with strong commitments. So far, only 17% of recovery funds are pledged towards green measures, compared to 30% for the EU27, and well behind other large European economies, like Germany (47%) and France (36%). Recovery funds totaling GBP 1.5bn for green building retrofits was cancelled in early 2021, with only a fraction transferred to a local authority building insulation fund.

Global Recovery Observatory, 2021; Harrabin, 2021

CONTENTS

We unpack the United Kingdom'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 colour-coded arrows indicate assessment from a climate protection perspective: Orange is bad, green is good.



Decarbonisation Ratings³ 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.

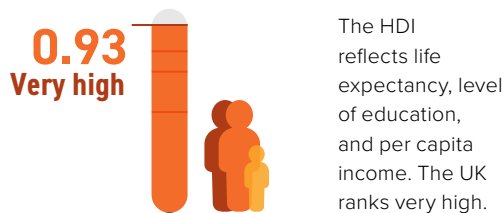


Policy Ratings⁴ evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.



SOCIO-ECONOMIC CONTEXT

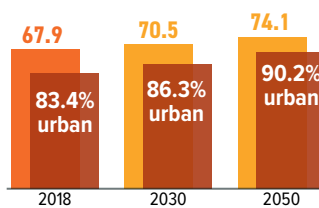
Human Development Index (HDI)



Data for 2019. UNDP, 2020

Population and urbanisation projections

(in millions)

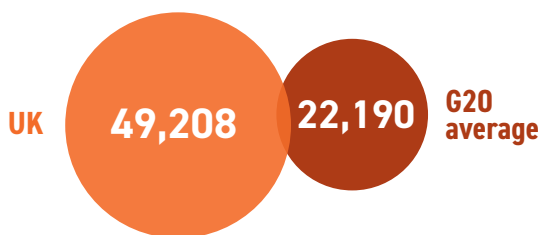


The UK's population is projected to increase by 9% by 2050, and become more urbanised. Urban climate change-related risks are increasing with widespread negative impacts on people and their health, livelihoods, and assets. This is important in the context of an increasingly urbanised society such as the UK.

United Nations, 2019; United Nations, 2018

Gross Domestic Product (GDP) per capita

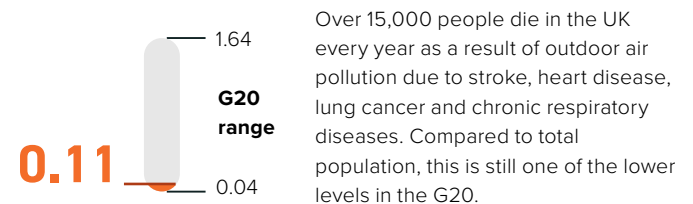
(PPP constant 2015 international \$) in 2019



World Bank, 2021; United Nations, 2019

Death rate attributable to air pollution

Ambient air pollution attributable death rate per 1,000 population per year, age standardised in 2019



Institute for Health Metrics and Evaluation, 2020

This source differs from the source used in last year's profiles and, therefore, the data are not comparable.

A JUST TRANSITION

The UK government's 2020 announcement of a "green revolution", with GBP 12bn of investment in climate measures, is claimed to lead to the creation of 250,000 highly skilled green jobs by 2030. This is far less, however, than the 6.3 million jobs that are estimated to be affected by the looming green transition. Scotland has established a Just Transition Commission which released its final report A National Mission for a Fairer, Greener, Scotland, in March 2021. The report made 24 recommendations, with specific policies and actions aimed at a range of actors. So far, no such commission exists for England, Wales, Northern Ireland or the UK in its entirety.

Instead of orienting the UK's oil and gas extraction industry towards a managed decline, the UK government in 2021 committed to reduce the industry's emissions through renewable energy use and carbon capture usage and storage, while allowing future exploration activities in the North Sea.

Ambrose, 2021; Rowling, 2021; Scottish Government, 2021



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.



The UK's most recent five-yearly Climate Change Risk Assessment (2016) identified **6 key risk areas for the UK**. The most pressing are the risk of flooding and coastal change, and risks to health, wellbeing, and productivity from high temperatures.



The impacts of flooding and coastal change in the UK are already significant and expected to increase as a result of climate change.



Heatwaves in the UK, like those experienced in 2003, are expected to become the norm in summer by the 2040s.

ADAPTATION NEEDS

Climate Risk Index

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

Annual weather-related fatalities



Based on Germanwatch, 2019

Annual average losses (US\$ millions PPP)



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			
		Reduction in rainfall			

Water, Heat and Health: own 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 RESPONSE AND RECOVERY

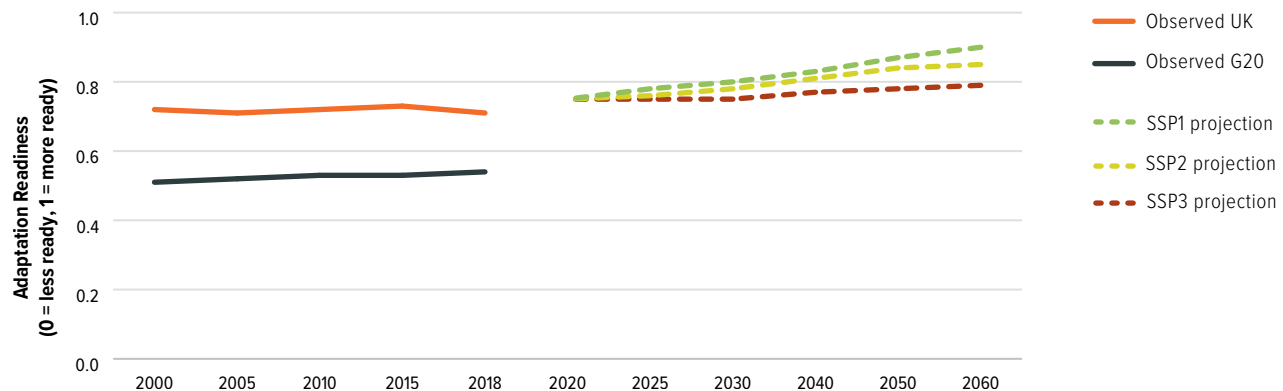
The UK's primary COVID-19 recovery policy that contributed to climate adaptation, the Green Homes Grant, was scrapped in early 2021. Some of these funds were reallocated to a local government-run home insulation scheme, but most have yet to be reallocated.

Harrabin, 2021

Adaptation Readiness

The figure shows 2000-2018 observed data from the Notre Dame Global Adaptation Initiative (ND-GAIN) Index overlaid with projected Shared Socioeconomic Pathways (SSPs) from 2020 to 2060.

Notre Dame Global Adaptation Initiative (ND-Gain) Readiness Index



On average, the UK scored well above the G20 average between 2000 and 2018 and is projected to continue doing so given its combination of social, economic and governance structures. While adaptation challenges still exist, the UK is well positioned to adapt to the impacts of climate change. In the projected SSPs, there is very little divergence due to the overall high rate of readiness.

The readiness component of the Index created by the ND-GAIN encompasses social (social inequality, information and communications technology infrastructure, education and innovation), 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 projections of future governance and, therefore, of possible adaptation readiness. The three scenarios shown here in dotted lines are described as a sustainable development-compatible scenario (SSP1), a middle-of-the-road (SSP2), and a 'Regional Rivalry' (SSP3) scenario.

Based on Andrijevic et al., 2020; ND-Gain Index, 2021

ADAPTATION POLICIES

National Adaptation Strategies

Document name	Publication year	Fields of action (sectors)												Monitoring & evaluation process	
		Agriculture	Biodiversity	Coastal areas and fishing	Education and research	Energy and industry	Finance and insurance	Forestry	Health	Infrastructure	Tourism	Transport	Urbanism		Water
National Adaptation Programme and the third strategy for climate adaptation reporting	2018	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>		<div></div>	<div></div>	<div></div>	<div></div>	Adaptation Reporting Power (ARP) introduced under the Climate Change Act 2008 (last report from 2018)

Nationally Determined Contribution (NDC): Adaptation

TARGETS

Adaptation measures are determined nationally by the constituent countries of the UK.

ACTIONS

Not mentioned

MITIGATION

REDUCING EMISSIONS TO LIMIT GLOBAL TEMPERATURE INCREASE



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



The UK's GHG emissions have dropped by 42% (1990-2018). The government's climate targets for 2030 (68% below 1990 levels) and 2050 (net zero emissions) are **not in line with a 1.5°C 'fair-share' pathway** when equity considerations are included.

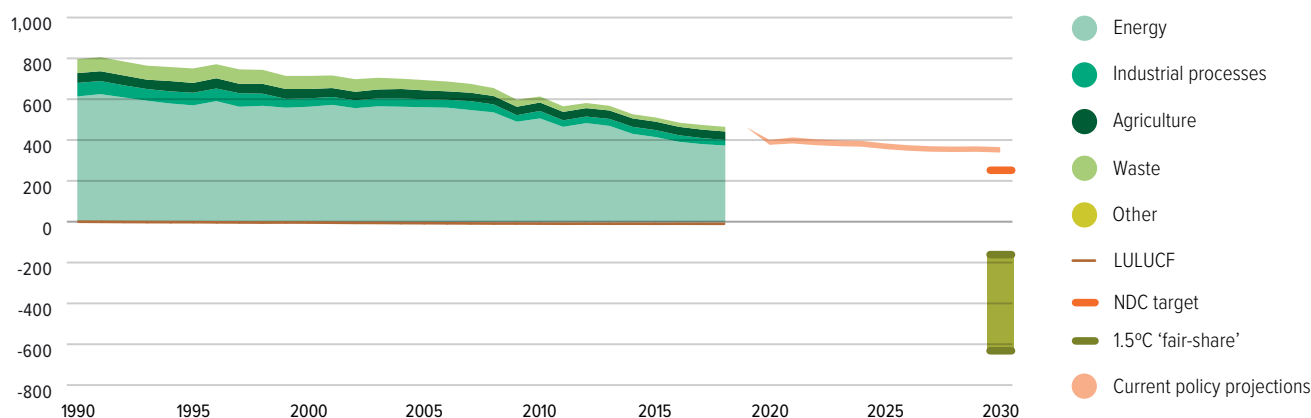


In 2030, global CO₂ emissions need to be **45% below 2010 levels and reach net zero by 2050**. Global energy-related CO₂ emissions must be cut by 40% below 2010 levels by 2030 and reach net zero by 2060.

Rogelj et al., 2018

GHG emissions across sectors and CAT 1.5°C 'fair-share' range (MtCO₂e/year)⁵

Total GHG emissions across sectors (MtCO₂e/year)

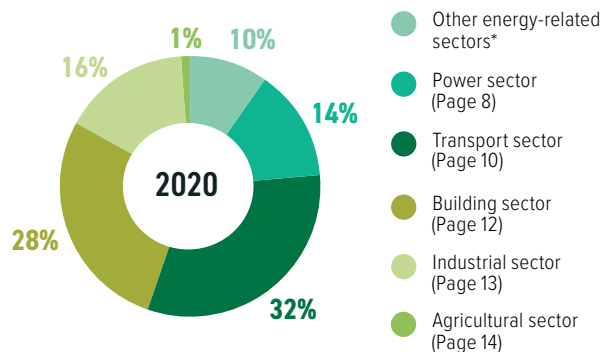
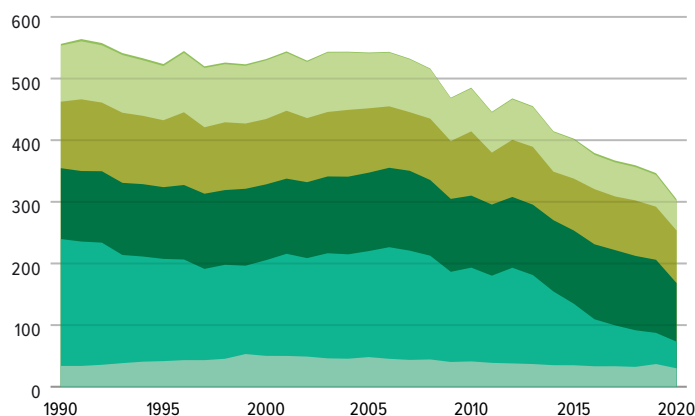


The UK's emissions (excl. land use) decreased by 42% between 1990 and 2018 to 467 MtCO₂e. When considered by category, reductions were seen in all sectors except for transport, which was marginally above 1990 levels in 2018. The UK's recently updated 2030 target is inadequate as a 'fair-share' contribution to the Paris Agreement. A 'fair-share' contribution by the UK requires it to provide substantially more support for emissions reductions in developing countries than it is currently providing.

Gütschow et al., 2021; Climate Action Tracker, 2020a, 2021

Energy-related CO₂ emissions by sector

Annual CO₂ emissions from fuel combustion (MtCO₂/year)



The largest driver of overall GHG emissions are CO₂ emissions from fuel combustion. In the UK, total emissions have been decreasing since 1991. The transport sector is the largest contributor to total emissions with a 31% share, followed by the buildings and industry sectors with 28% and 16%, respectively. Remaining emissions from the power sector are almost exclusively from natural gas, as coal has been mostly phased out.

Enerdata, 2021

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

*"Other energy-related sectors" covers energy-related CO₂ emissions from extracting and processing fossil fuels.

ENERGY OVERVIEW



Rapidly increasing renewable power generation is helping to reduce the UK's overall reliance on fossil fuels, leading to a **23% share of low carbon energy in primary energy in 2020**. Significant natural gas use in the power and buildings sectors and oil use in transport remains, however, requiring strong and urgent action to address.

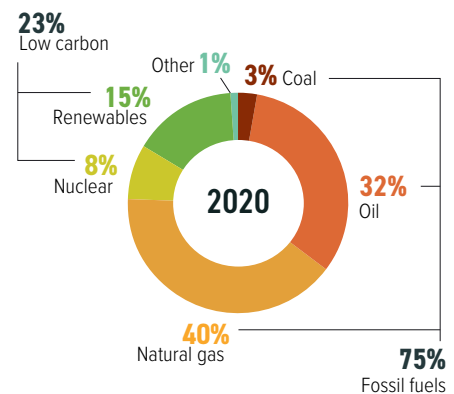
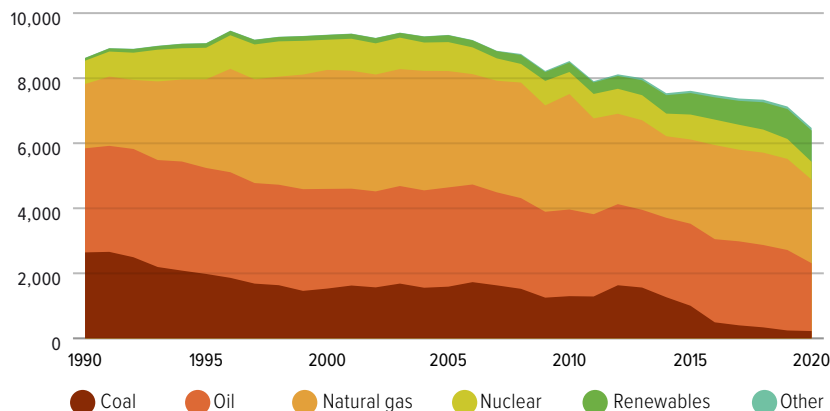


The share of fossil fuels globally needs to fall to 67% of global total primary energy by 2030 and to 33% by 2050, and to substantially lower levels without carbon capture and storage (CCS).

Rogelj et al., 2018

Energy mix

Total primary energy supply (PJ)

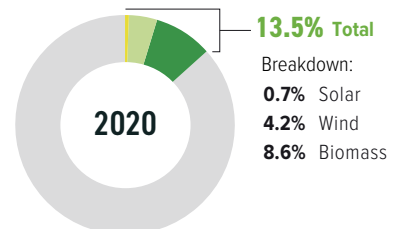
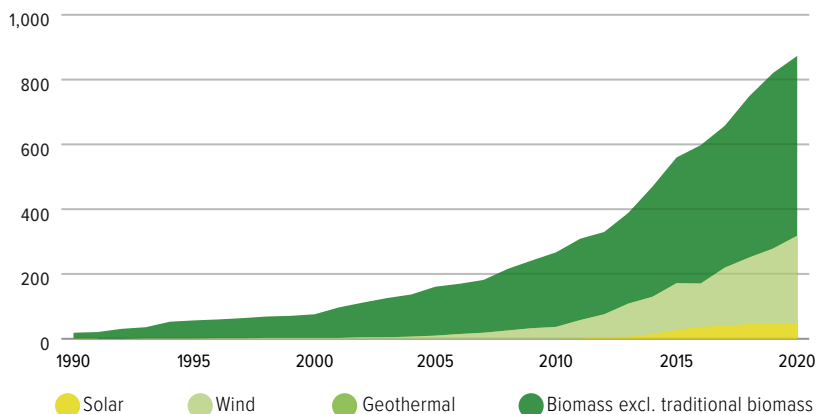


This graph shows the fuel mix for all energy supply, including energy used not only for electricity generation, heating, and cooking, but also for transport fuels. Fossil fuels (oil, coal, and gas) made up 75% of the UK energy mix in 2020, which was lower than the G20 average of 82%. Renewable energy was the only form of energy that increased in absolute terms in 2020, while oil and natural gas supply both fell considerably. Coal's share in UK primary energy supply remained at a historic low of 3%.

Enerdata, 2021 Due to rounding, some graphs may sum to slightly above or below 100%

Solar, wind, geothermal, and biomass development

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

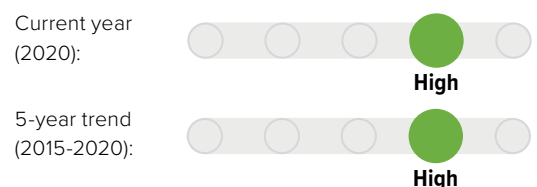


Solar, wind and biomass account for 13.5% of the UK's energy supply – the G20 average is 7%. The share in total energy supply has increased by around 83% in the last 5 years in the UK (2015-2020) compared to the G20 average increase of 32%. Bioenergy (for electricity and heat) makes up the largest share; however wind power has expanded rapidly in recent years and is expected to continue this trajectory as the move to offshore wind gathers pace over the coming years.

Enerdata, 2021 Due to rounding, some graphs may sum to slightly above or below 100%

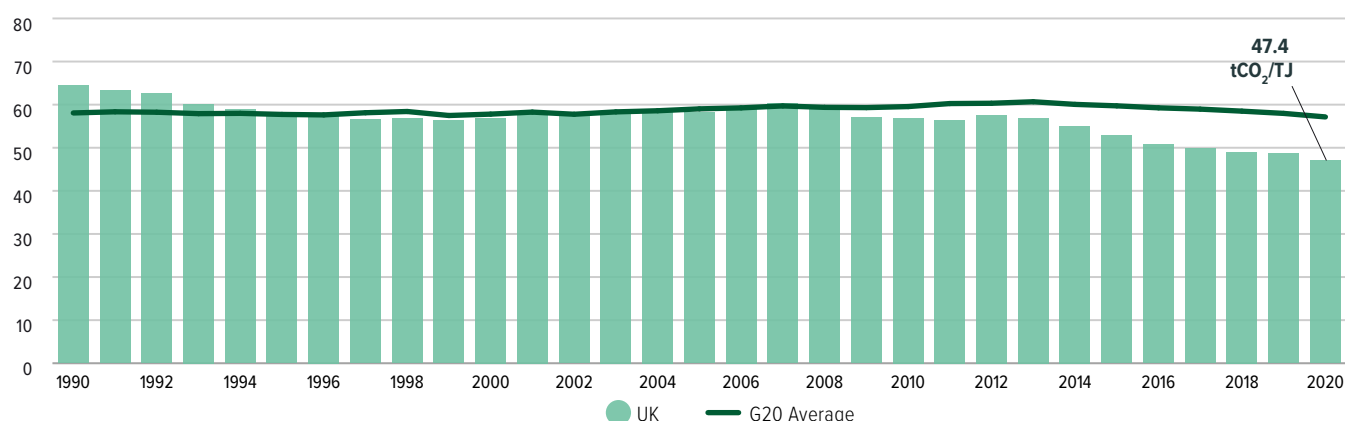
Note: Large hydropower and solid fuel biomass in residential use are not reflected due to their negative environmental and social impacts.

Decarbonisation rating: renewable energy share of TPES compared to other G20 countries



Carbon intensity of the energy sector

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

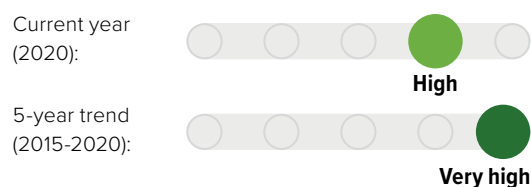


Carbon intensity is a measure of how much CO₂ is emitted per unit of energy supply.

The carbon intensity of the UK's energy sector (47 tCO₂/TJ) is significantly lower than that of the G20 (57 tCO₂/TJ) in 2020. While both have been decreasing since 2015, the rate of decline in the UK is more than double that of the G20 average.

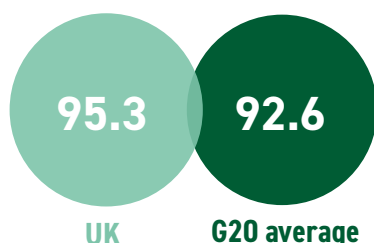
Enerdata, 2021

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



Energy supply per capita

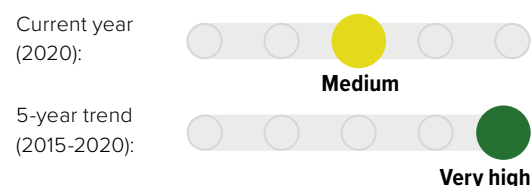
TPES per capita (GJ/capita) in 2020



TPES per capita (GJ/capita): 5-year trend (2015-2020)



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

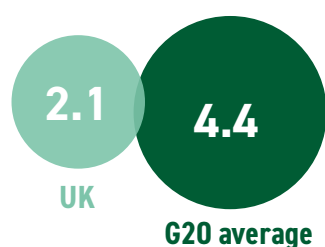


The level of energy use per capita is closely related to economic development, climatic conditions and the price of energy. Energy use per capita in the UK, at 95 GJ/capita in 2020, is marginally higher than the G20 average, but has been decreasing much faster, at 15% per year between 2015 and 2020. In contrast, the G20 average is decreasing at 0.12% per year.

Enerdata, 2021; United Nations, 2019

Energy intensity of the economy

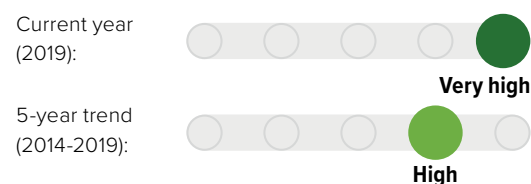
(TJ/million US\$2015 GDP) in 2019



Energy intensity of the economy: 5-year trend (2014-2019)



Decarbonisation rating: energy intensity compared to other G20 countries

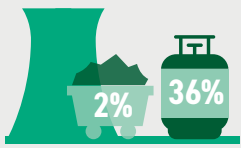


This indicator quantifies how much energy is used for each unit of GDP. This is closely related to the level of industrialisation, efficiency achievements, climatic conditions or geography. The UK's energy intensity is lower than the G20 average and has been decreasing at a slightly higher rate of 14% (2014-2019) compared to the G20.

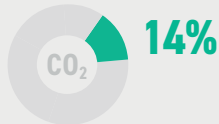
Enerdata, 2021; World Bank, 2021

POWER SECTOR

Emissions from energy used to make electricity and heat



The UK produced 3% of its electricity from coal in 2020. The UK government confirmed in 2021 that it would bring forward its coal phase-out date by a year to 2024, but **considerable natural gas generation remains**.



Share of energy-related CO₂ emissions from electricity and heat production in 2020.

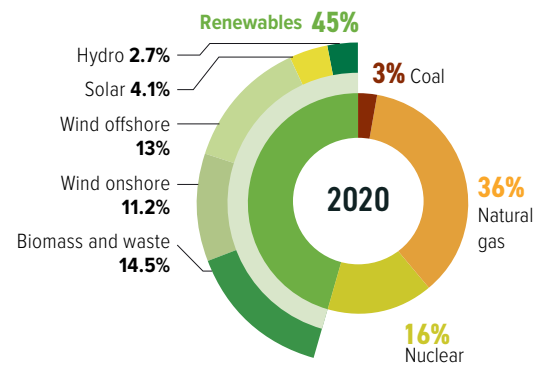
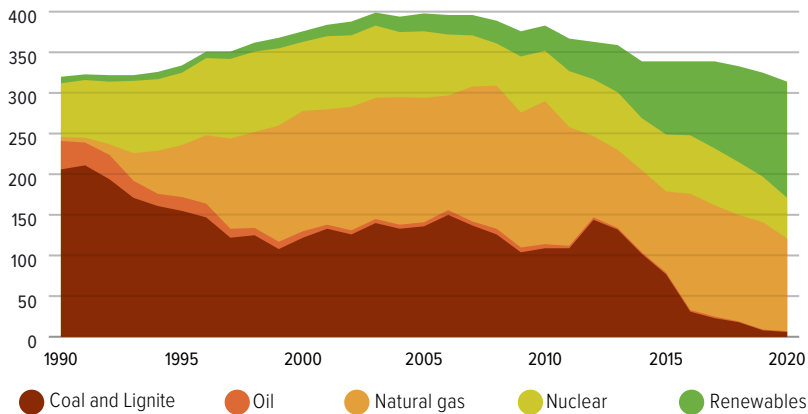


Worldwide, coal use for power generation needs to peak by 2020, and between 2030 and 2040, all the regions of the world need to phase out coal-fired power generation. By 2040, the share of renewable energy in electricity generation has to be increased to at least 75%, and the share of unabated coal reduced to zero.

Rogelj et al., 2018; Climate Action Tracker, 2020b

Electricity generation mix

Gross power generation (TWh)

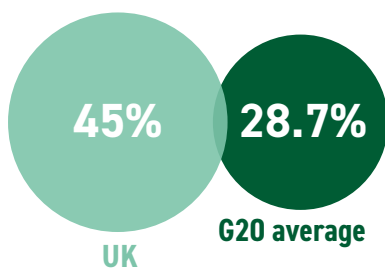


The UK **generated 39% of its electricity from fossil fuels in 2020**, which was made up almost entirely of generation from natural gas. Coal has seen a swift decline over the last decade, which has put the UK on track to potentially phase out coal even earlier than its targeted 2024 phase-out date. Conversely, the share of renewable energy in the UK's power sector has been increasing rapidly, accounting for approximately 45% of the power mix in 2020.

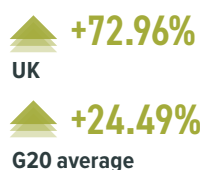
Enerdata, 2021 Due to rounding, some graphs may sum to slightly above or below 100%

Share of renewables in power generation

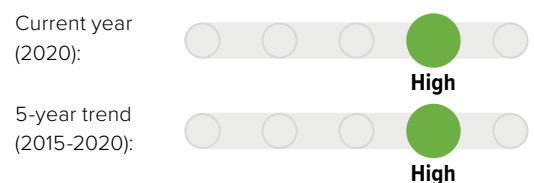
(incl. large hydro) in 2020



Share of renewables in power generation:
5-year trend (2015-2020)



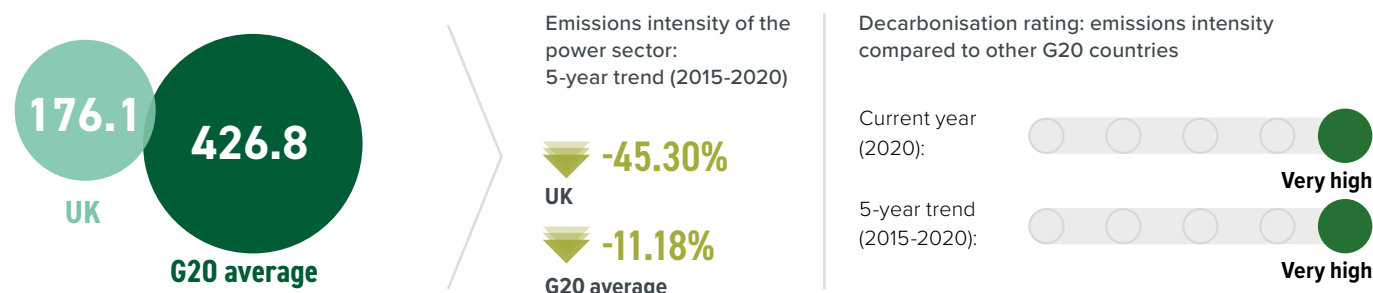
Decarbonisation rating: share of renewables compared to other G20 countries



Enerdata, 2021

Emissions intensity of the power sector

(gCO₂/kWh) in 2020

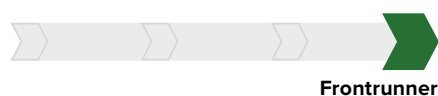


For each kilowatt hour of electricity, 176.1 g of CO₂ are emitted in the UK. Power emissions intensity has almost halved in six years, an impressive achievement, and is primarily due to a **steep increase in renewable energy installations** and rapidly declining generation from coal.

Enerdata, 2021

POLICY ASSESSMENT

Renewable energy in the power sector



The UK continues to power ahead with new renewable energy installations. In the last renewable energy auction in 2019, almost 6 GW of wind power was allocated, and for the 2021 auction, the government plans to deploy 12 GW of renewables, including onshore wind and solar photovoltaics (PV) for the first time since 2015. The government's Energy White Paper also outlined a target of 40 GW of offshore wind, including 1 GW of floating offshore wind, by 2030. Wave and tidal energy will also be considered as future energy sources.

UK Government, 2020a

Coal phase-out in the power sector



In 2021, the UK government confirmed it will bring forward the date of its planned coal phase-out from 2025 to 2024. This represents the most ambitious coal phase-out date of any major economy and makes the UK truly a global frontrunner. Ending coal generation by the end of 2024 will mean the UK will have gone from generating a third of its electricity from coal to none in the space of just 10 years.

UK Government, 2021b

CORONAVIRUS RESPONSE AND RECOVERY

Despite the UK government's stated aim to "build back greener" from the COVID-19 crisis, it has committed less funds to ensure a green recovery than its European counterparts. While France and Germany committed 1.25% and 0.8% of 2019 GDP, respectively, to green recovery measures, the UK dedicated just GBP 17bn, or 0.69%. This figure also includes funding allocated to the Green Homes Grant, which was subsequently cancelled in 2021, with only some of this funding reallocated to other green programmes.

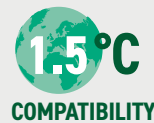
University of Manchester, 2021

TRANSPORT SECTOR

Emissions from energy used to transport goods and people



Emissions from transport in the UK have only just begun to decline after reaching near their 2007 peak in 2017. Around 89% of passenger transport in the UK is by road, with 90% of freight transport also travelling by road in 2018. Both sectors are **still dominated by fossil fuels**, and electric vehicles (EVs) (including plug-in hybrids) made up only 11% of car sales in 2020, though 2020 saw a large increase on the 2019 sales share of 3%.



The share of low-carbon fuels in the transport fuel mix globally must increase to between 40% and 60% by 2040 and 70% to 95% by 2050.

Rogelj et al., 2018; Climate Action Tracker, 2020b



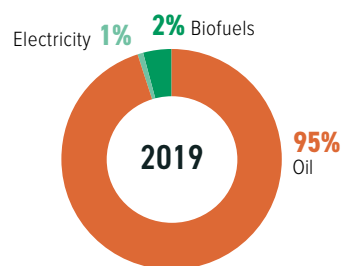
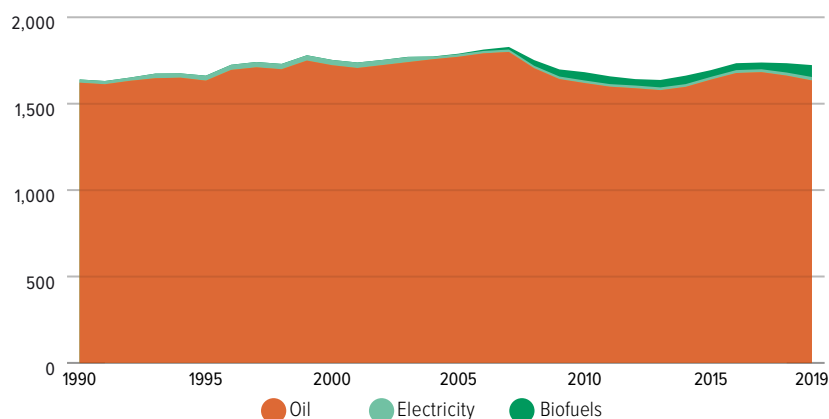
0.27%
Indirect emissions

Share of transport in energy-related CO₂ emissions

31%
Direct emissions

Transport energy mix

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



Biofuels and electricity make up 5% of final energy consumption in transport.

Enerdata, 2021 Due to rounding, some graphs may sum to slightly above or below 100%

Transport emissions per capita

excl. aviation (tCO₂/capita) in 2020

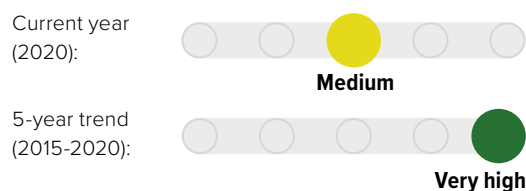


Transport emissions:
5-year trend (2015-2020)

UK -18.3%

G20 average -4.3%

Decarbonisation rating: transport emissions compared to other G20 countries



Reductions in transport emissions per capita in 2020, and concomitant changes in the 5-year trends and decarbonisation ratings, reflect widespread economic slowdowns and transport restrictions imposed in response to the COVID-19 pandemic. For a discussion of broader trends in the G20 and the rebound of transport emissions in 2021, please see the Highlights Report at www.climate-transparency.org

Enerdata, 2021; United Nations, 2019

Aviation emissions per capita⁶

(tCO₂/capita) in 2018



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

▲ +6.71
UK

▲ +21.25%
G20 average

Decarbonisation rating: aviation emissions
compared to other G20 countries

Current year
(2018):



5-year trend
(2013-2018):



Enerdata, 2021; International Energy Agency, 2020; United Nations, 2019

Motorisation rate

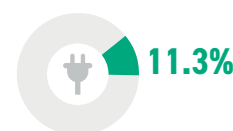


490 VEHICLES
per 1,000 inhabitants in
2019 in the UK*

Enerdata, 2021

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

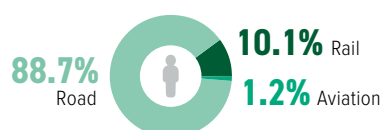
The share of EVs in new car sales in 2020 was 11.3%, including plug-in hybrids.



IEA, 2021

Passenger transport

(modal split in % of passenger-km) in 2018*



Enerdata, 2021

Freight transport

(modal split in % of tonne-km) in 2018*



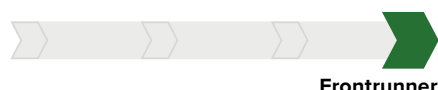
Freight transport by air, pipelines and waterways are excluded due to lack of data.

Enerdata, 2021

*Owing to the variety of sources and data years available, these data are not comparable across G20 countries.

POLICY ASSESSMENT

Phase out fossil fuel cars



In 2020, the UK government confirmed that it would bring forward its planned phase-out of fossil fuel car and van sales from 2040 to 2030, the earliest phase-out date of any major economy. This brings it in line with the date recommended by the UK's advisory body, the Climate Change Committee (CCC). Sales of plug-in hybrids would be allowed until 2035, a date which the CCC states should be brought forward to 2032 at the latest.

Climate Change Committee, 2020; UK Government, 2020b

Phase out fossil fuel heavy-duty vehicles



In July 2021, the UK released its transport decarbonisation plan, which included a proposal to end the sale of fossil fuel heavy-duty vehicles by 2040. This would make the UK a global leader in this regard if confirmed. As there is a consultation on this phase-out date planned for later in 2021, it is not certain yet that it will remain at 2040 and, therefore, the UK was not rated as a frontrunner. If this date were to be confirmed following the upcoming consultation, the rating would be upgraded.

UK Government, 2021d

Modal shift in (ground) transport



The UK's long-awaited transport decarbonisation plan released in July 2021 does not entail a comprehensive effort or level of support for shifting freight or passenger travel away from road transport. Only a limited level of funding (GBP 20m) is provided explicitly for achieving modal shift, while a rail freight growth target is said to still be forthcoming. The plan includes an earlier commitment to achieve half of all journeys in towns and cities to be walked or cycled, but does not lay out any additional funding for encouraging walking or cycling beyond the existing GBP 2bn pledged in early 2021.

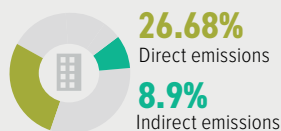
UK Government, 2021d

BUILDING SECTOR

Emissions from energy used to build, heat and cool buildings



The UK's buildings account for 27% of direct CO₂ emissions and 9% of indirect CO₂ emissions. Per capita emissions from the buildings sector are **slightly higher than the G20 average**.



Share of buildings in energy-related CO₂ emissions. Building emissions occur directly (burning fuels for heating, cooking, etc) and indirectly (grid-electricity for air conditioning, appliances, etc.)



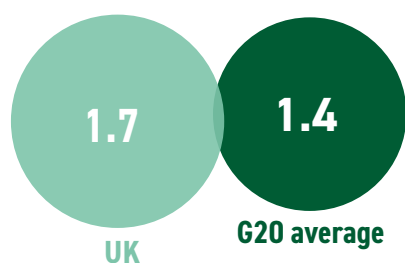
COMPATIBILITY

By 2040, global emissions from buildings need to be reduced by 90% from 2015 levels, and be 95-100% below 2015 levels by 2050, mostly through increased efficiency, reduced energy demand, and electrification in conjunction with complete decarbonisation of the power sector.

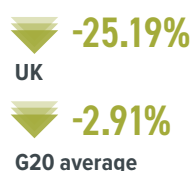
Rogelj et al., 2018; Climate Action Tracker, 2020b

Building emissions per capita

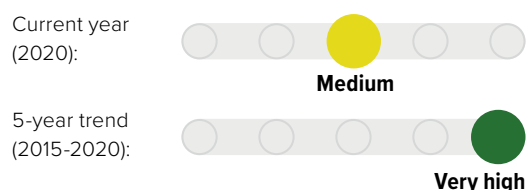
(incl. indirect emissions) (tCO₂/capita) in 2020



Building emissions:
5-year trend (2015-2020)



Decarbonisation rating: building emissions compared to other G20 countries



Building-related emissions per capita are slightly higher than the G20 average as of 2020, though if the current trend continues, this will soon change. UK per capita emissions have fallen by 25% between 2015 and 2020, significantly faster than the G20 average. This is due in large part to the rapidly increasing level of renewable energy generation in the UK's power sector and the concurrent decline of coal-fired generation. To achieve full decarbonisation, however, building heating must be achieved with some combination of electrification and/or green hydrogen, displacing the current widespread use of natural gas.

Enerdata, 2021; United Nations, 2019

POLICY ASSESSMENT

Near zero energy new buildings



In January 2021, the UK government responded to its consultation on the Future Homes Standard, a set of building regulations that targets a 75-80% reduction in CO₂ emissions for new buildings compared to one built to current energy efficiency standards. It confirmed the 2025 implementation date of the standard, rebuffing the 69% of respondents to the consultation who said that timing was not ambitious enough. An interim regulation requiring all new homes to produce 31% less CO₂ emissions compared to current standards will come into effect in 2021. A consultation is now underway for the Future Buildings Standard that targets non-domestic buildings.

UK Government, 2021a

Renovation of existing buildings



The UK's current target of upgrading all existing homes in England and Wales to achieve EPC Band C by 2035 was set to be in line with the government's previous 2050 target of an 80% reduction below 1990 levels, making it incompatible with the current 2050 net zero target. Progress on even this insufficient target has stalled, meaning renovation rates must now increase steeply. The GBP 1.5bn Green Homes Grant that provided households with funds to install insulation or heat pumps was cancelled in early 2021, with the majority of funds yet to be reallocated.

Department for Business, Energy & Industrial Strategy, 2020

INDUSTRY SECTOR

Emissions from energy use in industry



Industry makes up 15.7% of direct emissions and 4.1% of indirect electricity-related CO₂ emissions in the UK. The UK's industrial decarbonisation strategy targets an ambitious 90% reduction in emissions below 2018 levels by 2050, but lacks a focus on energy efficiency measures, relying instead primarily on CCS and green hydrogen. **Specific policies to achieve the target are also somewhat lacking**, particularly in the steel and cement industries.



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

Rogelj et al., 2018



15.67%

Direct emissions

4.1%

Indirect emissions

Share of industry in energy-related CO₂ emissions.

Industry emissions intensity⁷

(tCO₂e/USD2015 GVA) in 2017



Enerdata, 2021; World Bank, 2021

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

-41.06%
UK

-16.45%
G20 average

Decarbonisation rating: industry emissions compared to other G20 countries

Current year (2017):

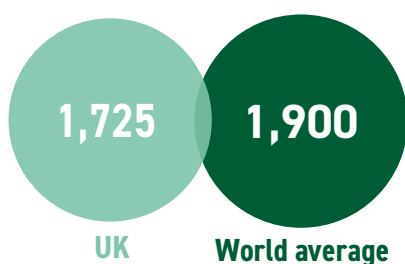


5-year trend (2012-2017):



Carbon intensity of steel production⁸

(kgCO₂/tonne product) in 2016



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

World Steel Association, 2018; Climate Action Tracker, 2020c

POLICY ASSESSMENT

Energy efficiency



The UK government released its industrial decarbonisation strategy in early 2021, which targets a two-thirds reduction in industry emissions below 2018 levels by 2035, and a 90% reduction by 2050. The strategy relies heavily on the availability of carbon capture and storage (CCS) technology and green hydrogen, rather than efficiency gains, though 4 MtCO₂e in emissions reductions are targeted by 2050 through heat recovery and equipment upgrades. Although the policies comply with the rating criteria for 'frontrunner' (see page 19), the lack of new funding or implementation detail in the strategy creates some uncertainty as to whether the ambitious targets it outlined can be achieved.

UK Government, 2021c

LAND USE SECTOR

Emissions from changes in the use of the land



To stay within the 1.5°C limit, the UK needs to make the land use and forest sector a net sink of emissions, e.g. not only by discontinuing the degradation of peatlands and use of moor soils, and converting cropland into wetlands, but also by creating new forests.

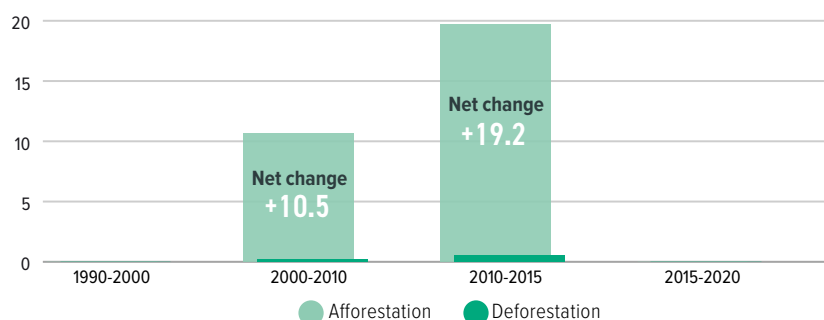


Global deforestation needs to be halted and changed to net CO₂ removals by around 2030.

Rogelj et al., 2018

Annual forest expansion, deforestation and net change

Forest area change in 1,000 ha/year



Between 2015-2020, the UK lost 25 kha of forest area per year on average.

Global Forest Resources Assessment, 2020

Note: There is a change of source and methodology for measuring this indicator from last year's profiles, which means the two years may not be directly comparable.

POLICY ASSESSMENT

Target for net zero deforestation



The UK's target for 30 kha of afforestation per year by 2025 is in line with the recommendation of the CCC; however, the CCC also indicated this should rise to 50 kha/yr between 2035 and 2050. After hitting a record low in 2016 of 5.6 kha, tree planting rates in the UK have more than doubled to 13.7 kha in 2020. This must more than double again in the next five years to meet its current target. Scotland has historically contributed the bulk of the UK's tree planting efforts, and has a target of 15 kha/yr of afforestation to reach by 2024/25.

Ares et al., 2021; Scottish Government, 2019

AGRICULTURE SECTOR

Emissions from agriculture



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

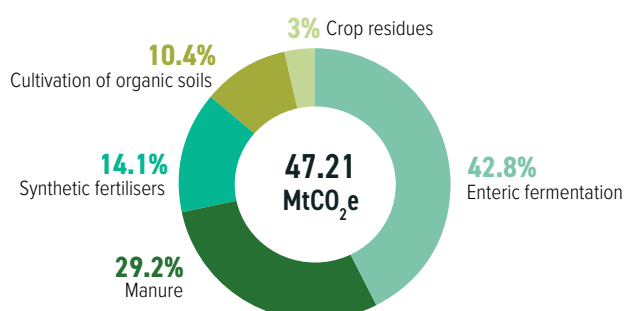


Methane emissions (mainly enteric fermentation) need to decline by 10% by 2030 and by 35% by 2050 (from 2010 levels). Nitrous oxide emissions (mainly from fertilisers and manure) need to be reduced by 10% by 2030 and by 20% by 2050 (from 2010 levels).

Rogelj et al., 2018

Emissions from agriculture (excluding energy)

Emissions from the agriculture sector in 2018



In the UK, the largest sources of GHG emissions in the agriculture sector are enteric fermentation from livestock (43%), and from manure (29%). Dietary changes and efficient use of fertilisers as well as reductions in food waste could help reduce emissions from this sector.

FAO, 2021

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

MITIGATION: TARGETS AND AMBITION

WARMING OF

2.4°C

The combined mitigation effect of Nationally Determined Contributions (NDCs) assessed by April 2021 is **not sufficient and will lead to a warming of 2.4°C by the end of the century**. This highlights the urgent need for all countries to submit more ambitious targets by COP26, as they agreed to do in 2015, and to **urgently strengthen their climate action to align to the Paris Agreement's temperature goal**.

Climate Analytics, 2021a

AMBITION: 2030 TARGETS

Nationally Determined Contribution (NDC): Mitigation

TARGETS

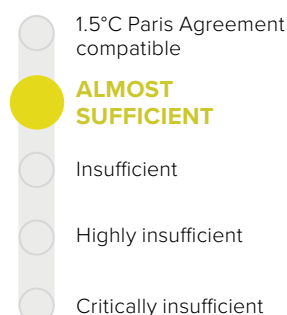
At least a 68% reduction below 1990 levels by 2030 (including LULUCF emissions)

ACTIONS

Not mentioned

Climate Action Tracker (CAT) evaluation of targets and actions

UK'S OVERALL RATING



This CAT evaluation is a **new, overall rating**, that combines the several, separately rated elements, of policies and actions, domestic and internationally supported targets, 'fair-share target' and the country's contribution to climate finance. The CAT rates the UK's overall contribution to climate change mitigation as "Almost sufficient". This reflects the fact that some elements of the UK's efforts are world-leading, like its domestic emissions reduction targets, while others, like its contributions to global climate finance, remain inadequate, and that it needs to ramp up its domestic action to meet its ambition for 2030.

The UK's recently updated 2030 emissions target is one of the only domestic 1.5°C compatible targets in the world when rated by the Climate Action Tracker against global least cost modelled domestic pathways. So far, however, the suite of policies announced in pursuit of meeting its ambitious targets are calculated by the CAT to fall 94-109 MtCO₂e short of achieving the steep emissions reductions needed. For the full assessment of the country's target and actions, and the explication of the methodology see www.climateactiontracker.org

Climate Action Tracker, 2021

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, which sets out the "information to facilitate clarity, transparency and understanding" as crucial elements of NDCs.

NDC Transparency Check recommendations

The UK's first NDC – after leaving the EU in 2020 – was submitted on 22 April 2021. To ensure clarity, transparency and understanding, it is recommended the UK provides additional detailed information in its next NDC or NDC update, including:

- Detail the circumstances and approaches to update the values of reference indicators and how they were constructed.
- Provide information on gender responsiveness measures during the planning process of the NDC.
- Report the approaches used for accounting for anthropogenic GHG emissions and removals.
- State if the peak of emissions has already been reached or when it will happen.

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

AMBITION: LONG-TERM STRATEGIES

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.

Status	An updated net zero target has not yet been submitted to the UNFCCC. The previous 80% below 1990 levels target remains the latest submission as of writing (Aug 2021).
Interim steps	Yes: at least 68% below 1990 levels by 2030 and 78% below 1990 levels by 2035
Sectoral targets	Yes
Net zero target	Yes
Net zero year	2050 target: Net zero GHG emissions

FINANCE

MAKING FINANCE FLOWS CONSISTENT WITH CLIMATE GOALS



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



Between 2013-2017, the average amount the UK spent on subsidies for coal, oil, and natural gas was almost **USD 19bn**. Roughly half of these funds were used to subsidise natural gas. Carbon revenues generated in the UK have been substantial since 2013, peaking in 2018 at USD 3.1bn.



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

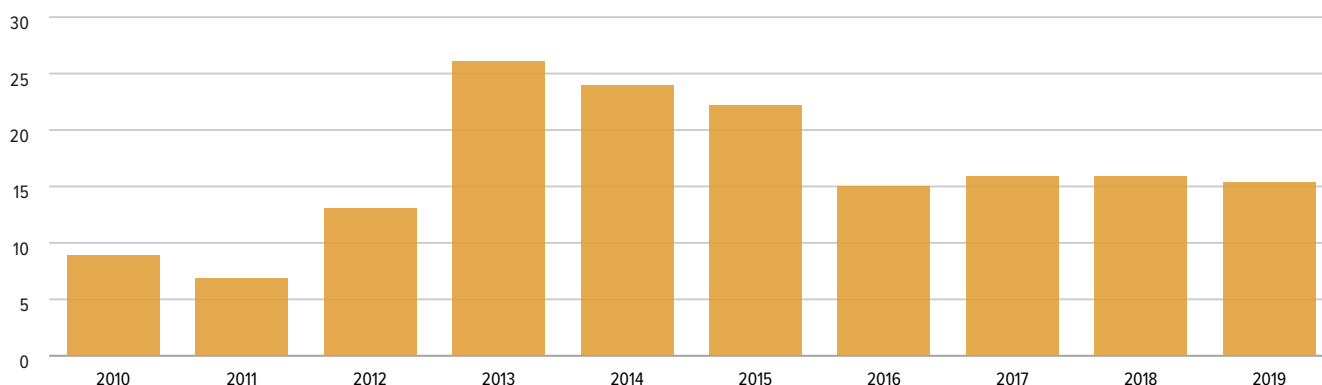
Rogelj et al., 2018

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

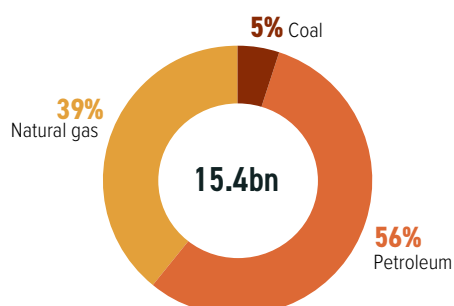
(USD billions)



OECD-IEA Fossil Fuel Support database, 2020

Fossil fuel subsidies by fuel type

USD in 2019



Over the past decade (2010-2019), the UK's fossil fuel subsidies have oscillated substantially, touching their historical minimum value of USD 6.9bn in 2011 and their peak value of USD 26bn in 2013. The latest available data show a total subsidy of USD 15.4bn in 2019. Over this period, most of the subsidies were directed to support the production and consumption of natural gas and petroleum.

Comparable data is not available yet for 2020. However, according to the Energy Policy Tracker data, during 2020 the UK has pledged at least USD 41.5bn to fossil energy as part of its energy-related funding commitments and COVID-19 economic response. Of these, USD 35bn was committed to an extensive road building and repair programme, and support to various airlines (including EasyJet, Ryanair and British Airways) was provided through the so-called COVID Corporate Financing Facility scheme.

Energy Policy Tracker, 2021; OECD-IEA Fossil Fuel Support database, 2020
Due to rounding, some graphs may sum to slightly above or below 100%



CORONAVIRUS RESPONSE AND RECOVERY

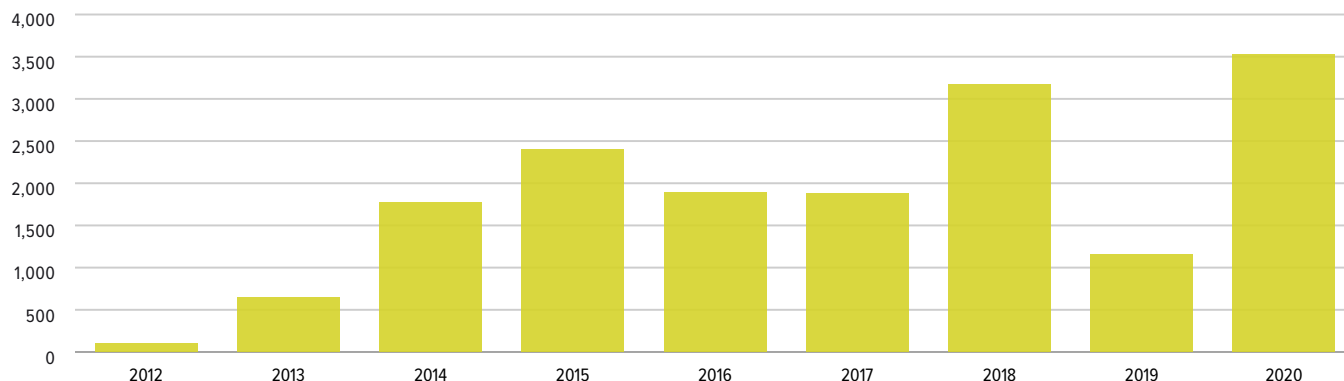
UK established a public infrastructure bank in 2021. One of the bank's two core objectives is to "help tackle climate change, particularly meeting our net zero emissions target by 2050". The bank will have GBP 22bn of financial capacity to deliver on its objectives.

HM Treasury, 2021

In response to growing calls for a replacement to the Green Investment Bank that was sold to Macquarie Group in 2017, the

Carbon pricing and revenue

(USD millions)



In 2013, the UK introduced a national carbon tax (Carbon Price Floor) that generated USD 839m in 2020. The scheme covers 23% of power sector emissions, priced at USD 25/tCO₂e. The UK has also been party to the European Emissions Trading Scheme (EU ETS) up until 2020. This generated a further USD 2.7bn in the UK alone in 2020. Following Brexit, from 1 January 2021, a UK Emissions Trading Scheme (UK ETS) replaced the UK's participation in the EU ETS. The new domestic carbon market is expected to largely mirror the EU ETS, with the only major change being a nearly 50% increase in the reserve price for allowances sold at auction.

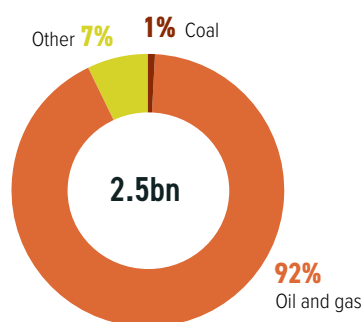
I4CE, 2021; Energy Policy Tracker, 2021

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

USD per annum (2018-19 average)



Between 2018 and 2019, the UK provided an average of USD 2.5bn per year in public finance for fossil fuels, the large majority of which was directed to the oil and gas sector. The UK was also able to continue to support coal projects due to the loopholes existing in the ECAs OECD Coal-Fired Electricity Generation Sector Understanding. The UK also has majority government-owned banks providing significant levels of public finance for energy, whose support is not captured in the data adopted for this analysis. In a welcome recent development, the UK announced it would no longer fund foreign fossil fuel projects through its export credit agency, UK Export Finance (UKEF).

Oil Change International, 2020; UK Government, 2020

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

Provision of international public support

The UK ranks sixth for its bilateral climate finance commitments and for its commitments to multilateral climate funds, in absolute terms. In 2017-18 there was a levelling off of bilateral spending and a halving in flows through multilateral climate funds (with core general contributions increasing). The UK has achieved a balance in adaptation and mitigation in its bilateral flows. Multilateral climate funds are channelled to achieve cross-cutting objectives. Despite aid cuts reducing the UK's aid to 0.5% of gross national income (GNI), the UK has ring-fenced climate aid spending. The UK doubled its initial contribution to the Green Climate Fund during its replenishment, amounting to USD 1bn, and doubled its climate finance commitment in the 2021-2026 period to GBP 11.6 bn.

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.



The UK has had major developments and initiatives over the past two years on green finance.

In November 2020, the HM Treasury introduced more robust environmental disclosure standards for investors and businesses. They also announced that Task Force on Climate-related Financial Disclosures (TCFD)-aligned disclosures will be fully mandatory across the economy by 2025, making it the first country to do so.

In March 2021, with the release of the budget, it was also announced that the Bank of England's monetary policy will include environmental and climate goals to be consistent with the transition to a net zero economy.

HM Treasury publications, 2021; UK Government, 2020, 2021

In June 2021, the HM Treasury appointed an expert Green Technical Advisory (GTAG) group for the development of the UK Green Taxonomy. Simultaneously, the HM Treasury released the Green Financing Framework that sets out the basis for identification, selection, verification and reporting of the green projects that will be financed by the UK's sovereign green bond and the retail Green Savings Bonds.

In June 2021, the UK Government introduced the Climate Change Governance and Reporting Regulations, a set of new reporting requirements in line with the TCFD recommendations, to improve both the quality of governance and the level of action by trustees of larger occupational pension schemes in identifying, assessing and managing climate risk. The regulations will apply from October 2021.

Nationally Determined Contribution (NDC): Finance

Conditionality	Not applicable
Investment needs	Not specified
Actions	Not mentioned
International market mechanisms	No contribution from international credits for the achievement of the target

ENDNOTES

Where referenced, “Enerdata, 2021” refers to data provided in July 2021. 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/g20report2021

- 1 The ‘1.5°C compatible pathway’ is derived from global cost-effective pathways assessed by the IPCC’s SR15, selected based on sustainability criteria, and defined by the 5th-50th percentiles of the distributions of such pathways achieving the long-term temperature goal of the Paris Agreement. Negative emissions from the land sector and novel negative emissions technologies are not included in the assessed models, which consider one primary negative emission technology (BECCS). In addition to domestic 1.5°C compatible emissions pathways, the ‘fair-share’ emissions reduction range would almost always require a developed country to provide enough support through climate finance, or other means of implementation, to bring the total emissions reduction contribution of that country down to the required ‘fair-share’ level.
- 2 ‘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 LULUCF, which under the new IPCC 2006 Guidelines is integrated into Agriculture, Forestry, and Other Land Use (AFOLU).
- 3 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.
- 4 The selection of policies rated and the assessment of 1.5°C compatibility are primarily informed by the Paris Agreement and the IPCC’s 2018 SR15. The table below displays the criteria used to assess a country’s policy performance.
- 5 The 1.5°C ‘fair-share’ ranges for 2030 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, 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. In order to maintain comparability across all countries, this report harmonises all data with PRIMAP, 2021 dataset to 2018. However, note that Common Reporting Format (CRF) data is available for countries which have recently updated GHG inventories. Where countries submitted updated NDC targets before August 2021, these have been analysed and included.
- 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 4.	Low	Medium	High	Frontrunner
Renewable energy in power sector	No policies 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 targets and policies 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 policies 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 fuel-based light-duty vehicles by 2035 worldwide
Phase out fossil fuel heavy-duty vehicles	No policies	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	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
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 policies or incentives 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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