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PER CAPITA GREENHOUSE GAS (GHG) EMISSIONS ABOVE G20 AVERAGE

The USA's total GHG emissions (excl. land use) are more than double the G20 average and decreased by 6.9% between 2012 and 2017. Since 2019, emissions have declined 0.34%, only beginning to dip below 1990 levels in 2017.

GHG emissions (incl. land use) per capita (tCO₂e/capita)¹



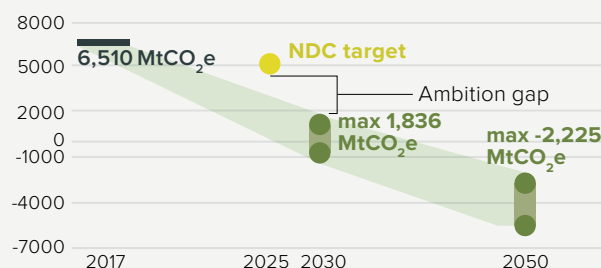
Data for 2017. Source: Enerdata, 2020; UN Department of Economic and Social Affairs Population Division, 2020

NOT ON TRACK FOR A 1.5°C WORLD



The USA's 'fair-share' range is below 2,000 MtCO₂e by 2025, below 1,836 MtCO₂e by 2030 and below -2,225 MtCO₂e by 2050. Its NDC – submitted before formal notice of withdrawal from the Paris Agreement – would have limited emissions to 5,300-5,700 MtCO₂e in 2025. All figures exclude land use and are based on pre-COVID-19 projections.

USA 1.5°C 'fair-share' pathway (MtCO₂e/year)^{1&2}



Source: Climate Action Tracker, 2020

KEY OPPORTUNITIES FOR ENHANCING CLIMATE AMBITION



The USA has the fourth highest per capita emissions in the G20. The USA should adopt a net-zero goal by 2050 at the latest.



USA transport emissions per capita are over four times the G20 average and have increased by 3.6% from 2013-2018. California's goal of 100% sales of emission-free cars by 2030 should be replicated country-wide.



Coal is projected to account for 17% of electricity generation in 2030. The USA should phase out coal-fired electricity generation by 2030 at the latest.

RECENT DEVELOPMENTS



Regulations on the release of mercury from oil and coal-fired power plants and methane emissions standards for oil and gas facilities have been weakened.



No direct support for clean energy is mentioned in the Coronavirus Aid, Relief and Economic Security (CARES) Act; support is going instead to fossil fuel companies and airlines.



President-elect Joe Biden's economic recovery plan includes decarbonising power sector by 2035, supporting energy efficiency renovations and accelerating the shift to carbon-free mobility.

Source: The New York Times, 2020; U.S. Environmental Protection Agency, 2020; U.S. Congress, 2020; Climate Action Tracker, 2020

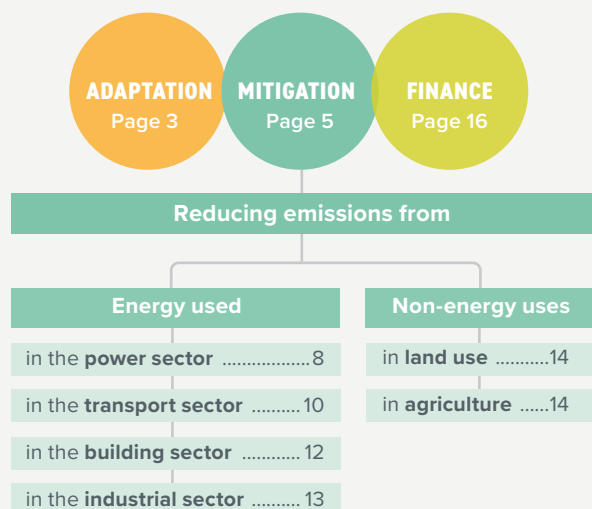
CORONAVIRUS RECOVERY

The first stimulus bill – the Coronavirus Aid, Relief, and Economic Security (CARES) Act – adopted in March established a USD 2tn recovery package of loans and grants aimed to help workers and businesses response to the pandemic. It did not include any direct support for clean energy development. Ninety fossil fuel companies are expected to benefit from the CARES Act, including 10 out of 40 fracking companies. A second stimulus package has been delayed in the Senate.

References: U.S. Congress, 2020; The Guardian, 2020b

CONTENTS

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

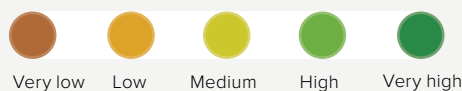


LEGEND

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



Decarbonisation Ratings⁴ 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.



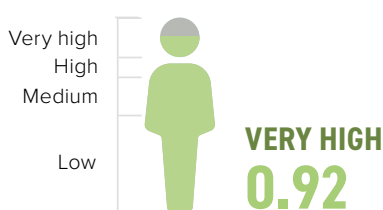
Policy Ratings⁵ evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.



SOCIO-ECONOMIC CONTEXT

Human Development Index

The Human Development Index reflects life expectancy, level of education, and per capita income. The USA ranks among the highest countries on this Index.



Data for 2018. Source: UNDP, 2019

Gross Domestic Product (GDP) per capita (PPP constant 2015 international \$)

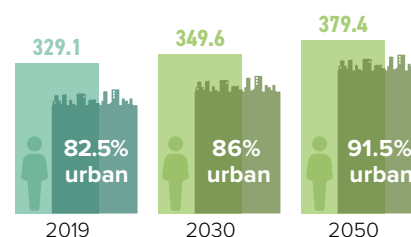


Data for 2019. Source: The World Bank, 2020

Population and urbanisation projections

(in millions)

The USA's population is expected to increase by about 13% by 2050 and become more urbanised.



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

Death rate attributable to air pollution

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



Data for 2016. Source: WHO, 2018

Each year almost 78,000 people die in the USA as a result of outdoor air pollution, due to stroke, heart disease, lung cancer and chronic respiratory diseases. However, the USA does have one of the lowest levels of attributable deaths in the G20.

77,550 deaths per year

JUST TRANSITION



COVID-19 significantly impacted the USA economy, with unemployment peaking above 14% in April, the highest rate since the Great Depression.

While the coal industry had declined prior to the pandemic, lower energy demand prompted by the economic slowdown is expected to hit fossil fuel generation the hardest, particularly coal-fired power generation. Employment in coal production fell 13% in Q2 of 2020, despite provisions in the CARES Act to assist impacted fossil fuel companies. Direct support for clean energy development was cut from the final CARES Act.

President-elect Joe Biden's economic recovery plan emphasises the creation of green jobs to revive the US economy. If implemented, the plan would spend **USD 2 trillion over four years on infrastructure and reshaping the energy economy, creating "millions" of jobs.** His vice-president-elect Kamala Harris and Rep. Ocasio-Cortez further unveiled the **Climate Equity Act that would create an Office of Climate and Environmental Justice Accountability within the executive branch and require the government to rate the effects of environmental rules on low-income communities.**

1. ADAPTATION

ADDRESSING AND REDUCING VULNERABILITY TO CLIMATE CHANGE



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



The USA is vulnerable to climate change and **adaptation actions are needed.**



On average, 445 fatalities and almost USD 51.6bn losses occur annually, due to extreme weather events.



With global warming, society and its supporting sectors are increasingly exposed to severe impacts such as wildfires and hurricanes.

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



0.15
PER 100,000
INHABITANTS

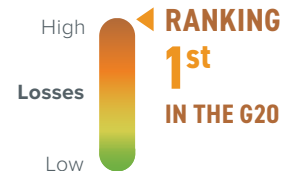


Source: Based on Germanwatch, 2019

Annual average losses (USD mn PPP)



0.35
PER UNIT
GDP (%)



Source: Based on Germanwatch, 2019

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

Impact ranking scale:

! Very low ! Low ! Medium ! High ! Very high

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

Source: 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.

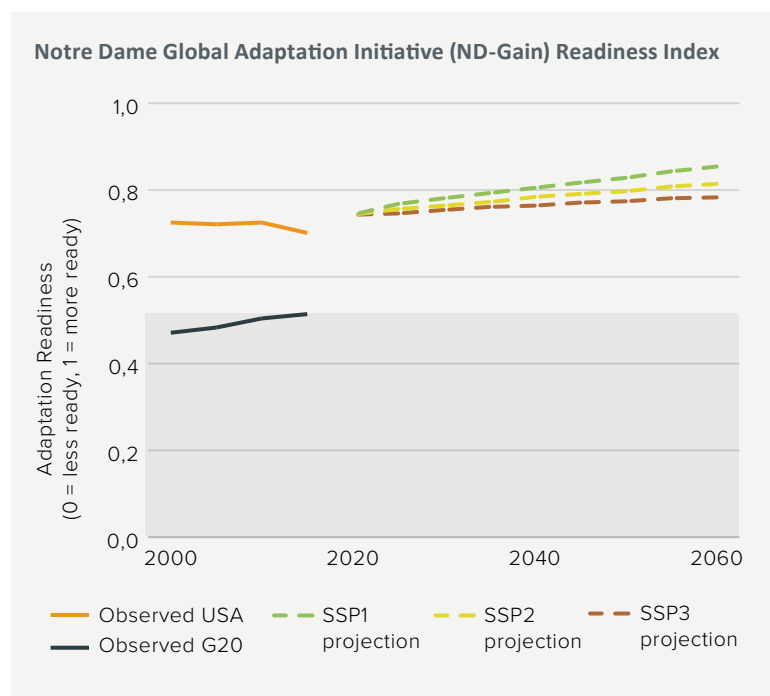
CORONAVIRUS RECOVERY

With wildfires in the west and a record-breaking hurricane season in the east, natural disasters overlapping with COVID-19 have strained resources for responding to climate change. In August 2020, Trump made USD 44bn from FEMA's Disaster Relief Fund (DRF) available for lost wages due to COVID-19, over half of the DRF's available funds. In addition, the pandemic-driven recession and threat of contracting COVID-19 have hampered individuals' ability to prepare for disasters and evacuate as needed.

Reference: Hulac, 2020

Adaptation readiness

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



The USA scored well above the G20 average between 2000 and 2015 and is projected to continue doing so given its combination of social, economic and governance structures. While adaptation challenges still exist, the USA is well-positioned to adapt to the impacts of climate change. In the projected SSPs, there is very little divergence before 2040.

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

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

Source: Andrijevic et al., 2020

ADAPTATION POLICIES

National Adaptation Strategies

Document name	Publication year	Fields of action (sectors)												M&E process	
		Agriculture	Biodiversity	Coastal areas and fishing	Education and research	Energy and industry	Finance and insurance	Forestry	Health	Infrastructure	Tourism	Transport	Urbanism		Water
U.S. Environmental Protection Agency Climate Change Adaptation Plan	2014	●		●	●	●		●	●			●		●	Implementation Plan to measure and evaluate effectiveness over time, periodically adjusted

Nationally Determined Contribution (NDC): Adaptation

Targets	Actions
Not mentioned	Not mentioned

The USA officially withdrew from the Paris Agreement on 04 November 2020 following the notice of intent to withdraw issued a year earlier under the Trump Administration. President-elect Biden has promised to re-enter the Agreement.

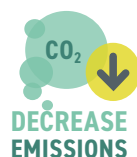
2. MITIGATION

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



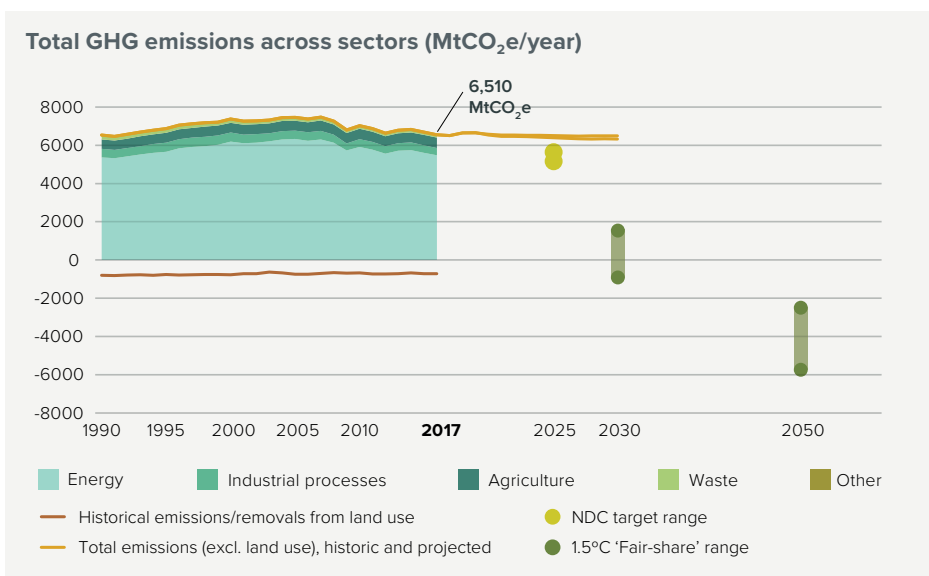
The USA's GHG emissions increased by 34% from 1990 to 2017. The government's climate target for 2025 of 24.4% below 2017 levels is **not in line with a 1.5°C pathway**.



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.

Source: Rogelj et al., 2018

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

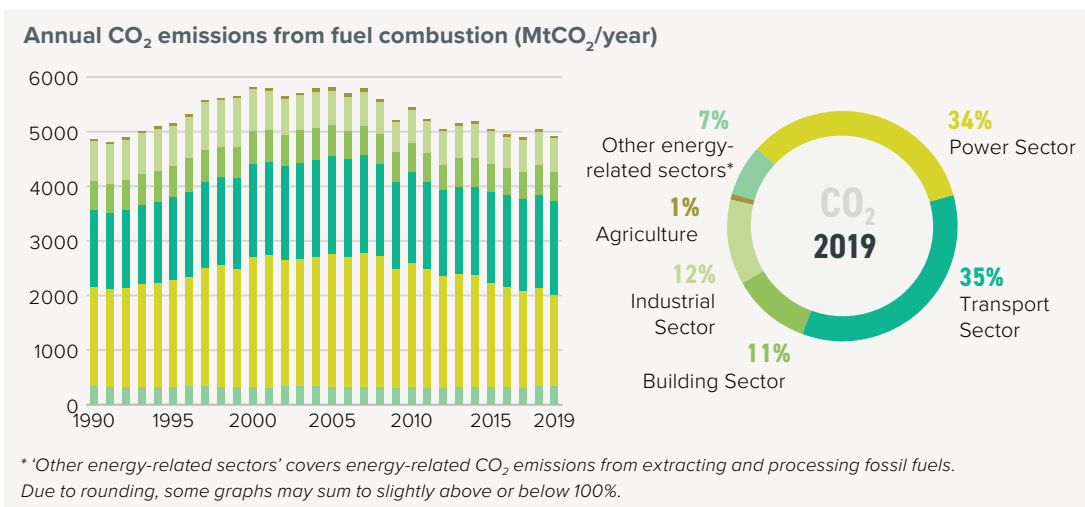


The USA emissions (excl. land use) rose by 34% between 1990 and 2017. The USA's GHG emissions level across sectors in 2017 was 6,510 MtCO₂e. The USA is not on track to meet its NDC in 2025. Although the USA officially withdrew from the Paris Agreement on 4 November 2020, president-elect Biden has promised to rejoin.

Substantial scaling up of climate action will be required to become 1.5°C compatible. The USA could achieve 1.5°C 'fair-share' compatibility via **strong domestic emissions reduction, supplemented with contributions to global emissions-reduction efforts.**

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

Energy-related CO₂ emissions by sector



The largest driver of overall GHG emissions are CO₂ emissions from fuel combustion.

In the USA these have remained fairly stable over the last decade, with only minor ups and downs. The transport sector is the largest contributor with 35%, followed by electricity and heat generation as well as industry, at 34% and 12% respectively.

Source: Enerdata, 2020

CORONAVIRUS RECOVERY

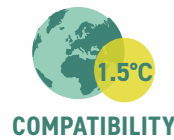
The Trump Administration suspended the enforcement of environmental rules in response to the pandemic, relaxing the obligation of factories, power plants and other facilities to comply with air and water pollution monitoring and reporting of emissions. Further, the CARES Act included a USD 750bn bond bailout for sectors affected by the pandemic. At least 90 fossil fuel companies can benefit from this scheme, including 10 of the top 40 fracking companies.

References: U.S. Environmental Protection Agency, 2020; The Guardian, 2020

ENERGY OVERVIEW



Fossil fuels still make up 82% of USA's energy mix (counting power, heat, transport fuels, etc). The proportion of coal in the energy mix has decreased over the last decade, but has been **replaced with gas rather than renewables**.

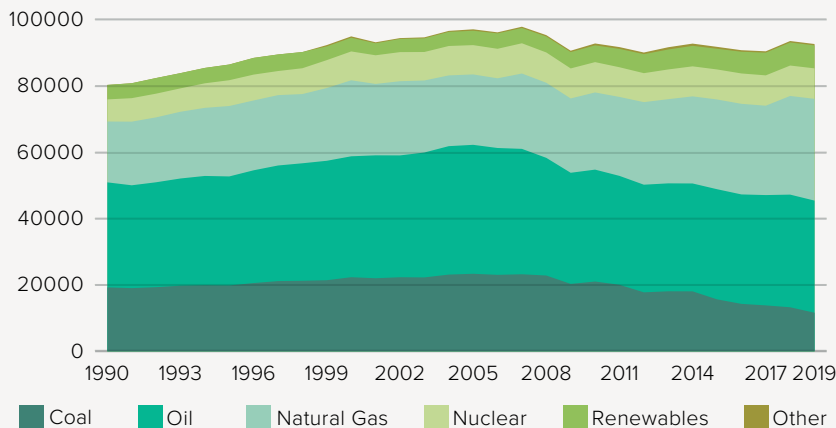


The share of **fossil fuels globally needs to fall to 67% of global total primary energy by 2030 and to 33% by 2050** (and to substantially lower levels without Carbon Capture and Storage).

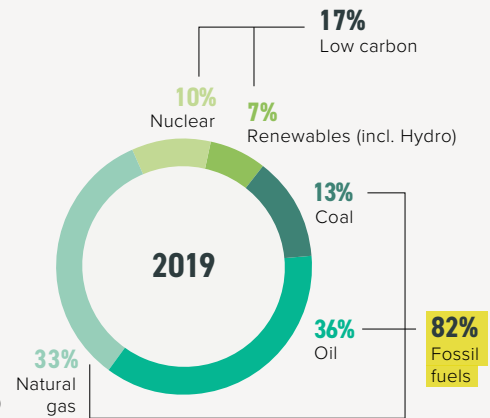
Source: Rogelj et al., 2018

Energy Mix

Total primary energy supply (PJ)



Source: Enerdata, 2020

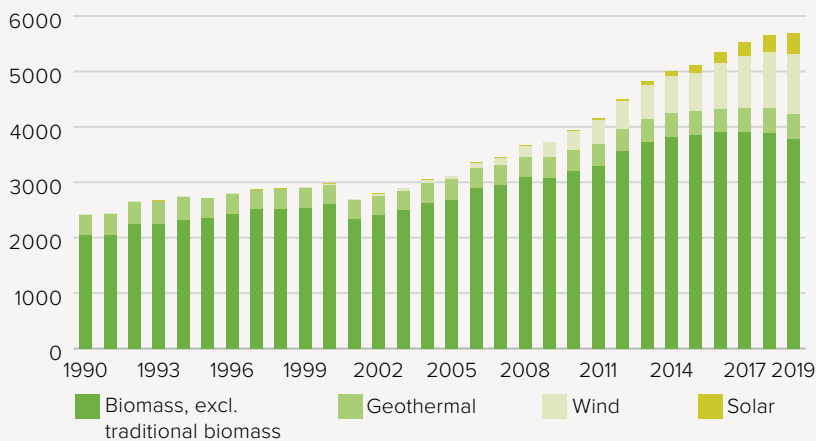


Due to rounding, some graphs may sum to slightly above or below 100%.

This graph shows the fuel mix for all energy supply, including energy used not only for electricity generation, heating, cooking, but also for transport fuels. Fossil fuels (oil, coal and gas) still make up 82% of the USA's energy mix, which is around the G20 average of 81%. Coal energy has declined slightly but has been replaced with other fossil fuels. The share of renewables has barely changed over the years.

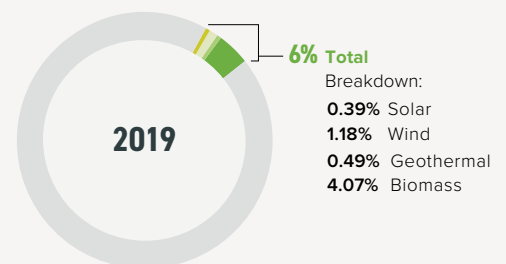
Solar, Wind, Geothermal, and Biomass Development

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



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

Solar, wind, geothermal and biomass account for 6% of USA's energy supply



Source: Enerdata, 2020

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



Source: own evaluation

Solar, wind, geothermal and biomass account for 6.1% of the USA's energy supply – the G20 average is only 6.4%. In the last five years, the share of these sources in total energy supply has increased by around 14.2%, almost half the G20 average (+28.1% 2014-2019). Bioenergy (for electricity, biofuels for transportation and heat) make up the largest share (4.1%).

Carbon Intensity of the Energy Sector

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



Source: Enerdata, 2020

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

5-year trend (2014-2019):



Current year (2019):



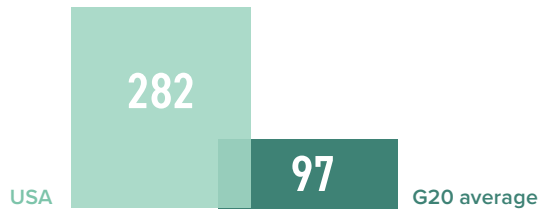
Carbon intensity shows how much CO₂ is emitted per unit of energy supply.

In the USA, carbon intensity has remained constant compared to last year at 53.09 tCO₂. This level is slightly below the G20 average.

Source: Enerdata, 2020

Energy supply per capita

(GJ/capita)



Source: Enerdata, 2020

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



-2.5%
USA



+1.9%
G20 average

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

Energy use per capita in the USA is 282 GJ/capita, well above the G20 average, but is decreasing (-2.5%, 2014-2019) in contrast to the increasing G20 average (+1.9%).

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

5-year trend (2014-2019):



Current year (2019):



Source: own evaluation

Energy intensity of the economy

(TJ/PPP USD2015 millions)



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

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



-10.8%
USA



-11.6%
G20 average

This indicator quantifies how much energy is used for each unit of GDP, which is closely related to the level of industrialisation, efficiency, climatic conditions and geography.

The USA energy intensity is slightly below the G20 average and has decreased by 10.8% over the past five years (2013-2018).

Decarbonisation rating: energy intensity compared to other G20 countries

5-year trend (2013-2018):



Current year (2018):



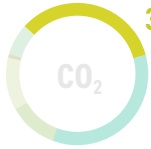
Source: own evaluation



POWER SECTOR

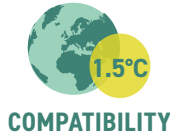
Emissions from energy used to make electricity and heat

The USA still produces 25% of electricity from coal and has no plans to phase out coal. Although electricity generation from renewables has increased, the economic recession related to COVID-19 is likely to affect the installation of new generating capacity and subsequently reduce the investment in renewable technologies.



34% Emissions produced from electricity and heat generation contributes 34% to the total GHG emissions in the USA.

Source: Enerdata, 2020



Coal and decarbonisation

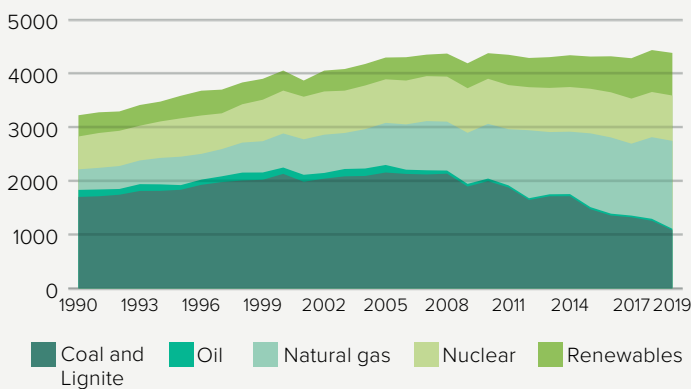
Worldwide, **coal use for power generation needs to peak by 2020**, and between 2030 and 2040, all the regions of the world need to phase out coal-fired power generation. **Electricity generation has to be decarbonised before 2050**, with renewable energy the most promising alternative.

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

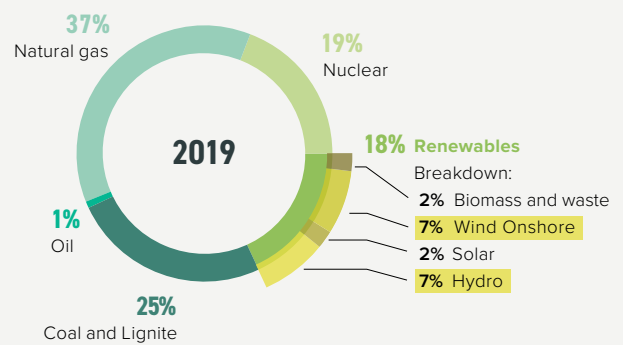
STATUS OF DECARBONISATION

Electricity mix

Gross power generation (TWh)



Source: Enerdata, 2020

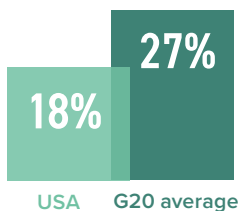


Due to rounding, some graphs may sum to slightly above or below 100%.

The USA is increasingly producing power from renewables, which make up 18.1% of the power mix (G20 average is 27%), with wind (6.9%) having the largest share followed by large hydro (6.7%). The share of coal in the power mix has dropped to 25%. However, it has mostly been replaced by natural gas, which now accounts for 37.3% in the power mix.

Share of renewables in power generation

(incl. large hydro)



Source: Enerdata, 2020

Decarbonisation rating: share of renewables compared to other G20 countries

5-year trend (2014-2019):



Current year (2019):



Source: own evaluation

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



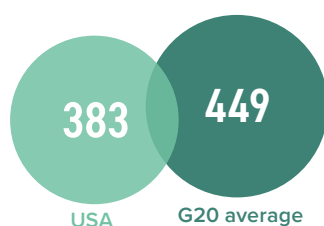
+37%
USA



+19.5%
G20 average

Emissions intensity of the power sector

Country vs G20 average (gCO₂/kWh)



Source: Enerdata 2020

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



-18.1%
USA



-10.3%
G20 average

For each kilowatt hour of electricity, 383 gCO₂ are emitted in USA. This is slightly below the G20 average, but still high. The emissions intensity has dropped by 18.1% in the past five years (2014-2019), reflecting the declining share of coal power.

Decarbonisation rating: emissions intensity compared to other G20 countries

5-year trend
(2014-2019):



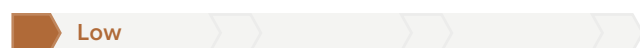
Current year
(2019):



Source: own evaluation

POLICY ASSESSMENT

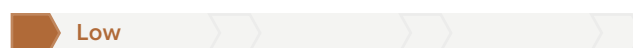
Renewable energy in the power sector



The USA has no 2050 target for renewable energy, and the 2019 Affordable Clean Energy rule repealing the Clean Power Plan no longer includes specific emissions reduction targets in the power sector for states. **However, market forces of cheaper renewables will displace coal** and allow the power sector to surpass the Clean Power Plan's original target of reducing emissions by 34% below 2005 levels by 2030. Federal clean energy tax credits and support policies are in place at state level.

Source: own evaluation

Coal phase-out in the power sector



The USA does not have a coal phase-out plan. Under the 2019 Affordable Clean Energy Rule, states have three years to develop plans to limit CO₂ at their coal-fired power plants, a rolling back of stronger regulations. Despite government support, **the coal industry is declining, mostly in the face of lower costs and abundant natural gas and renewable energy**. In 2019, USA coal-fired electricity generation decreased to its lowest level since 1976.

Source: own evaluation



TRANSPORT SECTOR

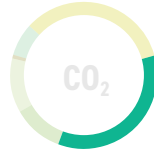
Emissions from energy used to transport people and goods

In the USA, emissions from transport per capita are among the highest in the G20 and are on the rise. The transport sector accounts for a third of CO₂ emissions, **is still dominated by fossil fuels, and is the largest contributor** to the total GHG emissions of the country. In order to stay within a 1.5°C limit, passenger and freight transport need to be decarbonised.

Share in energy-related CO₂ emissions from transport sector.

GHG emissions from the transport sector accounts for 34%, making it the largest contributor in GHG emissions.

Source: Enerdata, 2020



0.1%
Electricity-related emissions

34%
Direct emissions



COMPATIBILITY

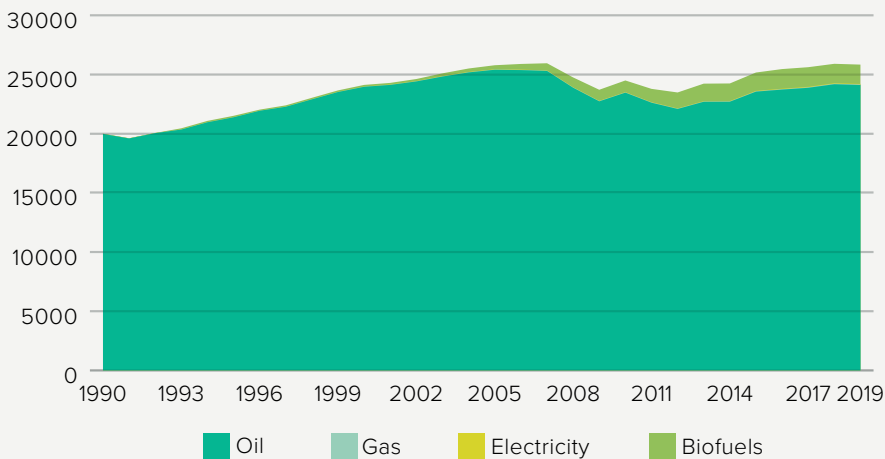
The share of low-carbon fuels in the transport fuel mix must increase to about 60% by 2050.

Source: Rogelj et al., 2018

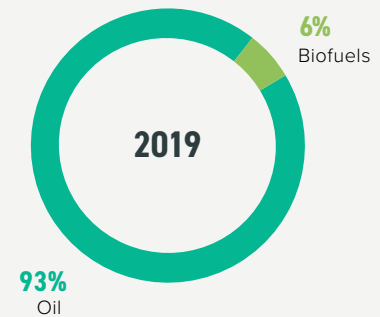
STATUS OF DECARBONISATION

Transport energy mix

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



Source: Enerdata, 2020



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

Electricity and biofuels make up only 6.5% of the energy mix in transport.

Transport emissions per capita

excl. aviation (tCO₂/capita)



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

Decarbonisation rating: transport emissions compared to other G20 countries

5-year trend (2013-2018):



Current year (2018):



Source: own evaluation

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



+3.6%
USA



+5.5%
G20 average

Aviation emissions per capita⁶

(tCO₂/capita)



Data for 2017. Source: Enerdata, 2020

Decarbonisation rating: aviation emissions compared to other G20 countries

5-year trend
(2012-2017):



Current year
(2017):



Source: own evaluation

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



+16.7%
USA



+18.7%
G20 average

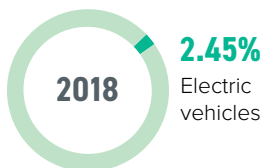
Motorisation rate

891 VEHICLES PER 1,000 INHABITANTS (2016)

89% of the kilometres travelled is by car and almost 90% of people have a car in the USA.

Source: Vieweg et al., 2018

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



Data for 2018. Source: IEA, 2019b

Passenger transport

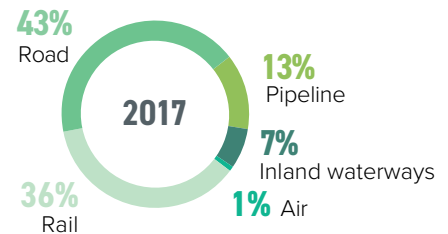
(modal split in % of passenger-km)



Data for 2016. Source: Vieweg et al., 2018

Freight transport

(modal split in % of tonne-km)



Data for 2017. Source: Vieweg et al., 2018

POLICY ASSESSMENT

Phase out fossil fuel cars



The USA has no target to phase out fossil fuel cars. In August 2018, the government proposed freezing Obama-era fuel efficiency rules instead of raising them each year between 2020 and 2026. In April 2020, NHTSA and EPA revised the Corporate Average Fuel Economy (CAFE) and greenhouse gas emissions standards for passenger cars and light trucks, establishing weaker standards. There are tax credits for electric vehicles (EVs), but 24 states have imposed EV fees, e.g. higher annual registration costs.

The USA government is blocking emission standards for cars and trucks that are stricter than the federal standards. California and 22 other states have filed lawsuits against this rule.

Source: own evaluation

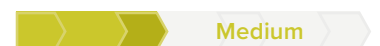
Phase out fossil fuel heavy-duty vehicles



The USA does not have a strategy for reducing emissions from freight transport, but has energy efficiency standards for heavy-duty vehicles (HDVs) in place. The USA, together with Canada, are the first in the world to extend emissions regulations of trucks to the trailers they pull, although in 2017 the USA Court of Appeals stayed the implementation after legal challenges were filed by the trailer industry.

Source: own evaluation

Modal shift in (ground) transport



The USA has no long-term strategy for a modal shift. It developed several programmes to shift to public and non-motorised transport for passengers, e.g. investments in transit rail and bus or support for pedestrians and bicycles. Its SmartWay Initiative supports companies to move goods more cleanly and efficiently.

Source: own evaluation

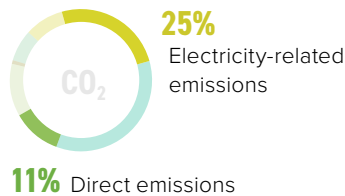


BUILDING SECTOR

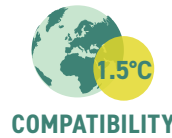
Emissions from energy used to build, heat and cool buildings

USA building emissions make up a quarter of electricity-related CO₂ emissions and 11% of direct CO₂ emissions. Per capita, building-related emissions are by far the highest in the G20. Strategies for reducing energy use in the building sector are largely missing.

Building emissions occur directly (burning fuels for heating, cooking, etc) and indirectly (grid-electricity for air conditioning, appliances, etc.) Building emissions account for 11% of the total direct CO₂ emissions in the USA.



Source: Enerdata, 2020



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

Source: Rogelj et al., 2018

STATUS OF DECARBONISATION

Building emissions per capita

(incl. indirect emissions) (tCO₂/capita)



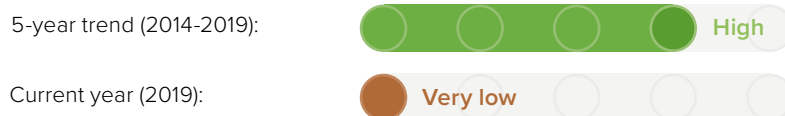
The USA has the highest level of building-related emissions per capita in the G20 by far. In contrast to the G20 average however, the USA has reduced the level by 13.09% (2014-2019).

Source: Enerdata, 2020

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



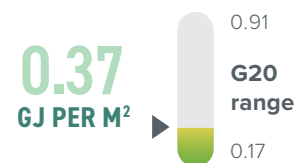
Decarbonisation rating: building emissions compared to other G20 countries



Source: own evaluation

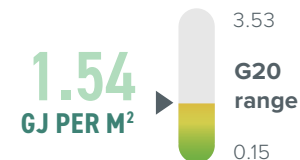
Residential buildings

Energy use per m²



Commercial and public buildings

Energy use per m²



Building emissions are largely driven by how much energy is used in heating, cooling, lighting, household appliances, etc. In the USA, energy use per m² is in the middle range of the G20 countries.

Source: Castro-Alvarez et al., 2018

POLICY ASSESSMENT

Near zero energy new buildings



The USA has no strategy for making new buildings near zero energy, although the states of California and Massachusetts do. The USA Better Building Initiative aims to make buildings 20% more energy efficient by the 2020s. The majority of states have building codes. In California, nearly all new homes are required to have solar panels and high-efficiency design from 2020.

Not all codes are mandatory and the level of enforcement varies.

Source: own evaluation

Renovation of existing buildings



The USA has no long-term strategy for energy retrofitting of existing buildings. State or provincial codes apply to two-thirds of the population.

Source: own evaluation

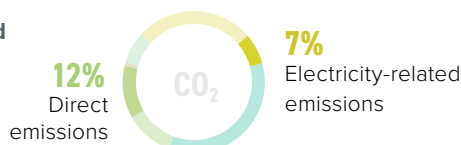


INDUSTRY SECTOR

Emissions from energy in the industrial sector

Industry-related emissions make up 12% of direct CO₂ emissions and 7% of electricity-related CO₂ emissions in the USA. The USA has only managed to reduce emissions from this sector slightly.

Share in energy-related CO₂ emissions from industrial sector



Source: Enerdata, 2020



COMPATIBILITY

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

Source: Rogelj et al., 2018

STATUS OF DECARBONISATION

Industry emissions intensity⁷

(tCO₂e/USD2015 GVA)



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

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



-17%
USA



-10.2%
G20 average

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

5-year trend (2012-2017):



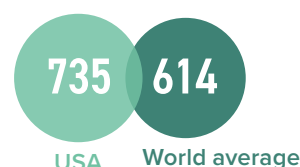
Current year (2017):



Source: own evaluation

Carbon intensity of cement production⁸

(kgCO₂/tonne product)



USA's cement industry is slightly more emissions-intensive than the world average.

Data for 2016. Sources: CAT Decarbonisation Data Portal, 2020; Climate Action Tracker, 2019

Carbon intensity of steel production⁸

(kgCO₂/tonne product)

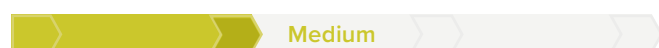


Steel production and steelmaking are significant GHG emissions sources, and challenging to decarbonise.

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

POLICY ASSESSMENT

Energy Efficiency



Mandatory energy efficiency policies in the USA cover only 11-25% of industrial total energy use as of 2017. At federal level, voluntary energy efficiency certification for industry exists but there are no mandatory standards. Several states have emissions trading schemes in place.

Source: own evaluation



LAND USE SECTOR

Emissions from changes in the use of the land



NET SINK OF EMISSIONS

To stay within the 1.5°C limit, the USA should ensure the land use and forest sector remains a net sink of emissions, e.g. by halting further expansion of residential areas, and creating new forests.



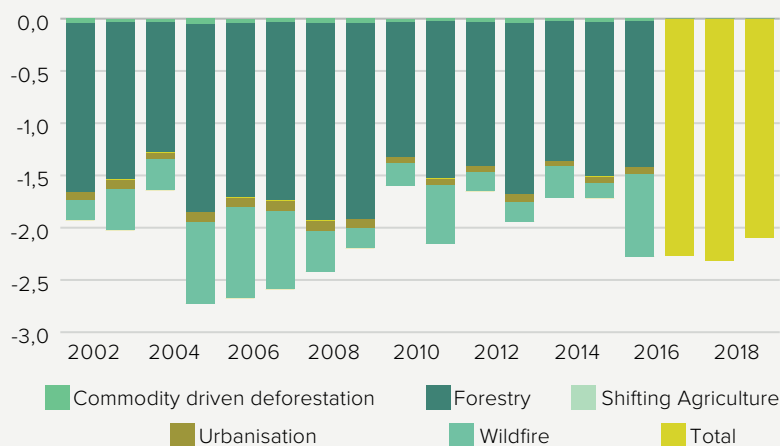
COMPATIBILITY

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

Source: Rogelj et al., 2018

Global tree-cover loss

Gross tree-cover loss by dominant driver (million hectares)



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

Source: Global Forest Watch, 2019

From 2001 to 2018, the USA lost 646 Mha of tree cover, equivalent to a 5.2% decrease since 2000. This does not take tree-cover gain into account.

POLICY ASSESSMENT

Target for net-zero deforestation



The 2015-2020 Forest Plan aims to sustain the country's forests but there is no quantitative national target. In March 2019, President Trump signed a Public Lands Bill, adding 1.3 million acres of new wilderness; however, a year later his administration announced that it would roll back decades' old regulations protecting millions of acres in Alaska's Tongass national forest (America's largest) from logging.

Source: Cannon, 2020



AGRICULTURE SECTOR

Emissions from agriculture



DIETARY SHIFTS ARE NEEDED

The USA's agricultural emissions are mainly from digestive processes in animals, livestock manure and the use of synthetic fertilisers. A 1.5°C 'fair-share' pathway requires dietary shifts, increased organic farming and less fertiliser use.

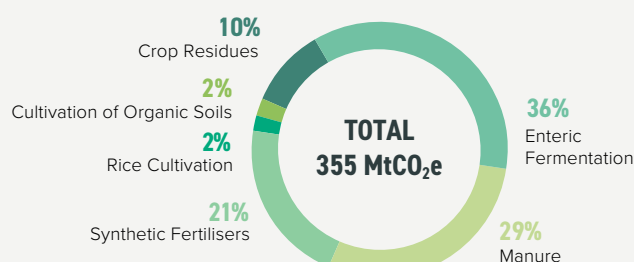


COMPATIBILITY

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

Source: Rogelj et al., 2018

Emissions from agriculture (excluding energy)



Data for 2017. Source: FAO, 2019

In the USA, the largest sources of GHG emissions in the agricultural sector are digestive processes in animals (enteric fermentation), livestock manure and the use of synthetic fertilisers. A shift to organic farming, more efficient use of fertilisers and dietary changes can help reduce emissions.

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

MITIGATION: TARGETS AND AMBITION

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

AMBITION: 2030 TARGETS

Nationally Determined Contribution (NDC): Mitigation


Targets

Intends to achieve economy-wide target of reducing its GHG emissions by 26-28% below its 2005 level by 2025, and to make best efforts to reduce its emissions by 28% inc. land use.

Actions

Actions specified in the following sectors: energy, transport, buildings, waste

Climate Action Tracker (CAT) evaluation of NDC and actions

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

NDCs with this rating fall well outside of a country's 'fair-share' range and are not at all consistent with holding warming to below 2°C let alone with the Paris Agreement's stronger 1.5°C limit. If all government NDCs were in this range, warming would exceed 4°C.

The USA's emissions in 2020 will be lower as a result of the COVID-19 pandemic, but the Trump Administration's continuous rollback of climate policy and its response to the pandemic will counteract some of the drop in emissions. The Trump Administration did not initiate a green recovery but instead used the pandemic as justification to continue relaxing environmental regulations, allowing polluting industries to emit more greenhouse gases during the crisis and exempting them from penalties for violating these rules.

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

TRANSPARENCY: FACILITATING AMBITION

Having given notice of its intention to withdraw from the Paris Agreement, the USA's exit took effect on 4 November 2020, one day after the 2020 USA Presidential Elections. This will make the USA one of a handful of countries outside the Paris Agreement.

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

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



NDC Transparency Check recommendations

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

To comply with the Paris Agreement by ensuring clarity, transparency and understanding, it is recommended that the USA provides the following additional information in the upcoming NDC Update (compared to the existing NDC), including:

- State specific period of implementation of NDC
- Provide information on domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender-responsive manner
- Provide comparative assessments of the fairness of chosen target, by national or other experts, or any references to the equity literature
- Provide reference to a goal of net-zero emissions, and/or a corresponding date for such a goal

AMBITION: LONG-TERM STRATEGIES

Status	Submitted to UNFCCC under the Obama Administration
2050 target	No 2050 target; exploring options for -80% or more below 2005 levels
Interim steps	Yes: -17% in 2020 and -26-28% in 2025 compared to 2005 levels
Sectoral targets	-
Net-Zero target	-
Net-Zero year	-

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

3. FINANCE

MAKING FINANCE FLOWS CONSISTENT WITH CLIMATE GOALS



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



The USA spent USD 8.2bn on fossil fuel subsidies in 2019. The USA has no explicit carbon price.



COMPATIBILITY

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

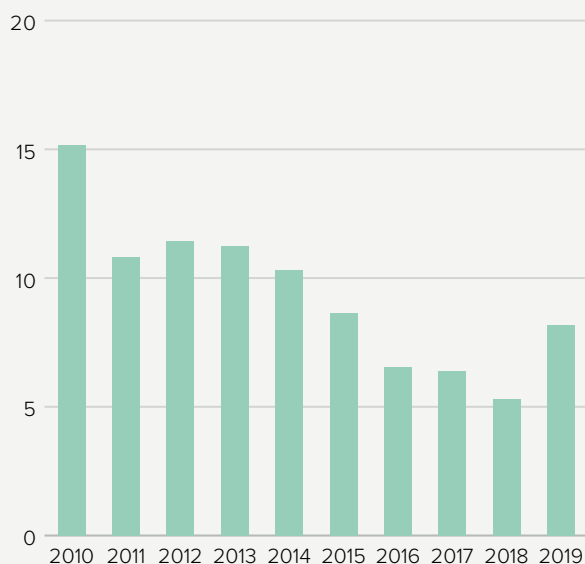
Source: Rogelj et al., 2018

FISCAL POLICY LEVERS

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

Fossil Fuel Subsidies

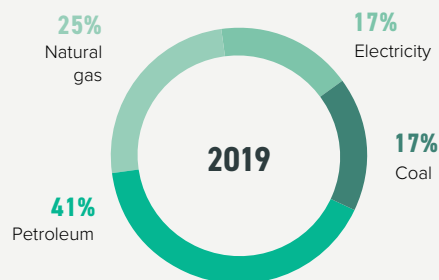
USA Fossil fuel subsidies (USD billions)



Source: OECD-IEA Fossil Fuel Support database, 2020

Fossil Fuel Subsidies by fuel type

Subsidies by fuel type



Source: OECD-IEA Fossil Fuel Support database, 2020

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

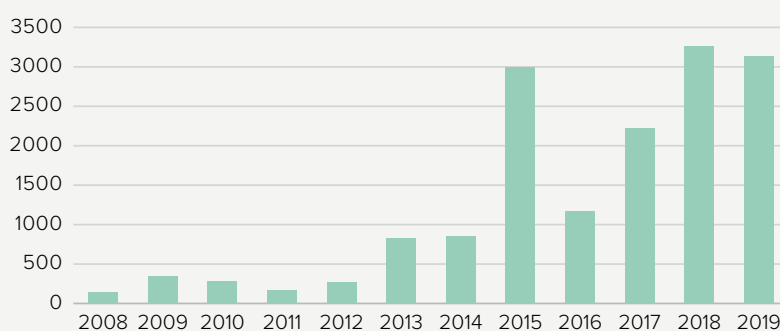
In 2019, the USA's fossil fuel subsidies totalled USD 8.2bn (compared to USD 15.2bn in 2010) and fluctuated greatly over the last decade. 60% of the subsidies identified were for the consumption of fossil fuels, with the remainder for production. The highest amount of quantified subsidies was for petroleum, at USD 2.5bn, followed by natural gas at USD 2.2bn. The largest subsidy is the home energy assistance programme for low-income households (USD 1.4bn).

Carbon Pricing and Revenue

From 2008 to 2019, state and regional emissions trading schemes became operational in California, Connecticut, Massachusetts, New Jersey and Oregon, with emissions priced between USD 5/tCO₂ and USD 17/tCO₂. In 2019, the schemes generated USD 2.8bn in California, USD 308m in Connecticut and USD 8.2m in Massachusetts (other estimates are not available). At the federal level, lawmakers presented a variety of bills during 2019 for an ETS or a carbon tax but without any success.

Source: I4CE, 2019; OECD, 2018

Carbon revenues (USD millions)



CORONAVIRUS RECOVERY

The CARES Act included a USD 750bn bond bailout for sectors affected by the pandemic, with at least 90 fossil fuel companies eligible including 10 of the top 40 fracking companies.

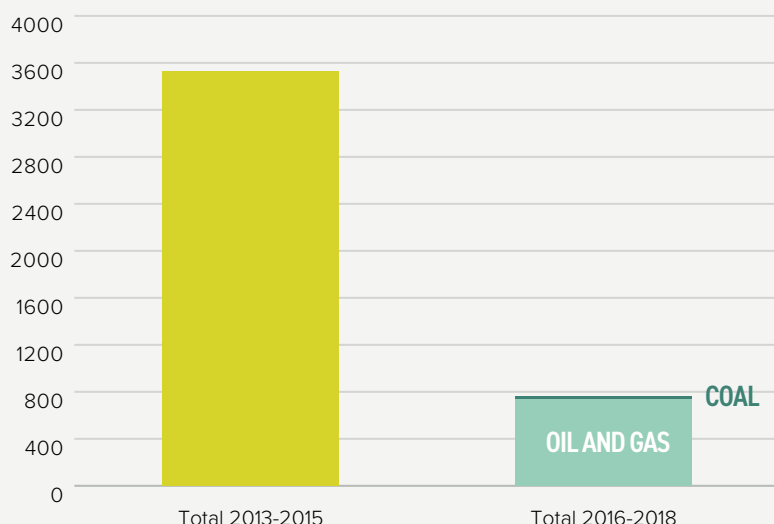
President-elect Joe Biden's economic recovery plan emphasises a green recovery and the creation of green jobs to revive the USA economy. If implemented, the plan would spend USD 2tn over four years on infrastructure and reshaping the energy economy.

PUBLIC FINANCE

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

Public finance for fossil fuels

Public finance provided to fossil fuels (in USD millions)



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

Source: Oil Change International, 2020

Between 2016 and 2018, the USA provided an average of USD 759m per year in public finance for fossil fuels, a large majority of which was directed to the oil and gas sector. This marked a substantial decrease in public finance for fossil fuels when compared to the previous period 2013-2015, when an average of USD 3.5bn per year is estimated to have been provided by the country's public finance institutions to fossil fuels. The Export-Import Bank of the United States (U.S. EXIM), typically a significant supporter of fossil fuels, was not able to support any project over USD 10m because it lacked board quorum from July 2015 until May 2019. Its support across all sectors dropped to almost nothing during this period, from a high of USD 12bn in 2012 for fossil fuels. Almost immediately after achieving board quorum in 2019, U.S. EXIM approved USD 5bn for a liquid natural gas (LNG) project in northern Mozambique, the largest transaction in its history. U.S. EXIM also approved USD 18m for oil and gas projects in Argentina and about USD 40m for coal mining projects.

Provision of international public support

(annual average 2017 and 2018)

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

Bilateral, regional and other channels

Annual average contribution
2,200.30
MN USD

Theme of support:



Multilateral climate finance contributions

Annual average contribution
918.15
MN USD

Theme of support:



Core / General Contributions

Annual average contribution

No data available

The USA did not provide a fourth Biennial Report to the UNFCCC. Instead, the provisional data provided to the UNFCCC in 2018 (for the 2015/16 period) is used as a placeholder. If 2015/16 data are reflective of 2017/18 levels the USA is the fifth largest bilateral climate finance contributor and second largest contributor to multilateral climate change funds in absolute terms (although these rankings fall relative to GDP). The Trump Administration made it clear it would not contribute further to the Green Climate Fund (under the Obama Administration USD 3bn was pledged and USD 1bn transferred, but further transfers have since been halted).

FINANCIAL POLICY AND REGULATION

Financial policy and regulation

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

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

Although no federal-level green financial policy or regulation has been identified, there is some state alignment with TCFD recommendations in both California (California Department of Insurance) and Washington state. In January 2020, the chair of the USA Federal Reserve said the central bank may soon join the Network for Greening the Financial System (NGFS).

Nationally Determined Contribution (NDC): Finance

Conditionality	Not applicable
Investment needs	Not specified
Actions	Not mentioned
International market mechanisms	At this time, the USA does not intend to utilise international market mechanisms to implement its 2025 target.

Having given notice of its intention to withdraw from the Paris Agreement, the USA's exit will take effect on 4 November 2020, one day after the 2020 USA Presidential Elections.

ENDNOTES





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

- 'Land use' emissions is used here to refer to land use, land use change and forestry (LULUCF). The Climate Action Tracker (CAT) derives historical LULUCF emissions from the UNFCCC Common Reporting Format (CRF) reporting tables data converted to the categories from the IPCC 1996 guidelines, in particular separating Agriculture from Land use, land use change and forestry (LULUCF), which under the new IPCC 2006 Guidelines is integrated into Agriculture, Forestry, and Other Land Use (AFOLU).
- The 1.5°C fair share ranges for 2030 and 2050 are drawn from the CAT, which compiles a wide range of perspectives on what is considered fair, including considerations such as responsibility,

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

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

- 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 G20 countries.
- The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement, the IPCC's 2018 SR15 and the Climate Action Tracker (2016). The table below displays the criteria used to assess a country's policy performance.
- 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.
- This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.
- This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).

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

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