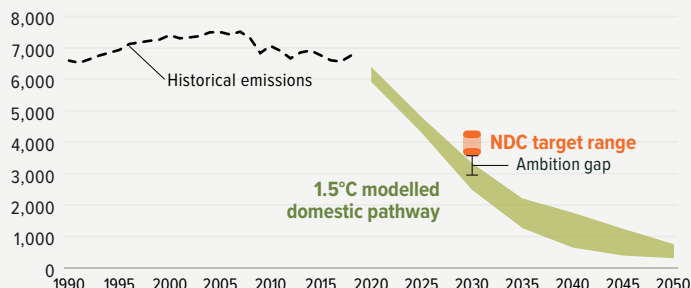




## NOT ON TRACK FOR A 1.5°C WORLD

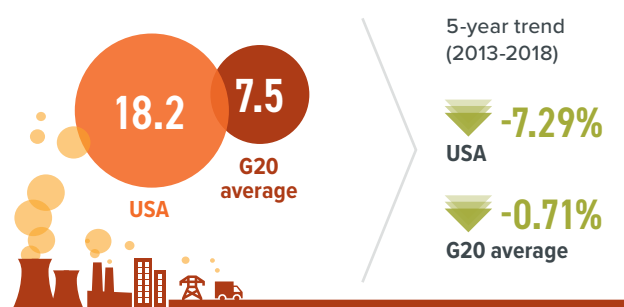
**1.5°C** The USA's NDC target is to reduce emissions by 50-52% below 2005 levels (incl. land use). This is 43-50% below 2005 levels (excl. land use), or approximately 3,675-4,178 MtCO<sub>2</sub>e, by 2030. To keep below the 1.5°C temperature limit, the USA's 2030 emissions would need to be around 2,947 MtCO<sub>2</sub>e (excl. land use) or 60% below 2005 levels, leaving an ambition gap of 728 MtCO<sub>2</sub>e.

Gütschow et al., 2021; Climate Analytics, 2021

1.5°C compatible emissions pathway (MtCO<sub>2</sub>e/year)<sup>1</sup>

## PER CAPITA GREENHOUSE GAS (GHG) EMISSIONS ABOVE G20 AVERAGE

GHG emissions (incl. land use) per capita (tCO<sub>2</sub>e/capita)<sup>2</sup> in 2018



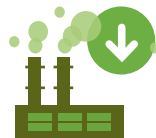
The USA's per capita emissions are 2.44 times the G20 average. Total per capita emissions, including land use, have decreased by 7% between 2013-2018.

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

## KEY OPPORTUNITIES FOR ENHANCING CLIMATE AMBITION



With climate spending having been cut in the infrastructure plan, **the adoption of an ambitious budget resolution to fund climate action is critical** to delivering on President Biden's campaign promises and progressing toward the updated NDC target.



**Halt expansion of oil and gas infrastructure and operations**, such as the Willow oil drilling project, that puts the country at risk of carbon lock-in and high-cost stranded assets.



Despite recent commitments, the US needs to **ramp up the level of its international climate finance contributions in the period post-2020 and accelerate the phase-out of all fossil fuel finance abroad**.

Bourne, 2021; Lo, 2021b; The White House, 2021b

## RECENT DEVELOPMENTS



On his first day in office, President Biden **moved to rejoin the Paris Agreement**, and in April 2021, the US submitted an **updated NDC with a stronger mitigation target**.



President Biden signed executive orders that direct agencies and departments to **enact climate-friendly policies across the government** and to **review and address the climate rollbacks** of the previous four years.



Climate spending in President Biden's proposed American Jobs Plan is being scaled back in the new infrastructure bill, with **deep cuts to clean energy and electric vehicle (EV) spending, and removal of building efficiency measures**.

Lo, 2021a; The United States of America, 2021; The White House, 2021a, 2021i



## CORONAVIRUS RESPONSE AND RECOVERY

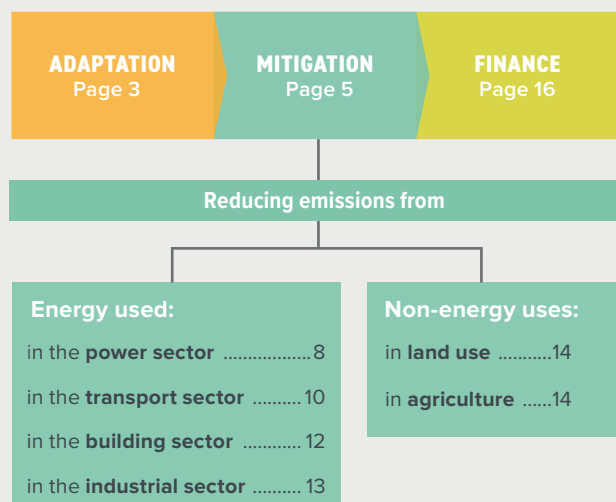
Despite ongoing vaccination efforts, the USA entered a fourth pandemic wave in July 2021 as the Delta variant spread. Meanwhile, restrictions were relaxed and vaccine hesitancy persisted. By August 2021, the USA averaged more than 100,000 cases a day for the first time since February 2021.

The USD 550bn Infrastructure Investment and Jobs Act passed in the Senate in August as part of President Biden's Build Back Better Agenda; however, climate spending was slashed compared to his proposed USD 2.3tn American Jobs Plan.

CDC, 2021a, 2021b; Lo, 2021a; NPR, 2021; Snell, 2021; Wadman, 2021

## 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 colour-coded arrows indicate assessment from a climate protection perspective: Orange is bad, green is good.



**Decarbonisation Ratings<sup>3</sup>** 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.

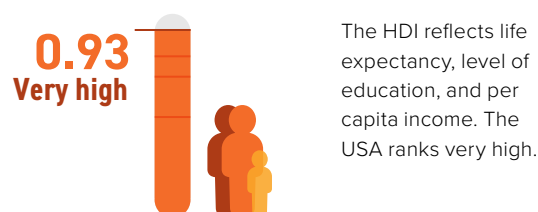


**Policy Ratings<sup>4</sup>** evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.



## SOCIO-ECONOMIC CONTEXT

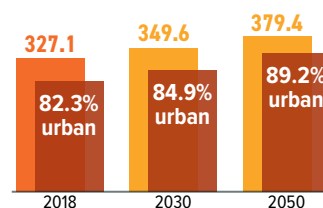
### Human Development Index (HDI)



Data for 2019. UNDP, 2020

### Population and urbanisation projections

(in millions)

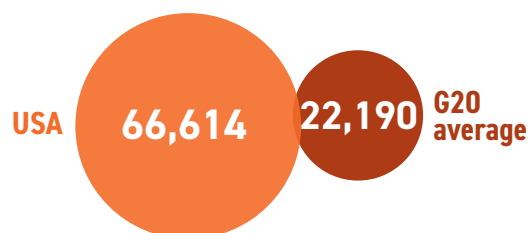


The USA's population is projected to increase by 16% by 2050, and become more urbanised. Rapid urbanisation is expected to leave more people vulnerable to extreme weather events, like heatwaves, that often disproportionately impact marginalised communities.

United Nations, 2019; United Nations, 2018; Wood, 2021

### Gross Domestic Product (GDP) per capita

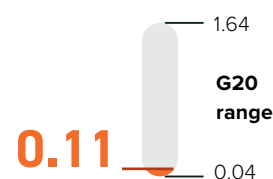
(PPP constant 2015 international \$) in 2019



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



Over 60,000 people die in the USA every year as a result of outdoor air pollution due to stroke, heart disease, lung cancer and chronic respiratory diseases. Compared to total population, this is still one of the lower levels in the G20.

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

COVID-19 significantly impacted the USA economy, with unemployment peaking above 14% in April 2020, the highest rate since the Great Depression. The coal industry was already under decline prior to the pandemic, with COVID-19 only accelerating this transition. Employment in coal production fell 13% in Q2 of 2020 and has not returned to pre-pandemic levels, further highlighting the need for a just transition for coal workers. One of President Biden's first executive orders established the Interagency Working Group on Coal to revitalise fossil fuel communities in the transition to clean energy and the White House Environmental Justice Advisory Council to address environmental injustices. In April 2021, the Department of Energy announced USD 109.5m in to revitalise coal and power plant communities. President Biden's proposed USD 2.3tn American Jobs Plan emphasised the creation of green jobs; however, climate spending was significantly cut in the proposed Infrastructure Investment and Jobs Act, passed in the Senate but pending approval in the House.

Biden and Harris, 2021; DOE, 2021; Snell, 2021; US Congress, 2020; U.S. Bureau of Labor Statistics, 2021b, 2021a; U.S. EIA, 2020



# 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.



Climate change is increasing the duration of wildfire season and driving larger fires. Seven of California's 20 largest wildfires occurred between January 2020 and August 2021.



2020 broke the record for **most weather and climate disasters** causing at least USD 1bn in damages, with 22 events (including cyclones, severe storms, drought and wildfires) together totalling USD 95bn.



Over the last five years (2016-2020), these billion-dollar weather and climate disasters have been **responsible for 3,969 fatalities**.

## ADAPTATION NEEDS

### Climate Risk Index

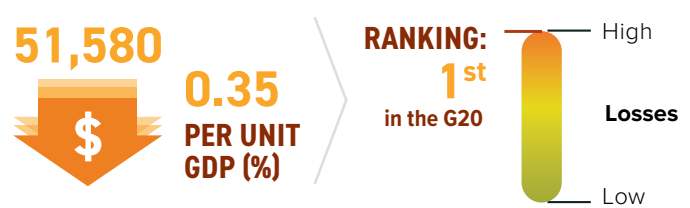
Impacts of extreme weather events in terms of fatalities and economic losses that occurred. All numbers are averages (1999-2018).

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:



			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			
	Wheat	Reduction in crop duration			
		Hot spell frequency			
		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

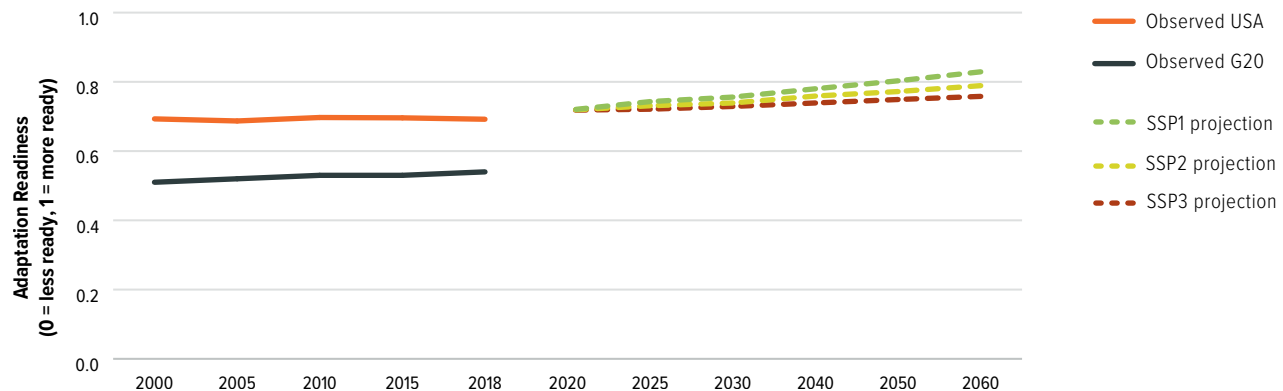
In August 2021, President Biden announced nearly USD 5bn in support for communities to prepare for weather- and climate-related disasters. This includes USD 3.46bn for the Hazard Mitigation Grant Program that provides funding for the 59 states, territories and tribes that received major disaster declarations in response to COVID-19. These entities will be eligible to receive 4% of the related disaster relief funds to invest in natural disaster risk mitigation projects.

FEMA, 2021; The White House, 2021d

## 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



The USA 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 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 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
US Environmental Protection Agency Climate Change Adaptation Plan	2014	<div></div>		<div></div>	<div></div>		<div></div>	<div></div>	<div></div>		<div></div>		<div></div>	<div></div>	Implementation Plan to measure and evaluate effectiveness over time, periodically adjusted

### Nationally Determined Contribution (NDC): Adaptation

#### TARGETS

Not mentioned

#### ACTIONS

Efforts to reduce wildfires, improve nature-based coastal resilience projects, and prioritise adaptation investments in historically disadvantaged communities.

# 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 have increased by 2.4%** (excl. LULUCF) between 1990-2018. The government's climate target to reduce emissions 50-52% below 1990 levels by 2030, incl. LULUCF (or 36-44% excl. LULUCF) is **not in line with a 1.5°C pathway**.

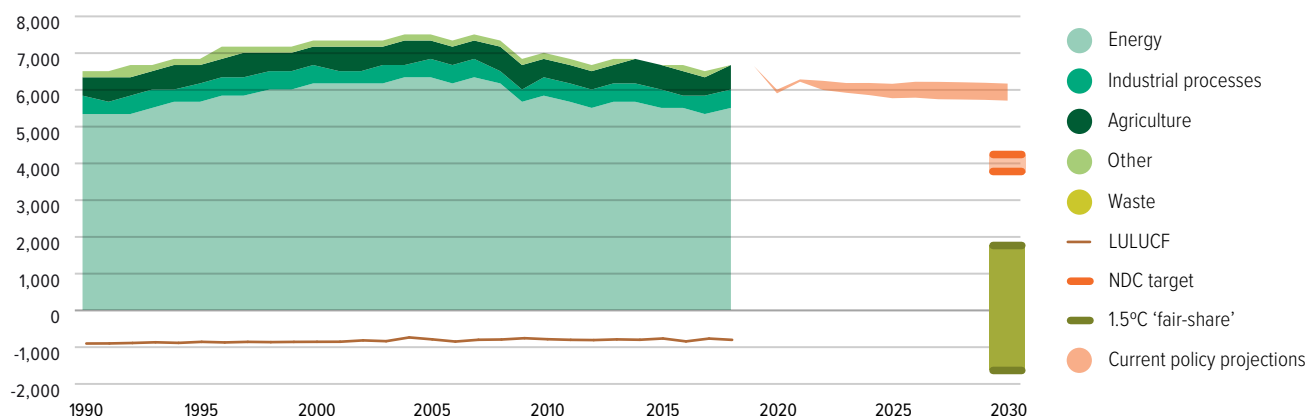


In 2030, global CO<sub>2</sub> emissions need to be **45% below 2010 levels and reach net zero by 2050**. Global energy-related CO<sub>2</sub> emissions must be cut by 40% below 2010 levels by 2030 and reach net zero by 2060.

Rogelj et al., 2018

### GHG emissions across sectors and CAT 1.5°C 'fair-share' range (MtCO<sub>2</sub>e/year)<sup>5</sup>

Total GHG emissions across sectors (MtCO<sub>2</sub>e/year)

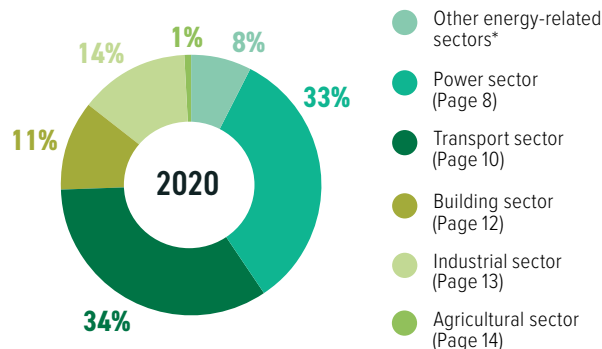
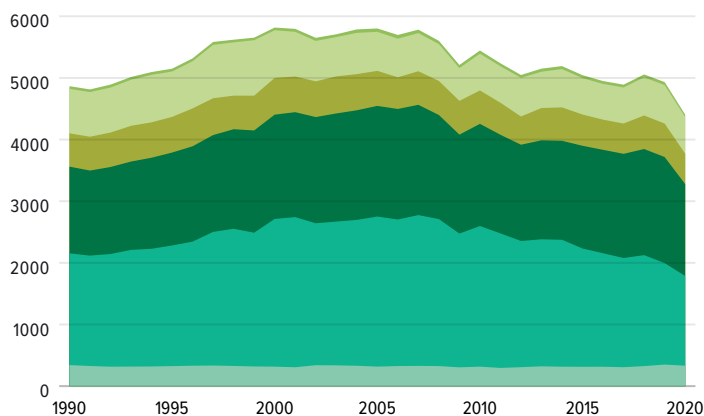


The USA emissions (excl. land use) increased by 2.4% between 1990 and 2018 to 6,760 MtCO<sub>2</sub>e. When considered by category, increases were largely due to a sustained increase in energy related emissions over the same timeframe. The USA's 2030 target is not 1.5°C 'fair-share' compatible. A 'fair-share' contribution by the USA requires it to strengthen its domestic target, and in addition provide substantial support for emissions reductions in developing countries.

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

### Energy-related CO<sub>2</sub> emissions by sector

Annual CO<sub>2</sub> emissions from fuel combustion (MtCO<sub>2</sub>/year)



**The largest driver of overall GHG emissions are CO<sub>2</sub> emissions from fuel combustion.** In the USA, emissions peaked in 2007 and have since been on a downward trend. The transport sector is the largest contributor, with 34%, followed by the power sector, and industry with 33% and 14%, respectively.

Enerdata, 2021

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

\*Other energy-related sectors\* covers energy-related CO<sub>2</sub> emissions from extracting and processing fossil fuels.

## ENERGY OVERVIEW



Natural gas and oil make up the roughly equal large shares of the USA's primary energy mix, at 35% each, though oil has been declining while natural gas has increased. **The use of coal has declined, from a peak in 2008 of 24% to 11% in 2020.** While the share of renewables has increased, it still only comprised 8% of the energy mix in 2020.

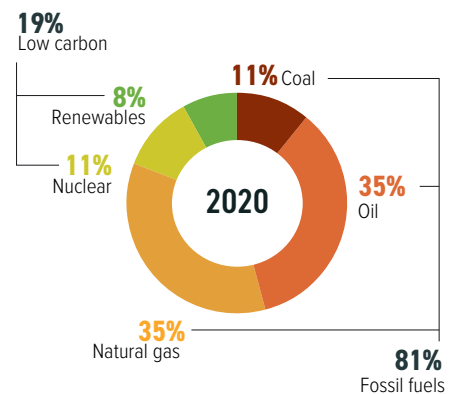
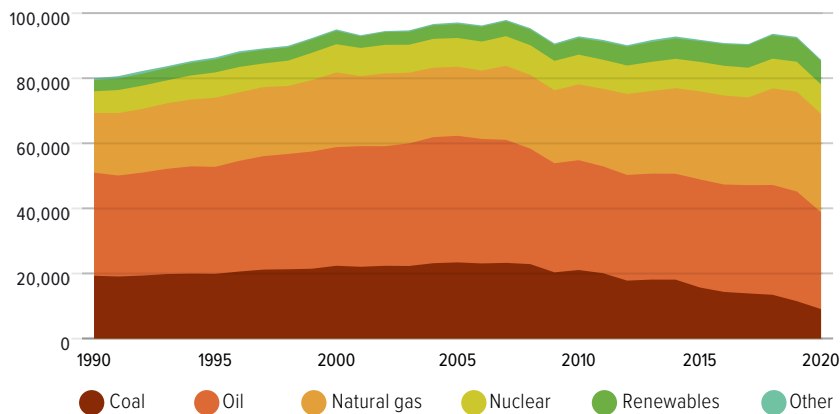


The share of fossil fuels globally needs to fall to 67% of global total primary energy by 2030 and to 33% by 2050, and to substantially lower levels without carbon capture and storage (CCS).

*Rogelj et al., 2018*

## Energy mix

Total primary energy supply (TPES) (PJ)

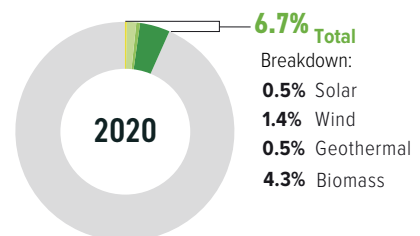
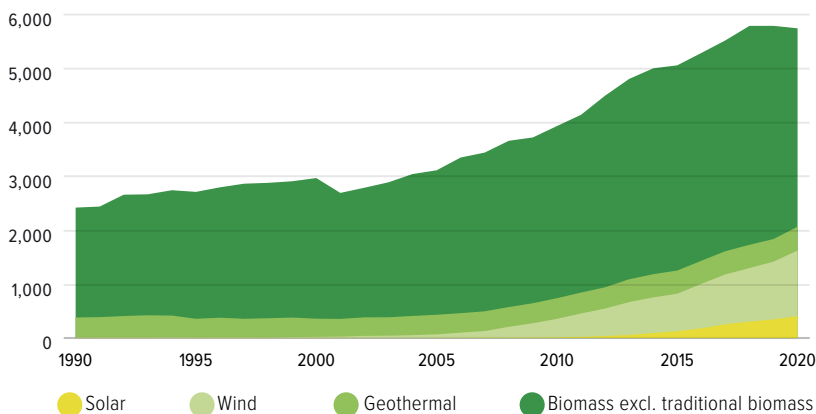


This graph shows the fuel mix for all energy supply, including energy used not only for electricity generation, heating, and cooking, but also for transport fuels. Fossil fuels (oil, coal, and gas) make up 80.6% of the USA's energy mix, which is around the G20 average. Coal has declined, but this has largely been replaced with natural gas. Renewable energy in the energy mix has increased, though it still only contributes around 8%.

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

## Solar, wind, geothermal, and biomass development

TPES from solar, wind, geothermal and biomass (PJ)



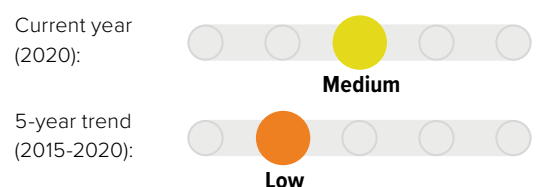
Solar, wind, geothermal and biomass account for 6.7% of the USA energy supply – the G20 average is 7.1%. The share in total energy supply has increased by around 21.7% in the last 5 years in the USA (2015-2020), which is slower than the G20 trend. Bioenergy makes up the largest share.

*Enerdata, 2021*

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

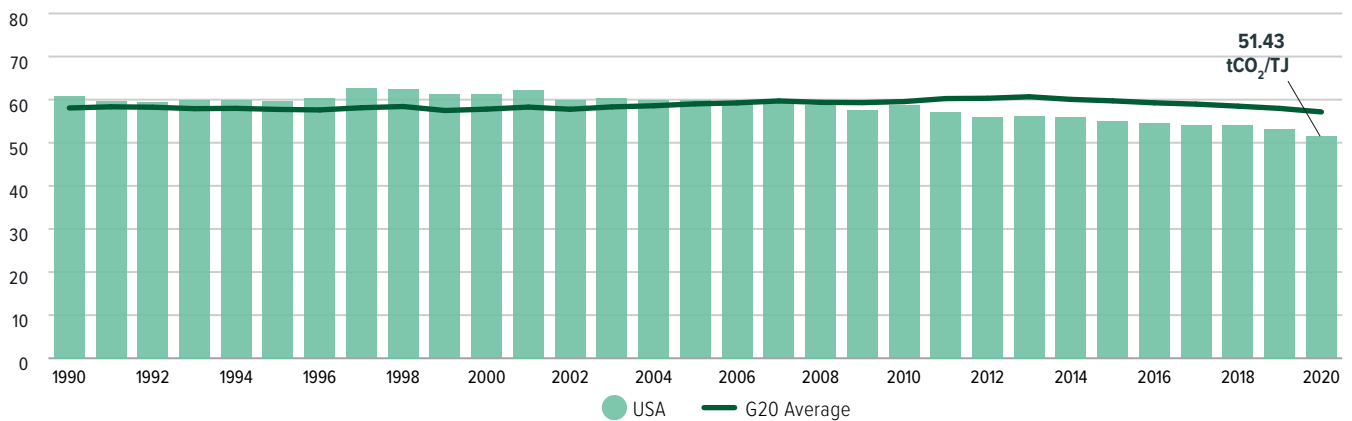
*Note: Large hydropower and solid fuel biomass in residential use are not reflected due to their negative environmental and social impacts.*

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



## Carbon intensity of the energy sector

Tonnes of CO<sub>2</sub> per unit of TPES (tCO<sub>2</sub>/TJ)

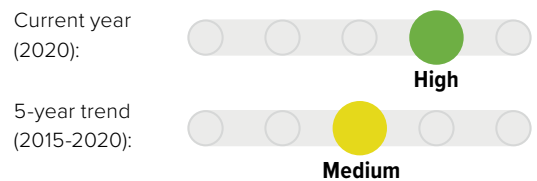


Carbon intensity is a measure of how much CO<sub>2</sub> is emitted per unit of energy supply.

The carbon intensity of the USA's energy supply was 51.43 tCO<sub>2</sub>/TJ in 2020, which is lower than the G20 average of 57.15 tCO<sub>2</sub>/TJ. This is driven by the decreasing share of coal and oil and increasing share of renewables in the energy mix.

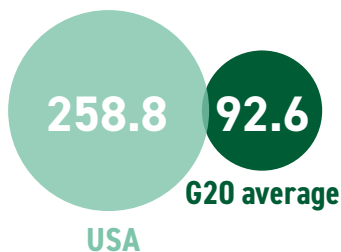
Enerdata, 2021

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

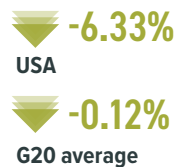


## Energy supply per capita

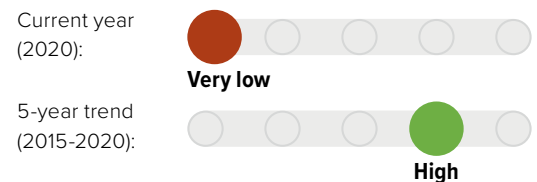
TPES per capita (GJ/capita) in 2020



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



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

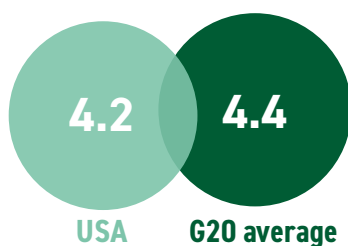


The level of energy use per capita is closely related to economic development, climatic conditions and the price of energy. Energy use per capita in the USA was well above the G20 average at 258.76 GJ/capita in 2020, but has been decreasing faster than the G20 average at 6.33% between 2015 and 2020, compared to 0.12% for the G20 over the same period.

Enerdata, 2021; United Nations, 2019

## Energy intensity of the economy

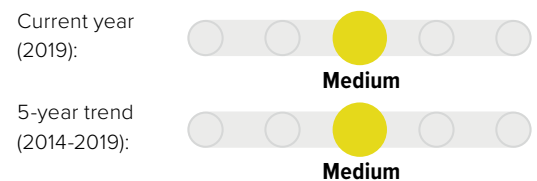
(TJ/million US\$2015 GDP) in 2019



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 USA's energy intensity is slightly lower than the G20 average and has been decreasing at a slightly slower speed of 10.38% (2014-2019) compared to the G20.

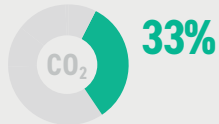
Enerdata, 2021; World Bank, 2021

## POWER SECTOR

Emissions from energy used to make electricity and heat



The USA produced 19% of its electricity from coal in 2020. No new coal-fired power plants were under construction or planned as of August 2021. **Paris-compatible pathways show the USA needs to phase out coal** from the power sector before 2030.



Share of energy-related CO<sub>2</sub> emissions from electricity and heat production in 2020.

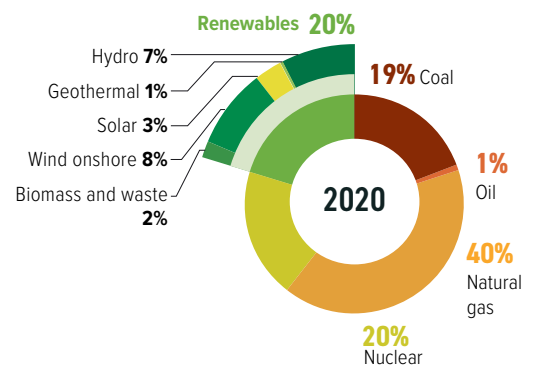
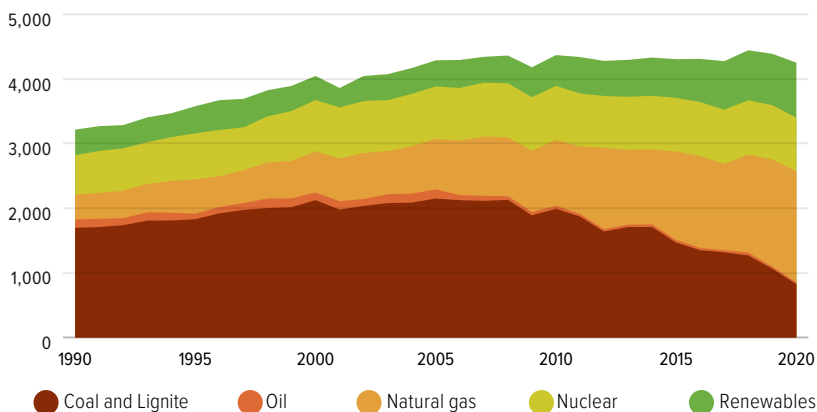


**Worldwide, coal use for power generation needs to peak by 2020**, and between 2030 and 2040, all the regions of the world need to phase out coal-fired power generation. By 2040, the share of renewable energy in electricity generation has to be increased to at least 75%, and the share of unabated coal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

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

## Electricity generation mix

Gross power generation (TWh)

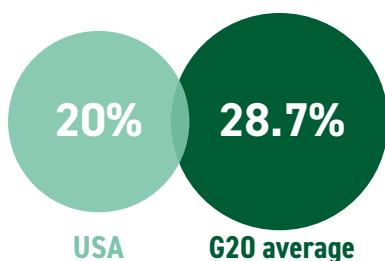


The USA generated **61% of its electricity from fossil fuels in 2020**. The share of renewable energy in the USA's power sector has been increasing, accounting for approximately 20% of the power mix in 2020.

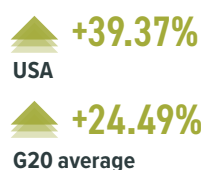
*Enerdata, 2021* Due to rounding, some graphs may sum to slightly above or below 100%

## Share of renewables in power generation

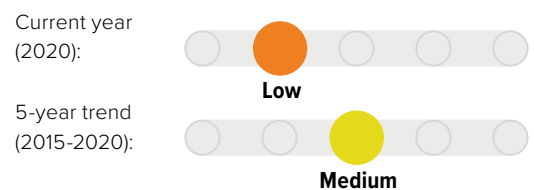
(incl. large hydro) in 2020



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



Decarbonisation rating: share of renewables compared to other G20 countries

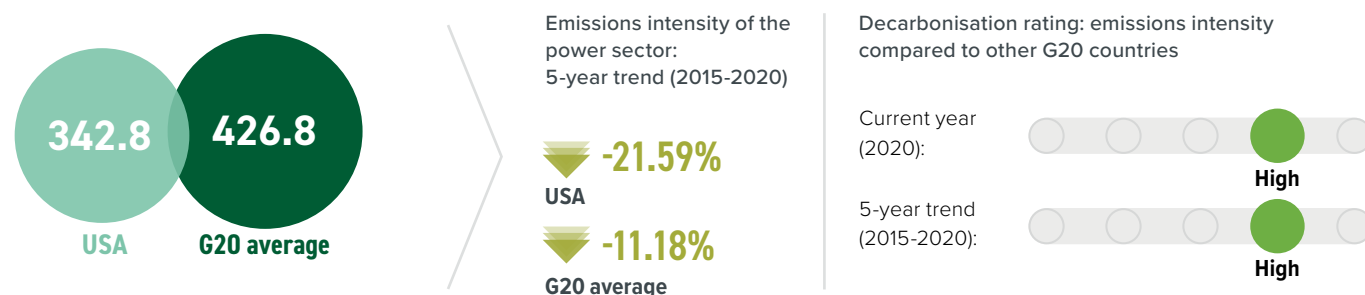


*Enerdata, 2021*



## Emissions intensity of the power sector

(gCO<sub>2</sub>/kWh) in 2020



For each kilowatt hour of electricity, 342.8 g of CO<sub>2</sub> are emitted in the USA. **The emissions intensity of power generation has dropped faster than the G20 average** as the share of coal has declined significantly since around 2008.

Enerdata, 2021

## POLICY ASSESSMENT

### Renewable energy in the power sector



The USA has no 2050 target for renewable energy; however, the Biden administration has announced its target of a carbon-free power sector by 2035 and directed federal agencies to develop a procurement plan to support the target. The Biden administration further plans to develop 30 GW of offshore wind by 2030 and has given access to USD 3bn in federal loans to offshore wind and transmission projects. Federal clean energy tax credits and state-level support policies are also in place.

Biden and Harris, 2021; The White House, 2021e

### Coal phase-out in the power sector



To be 1.5°C compatible, the USA needs to phase out unabated coal from the power sector before 2030. The USA does not have a coal phase-out plan; however, President Biden's target to achieve a "carbon-free" power sector by 2035 is 1.5°C compatible. Putting policies in place to achieve this target would increase its rating to 'High'. Under the Trump Administration, efforts to revive the coal industry through regulatory rollbacks and COVID-19 recovery measures failed. The coal industry has continued to decline, mostly in the face of lower costs and abundant natural gas and renewable energy. The Biden Administration has reversed some of the Trump-era rollbacks.

Climate Action Tracker, 2020, 2021; Climate Analytics, 2020; The White House, 2021h

## CORONAVIRUS RESPONSE AND RECOVERY

The USA's initial response to COVID-19 largely supported high-emissions industries through, for example, the suspension of enforcement of environmental rules and a bond bailout made available to fossil fuel companies. The December 2020 stimulus package and President Biden's American Rescue Plan both included measures with positive and negative climate impacts. President Biden's proposed USD 2.3tn American Jobs Plan focused on green job creation and included significant investment in climate measures, including electric vehicle (EV) infrastructure and renewable energy. However, climate spending has been significantly cut from the infrastructure bill that passed in the Senate.

Lo, 2021a; Snell, 2021; Vivid Economics, 2020

# TRANSPORT SECTOR

Emissions from energy used to transport goods and people



Emissions from transport continue to increase. The vast majority of passenger transport (88% in 2018) and more than half of freight transport (55% in 2017) is by road. Both sectors are dominated by fossil fuels. EVs made up only 2% of car sales in 2020. In order to stay within a 1.5°C limit, **passenger and freight transport need to be decarbonised.**



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

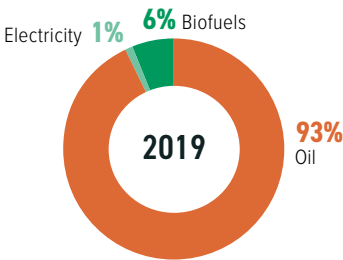
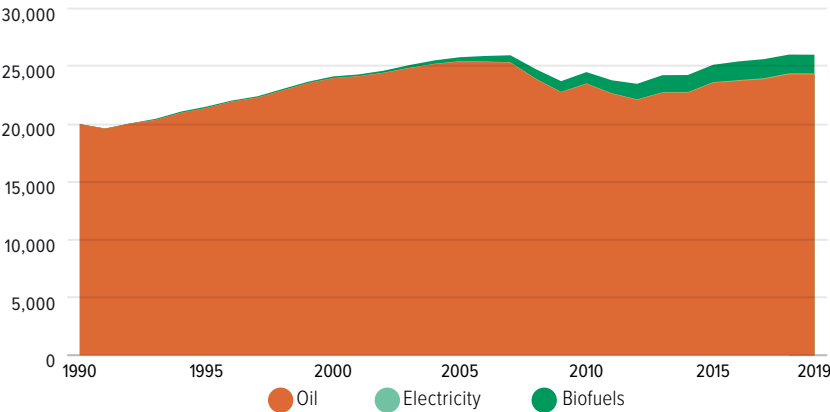


**0.09%**  
Indirect emissions  
**33.83%**  
Direct emissions

Share of transport in energy-related CO<sub>2</sub> emissions

## Transport energy mix

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

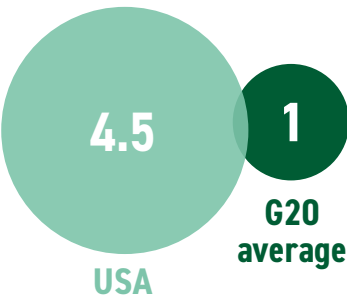


Electricity and biofuels make up only 6.39% of the energy mix in transport.

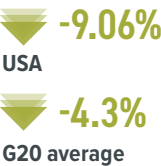
Enerdata, 2021 Due to rounding, some graphs may sum to slightly above or below 100%

## Transport emissions per capita

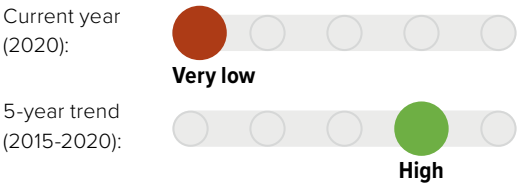
excl. aviation (tCO<sub>2</sub>/capita) in 2020



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



Decarbonisation rating: transport emissions  
compared to other G20 countries

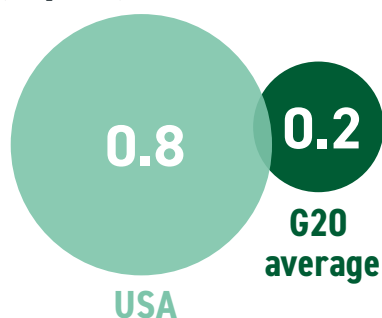


Reductions in transport emissions per capita in 2020, and concomitant changes in the five-year trends and decarbonisation ratings, reflect widespread economic slowdowns and transport restrictions imposed in response to the COVID-19 pandemic. For a discussion of broader trends in the G20 and the rebound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

Enerdata, 2021; United Nations, 2019

## Aviation emissions per capita<sup>6</sup>

(tCO<sub>2</sub>/capita) in 2018



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

**+16.87%**  
USA

**+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

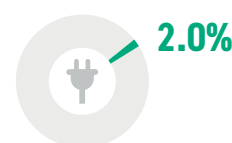
## Motorisation rate



Enerdata, 2021

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

Share of EV sales in 2020  
was 2.0%.



IEA, 2021

## Passenger transport

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



Enerdata, 2021

## Freight transport

(modal split in % of tonne-km) in 2017\*



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 August 2021, President Biden announced a target to have half of all vehicles sold in the USA be electric by 2030. For the USA to be 1.5°C compatible, 100% of light-duty vehicle sales should be electric by 2030. The Biden Administration has also announced the reversal of Trump's rollback of fuel economy standards. The new standards will now be stricter than before the rollback. New fuel efficiency and emissions standards are also expected through at least model year 2030 for light-duty vehicles.

Climate Action Tracker, 2021b; Gearino et al., 2021; The White House, 2021f

### Phase out fossil fuel heavy-duty vehicles



The USA does not have a strategy for reducing emissions from freight transport, but does have 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 US Court of Appeals stayed the implementation after legal challenges were filed by the trailer industry. The Heavy-Duty Vehicle National Program sets GHG emissions and fuel efficiency standards for heavy-duty vehicles, which the EPA estimates will reduce emissions by 200 MtCO<sub>2</sub>/year by 2050.

US Environmental Protection Agency and US National Highway Safety Administration, 2016; Motor and Equipment Manufacturers Association, 2020

### Modal shift in (ground) transport



The USA has no long-term strategy for a modal shift, but has adopted new policy measures that support it. The Department of Transport, under the new Secretary, has allocated USD 180m in grants to fund low- and zero-emission buses and promoting walkable and bikeable "complete streets". The Department of Transport will also collaborate with the Department of Housing and Urban Development to encourage a modal shift and transit-oriented development. The infrastructure plan, pending approval by the House, aims to modernise transit and rail, and includes the largest federal investment in passenger rail since the creation of Amtrak.

Bort, 2021; Federal Transit Administration, 2021; The White House, 2021i

## BUILDING SECTOR

Emissions from energy used to build, heat and cool buildings



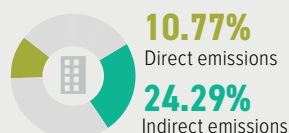
Direct emissions and indirect emissions from the building sector in the USA account for 11% and 24% of total energy-related CO<sub>2</sub> emissions, respectively. Per capita emissions from the building sector are over three times the G20 average. **The USA's policies are not sufficient for a 1.5°C pathway.**



**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.

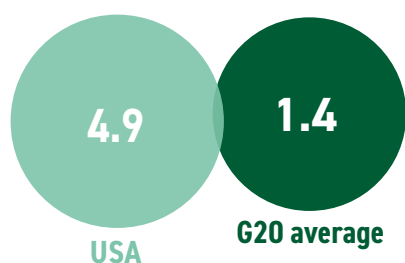
*Rogelj et al., 2018; Climate Action Tracker, 2020b*



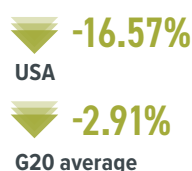
Share of buildings in energy-related CO<sub>2</sub> emissions. Building emissions occur directly (burning fuels for heating, cooking, etc) and indirectly (grid-electricity for air conditioning, appliances, etc.)

## Building emissions per capita

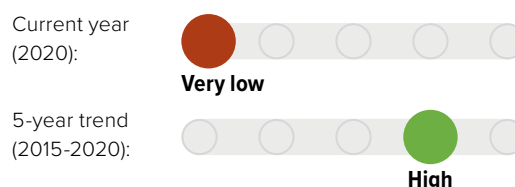
(incl. indirect emissions) (tCO<sub>2</sub>/capita) in 2020



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



Decarbonisation rating: building emissions compared to other G20 countries



Building-related emissions per capita are over three times the G20 average as of 2020. This reflects the high fossil fuel share of the electricity mix. The USA has managed to decrease the level by 16.57% (2015-2020), which is faster rate of decrease than the G20 average.

*Enerdata, 2021; United Nations, 2019*

## POLICY ASSESSMENT

### Near zero energy new buildings



The US has no strategy for making new buildings near zero energy, although California and Massachusetts do. The US Better Building Initiative aims to make buildings 20% more energy efficient by the 2020s. Spending and standards for energy efficient buildings were cut from the proposed American Jobs Plan in the infrastructure plan that passed in the Senate in August 2021. In May 2021, the government announced an initiative to develop a new Federal Building Performance Standard. Most states have building codes, but some are quite dated. In California, nearly all new homes are required to have solar panels and high-efficiency design from 2020, with more stringent codes coming into effect in 2023. Not all codes are mandatory and the level of enforcement varies.

*Ticman, 2019; California Energy Commission, 2021; Clark, 2021; Lo, 2021a; Merchant, 2021; Office of Energy Efficiency and Renewable Energy, 2021; The White House, 2021c*

### Renovation of existing buildings



The US has no long-term strategy for energy retrofitting of existing buildings. The Biden Administration has announced several measures to promote energy efficiency in buildings, including investment in energy efficiency job training, a Federal Building Performance Standard, and a national research initiative for efficient heating and cooling systems. President Biden's proposed American Jobs Plan included USD 213bn to improve the energy efficiency of homes and USD 100bn for energy-efficient schools; however, energy efficiency measures for buildings were cut in the infrastructure bill.

*Lo, 2021a; Office of Energy Efficiency and Renewable Energy, 2021; The White House, 2021c*

## INDUSTRY SECTOR

### Emissions from energy use in industry



Direct emissions and indirect emissions from industry in the USA make up 13.6% and 6.5% of energy-related CO<sub>2</sub> emissions, respectively. **The USA lacks effective policies not only to increase the energy efficiency of the industry sector, but also to cut emissions and decarbonise the sector.**



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

*Rogelj et al., 2018*



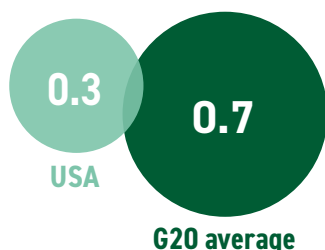
**13.55%**  
Direct emissions

**6.51%**  
Indirect emissions

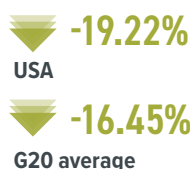
Share of industry in energy-related CO<sub>2</sub> emissions.

## Industry emissions intensity<sup>7</sup>

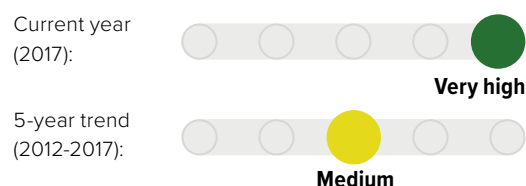
(tCO<sub>2</sub>e/USD2015 GVA) in 2017



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



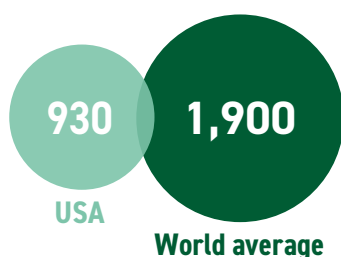
Decarbonisation rating: industry emissions intensity compared to other G20 countries



*Enerdata, 2021; World Bank, 2021*

## Carbon intensity of steel production<sup>8</sup>

(kgCO<sub>2</sub>/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



At the federal level, the government has established both mandatory and voluntary minimum performance standards for equipment used by the industrial sector and voluntary energy efficiency certification for industry. Several states have emissions trading schemes (ETSs) in place. President Biden has expressed the intent to use carbon capture and green hydrogen to reduce emissions from steel and cement production; however, the USD 9.5bn allocated to develop “clean hydrogen” in the infrastructure bill (passed in the Senate) includes hydrogen produced using fossil fuels with carbon capture.

*Collins, 2021; IEA, 2019; The White House, 2021g; US DOE, 2020*

## LAND USE SECTOR

### Emissions from changes in the use of the land



To stay within the 1.5°C limit, the **USA needs to make the land use and forest sector a net sink of emissions**, e.g. by stopping urban sprawl, and by creating new forests.

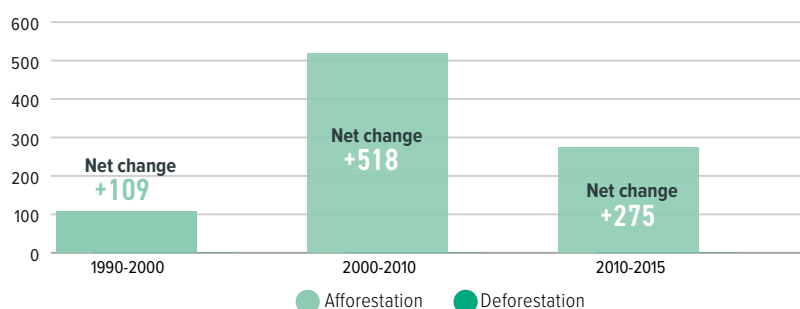


**Global deforestation needs to be halted and changed to net CO<sub>2</sub> removals by around 2030.**

*Rogelj et al., 2018*

## Annual forest expansion, deforestation and net change

Forest area change in 1,000 ha/year



Between 2010-2015, the USA gained a net 275 kha of forest area per year.

*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



In its updated NDC, the USA commits to reduce emissions from forests and enhance carbon sinks through a range of programmes and measures for ecosystems. Actions include, for example, federal and state governments investing in forest protection and forest management; engaging in intensive efforts to reduce the scope and intensity of wildfires; and restoring fire-damaged forest lands. President Biden has reversed a Trump rollback of protections for Alaska's Tongass National Forest, enacting further protections that end large scale logging of old growth timber.

*Law, 2021; The United States of America, 2021*

## AGRICULTURE SECTOR

### Emissions from agriculture



Digestive processes (mainly cattle), livestock manure and synthetic fertilisers are the leading sources of the USA's agricultural emissions. **A 1.5°C compatible pathway requires behavioural and dietary shifts and less fertiliser use.**

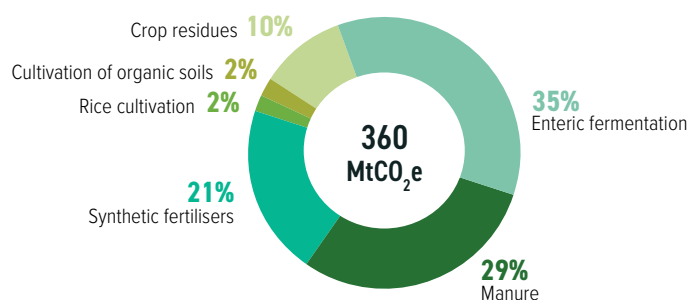


**Methane emissions (mainly enteric fermentation) need to decline by 10% by 2030** and by 35% by 2050 (from 2010 levels). Nitrous oxide emissions (mainly from fertilisers and manure) need to be reduced by 10% by 2030 and by 20% by 2050 (from 2010 levels).

*Rogelj et al., 2018*

## Emissions from agriculture (excluding energy)

Emissions from the agriculture sector in 2018



In the USA, the largest sources of GHG emissions in the agriculture sector are enteric fermentation (35%), livestock manure (29%) and synthetic fertilisers (21%). 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 Action Tracker, 2021a*

## AMBITION: 2030 TARGETS

### Nationally Determined Contribution (NDC): Mitigation

#### TARGETS

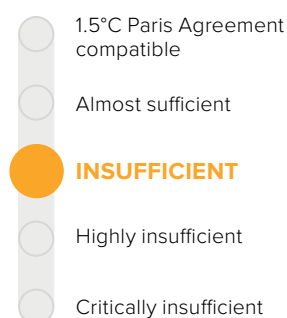
50-52% below 2005 levels by 2030 (incl. LULUCF)

#### ACTIONS

Actions specified for electricity, transportation, buildings, industry, and agriculture and lands.

## Climate Action Tracker (CAT) evaluation of targets and actions

### USA'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 combination of the USA's 2030 climate targets, policies, and climate finance as "Insufficient". This rating indicates that the totality of its policies and proposals need substantial improvement to be consistent with the Paris Agreement's 1.5°C temperature limit and are not consistent with any interpretation of a 'fair-share' contribution.

The USA's 2030 domestic emissions reduction target (NDC) is only consistent with 2°C of warming when compared to modelled domestic emissions pathways. Current USA policies and action do not lead to falling emissions but result in exceeding its targets. The USA is also not meeting its 'fair-share' contributions to climate change and, in addition to strengthening targets and policies, needs to provide additional support to other countries. For the full assessment of the country's target and actions, and the explication of the methodology see [www.climateactiontracker.org](http://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 USA's NDC was submitted to the UNFCCC on 3 September 2016 and updated on 22 April 2021. Comparing its last NDC update with its first NDC, the USA has provided additional information in its last NDC update, including:

- Timeframe and periods for implementation are clearly stated.
- The USA NDC covers all seven gases, carbon pools, and sector categories included in its inventory.
- Detailed information about the domestic and institutional arrangements for developing its NDC, including consultations with indigenous peoples, is provided.

There is still room for improvement to increase comparability, transparency, and understanding in USA's successive NDC or NDC update, including

- Explicitly state if the USA will address emissions and subsequent removals from natural disturbances on managed lands and harvested wood products in accounting for its NDC.
- Provide information on how the reference indicators are constructed, including the parameters, assumptions, methodologies, and models used for their calculation.
- Mention the equity literature used in the development of its NDC.
- Include mitigation potential analysis to ascertain if the target is fair, ambitious, and aligned with the Paris Agreement's goals.

For more visit [www.climate-transparency.org/ndc-transparency-check](http://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	Submitted to UNFCCC in 2016
Interim steps	Yes: -17% in 2020 and -26-28% in 2025 compared to 2005 levels
Sectoral targets	-
Net zero target	Target, but no Strategy, submitted
Net zero year	No 2050 target; exploring options for 80% or more below 2005 levels. President Biden has adopted a 2050 net zero target, but this is not yet reflected in an LTS submitted to the UNFCCC.

# FINANCE

## MAKING FINANCE FLOWS CONSISTENT WITH CLIMATE GOALS



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



In 2019, the USA spent USD 8.207bn on fossil fuel subsidies, almost all on oil and gas (99%). Subsidies have been on a downwards trend since 2010, but saw a year-on-year increase in 2019. Between 2008 and 2018, three state and regional ETSs became operational, with one more at the planning stage. At the federal level, lawmakers presented a variety of bills during 2019 and 2020 for an ETS or a carbon tax, but without any success.



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

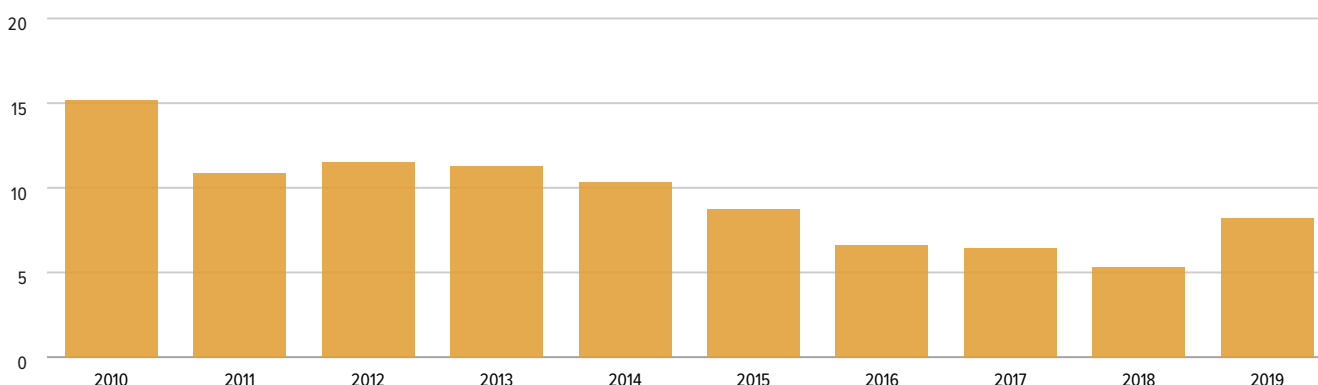
Rogelj et al., 2018

### 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

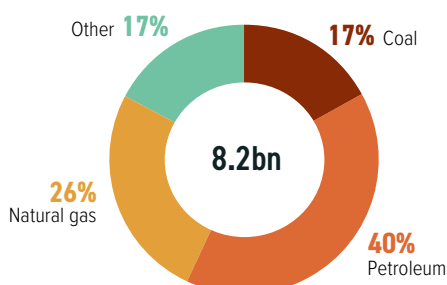
(USD billions)



OECD-IEA Fossil Fuel Support database, 2020

### Fossil fuel subsidies by fuel type

USD in 2019



Over the past decade (2010-2019), the USA's fossil fuel subsidies have largely decreased but then increased once again in 2019, reaching a value of USD 8.2bn in 2019. Over this period, most of the subsidies were directed to support the production and consumption, of petroleum and natural gas, followed by support to coal production and consumption, and fossil-fuelled electricity consumption.

Comparable data is not yet available for 2020. However, according to the Energy Policy Tracker data, during 2020 the USA has pledged at least USD 72.3bn to fossil energy as part of its energy-related funding commitments and COVID-19 economic response. Of these, USD 58bn was committed to provide financial support to airline companies through the Coronavirus Aid, Relief, and Economic Security (CARES) Act.

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

President Biden's USD 1.9tn American Rescue Plan focused on COVID-19 vaccination and relief, but included some climate-related measures. The plan includes support for public transit, waste systems, funding for the US Fish and Wildlife Service, and funds for states to invest in energy efficiency improvements. However, the plan also includes USD 8bn to support airports. President Biden's proposed American Jobs Plan originally aimed to end subsidies for fossil fuels and provide federal investment and tax credits for clean energy; however, these have been cut from the bipartisan infrastructure bill that was passed in the Senate in August 2021.

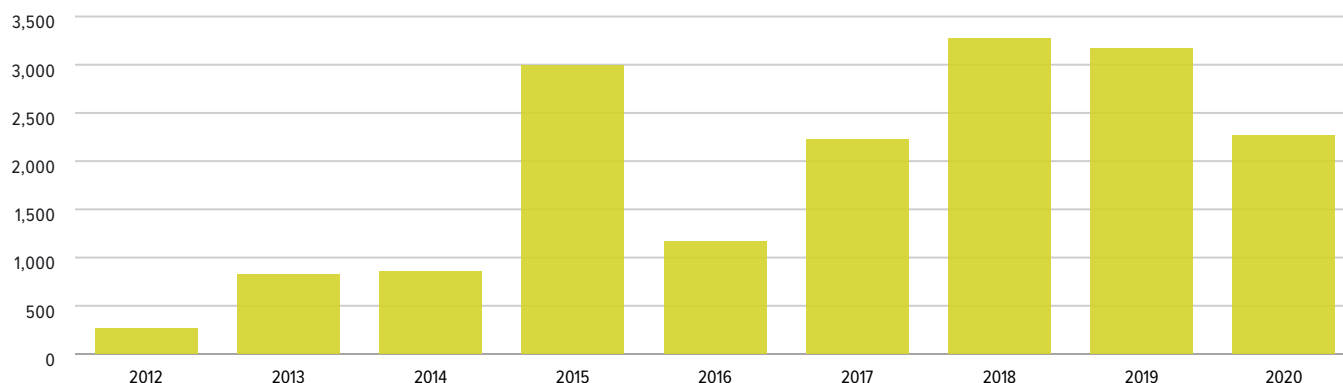
Leber and Irfan, 2021; Vivid Economics, 2020

President Biden's USD 1.9tn American Rescue Plan focused on COVID-19 vaccination and relief, but included some climate-



## Carbon pricing and revenue

(USD millions)



Between 2008 and 2018, three state and regional ETSs became operational: in California, Massachusetts, and in 11 states under the Regional Greenhouse Gas Initiative (RGGI). One more is still at planning stage in Washington state. Emissions are currently priced between USD 7/tCO<sub>2</sub>e and USD 17/tCO<sub>2</sub>e. In 2020, the schemes generated USD 1.7bn in California, USD 26m in Massachusetts, and USD 503m as part of the RGGI. At the federal level, lawmakers presented a variety of bills during 2019 and 2020 for an ETS or a carbon tax without any success.

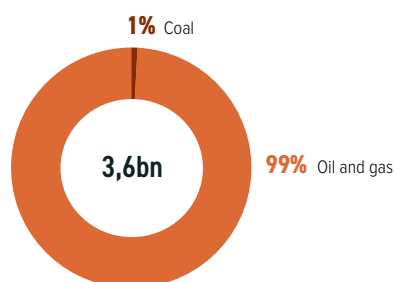
IACE, 2021; Energy Policy Tracker, 2021

## 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 USA provided an average of USD 3.6bn per year in public finance for fossil fuels, a large majority of which was directed to the oil and gas sector. The Export-Import Bank of the United States (US 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, US EXIM approved USD 5bn for a liquid natural gas (LNG) project in northern Mozambique, the largest transaction in its history. US EXIM also approved USD 18m for oil and gas projects in Argentina and about USD 40m for coal mining projects.

Oil Change International, 2020

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

### Provision of international public support

USD millions, annual average 2017 and 2018

#### Bilateral, regional and other channels

Annual average contribution:

**2,200.30**

#### Multilateral climate finance contributions

Annual average contribution:

**918.15**

The Trump Administration did not submit any reporting (national communications or biennial reports) to the UNFCCC, thus making it difficult to track climate finance. Instead, the provisional data provided to the UNFCCC in 2018 (i.e. for the 2015-16 period) is used as an estimate. 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 next reports are due to the UNFCCC at the end of 2022. It is anticipated that the Biden Administration will resume submissions by then, if not sooner.

The Biden administration convened a leaders' climate summit on Earth Day in April 2021 where the President committed to double the USA's annual climate finance by 2024 (relative to the average level in 2013-2016). No figures were provided, but it is estimated that the 2013-2016 average level was USD 2.8 billion. Within this doubling overall climate finance, finance for adaptation will be tripled. This increase does not bring the USA back on par with other G20 countries, due to the sharp drop in climate finance over four years of a Trump administration

The White House, 2021

## 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 USA has made some major reforms on green finance in the past year.** In September 2020, the Climate-Related Market Risk Subcommittee of the Market Risk Advisory Committee of the US Commodity Futures Trading Commission released a report,

Managing Climate Risk in the USA Financial System, addressing potential risks to the financial system arising from, or related to, climate change.

In February 2021, the Subcommittee on Investor Protection, Entrepreneurship and Capital Markets of the US House Committee on Financial Services released a bill on the Climate Risk Disclosure Act of 2021. This bill requires publicly traded companies to make annual disclosures of anticipated risks to their operations or profitability, either from physical, climate change-related risks like flooding, extreme weather and rising temperatures, or “transition risks” that may be

caused by attempts to reduce GHGs.

In March 2021, the US Securities and Exchange Commission (SEC) announced the creation of a Climate and ESG Task Force in the Division of Enforcement. The Task Force will develop initiatives to proactively identify ESG-related misconduct.

In April 2021, the US Department of Treasury announced a Coordinated Climate Policy Strategy with a New Treasury Climate Hub and Climate Counsellor. In May 2021, President Biden signed an executive order that sets the stage for the US federal government, including its financial regulatory agencies, to begin to incorporate both physical and transition climate risk and other ESG issues into financial regulation.

*CFTC Report, 2020; The White House, 2021j; Department of the Treasury, 2021; SEC press releases, 2021; House Committee on Financial Services Bill, 2021*

### Nationally Determined Contribution (NDC): Finance

Conditionality	Not applicable
Investment needs	Not specified
Actions	Not mentioned
International market mechanisms	No intention to use international credits for the achievement of its 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](http://www.climate-transparency.org/g20-climate-performance/g20report2021)

- 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.
- ‘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).
- 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.
- 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.
- 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.
- 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 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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