

**BROWN TO GREEN:** 

## THE G20 TRANSITION TOWARDS A NET-ZERO EMISSIONS ECONOMY

# FRANCE



2019



### France's greenhouse gas (GHG) emissions are – per capita – below the G20 average.

France's total GHG emissions have dropped by 15% (1990-2016, excl. land use emissions).



France is not on track for a 1.5°C world.

France would need to reduce its emissions to below 43 MtCO<sub>2</sub>e by 2030 and to below -595 MtCO<sub>2</sub>e by 2050 to be within a fair-share range compatible with global 1.5°C. France's 2030 national emissions reduction target is to reduce emissions 40% below 1990, equivalent to 368 MtCO<sub>2</sub>e, by 2030. France could achieve 1.5°C compatibility via strong domestic emissions reductions, and with contributions to global emissionsreduction efforts. All figures exclude land use emissions.

## 1.5°C compatible pathway<sup>2</sup>



### Recent developments<sup>3</sup>

In 2019, France adopted a law setting a carbon-neutrality target by 2050 and establishing an independent advisory body on climate action. After protests by the 'yellow vests' in 2018, the government decided to freeze the level of the carbon tax.



France plans to introduce a tax on passenger flights from 2020, ranging from EUR1.5 to EUR18 per ticket.

Key opportunities for enhancing climate ambition<sup>3</sup>

France's buildings still use high levels of energy per square meter.

Scaling up renovations to low-energy building standards to reach 500,000 houses per year as soon as possible. France's renewable share in power generation is below the G20 average and the country is likely to miss its 2020 renewable target.

Ramp up deployment of renewables to at least double the rate of energy production per year (including electricity and heat). Transport accounts for 40% of France's  $CO_2$  emissions.

Review economic incentives to promote low-carbon vehicles, and ban the sale of fossil-fuel cars by 2040 at the latest (2030 would be 1.5°C compatible).

This country profile is part of the **Brown to Green 2019** report. The full report and other G20 country profiles can be downloaded at: *http://www.climate-transparency.org/g20-climate-performance/g20report2019* 

## FRANCE -SOCIO-ECONOMIC CONTEXT

low

### **Human Development Index**

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

Data for 2017 | Source: UNDP 2018

#### **Population projections** (millions)

The World Bank expects France's population to increase by about 7% by 2050.





Data for 2016 Source: World Health Oraanization 2018

G20.

to the total population, this is one of the lowest levels in the attributable deaths

France 0,1

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

## **JUST TRANSITION**<sup>3</sup>

The 2019 energy and climate law enshrines the closure of the remaining four coal-fired power plants in France, through setting an emissions cap of 550 gCO<sub>2</sub>/kWh by 2022. The French government considers this approach to be less severe than an outright obligation to close the plants, and also a way to avoid having to compensate companies. The upper house (Assemblée Nationale) confirmed the closing of all four coal stations, but the government will still need to issue an executive order (décret d'application) for this to be effective. The lower house (Sénat) passed additional amendments to strengthen the national government's responsibility to ensure that workers in the power plants and the supply chain (700-800) receive adequate support.

The Finance Act 2019 further establishes a 'horizontal fund' intended to offset and compensate local authorities for revenue lost due to the total or partial closedown of nuclear or thermal power stations in their areas. Funds will be allocated from 2020 onwards. The 'Local Contracts for Ecological Transition' have also been extended, from 19 in 2018, to an additional 61 in 2019, although only a few of them focus on 'industrial conversion'.



Legend for all country profiles

#### Trends



The trends show developments over the past five years for which data are available

The thumbs indicate assessment from a climate protection perspective.

### Decarbonisation Ratings<sup>4</sup>

These ratings assess a country's performance compared to other G20 countries. A high scoring reflects a relatively good effort from a climate protection perspective but is not necessarily 1.5°C compatible.



### **Policy Ratings<sup>5</sup>**

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



For more information see the Annex and Technical Note

## MITIGATION BIG PICTURE

## FRANCE





#### Total GHG emissions across sectors<sup>2</sup>



#### Nationally-determined contribution (NDC): Mitigation

Targets	EU wide target: At least 40% reduction in domestic GHG emissions by 2030 compared to 1990 [National 2030 target not included in NDC: -40%, the carbon budgets for 2029-2033 would lead to higher reductions]
Actions	Not mentioned

Source: UNFCCC, NDC of respective country

Long-term strateg	yy (LTS) to be submitted to the UNFCCC by 2020
Status	Submitted to UNFCCC, last updated in April 2017
2050 target	2050 target: -75% from 1990 levels – expected to be updated
Interim steps	Yes
Sectoral targets	Yes

#### Climate action tracker (CAT) evaluation of $\ensuremath{\mathsf{NDC}}^2$



In September 2019, France adopted a law on carbon neutrality by 2050 (without using international carbon credits), including a 40% reduction in the use of fossil fuels by 2030.

Source: UNFCCC, LTS of respective country



Fossil fuels make up around 47% of France's energy mix (including power, heat, transport fuels, etc), the lowest level in the G20. This is due to its largely decarbonised electricity mix. However, renewables account for only a small share.

by 2030 and to 33% by 2050 and to substantially lower levels without Carbon Capture and Storage.

Source: IPCC SR1.5 2018

The share of fossil fuels globally needs to fall to 67% of global total primary energy

### Energy mix<sup>7</sup>



This graph shows the fuel mix for all primary energy supply, including energy used for electricity generation, heating, cooking, and transport fuels. Fossil fuels (oil, coal and gas) make up 47% of the French energy mix, which is well below the G20 average (82%). This is mostly due to the high share of nuclear energy in the mix, but over the past ten years the proportion of renewables has also grown. The share of fossil energy is, however, much higher when looking at the final energy mix where waste heat of e.g. nuclear energy is not counted.

#### Carbon intensity of the energy sector Tonnes of CO<sub>2</sub> per unit of Rating trend (2013-2018) total primary energy supply (tCO<sub>2</sub>/TJ) FRANCE G20 medium 60 Rating current level (2018) 50 very high 40 Source: own evaluation 30 20 Carbon intensity shows how much CO<sub>2</sub> is 10 0 1990 1995 2000 2005 2010 2015 2018 Source: Enerdata 2019

**Rating of carbon intensity** compared to other G20 countries<sup>4</sup>

Source: Enerdata 2019



#### Solar, wind, geothermal and biomass development<sup>8</sup>

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



## Rating of share in TPES compared to other G20 countries<sup>4</sup>



Source: own evaluation

#### Energy supply per capita

Total primary energy supply per capita (GJ/capita)



Rating of energy supply per capita compared to other G20 countries<sup>4</sup>



Source: own evaluation

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

medium

Share of TPES in 2018

0.34% 🚔 Solar

1.01% - Wind

4.63 %

0.00% Geothermal

the largest share.

Biomass, excl.

Solar, wind and modern biomass account for 6% of France's energy supply - the G20 average is 6%. In

the last five years, the share of these sources in total energy supply has

increased by around 41%, more than the G20 average (+29% 2013-2018).

Bioenergy (for electricity, and biofuels for transportation and heat) makes up

traditional biomass

At 151 GJ/capita, energy supply per capita in France is well above the G20 average, but has decreased (-6%, 2013-2018), in contrast to the increasing G20 average (+1%).

Data for 2018 Source: Enerdata 2019; World Bank 2019



Both energy supply per capita and the energy intensity of the economy remain high in France, but are slightly improving. In order to be compatible with a 1.5°C pathway, energy-related CO<sub>2</sub> emissions need to drop further. Global energy and process-related CO<sub>2</sub> emissions must be cut by 40% below 2010 levels by 2030 and reach net zero by 2060.

Source: IPCC SR1.5 2018



### Energy-related CO<sub>2</sub> emissions<sup>9</sup>

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



The largest driver of overall GHG emissions are  $CO_2$  emissions from fuel combustion. In France, they have decreased over the last decade. The transport sector is the largest contributor to energy-related  $CO_2$  emissions (40%), followed by buildings and industries at 23% and 20% respectively. Electricity makes up only a small share because of the low carbon intensity of the energy mix.

## MITIGATION POWER SECTOR

France produces only 2% of electricity from coal, and plans to phase out remaining coal plants by 2022. However, renewables are only developing slowly and there is no clear strategy after 2035.

## Share in energy-related CO<sub>2</sub> emissions 7 0/



Coal must be phased out in the EU/OECD no later than 2030, in the rest of the world no later than 2040. Electricity generation needs to be decarbonised before 2050, with renewable energy the most promising option.<sup>5</sup>



FRANCE

Source: IPCC SR1.5 2018; Climate Analytics 2016; Climate Analytics 2019

## **STATUS OF DECARBONISATION**

### Power mix





France is increasingly producing power from renewables. They make up 20% of the power mix (G20 average is 25%), mainly large hydropower (12%) and wind energy (5%). Nuclear energy remains the most important power source at 72%. The shares of coal and oil have decreased further from their initial low levels and now account for only a combined 2% of the electricity mix.



For each kilowatt hour of electricity, 48 gCO<sub>2</sub> are emitted in France. This is very low, just over a tenth of the G20 average and the level is decreasing further (-17%, 2013-2018). This is because of the constant high share of nuclear and low share of fossil fuels (7%) in the power mix.







## FRANCE

## **POLICIES**<sup>5</sup>

#### Renewable energy in the power sector



France is striving for 33% renewables in final energy consumption by 2030, including 40% of electricity from renewables, but does not have a long-term renewable strategy. In 2019, the government presented a draft 10-year energy plan that would double renewables capacity, and double its offshore wind target from 4.7 to 10 GW in 2028.

France is set to miss its 2020 targets for share of renewables in the electricity mix (27%).

### Source: own evaluation

### Coal phase-out in the power sector



France's energy and climate bill sets an emissions cap (550g CO<sub>2</sub>/kWh) for existing fossil fuel-based power plants. It provides the basis for shutting down France's remaining four coal-fired power plants by 2022.

Source: own evaluation

## MITIGATION TRANSPORT SECTOR

Transport accounts for 40% of France's CO<sub>2</sub> emissions; 82% of passenger transport is by private car, and 73% of freight transport is by road. Currently only 2% of car sales are electric vehicles but France plans to ban the sale of fossil fuel cars by 2040. In order to stay within a 1.5°C limit, passenger and freight transport need to be decarbonised.



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



## **STATUS OF DECARBONISAT**

### **Transport energy mix**



## MITIGATION TRANSPORT SECTOR =

## FRANCE

## STATUS OF DECARBONISATION (continued)

#### Aviation emissions per capita<sup>11</sup> Transport emissions per capita<sup>10</sup> (tCO<sub>2</sub>/capita, (tCO<sub>2</sub>/capita) excl. aviation emissions) Trend (2013-2018) Trend (2011-2016) 54 + 10% 4 + 5% -7% +1% France G20 average G20 average France **Rating of transport emissions Rating of aviation emissions** compared to other G20 countries⁴ compared to other G20 countries⁴ Rating trend (2013-2018) Rating trend (2011-2016) 🔿 medium 👘 🔿 medium 🔵 Rating current level (2018) Rating current level (2016) France G20 average France G20 average low 🔿 low Data for 2018 Data for 2016 Source: Enerdata 2019; IEA 2018 Source: Enerdata 2019: World Bank 2019 Source: own evaluation Source: own evaluation Motorisation rate Market share of electric **Passenger transport Freight transport** (vehicles per 1,000 inhabitants) vehicles in new car sales (modal split in % of passenger km) (modal split in % of tonne-km) (%)**6**% Pipeline Air 2% 82% 16% Rail 3% Car 12% Rail Inland **211%** water-6% ways 73% Bus Road Data for 2016 | Source: Agora 2018 Data for 2018 | Source: IEA 2019 Data for 2017 | Source: ITF 2019 Data for 2016 | Source: Agora 2018

## **POLICIES**<sup>5</sup>

### Phase out fossil fuel cars



The 2019 mobility law sets a ban on the sale of fossil fuel-based cars by 2040 (2025 would be 1.5°C compatible) and aims for a fivefold expansion of electric vehicle charging stations. A bonus-malus scheme taxes the purchase of emission-intensive vehicles to finance subsidies for the purchase of electric and low-emissions cars.



Average new sales vehicle emissions increased in 2018 (112gCO<sub>2</sub>/km), driven by SUVs and petrol cars. This is far from the EU target for 2021(95gCO<sub>2</sub>/km).

Source: own evaluation

## Phase out fossil fuel heavy-duty vehicles



According to 2019 EU legislation, manufacturers will be required to cut  $CO_2$  emissions from new trucks on average by 15% from 2025 and by 30% from 2030 (from 2019 levels).

The government is currently working on a heavy vehicle transit tax for foreign trucks.

Tax breaks on diesel fuel represented twice the amount of carbon tax revenue in 2017.

Source: own evaluation

## Modal shift in (ground) transport



France has no long-term strategy for a modal shift. The 2019 mobility law aims to upgrade railway networks, and creates a legal framework for new mobility solutions such as free-floating bicycles, electric scooters and car sharing. Financial support is provided if rail, waterway or maritime transport are used as the main links in a freight transport chain.

The mobility law is largely silent on a freight modal shift.

Source: own evaluation

## MITIGATION BUILDINGS SECTOR

## FRANCE

France's building emissions – including heating, cooking and electricity use – make up 28% of total CO<sub>2</sub> emissions. France has managed to reduce building emissions, both total and per capita levels, and has adopted long-term energy efficiency targets for the sector.



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

Source: IEA ETP B2DS scenario assessed in IPCC SR1.5 2018

## **STATUS OF DECARBONISATION**

**Building emissions per capita Residential buildings: Commercial and public buildings:** (incl. indirect emissions) energy use per m<sup>2</sup> energy use per m<sup>2</sup> (tCO<sub>2</sub>/capita) (GJ) (GJ)1.36 gj 3.53 G20 range 0.17 0.91 G20 range 0.15 France G20 average Data: year different per country | Data: year different per country | Source: ACEEE 2018 Source: ACEEE 2018 **//** -10.7% +1% Trend (2013-2018) Building emissions are largely driven by how much energy Building-related emissions per capita are slightly below the is used in heating, cooling, lighting, household appliances, etc. In France, energy use per m<sup>2</sup> is in the middle range of **Rating of building emissions** G20 average. In contrast to the compared to other G20 countries<sup>4</sup> the G20 countries for residential, commercial and public constant G20 average, France has reduced the level by 11% buildings. Rating trend (2013-2018) (2013-2018). 🗕 🔘 medium 👘 Rating current level (2018) o high

Source: own evaluation

## **POLICIES**<sup>®</sup>

## Near-zero energy new buildings



France has a 1.5°C compatible policy in the building sector which has made the construction of low-consumption buildings the norm since 2012, and will ensure that construction of energy-plus homes is the norm by 2021. A new-building code (RT2020) is in place.

## **Renovation of existing buildings**



France aims to reduce energy consumption in the building sector by 28% until 2030 and achieve carbon neutrality for the buildings stock by 2050. A mandatory building code for renovations is in place. France's 2018 National Low Carbon Strategy plans for 500,000 thermal renovations yearly between 2015-2030 and 700,000 for 2030-2050.

The building sector is 14.5% off track of its indicative 2018 carbon budget share, and current renovations are insufficient.

Source: own evaluation

## MITIGATION INDUSTRY SECTOR

## FRANCE

Industry-related emissions make up slightly more than a fifth of CO<sub>2</sub> emissions in France. The industry is less emission intensive than in most G20 countries. But additional measures are required to become compatible with a 1.5°C pathway.



World average

Global industrial CO<sub>2</sub> emissions need to be reduced by 65-90% from 2010 levels by 2050.

## STATUS OF DECARBONISATION



🜔 medium 🔵 Rating current level (2016) very high

Source: own evaluation

## POLICIES

### **Energy efficiency**



Mandatory energy efficiency policies in France cover only 0-10% of total industrial energy use in 2017. Measures include the EU emissions trading scheme, financial incentives, and regulations such as efficient use of energy in installations for energy, metals, minerals, and the chemical and waste management industry.

Source: own evaluation

**Carbon intensity of** steel production<sup>13</sup> (kgCO<sub>2</sub>/tonne product) 708 World average France

Source: IPCC SR1.5 2018

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Data for 2015 | Source: CAT 2019

Steel production and steelmaking are significant GHG emission sources, and are challenging to decarbonise. France's steel industry is less than half as emission intensive than the world average, and the cement industry is below world average.

emissions with the gross value added (GVA) from the industry sector, France performs comparatively well within the G20, as it has the fourth least emissions-intensive industry. However, the level is reducing at a slower rate than the G20 average.

560



### In order to stay within the 1.5°C limit, France needs to make the land use and forest sector a net sink of emissions, eg by halting the expansion of residential areas and infrastructure and by creating new forests.

Global deforestation needs to be halted and changed to net CO<sub>2</sub> removals by around 2030. Source: IPCC SR1.5 2018

FRANCE

Gross tree cover loss by dominant driver<sup>14</sup>



## POLICIES

#### (Net) zero deforestation



There is no long-term strategy on net-zero deforestation. France's forest law (No. 2014-1170) guarantees sustainable forestry management, and its National Strategy to Combat Imported Deforestation dated November 2018 aims to put an end to deforestation caused by importation of unsustainable forest and agricultural products by 2030.

Source: own evaluation

Source: Global Forest Watch 2019

Note: 2000 tree cover extent | >30% tree canopy | these estimates do not take tree cover gain into account

> From 2001 to 2018, France lost 1.06Mha of tree cover, equivalent to a 6.3% decrease since 2000. This does not take tree-cover gain into account. Forest management is the largest driver.

## MITIGATION AGRICULTURE

France's non-energy agricultural emissions mainly come from digestive processes in animals, livestock manure, and the use of synthetic fertilizers. A 1.5°C pathway requires dietary shifts, increased organic farming, and less fertilizer use.

Global 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 fertilzers

and manure) need to be reduced by 10% by 2030 and by 20% by 2050.



Source: IPCC SR1.5 2018

Direct GHG emissions from agriculture (not including energy)



In France, the largest sources of non-energy GHG emissions in the agricultural sector are digestive processes in animals (enteric fermentation), livestock manure, and the use of synthetic fertilizers. A shift to organic farming, supporting legume crops and methanizer deployment, more efficient use of fertilizers, and diet changes could all help reduce emissions.

## ADAPTATION

- $\rightarrow$  France is vulnerable to climate change and adaptation actions are needed.
- → On average (1998–2017), 1,121 fatalities and losses amounting to US\$2.2 billion occur yearly due to extreme weather events in France.
- → With global warming, society and its supporting sectors are increasingly exposed to severe climate events such as droughts and reduction in crop duration.

## **ADAPTATION POLICIES**

Nationally-determined contribution: Adaptation						
Targets	Not mentioned					
Actions	Not mentioned					

Source: UNFCCC, NDC of respective country

## National adaptation strategies

France's government agency for civil engineering is updating its national engineering standards for transport and urban infrastructure to take adaptation to climate change into account.

		Fields of action (sectors)													
Document name	Publication year	Agriculture	Biodiversity	Coastal areas & fishing	Education & research	Energy & industry	Finance & insurance	Forestry	Health	Infrastructure	Tourism	Transport	Urbanism	Water	M&E process (reporting frequency)
National Climate Change Adaptation Strategy	2006	x	x	x	x	x	x	x	x	x	x	x	x	x	n/a
National Adaptation Plan 2011-2015	2011	x	x	x	x	x	x	x	x		x	x	x	x	Mid-term evaluation report in 2013 and overall evaluation in 2015
Second National Adaptation Plan 2018–2022 (NAP-2)	2018	x	x	x	x		x	x	x	x	x	x		x	Continuous monitoring by the National Council for ecological transition and overall evaluation in 2022

Source: own research

France's government agency for civil engineering is updating its national engineering standards for transport and urban infrastructure to take adaptation to climate change into account.





## FRANCE

## FRANCE

## ADAPTATION NEEDS

### **Climate Risk Index** for 1998-2017

Impacts of extreme weather events in terms of fatalities and economic losses that occured

Global Climate Risk Index 2019	All numbers are yearly averages	(1998-2017)
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France has already been struck by droughts and extreme weather events such as storms, heat waves, fires and floods. As highlighted by the numbers from the Climate Risk Index, such extreme weather events result in fatalities and economic losses. Climate change is expected to worsen the intensity, frequency and impacts of such events.

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

		1.5°C	2°C	3°C
Water	% of area with increase in water scarcity			
J.	% of time in drought conditions			
Heat & Health	Heatwave frequency			
	Days above 35°C			

Source: own research

Agriculture	Maize	Reduction in crop duration		
		Hot spell frequency		
		Reduction in rainfall		
	Wheat	Reduction in crop duration		
/\ à		Hot spell frequency		
		Reduction in rainfall		

Overall, with rising temperatures, all sectors are adversely affected. In the water sector, water scarcity and time spent in drought conditions drastically increase. Heat wave frequency increases significantly, together with an increase in the number of days when temperatures reach more than 35°C.

### Impact ranking scale



Blank cells signify that there is no data available







Wheat and maize represent the largest proportions of crop production out of the four crops analysed (maize, rice, soybeans, wheat). Both crops experience a drastic reduction in crop duration, and are affected by an increase in hot spell frequency and a slight reduction in rainfall.

Data for 2017 | Source: FAOSTAT 2019

## FINANCE

France's fossil fuel subsidies totalled US\$7 billion in 2017, mostly for petroleum. But France is the only G20 country to make climate-related financial disclosure mandatory.

#### **Nationally-determined contribution: Finance**

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

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



FRANCE

Source: IPCC SR1.5 2018

Source: UNFCCC, NDC of respective country

### Financial policy and regulation supporting a brown to green transition

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	Not 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 alig- ning prudential and climate change objectives in the national financial architecture.	x	

			Mandatory	Voluntary	Under discussion	Not identified
Enhanced super- visory review,	Climate risk disclosure requirements	Disclose the climate-related risks to which financial institutions are exposed	x			
risk disclosure and market discipline	Climate-related risk assessment and climate stress-test	Evaluate the resilience of the financial sector to climate shocks			x	
Enhanced capital and liquidity	Liquidity instruments	Mitigate and prevent market illiquidity and maturity mismatch				x
requirements	Lending limits	Limit the concentration of carbon-intensive exposures				x
		Incentivise low carbon-intensive exposures				x
	Differentiated Reserve Requirements	Limit misaligned incentives and canalise credit to green sectors				x

Source: own research

As the only G20 country to have enshrined TCFD (Task Force on Climate-related Financial Disclosures) into law (under Article 173 of the 2015 Energy Transition and Green Growth Law), France requires companies to report on financial risks relating to climate change. It also requires asset



n and Green Growth Law), France requires companies to report on financial risks relating to climate change. It also requires asset managers and institutional investors to report on how they consider environmental, social and governance (ESG) criteria in investment strategies. Banks and other credit providers must disclose in their annual reports the risk of excessive leverage (not carbon-specific) and the risks exposed in regular stress tests, while institutional investors must disclose the role ESG criteria play in investment decisions and how investment policies align with the National Strategy for Energy and Ecological Transition.

## FINANCE

## FRANCE

## **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 prices.

#### Fossil fuel subsidies



## Subsidies by fuel type



In 2017, France's fossil fuel subsidies totalled US\$7.3bn (compared to US\$4.5bn in 2008 and gradually increasing since then). Of the subsidies identified, 92% were for the consumption of fossil fuels, with the remainder for production. The highest amount of subsidies quantified were for petroleum, at US\$6.2bn, followed by natural gas at US\$0.6bn. The largest subsidy is the reduced rate of excise tax for use of diesel in the construction, farming and forestry sectors (US\$2.1bn).

### **Carbon revenues**



France's 2014 national carbon tax generated US\$9.5bn in 2018. It covers 35% of domestic emissions, and is priced at US\$51/tCO<sub>2</sub>. Under the EU Emissions Trading Scheme, a further US\$0.96bn was generated in France alone in 2018. France is also exploring a joint carbon pricing scheme with Germany.

### Carbon pricing gap<sup>15</sup>

% of energy-related CO<sub>2</sub> emissions



Only 59% of France's  $CO_2$  emissions are priced at EUR30 or higher (the low-end benchmark), creating a carbon pricing gap of 41%. This gap is smaller than the G20 average of 71%. The price covers not only explicit carbon taxes but also specific taxes on energy use and the price of tradable emission permits.

Data for 2015 | Source: OECD 2018

## FINANCE

### **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 coal<sup>16</sup>



### Commitments to restrict public finance to coal and coal-fired power<sup>17</sup>

MDB level	National development agencies and banks	Domestic export credit agencies	Export credit restriction in OECD	Comment
-	X	X	X	The French Development Agency (AFD) aligned its entire lending with the Paris Agreement. The country also has restrictions on export credits for coal plants without carbon capture storage (CCS) or CO <sub>2</sub> storage.
X yes —	no	not applica	ble	Source: own research

Obligation to provide

## Provision of international public support<sup>18</sup>

France is the second largest G20 contributor of climate finance through bilateral channels in absolute terms and relative to GDP. A significant proportion of its bilateral climate finance is delivered through the French Development Agency (AFD), with funding biased towards mitigation. It is overall the fourth largest contributor to multilateral climate funds. Bilateral flows have been relatively consistent since 2013/14, while flows to multilateral climate funds increased in the 2015/16 period. France has announced it will double its contribution to the Green Climate Fund in this current replenishment, committing contributions of EUR 1.548 billion.

Bilateral climate	Annual average	1	heme of	support	
finance contributions	<b>contribution</b> (mn US\$, 2015-2016)	Mitigation	Adaptation	Cross- cutting	Other
Source: Country reporting to UNFCCC	3,217.7	<b>67</b> %	17%	16%	0%
Multilateral climate	Annual average	т	heme of	support	
See Technical Note for	(mn US\$, 2015-2016)	Mitigation	Adaptation	Cross- cutting	Other
multilateral climate funds included and method to attribute amounts to countries	237.4	8%	5%	87%	0%
Core/General Contributions	Annual average contribution				

Source: Country reporting to UNFCCC

FRANCE

## ENDNOTES



- '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).
- 2) 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 emission 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.

The 2030 projections of GHG emissions are from the CAT's June 2019 update and are based on implemented policies, expected economic growth or trends in activity and energy consumption.

The CAT methodology does not consider GHG emissions from LULUCF due to the large degree of uncertainty inherent in this type of data, and alsoto ensure consistency and comparability across countries.

- 3) See the Brown to Green 2019 Technical Note for the sources used for this assessment.
- 4) The Decarbonisation Ratings assess the relative performance across the G20. A high scoring reflects a relatively good efforts from a climate protection perspective but is not necessarily 1.5°C compatible. The ratings assess both the 'current level' and 'recent developments' to take account of the different starting points of different G20 countries. The 'recent developments' ratings compare developments over the last five available years (often 2013 to 2018).
- 5) The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement, the Special Report on 1.5°C of the International Panel on Climate Change (2018), and the Climate Action Tracker (2016): 'The ten most important short-term steps to limit warming to 1.5°C'. The table below displays the criteria used to assess a country's policy performance. See the Brown to Green Report 2019 Technical Note for the sources used for this assessment.

On endnote 5)	low	——————————————————————————————————————	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)
Retrofitting exis- ting 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
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
(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

## **ENDNOTES** (continued)



- 6) The 1.5°C benchmarks are based on the Special Report on 1.5°C of the International Panel on Climate Change (2018). See the Brown to Green 2019 Technical Note for the specific sources used for this assessment.
- 7) Total primary energy supply data displayed in this Country Profile does not include non-energy use values. Solid fuel biomass in residential use has negative environmental and social impacts and is shown in the category 'other'.
- Large hydropower and solid fuel biomass in residential use are not reflected due to their negative environmental and social impacts.
- 9) The category 'electricity and heat' covers CO<sub>2</sub> emissions from power generation and from waste heat generated in the power sector. The category 'other energy use' covers energy-related CO<sub>2</sub> emissions from extracting and processing fossil fuels (e.g. drying lignite).
- 10) This indicator shows transport emissions per capita, not including aviation emissions.
- 11) This indicator adds up emissions from domestic aviation and emissions from international aviation bunkers in the respective country. Emissions by aircrafts in the higher atmosphere lead to a contribution to climate change greater than emissions from burning fossil fuels. In this Country Profile, however, only a radiative forcing factor of 1 is assumed.
- 12) This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.

- 13) This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).
- 14) 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. The definition of 'forest' used for this indicator is also not identical with the definition used for the indicator on page 3.
- 15) 'Effective carbon rates' are the total price that applies to CO<sub>2</sub> emissions, and are made up of carbon taxes, specific taxes on energy use and the price of tradable emission permits. The carbon pricing gap is based on 2015 energy taxes and is therefore likely to be an underestimate, as taxation has tended to increase in countries over time.
- 16) The database used to estimate public finance for coal is a bottom-up database, based on information that is accessible through various online sources, and is therefore incomplete. For more information, see to the Brown to Green 2019 Technical Note.
- 17) See the Brown to Green 2019 Technical Note for the sources used for this assessment.
- 18) Climate finance contributions are sourced from Biennial Party reporting to the UNFCCC. Refer to the Brown to Green Report 2019 Technical Note for more detail.

For more detail on the sources and methodologies behind the calculation of the indicators displayed, please download the Technical Note at: http://www.climate-transparency.org/g20-climate-performance/g20report2019

## CLIMATE TRANSPARENCY



http://www.climate-transparency.org/g20-climate-performance/g20report2019