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PER CAPITA GREENHOUSE GAS (GHG) EMISSIONS BELOW G20 AVERAGE

France GHG emissions per capita have increased between 2016 (6.3 tCO₂e/capita) and 2017 while G20 emissions have decreased. GHG emissions in France have been decreasing of around 0.9% in the past years when it should reach a decreasing rate of -3% as of 2025.

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



Data for 2017. Sources: Enerdata, 2020; UN Department of Economic and Social Affairs Population Division, 2020; Gütschow et al., 2019; Haut Conseil pour le Climat, 2020b

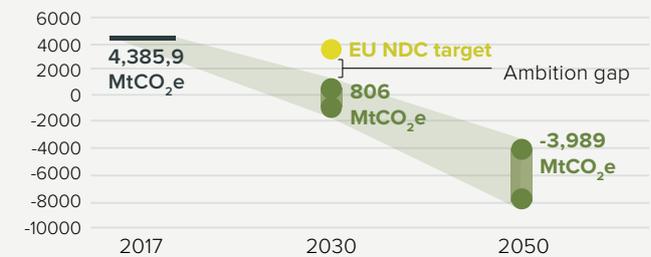
NOT YET ON TRACK FOR A 1.5°C WORLD



As an EU member state, **France committed to contributing to the EU NDC**. The EU's 'at least 40%' reduction target is not consistent with EU's 1.5 'fair-share' range of **below 806 MtCO₂e by 2030 and below -3,989 MtCO₂e by 2050**. The European Commission and Parliament have separately proposed increasing the EU27's goal to "at least 55%" and "60%" below 1990 levels, respectively. These could move the EU closer to its 'fair-share' range. EU member states have yet to agree to either proposal.

'Fair-share' pathways and ratings for individual EU member states are not provided due to the intricacies and inter-linkages of the internal burden sharing system.

EU28 1.5°C 'fair share' pathway (MtCO₂e/year)^{1&2}



Source: Climate Action Tracker, 2020

KEY OPPORTUNITIES FOR ENHANCING CLIMATE AMBITION



The renovation of existing buildings could support the post-COVID-19 recovery as it has high potential for job creation in the short-term.



Investing in railway freight transport has the potential to quickly reduce transport CO₂ emissions as it represents currently only 9% of tonnes-km transported in France.



France's new EU R2bn hydrogen strategy could accelerate implementation of decarbonisation solutions in the emissions intensive industrial and transport sectors.

Sources: Democracy International, 2020; Perrier, 2020; Rüdinger, 2020; Haut Conseil pour le Climat, 2020a

RECENT DEVELOPMENTS



In response to the "Yellow Vests" protest in 2018, the "French Citizens' Convention on Climate" was formed in October 2019 to propose measures in "a spirit of social justice" that would cut national GHGs. As a result, 149 measures were presented in June 2020. 146 were endorsed by the President and one third of the proposals will underpin a draft law anticipated in Autumn 2020.



France announced on 3 September 2020 that 30% of its two-year (2021/22) EUR 100bn economic recovery plan will target investments for the ecological and low-carbon transition. Main sectoral priorities are building renovation, e-mobility and industrial decarbonisation.



The four main emitting sectors – transport (30%) followed by agriculture, buildings and industry – have all exceeded their 2015-2018 carbon budgets.

Sources: Bouyé, 2020; Haut Conseil pour le Climat, 2020b; Le Monde, 2020b; Présidence de la République, 2020; Réseau Action Climat France, 2020

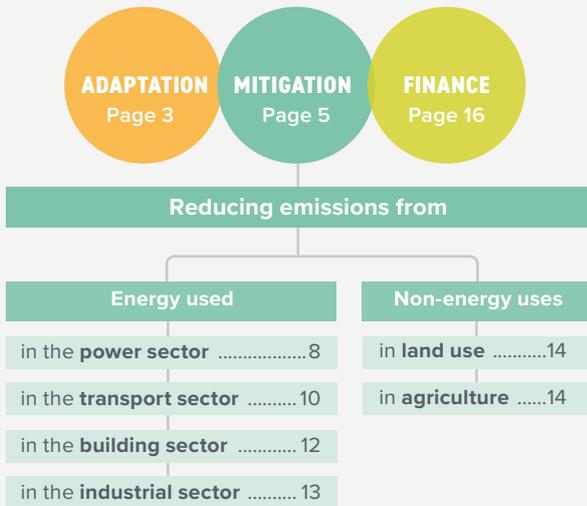
CORONAVIRUS RECOVERY

France's lock-down measures reduced emissions between January and May 2020 by approximately 13% in comparison to that period in 2019. France's first recovery measures included few ecological measures with the exception of some sectoral plans for the automotive and aviation industry. In September 2020, an EU-wide EUR 100bn, two-year (2021/22) economic recovery plan was announced, of which 30% will be dedicated to the ecological and low-carbon transition.

References: Haut Conseil pour le Climat, 2020b; Le Monde, 2020a

CONTENTS

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



LEGEND

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



Decarbonisation Ratings⁴ assess a country's performance compared to other G20 countries. A high score reflects a relatively good effort from a climate protection perspective but is not necessarily 1.5°C compatible.



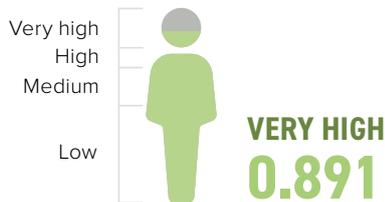
Policy Ratings⁵ evaluate a selection of policies that are essential pre-conditions for the longer-term transformation required to meet the 1.5°C limit.



SOCIO-ECONOMIC CONTEXT

Human Development Index

The Human Development Index reflects life expectancy, level of education, and per capita income. France ranks very high.

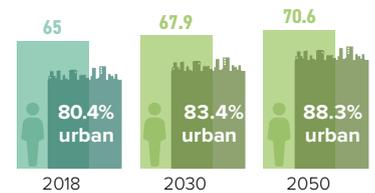


Data for 2018. Source: UNDP, 2019

Population and urbanisation projections

(in millions)

France's population is expected to increase by about 8.6% by 2050 compared to 2018 levels. France is already a highly urbanised country and almost all the population increase is also projected to be in urban areas.



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

Gross Domestic Product (GDP) per capita

(PPP constant 2015 international \$)



Data for 2019. Source: The World Bank, 2020

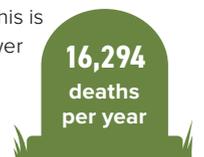
Death rate attributable to air pollution

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



Data for 2016. Source: WHO, 2018

Over 16,294 people die in France 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.



JUST TRANSITION



France has been directly confronted by the question of a just transition through the "Yellow Vests" protests, against an unfair fuel tax in 2018. In response, the "French Citizens' Convention on Climate" was formed in October 2019 to propose measures that would cut national GHGs in "a spirit of social justice". In addition, in its recently adopted Low Carbon National Strategy (April 2020), the government included specific guidance to take account

of socio-economic impacts of the energy transition and define trial indicators of success. **It is, however, key to consider all dimensions and definitions of a just transition** and include a cross-sectoral approach, which could be framed by the UN Sustainable Development Goals, that have, thus far, been poorly used in France. France could also benefit from the Just Transition Mechanism released by the European Commission in May 2020 to support EU countries with up to EUR 2.4bn for just transition measures.

References: Roussel, 2020; Vallaud-Belkacem et al., 2020, Haut Conseil pour le Climat, 2020a

1. ADAPTATION

ADDRESSING AND REDUCING VULNERABILITY TO CLIMATE CHANGE

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

VULNERABLE TO CLIMATE CHANGE France is vulnerable to climate change in urban contexts, in the agriculture sector and in coastal areas, and **adaptation actions are needed**.

HIGH COST OF EXTREME WEATHER On average, **1,122 fatalities** and almost **USD 2.29bn losses** occur yearly due to extreme weather events

SEVERE IMPACTS ON OCEANS AND FISH STOCKS France is particularly exposed to **climate-related ocean changes** such as **marine flooding** (mainland and overseas territories) and **changes in fish pelagic stocks**.

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



Source: Based on Germanwatch, 2019

Annual average losses (USD mn PPP)



Source: Based on Germanwatch, 2019

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

Impact ranking scale:

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

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

Source: Water, Heat and Health: own research. Agriculture: Arnell et al., 2019

Note: These indicators are national scale results, weighted by area and based on global data sets. They are designed to allow comparison between regions and countries and, therefore, entail simplifications. They do not reflect local impacts within the country. Please see technical note for further information.

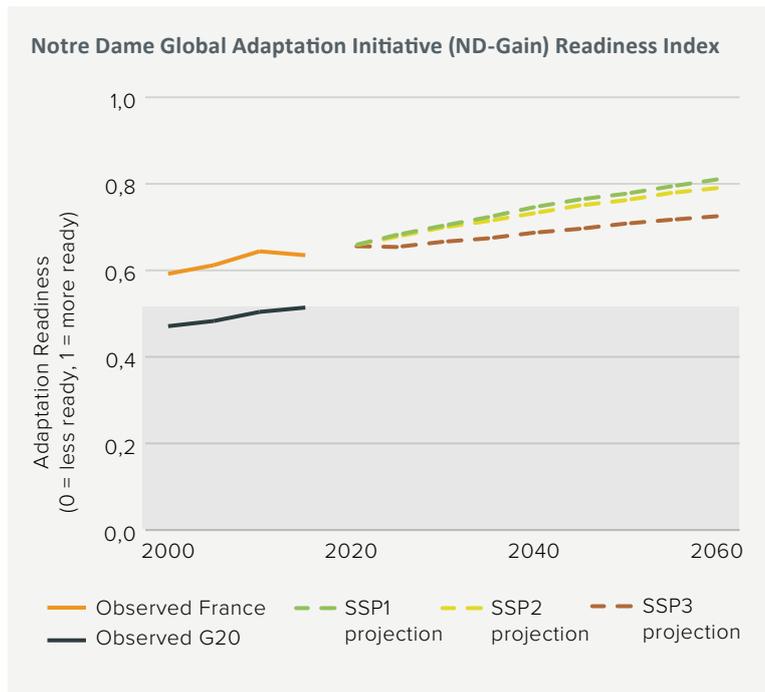
CORONAVIRUS RECOVERY

France dedicated 30% of its EUR 100bn recovery plan to investments to support a low-carbon transition. EUR 1.2bn of that will be dedicated to an “Agricultural, Food and Forest Transition” intended to strengthen food sovereignty and adapt agriculture and forestry to climate change. These measures would also support biodiversity through the conservation of land, coastal, marine and aquatic ecosystems to “enable territories to adapt to the effects of climate change and become more resilient”.

Reference: Ministère de l’Economie, 2020

Adaptation readiness

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



France scored well above the G20 average between 2000 and 2015 and is projected to continue doing so given its combination of social, economic and governance structures. Adaptation challenges still exist, but France is well positioned if it puts in place measures compatible with SSP1 and SSP2. Other measures, as represented by SSP3, slow its readiness to adapt in the long term.

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

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

Source: Andrijevic et al., 2019

ADAPTATION POLICIES

National Adaptation Strategies

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

Note: In NAP-2, sectors of energy and industry, infrastructure, transport and urbanism are integrated within the other listed sectors, and not as separate items; therefore, their inclusion is recorded as *.

Nationally Determined Contribution (NDC): Adaptation

Targets	Not mentioned	Actions	Not mentioned
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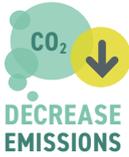
2. MITIGATION

REDUCING EMISSIONS TO LIMIT GLOBAL TEMPERATURE INCREASE



Hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit to 1.5°C, recognising that this would significantly reduce the risks and impacts of climate change.

EMISSIONS OVERVIEW



France's GHG emissions have dropped by only 20% between 1990-2019 and the **government's climate target for 2030 (-40%) is not in line with a 1.5°C pathway.**

Sources: Ministère de la Transition Écologique et Solidaire, 2020, Haut Conseil pour le Climat, 2020a

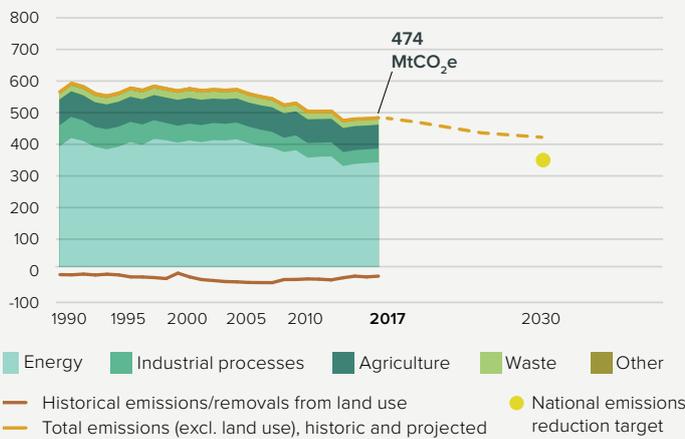


In 2030, global CO₂ emissions need to be 45% below 2010 levels and reach net-zero by 2070. Global energy-related CO₂ emissions must be cut by 40% below 2010 levels by 2030 and reach net-zero by 2060.

Source: Rogelj et al., 2018

GHG emissions across sectors and national emissions reduction target (MtCO₂e/year)

Total GHG emissions across sectors (MtCO₂e/year)



Source: Gütschow et al., 2019

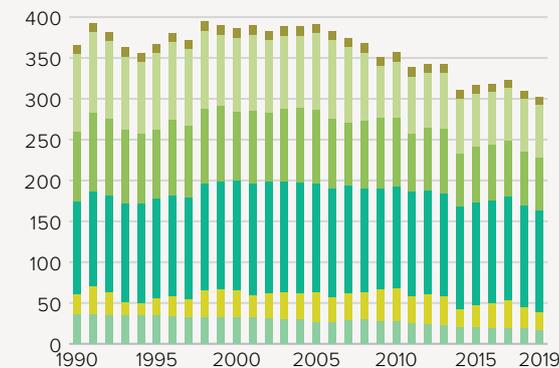
France's emissions (excl. land use) have decreased by 20% between 1990 and 2019. The most recent emissions projections show that under current policies, emissions will continue to decline, reaching a 24% reduction below 1990 by 2030, which is not enough to meet its national mitigation targets. Between 2018 and 2019, France's emissions decreased by 0.9% even though its Low Carbon National Strategy anticipated a reduction rate of 3% per year up to 2025.

This downward trend in emissions is explained mainly by improvements in industrial processes and energy transformation. In 2019, most emissions reductions – even though relatively small – were from the building sector, the third highest emitting sector after transport and agriculture. **France will need to scale up climate action to meet its national targets**, with even more effort required to become Paris Agreement-compatible.

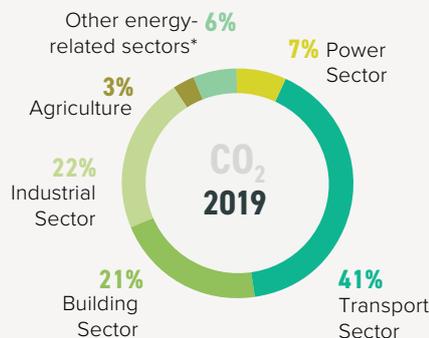
References: European Environment Agency, 2019, Haut Conseil pour le Climat, 2020a

Energy-related CO₂ emissions by sector

Annual CO₂ emissions from fuel combustion (MtCO₂/year)



* 'Other energy-related sectors' covers energy-related CO₂ emissions from extracting and processing fossil fuels. Due to rounding, some graphs may sum to slightly above or below 100%.



The largest driver of overall GHG emissions are CO₂ emissions from fuel combustion. Energy-related emissions in France remained stable over the last decade, with only minor ups and downs. The transport sector, producing 41%, is the largest contributor, followed by buildings and industries with 21% and 22% respectively.

Source: Enerdata, 2020

CORONAVIRUS RECOVERY

France's lockdown measures have reduced emissions by 14 MtCO₂e to 33 MtCO₂e from January to May 2020 – close to a 13% reduction compared to last year. The EUR 100bn two-year (2021-2022) fund will increase the support for green investments in building renovation and transport and is expected to reduce GHG emissions by 57 MtCO₂e over the investment lifetime. Sectoral recovery measures include a condition to cancel some short domestic flight lines, and increased support to electro-mobility deployment.

ENERGY OVERVIEW

47%
OF FRANCE'S ENERGY MIX IS FOSSIL FUELS

In 2019, Fossil fuels made up around 47% of France's energy mix, the lowest level in the G20. This is due to its largely decarbonised electricity mix. However, renewables account for only a small share (9%), with nuclear energy responsible for the remaining share of low-carbon energy sources.

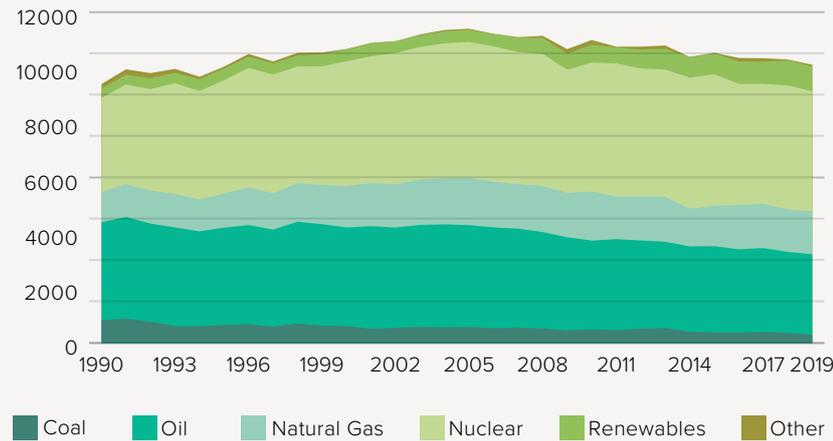
1.5°C
COMPATIBILITY

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

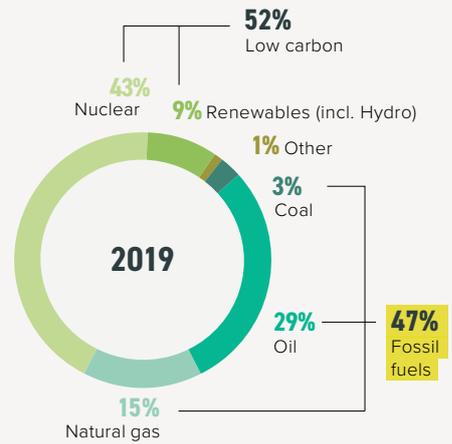
Source: Rogelj et al., 2018

Energy Mix

Total primary energy supply (PJ)



Source: Enerdata, 2020



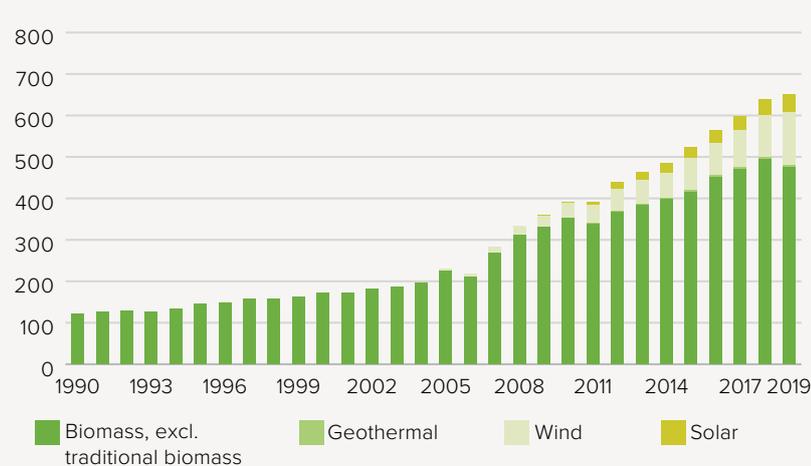
Due to rounding, some graphs may sum to slightly above or below 100%.

This graph shows the fuel mix for all 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 (43%). Over the past 10 years the proportion of renewables has grown, a trend which could be expected to continue as France aims to reduce the share of nuclear in its electricity generation to 50% by 2035. The share of energy from fossil fuels is, however, much higher when looking at the final energy consumption where waste heat, for example of nuclear energy is not counted.

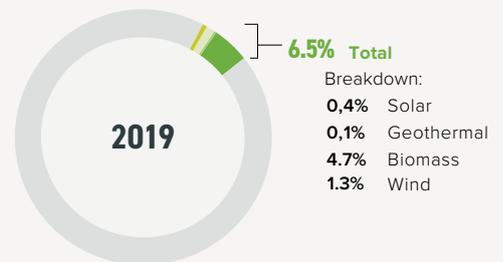
Source: Ministère de la Transition Écologique et Solidaire, 2020; EA, 2020

Solar, Wind, Geothermal, and Biomass Development

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



Solar, wind, geothermal and biomass account for 6.5% of France's energy supply



Source: Enerdata, 2020

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

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

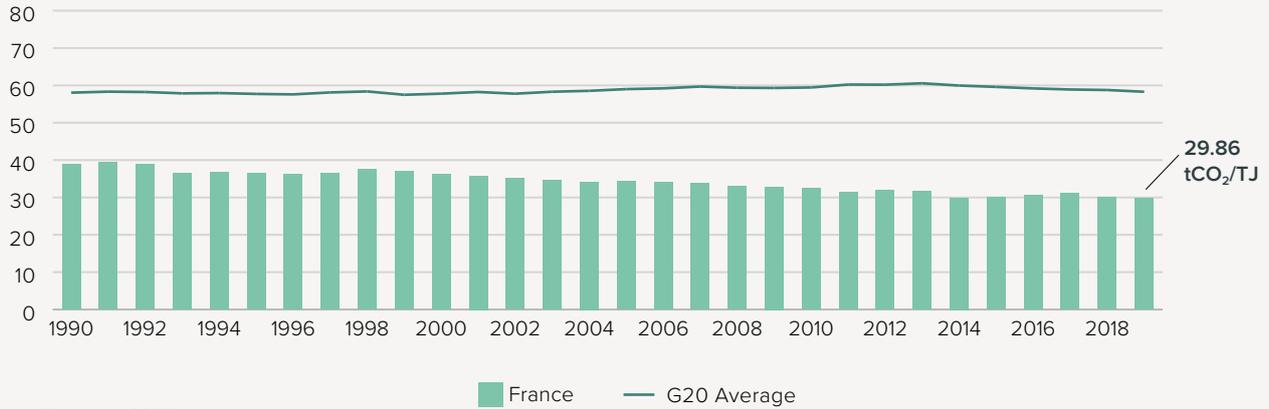


Source: own evaluation

Solar, wind, geothermal and biomass account for 6.4% of France's energy supply – the G20 average is only 6.3%. The share in primary energy supply has increased by around 11.5% in the last five years in France (+39.6% 2014-2019) compared to G20 average. Bioenergy (for electricity and heat) makes up the largest share.

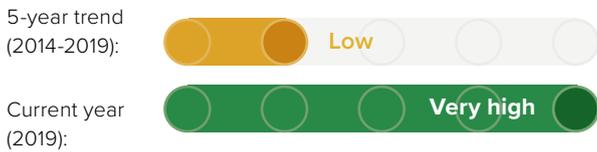
Carbon Intensity of the Energy Sector

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



Source: Enerdata, 2020

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



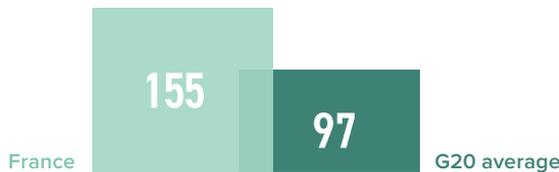
Carbon intensity shows how much CO₂ is emitted per unit of energy supply.

In France, carbon intensity has remained almost constant at around 30 tCO₂ for each TJ of energy consumed over the last five years and is well below the G20 average. This reflects the constant high share of nuclear in the energy mix, as well as the increased use of renewable sources.

Source: own evaluation

Energy supply per capita

(GJ/capita)



Sources: Enerdata, 2020; The World Bank, 2019

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



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

With 155 GJ/capita energy use per capita. In France is well above the G20 average, but is decreasing (-4.3%, 2014-2019) in contrast to the increasing G20 average (+1.9%).

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



Source: own evaluation

Energy intensity of the economy

(TJ/PPP USD2015 millions)



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

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



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

The energy intensity of France's economy is below the G20 average, but still high and has decreased slightly less (-10.4%, 2013-2018) than the G20 trend.

Decarbonisation rating: energy intensity compared to other G20 countries



Source: own evaluation



POWER SECTOR

Emissions from energy used to make electricity and heat

France still produces 1% of electricity from coal and plans to phase out remaining coal plants by 2022. However, renewables are developing slowly, only reaching 21% of share in power generation in 2019. While France does have a national target of reaching a share of renewables at 33% by 2030, there is no clear trajectory for renewables post-2030.



7% Share in energy-related CO₂ emissions from electricity and heat production

Source: Enerdata, 2020



Coal and decarbonisation

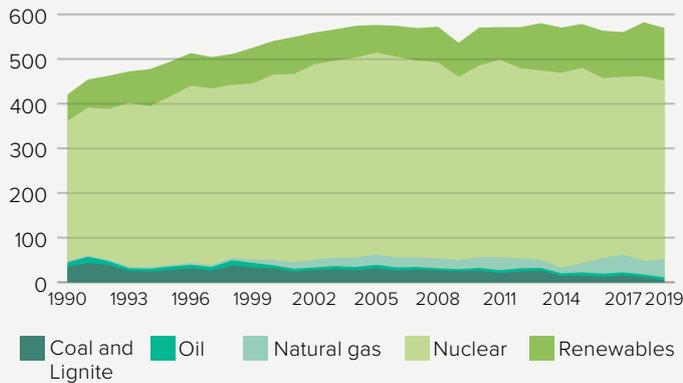
Worldwide, coal use for power generation needs to peak by 2020, and between 2030 and 2040, all the regions of the world need to phase out coal-fired power generation. Electricity generation has to be decarbonised before 2050, with renewable energy the most promising alternative.

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

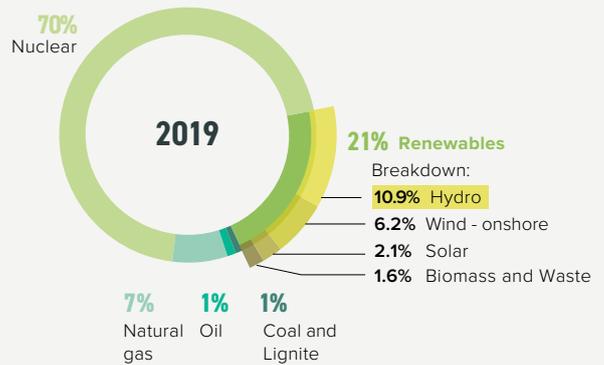
STATUS OF DECARBONISATION

Electricity mix

Gross power generation (TWh)



Source: Enerdata, 2020



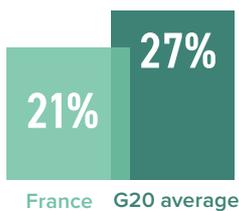
Due to rounding, some graphs may sum to slightly above or below 100%.

The share of renewables in the power sector has been increasing steadily, accounting for more than one fifth (21%) of the power mix. This energy was coming mainly from hydro (10.9%) and wind onshore (6.2%) which has seen a steady increase in the past four years together with solar to reach in 2019 respectively 35 TWh and 12 TWh. France is only starting to develop wind offshore power stations with an upcoming station of 480 MW of capacity expected in 2022. Nuclear energy remains the most important power source at 70%. The shares of coal and oil have decreased further from their initial low levels and now, combined, account for only 2% of the electricity mix. Natural Gas has seen a slight increase of 2% in the past year.

Source: Le Monde de l'Energie, 2020

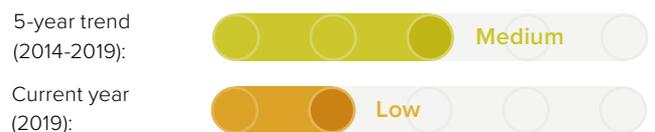
Share of renewables in power generation

(incl. large hydro)



Source: Enerdata, 2020

Decarbonisation rating: share of renewables compared to other G20 countries



Source: own evaluation

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



Emissions intensity of the power sector

Country vs G20 average (gCO₂/kWh)



Source: Enerdata 2020

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



For each kilowatt hour of electricity, 49gCO₂ are emitted in France. This is very low compared to the G20 average and is decreasing further (-6.4%, 2014-2019). This is because of the consistently high share of nuclear and low share of fossil fuels (9%) in the power mix.

Decarbonisation rating: emissions intensity compared to other G20 countries



Source: own evaluation

POLICY ASSESSMENT

Renewable energy in the power sector



France is striving to reach 33% renewables in final energy consumption by 2030, including 40% of electricity from renewables, but does not have a long-term renewable strategy. France is set to miss its 2020 targets for share of renewables in the electricity mix (23%). In 2019, the government presented a draft 10-year energy plan that would double renewable capacity and double its offshore wind target from 4.7 to 10 GW in 2028.

Source: own evaluation

Coal phase-out in the power sector



France's energy and climate bill sets an emissions cap (550g CO₂/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



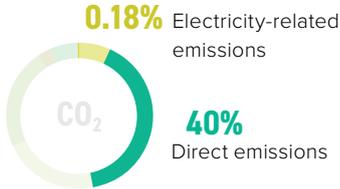
TRANSPORT SECTOR

Emissions from energy used to transport people and goods

Transport accounts for 40% of France's CO₂ emissions, of which about 70% are due to passenger mobility and 30% are due to freight mobility. It is the largest emitting sector in France and emissions have been increasing since 1990. **In order to stay within a 1.5°C limit, passenger and freight transport need to be decarbonised.**

Share in energy-related CO₂ emissions from transport sector

Source: Enerdata, 2020



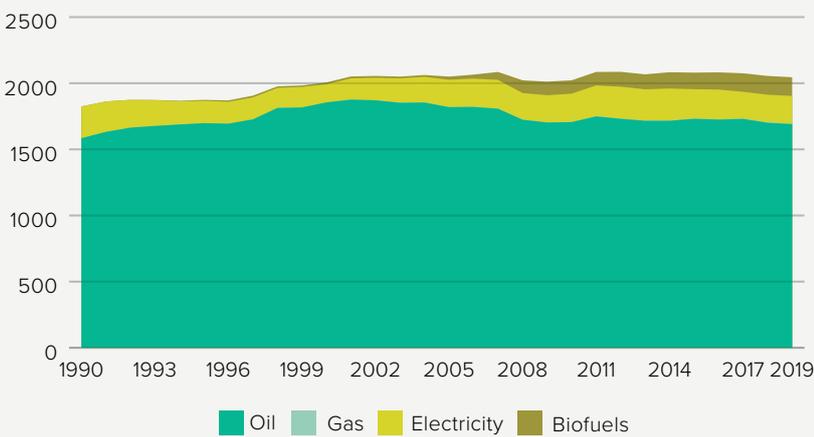
The share of low-carbon fuels in the transport fuel mix must increase to about 60% by 2050.

Source: Rogelj et al., 2018

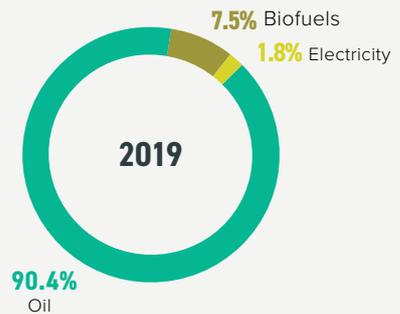
STATUS OF DECARBONISATION

Transport energy mix

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



Source: Enerdata, 2020



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

Electricity and biofuels make up only 9.3% of the energy mix in transport.

Transport emissions per capita

excl. aviation (tCO₂/capita)



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

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



Decarbonisation rating: transport emissions compared to other G20 countries



Source: own evaluation

Aviation emissions per capita⁶

(tCO₂/capita)



Data for 2017. Source: Enerdata, 2020

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



Decarbonisation rating: aviation emissions compared to other G20 countries

5-year trend (2012-2017):



Current year (2017):



Source: own evaluation

Motorisation rate

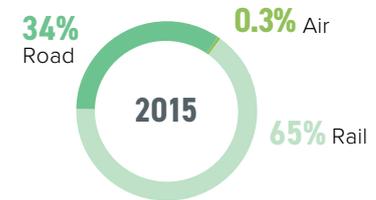
643 VEHICLES PER 1,000 INHABITANTS (2009)

82% of the kilometres travelled is by car and almost 64% of people have a car in France.

Source: Vieweg et al., 2018

Freight transport

(modal split in % of tonne-km)



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

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



Source: IEA, 2019

Passenger transport (modal split in % of passenger-km)



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

POLICY ASSESSMENT

Phase out fossil fuel cars



Emissions for new cars increased, reaching an average of 112 gCO₂/km by mid-2019, due mainly to SUVs and petrol cars. This is far from the EU target for 2021 (95 CO₂/km). The 2019 mobility law sets a ban on the sale of fossil fuel-based-cars by 2040 and aims for a fivefold expansion of electric vehicle charging stations. The law also regulates the possibility to develop “low emission zones” in cities and reinforces **the existing bonus-malus scheme that taxes the purchase of emissions-intensive vehicles to finance subsidies for the purchase of electric and low-emissions cars.** The recovery plan announced in June 2020 includes state-guaranteed loans up to EUR 295m to the automotive industry in France with no conditionality on decarbonisation.

References: Haut Conseil pour le Climat, 2020a; Ministère de l’Economie, 2020; Le Rail, 2020; Ministère de la Transition Ecologique, 2020a; Ministère de la Transition Ecologique et Solidaire, 2020

Phase out fossil fuel heavy-duty vehicles



Emissions due to heavy-duty vehicles have increased from 2018 to 2019 by 5.8%. According to 2019 EU legislation, manufacturers will be required to cut CO₂ emissions from new trucks on average by 15% from 2025 and by 30% from 2030 (from 2019 levels) or face a financial penalty for their emissions surplus. A minimum of 2% of annual sales in 2025 needs to be of zero- or low-emission heavy-duty vehicles.

Tax rebates on fossil fuel consumption still exist for road carriers in France.

References: CCFA, 2019; Climate Action Tracker, 2018, Haut Conseil pour le Climat, 2020a

Modal shift in (ground) transport



The 2019 mobility law aims to develop low-carbon daily mobility and proposes to upgrade railway networks, develop new mobility solutions and incentivise employers to give their employees up to EUR 400 per year to encourage biking to work, using public transport or shared mobility services. The Citizen’s Convention on Climate proposes to further increase this “mobility fee”.

The 2020 bike plan aims to reach 9% of the passenger trips done by bike by 2024 and increase the budget dedicated to bike mobility to reach EUR 60m. The Citizen’s Convention on Climate proposes to further increase this budget to EUR 200m.

The current ambition for the modal shift from cars to public transport and active mobility is low. The latest pluriannual energy planning (PPE) considers a shift of the modal shares of -5% for cars towards +3% for collective transport and plus +2% for bike transport over the period 2015-2028.

References: Haut Conseil pour le Climat, 2020a; Ministère de la Transition Ecologique, 2020b; Ministère de la Transition Ecologique, 2020c



BUILDING SECTOR

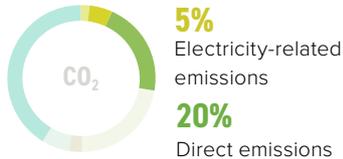
Emissions from energy used to build, heat and cool buildings

France's building emissions – including heating, cooking and electricity use – make up 20% of total CO₂ emissions.

Per capita, building-related emissions are more than double the G20 average. The building sector has missed its first carbon budget by 14% although being on a decreasing trend in the past five years. It is a severely impacted sector by the COVID-19 crisis but presents a high potential to be addressed by the recovery plans in terms of job creation in the short term through building renovation. Accelerating building renovation is a key objective of the recovery package unveiled 3 September 2020 with an additional EUR 3bn per year of public funds dedicated to renovation over the next two years.

Source: Haut Conseil pour le Climat, 2020a

Building emissions occur directly (burning fuels for heating, cooking, etc) and indirectly (grid-electricity for air conditioning, appliances, etc.)



Source: Enerdata, 2020



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

Source: Rogelj et al., 2018

STATUS OF DECARBONISATION

Building emissions per capita

(incl. indirect emissions) (tCO₂/capita)



Source: Enerdata, 2020

Building-related emissions per capita are below the G20 average which is largely due to the comparative low emissions intensity of electricity. Furthermore, in contrast to the G20 average, which is on an increasing trend, France has managed to decrease the level on average by 1.2% in the period between 2014 and 2019.

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



Source: Enerdata, 2020

Decarbonisation rating: building emissions compared to other G20 countries



Source: own evaluation

POLICY ASSESSMENT

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.

Source: own evaluation

Renovation of existing buildings

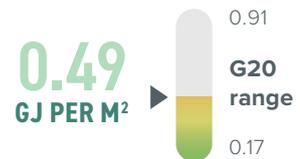


France aims to reduce energy consumption in the building sector by 28% by 2030 and achieve carbon neutrality for the buildings stock by 2050. A mandatory building code for renovations is in place. France's 2020 National Low Carbon Strategy plans for 500,000 thermal renovations annually between 2015-2030 and 700,000 for 2030-2050. However, the building sector has missed its indicative first carbon budget share by 14%, and current renovations are insufficient.

Sources: Ministère de la Transition Écologique et Solidaire, 2020; Haut Conseil pour le Climat, 2020a

Residential buildings

Energy use per m²



Commercial and public buildings

Energy use per m²



Emissions from the buildings sector are largely driven by how much energy is used in heating, cooling, lighting, household appliances, etc. In terms of emissions per m², France is in the middle range of the G20 countries for residential, commercial and public buildings.

Source: Castro-Alvarez et al., 2018

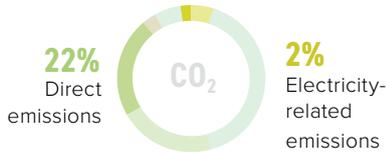


INDUSTRY SECTOR

Emissions from energy in the industrial sector

Industry-related emissions make up more than a fifth (22%) of CO₂ emissions in France.

Share in energy-related CO₂ emissions from industrial sector



Source: Enerdata, 2020



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

Source: Rogelj et al., 2018

STATUS OF DECARBONISATION

Industry emissions intensity⁷

(tCO₂e/USD2015 GVA)



Data for 2016. Source: Enerdata, 2020

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



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



Source: own evaluation

Carbon intensity of cement production⁸

(kgCO₂/tonne product)



France's cement industry is less emissions-intensive than the world's average.

Data for 2016. Source: CAT Decarbonisation Data Portal, 2020

Carbon intensity of steel production⁸

(kgCO₂/tonne product)



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

France's steel industry is less than half as emissions intensive as the world average.

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

POLICY ASSESSMENT

Energy Efficiency



84% of industry emissions in France are covered by the EU emissions trading scheme. Additional mandatory energy efficiency measures include financial incentives and regulations such as efficient use of energy in installations for energy, metals, minerals, and the chemical and waste management industry.

Source: Ministère de la Transition Écologique et Solidaire, 2020



LAND USE SECTOR

Emissions from changes in the use of the land



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**, e.g. by halting the expansion of residential areas and infrastructure and by creating new forests. However, the National Low Carbon Strategy expect sinks to remain constant up to 2030.

Source: Haut Conseil pour le Climat, 2020a

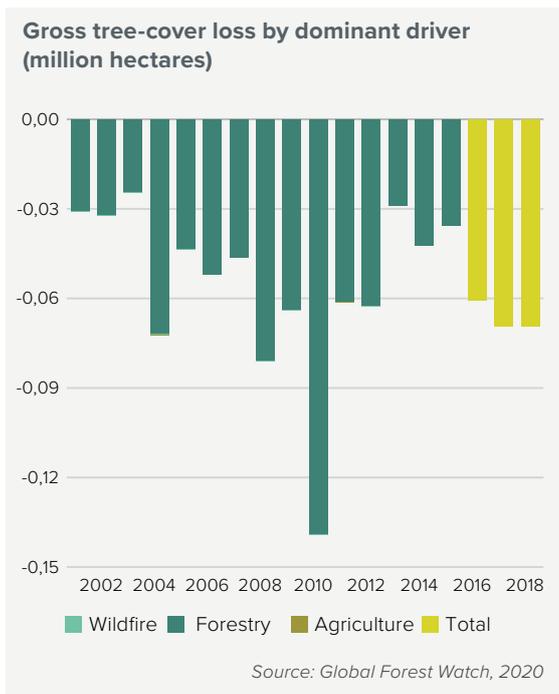


COMPATIBILITY

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

Source: Rogelj et al., 2018

Global tree-cover loss



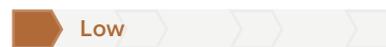
From 2001 to 2018, France lost 1.1 Mha of tree cover. This does not take tree-cover gain into account. From 2010 to 2015, France's net carbon sink fell by 2.1% per year on average due to forestry. The National Low Carbon Strategy, which follows the objective of carbon neutrality by 2050, expects a decrease of sinks due to forestry from 25% above 1990 levels in 2018 to 9% above 1990 levels in 2030, counting on sinks from harvested wood products to reach net-zero by 2050. It projects that close to 25% of remaining emissions in 2050 will be compensated by harvested wood products.

Source: Haut Conseil pour le Climat, 2020a

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

POLICY ASSESSMENT

Target for net-zero deforestation



There is no strategy on zero deforestation. France's forest law from 2014 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. Updated reports are expected in 2020 and 2025. It is, however, worth noting that France is the initiator of the 49er1000 initiative, which seeks to increase carbon stocks in soils through the adoption of more supportive agricultural practices.

Sources: Assemblée Nationale, 2014; 4P1000, 2015



AGRICULTURE SECTOR

Emissions from agriculture



France's agricultural emissions are mainly from livestock manure, the use of synthetic fertilisers and enteric fermentation. France is not on track to meet its National Low Carbon Strategy 2030 target. In the last 30 years only half of required emission reductions have been achieved.

Source: Haut Conseil pour le Climat, 2020a

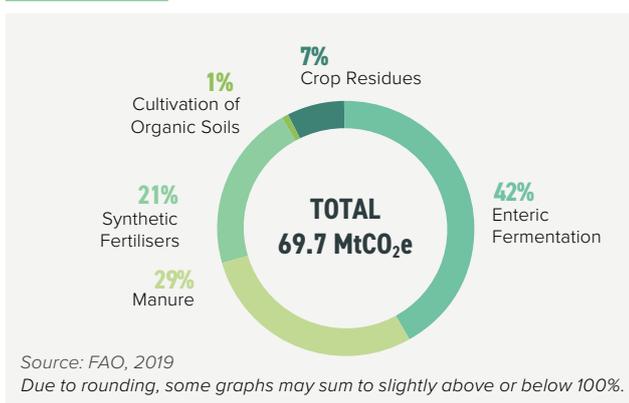


COMPATIBILITY

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).

Source: Rogelj et al., 2018

Emissions from agriculture (excluding energy)



In France, the largest sources of GHG emissions in the agricultural sector are digestive processes in animals (enteric fermentation), livestock manure and the use of synthetic fertilisers. A shift to organic farming, more efficient use of fertilisers and dietary changes can help reduce emissions. The National Low-Carbon Strategy, which set objectives of -18% in 2030 and -46% in 2050 (compared to 2015 levels) for the agricultural sector, relies on several measure to decrease agricultural sector emissions: foster the development of agroecology and precision farming, improve manure management, make reductions in cattle and changes in feeding to limit enteric fermentation, develop the bioeconomy, preserve land carbon storage capacities, and promote dietary shifts in accordance with the national programme for food and nutrition (PNAN).

Source: Strategie Nationale Bas Carbone, Mars 2020, CITEPA, 2020

MITIGATION: TARGETS AND AMBITION

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

AMBITION: 2030 TARGETS

Nationally Determined Contribution (NDC): Mitigation

Targets

France contributes to the EU-wide target of reducing emissions by "at least 40%" compared to 1990 levels.

Actions

Not mentioned

Climate Action Tracker (CAT) evaluation of EU NDC and actions

Critically Insufficient	NDCs rated "insufficient" are in the least stringent part of a country's 'fair-share' range and not consistent with holding warming below 2°C, let alone with the Paris Agreement's stronger 1.5°C limit. If all government NDCs were in this range, warming would reach over 2°C and up to 3°C.
Highly Insufficient	
● Insufficient	As France is an EU member state, the EU's NDC has been rated by CAT. While the EU is currently discussing increasing its emissions reduction goal to "at least 55%" from 1990 levels, this still does not go far enough. An increase of this goal – to 65% – accompanied with funding climate action abroad, would make the EU the first region with commitments compatible with the Paris Agreement.
2°C Compatible	
1.5°C Compatible	<i>Note: 'fair-share' ratings for EU member states are not provided due to the intricacies and inter-linkages of the EU's internal burden sharing system.</i>
Role Model	<i>Evaluation as at October 2020, based on European Union's NDC. Source: Climate Action Tracker</i>

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. While the Annex is only binding from the second NDC onwards, countries are "strongly encouraged" to apply it to updated NDCs, due in 2020.



NDC Transparency Check recommendations

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

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

- Provide link to the long term temperature goal of the Paris Agreement. Include grounds on why the NDC target is fair and why it constitutes the EU's "highest possible ambition"
- Expressly cover the land sector and explain how the land sector is included in the EU target
- State source of data for quantifying the reference point as well as provide information under which the EU would update the value of the reference indicators

AMBITION: LONG-TERM STRATEGIES

Status	Submitted to UNFCCC, last updated in April 2017 – new SNBC adopted in April 2020 but not yet (as of October 2020) submitted to UNFCCC
2050 target	2050 target: -75% from 1990 levels – SNBC has been updated in April 2020 to Net-Zero by 2050
Interim steps	Yes
Sectoral targets	Yes
Net-zero target	Yes – in new SNBC
Net-zero year	2050

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.

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. In April 2020, France adopted an updated National Low Carbon Strategy setting new carbon budgets to 2030.

3. FINANCE

MAKING FINANCIAL FLOWS CONSISTENT WITH CLIMATE GOALS



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



France's fossil fuel subsidies totalled USD 9.4bn in 2019, mostly for petroleum, which represent an increase of close to 35% from 2017. The country needs to reverse this tendency. But France is the only G20 country to make climate-related financial disclosure mandatory.



COMPATIBILITY

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

Source: Rogelj et al., 2018

FISCAL POLICY LEVERS

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

Fossil Fuel Subsidies

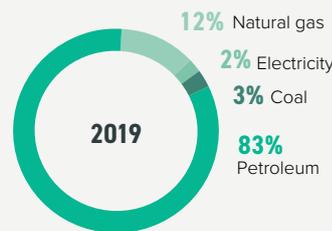
France Fossil fuel subsidies (USD billions)



Source: OECD-IEA Fossil Fuel Support database, 2020

Fossil Fuel Subsidies by fuel type

Subsidies by fuel type



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

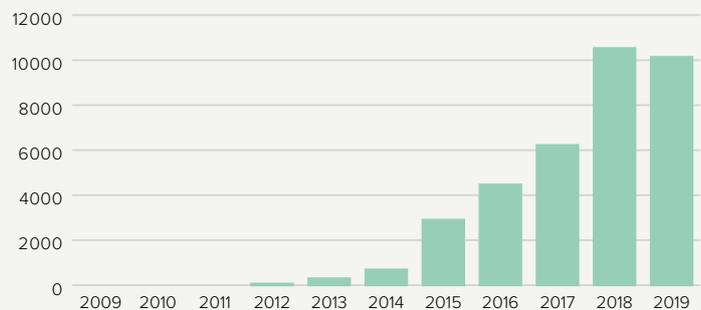
Source: OECD-IEA Fossil Fuel Support database, 2020

In 2019, France's fossil fuel subsidies totalled USD 9.5bn (compared to USD 3.6bn in 2010 and gradually increasing since then). 96% of the subsidies identified were for the consumption of fossil fuels, with the remainder for their production. The highest amount of quantified subsidies was for petroleum, at USD 7.9bn, followed by natural gas at USD 1.1bn. The near totality of quantified subsidies consists in reduced rate or tax refund of excise tax for use of diesel in the construction, farming and transport sectors.

Carbon Pricing and Revenue

France's 2014 national carbon tax generated USD 9.3bn in 2019. It covers 35% of domestic emissions and is priced at USD 48/tCO₂. Agriculture, taxis and trucks are exempted from the carbon tax in order to protect their competitiveness. Since its introduction in 2014, the French carbon tax has increased six-fold; however, further planned increases of the tax rate have been put on hold following large scale protests in 2018. Under the EU Emissions Trading Scheme, a further USD 0.82bn was generated in France alone in 2019.

Carbon revenues (USD millions)



Sources: IACE, 2019; OECD, 2018

CORONAVIRUS RECOVERY

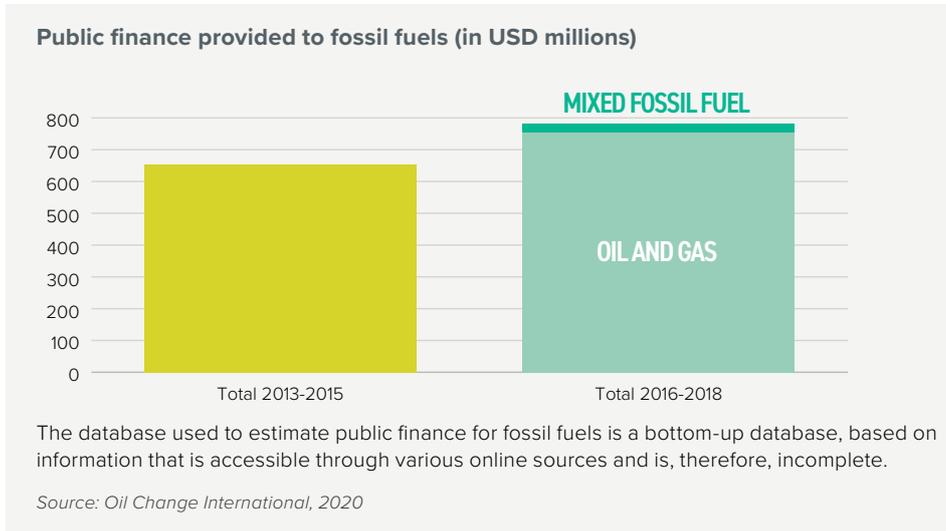
France announced on 3 September 2020 a EUR 100bn recovery plan (4% of its GDP) from which EUR 30bn will be dedicated to "green investments". These investments include EUR 9bn on the development of a hydrogen industry and other green technologies, EUR 4.7bn for the state railways and EUR 6.7bn for improving insulation in homes and public buildings. Financial support to Air France-KLM (EUR 7 bn) requires the airline to cancel its domestic flights on routes for which there exists a train alternative of duration below 2h30 and a 50% reduction of its domestic flights' CO₂ emissions by 2050.

Sources: Financial Times, 2020; Le Journal de l'Economie, 2020

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



Between 2016 and 2018, France provided an average of USD 754m per year in public finance for the oil and gas sector. The biggest share of support was provided by the French DFI, Proparco. No finance was identified for coal or coal-fired power production between 2016 and 2018 by any French public finance institutions.

Provision of international public support

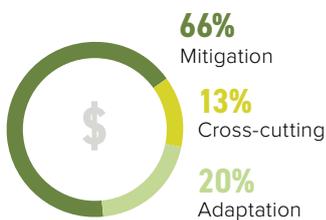
(annual average 2017 and 2018)

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

Bilateral, regional and other channels

Annual average contribution: **4,773 MN USD**

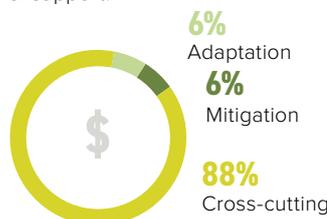
Theme of support:



Multilateral climate finance contributions

Annual average contribution: **691.15 MN USD**

Theme of support:



Core / General Contributions

Annual average contribution: **1,103 MN USD**

France is the third largest G20 contributor of climate finance through bilateral channels in both absolute terms and relative to GDP. The French Development Agency (AFD) is highly active in France's bilateral climate finance flows and funding remaining biased to mitigation. It is overall the third largest contributor to the multilateral climate funds in absolute terms, rising to first relative to GDP. Both bilateral flows and those to the multilateral climate funds have increased in the 2017/18 period. In late 2019, France announced a doubling of its contribution to the Green Climate Fund for its first replenishment, committing contributions of EUR 1.5 bn.

FINANCIAL POLICY AND REGULATION

Financial policy and regulation

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

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

As the only G20 country to have enshrined TCFD recommendations 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 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. Article 173 mandates that climate risks be integrated into prudential supervision “in the context of regular stress tests”; climate-related stress tests will be implemented from 2020. Moreover, in July 2019, a Climate and Sustainable Finance Commission (CSFC) was established. The CSFC aims to assist the Autorité des marchés financiers (AMF) with the setup of independent monitoring and evaluation mechanisms for climate-regulated commitments made by institutions of the Paris marketplace. The Banque de France (BdF) is a founding member and houses the secretariat of the NGFS.

Nationally Determined Contribution (NDC): Finance

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

ENDNOTES

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

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

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

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

- The Decarbonisation Ratings assess the current year and average of the most recent five years (where available) to take account of the different starting points of different G20 countries.
- The selection of policies rated and the assessment of 1.5°C compatibility are informed by the Paris Agreement, the IPCC's 2018 SR15 and the Climate Action Tracker (2016). The table below displays the criteria used to assess a country's policy performance.
- This indicator adds up emissions from domestic aviation and international aviation bunkers in the respective country. In this Country Profile, however, only a radiative forcing factor of 1 is assumed.
- This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.
- This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).

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