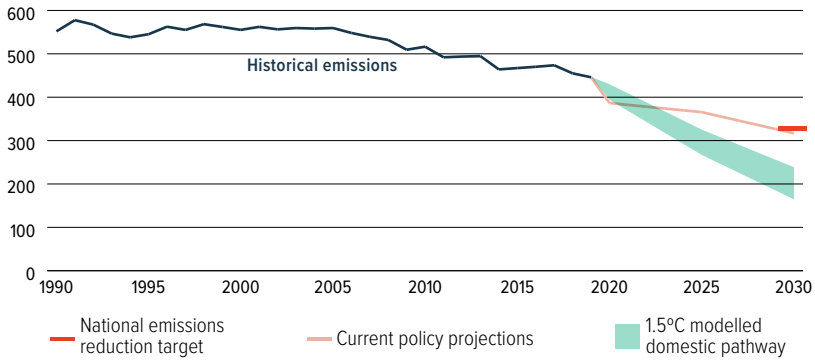
FRANCE

Climate Transparency

CLIMATE TRANSPARENCY REPORT: COMPARING G20 CLIMATE ACTION 2022

NOT ON TRACK FOR A 1.5°C WORLD

1.5°C compatible emissions pathway ($MtCO_2e$/year)[1]

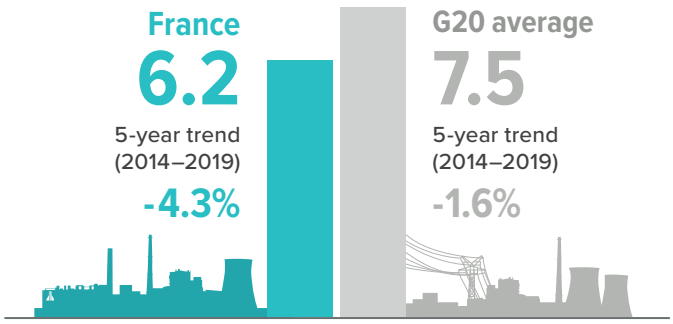


France's 2030 domestic emissions reduction target would decrease emissions 40% below 1990 levels, or to approximately 329 $MtCO_2e$ by 2030 (excl. LULUCF). To keep below the 1.5°C temperature limit, analysis by the 1.5°C Pathways Explorer shows that France's 2030 emissions would need to be around 206 $MtCO_2e$ (excl. LULUCF), leaving an ambition gap of 123 $MtCO_2e$.

Climate Analytics, 2022; Gütschow et al., 2021

PER CAPITA GREENHOUSE GAS (GHG) EMISSIONS BELOW G20 AVERAGE

tCO_2e/capita[2] in 2019



France's per capita emissions are 0.83 times the G20 average. Total emissions decreased by 4.3% from 2014–2019.

Gütschow et al., 2021; World Bank, 2022

RECENT DEVELOPMENTS

Climate action is placed under the Prime Minister's authority, with a new Secretariat of Ecological Planification set up. Several Ministries delivered climate plans **in line with the national strategy**.

In October 2021, a EUR 30bn industrial development investment plan for 2030 was unveiled. **EUR 4m of this is earmarked for energy technologies** and specifically **decarbonising industry**.

In its current version, the National Strategic Plan of the future Common Agricultural Policy 2023–2027 contributes to **achieving only half of the climate objectives** set by the National Low-Carbon Strategy (SNBC2) by 2030.

KEY OPPORTUNITIES FOR ENHANCING CLIMATE AMBITION

Use the integrated process in 2023 to **ensure ambitious outcomes and synergies across mitigation and adaptation policies**.

The current National Strategic Plan for agriculture will only meet **half the climate objectives, and needs reform**.

Subsidies for retrofitting existing buildings (for energy efficiency) should be repurposed to incentivise **more extensive renovations**, leading to **higher energy savings**.

Contents

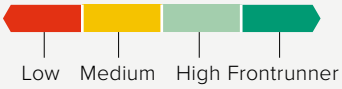
We unpack France's progress and highlight key opportunities to enhance climate action across:

Legend

Trends show developments over the past five years for which data are available. A red exclamation mark indicates negative trends from a climate protection perspective.

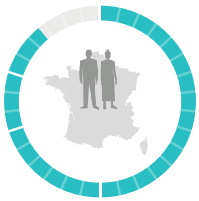
Decarbonisation Ratings[3] assess a country's performance compared to other G20 Members. A high score reflects a relatively good effort from a climate protection perspective but is not necessarily 1.5°C compatible.

Policy Ratings[4] 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



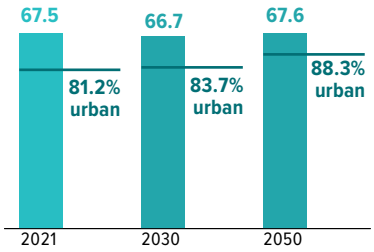
The Human Development Index (HDI) reflects life expectancy, level of education, and per capita income. France ranks very high.

0.89 very high

Data for 2019. UNDP, 2020

Population and urbanisation projections

(in millions)

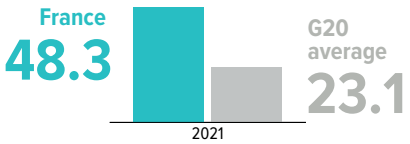


France's population is projected to remain stable in 2050 and become more urbanised. Increasing urbanisation implies challenges for new housing construction and energy efficiency in buildings.

United Nations, 2018; World Bank, 2022

Gross Domestic Product (GDP) per capita

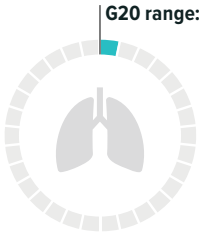
(thousand PPP constant 2015 international $ per person) in 2021



World Bank, 2021

Death rate attributable to ambient air pollution

(death rate per 1,000 population per year, age standardised) in 2019



0.09
per 1,000 people per year

Over 0.09 people per 1,000 inhabitants die in France every year due to stroke, heart disease, lung cancer and chronic respiratory diseases as a result of outdoor air pollution. This is one of the lowest levels in the G20.

Institute for Health Metrics and Evaluation, 2020

A JUST TRANSITION

France's 2020 Recovery Plan has three aims: to accelerate the achievement of energy and climate objectives (EUR 30bn); to increase economic resilience and technological independence (EUR 34bn); and to prevent the rise in inequality, safeguard employment, support people in precarious situations and encourage solidarity (EUR 36bn). Climate change is a central pillar of the national recovery plan, with 51% allocated to climate action.

IDDRI, 2021; Ministère de l'économie, des finances et de la souveraineté industrielle et numérique, 2022

ADAPTATION

Paris Agreement: Increase the ability to adapt to the adverse effects of climate change and foster climate resilience and low-GHG development.

Comparing French urban climate conditions for 2100 with those existing today reveals that Paris would have a **climate comparable to that of current-day Cordoba**.

Several recent flood events occurred in France during the summer of 2021. This is in line with a trend towards the **intensification of extreme rainfall** in many regions of France.

Systematic shifts further upstream and to higher elevations were found for 32 stream fish species in France following regional variation in climate change.

ADAPTATION NEEDS

Impacts of a changing climate

Exposure to warming

1.2°C
Higher

Between 2017 to 2021, the average summer temperatures experienced by people in France were 1.2°C higher than the 1986–2005 average global mean temperature increase of 0.3°C.

Changes in the ability to work due to exposure to excessive heat

40.6bn **Labour hours lost**
6% **decrease**

In 2021, heat exposure in France led to the loss of 2.5 million potential labour hours, a 6% decrease from 1990–1999.

Loss of earnings from heat-related labour capacity reduction

773m **Loss in labour capacity (USD)**
0.03% **of GDP**

Extreme heat can make it unbearable or even dangerous to work in a range of economically important sectors. The potential income loss in 2021 – in the service industry, manufacturing, agriculture, and construction sectors – from labour capacity reduction due to extreme heat was USD 773m, or 0.03% of its GDP.

Romanello et al., 2022; World Meteorological Organization, 2022

Exposure to future impacts at 1.5°C warming and higher

Different levels of global warming are projected to have a wide range of impacts of varying severity across the world. The percentages at 1.5°C are calculated as an increase/decrease from the reference period of 1986–2006. Using the projected impacts at 1.5°C of warming as a reference, we compare impacts that may occur at higher levels of warming.

Climatic	**At 2°C**	**At 2.5°C**	**At 3°C**
Local **precipitation**: +2.3% at 1.5°C warming	0.3 times	-0.6 times	-1.8 times
Local **snowfall**: -33.1% at 1.5°C warming	1.4 times	1.7 times	2.0 times

In France, local precipitation is projected to increase by 2.3% at up to 1.5˚C of warming. A negative sign (here at 2.5°C and 3°C of warming) indicates that the projected impact is opposite to the impact at 1.5°C warming, thus more warming is projected to decrease precipitation: under a 3°C warming scenario, precipitation is projected to decrease by 1.8 times. Local snowfall is expected to decrease under a 1.5°C scenario by 33.1% of 1986–2006 snowfall. At 3°C of warming, the decrease is expected to be twice what the decrease would be under a 1.5°C of warming scenario.

Fresh water	**At 2°C**	**At 2.5°C**	**At 3°C**
Surface run-off: +2.1% at 1.5°C warming	-0.3 times	-1.3 times	-1.9 times
River discharge: -2.6% at 1.5°C warming	2.2 times	3.7 times	4.6 times
Total **soil moisture content:** -1.3% at 1.5°C warming	1.8 times	2.8 times	3.8 times

In France, the percentage of river discharge and total soil moisture is projected to decrease from the baseline period of 1986–2006 by 2.6% and 1.3%, respectively, if global temperature rises by up to 1.5°C. This loss of river discharge and soil moisture content would decrease by 4.6 and 3.8 times, respectively, at 3°C of warming. Under 1.5°C of warming, surface run-off would increase by 2.1% above the baseline period of 1986–2006 but greater warming is projected to decrease surface run-off. These kinds of swings make it very difficult for authorities to plan and implement appropriate responses.

Agriculture	At 2°C	At 2.5°C	At 3°C
Reduction in **rice yield**: -3% at 1.5°C warming	2.1 times	5.1 times	6.2 times

Agricultural yields tend to decrease as the temperature rises. For example, rice yield is expected to decrease by 3% from 1986–2006 yields at 1.5°C of warming, a loss that would be 6.2 times greater at 3°C of warming.

Hazards	At 2°C	At 2.5°C	At 3°C
Number of people annually exposed to **heatwaves:** 19,847 at 1.5°C warming	0.7 times	4.5 times	5.4 times
Number of people annually exposed to **wildfires:** 7,017 at 1.5°C warming	3.6 times	4.5 times	7 times

The number of people annually exposed to hazards is expected to rise as warming increases. For example, the number of people annually exposed to wildfires in France is projected to be approximately 7,000 more than the people exposed annually during the reference period at 1.5°C of warming, and 7 times greater if warming increases to 3°C.

Economic	At 2°C	At 2.5°C	At 3°C
Annual expected damage from **river flood:** +10.1% at 1.5°C warming	1.1 times	1.7 times	5.1 times
Labour productivity due to heat stress: -0.6% at 1.5°C warming	1.9 times	2.7 times	4.1 times

The annual expected damage from river flooding at 3°C is 5.1 times what the damage would be under a 1.5°C scenario, which is projected to be an increase by 10.1% from the 1986–2006 baseline period. The labour productivity is projected to lose 0.6% under 1.5°C of warming, and this decrease would be 2.7 times larger at 2.5°C of warming.

For further assessments of impacts under different warming scenarios, and a detailed explanation of the methodology, go to https://climate-impact-explorer.climateanalytics.org

Climate Analytics, 2021

ADAPTATION POLICIES

National Adaptation Strategies

Document name	Publication year	Fields of action (sectors)												Monitoring & evaluation process
		Agriculture	Biodiversity	Coastal areas and fishing	Education and research	Energy and industry	Finance and insurance	Forestry	Health	Infrastructure	Tourism	Transport	Urbanism	Water	
National Climate Change Adaptation Strategy	2006	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
National Adaptation Plan 2011–2015	2011	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	Mid-term evaluation report in 2013 and overall evaluation in 2015
Second National Adaptation Plan 2018–2022 (NAP-2)	2018	✓	✓	✓	✓		✓	✓	✓		✓			✓	Continuous monitoring by the National Council for ecological transition. A mid-term evaluation has been released in 2022 in order to implement the Third National Adaptation Plan 2024–2029

Nationally Determined Contribution (NDC): Adaptation

TARGETS

Not mentioned

ACTIONS

Not mentioned

MITIGATION

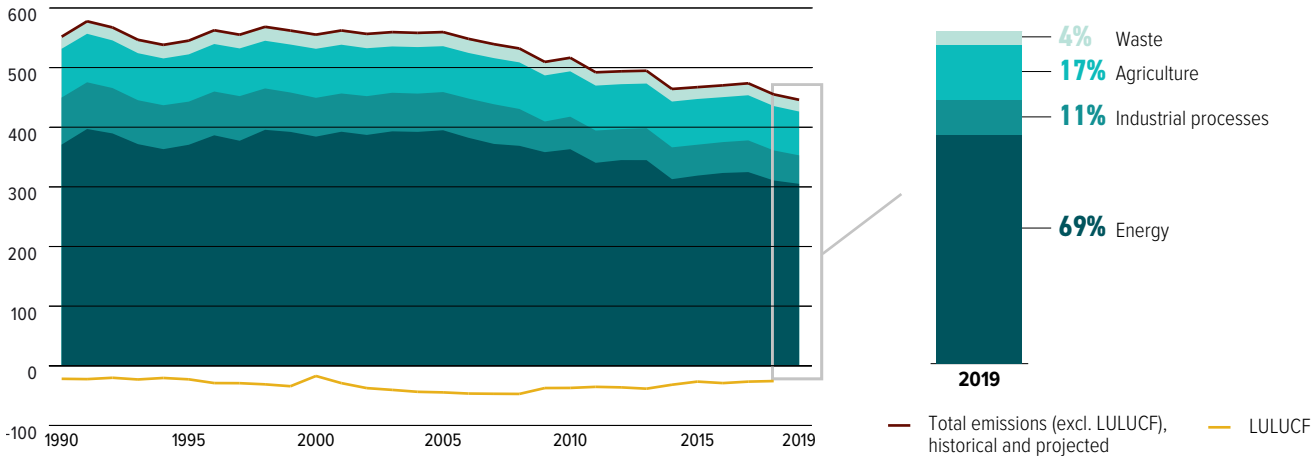
Paris Agreement: Hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursue efforts to limit to 1.5°C, recognising that this would significantly reduce the risks and impacts of climate change.

EMISSIONS OVERVIEW

France's **total greenhouse gas emissions (excl. LULUCF) have decreased by 19%** (1990–2019). In the same period, **total methane emissions (excl. LULUCF) decreased by 19%**.

GHG emissions across sectors[5]

Total sectoral GHG emissions ($MtCO_2e$/year)

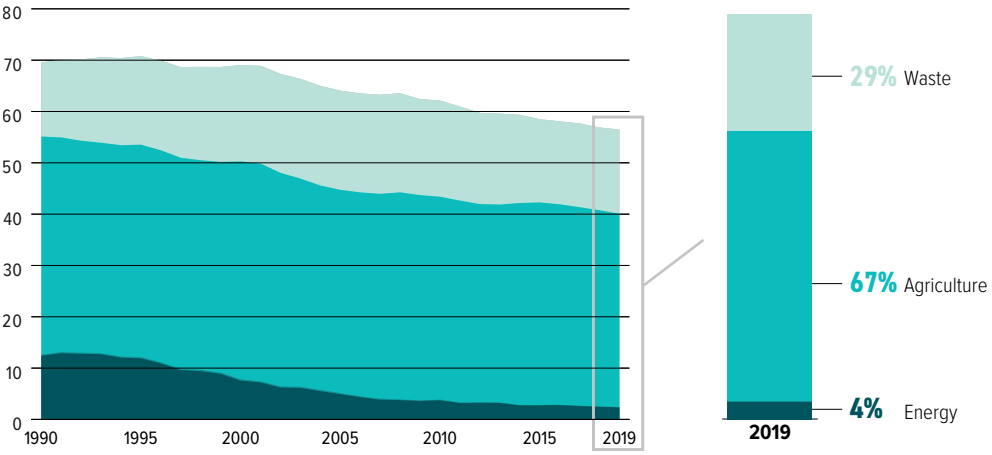


France's emissions (excl. LULUCF) decreased by 19% from 1990 levels to 446 $MtCO_2e$/yr in 2019. The development of the service sector and the relocation of carbon-intensive industries outside France contributes to lowering its emissions. Even so, exported emissions (which count toward France's emissions) began rebounding from 2015.

Gütschow et al., 2021

Methane emissions by sector

Total CH_4 emissions ($MtCO_2e$/year)



France signed the Global Methane Pledge at COP26 in November 2021.

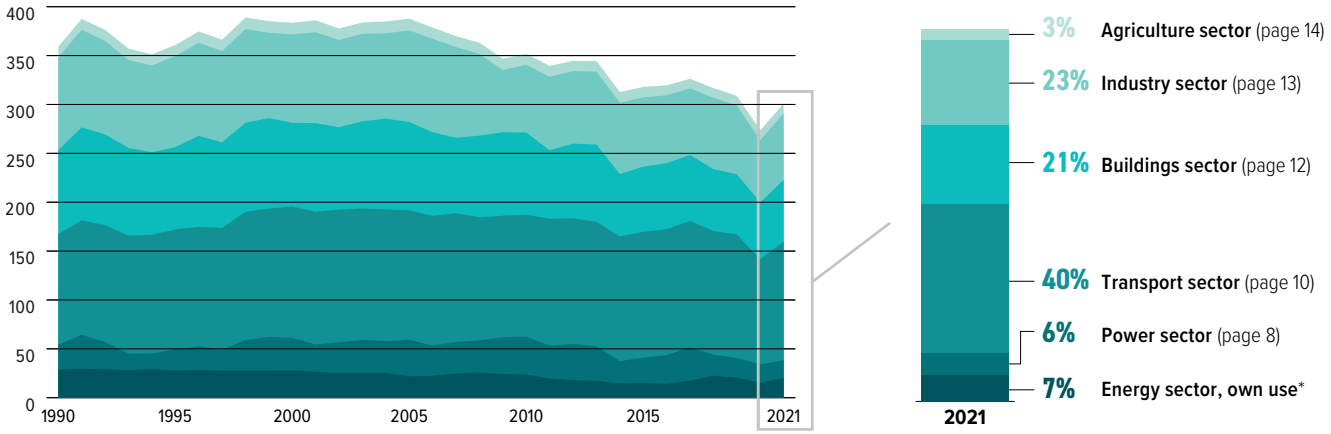
Participating countries pledged to undertake voluntary actions to contribute to a collective reduction of global methane emissions by at least 30% from 2020 levels by 2030. Further scrutiny of plans and implementation will be required.

Methane is a potent, though short-lived, greenhouse gas, accounting for an estimated third of global warming. France's methane emissions (excl. LULUCF) decreased by 19% from 1990–2019 to 56 $MtCO_2e$/yr. The majority of France's methane emissions came from the agriculture (66% of total emissions in 2019) and waste sectors (29%), a different picture from 1990, when the energy sector was a far more significant contributor.

Climate and Clean Air Coalition, 2021; Gütschow et al., 2021

Energy-related CO_2 emissions by sector

Annual CO_2 emissions ($MtCO_2$/year)



The largest driver of overall greenhouse gas emissions are CO_2 emissions from fuel combustion. After being stable between 2014 and 2019, emissions dropped significantly in 2020, due to the COVID-19 pandemic in 2020, and rebounded in 2021, as the economy recovered. The transport sector is the largest contributor at 40%, followed by the industry and buildings sectors with 23% and 21%, respectively.

Enerdata, 2022

**Includes energy-related CO_2 emissions from extracting and processing fossil fuels.*

ENERGY OVERVIEW

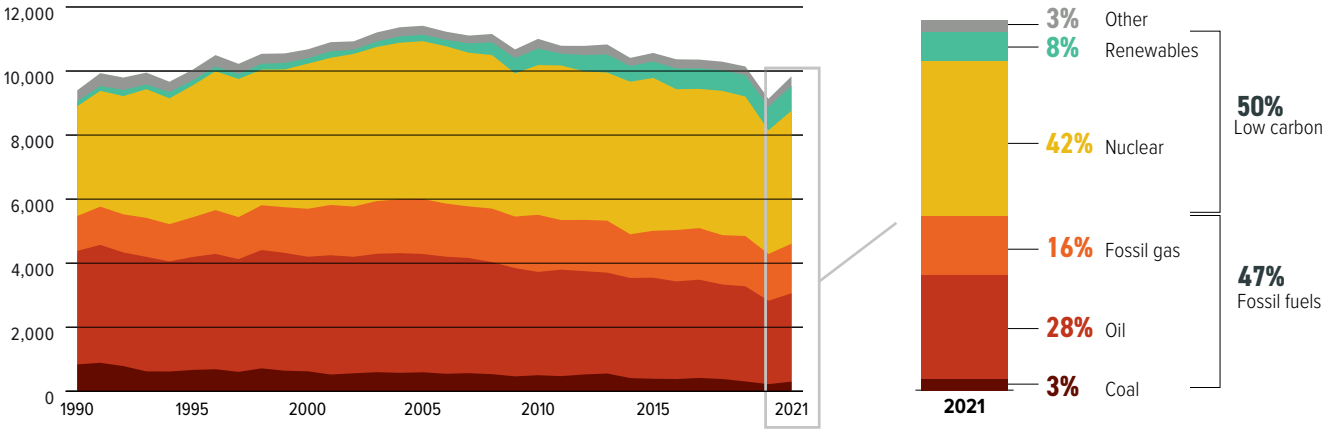
In 2021, **fossil fuels made up approximately 47%** of France's primary energy mix, the lowest level in the G20. This is the result of the **large share of nuclear energy (43%)**, as renewables account for only a small share (8%).

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

Rogelj et al., 2018

Energy mix

Total primary energy supply (PJ)

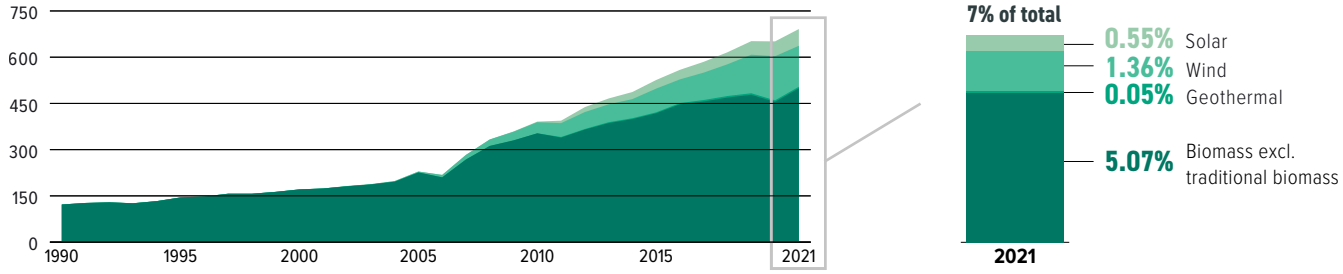


This graph shows the fuel mix for all energy supply, including energy used not only for electricity generation, heating and cooking, but also for transport fuels. Fossil fuels (oil, coal, and gas) make up 47% of France's energy mix, the lowest level in the G20. Since 2010, energy supply has decreased slightly overall, with renewable energy rising the fastest, but still playing a marginal role at 8% of the total primary energy supply in 2021.

Enerdata, 2022

Solar, wind, geothermal and biomass development

As a share of total primary energy supply (TPES) (PJ)

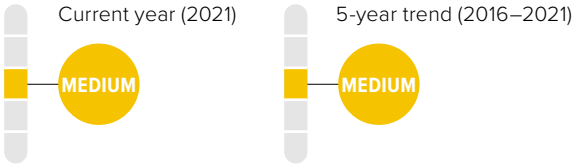


Solar, wind, geothermal and biomass, excluding traditional biomass, account for 7% of France's energy supply in 2021 – the G20 average is 7.5%. The share in total energy supply has increased by around 30.3% in the last 5 years in France (2016–2021). Biomass (excluding traditional biomass) makes up the largest share.

Enerdata, 2022

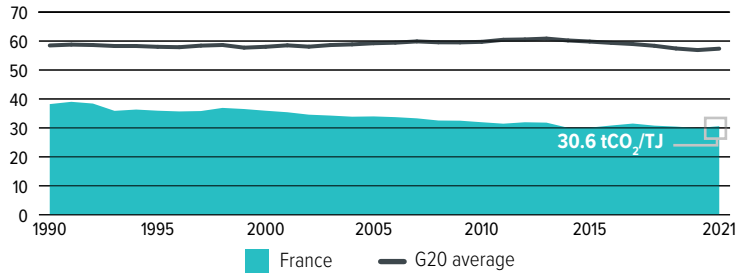
Note: Large hydropower and solid fuel biomass in residential use are not reflected due to their negative environmental and social impacts.

Decarbonisation: a high rating indicates more effort to decarbonise compared to other G20 Members



Carbon intensity of the energy sector

Tonnes of CO_2 per unit of TPES (tCO_2/TJ)



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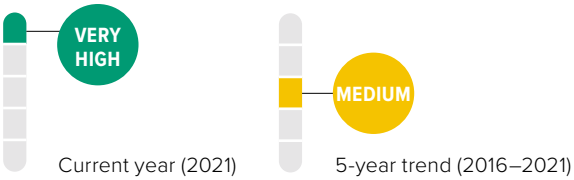


Carbon intensity is a measure of how much CO_2 is emitted per unit of energy supply. Energy is the only sector where emissions are significantly lower than the indicative sectoral carbon budgets of the National Low Carbon Strategy. The emissions intensity is almost half the G20 average, but the gap has recently been narrowing. Even though the large nuclear share allows France to have low emissions, the deployment of renewable energy is insufficient to reach the 2030 objectives.

Enerdata, 2022; Haut Conseil pour le Climat, 2022

Energy supply per capita

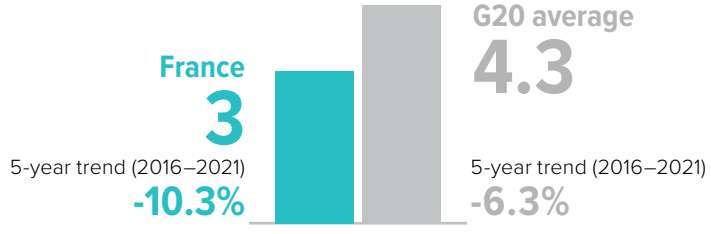
TPES per capita (GJ/capita) in 2021

The level of energy supply per capita is closely related to economic development, climatic conditions and the price of energy. Energy supply per capita in France is 145.7 GJ in 2021, well above the G20 average. However, its energy supply per capita has decreased by 10% between 2016–2021, whereas the G20 average increased by 1.7%.

Enerdata, 2022; World Bank, 2022

Energy intensity of the economy

(TJ/million US$2015 GDP) in 2021



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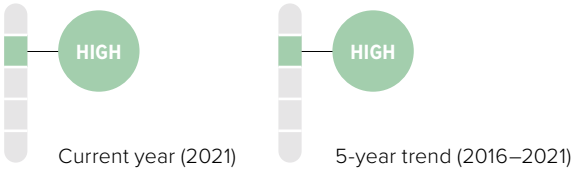


This indicator quantifies how much energy is used for each unit of GDP. This is closely related to the level of decarbonisation, efficiency achievements, climatic conditions or geography. France's energy intensity is lower than the G20 average and has been decreasing at a higher rate at 10% (2016–2021) compared to the G20.

Enerdata, 2022; World Bank, 2021

POWER SECTOR

Emissions from energy used to make electricity and heat

In 2021, France produced **69% of its electricity from nuclear energy, 23% from renewables and only 1% of its electricity from coal**. Although France is committed to phasing out coal-fired electricity, it plans to **restart a coal-fired power plant** this Northern Hemisphere winter in order to secure electricity supply in the context of high energy prices brought about by the war in Ukraine.

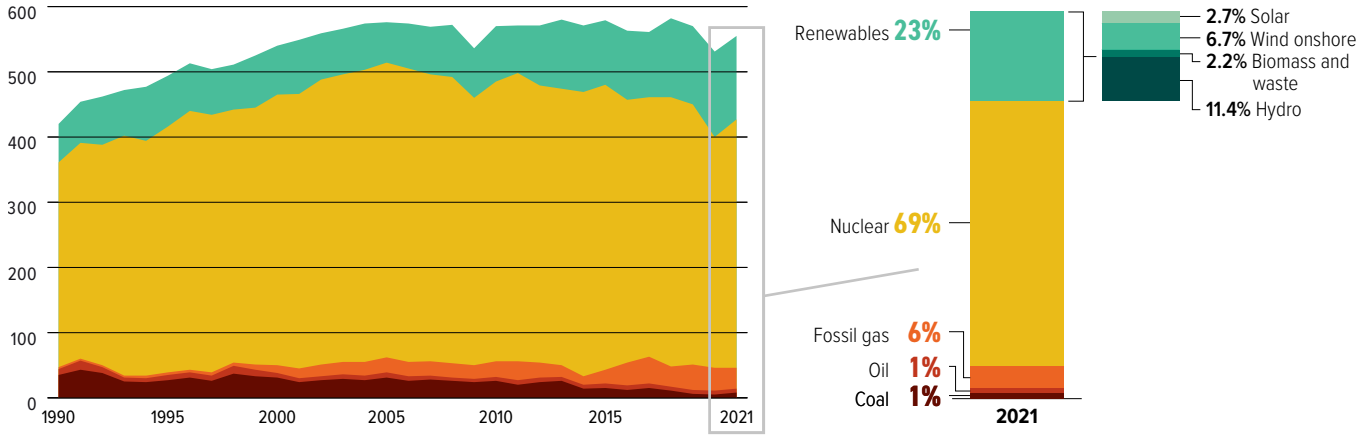
Power generation's share of energy-related CO_2 emissions in 2021: **6%** Direct

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

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

Electricity generation mix

Gross power generation (TWh)

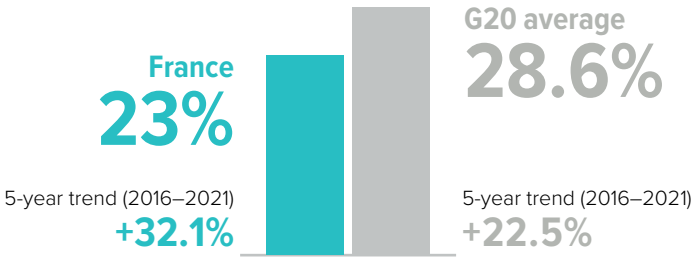


In 2021, France generated 8% of its electricity from fossil fuels. Renewables contributed a stable share of the mix from 2012 and have since increased to 23%. Nuclear energy makes up 69%, but the fleet is aging, thereby reducing its availability rate. Announced new nuclear power investments will take over a decade to achieve new generation. Coal and oil, combined, account for 2% of the mix, and fossil gas has slightly decreased to 6%.

Enerdata, 2022

Share of renewables in power generation

(incl. large hydro) in 2021



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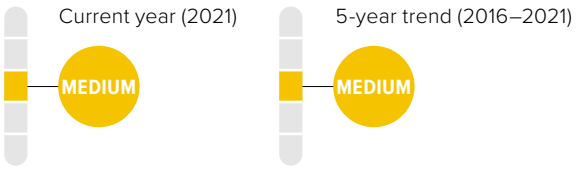
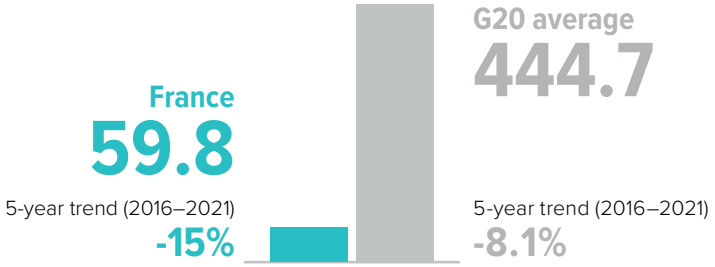


Enerdata, 2022

Emissions intensity of the power sector

(gCO_2/kWh) in 2021



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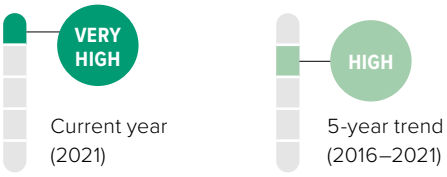
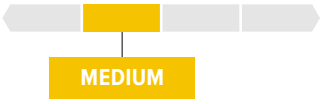


Emissions intensity of France electricity fell to below 60 gCO_2/kWh in 2021 – a decrease of 15% since 2016. In 2021, the emissions intensity is more than 7 times lower than the G20 average.

Enerdata, 2022

POLICY ASSESSMENT

Renewable energy in the power sector



Renewable energy has been rising for years, increasing by 70% between 2005–2020 in metropolitan France. At the end of 2021, the total installed renewables capacity amounted to more than 60 GW, an increase of 4 GW from 2020, almost exclusively from solar photovoltaics, which accounted for 2,687 MW and 1,202 MW, respectively, of the new connected capacity.

France has not reached its 2020 renewables targets, and national energy plans are mainly aimed at post-2030.

IEA, 2021; Réseau de France d'électricité, 2021

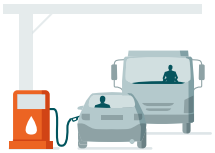
Coal phase-out in the power sector

In 2019, the government announced a roadmap to close France's last four coal-fired power plants by 2022, and two were shut down. However, during the winter of 2021–2022 (after 12% of nuclear capacity was shut down), a new decree allowed a temporary increase in GHG emissions from the remaining two coal plants. The government is committed to keeping the share of coal in electricity production below 1%.

CITEPA, 2022; Le Monde, 2022

TRANSPORT SECTOR

Emissions from energy used to transport goods and people



Emissions from transport **decreased by only 13%** between 2016–2021. Around 85% of passenger transport is by road, and 90% of freight went by road in 2019. Both sectors are still dominated by fossil fuels, and **electric vehicles (EVs) made up only 19%** of car sales in 2021.

Transport's share of energy-related CO_2 emissions in 2021:

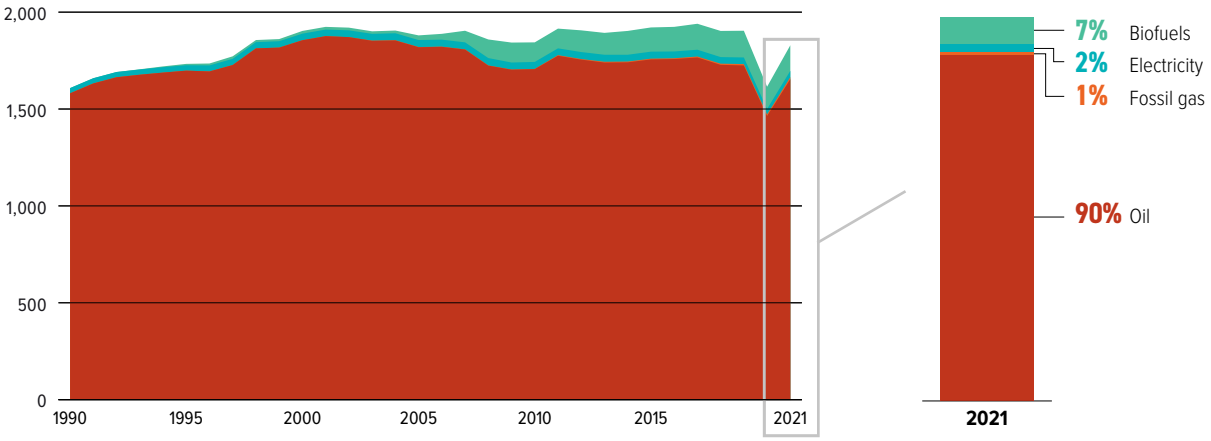
40.4% Direct **0.1%** Indirect

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

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

Transport energy mix

Final energy consumption by source (PJ/year)

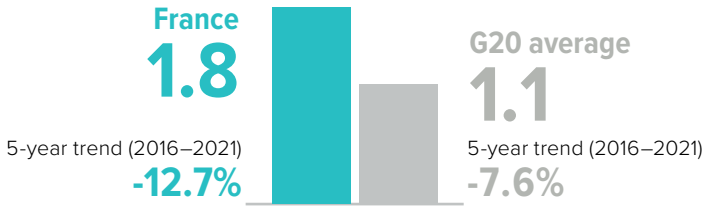


Electricity and biofuels make up only 9% of the energy mix in transport.

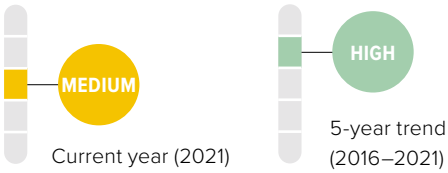
Enerdata, 2022

Transport emissions per capita

(excl. aviation) (tCO_2/capita) in 2021



Decarbonisation: a high rating indicates more effort to decarbonise compared to other G20 Members

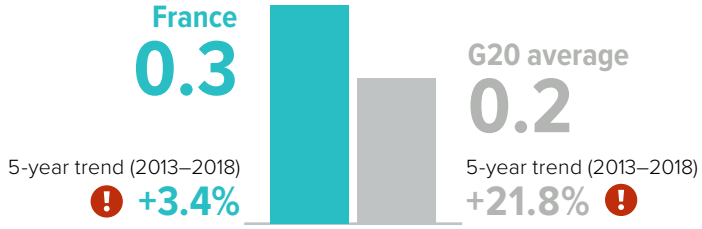


Per capita emissions in 2021 and the 5-year trend have been impacted by COVID-19 pandemic response measures and resulting economic slowdowns. For a discussion of broader trends in the G20 and the rebound of transport emissions in 2022, please see the Highlights Report at www.climate-transparency.org

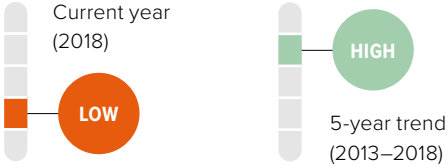
Enerdata, 2022; World Bank, 2022

Aviation emissions per capita[6]

(tCO_2/capita) in 2018

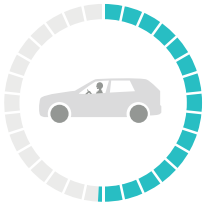


Decarbonisation: a high rating indicates more effort to decarbonise compared to other G20 Members



Enerdata, 2022; IEA, 2021a; World Bank, 2022

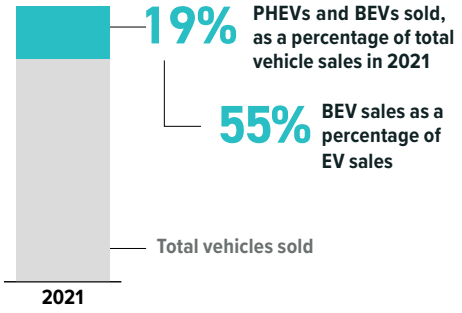
Motorisation rate



511
vehicles per 1,000 inhabitants in 2019

Enerdata, 2022

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

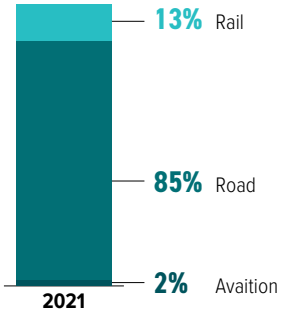


Battery-Electric Vehicles (BEVS) have greater emissions mitigation potential when they are powered by electricity produced by renewables because they have no internal combustion engine (ICE), whereas plug-in hybrids (PHEVs) still produce emissions when using the ICE.

IEA, 2022

Modal split passenger transport

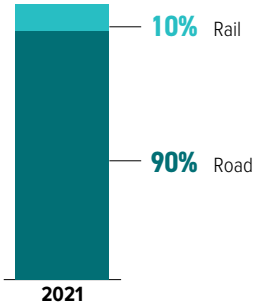
(% of passenger-km): road, rail and air



Enerdata, 2022

Modal split freight transport

(% of tonne-km): road, rail

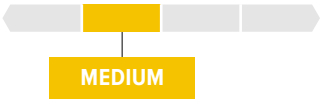


Due to data availability, only road and rail transport are included in the freight transport category. Other freight modes, e.g. waterways, are excluded due to lack of data for all countries.

Enerdata, 2022

POLICY ASSESSMENT

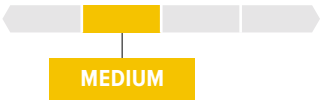
Phase out fossil fuel cars



The share of EVs (19%) in new car sales accelerated in 2021, an increase supported by the stimulus plan, European standards, and the Mobility Act. However, the deployment of electric charging infrastructure is lagging. The 2040 date for the end of sales of internal combustion vehicles in France is behind that of the EU, which includes the goal of 100% emissions reduction from new vehicles by 2035. Private vehicle support measures do not sufficiently target low-income households or those whose work relies on their vehicles, but President Macron has promised affordable electric cars from the end of 2022.

Haut Conseil pour le Climat, 2022

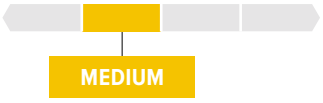
Phase out fossil fuel heavy-duty vehicles



Emissions in 2021 from heavy-duty vehicles (33.5 $MtCO_2e$) are equivalent to their 2019 level. According to 2019 EU legislation, manufacturers will be required to cut average CO_2 emissions from new trucks by 15% from 2025 and 30% from 2030 (from 2019 levels) or face a financial penalty. In its new sustainable mobility strategy, the European Commission aims to have 60,000 hydrogen-powered trucks on the road by 2030. Major truck manufacturers, who recently committed to eliminating fossil fuels by 2040, are preparing for this.

Haut Conseil pour le Climat, 2022; European Parliament and the Council of the European Union, 2022

Modal shift in (ground) transport

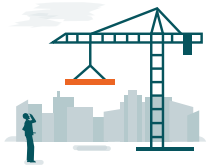


Low-emission mobility services are being deployed too slowly and unevenly, and are not very operational. The implementation of new measures provided by the "Loi d'orientation des mobilités" (Mobility Orientation Law) remains highly variable. The development of alternative mobility solutions in rural areas is not sufficiently resourced. The transition to cycling requires new infrastructure and support for the French bicycle industry. To foster this transition, the France Relance plan includes EUR 200m for bicycle paths and EUR 4.7bn for railways.

Haut Conseil pour le Climat, 2022; Ministère de la Transition écologique et de la cohésion des territoires, 2020

BUILDINGS SECTOR

Emissions from energy used to build, heat and cool buildings



Direct and indirect emissions from the French buildings sector account for 19% and 4% of total energy-related CO_2 emissions, respectively. Per capita emissions from the buildings sector are lower than the G20 average, and emissions increased by 5.5% in 2021.

Buildings sector's share of energy-related CO_2 emissions in 2021:

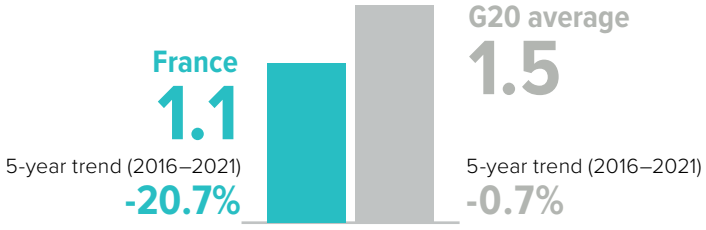
19.5% Direct **3.9%** Indirect

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

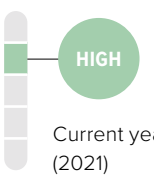
Climate Action Tracker, 2020; Rogelj et al, 2018

Buildings sector emissions per capita

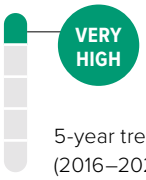
incl. indirect emissions (tCO_2/capita) in 2021



Decarbonisation: a high rating indicates more effort to decarbonise compared to other G20 Members



Current year (2021)



5-year trend (2016–2021)

Buildings emissions occur directly (burning fuels for heating, cooking, etc) and indirectly (from grid-electricity for air conditioning, appliances, etc.) Buildings-related emissions per capita are only 70% the G20 average as of 2021, reflecting the low fossil fuel share of the electricity mix. In contrast to the small decline in G20 average, France has decreased emissions per capita from this sector by 21% (2016–2021).

Enerdata, 2022; World Bank, 2022

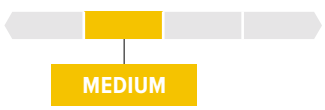
POLICY ASSESSMENT

Near zero energy new buildings

France aims to reduce emissions in the buildings sector by 49% between 2015–2030, and 100% by 2050. The new environmental regulation for new buildings, RE2020, specifies the ambitions of new construction to reduce the carbon footprint. It highlights the additional costs of using resources for construction, which can have a rebound effect on usage. A ban on oil-fired boilers came into effect on 1 January 2022. The requirements of the RE2020 include the use of low-carbon materials.

Haut Conseil pour le Climat, 2022

Renovation of existing buildings



France has a mandatory building code for renovations. The 2020 SNBC2 plans for 500,000 thermal renovations annually between 2015–2030 and 700,000 for 2030–2050. Approximately EUR 14bn of public investment will be allocated to the energy renovation plan for buildings, with more than EUR 5bn from energy saving certificate sales used to finance energy renovation. One objective is to renovate 2.5 million more houses in 2023 than in 2018. The High Council for the Climate says the number of energy renovation operations in existing buildings is increasing, but with a reduced level of energy performance.

Haut Conseil pour le Climat, 2022; Ministère de la transition écologique et de la cohésion des territoires, 2021

INDUSTRY SECTOR

Emissions from energy use in industry

Direct emissions and indirect emissions from industry in France make up 23% and 1.5% of energy-related CO_2 emissions, respectively. Through its COVID-19 recovery package, France is mobilising EUR 1.2bn to decarbonise its industry, including through increased energy efficiency.

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

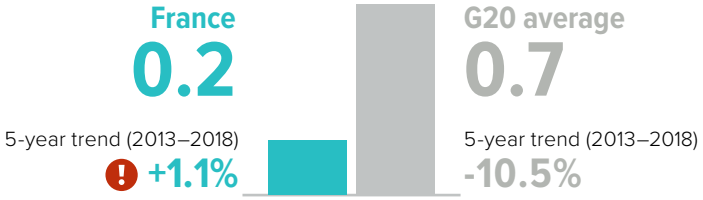
Rogelj et al., 2018

Industry sector's share of energy-related CO_2 emissions in 2021:

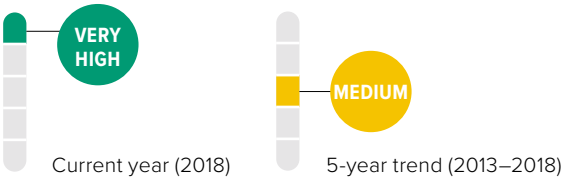
22.6% Direct **1.5%** Indirect

Industry emissions intensity[7]

(kgCO_2e/USD2015 GVA) in 2018



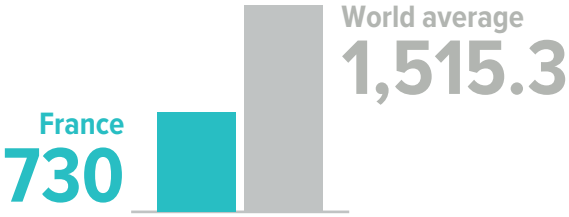
Decarbonisation: a high rating indicates more effort to decarbonise compared to other G20 Members



Enerdata, 2021; World Bank, 2022

Carbon intensity of steel production[8]

(kgCO_2/tonne product) in 2019

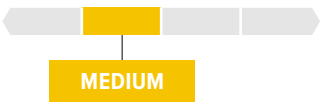


Steel production and steelmaking are significant GHG emissions sources, and challenging to decarbonise.

Enerdata, 2022; World Steel Association, 2021

POLICY ASSESSMENT

Energy efficiency



France's new low-carbon strategy (SNBC 2) aims at reducing industry emissions by 35% below 2015 levels by 2030, and 81% by 2050. The industry sector should strongly accelerate its pace of emissions reductions to meet future carbon budgets and the EU "Fit for 55" package. Climate financing is increasing: EUR 1.2bn is being deployed within the France Recovery Plan for energy efficiency improvements and electrifying industrial processes, complemented by EUR 1bn under the France 2030 Plan, which also includes EUR 4bn for the development of innovative technology.

Haut Conseil pour le Climat, 2022

LAND USE SECTOR

Emissions from land use change and forestry

The land use and forestry sector is already a sink in France, however, the sector still requires significant restructuring to bring it in line with the SNBC2 trajectory and the Adjustment to target 55 package, e.g. by halting the expansion of residential areas, discontinuing the degradation of peatlands, converting cropland into wetlands, and by creating new forests.

Global deforestation needs to be halted and changed to net CO_2 removals by around 2030.

Rogelj et al., 2018

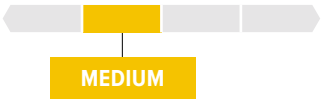
Annual forest expansion, deforestation and net change

Forest area change in 1,000 ha/year

No data available for France

POLICY ASSESSMENT

Target for net zero deforestation



The first National Low-Carbon Strategy (SNBC) plans to double the carbon sink between 2015 and 2050. In 2018, France committed to ending deforestation related to imported products by 2030. The post-pandemic recovery plan launched a major French reforestation plan, aiming to plant 45,000 hectares of forest to capture an additional 150,000 tCO_2 each year. EUR 200m was assigned to the reforestation plan and to support the wood industry. Investments are still highly insufficient to adapt forests to climate change by 2050.

Haut Conseil pour le Climat, 2022; Ministère de la Transition écologique et de la cohésion des territoires, 2022

AGRICULTURE SECTOR

Emissions from agriculture

France's agricultural emissions are primarily from the digestive processes and manure of livestock (mainly cattle). France's agricultural emissions shrank over the past decade while neighbouring countries' emissions were stable or slowly increasing.

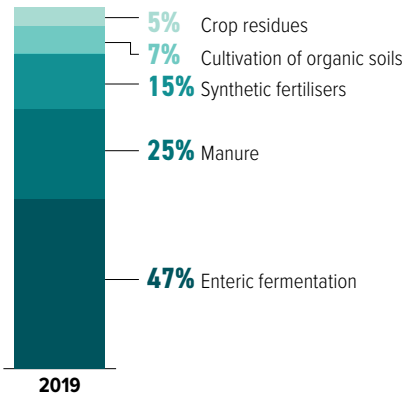
Methane emissions need to decline by 10% by 2030 and by 35% by 2050 (from 2010 levels). Nitrous oxide emissions (mainly from fertilisers and manure) need to be reduced by 10% by 2030 and by 20% by 2050 (from 2010 levels).

Rogelj et al., 2018

Emissions from agriculture

excluding energy emissions, in 2019

80.1
$MtCO_2e$ in 2019



In France, the largest sources of GHG emissions in the agriculture sector are enteric fermentation (47%), manure (25%), and synthetic fertilisers (15%). Adapting animal feed, improving manure handling and storage, more efficient use of fertilisers, and reductions in food waste could help reduce emissions. The National Strategic Plan under the Common Agricultural Policy (CAP) is still insufficient from a climate perspective.

FAO, 2022

MITIGATION: TARGETS AND AMBITION

The science from the IPCC on the risks of exceeding 1.5°C warming is clear. The UN science body has projected that to keep the 1.5°C goal alive, the world needs to roughly halve emissions by 2030.

However, despite the Glasgow Climate Pact (1/CMA.3) agreement to "revisit and strengthen" 2030 targets this year, progress on more ambitious targets has stalled. Without far more ambitious government action, the world is heading to a warming of **2.4°C with the current 2030 targets** and even higher warming of **2.7°C with current policies**.

Climate Action Tracker, 2021a, 2022b; IPCC, 2022; UNFCCC, 2021

AMBITION: 2030 TARGETS

Nationally Determined Contribution: Mitigation

TARGETS

France contributes to the EU-wide target of reducing net GHG emissions by "at least 55%" below 1990 levels by 2030.

In June 2021 France adopted a national emissions reduction target of 40% below 1990 levels by 2030.

ACTIONS

As an EU member state, France is committed to contributing to the EU's NDC.

Climate Action Tracker (CAT) evaluation of targets and actions

Critically insufficient	Highly insufficient	**Insufficient**	Almost sufficient	1.5°C Paris Agreement compatible

The CAT evaluates and rates several elements of climate action: policies and actions, targets and a country's contribution to climate finance (where relevant) and combines these into an overall rating.

As France is an EU member state, the EU's NDC has been rated by the CAT. The "insufficient" rating indicates that the EU's climate policies and commitments need substantial improvements to be consistent with the Paris Agreement's 1.5°C temperature limit. The EU's 2030 emissions reduction target and its policies and action are consistent with 2°C of warming when compared to modelled domestic pathways. The EU is also not meeting its 'fair share' contributions to climate action. To improve its rating, the EU should strengthen its emissions reduction target to at least 62% (excl. LULUCF) below 1990 levels, adopt policies necessary to reach this goal, and significantly increase its support for climate action in developing countries.

This CAT analysis of the EU was updated in June 2022.
For the full assessment of the country's targets and actions, and the explication of the methodology, see www.climateactiontracker.org

Climate Action Tracker, 2022a

AMBITION: LONG-TERM STRATEGIES

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

Status	Submitted to UNFCCC, last update in 2020
Net zero target	Yes
Interim steps	Yes: at least -40% by 2030
Sectoral targets	Yes

FINANCE

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

The **major French banks are amongst the first in Europe to finance fossil fuels**, despite commitments to carbon neutrality. They have allocated more than USD 350bn to fossil fuels between 2016 and 2021. While the overall trend since 2011 has been of increasing subsidies to fossil fuels, 2020 showed a slight dip instead.

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

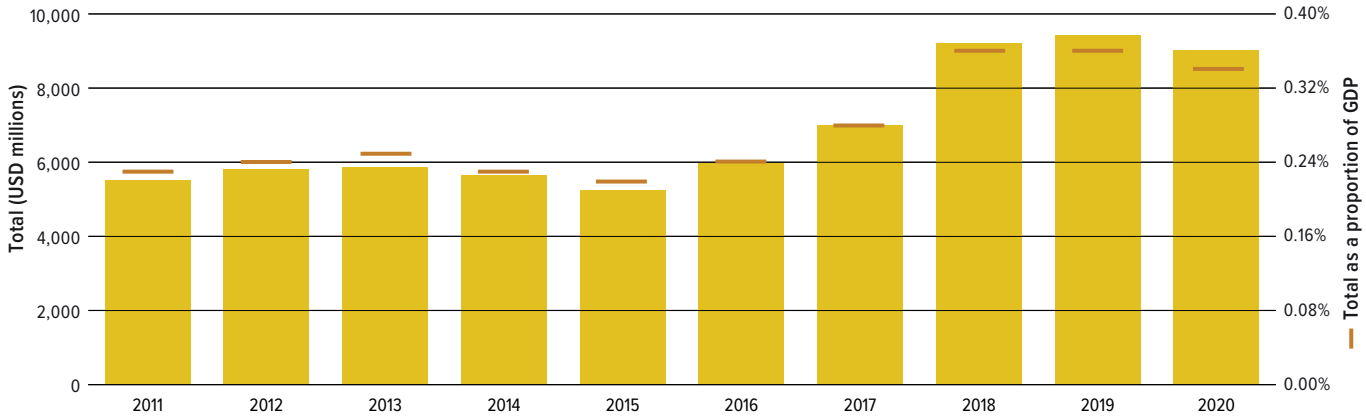
Rogelj et al., 2018

FISCAL POLICY LEVERS

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

Fossil fuel subsidies relative to national budgets

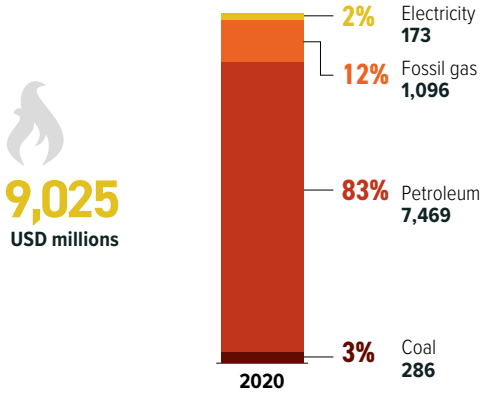
(USD millions)



OECD-IEA Fossil Fuel Support Database, 2022

Fossil fuel subsidies by fuel type

(USD millions) in 2020



Fossil fuel subsidies have increased in France over the decade since 2011, with 2020 only marking a slight drop from the previous year at USD 9bn. They were almost exclusively directed at consumption. Of all subsidies, 83% in 2020 went to petroleum; fossil gas was the next largest recipient.

The most important subsidy measure, at USD 1.8bn, was an excise tax refund for diesel used in road freight transport. This has rapidly increased over the past 10 years, especially since the introduction of a carbon tax in 2015 from which this sector was exempt.

Although comparable data is not available post 2020, further announcements have been made in response to the energy crisis. In October 2021, the French government declared that a EUR 100 “inflation premium” would be sent to 36 million low- and middle-income workers to help combat rising energy prices. In March 2022, France announced that government subsidies for new residential gas heaters would end, while an existing subsidy for renewable heating systems would be increased.

de Clercq, 2022; Energy Policy Tracker, 2022; France24, 2021; OECD-IEA Fossil Fuel Support Database, 2022

Carbon pricing and revenue

France's 2014 national carbon tax generated USD 9bn in 2021. It covers 35% of domestic emissions and is priced at USD 49/tCO_2e. Agriculture, taxis and trucks, and the construction sector are fully or partially exempted from the carbon tax 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 were put on hold following large-scale protests in 2018. Under the EU Emissions Trading Scheme, a further USD 2bn was generated in France alone in 2021.

I4CE, 2022

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.

France was one of the first movers in many aspects of green finance innovation. In 2015, it became the first country to make disclosure of climate-related risks mandatory for institutional investors, making the requirements applicable from 2017. France issued the world's second sovereign green bond in 2017. It has since continued to issue such bonds and supports the global establishment of green finance – most recently helping the Development Bank of South Africa to build a green bond framework along the lines of the Green Bond Principles.

Financial institutions have also continued to assess climate risks and policies. In April 2021, the French Ministry of Economy. Finance and the Recovery published its first climate plan. In the same year, the Autorité de Contrôle Prudentiel et de Résolution (ACPR) conducted a pilot stress test and, in February 2022, the ACPR released a report on the governance of climate change risks in the insurance sector.

The French government and the Banque de France are both members of the Task Force on Nature-Related Financial Disclosures, which plans to issue a framework for disclosing nature-based risks in 2023.

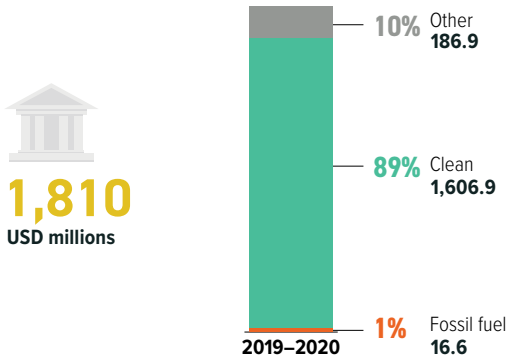
Agence Française de Développement, 2022; Autorité de Contrôle Prudentiel et de Résolution, 2021; 2022; Ministère de la Transition écologique et de la Cohésion des territoires, Ministère de la Transition énergétique, 2019

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 Members 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 energy

USD millions (2019–2020 average)



Between 2019 and 2020 France provided an average of USD 1.8bn in public finance per year to energy projects. Only 1% of this went to fossil fuels, for the expansion of Azito fossil gas power plant in Cote d'Ivoire. The largest single measure of support – USD 523m – went to the development of Dogger Bank offshore wind projects. Other significant projects include a battery network to improve the reliability of electricity in Bangladesh and various wind and solar projects in France and abroad. France distributes public finance through a range of institutions, notably the Agence Francaise de Développement and BPI France.

At COP26 in Glasgow, in conjunction with over 30 governments, France pledged to end direct international public finance to fossil fuels by the end of 2022 and reaffirmed this commitment as part of the G7 in May 2022.

Oil Change International, 2022

Provision of international public support

USD millions, annual average 2017 and 2018

Bilateral, regional and other channels:

Annual average contribution

4,778.17

Multilateral climate finance contributions:

Annual average contribution

691.92

Core/general contributions:

Annual average contribution

1,103.74

Annex II countries to the UNFCCC, including France, are obligated to provide climate finance and have committed to collectively mobilise USD 100bn a year to 2025, when this goal will be renewed, even though the target has never been met and has been criticised as inadequate.

France is the G20's third largest 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 remains biased towards mitigation. In absolute terms, it is overall the third largest contributor to the multilateral climate funds; relative to GDP, it is the biggest contributor out of the nine G20 Members obligated to provide climate finance. Both bilateral flows and those to the multilateral climate funds have increased in the 2017–2018 period.

Fair share of the USD 100bn climate finance goal:

This fair share analysis allocates responsibility for provision of the USD 100bn climate finance goal to each Annex II country based on their gross national income (GNI), cumulative territorial CO_2 emissions since 1990, and population size. It uses the UNFCCC Biennial Report data for 2017–2018 and climate-related finance data provided by the OECD Development Assistance Committee for 2019 and 2020.

France paid its fair share of the USD 100bn climate finance goal in 2020 and 2019, and came close to it in 2017–2018. Most of it, though, remains dedicated to mitigation, failing to achieve a balance with adaptation. It also provides more than two-thirds of its finance as loans rather than grants, demonstrating a smaller fiscal commitment than the figures indicate intially and implying further debt for the recipient country.

Climate finance provided (USD billion) by France and its fair share of the USD 100bn goal:

4.85	2017–2018 average	**90%**	Progress towards fair share
6.49	in 2019	**120%**	Progress towards fair share
8.66	in 2020	**161%**	Progress towards fair share

The country seems set to continue on paying its fair share of the USD 100bn climate finance goal. France doubled its contribution to the Green Climate Fund for its first replenishment (EUR 1.5bn) and, in early 2021, committed 30% of France's climate funding by 2030 to nature-based solutions. At COP26 it announced it would contribute EUR 6bn (USD 7.1bn) per year over 2021–2025.

Colenbrander et al., 2022; COP26 Presidency, 2021

Note: Data on the 'provision of international public support' corresponds to 2017–2018 as per the UNFCCC Fourth Biennial Report (BR). Parties are to submit data by December 2022 for subsequent years in the Fifth BR.

Endnotes

For more detail about sources and methodologies, please download the CTR Technical Note at: www.climate-transparency.org/g20-climate-performance/g20report2022

Where referenced, "Enerdata, 2022" refers to data provided in July 2022 and, due to rounding, graphs may sum to slightly above or below 100%.

1 The '1.5°C compatible pathway' is derived from global cost-effective pathways assessed by the IPCC's SR15, selected based on sustainability criteria, and defined by the 5th–50th percentiles of the distributions of such pathways achieving the long-term temperature goal of the Paris Agreement. Negative emissions from the land sector and novel negative emissions technologies are not included in the assessed models, which consider one primary negative emission technology (BECCS). In addition to domestic 1.5°C compatible emissions pathways, the 'fair share' emissions reduction range would almost always require a developed country to provide enough support through climate finance, or other means of implementation, to bring the total emissions reduction contribution of that country down to the required 'fair share' level.

2 'Land use' emissions is used here to refer to land use, land use change and forestry (LULUCF). The Climate Action Tracker (CAT) derives historical LULUCF emissions from the UNFCCC Common Reporting Format (CRF) data tables, converted to the categories from the IPCC 1996 guidelines, in particular separating Agriculture from LULUCF, which under the IPCC 2006 Guidelines is integrated into Agriculture, Forestry, and Other Land Use (AFOLU).

3 The Decarbonisation Ratings assess the current year and average of the most recent 5 years (where available) to take account of the different starting points of different G20 Members.

4 The selection of policies rated and the assessment of 1.5°C compatibility are primarily informed by the Paris Agreement and the IPCC's 2018 SR15. The Policy Assessment Criteria table below (on page 19) displays the criteria used to assess a country's policy performance.

5 In order to maintain comparability across all countries, this report harmonises all data with PRIMAP 2021 dataset to 2018. However, note that CRF data is available for countries which have recently updated GHG inventories.

6 This indicator adds up emissions from domestic aviation and international aviation bunkers in the respective country. In this Country Profile, however, only a radiative forcing factor of 1 is assumed.

7 This indicator includes only direct energy-related emissions and process emissions (Scope 1) but not indirect emissions from electricity.

8 This indicator includes emissions from electricity (Scope 2) as well as direct energy-related emissions and process emissions (Scope 1).

Policy Assessment Criteria

	LOW	MEDIUM	HIGH	FRONTRUNNER
Renewable energy in power sector	No policies to increase the share of renewables	Some policies	Policies and longer-term strategy/ target to significantly increase the share of renewables	Short-term policies + long-term strategy for 100% renewables in the power sector by 2050 in place
Coal phase-out in power sector	No targets and policies in place for reducing coal	Some policies	Policies + coal phase-out decided	Policies + coal phase-out date before 2030 (OECD and EU28) or 2040 (rest of the world)
Phase out fossil fuel cars	No policies for reducing emissions from light-duty vehicles	Some policies (e.g. energy/emissions performance standards or bonus/ malus support)	Policies + national target to phase out fossil fuel light-duty vehicles	Policies + ban on new fossil fuel-based light-duty vehicles by 2035 worldwide
Phase out fossil fuel heavy-duty vehicles	No policies	Some policies (e.g. energy/emissions performance standards or support)	Policies + strategy to reduce absolute emissions from freight transport	Policies + innovation + strategy to phase out emissions from freight transport by 2050
Modal shift in (ground) transport	No policies	Some policies (e.g. support programmes to shift to rail or non-motorised transport)	Policies + longer-term strategy	Policies + longer-term strategy consistent with 1.5°C pathway
Near zero energy new buildings	No policies	Some policies (e.g. building codes, standards or fiscal/financial incentives for low-emissions options)	Policies + national strategy for near zero energy new buildings	Policies + national strategy for all new buildings to be near zero energy by 2020 (OECD countries) or 2025 (non-OECD countries)
Energy efficiency in industry	No policies	Mandatory energy efficiency policies cover more than 26–50% of industrial energy use	Mandatory energy efficiency policies cover 51–100% of industrial energy use	Policies + strategy to reduce industrial emissions by 75–90% from 2010 levels by 2050
Retrofitting existing buildings	No policies	Some policies (e.g. building codes, standards or fiscal/financial incentives for low-emissions options)	Policies + retrofitting strategy	Policies + strategy to achieve deep renovation rates of 5% annually (OECD) or 3% (non-OECD) by 2020
Net zero deforestation	No policies or incentives to reduce deforestation in place	Some policies (e.g. incentives to reduce deforestation or support schemes for afforestation/ reforestation in place)	Policies + national target for reaching net zero deforestation	Policies + national target for reaching zero deforestation by 2020s or for increasing forest coverage

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