European Environment Agency

Country profile – France

The section 'Key climate- and energy-related data' was prepared by the EEA. It includes the latest data available as of 31 July 2014

The section 'Climate and energy policy framework' was prepared by eclareon and Ecologic Institute, Germany. It includes the latest information on national policies and measures available as of 31 May 2014.

For methodological details and other country profiles, see www.eea.europa.eu/themes/climate/country-profiles.

Key climate- and energy-related data — France

Key data on GHG emissions	2005	2011	2012	2013	EU 2012
Total GHG emissions (UNFCCC, Kyoto Protocol) (Mt CO_2-eq.)	558.8	490.0	490.1	491.5	4 544.2
GHG per capita (t CO_2-eq./cap.)	8.9	7.5	7.5	7.5	9.0
GHG per GDP (g CO_2-eq./PPS in EUR)	359	275	270	268	350
Share of GHG emissions in total EU-28 emissions (%)	10.8 %	10.6 %	10.8 %	11.0 %	100 %
EU ETS verified emissions (Mt CO2-eq.)	131.3	105.6	103.7	115.1	1 848.6
Share of EU ETS emissions in total emissions (%)	23 %	22 %	21 %	23 %	41 %
ETS emissions vs allowances (free, auctioned, sold) (%)	– 12.7 %	– 21.2 %	– 22.9 %	– 17.7 %	– 14.1 %
Share of CERs & ERUs in surrendered allowances (%)	0.0 %	26.5 %	31.7 %	n.a.	26.4 %
Non-ETS (ESD) emissions, adjusted to 2013–2020 scope (Mt CO2-eq.)	403.0	364.7	366.5	371.4	2 566.6
Key data on renewable energy	**2005**	**2010**	**2011**	**2012**	**EU 2012**
Share of renewable energy in gross FEC (%)			11.3 %	13.4 %	14.1 %
() = including all biofuels consumed in transport	(9.5 %)	(12.7 %)			
Share of renewable energy for electricity (%)	13.8 %	14.9 %	16.4 %	16.6 %	23.5 %
Share of renewable energy for heating and cooling (%)	12.2 %	16.0 %	16.1 %	16.9 %	15.6 %
Share of renewable energy for transport (%)			0.5 %	7.1 %	5.1 %
() = including all biofuels consumed (%)	(1.3 %)	(6.2 %)			
Key data on energy consumption	**2005**	**2010**	**2011**	**2012**	**EU 2012**
Primary energy consumption (Mtoe)	261.7	255.0	245.5	246.4	1 584.8
Primary energy consumption per capita (Mtoe/cap.)	4.2	3.9	3.8	3.8	3.1
Final energy consumption (Mtoe)	162.8	158.4	147.2	150.8	1 104.5
Final energy consumption per capita (Mtoe/cap.)	2.6	2.5	2.3	2.3	2.2
Efficiency of conventional thermal electricity and heat production (%)	57.5 %	51.8 %	50.8 %	47.3 %	50.0 %
Energy consumption per dwelling by end use	**2005**	**2009**	**2010**	**2011**	**EU 2011**
Total energy consumption per dwelling (toe/dwelling)	1.71	1.58	1.54	1.50	1.42
Space heating and cooling (toe/dwelling)	1.23	1.09	1.06	1.02	0.96
Water heating (toe/dwelling)	0.16	0.15	0.15	0.14	0.18
Cooking (toe/dwelling)	0.10	0.09	0.09	0.09	0.08
Electricity (lighting, appliances) (toe/dwelling)	0.23	0.24	0.24	0.24	0.20

Progress towards GHG targets (under the Effort Sharing Decision, i.e. non-ETS emissions)

2013 ESD target (% vs base year)	– 5.7 %	2020 ESD target (% vs base year)	– 14.0 %
2013 ESD emissions (% vs base year)	– 8.7 %	2020 ESD projections WEM (% vs base year)	– 15.9 %
		2020 ESD projections WAM (% vs base year)	– 23.3 %

Based on approximated emission estimates for 2013, emissions covered by the Effort Sharing Decision (ESD) (i.e. in the sectors which are not covered by the EU ETS) are expected to be below the annual ESD target in 2013. Projections also indicate that 2020 ESD emissions are expected to be below the 2020 ESD target, with the current existing measures.

Progress towards renewable energy targets

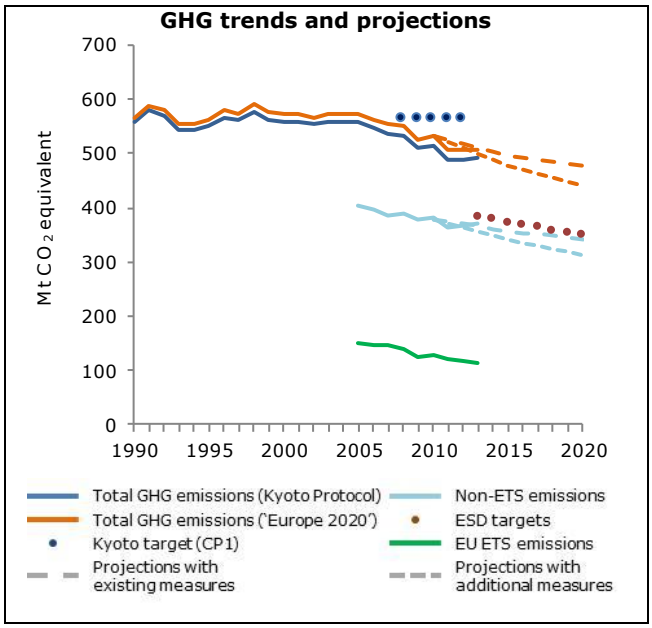
2012 RES share in gross final energy consumption (%)	13.4 %	2011–2012 indicative share from RES Directive (%)	12.8 %
2020 RES target	23.0 %	2012 expected share from NREAP (%)	14.0 %

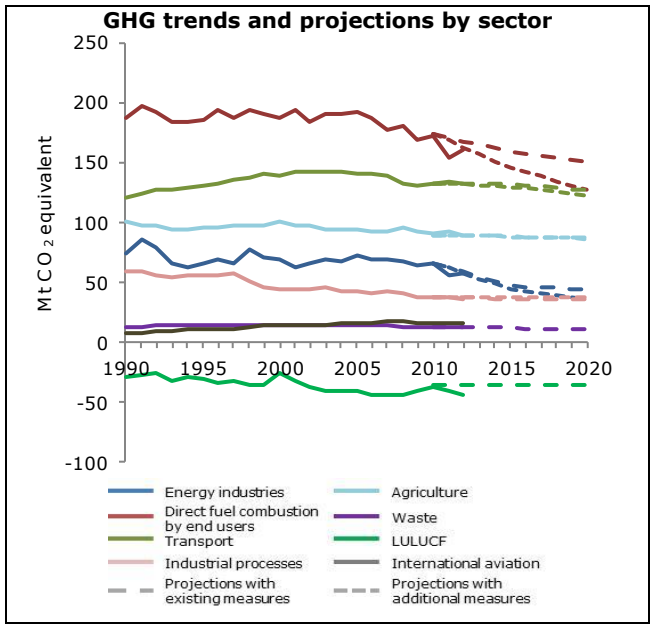
The average share of renewable sources in gross final energy consumption for 2011–2012 was 12.4% (19.2 Mtoe), which is lower than the indicative RED target for 2011–2012 (12.8%). At the same time, the share of renewables in 2012 (13.4 %) is lower than the expected 2012 NREAP target (14.0 %). Over the period 2005–2012 the observed average annual growth rate in renewable energy consumption amounted to 4.6%. In order to reach its 2020 NREAP target, France needs an average annual growth rate of 6.9% in the run-up to 2020. In absolute terms, this is equivalent to 2.6 times its cumulative effort so far.

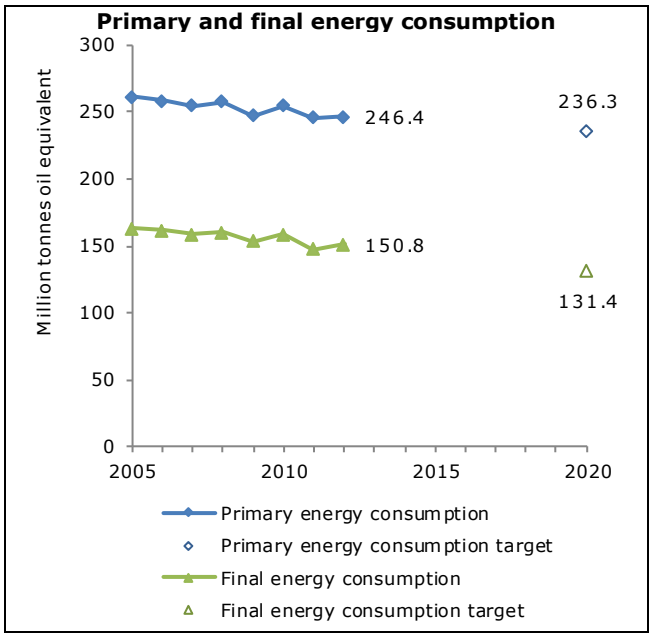
Progress towards energy efficiency targets

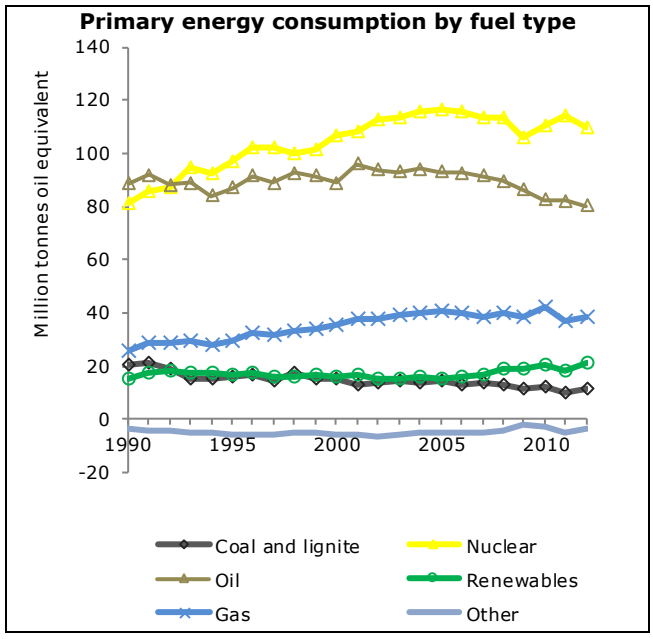
Primary energy consumption:		Final energy consumption:	
2005–2012 average annual change	-0.9 %	2005–2012 average annual change	-1.1 %
2012–2020 average annual change to target	-0.5 %	2012–2020 average annual change to target	-1.7 %

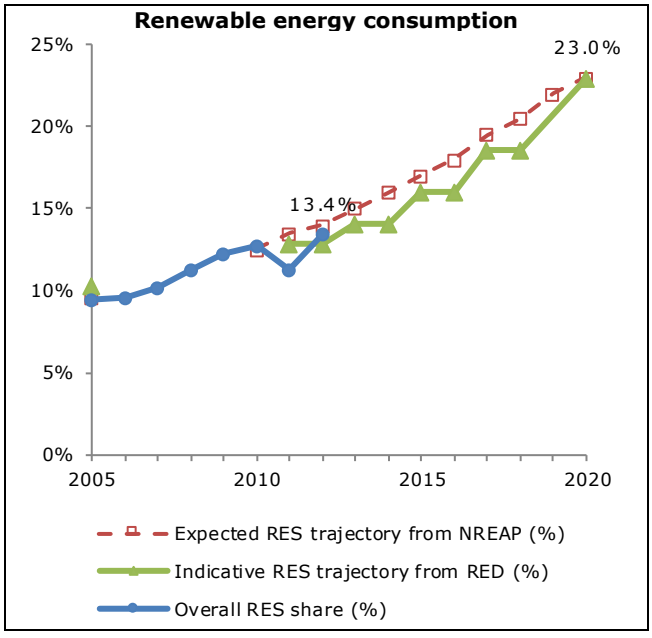
Between 2005 and 2012, primary energy consumption decreased at a faster pace than is necessary to meet the 2020 target. Improving energy efficiency in transformation and reducing distribution losses (which increased by 18 % over the period) could contribute to further reducing primary energy consumption. However, final energy consumption has not been decrease fast enough so far. While energy efficiency improvements have been taking place in all sectors, further efforts in the transport and residential sectors could be necessary.

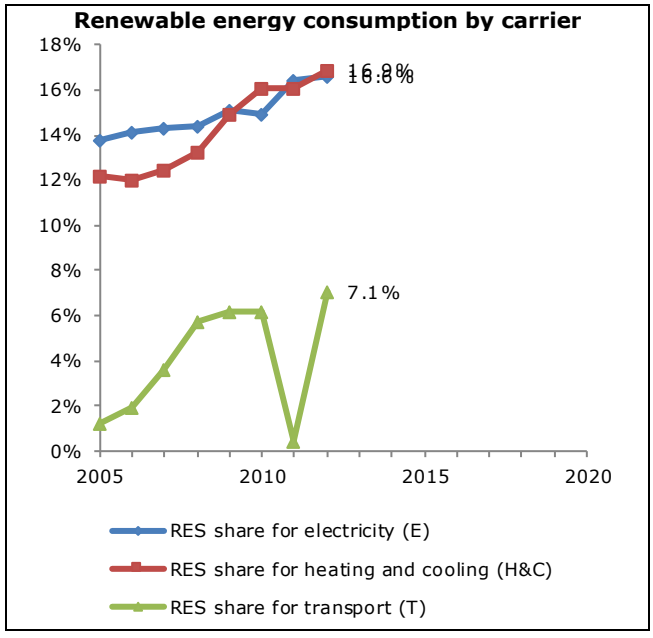

GHG trends and projections
Mt CO2 equivalent
700
600
500
400
300
200
100
0
1990
1995
2000
2005
2010
2015
2020
Total GHG emissions (Kyoto Protocol)
Total GHG emissions ('Europe 2020')
Kyoto target (CP1)
Projections with existing measures
Non-ETS emissions
ESD targets
EU ETS emissions
Projections with additional measures


GHG trends and projections by sector
Mt CO2 equivalent
250
200
150
100
50
0
-50
-100
1990
1995
2000
2005
2010
2015
2020
Energy industries
Direct fuel combustion by end users
Transport
Industrial processes
Projections with existing measures
Agriculture
Waste
LULUCF
International aviation
Projections with additional measures


Primary and final energy consumption
Million tonnes oil equivalent
300
250
200
150
100
50
0
2005
2010
2015
2020
246.4
150.8
236.3
131.4
Primary energy consumption
Primary energy consumption target
Final energy consumption
Final energy consumption target


Primary energy consumption by fuel type
Million tonnes oil equivalent
140
120
100
80
60
40
20
0
-20
1990
1995
2000
2005
2010
Coal and lignite
Oil
Gas
Nuclear
Renewables
Other


Renewable energy consumption
25%
20%
15%
10%
5%
0%
2005
2010
2015
2020
23.0%
13.4%
Expected RES trajectory from NREAP (%)
Indicative RES trajectory from RED (%)
Overall RES share (%)


Renewable energy consumption by carrier
18%
16%
14%
12%
10%
8%
6%
4%
2%
0%
2005
2010
2015
2020
16.8%
16.8%
7.1%
RES share for electricity (E)
RES share for heating and cooling (H&C)
RES share for transport (T)

Climate and energy policy framework

Challenges and opportunities
Traditionally, France has a low greenhouse gas (GHG) emissions profile (both per capita and per gross domestic product (GDP)), mainly due to the fact that its energy system is primarily based on nuclear power. This strong focus on nuclear energy has also affected France's approach to climate policy and the promotion of renewables. France has not achieved its 2011 interim target for renewable energy and might also fail to achieve its 2020 target. Especially, the growth rate in wind power generation is lagging behind, mainly due to the long waiting time for the connection of offshore installations to the grid. Other barriers to the development of the wind and photovoltaic sectors, that are named by stakeholders, are legal uncertainty of the regulatory framework and complexity of administrative procedures (RTE et al., 2014). The potential for renewable energies in France is high given extensive hydroelectric and wind resources, and significant potential for solar power development in overseas territories.
Energy efficiency also presents a challenge for France. A rather comprehensive set of measures is already in place for energy efficiency but energy intensity is declining at a slower pace than the EU average. For the industrial sector, only voluntary agreements are in place and certain industries make only slow progress. In the residential sector, existing instruments do not sufficiently spur deep renovation (EEW, 2013). Both energy efficiency and diversification of the energy mix are the key objectives of France's energy transition, and studies indicate that these two sectors together could create between 745 000 and 825 000 jobs up to 2050 (Actu Environnement, 2013).
France made progress in the area of environmental taxation with the introduction of a carbon tax in December 2013 (2014 Finance Act), expecting to collect revenues of EUR 4 billion in 2016. However, the level of environmental tax revenues per GDP remains the second lowest in the EU. This is mainly due to low transport taxes, and low energy tax rates for industrial and commercial use and for heating use. A study suggests that France could generate revenues of annually EUR 42.9 billion by 2025 if it increased its environmental taxes, with the biggest potential in vehicle and transport fuel taxes (Hogg et al., 2013).

Climate and energy strategies
The 2005 National Energy Policy Act sets the political target of reducing France's GHG emissions by 2050 by at least 75 %. To track the progress, France regularly updates a Climate Plan (last update in March 2013) describing the impact of implemented measures on climate change in all relevant sectors, such as transport, building, energy or waste (MEDDE, 2013a). Since 2007, regular environmental conferences (Grenelle Environment Round Table; 2012 and 2013 Environmental Conferences), organised by the government in close consultation with industry, government agencies and non-governmental organisations, are an important driving force for the development of long-term strategies for climate change.
France is currently also developing its national strategy for energy transition, which particularly focuses on energy efficiency, the diversification of the energy mix and the introduction of green taxation. In this context, the government pledges to cut the share of nuclear energy in the country's electricity mix to 50 % from 75 % by 2025 and to increase the share of renewable energy to 25 % by 2020, to reduce fossil fuel consumption by 30 % by 2030, and to halve total energy consumption by 2050. The final adoption of the programming law on energy transition, which will also include 'carbon budgets' to set emission limits for France and renewable energy targets until 2025, is expected by the end of 2014. The Investment Programme for the Future, adopted in July 2013, foresees the allocation of EUR 2.3 billion for environmental and energy transition measures.

Renewable energy
France needs to undertake increased efforts to meet its 2020 renewable target. France promotes **renewable electricity** via a feed-in tariff (FIT) scheme and a tender system. Both are available for electricity from wind, solar, geothermal, biogas, hydropower and biomass, and are financed through a contribution that is added to the electricity bill of final consumers. In 2013, France gave priority to emerging sectors such as offshore wind power and tidal energy. Additionally, a reduced VAT rate of 7 % applies to services, equipment and delivery of renewable energy sources.
For **renewable heating**, subsidies, tax reductions and loans are made available. Under the 2008 established heat fund (Fonds Chaleur), France offers subsidies for the installation of biomass plants with a heat production over 1 000 toe per year. In the framework of the programme 'Habiter mieux' for modest households, all renewable heat technologies can benefit from a lump sum subsidy. Various tax credits allow the deduction of a certain percentage of investments in renewable heating systems from the income tax, and a reduced VAT rate for boilers, heat pumps, fireplace inserts, wood-burning stoves and solar water heaters. Since 2009, France also offers 0 % interest loans for energy refurbishment, including installation of a heating plant or of a sanitary hot water system using renewable energies.
France recently conducted consultations on the reform of support schemes for renewable energies, which might be incorporated in the expected law on energy transition. Also, a catalogue of measures on reducing administrative burdens for companies was approved, inter alia addressing waiting periods for building permits as well as the creation of a single permit for offshore electricity projects (Conseil pour la simplification, 2014).

Energy efficiency
In 2011, France presented a roadmap for energy efficiency composed of 27 measures aiming at enhancing competitiveness in the private sector, reducing the energy consumption of households and improving the exemplary role of the public sector in matters of energy performance. The strategy is currently under review. In 2013, France pledged to halve total energy consumption by 2050.
Energy **taxes** on fuels for heating and commercial use, and taxes on electricity are well below EU average, and numerous exemptions apply. However, France introduced as of 2014 a tax on energy products based on their carbon dioxide (CO_2) emissions, with rates set at EUR 7 per tonne of CO_2 in 2014, EUR 14.5 in 2015 and EUR 22 in 2016.
Since 2006, France is promoting energy efficiency measures with a **white certificate scheme**. The system imposes energy-saving obligations on suppliers of all types of final energy. The energy-saving targets for the third period from 2015 to 2017 were almost doubled compared to the previous period, aiming now at 220 TWh of cumulative energy savings per year. Previous periods succeeded in exceeding the targets.

Combined heat and power installations with a capacity of less than 12 MW benefit from FITs, the amount of which depends on the resource used (wood energy, biogas, household or industrial waste). For large-scale projects, the government issued calls for tenders for a total capacity of 800 MW between 2010 and 2013.
France committed to reduce primary energy consumption in existing **buildings** by 38 % between 2008 and 2020. In this context, the government published in 2013 its Energy Refurbishment Plan for Housing that foresees the refurbishment of 500 000 housing units per year by 2017. A zero rate eco-loan is made available to owners, occupiers and landlords to finance extensive renovation works. In 2013, a charter for voluntary commitments promoting energy efficiency in public and private commercial buildings was signed by government and stakeholders. It commits the signatory parties to declare a self-determined target for energy saving and to communicate their progress regularly. France also aims to renovate 800 000 social housing units with high energy consumption by 2020, partly through subsidies and housing loans.

Transport
In France, a CO_2-based bonus-malus registration **tax** applies, and also ownership and company car taxes are based on CO_2 emissions. However, excise duties on transport fuels are below EU average, and diesel is charged around a third less than petrol. The plan to introduce an environmental tax on heavy goods vehicles was suspended recently due to public opposition.
The 2005 National Biofuels Development Plan fixed annual targets for the share of biofuels in the total transport fossil fuels, reaching 7 % by 2010. The targets were implemented through a quota system. However, the quota has not been increased since, mainly due to the uncertainty of biofuel policies at the European level regarding the blending targets of first-generation biofuels. The 2012 'Plan automobile' aims to foster electromobility through an increase of the bonus on registration taxes of electric vehicles, the commitment that 25 % of new vehicles on the government fleet will be electric or hybrid, and funds for innovation.
In July 2013, the government presented a new National Framework for **Sustainable Mobility**. It sets a budget of EUR 5 billion per year for investments aimed at improving existing transport networks and financing major projects such as the construction of rolling motorways connecting France to Luxembourg or to Italy. Four lines of rolling motorways will be commissioned by 2015, in order to transfer 500 000 heavy goods vehicles per railway and per year by 2020 (MEDDE, 2013b).
To increase **awareness** among the public, France introduced the mandatory display of CO_2 emissions for transport services in 2013. Public transport companies as well as companies transporting goods and removal companies are obliged to inform their clients of the amount of CO_2 emissions produced by their service.

Fluorinated gases (F-gases)
France is contemplating a tax on F-gases. The French Environmental Taxation Committee proposed in April 2013 to introduce a tax on F-gases (Comité pour la fiscalité écologique, 2013), but the French government postponed a decision until final agreement on the EU Regulation is reached (Hydrocarbons21, 2013).

Agriculture
In February 2009, an energy performance plan for farms was launched in order to reduce the energy consumption and GHG emissions of the agricultural sector. The plan covered the period from 2009 to 2013 (MAAF, 2013). Additionally, the 2013 methane recovery and use scheme defines methane recovered from waste from agriculture, forestry and related industries or from domestic waste as a source of renewable energy eligible for the FIT system. In 2013, the government presented a draft law for agriculture, food and forestry that also underlines the importance of ecological transition for the agricultural and forestry sectors. The draft law was adopted at first reading by the parliament in January 2014 and is expected to be published in the coming months.

Waste
In 2012, France committed to cut annual waste production per capita by 7 % within 5 years, to increase the rate of household waste recycling to 35 % by 2012 and 45 % by 2015, to direct 75 % of household packaging waste and ordinary commercial waste to recycling, and to cut the amount of incinerated and stored waste by 15 % (Law no 2009-967 of 3 August 2009 on the implementation of the Grenelle Environment Forum, Art. 46). Local authorities are required to establish waste prevention schemes, including reduction targets and measures. France also levies a landfill tax of EUR 40/tonne of waste, but despite this per capita amount of waste has been growing over the last decade (Hogg et al., 2013). The Environmental Taxation Committee, which was established by the government in the context of the Environmental Conferences, plans to focus on waste taxation during the first half of 2014. Within this framework, the Committee will discuss topics such as the definition of the amount of landfill tax for the period after 2015, or the implementation of a financial contribution for the end-of-life management of non-recyclable products.

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