

Energy, transport and environment statistical book

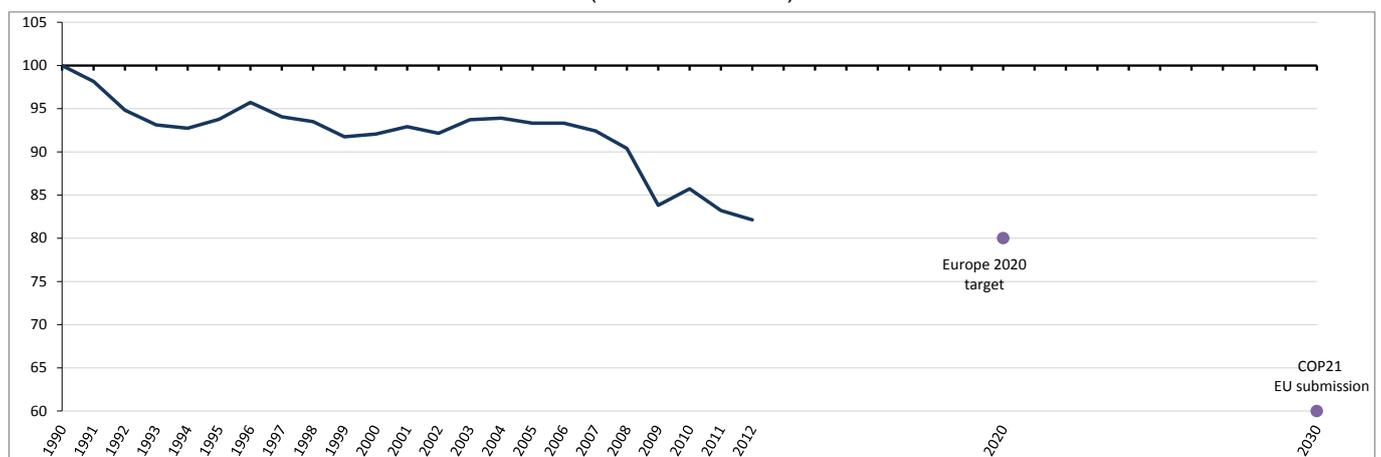
A range of indicators monitoring progress made in the EU to tackle climate change

Greenhouse gas emissions, energy consumption, renewables...

Energy, transport and increased human intervention in the environment have proven to be major contributors to climate change over the last few decades. The **European Union (EU)** has actively been pursuing ambitious emission reduction targets for years. The UN Climate Change Conference taking place in Paris in December 2015 (COP21) illustrates the global political importance of climate change, energy security and sustainable transport, three topics that have become increasingly interconnected.

On the occasion of the publication of the 2015 Energy, transport and environment statistical book and with regard to the forthcoming COP21 in Paris, **Eurostat, the statistical office of the European Union**, publishes a small selection of data on energy, transport and environment in the EU related to climate change. These data show that while primary consumption of energy stood in 2013 at its early 1990s level, renewables have increased their share in final energy consumption and greenhouse gas emissions decreased over the same time period.

Development of greenhouse gas emissions in the EU
(index 1990=100)

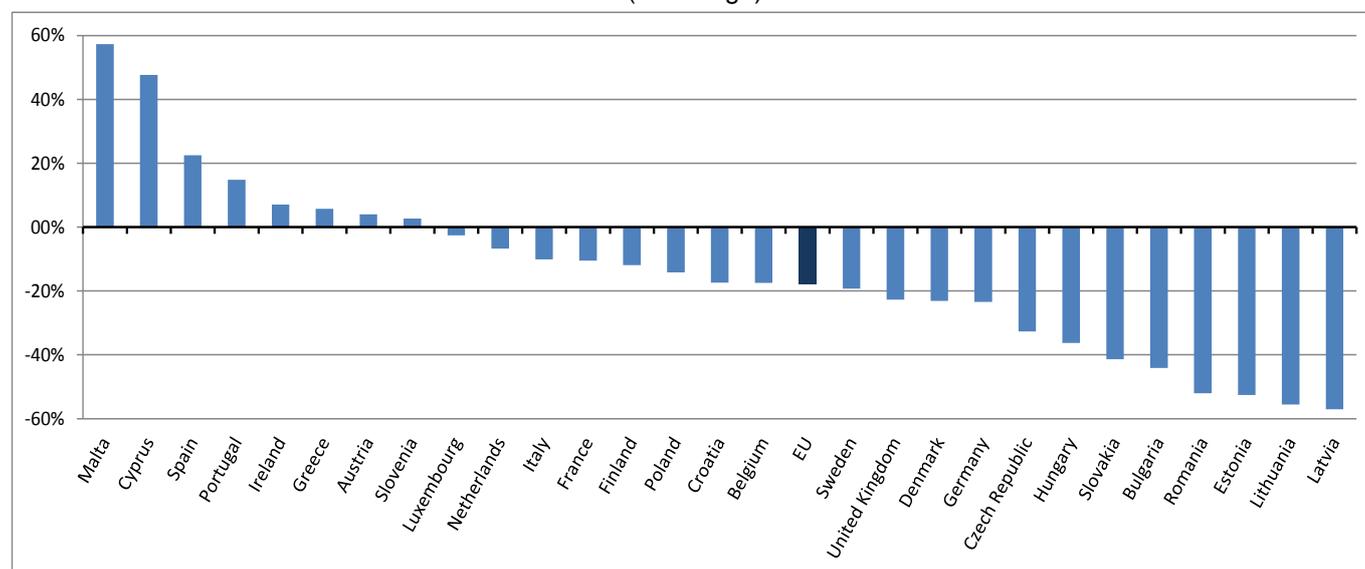


Largest reductions in greenhouse gas emissions in the Baltic EU Member States and Romania

Compared with 1990, most Member States reduced their greenhouse gas emissions by 2012. Emissions have more than halved in **Latvia** (-57.1%), **Lithuania** (-55.6%), **Estonia** (-52.6%) and **Romania** (-52.0%), followed by **Bulgaria** (-44.1%), **Slovakia** (-41.4%), **Hungary** (-36.3%) and the **Czech Republic** (-32.7%). In contrast, increases were registered in **Malta** (+56.9%), **Cyprus** (+47.7%), **Spain** (+22.5%), **Portugal** (+14.9%), **Ireland** (+7.0%), **Greece** (+5.7%), **Austria** (+4.0%) and **Slovenia** (+2.6%). At **EU** level, emissions were 17.9% below 1990 levels. While the **EU** is now confident of achieving its Europe 2020 target of cutting greenhouse gas emissions by 20% in 2020, it has recently doubled its objective in the context of the COP21, with at least a 40% reduction compared to 1990 levels to be achieved by 2030.

Greenhouse gas emissions in the **EU** as a whole stood in 2012 at 4 683 million tonnes of CO₂ equivalent, with the biggest emitter being **Germany** (965 million), followed by the **United Kingdom** (615 mn), **France** (507 mn), **Italy** (471 mn), **Poland** (401 mn) and **Spain** (354 mn). Together, these six Member States generated around 70% of all greenhouse gas emissions in the **EU** in 2012.

Development of greenhouse gas emissions in the EU Member States, 2012/1990 (% change)



Greenhouse gas emissions (including international aviation)

	In millions tonnes of CO ₂ equivalent			Change 2012/1990
	1990	2005	2012	
EU	5 702.02	5 321.17	4 682.94	-17.9%
Belgium	146.05	145.61	120.58	-17.4%
Bulgaria	110.54	64.43	61.76	-44.1%
Czech Republic	196.71	147.03	132.43	-32.7%
Denmark	70.42	66.68	54.17	-23.1%
Germany	1 260.19	1,017.77	964.63	-23.5%
Estonia	40.73	18.57	19.30	-52.6%
Ireland	56.33	72.18	60.29	7.0%
Greece	107.40	137.72	113.53	5.7%
Spain	289.37	443.42	354.43	22.5%
France	566.10	574.65	506.62	-10.5%
Croatia	32.32	30.95	26.71	-17.4%
Italy	523.25	583.44	470.58	-10.1%
Cyprus	6.82	10.78	10.07	47.7%
Latvia	26.44	11.24	11.35	-57.1%
Lithuania	49.12	23.46	21.81	-55.6%
Luxembourg	13.30	14.41	12.96	-2.6%
Hungary	98.08	79.16	62.48	-36.3%
Malta	2.20	3.26	3.46	56.9%
Netherlands	216.41	220.36	201.82	-6.7%
Austria	78.98	94.56	82.15	4.0%
Poland	467.02	399.77	400.94	-14.1%
Portugal	62.34	90.08	71.60	14.9%
Romania	248.49	141.73	119.19	-52.0%
Slovenia	18.49	20.38	18.98	2.6%
Slovakia	73.67	50.55	43.21	-41.4%
Finland	71.35	69.93	62.88	-11.9%
Sweden	74.09	68.87	59.80	-19.3%
United Kingdom	795.8	720.17	615.20	-22.7%

The source dataset can be found [here](#).

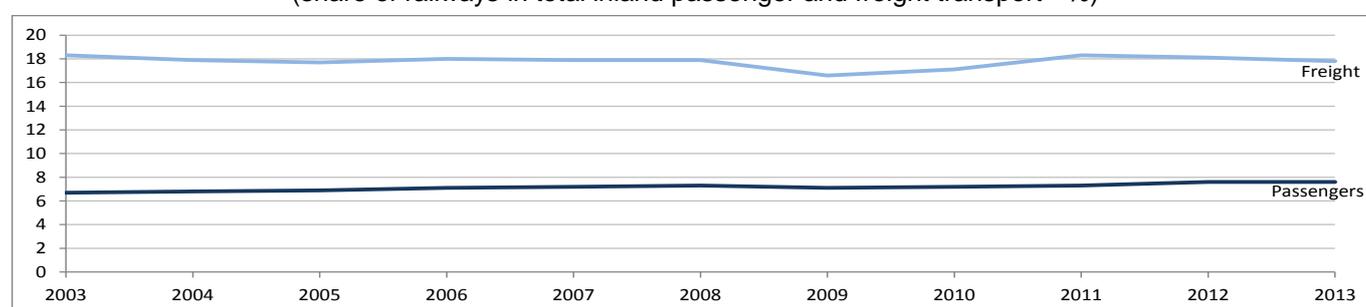
Share of railway transport increased the most in Austria

The transport sector has the second biggest greenhouse gas emissions in the **EU**. More than two thirds of transport-related greenhouse gas emissions are from road transport. For this reason shifting inland journeys from road to rail is part of the EU strategy to reduce greenhouse gas emissions.

Between 2003 and 2013, the share of rail in inland passenger transport performance rose in a majority of Member States, with the highest relative increases being registered in **Austria** (from 9.5% in 2003 to 12.7% in 2013, or a 3.2 percentage point increase) and the **United Kingdom** (+3.0 pp). In contrast, the largest decreases were recorded in **Romania** (a 7.0 pp fall), **Hungary** (-3.2 pp), **Poland** (-3.0 pp) and **Bulgaria** (-2.6 pp). Regarding freight transport, the trend is the opposite: most Member States have seen the share of rail in their freight transport performance fall between 2003 and 2013. Railway freight transport declined mainly in Eastern EU Member States, notably in **Estonia** (-26.8 pp), **Bulgaria** (-25.2 pp), **Poland** (-18.5 pp), **Lithuania** (-16.4 pp) and **Slovakia** (-16.1 pp), while the largest increase was recorded in **Austria** (+13.4 pp), followed by **Denmark** (+5.3 pp) and **Germany** (+5.1 pp).

At **EU** level, the share of railways in inland passenger transport performance rose from 6.7% in 2003 to 7.6% in 2013, while for freight transport, it decreased from 18.3% to 17.8%.

Development of railway transport performance in the EU, 2003-2013
(share of railways in total inland passenger and freight transport - %)



Railway transport performance in the EU Member States

	Passengers (% of total inland passenger-km)		Freight (% of total inland tonne-km)	
	2003	2013	2003	2013
EU	6.7	7.6	18.3	17.8
Belgium	6.5	7.4	11.0	15.1
Bulgaria	5.5	2.9	34.3	9.1
Czech Republic	7.3	8.5	25.4	20.3
Denmark	9.3	10.2	7.9	13.2
Germany	7.2	8.5	18.4	23.5
Estonia	1.7	1.7	70.9	44.1
Ireland	3.3	2.7	2.5	1.1
Greece	1.6	0.9	2.3	1.2
Spain	5.1	6.1	5.7	4.6
France	8.4	9.4	18.1	15.0
Croatia	4.2	3.1	21.5	17.4
Italy	5.5	6.3	10.4	13.0
Cyprus	-	-	-	-
Latvia	4.8	4.7	72.5	60.4
Lithuania	1.9	0.8	50.0	33.6
Luxembourg	3.7	4.7	5.0	2.4
Hungary	13.4	10.2	27.9	20.5
Malta	-	-	-	-
Netherlands	8.7	10.5	3.8	4.9
Austria	9.5	12.7	28.7	42.1
Poland	9.2	6.2	35.5	17.0
Portugal	3.9	4.0	7.0	5.9
Romania	11.5	4.5	30.4	21.9
Slovenia	3.0	2.3	30.0	19.3
Slovakia	6.3	7.1	37.5	21.4
Finland	4.7	5.3	24.5	27.8
Sweden	7.7	9.3	35.5	38.2
United Kingdom	5.4	8.4	10.1	13.2

- not applicable

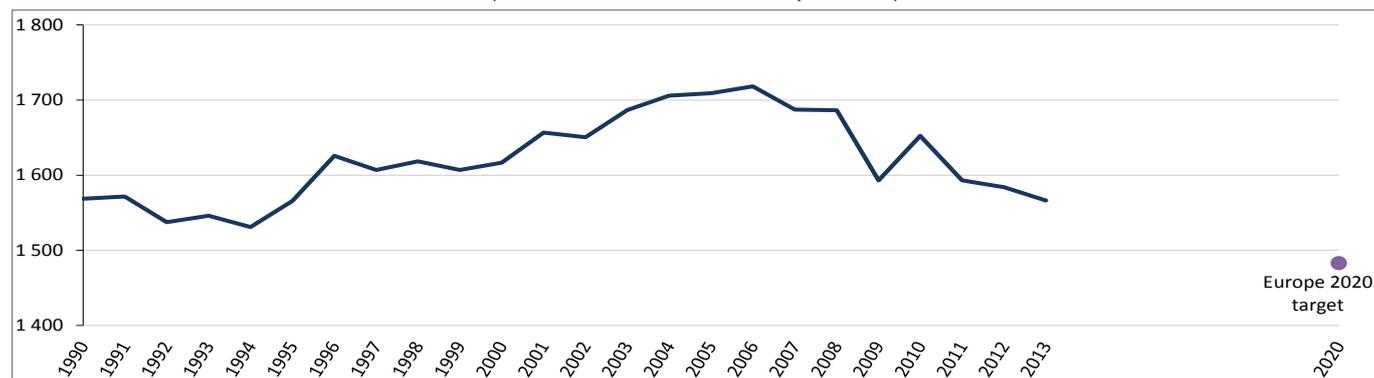
The source datasets can be found [here](#) for passenger transport and [here](#) for freight transport.

Twenty Member States have already reached their Europe 2020 targets on energy consumption

From 1995, primary energy consumption in the EU increased to reach a peak in 2006. Since then, the overall decline in primary energy consumption has brought it back to its early 1990s levels. Compared with 2005, all EU Member States have seen their primary energy consumption in 2013 fall, except **Estonia** and **Poland**. The largest reductions were registered in **Lithuania** (-27.9%), **Greece** (-22.6%) and **Malta** (-20.0%), followed by **Hungary** (-17.3%), **Spain** (-16.4%), **Romania** (-15.8%), **Portugal** (-14.5%), **Italy** (-14.1%), **Bulgaria** (-13.8%), the **United Kingdom** (-12.7%) and **Cyprus** (-12.0%).

Twenty EU Member States have already reached in 2013 the level required to meet their national 2020 targets, while **Belgium**, **Bulgaria**, **Germany**, the **Netherlands**, **Austria**, **Sweden** and the **United Kingdom** registered primary energy consumption still above their Europe 2020 targets.

Development of primary energy consumption in the EU
(in millions tonnes of oil equivalent)



Primary energy consumption in the EU Member States

	In million tonnes of oil equivalent			Europe 2020 target	Change 2013/2005
	1990	2005	2013		
EU	1 568.8	1 709.0	1 566.5	1483.0	-8.3%
Belgium	45.6	51.5	47.4	43.7	-8.0%
Bulgaria	26.2	18.9	16.3	15.8	-13.8%
Czech Republic	48.2	42.2	39.6	39.6	-6.2%
Denmark	17.6	19.3	17.8	17.8	-7.8%
Germany	333.3	317.2	302.5	276.6	-4.6%
Estonia	9.7	5.4	6.5	6.5	20.4%
Ireland	9.7	15.0	13.4	13.9	-10.7%
Greece	21.6	30.6	23.7	27.1	-22.6%
Spain	84.2	135.9	113.6	121.6	-16.4%
France	214.4	260.0	245.8	263.3	-5.5%
Croatia	8.3	8.2	7.3	-	-11.0%
Italy	143.2	178.9	153.7	158.0	-14.1%
Cyprus	1.6	2.5	2.2	2.8	-12.0%
Latvia	7.9	4.5	4.4	5.4	-2.2%
Lithuania	15.1	7.9	5.7	6.5	-27.9%
Luxembourg	3.5	4.8	4.3	4.5	-10.4%
Hungary	27.1	25.4	21.0	26.6	-17.3%
Malta	0.6	1.0	0.8	0.8	-20.0%
Netherlands	56.9	68.5	65.9	60.7	-3.8%
Austria	23.4	32.6	31.9	31.5	-2.1%
Poland	99.1	87.7	93.2	96.4	6.3%
Portugal	16.1	24.9	21.3	22.5	-14.5%
Romania	57.3	36.7	30.9	43.0	-15.8%
Slovenia	5.7	7.0	6.7	7.3	-4.3%
Slovakia	20.2	17.8	16.2	16.2	-9.0%
Finland	27.3	33.4	32.8	35.9	-1.8%
Sweden	45.5	48.7	47.1	43.4	-3.3%
United Kingdom	199.8	222.8	194.6	177.6	-12.7%

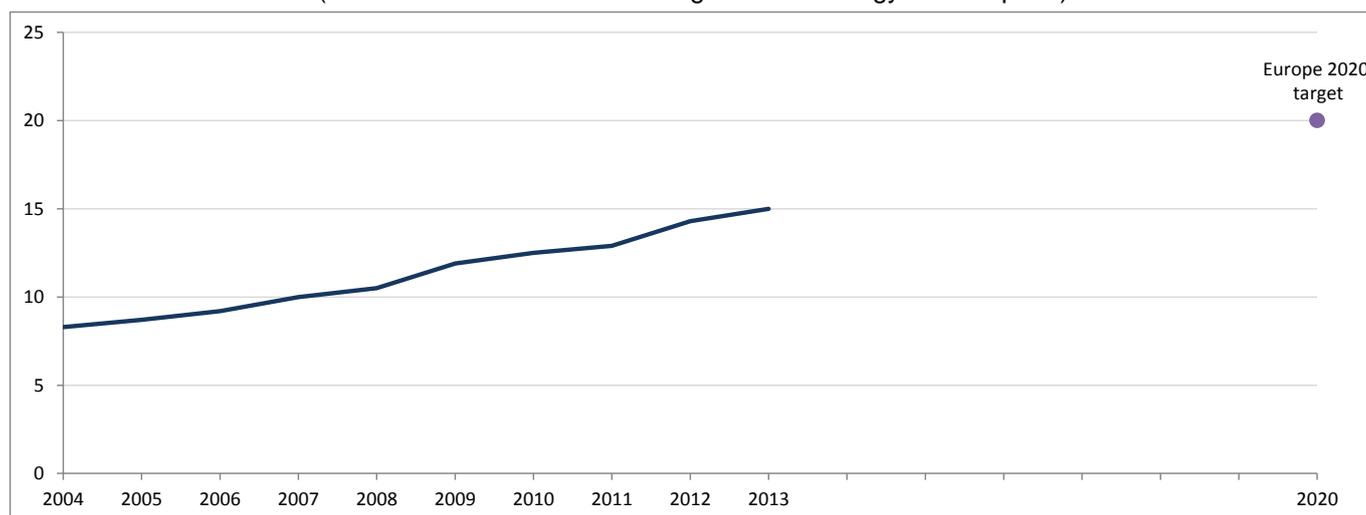
Member States shown in blue are those which have already achieved their Europe 2020 national target.
The source dataset can be found [here](#).

Highest share of renewables in Sweden, lowest in Luxembourg

Since 2004, the share of renewable sources in gross final consumption of energy grew significantly in all Member States, with thirteen Member States having at least doubled their share of renewables over the last 10 years.

With 52.1%, **Sweden** had by far in 2013 the highest share of energy from renewable sources in its gross final consumption of energy, ahead of **Latvia** (37.1%), **Finland** (36.8%) and **Austria** (32.6%). In contrast, the lowest proportions of renewables were found in **Luxembourg** (3.6%), **Malta** (3.8%), the **Netherlands** (4.5%) and the **United Kingdom** (5.1%). At EU level, the share of energy from renewable sources in gross final consumption of energy reached 15.0% in 2013, compared with 8.3% in 2004, the first year for which the data is available. Over this decade, there has been a steady progress towards the Europe 2020 target of 20%.

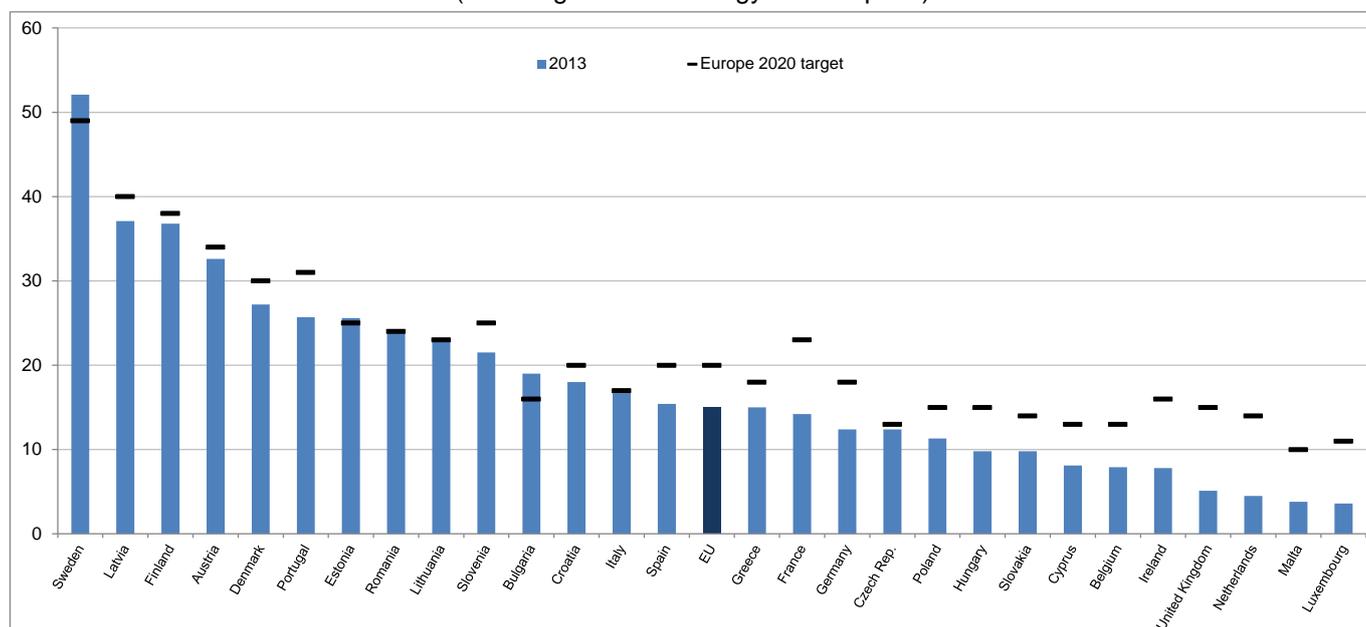
Development of renewable energy in the EU
(share of renewable sources in gross final energy consumption)



Bulgaria, Estonia, Lithuania and Sweden reached their Europe 2020 goal on renewables

Four out of the 28 EU Member States have already reached the level required to meet their national 2020 targets: **Bulgaria** (with a 19.0% share of renewables in 2013), **Estonia** (25.6%), **Lithuania** (23.0%) and **Sweden** (52.1%). Moreover, **Romania** (with a 23.9% share of renewables in 2013) and **Italy** (16.7%) are less than 0.5 percentage points from their 2020 targets. At the opposite end of the scale, the **United Kingdom** (9.9 percentage points from reaching its national 2020 objective), the **Netherlands** (9.5 pp), **France** (8.8 pp) and **Ireland** (8.2 pp) are the furthest away from their target.

Share of energy from renewable sources in the EU Member States, 2013
(in % of gross final energy consumption)



Share of renewable energy in gross final energy consumption (%)

	2004	2013	Europe 2020 target
EU	8.3	15.0	20
Belgium	1.9	7.9	13
Bulgaria	9.5	19.0	16
Czech Republic	5.9	12.4	13
Denmark	14.5	27.2	30
Germany	5.8	12.4	18
Estonia	18.4	25.6	25
Ireland	2.4	7.8	16
Greece	6.9	15.0	18
Spain	8.3	15.4	20
France	9.4	14.2	23
Croatia	13.2	18.0	20
Italy	5.6	16.7	17
Cyprus	3.1	8.1	13
Latvia	32.8	37.1	40
Lithuania	17.2	23.0	23
Luxembourg	0.9	3.6	11
Hungary	4.4	9.8	14.65
Malta	0.1	3.8	10
Netherlands	1.9	4.5	14
Austria	22.7	32.6	34
Poland	6.9	11.3	15
Portugal	19.2	25.7	31
Romania	17.0	23.9	24
Slovenia	16.1	21.5	25
Slovakia	5.7	9.8	14
Finland	29.2	36.8	38
Sweden	38.7	52.1	49
United Kingdom	1.2	5.1	15

Member States shown in blue are those which have already achieved their Europe 2020 national target.
The source dataset can be found [here](#).

Methods and definitions

Greenhouse gases constitute a group of gases, among which carbon dioxide (CO₂), nitrous oxide (N₂O) and methane (CH₄), contributing to global warming and climate change. Converting them to **carbon dioxide (or CO₂) equivalents** makes it possible to compare them and to determine their individual and total contributions to global warming. In this News release, data presented include international aviation and exclude LULUCF (land-use, land-use change and forestry). Eurostat publishes these statistics based on data from the [European Environment Agency](#).

The share of railways in inland transport, as outlined in this publication, is based on the total **inland transport performance** expressed in tonne-kilometers for transport performance of freight transport and in passenger-kilometer for transport performance of passenger transport. The share of rail is calculated as percentage of the total inland freight/passenger transport measured in tonne-/passenger-kilometers. One tonne-kilometer represents the movement of one tonne over a distance of one kilometer. A passenger-kilometer represents one passenger travelling a distance of one kilometer.

Inland freight transport includes road, rail and inland waterways.

Inland passenger transport includes road (passenger cars, buses and coaches) and rail (trains) transport.

Further methodological information on [freight](#) and [passengers](#).

Primary energy consumption measures the total energy demand of a country. It covers consumption of the energy sector itself, losses during transformation (for example, from oil or gas into electricity) and distribution of energy, and the final consumption by end users. It excludes energy carriers used for non-energy purposes (such as petroleum not used for combustion but for producing plastics).

Renewable energy sources cover solar thermal and photovoltaic energy, hydro (including tide, wave and ocean energy), wind, geothermal energy and all forms of biomass (including biological waste and liquid biofuels). The contribution of renewable energy from heat pumps is also covered for the Member States for which this information was reported. The renewable energy delivered to final consumers (industry, transport, households, services including public services, agriculture, forestry and fisheries) is the numerator of this indicator. The denominator, the gross final energy consumption of all energy sources, covers total energy delivered for energy purposes to final consumers as well as the transmission and distribution losses for electricity and heat.

The **national shares of energy from renewable sources in gross final consumption** of energy are calculated according to specific calculation provisions of Directive 2009/28/EC on the promotion of the use of energy from renewable sources and Commission Decision 2013/114/EU establishing the guidelines for Member States on calculating renewable energy from heat pumps from different heat pump technologies. Electricity production from hydro power and wind power is accounted according to normalisation rules of Annex II of Directive 2009/28/EC. For data as of 2011, only biofuels and bioliquids compliant with criteria of sustainability as defined in Articles 17 and 18 of Directive 2009/28/EC are accounted towards the share of energy from renewable sources. Adjustments of energy consumption in aviation are applied for all countries according to Article 5(6). Statistical transfers and joint projects (Articles 6-11) reported to the Eurostat are also considered in the presented data. More details on the calculation methodology applied by Eurostat can be found in the [SHARES tool manual](#).

Revisions and time table

Data in this News Release may differ from those presented in the statistical book, due to updates made after the extractions used for the publication.

For more information

Eurostat publication “Energy, transport and environment indicators”, 2015 edition. [PDF-version](#) and underlying data available on the Eurostat website.

Eurostat website section dedicated to [energy](#) statistics.

Eurostat website section dedicated to [transport](#) statistics.

Eurostat website section dedicated to [environment](#) statistics.

Eurostat website section dedicated to [Europe 2020 indicators](#). See also Eurostat publication “[Smarter, greener, more inclusive? - Indicators to support the Europe 2020 strategy](#)” (2015 edition).

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