

Energy, transport and environment indicators

2016 edition



**Energy, transport and
environment indicators**

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Foreword

In September 2015, the 193 countries of the UN General Assembly adopted the 2030 Development Agenda entitled *Transforming our world: the 2030 Agenda for Sustainable Development*. The 17 sustainable development goals (SDGs) contained in this agenda include a set of 169 targets, covering a broad range of sustainable development issues, including energy and transport.

Against this backdrop, the concept of the 'circular economy', which describes an industrial economy producing no waste or pollution, has been gaining ground in the European Union (EU) recently. This is especially important in view of the EU's goal to improve the environment, while boosting its global competitiveness, fostering sustainable economic growth and generating new jobs. Progressively shifting to a circular economy benefits the environment, with an increased reliance on recycling and the correlated decreased dependence on natural resources. In late 2015, the European Commission adopted a 'Circular economy package', which contains revised legislative proposals on waste to stimulate Europe's transition towards a circular economy.

This statistical book provides an overview of the EU's main indicators on energy, transport and the environment. Such indicators provide statistical support for monitoring progress towards targets and for implementing policies such as the 2030 Agenda for Sustainable Development and circular economy.

The indicators presented in the statistical book are by no means exhaustive and the content of this publication can also be retrieved in a richer online format in Statistics Explained, the section of the Eurostat website that presents statistical topics in an easily understandable form. Additionally, the latest and most complete versions of the data can be downloaded directly from the Eurostat database.

I hope that you will enjoy your reading!



Marcel Jortay

Director, Sectoral and Regional Statistics



Introduction

The 2016 edition of this publication presents a compilation of data on energy, transport and the environment. Climate change, energy security and sustainable transport have become increasingly interconnected over the years.

This greater correlation creates the need for a comprehensive approach that includes reliable and comparable statistical data, necessary for the better understanding of the complexity of the issues, for sound policy-making and for defining effective measures.

The indicators present national data for the 28 [EU Member States](#), the [EFTA](#) and the [candidate countries](#). When available, the [EU-28](#) aggregate is also provided. When the [EU-28](#) aggregate is not available, the [EU-27](#) aggregate is provided. Data are generally available for the period between 2005 and 2014.

The *General data* chapter offers a first macroscopic overview of the main characteristics of the EU and its position with regard to the main economies worldwide.

In the *Energy* chapter, the main data sources are being reported under [Regulation \(EC\) No 1099/2008](#) of the [European Parliament](#) and of the [Council](#) on Energy Statistics and [Directive 2008/92/EC](#) of the European Parliament and of the Council concerning transparency of gas and electricity prices. In addition, the legal background for the share of renewable energy sources in gross final energy consumption is the [Directive 2009/28/EC](#) of the European Parliament and of the Council. It is in the context of the [Directive 2012/27/EU](#) of the European Parliament and of the Council that the energy savings indicator is provided.

Transport indicators cover infrastructure, equipment, freight and passenger transport, accidents and transport-related emissions for the different [modes of transport](#). In the

Transport chapter, the most important data sources are being reported under the EU legal acts on transport statistics and the [Eurostat/United Nations Economic Commission for Europe \(UNECE\)/International Transport Forum \(ITF\)](#) common questionnaire.

The *Environment* chapter includes indicators on greenhouse gas emissions, waste generation and treatment, water resources, abstraction and use, wastewater treatment, forestry and biodiversity, chemicals, material flow accounts and economic indicators on environmental protection expenditure, the environmental goods and services sector and environmental taxes. Data on waste derive from reporting under [Regulation 2150/2002](#) of the European Parliament and of the Council on waste statistics. Data on European environmental economic accounts are derived from [Regulation 691/2011](#) and other related voluntary data collections. Data on water are collected in cooperation with the [Organisation for Economic Co-operation and Development \(OECD\)](#) by means of a Joint Questionnaire. Environmental accounts are collected by Eurostat and emissions data are taken from the [European Environment Agency \(EEA\)](#). The [Food and Agriculture Organization \(FAO\)](#) is the source of data on forest area and wood harvest by ownership whereas imports of wood and wood products come from Eurostat. Data on bird indicators are provided by the [European Bird Census Council/The Royal Society for Protection of Birds/BirdLife International/Statistics Netherlands](#).

For detailed data please check:

- the Eurostat website at <http://ec.europa.eu/eurostat>
- the European Environment Agency (EEA) website at <http://eea.europa.eu>

Eurostat — the statistical office of the European Union

Eurostat is the statistical office of the European Union, situated in Luxembourg. Its task is to provide the EU with European statistics at a European level for policy-making purposes.

Eurostat's mission statement is: *'Trusted statistics. Informed Europeans. Better decisions. We provide high-quality statistics for Europe'*.

The production of European Union statistics shall conform to impartiality, reliability, objectivity, scientific independence, cost-effectiveness and statistical confidentiality; it shall not entail excessive burdens on economic operators.

Eurostat aims to:

- provide other European institutions and the governments of the EU Member States with the information needed to design,

implement, monitor and evaluate EU policies;

- disseminate statistics to the European public and enterprises and to all economic and social agents involved in decision making;
- implement a set of standards, methods and organisational structures which allow comparable, reliable and relevant statistics to be produced throughout the EU, in line with the principles of the [European statistics Code of Practice](#);
- improve the functioning of the [European Statistical System](#), to support the EU Member States, and to assist in the development of statistical systems at an international level.

A practical guide to accessing European statistics

The simplest way to access Eurostat's broad range of statistical information is through the Eurostat website (<http://ec.europa.eu/eurostat>). Eurostat provides users with free access to its databases and all of its publications in PDF format via the Internet. The website is updated daily and gives access to the latest and most comprehensive statistical information available on the EU, its Member States, EFTA countries, candidate countries and potential candidates.

EUROSTAT ONLINE DATA CODE(S) — EASY ACCESS TO THE FRESHEST DATA

Eurostat online data codes, such as tps00001 and nama_gdp_c (!), allow the reader to easily access the most recent data on Eurostat's website. In this pocketbook these online data codes are given as part of the source below each table and figure.

(!) There are two types of online data codes:

- Tables (accessed using the TGM interface) have 8-character codes, which consist of 3 or 5 letters the first of which is 't' — followed by 5 or 3 digits, e.g. tps00001 and tsdph220.
- Databases (accessed using the Data Explorer interface) have codes that use an underscore '_' within the syntax of the code, e.g. nama_gdp_c and proj_08c2150p.

In the PDF version of this publication, the reader is led directly to the freshest data when clicking on the hyperlinks that form part of each online data code. Readers of the paper version can access the freshest data by typing a standardised hyperlink into a web browser, http://ec.europa.eu/eurostat/product?code=<data_code>&mode=view, where <data_code> is to be replaced by the online data code printed under the table or figure in question. The data is presented either in the TGM or the Data Explorer interface.

Online data codes can also be fed into the 'Search' function on Eurostat's website, which is found in the upper-right corner of the Eurostat homepage, at <http://ec.europa.eu/eurostat>.

The results from such a search present related dataset(s) and possibly publication(s) and metadata. By clicking on these hyperlinks users are taken to product page(s) ^(?), which provide some background information about each dataset/publication or set of metadata. For example, it is possible to move directly to the data from the data product page by clicking the TGM or Data Explorer icons presented under the 'View table' sub-heading.

Note that the data on the Eurostat's website is frequently updated.

Note also that the description above presents the situation as of the end of September 2016.

STATISTICS EXPLAINED

Statistics Explained is part of Eurostat's website — it provides easy access to Eurostat's statistical information. It can be accessed via a link in the bottom the Eurostat homepage, or directly at <http://ec.europa.eu/eurostat/statistics-explained>.

Statistics Explained is a wiki-based system that presents statistical topics. Together, the articles make up an encyclopaedia of European statistics, which is completed by a statistical glossary that clarifies the terms used. In addition, numerous links are provided to the latest data and metadata and to further information, making Statistics Explained a portal for regular and occasional users alike.

In September 2016 Statistics Explained contained well over 900 statistical and background articles and some 1 900 glossary pages in English; their number is continuously growing. About 90 of these articles, corresponding to the content of the Eurostat yearbook and Eurostat regional yearbook, are available in French and German, and 20 representative ones have been translated into 19 other EU languages. As a result, 560 articles in 21 languages besides English can be consulted.

^(?) The product page can also be accessed by using a hyperlink, for example, http://ec.europa.eu/eurostat/product?code=<data_code>, where <data_code> is to be replaced by the online data code in question.



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DATA EXTRACTION PERIOD

The statistical data presented in this statistical book are the ones analysed in the continuously updated Statistics Explained articles on energy, transport and the environment at the time of writing of this publication (July 2016). Some of the accompanying text was drafted in July and August 2016.



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Symbols and abbreviations

SYMBOLS

Eurostat online databases contain a large amount of metadata that provides information on the status of particular values or data series. In order to improve readability, only the most significant information has been included in the tables and figures. The following symbols are used, where necessary:

:	Data not available
0	Real zero or figure less than half of the unit used
–	Not applicable
%	Percentage
<i>1234</i>	<i>Estimates are printed in italic</i>
c	Confidential
p	Provisional value

Breaks in series are indicated in the footnotes provided under each table and figure.

UNITS OF MEASUREMENT

ECU	European currency unit, data up to 31.12.1998
EUR	Euro, data from 1.1.1999 on
GJ	giga joule
GW	gigawatt
GWh	gigawatt hour
ha	hectare
kg	kilogram
kgoe	kilograms of oil equivalent
kJ	kilojoule
km	kilometre
km ²	square kilometre
ktoe	thousand tonnes of oil equivalent
kWh	kilowatt hour
m ³	cubic metre
mio	million (10 ⁶)
Mt	million tonnes
Mtoe	million tonnes of oil equivalent



MW	megawatt
PJ	petajoule
pkm	passenger-kilometre
tkm	tonne-kilometre
t	tonne
toe	tonne of oil equivalent
TWh	terawatt hour
USD	United States dollar
vkm	vehicle-kilometre

ABBREVIATIONS

AWU	annual work units
CARE	Community Road Accident Database
CH ₄	methane
CHP	combined heat and power
CMR	carcinogenic, mutagenic and reprotoxic
CO ₂	carbon dioxide
DEU	domestic extraction used
DMC	domestic material consumption
DMI	direct material input
EBCC	European Bird Census Council
ECE	United Nations Economic Commission for Europe
EEA	European Environment Agency
EPE	environmental protection expenditure
FAWS	forests available for wood supply
FEC	final energy consumption
FLEGT	Forest Law Enforcement, Governance and Trade
GDP	gross domestic product
GHG	greenhouse gases
GIC	gross inland consumption
GNI	gross national income
GVA	gross value added
GWP	global warming potential



IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
IT	information technology
ITF	International Transport Forum
NACE	statistical classification of economic activities in the European Community
N ₂ O	nitrous oxide
OECD	Organisation for Economic Co-operation and Development
OJ	Official Journal of the European Union
OPEC	Organisation of the Petroleum Exporting Countries
OWL	other wooded land
PPP	purchasing power parity
PPS	purchasing power standard
RES	renewable energy sources
RMC	raw material consumption
RME	raw material equivalents
RMI	raw material input
RSPB	The Royal Society for the Protection of Birds
UIC	Union Internationale des Chemins de fer
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
VPA	voluntary partnership agreements
WEEE	waste electrical and electronic equipment



COUNTRIES

EU-28	The 28 Member States of the European Union from 1 July 2013 (Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, United Kingdom)
EU-27	The 27 Member States of the European Union from 1 January 2007 (Belgium, Bulgaria, Czech Republic, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland, Sweden, United Kingdom)
EU-15	The 15 Member States of the European Union from 1 January 1995 to 30 April 2004 (Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom)

European Free Trade Association (EFTA) countries

Iceland
Liechtenstein
Norway
Switzerland

EU candidate countries

Albania
The former Yugoslav Republic of Macedonia
Montenegro
Serbia
Turkey

EU potential candidates

Bosnia and Herzegovina
Kosovo (1)

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

1

General Data



The world's population reached 7 349 million inhabitants in 2015. China was the most populous country with 1 376 million inhabitants, accounting for 19% of the world's population. The population of the EU-28 broke through the threshold of 500 million in 2008 and stood at 508 million inhabitants in 2015, while the population of the United States was 322 million, Russia's was 143 million and Japan's 127 million. The trend in world population growth has been continuous since 1995. The overall increase between 2000 and 2015 was 20%. Over this period within the group of countries represented, the fastest population growth was recorded in the United States (14%), followed by China

(8%). During the same period the EU-28 had a 4% increase of its population and Japan (1%). In contrast, Russia recorded a 2% decrease between 2000 and 2015.

Population density is the ratio of the population of the territory to the surface (land) area of the territory. In 2015, world population density was estimated at 54 inhabitants/km². One of the most densely populated country in the world was Japan (335 inhabitants/km²), China's density was 143 inhabitants/ km² and the EU-28's was 116. The United States and Russia presented densities below the world average (33 and 8 inhabitants/ km² respectively).

Table 1.1.1: Area and population worldwide, 2015

	Land area (1) (1 000 km ²)	Population (1 000)	Population density (inhabitants/km ²)
EU-28	4 382	508 451	116
China	9 597	1 376 049	143
Japan	378	126 573	335
Russia	17 098	143 457	8
United States	9 834	321 774	33
World	136 162	7 349 472	54

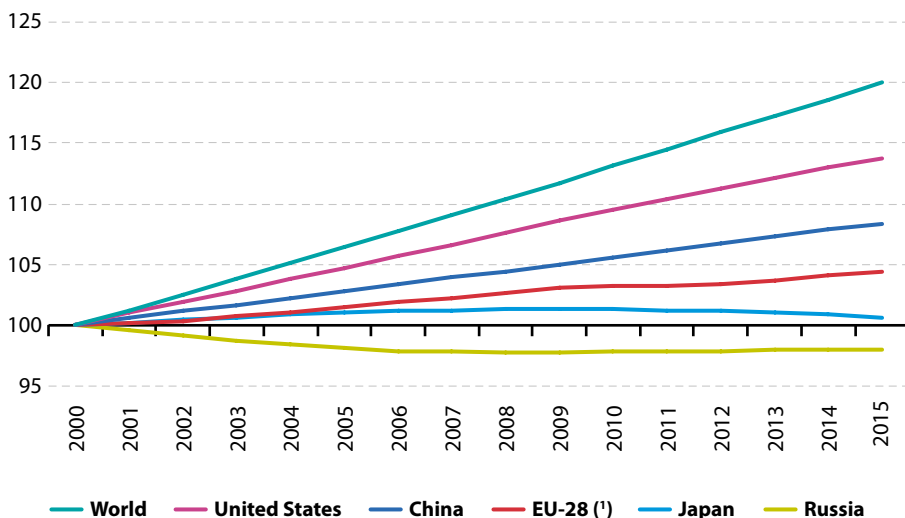
(1) 2013 data.

Source: Land area: United Nations Demographic Yearbook 2014; Population: World Population Prospects: The 2015 Revision, United Nations Population Division; EU-28: Eurostat (online data code: [demo_pjan](#))



Figure 1.1.1: Population index worldwide, 2000–15

(Index 2000 = 100)



(*) Break in time series in 2001, 2010, 2011, 2012, 2014 and 2015. Provisional data for 2014 and 2015.

Source: World Population Prospects: The 2015 Revision, United Nations Population Division, EU-28: Eurostat (online data code: [demo_pjan](#))

In 2015, the world's gross domestic product (GDP) was valued at USD 73 434 billion (at current prices). The EU-28 accounted for USD 16 299 billion, a 22.1 % share of the world's GDP; while the United States accounted for a 24.4 % share. The share of China in the world's GDP was 14.8%, Japan's 5.6 % and Russia's 1.8%. Compared with 2000, most major economies (except Japan) increased their GDPs in 2015. Having increased up to 2012, Japan's GDP began to decrease in 2012, followed by Russia's GDP in 2013 (which, by 2015, had decreased by 41 %). China's GDP grew the most exponentially from 2000 to 2015: 802 %.

Gross national income (GNI) is the sum of gross primary incomes receivable by resident

institutional units/sectors. Therefore, it is GDP less primary income payable to non-residents plus primary income receivable from non-residents. With the use of GNI per capita in purchasing power parity (PPP) the relative position of individual countries can be expressed through a comparison with the world value (100). In 2015, the highest value among the major world economies was recorded for the United States (366.1 compared with the world average), followed by Japan (252.2), the EU-28 (243.8) and Russia (154.3); while for China it was 91.9.

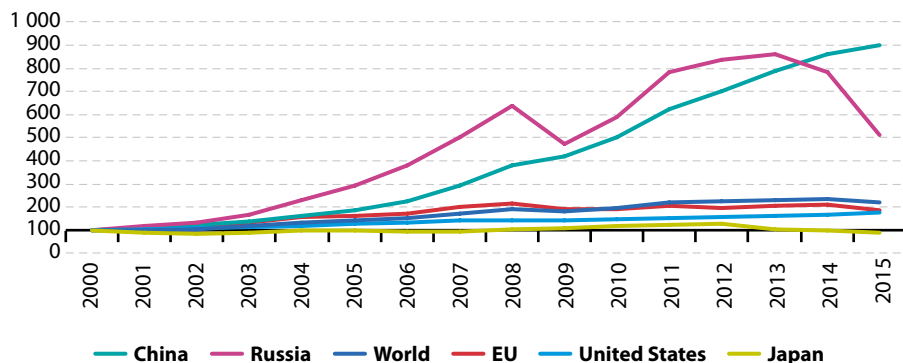


Table 1.1.2: GDP, GDP share in the world, GNI per capita in PPP worldwide, 2015

	GDP at current prices (million USD)	Share of world GDP (%)	GNI per capita in PPP (world = 100)
EU-28	16 229 464	22.1	243.8
China	10 866 444	14.8	91.9
Japan	4 123 258	5.6	252.2
Russia	1 326 015	1.8	154.3
United States	17 946 996	24.4	366.1
World	73 433 644	100.0	100.0

Source: The World Bank

Figure 1.1.2: GDP in the world in current USD, 2000–15
(Index 2000 = 100)



Source: The World Bank

In 2014, among the five economies in analysis, China presented the highest absolute exports values (EUR 1 763 billion), followed by the EU-28 (EUR 1 703 billion); while the United States presented the highest value of imports (EUR 1 815 billion). As far as net exports (exports minus imports) are concerned, in 2014 the net exporting countries were China (except Hong Kong, EUR 289 billion), Russia (EUR 159 billion) and the EU-28 (EUR 11 billion), while the United

States and Japan were net importers with EUR 595 billion and EUR 92 billion respectively.

During the period 2000 to 2014, all countries presented increased exports and imports. The highest increases in exports were recorded in China (sixfold) and Russia (threefold), while in imports the highest increases were recorded in Russia (fivefold) and China (sixfold).

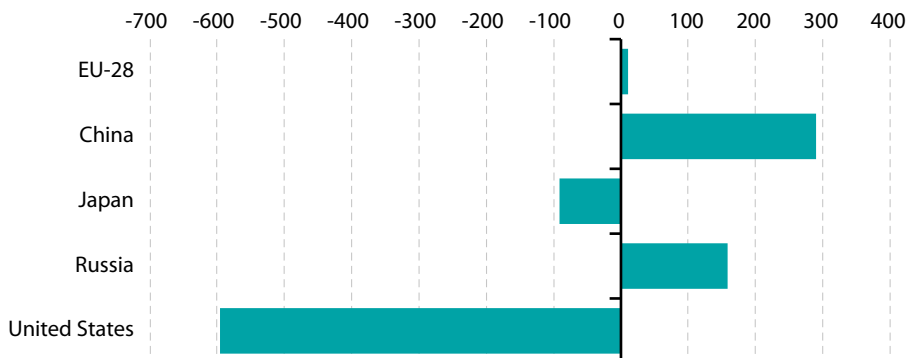
Table 1.1.3: Trade in goods worldwide, 2000–14
(million EUR)

	2000	2005	2010	2014
	Exports			
EU-28 (¹)	849 739	1 049 473	1 353 196	1 703 019
China	269 813	612 454	1 190 460	1 763 149
Japan	518 914	478 210	580 655	519 546
Russia	111 619	194 077	299 515	374 734
United States	844 869	726 903	964 094	1 219 227
	Imports			
EU-28 (¹)	992 698	1 183 933	1 529 387	1 691 880
China	243 710	530 466	1 051 670	1 473 859
Japan	411 112	414 650	523 542	611 355
Russia	36 682	79 340	172 672	215 769
United States	1 362 129	1 392 429	1 484 695	1 814 720
	Net exports			
EU-28 (¹)	-142 959	-134 460	-176 191	11 139
China	26 103	81 987	138 790	289 290
Japan	107 802	63 560	57 113	-91 808
Russia	74 937	114 737	126 843	158 965
United States	-517 260	-665 526	-520 601	-595 493

(¹) EU-27 data for 2000.

Source: Eurostat (online data code: ext_lt_introle)

Figure 1.1.3: Net exports, 2014
(1 000 million EUR)



Source: Eurostat (online data code: ext_lt_introle)

2

Energy indicators





2.1 Energy prices

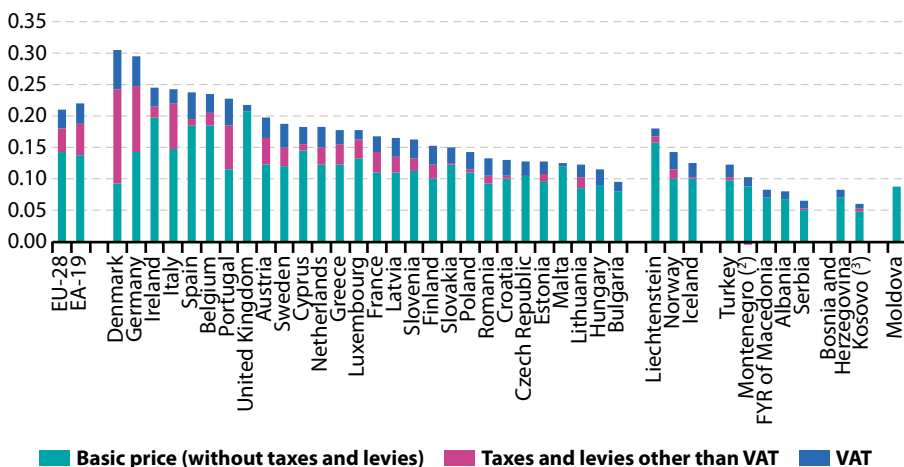
For medium size household consumers, electricity prices during the second semester of 2015 were the highest in the EU in Denmark (EUR 0.304 per kilowatt hour (kWh)), Germany (EUR 0.295 per kWh) and Ireland (EUR 0.245 per kWh). The lowest electricity prices in the EU for households were found in Bulgaria (EUR 0.096 per kWh), Hungary (EUR 0.115 per kWh) and Lithuania (EUR 0.124 per kWh). The price of electricity for households in Denmark was more than 3 times higher than the price in Bulgaria. The EU-28 average price (this price is weighted with the most recent national electricity consumption in the household sector which is data for 2014) is EUR 0.211 per kWh.

EU-28 and euro area (EA) electricity prices for households increased in 2008, remained stable or even decreased in 2009, but went up again

as of 2010. Between the second half of 2014 and the second half of 2015, electricity prices for households decreased in 12 EU Member States. The largest price increases among EU Member States between the second semester of 2014 and the second semester of 2015 were observed in Latvia (+ 27%) and Belgium (+ 15%), while prices went down by more than 20% in Cyprus.

Purchasing power standard (PPS) is an artificial common reference currency unit that eliminates price level differences between countries. One PPS thus buys the same given volume of goods/services in all countries. From this comparison, it follows that, relative to the cost of other goods and services, electricity for household consumers was the most expensive in Portugal, Germany, Romania and Spain, while it was relatively cheap in Finland, Sweden and Luxembourg.

Figure 2.1.1: Electricity prices for household consumers, second half 2015 (¹)
(EUR/kWh)



(¹) Annual consumption: 2 500 kWh < consumption < 5 000 kWh.

(²) Taxes and levies other than VAT are slightly negative and therefore the overall price is marginally lower than that shown by the bar.

(³) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: nrg_pc_204)



Table 2.1.1: Electricity and gas prices, second half of year, 2013–15
(EUR/kWh)

	Electricity prices						Gas prices					
	Households (1)			Industry (2)			Households (3)			Industry (4)		
	2013	2014	2015	2013	2014	2015	2013	2014	2015	2013	2014	2015
EU-28	0.202	0.206	0.211	0.118	0.120	0.119	0.071	0.072	0.071	0.040	0.037	0.034
EA (5)	0.215	0.218	0.221	0.126	0.129	0.125	0.079	0.079	0.076	0.041	0.038	0.035
Belgium	0.222	0.204	0.235	0.110	0.109	0.108	0.067	0.065	0.062	0.034	0.029	0.029
Bulgaria	0.088	0.090	0.096	0.073	0.076	0.078	0.052	0.048	0.039	0.035	0.034	0.027
Czech Republic	0.149	0.127	0.129	0.099	0.082	0.078	0.058	0.056	0.058	0.033	0.030	0.029
Denmark	0.294	0.304	0.304	0.100	0.097	0.091	0.098	0.088	0.076	0.044	0.037	0.034
Germany	0.292	0.297	0.295	0.144	0.152	0.149	0.069	0.068	0.068	0.048	0.040	0.038
Estonia	0.137	0.133	0.129	0.097	0.093	0.096	0.048	0.049	0.038	0.035	0.037	0.027
Ireland	0.241	0.254	0.245	0.137	0.136	0.136	0.072	0.075	0.072	0.047	0.042	0.037
Greece	0.170	0.179	0.177	0.124	0.130	0.115	0.089	0.080	0.075	0.051	0.047	0.036
Spain	0.227	0.237	0.237	0.120	0.117	0.113	0.089	0.096	0.093	0.038	0.037	0.032
France	0.160	0.162	0.168	0.086	0.093	0.095	0.073	0.076	0.073	0.039	0.038	0.037
Croatia	0.135	0.132	0.131	0.094	0.092	0.093	0.047	0.048	0.046	0.043	0.040	0.035
Italy	0.232	0.234	0.243	0.172	0.174	0.160	0.095	0.095	0.091	0.038	0.035	0.032
Cyprus	0.248	0.236	0.184	0.201	0.190	0.141	:	:	:	:	:	:
Latvia	0.136	0.130	0.165	0.115	0.118	0.118	0.050	0.049	0.049	0.037	0.036	0.029
Lithuania	0.139	0.132	0.124	0.123	0.117	0.100	0.061	0.050	0.044	0.041	0.037	0.022
Luxembourg	0.165	0.174	0.177	0.100	0.099	0.089	0.057	0.051	0.048	0.045	0.039	0.037
Hungary	0.133	0.115	0.115	0.098	0.090	0.087	0.042	0.035	0.035	0.048	0.039	0.034
Malta	0.169	0.125	0.127	0.178	0.178	0.137	:	:	:	:	:	:
Netherlands	0.192	0.173	0.183	0.094	0.089	0.084	0.085	0.082	0.077	0.036	0.033	0.032
Austria	0.202	0.199	0.198	0.111	0.106	0.105	0.075	0.073	0.071	0.043	0.040	0.038
Poland	0.144	0.141	0.142	0.088	0.083	0.086	0.051	0.050	0.050	0.036	0.036	0.034
Portugal	0.213	0.223	0.229	0.114	0.119	0.115	0.093	0.104	0.098	0.042	0.044	0.038
Romania	0.128	0.125	0.132	0.082	0.081	0.080	0.031	0.032	0.034	0.029	0.031	0.029
Slovenia	0.166	0.163	0.163	0.095	0.085	0.087	0.071	0.063	0.061	0.048	0.044	0.038
Slovakia	0.168	0.152	0.152	0.127	0.117	0.112	0.052	0.052	0.050	0.039	0.038	0.035
Finland	0.156	0.154	0.153	0.075	0.072	0.071	:	:	:	0.047	0.047	0.042
Sweden	0.205	0.187	0.187	0.075	0.067	0.059	0.122	0.114	0.117	0.055	0.044	0.042
United Kingdom	0.180	0.201	0.218	0.120	0.134	0.152	0.059	0.065	0.067	0.036	0.035	0.035
Iceland	0.107	0.116	0.127	:	:	:	:	:	:	:	:	:
Liechtenstein	:	0.155	0.180	:	0.140	0.161	:	0.086	0.093	:	0.056	0.060
Norway	0.178	0.166	0.143	0.087	0.081	0.069	:	:	:	:	:	:
Montenegro	0.099	0.099	0.099	0.075	0.075	0.076	:	:	:	:	:	:
FYR of Macedonia	0.078	0.082	0.084	0.075	0.078	0.081	:	:	:	0.039	0.042	0.027
Albania	0.115	0.116	0.082	:	:	:	:	:	:	:	:	:
Serbia	0.061	0.060	0.065	0.066	0.067	0.068	0.044	0.045	0.040	0.038	0.038	0.036
Turkey	0.131	0.131	0.122	0.081	0.081	0.070	0.037	0.037	0.035	0.027	0.027	0.025
Bosnia and Herzegovina	0.080	0.081	0.083	0.066	0.062	0.061	0.051	0.051	0.051	0.053	0.053	0.053
Kosovo (6)	0.056	0.059	0.061	0.073	0.079	0.081	:	:	:	:	:	:
Moldova	:	:	0.088	:	:	0.077	:	:	0.032	:	:	0.027

(1) Annual consumption: 2 500 kWh < consumption < 5 000 kWh.

(2) Annual consumption: 500 MWh < consumption < 2 000 MWh; excluding VAT.

(3) Annual consumption: 20 GJ < consumption < 200 GJ.

(4) Annual consumption: 10 000 GJ < consumption < 100 000 GJ; excluding VAT.

(5) 2013: EA-17. 2014: EA-18. 2015: EA-19.

(6) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data codes: nrg_pc_204, nrg_pc_205, nrg_pc_202 and nrg_pc_203)

Table 2.1.2: Electricity — share of taxes and levies paid by household consumers, second half 2015

	Basic price	Other taxes and levies (excl. VAT)	VAT	All taxes and levies
		(EUR/kWh)		(%)
Belgium	0.184	0.022	0.029	21.7
Bulgaria	0.080	0.000	0.016	16.6
Czech Republic	0.106	0.001	0.023	18.3
Denmark	0.094	0.149	0.061	69.1
Germany	0.143	0.105	0.047	51.6
Estonia	0.095	0.013	0.021	26.3
Ireland	0.199	0.017	0.029	18.9
Greece	0.123	0.034	0.020	30.7
Spain	0.186	0.009	0.041	21.4
France	0.111	0.032	0.025	33.9
Croatia	0.100	0.005	0.026	23.6
Italy	0.148	0.073	0.022	39.1
Cyprus	0.146	0.009	0.028	20.4
Latvia	0.110	0.027	0.029	33.6
Lithuania	0.086	0.016	0.022	30.6
Luxembourg	0.133	0.031	0.013	24.7
Hungary	0.090	0.000	0.024	21.2
Malta	0.121	0.000	0.006	4.7
Netherlands	0.123	0.029	0.032	33.0
Austria	0.124	0.041	0.033	37.5
Poland	0.111	0.005	0.027	22.1
Portugal	0.115	0.071	0.043	49.5
Romania	0.094	0.013	0.026	28.9
Slovenia	0.113	0.021	0.029	31.0
Slovakia	0.123	0.003	0.025	18.8
Finland	0.101	0.023	0.030	34.1
Sweden	0.120	0.030	0.038	35.9
United Kingdom	0.208	0.000	0.010	4.8
Iceland	0.100	0.002	0.025	21.1
Liechtenstein	0.158	0.009	0.013	12.5
Norway	0.099	0.015	0.029	30.7
Montenegro	0.087	0.000	0.012	11.9
FYR of Macedonia	0.071	0.000	0.013	15.3
Albania	0.068	0.000	0.014	16.7
Serbia	0.050	0.004	0.011	22.6
Turkey	0.097	0.006	0.019	20.5
Kosovo (1)	0.048	0.006	0.007	21.3
Bosnia and Herzegovina	0.071	0.000	0.012	14.5
Moldova	0.088	0.000	0.000	0.0

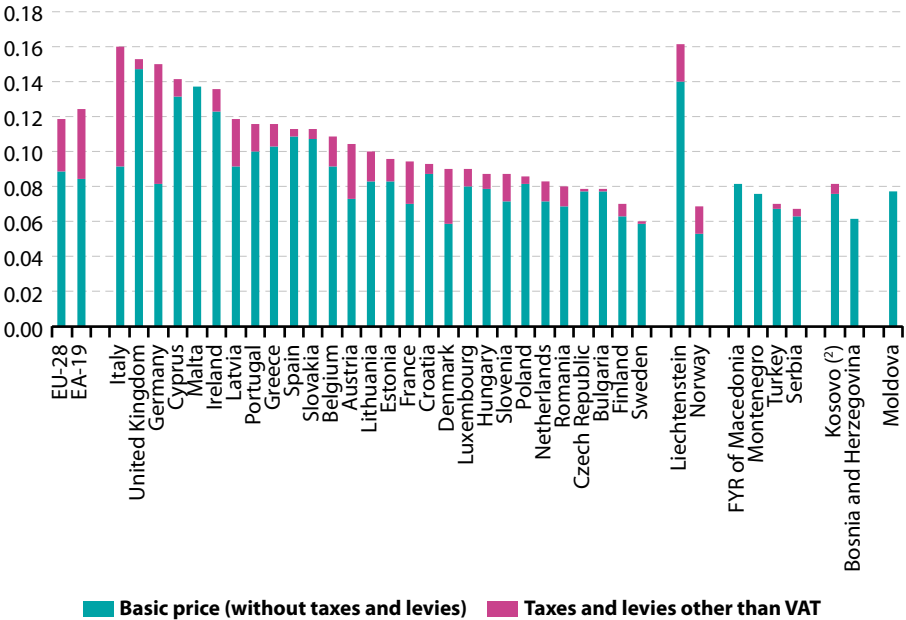
(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: [nrg_pc_205](#))

For industrial consumers, electricity prices during the second semester of 2015 were the highest in Italy, the United Kingdom and Germany. The EU-28 average price (this price is weighted with the latest available (2014) national consumption for industrial consumers) was EUR 0.119 per kWh.

Looking at the proportion of non-recoverable taxes and levies in the overall electricity price for industrial consumers, the highest taxes were charged in Germany where 45% is made up of non-recoverable taxes and levies.

Figure 2.1.2: Electricity prices for industrial consumers, second half 2015 ⁽¹⁾
(EUR/kWh)



⁽¹⁾ Annual consumption: 500 MWh < consumption < 2 000 MWh. Excluding VAT.
⁽²⁾ This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: nrg_pc_205)

Table 2.1.3: Electricity — share of taxes and levies paid by industrial consumers, second half 2015

	Basic price	Non recoverable taxes and levies	
	(EUR/kWh)	(EUR/kWh)	(%)
Belgium	0.092	0.016	14.9
Bulgaria	0.077	0.001	1.3
Czech Republic	0.077	0.001	1.3
Denmark	0.059	0.032	35.4
Germany	0.081	0.068	45.5
Estonia	0.082	0.013	14.0
Ireland	0.123	0.013	9.3
Greece	0.102	0.013	11.1
Spain	0.108	0.005	4.9
France	0.070	0.025	26.1
Croatia	0.088	0.005	5.7
Italy	0.092	0.068	42.5
Cyprus	0.132	0.009	6.6
Latvia	0.092	0.027	22.7
Lithuania	0.083	0.017	17.0
Luxembourg	0.080	0.009	10.0
Hungary	0.078	0.009	10.0
Malta	0.137	0.000	0.0
Netherlands	0.071	0.012	14.7
Austria	0.073	0.032	30.4
Poland	0.081	0.005	5.6
Portugal	0.100	0.015	13.3
Romania	0.068	0.012	15.1
Slovenia	0.071	0.016	18.3
Slovakia	0.108	0.004	4.0
Finland	0.064	0.007	10.1
Sweden	0.059	0.000	0.8
United Kingdom	0.146	0.006	3.8
Liechtenstein	0.140	0.021	13.2
Norway	0.053	0.015	22.3
Montenegro	0.076	0.000	0.0
FYR of Macedonia	0.081	0.000	0.0
Serbia	0.063	0.005	7.1
Turkey	0.068	0.002	3.4
Bosnia and Herzegovina	0.061	0.000	0.0
Kosovo (*)	0.075	0.006	7.2
Moldova	0.077	0.000	0.0

(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

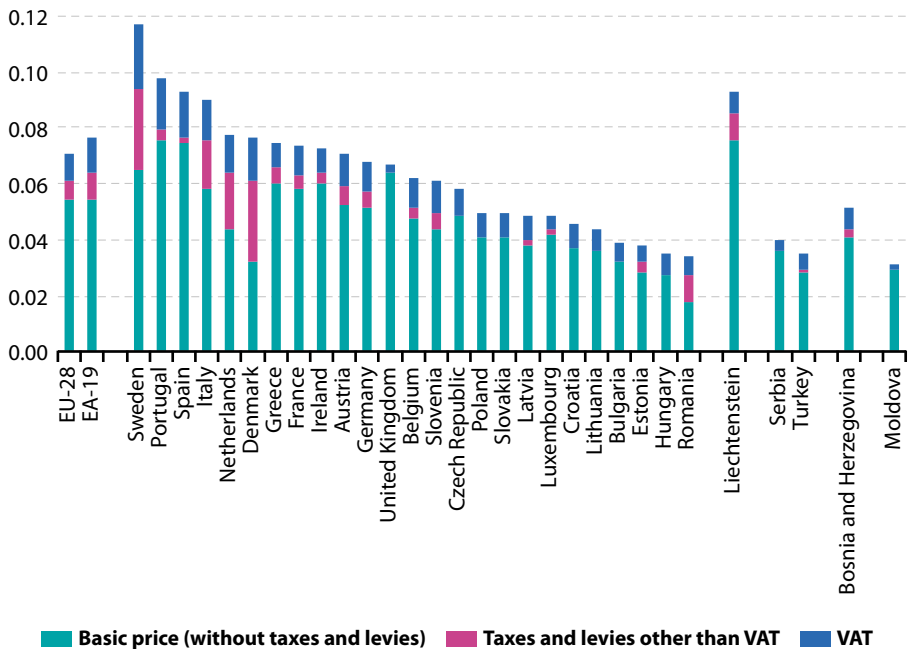
Source: Eurostat (online data code: nrg_pc_205)



For medium size household consumers, natural gas prices during the second semester of 2015 were the highest in Sweden, Portugal and Spain. The lowest natural gas prices in the EU for households were found in Romania, Hungary and Estonia. The price of natural gas for households in Sweden (EUR 0.117 per kWh)

was more than three times the price that was charged in Romania (EUR 0.034 per kWh). The EU-28 average price (this price is weighted with the latest available national consumption volumes for the household sector that is from 2014) was EUR 0.071 per kWh.

Figure 2.1.3: Natural gas prices for household consumers, second half 2015 ⁽¹⁾ (EUR/kWh)



⁽¹⁾ Annual consumption: 20 GJ < consumption < 200 GJ. Finland: not available. Cyprus and Malta: not applicable.

Source: Eurostat (online data code: nrg_pc_202)

Table 2.1.4: Natural gas — share of taxes and levies paid by household consumers, second half 2015

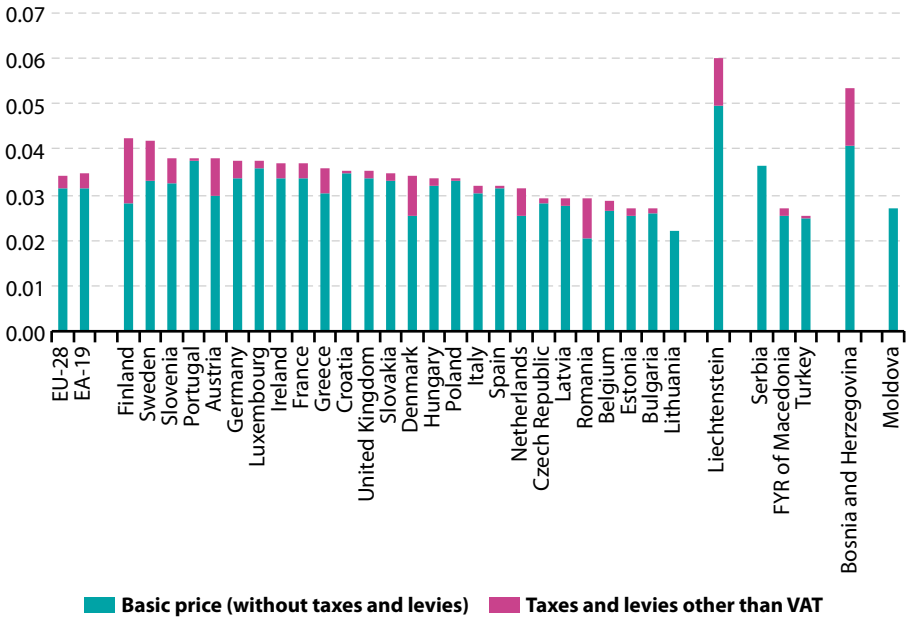
	Basic price	Other taxes and levies (excl. VAT)	VAT	All taxes and levies
	(EUR/kWh)			(%)
Belgium	0.048	0.004	0.011	23.0
Bulgaria	0.033	0.000	0.007	16.6
Czech Republic	0.048	0.000	0.010	17.3
Denmark	0.033	0.029	0.015	57.3
Germany	0.051	0.006	0.011	24.7
Estonia	0.029	0.003	0.006	25.3
Ireland	0.060	0.004	0.009	17.0
Greece	0.061	0.006	0.009	19.3
Spain	0.075	0.002	0.016	19.9
France	0.058	0.005	0.010	20.6
Croatia	0.037	0.000	0.009	19.8
Italy	0.058	0.017	0.015	35.5
Cyprus	:	:	:	:
Latvia	0.038	0.002	0.008	21.0
Lithuania	0.036	0.000	0.008	17.4
Luxembourg	0.041	0.003	0.004	14.1
Hungary	0.028	0.000	0.008	21.3
Malta	:	:	:	:
Netherlands	0.043	0.020	0.013	43.7
Austria	0.052	0.007	0.012	26.4
Poland	0.041	0.000	0.009	18.7
Portugal	0.076	0.004	0.018	22.8
Romania	0.018	0.010	0.007	47.4
Slovenia	0.044	0.006	0.011	28.6
Slovakia	0.041	0.000	0.008	16.8
Sweden	0.065	0.029	0.024	45.0
United Kingdom	0.064	0.000	0.003	4.6
Liechtenstein	0.076	0.010	0.007	17.9
Serbia	0.036	0.000	0.004	9.0
Turkey	0.029	0.001	0.005	17.3
Bosnia and Herzegovina	0.041	0.003	0.007	20.8
Moldova	0.029	0.000	0.002	6.7

Source: Eurostat (online data code: [nrg_pc_202](#))

For industrial consumers, natural gas prices during the second semester of 2015 were the highest in Finland and in Sweden. The lowest natural gas prices that are charged to medium level industrial consumers in the EU were found in Lithuania. The EU-28 average price (this price is weighted with 2013 national consumption for industrial consumers) was EUR 0.034 per kWh.

The relative amount of tax contribution in the EU-28 is the lowest in Lithuania where no energy or other taxes are applied. The highest taxes were charged in Finland (33 %) and Romania (30 %).

Figure 2.1.4: Natural gas prices for industrial consumers, second half 2015 ⁽¹⁾ (EUR/kWh)



⁽¹⁾ Annual consumption: 10 000 GJ < consumption < 100 000 GJ. Excluding VAT. Cyprus and Malta: not applicable.

Source: Eurostat (online data code: nrg_pc_203)

Table 2.1.5: Natural gas — share of taxes and levies paid by industrial consumers, second half 2015

	Basic price	Non recoverable taxes and levies	
	(EUR/kWh)		(%)
Belgium	0.026	0.002	7.7
Bulgaria	0.026	0.001	3.7
Czech Republic	0.028	0.001	3.7
Denmark	0.025	0.009	26.7
Germany	0.034	0.004	10.6
Estonia	0.025	0.002	7.4
Ireland	0.034	0.004	9.5
Greece	0.030	0.006	15.8
Spain	0.031	0.001	1.6
France	0.033	0.003	9.0
Croatia	0.035	0.001	1.4
Italy	0.030	0.002	5.6
Cyprus	:	:	:
Latvia	0.028	0.002	5.8
Lithuania	0.022	0.000	0.0
Luxembourg	0.036	0.001	3.5
Hungary	0.032	0.002	5.3
Malta	:	:	:
Netherlands	0.025	0.006	19.6
Austria	0.030	0.008	22.0
Poland	0.033	0.001	1.8
Portugal	0.037	0.001	1.3
Romania	0.020	0.009	30.0
Slovenia	0.033	0.005	14.2
Slovakia	0.033	0.001	4.0
Finland	0.028	0.014	32.9
Sweden	0.033	0.009	21.1
United Kingdom	0.033	0.002	4.8
Liechtenstein	0.050	0.010	16.9
FYR of Macedonia	0.025	0.002	7.0
Serbia	0.036	0.000	0.0
Turkey	0.025	0.001	2.4
Bosnia and Herzegovina	0.041	0.000	0.0
Moldova	0.027	0.000	0.0

 Source: Eurostat (online data code: [nrg_pc_203](#))

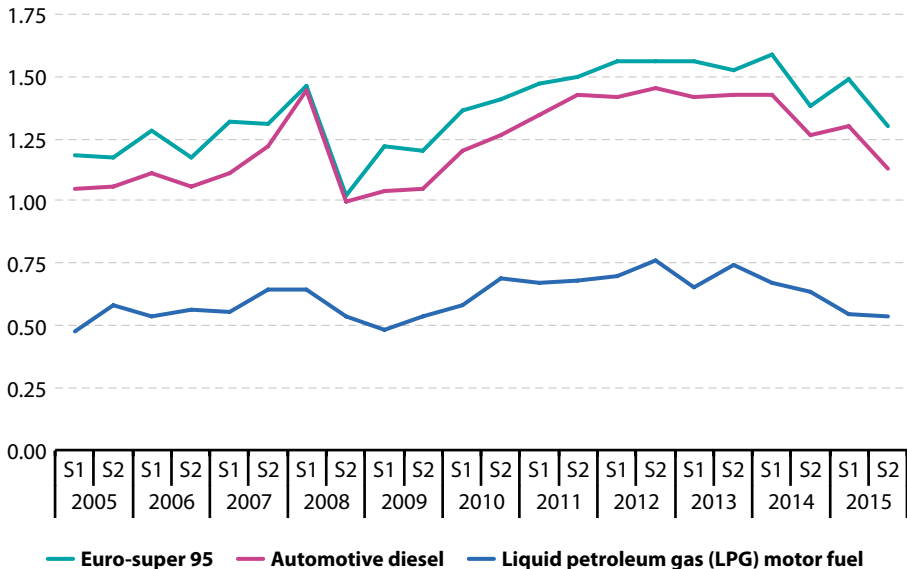


Consumer prices for petroleum products are published both with taxes and duties and without them. The development of prices between 2005 and 2015 for three types of automotive fuel, with a notable peak in the first half of 2008, was followed by a considerable correction during the second half of the same year. Thereafter, there was a gradual increase in price of all petroleum products, such that by the second half of 2012, the prices of the three products shown were at historical highs. For petrol (Euro-super 95) the price remained relatively stable in 2013, reached a new peak in the first half of 2014 and fell strongly in the

second halves of 2014 and 2015. For automotive diesel the development was similar, without the peak in the first half of 2014. For liquid petroleum gas (LPG), a price fall was recorded in the first half of 2013 which was followed in the second half of the year by a rise of similar proportions before prices declined again in 2014 and 2015.

The average price of Euro-super 95 in the EU was EUR 1.30 per litre at the end of 2015, its lowest level since the end of 2009. The average price of automotive diesel was EUR 1.13 per litre (which was also its lowest level since the end of 2009).

Figure 2.1.5: Consumer prices of petroleum products, EU, 2005–15⁽¹⁾
(EUR/litre)



⁽¹⁾ Weighted average. Inclusive of taxes and duties. Reference periods refer to the end of each half year.

Source: Oil bulletin, Directorate-General for Energy, European Commission

Table 2.1.6: Consumer prices of petroleum products, end of second half 2015
(EUR/litre)

	Euro-super 95		Automotive diesel		LPG motor fuel	
	Without taxes and duties	At-the-pump price	Without taxes and duties	At-the-pump price	Without taxes and duties	At-the-pump price
EU-28 (¹)	0.44	1.30	0.44	1.13	0.33	0.54
EA-19 (¹)	0.45	1.31	0.43	1.09	0.35	0.59
Belgium	0.41	1.21	0.40	1.04	0.38	0.46
Bulgaria	0.51	1.04	0.55	1.05	0.29	0.46
Czech Republic	0.42	1.08	0.48	1.07	0.34	0.50
Denmark	0.50	1.39	0.50	1.15	:	:
Germany	0.44	1.30	0.42	1.06	0.36	0.54
Estonia	0.41	1.00	0.45	1.01	0.40	0.57
Ireland	0.45	1.30	0.48	1.20	:	:
Greece	0.46	1.40	0.55	1.10	:	:
Spain	0.48	1.14	0.46	1.01	0.45	0.59
France	0.43	1.27	0.39	1.05	0.54	0.74
Croatia	0.45	1.20	0.47	1.09	0.42	0.54
Italy	0.46	1.45	0.46	1.31	0.35	0.60
Cyprus	0.49	1.17	0.52	1.17	:	:
Latvia	0.46	1.06	0.48	0.99	0.33	0.51
Lithuania	0.43	1.05	0.46	0.96	0.28	0.54
Luxembourg	0.47	1.09	0.45	0.92	0.36	0.45
Hungary	0.44	1.04	0.46	1.04	0.41	0.65
Malta	0.62	1.35	0.63	1.26	:	:
Netherlands	0.44	1.46	0.44	1.13	0.32	0.61
Austria	0.43	1.11	0.48	1.02	:	:
Poland	0.42	0.98	0.45	0.96	0.28	0.47
Portugal	0.48	1.34	0.49	1.09	0.32	0.56
Romania	0.44	1.11	0.45	1.08	0.37	0.55
Slovenia	0.44	1.22	0.42	1.10	0.40	0.59
Slovakia	0.44	1.22	0.47	1.06	0.39	0.58
Finland	0.47	1.39	0.49	1.23	:	:
Sweden	0.45	1.31	0.50	1.27	:	:
United Kingdom	0.40	1.43	0.44	1.49	:	:

(¹) Weighted average.

Source: Oil bulletin, Directorate-General for Energy, European Commission



2.2 Electricity markets

Table 2.2.1: Number of electricity generating companies and of main electricity generating companies (2005–14)

	Number of electricity generating companies (¹)				Number of main electricity generating companies (²)			
	2005	2010	2013	2014	2005	2010	2013	2014
Belgium	3	4	>70	>100	2	3	2	2
Bulgaria	14	22	83	55	5	5	5	5
Czech Republic	18	24	215	217	1	1	2	2
Denmark	>1 000	>1 000	~1 450	~1 550	3	2	2	3
Germany	>450	>450	:	:	4	4	4	4
Estonia	2	6	8	10	1	1	1	1
Ireland	4	8	7	8	4	6	6	6
Greece	1	4	3	3	1	1	3	3
Spain (³)	:	:	>10	>10	4	4	5	4
France	4	>5	>5	>5	1	1	2	2
Croatia	2	2	2	2	2	2	2	2
Italy	88	185	493	652	4	5	4	3
Cyprus	1	1	1	1	1	1	1	1
Latvia	6	11	43	76	1	1	1	1
Lithuania	6	9	20	20	3	5	6	6
Luxembourg	>12	3	>10	>10	2	2	3	2
Hungary	40	68	40	32	3	3	2	2
Malta	1	1	1	1	1	1	1	1
Netherlands	100	700	700	350	5	5	4	4
Austria	53	126	169	201	4	4	4	4
Poland	70	68	103	128	5	5	4	4
Portugal	59	107	65	66	3	2	4	4
Romania	12	10	15	27	7	6	5	3
Slovenia	3	3	3	3	2	2	2	2
Slovakia	6	8	10	17	1	1	1	1
Finland	27	29	31	30	4	4	4	4
Sweden	14	24	35	32	3	5	3	3
United Kingdom	17	19	16	17	7	8	7	7
Norway	175	184	169	183	4	3	3	3
Montenegro	:	:	1	1	:	:	1	1
FYR of Macedonia	1	1	2	1	1	1	2	1
Serbia	:	:	4	4	:	:	4	4
Turkey	29	60	87	80	3	2	2	2
Bosnia and Herzegovina	:	:	2	2	:	:	1	1

(¹) Representing at least 95 % of the national net electricity generations.

(²) Companies are considered as 'main' if they produce at least 5 % of the national net electricity generation.

(³) This figure takes into account the shares of both traditional generating companies and operators that represent renewable and CHP generation units in the market (although they are not

the owners of the majority of these facilities). As renewables and CHP generation units represent a high percentage of the total capacity installed in Spain, and those units are participated by a great amount of small companies, it is not possible to determine the exact number of generating companies (owning the generation units) representing at least 95 % of the national net electricity generation.

Source: Eurostat (This data is not yet available in the Eurostat dissemination database)



In 2014, the number of electricity generating companies representing at least 95 % of national net electricity generation remained limited to five or fewer in five EU Member States.

Germany did not report a number for this indicator. Between 2013 and 2014, the number of electricity generating companies representing at least 95 % of national net electricity generation remained stable in nine EU Member States and increases could be observed in 13 Member States, while the number went down most significantly in Bulgaria, in Hungary and in the Netherlands.

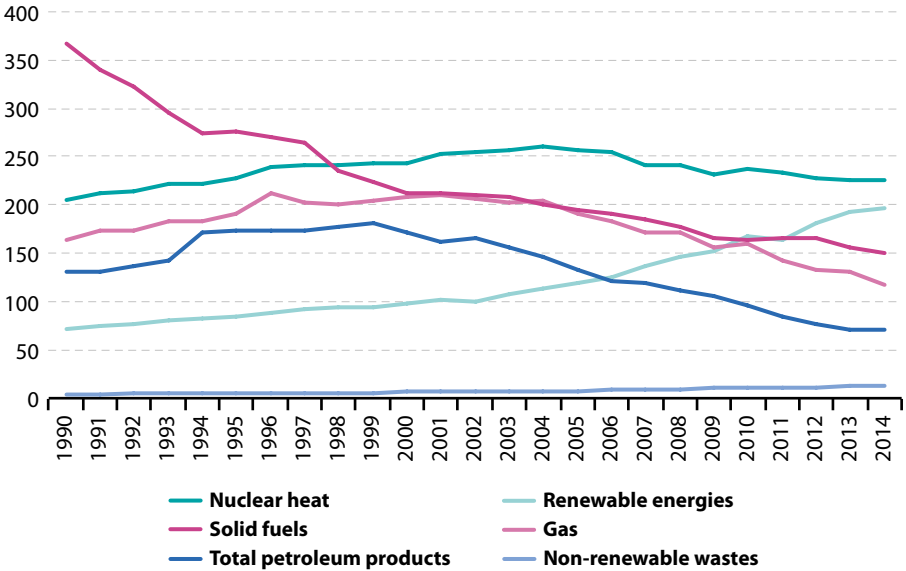
The number of main enterprises at EU-28 level fluctuated between 82 and 90 companies

between 2003 and 2014. Apart from Malta and Cyprus, where only one electricity company dominates the national production, figures above 80 % for the largest electricity generators are observed in Estonia (85 %), France (87 %), Croatia (80 %) and Slovakia (82 %). A size of the largest generation company on national level below 25 % can be observed in Poland (18 %), Lithuania (21 %) and in Spain (24 %). The market share of the largest generator for Bulgaria, Austria, United Kingdom and the Netherlands were not reported.



2.3 Primary energy production

Figure 2.3.1: Primary energy production, EU-28, 1990–2014
(Mtoe)



Source: Eurostat (online data code: nrg_100a)

Primary production of energy within the EU-28 in 2014 was 770 000 thousand tonnes of oil equivalent (ktoe), 2.5 % lower than in 2013. The biggest decrease was in gas (11.2 %), followed by coal (4.2 %) which continue to decrease year by year. An increase was registered for renewable energies with 1.5 % and non-renewable waste with 3.3 %. Nuclear heat accounted for the highest share in primary energy production in EU-28 in 2014 (29.3 %), followed by renewable energies (25.4 %), solid fuels (19.4 %), gas (15.2 %),

petroleum products (9.1 %) and non-renewable wastes (1.6 %).

Over the past decade (2004–14), the trend in primary energy production was negative for fossil fuels and nuclear energy. Production of petroleum products accounted for the biggest decrease (52.0 %) while gas production fell by 42.9 %. However, there was a positive trend in production of renewable energies over the same period, with a 73.1 % increase.

Source: Eurostat (online data code: nrg_109a)

Table 2.3.1: Total production of primary energy, 1990–2014
(Mtoe)

	1990	1995	2000	2005	2010	2012	2013	2014
EU-28	943.0	958.9	942.3	903.8	835.8	795.3	790.5	770.7
EA-19	485.9	465.3	453.2	470.4	479.8	467.3	477.4	465.1
Belgium	12.4	11.5	13.4	13.7	15.3	13.9	14.6	12.2
Bulgaria	9.3	10.2	9.8	10.6	10.5	11.7	10.5	11.3
Czech Republic	40.9	32.1	30.5	32.9	31.5	32.0	29.9	29.1
Denmark	10.0	15.5	27.6	30.8	22.9	18.5	16.5	15.8
Germany	186.4	144.9	135.2	136.8	128.7	122.7	120.6	119.9
Estonia	5.4	3.4	3.2	3.9	4.9	5.1	5.7	5.8
Ireland	3.5	4.1	2.2	1.6	1.8	1.3	2.2	2.0
Greece	9.2	9.3	10.0	10.3	9.4	10.4	9.3	8.8
Spain	34.4	31.3	31.4	30.0	34.3	33.3	34.6	34.9
France	110.7	126.0	129.3	135.6	134.2	132.8	134.5	135.9
Croatia	5.7	5.0	4.3	4.8	5.1	4.2	4.4	4.4
Italy	25.6	29.4	28.2	30.3	33.0	35.0	36.9	36.8
Cyprus	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Latvia	1.1	1.4	1.4	1.9	2.0	2.3	2.1	2.4
Lithuania	4.8	3.8	3.2	3.9	1.3	1.3	1.4	1.5
Luxembourg	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2
Hungary	14.6	13.9	11.6	10.3	11.0	10.5	10.1	10.0
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	60.5	66.8	57.9	62.5	69.9	64.7	69.3	58.4
Austria	8.1	8.8	9.8	9.9	11.9	12.4	12.1	12.1
Poland	103.7	98.8	78.6	77.9	66.7	71.0	70.6	66.9
Portugal	3.4	3.3	3.8	3.6	5.8	4.7	5.8	6.0
Romania	38.3	32.3	28.5	28.2	27.8	27.4	26.1	26.6
Slovenia	3.1	3.0	3.1	3.5	3.8	3.6	3.6	3.7
Slovakia	5.3	5.0	6.3	6.3	6.0	6.2	6.4	6.3
Finland	12.0	13.1	14.8	16.6	17.3	17.1	18.0	18.1
Sweden	29.5	31.3	30.0	34.2	32.7	35.7	34.7	34.1
United Kingdom	205.1	254.4	268.2	203.8	147.7	117.0	110.2	107.6
Iceland	1.6	1.6	2.4	2.4	4.8	5.1	5.3	5.2
Norway	119.3	184.6	227.5	224.2	208.0	202.9	193.9	196.3
Montenegro	:	:	:	0.7	0.9	0.7	0.8	0.7
FYR of Macedonia	1.3	1.6	1.5	1.5	1.6	1.5	1.4	1.3
Albania	2.4	1.2	1.0	1.1	1.6	1.6	2.0	1.9
Serbia	13.7	12.2	11.8	10.2	10.5	10.8	11.3	9.4
Turkey	25.9	26.5	25.9	24.0	32.3	30.7	32.3	31.2
Bosnia and Herzegovina	4.6	0.8	3.1	3.6	4.4	4.5	4.6	6.0
Kosovo (¹)	:	:	1.1	1.4	1.9	1.7	1.8	1.6
Moldova	0.1	0.1	0.1	0.1	0.2	0.3	0.3	0.3
Ukraine	135.8	81.3	76.2	80.7	77.3	84.1	82.7	70.6

(¹) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.



Table 2.3.2: Primary production of coal and lignite and of crude oil (without NGL), 2005–14 (Mtoe)

	Coal and lignite				Crude oil (without NGL)			
	2005	2010	2013	2014	2005	2010	2013	2014
EU-28	194.9	164.0	155.8	149.3	119.4	88.8	66.4	64.6
EA-19	79.3	65.1	62.7	60.8	13.6	10.8	11.5	11.9
Belgium	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bulgaria	4.2	4.9	4.8	5.1	0.0	0.0	0.0	0.0
Czech Republic	23.6	20.7	17.7	16.8	0.3	0.2	0.2	0.2
Denmark	0.0	0.0	0.0	0.0	18.5	12.0	8.7	8.1
Germany	56.5	45.9	45.1	44.1	3.5	2.5	2.6	2.4
Estonia	3.2	3.9	4.4	4.6	0.0	0.0	0.0	0.0
Ireland	0.8	1.0	1.3	1.0	0.0	0.0	0.0	0.0
Greece	8.5	7.3	6.7	6.4	0.1	0.1	0.1	0.1
Spain	6.3	3.3	1.8	1.6	0.2	0.1	0.4	0.3
France	0.0	0.0	0.0	0.0	1.1	0.9	0.8	0.8
Croatia	0.0	0.0	0.0	0.0	0.8	0.6	0.5	0.5
Italy	0.1	0.1	0.0	0.1	6.2	5.1	5.6	5.9
Cyprus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.1
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	1.7	1.6	1.6	1.6	0.9	0.7	0.6	0.6
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	0.0	0.0	0.0	0.0	1.5	1.0	1.1	1.5
Austria	0.0	0.0	0.0	0.0	0.9	0.9	0.8	0.9
Poland	68.4	55.1	56.8	53.6	0.8	0.7	0.9	0.9
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Romania	5.8	5.9	4.7	4.4	5.3	4.4	4.2	4.1
Slovenia	1.2	1.2	1.1	0.8	0.0	0.0	0.0	0.0
Slovakia	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0
Finland	2.1	1.8	1.7	1.6	0.0	0.0	0.0	0.0
Sweden	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0
United Kingdom	11.6	10.4	7.4	6.8	79.2	59.4	39.8	38.3
Iceland	0.0	0.0	0.0	0.0	:	:	:	:
Norway	1.0	1.3	1.2	1.1	126.1	91.1	74.9	76.9
Montenegro	0.3	0.4	0.4	0.4	0.0	0.0	0.0	0.0
FYR of Macedonia	1.2	1.2	1.1	1.0	0.0	0.0	0.0	0.0
Albania	0.0	0.0	0.0	0.0	0.4	0.7	1.1	1.2
Serbia	7.5	7.2	7.7	5.7	0.6	0.9	1.2	1.1
Turkey	10.8	17.5	15.6	16.2	2.3	2.5	0.0	0.0
Bosnia and Herzegovina	2.9	3.5	3.8	3.8	:	:	:	:
Kosovo (*)	1.2	1.6	1.5	1.3	:	:	:	:
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	34.7	32.2	38.3	26.5	3.1	2.6	2.2	2.1

(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: ten00076)

Table 2.3.3: Primary production of natural gas and of nuclear energy, 2005–14
 (Mtoe)

	Natural gas				Nuclear energy			
	2005	2010	2013	2014	2005	2010	2013	2014
EU-28	190.7	159.7	131.8	117.0	257.5	236.6	226.3	226.1
EA-19	83.6	83.8	78.8	64.2	201.5	187.3	172.3	173.9
Belgium	0.0	0.0	0.0	0.0	12.3	12.4	11.0	8.7
Bulgaria	0.4	0.1	0.2	0.2	4.8	4.0	3.7	4.1
Czech Republic	0.2	0.2	0.2	0.2	6.4	7.2	8.0	7.8
Denmark	9.4	7.3	4.3	4.1	0.0	0.0	0.0	0.0
Germany	14.3	11.1	8.9	6.9	42.1	36.3	25.1	25.1
Estonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ireland	0.5	0.2	0.1	0.1	0.0	0.0	0.0	0.0
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spain	0.1	0.0	0.0	0.0	14.8	16.0	14.6	14.8
France	0.9	0.6	0.3	0.0	116.5	110.5	109.3	112.6
Croatia	1.9	2.2	1.5	1.4	0.0	0.0	0.0	0.0
Italy	9.9	6.9	6.3	5.9	0.0	0.0	0.0	0.0
Cyprus	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Latvia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lithuania	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hungary	2.3	2.2	1.5	1.4	3.6	4.1	4.0	4.0
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	56.3	63.4	61.8	50.1	1.0	1.0	0.7	1.1
Austria	1.4	1.4	1.2	1.1	0.0	0.0	0.0	0.0
Poland	3.9	3.7	3.8	3.7	0.0	0.0	0.0	0.0
Portugal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Romania	9.7	8.6	8.6	8.8	1.4	3.0	3.0	3.0
Slovenia	0.0	0.0	0.0	0.0	1.5	1.5	1.4	1.6
Slovakia	0.1	0.1	0.1	0.1	4.6	3.8	4.1	4.0
Finland	0.0	0.0	0.0	0.0	6.0	5.9	6.1	6.1
Sweden	0.0	0.0	0.0	0.0	18.7	14.9	17.1	16.7
United Kingdom	79.4	51.5	32.9	32.9	21.1	16.0	18.2	16.4
Iceland	:	:	:	:	0.0	0.0	0.0	0.0
Norway	75.0	95.2	95.6	95.0	0.0	0.0	0.0	0.0
Montenegro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FYR of Macedonia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Albania	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serbia	0.2	0.3	0.4	0.4	0.0	0.0	0.0	0.0
Turkey	0.7	0.6	0.4	0.4	0.0	0.0	0.0	0.0
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kosovo (*)	:	:	:	:	0.0	0.0	0.0	0.0
Moldova	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ukraine	17.4	15.4	16.0	15.0	22.9	23.2	21.6	23.0

(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: [ten00076](#))

**Table 2.3.4: Primary production of renewable energy, 1990 and 2014**

	Primary production		Share of total, 2014				
	1990	2014	Solar (¹)	Biomass & waste	Geo-thermal	Hydro	Wind
	(1 000 toe)						
EU-28	71 580.7	195 814.0	6.1	63.1	3.2	16.5	11.1
EA-19	51 565.4	142 329.0	7.7	61.0	4.2	16.2	10.9
Belgium	481.2	2 857.1	9.4	75.8	0.1	0.8	13.9
Bulgaria	335.8	1 842.3	6.9	63.6	1.8	21.5	6.2
Czech Republic	917.8	3 656.1	5.4	89.0	0.0	4.5	1.1
Denmark	1 031.6	3 144.0	2.6	61.5	0.1	0.0	35.8
Germany	5 313.4	36 017.9	10.3	70.8	0.5	4.7	13.7
Estonia	187.9	1 186.0	0.0	95.4	0.0	0.2	4.4
Ireland	167.7	853.6	1.4	39.6	0.0	7.1	51.8
Greece	1 104.7	2 329.3	22.2	47.1	0.5	16.5	13.6
Spain	6 202.0	18 002.8	17.3	39.1	0.1	18.7	24.8
France	15 224.3	21 002.1	2.9	63.1	1.0	25.7	7.1
Croatia	1 218.0	2 292.1	0.5	62.5	0.5	33.8	2.7
Italy	6 380.6	23 644.1	8.9	42.2	22.1	21.3	5.5
Cyprus	6.1	111.0	66.7	17.8	1.4	0.0	14.1
Latvia	1 061.8	2 371.2	0.0	92.3	0.0	7.2	0.5
Lithuania	320.5	1 358.2	0.5	92.8	0.1	2.5	4.0
Luxembourg	18.2	120.3	9.3	77.2	0.0	7.7	5.7
Hungary	789.8	2 051.1	0.5	89.2	6.3	1.3	2.8
Malta	0.0	12.7	80.0	20.0	0.0	0.0	0.0
Netherlands	754.9	4 555.4	2.1	86.0	0.8	0.2	10.9
Austria	4 990.1	9 370.4	2.7	55.8	0.3	37.6	3.5
Poland	1 579.7	8 054.4	0.2	89.0	0.3	2.3	8.2
Portugal	3 278.5	5 848.3	2.2	53.8	3.2	22.9	17.8
Romania	1 583.3	6 089.6	2.3	61.9	0.5	26.6	8.8
Slovenia	490.5	1 179.7	2.8	50.1	2.7	44.4	0.0
Slovakia	328.0	1 440.8	4.0	70.4	0.5	25.1	0.0
Finland	5 255.0	10 068.0	0.0	87.6	0.0	11.4	0.9
Sweden	11 530.3	16 659.8	0.1	61.2	0.0	32.9	5.8
United Kingdom	1 028.9	9 695.7	4.1	62.3	0.0	5.2	28.4
Iceland	1 620.0	5 223.1	0.0	0.0	78.7	21.2	0.0
Norway	11 394.1	12 964.5	0.0	8.4	0.0	90.1	1.5
Montenegro	0.0	328.7	0.0	54.2	0.0	45.8	0.0
FYR of Macedonia	42.2	277.6	0.4	56.9	3.1	37.4	2.2
Albania	607.9	620.6	2.0	32.5	0.0	65.5	0.0
Serbia	1 983.4	2 068.4	0.0	54.0	0.3	45.7	0.0
Turkey	9 658.1	12 010.2	6.7	28.8	29.3	29.1	6.1
Bosnia and Herzegovina	426.3	2 277.7	0.0	77.5	0.0	22.5	0.0
Kosovo (²)	0.0	262.6	0.1	94.9	0.0	5.0	0.0
Moldova	84.2	302.7	0.0	98.2	0.0	1.7	0.0
Ukraine	1 263.7	3 263.0	1.1	73.6	0.0	22.3	3.0

(¹) Thermal and photovoltaic.

(²) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: nrg_107a)

Table 2.3.5: Primary energy production, by fuel, 2014

	Total production (Mtoe)	Share of each fuel to total production (%)				
		Coal	Crude oil	Natural gas	Nuclear	Renewable
EU-28	770.7	18.4	8.4	15.2	29.3	25.4
EA-19	465.1	11.5	2.6	13.8	37.4	30.6
Belgium	12.2	0.0	0.0	0.0	71.2	23.4
Bulgaria	11.3	45.3	0.2	1.4	36.5	16.4
Czech Republic	29.1	58.0	0.5	0.7	27.0	12.6
Denmark	15.8	0.0	51.2	26.3	0.0	19.9
Germany	119.9	36.8	2.0	5.7	20.9	30.0
Estonia	5.8	0.0	0.0	0.0	0.0	20.3
Ireland	2.0	0.0	0.0	6.1	0.0	42.5
Greece	8.8	72.5	0.7	0.1	0.0	26.5
Spain	34.9	4.7	0.9	0.1	42.3	51.5
France	135.9	0.0	0.6	0.0	82.8	15.5
Croatia	4.4	0.0	12.6	33.2	0.0	52.7
Italy	36.8	0.1	16.0	15.9	0.0	64.2
Cyprus	0.1	0.0	0.0	0.0	0.0	94.2
Latvia	2.4	0.0	0.0	0.0	0.0	99.6
Lithuania	1.5	0.0	5.6	0.0	0.0	91.3
Luxembourg	0.2	0.0	0.0	0.0	0.0	78.8
Hungary	10.0	15.8	5.7	14.3	40.3	20.4
Malta	0.0	0.0	0.0	0.0	0.0	100.0
Netherlands	58.4	0.0	2.5	85.8	1.8	7.8
Austria	12.1	0.0	7.4	9.0	0.0	77.6
Poland	66.9	80.2	1.4	5.6	0.0	12.0
Portugal	6.0	0.0	0.0	0.0	0.0	97.6
Romania	26.6	16.7	15.3	33.0	11.3	22.9
Slovenia	3.7	22.2	0.0	0.1	44.6	32.0
Slovakia	6.3	9.2	0.1	1.3	64.1	22.8
Finland	18.1	0.0	0.0	0.0	33.7	55.8
Sweden	34.1	0.0	0.0	0.0	49.0	48.8
United Kingdom	107.6	6.3	35.6	30.6	15.3	9.0
Iceland	5.2	0.0	0	0.0	0.0	100.0
Norway	196.3	0.6	39.2	48.4	0.0	6.6
Montenegro	0.7	52.6	0.0	0.0	0.0	47.5
FYR of Macedonia	1.3	78.0	0.0	0.0	0.0	22.0
Albania	1.9	0.0	65.6	1.3	0.0	33.1
Serbia	9.4	60.8	11.9	4.7	0.0	22.0
Turkey	31.2	52.0	8.1	1.3	0.0	38.5
Bosnia and Herzegovina	6.0	62.3	0	0.0	0.0	37.7
Kosovo (!)	1.6	83.6	0.0	0.0	0.0	16.4

(!) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_107a)



In 2014, the highest level of primary energy production among the EU Member States was in France, with a 17.6% share of the EU-28 total, followed by Germany (15.6%) and the United Kingdom (14.0%). Compared with a decade earlier the main change was the fall in the share of the United Kingdom, down from 24.1%. The only other Member States whose shares fell over this period were Denmark (– 1.3 percentage points) and Lithuania (– 0.4 percentage points); there was no change in the shares for Greece, Cyprus or Malta.

Primary energy production in the EU-28 in 2014 was spread across a range of different energy sources, the most important of which in terms of the size of its contribution was nuclear energy (29.4% of the total). The significance of nuclear energy was particularly high in France where it accounted for more than four fifths (82.8%) of the national production of primary energy, while in Belgium this share was just less than three quarters (71.2%) and in Slovakia it was close to two thirds (64.1%); elsewhere, the share of nuclear energy in primary production was less than half of the total, with no contribution from

nuclear energy in 14 of the EU Member States; the German government has announced plans to close all of its nuclear reactors by 2022.

In 2014, close to one quarter (25.5%) of the EU-28's total production of primary energy was accounted for by [renewable energy sources](#), while the share for solid fuels (19.4%, largely coal) was just below one fifth and the share for natural gas was somewhat lower (15.2%). Crude oil (9.1%) was the only other major source of primary energy production.

The growth of primary production from renewable energy sources exceeded that of all the other energy types; this growth was relatively uniform during the period covering 2004–14, with a small dip in production in 2011. Over this 10-year period the production of renewables increased by 73.1%. By contrast, the production levels for the other primary sources of energy generally fell over this period, the largest reductions being recorded for crude oil (– 52.0%), natural gas (– 42.9%) and solid fuels (– 25.5%), with a more modest fall of 13.1% for nuclear energy.



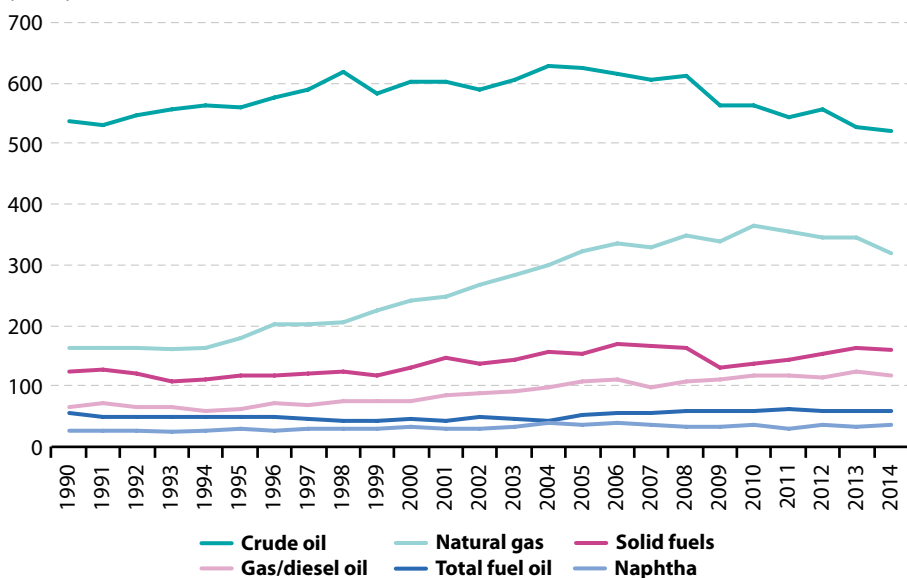
2.4 Energy trade & dependency

The decrease of primary energy production in the EU-28 over the past decades resulted in increased imports of primary energy and energy products. The quantity of imported natural gas nearly doubled over the period 1990–2014 to 320 million tonnes of oil equivalent (Mtoe), although there is a slight decrease since 2010. Crude oil

ranked first in terms of quantities imported, though for 2014, the figure was 521 Mtoe, 16.9% lower than 10 years ago.

Exports are much lower than imports. In 2014, gas/diesel oil (96 Mtoe) ranked highest, followed by natural gas (89 Mtoe) and gasoline (75 Mtoe).

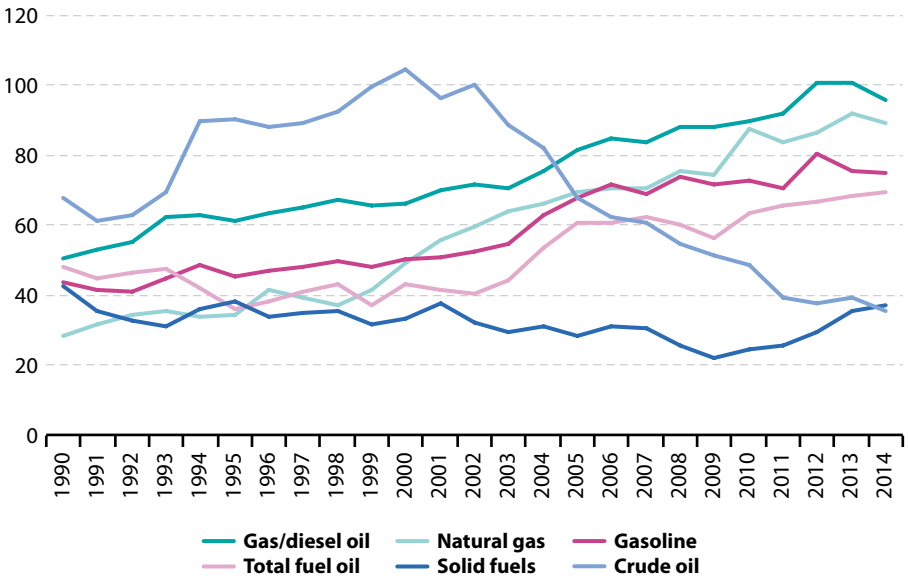
Figure 2.4.1: Imports of selected energy products, EU-28, 1990–2014
(Mtoe)



Source: Eurostat (online data codes: [nrg_100a](#), [nrg_101a](#), [nrg_102a](#), [nrg_103a](#) and [nrg_105a](#))

Figure 2.4.2: Exports of selected energy products, EU-28, 1990–2014

(Mtoe)



Source: Eurostat (online data codes: nrg_100a, nrg_101a, nrg_102a, nrg_103a and nrg_105a)

Table 2.4.1: Main origin of primary energy imports, EU-28, 2005–14
(% of extra-EU-28 imports)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
	Solid fuels									
Russia	23.7	24.9	24.7	26.1	30.0	26.9	26.2	25.7	29.0	29.0
Colombia	11.7	11.3	12.7	12.3	17.4	19.9	23.5	24.2	22.0	21.2
United States	7.6	7.8	9.1	14.0	13.5	16.8	17.8	22.9	21.8	20.5
South Africa	25.0	23.1	20.1	16.5	15.8	9.6	7.7	6.3	6.7	9.9
Australia	13.1	12.0	13.0	11.7	7.5	10.5	8.7	7.2	7.4	6.2
Indonesia	7.2	9.3	7.8	7.3	7.0	5.5	5.0	4.5	3.1	3.4
Canada	3.2	2.8	3.0	2.6	1.4	2.0	2.2	1.6	1.8	2.5
Ukraine	2.2	1.6	1.8	2.3	1.7	1.9	2.3	1.6	1.5	1.5
Norway	0.5	0.3	0.5	0.6	0.8	0.8	0.6	0.3	0.6	0.7
Others	5.9	7.0	7.3	6.7	5.0	6.1	6.1	5.8	6.1	5.1
	Crude oil									
Russia	32.9	33.8	33.7	31.8	33.6	34.7	34.8	33.7	33.7	30.4
Norway	16.8	15.4	15.0	15.0	15.1	13.7	12.5	11.2	11.8	13.1
Nigeria	3.2	3.6	2.7	4.0	4.5	4.1	6.1	8.2	8.1	9.1
Saudi Arabia	10.5	9.0	7.2	6.8	5.7	5.9	8.0	8.8	8.7	8.9
Kazakhstan	4.4	4.6	4.6	4.8	5.3	5.5	5.7	5.1	5.7	6.4
Iraq	2.1	2.9	3.4	3.3	3.8	3.2	3.6	4.1	3.6	4.6
Azerbaijan	1.3	2.2	3.0	3.2	4.0	4.4	4.9	3.9	4.8	4.4
Algeria	3.5	2.5	1.9	2.5	1.6	1.2	2.6	2.9	3.9	4.2
Angola	1.2	0.7	2.0	2.6	2.7	1.6	2.1	2.0	2.9	3.3
Others	24.0	25.2	26.6	26.0	23.8	25.6	19.8	20.1	16.7	15.5
	Natural gas									
Russia	40.7	39.3	38.7	37.6	33.1	32.1	34.9	34.9	41.2	37.5
Norway	23.8	25.9	28.1	28.4	29.4	27.5	27.3	31.2	30.0	31.6
Algeria	17.6	16.3	15.3	14.7	14.3	14.0	13.2	13.6	12.8	12.3
Qatar	1.5	1.8	2.2	2.3	5.5	9.7	11.8	8.5	6.6	6.9
Libya	1.6	2.5	3.0	2.9	2.9	2.7	0.7	1.9	1.7	2.1
Nigeria	3.4	4.3	4.6	4.0	2.4	4.1	4.4	3.6	1.8	1.5
Trinidad and Tobago	0.2	1.2	0.8	1.7	2.3	1.5	1.1	0.9	0.7	0.9
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5	0.4
Turkey	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Others	11.0	8.8	7.3	8.2	9.9	8.2	6.3	4.5	4.5	6.5

Source: Eurostat (online data codes: [nrg_122a](#), [nrg_123a](#) and [nrg_124a](#))


Table 2.4.2: Net imports of primary energy, 2004–14

	2004	2006	2008	2010	2012	2014	2004	2006	2008	2010	2012	2014
	(Mtoe)						(toe/inhabitant)					
EU-28⁽¹⁾	939.4	1014.0	1014.2	954.2	923.0	880.9	1.9	2.0	2.0	1.9	1.8	1.7
Belgium	53.6	52.8	55.6	53.6	46.2	47.1	5.1	5.0	5.2	4.9	4.2	4.2
Bulgaria	9.2	9.4	10.4	7.1	6.6	6.1	1.2	1.2	1.4	1.0	0.9	0.9
Czech Republic	11.6	12.9	12.7	11.4	10.8	12.6	1.1	1.3	1.2	1.1	1.0	1.2
Denmark	-9.8	-7.8	-4.2	-3.3	-0.5	2.3	-1.8	-1.4	-0.8	-0.6	-0.1	0.4
Germany	211.0	215.4	207.1	201.7	196.8	194.2	2.6	2.6	2.5	2.5	2.4	2.4
Estonia	1.7	1.7	1.5	0.9	1.1	0.6	1.2	1.2	1.1	0.7	0.8	0.5
Ireland	13.8	14.3	14.3	13.2	11.8	11.7	3.4	3.3	3.2	2.9	2.6	2.5
Greece	24.8	24.9	25.6	21.8	19.9	17.4	2.3	2.3	2.3	2.0	1.8	1.6
Spain	115.1	123.9	122.3	106.3	99.7	90.7	2.7	2.8	2.7	2.3	2.1	2.0
France⁽²⁾	141.3	141.8	139.0	132.1	125.2	115.4	2.3	2.2	2.2	2.0	1.9	1.7
Croatia	5.0	4.8	5.4	4.4	4.3	3.6	1.2	1.1	1.3	1.0	1.0	0.8
Italy	158.9	163.7	156.5	149.5	133.2	116.1	2.8	2.8	2.7	2.5	2.2	1.9
Cyprus	2.4	3.0	3.1	2.9	2.6	2.3	3.4	4.0	3.9	3.5	3.0	2.7
Latvia	3.3	3.3	2.9	2.2	2.7	1.9	1.4	1.5	1.3	1.1	1.3	1.0
Lithuania	4.4	5.4	5.4	5.7	5.8	5.2	1.3	1.6	1.7	1.8	1.9	1.8
Luxembourg⁽²⁾	4.6	4.6	4.5	4.5	4.3	4.1	10.1	9.8	9.2	8.9	8.2	7.3
Hungary⁽²⁾	15.9	17.2	16.8	15.0	12.2	14.1	1.6	1.7	1.7	1.5	1.2	1.4
Malta	1.9	1.7	1.9	2.4	2.2	2.1	4.7	4.1	4.6	5.7	5.2	4.8
Netherlands	32.0	38.2	34.0	30.1	28.8	30.2	2.0	2.3	2.1	1.8	1.7	1.8
Austria	23.6	24.9	23.6	21.6	21.4	21.5	2.9	3.0	2.8	2.6	2.5	2.5
Poland	13.2	19.0	29.7	31.5	29.9	27.0	0.3	0.5	0.8	0.8	0.8	0.7
Portugal	23.0	22.5	21.6	18.6	18.1	16.3	2.2	2.1	2.0	1.8	1.7	1.6
Romania	11.9	11.9	11.3	7.8	8.0	5.5	0.6	0.6	0.5	0.4	0.4	0.3
Slovenia⁽³⁾	3.7	3.8	4.3	3.6	3.6	3.0	1.9	1.9	2.1	1.7	1.8	1.5
Slovakia	12.5	12.0	11.8	11.3	10.0	9.9	2.3	2.2	2.2	2.1	1.9	1.8
Finland	20.5	20.4	19.7	17.9	16.1	16.9	3.9	3.9	3.7	3.3	3.0	3.1
Sweden	19.5	19.0	19.0	19.3	14.7	16.0	2.2	2.1	2.1	2.1	1.5	1.6
United Kingdom	10.6	49.3	58.4	61.1	87.3	87.2	0.2	0.8	0.9	1.0	1.4	1.3
Iceland	1078.3	1094.1	1207.7	1092.7	801.1	850.7	3.7	3.6	3.8	3.4	2.5	2.6
Norway	-201.9	-186.9	-188.6	-173.3	-172.3	-167.4	-44.0	-42.0	-39.2	-38.4	-37.6	-36.3
Montenegro	0.0	0.5	0.6	0.3	0.4	0.3	0.0	0.7	0.8	1.0	0.9	0.7
FYR of Macedonia	1.1	1.3	1.3	1.2	1.4	1.4	0.5	0.6	0.6	0.7	0.6	0.6
Albania	1.1	0.9	1.1	0.7	0.5	0.8	0.3	0.4	0.3	:	:	0.4
Serbia	5.7	6.2	6.2	5.2	4.1	3.7	0.8	0.7	0.8	0.8	0.9	0.7
Turkey	58.3	69.2	72.8	74.3	90.3	93.5	0.9	0.9	1.0	1.0	1.0	0.9
Bosnia and Herzegovina	19.0	156.1	212.9	286.2	647.3	1670.3	0.0	0.0	0.1	0.1	:	:
Kosovo⁽⁴⁾	545.4	580.8	600.9	619.0	649.9	523.0	0.3	0.3	0.3	0.3	:	:

(¹) Tonnes of oil equivalent per inhabitant, 2010, 2012 and 2014: break in series.

(²) Tonnes of oil equivalent per inhabitant, 2012: break in series.

(³) Tonnes of oil equivalent per inhabitant, 2008: break in series.

(⁴) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data codes: nrg_100a and demo_pjan)

Table 2.4.3: Energy dependence — All products 2005–14

(%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	52.2	53.6	52.8	54.5	53.5	52.6	54.0	53.4	53.1	53.5
EA-19	65.0	65.4	63.6	64.5	63.4	62.0	62.4	61.1	60.1	60.3
Belgium	80.1	79.6	76.8	80.8	75.5	77.9	75.5	76.1	77.4	80.1
Bulgaria	46.7	45.6	50.7	51.7	45.1	39.6	36.0	36.1	37.7	34.5
Czech Republic	28.0	27.8	25.1	28.0	27.2	25.6	28.0	25.3	27.9	30.4
Denmark	-49.8	-35.5	-24.1	-20.5	-19.7	-15.7	-5.6	-2.6	13.3	12.8
Germany	60.4	60.8	58.4	60.8	61.0	60.1	61.6	61.3	62.6	61.6
Estonia	26.1	29.2	24.7	24.7	22.0	13.6	12.0	17.0	11.9	8.9
Ireland	89.6	90.9	87.6	90.7	88.9	86.6	90.0	85.1	89.3	85.3
Greece	68.6	71.9	71.2	73.3	67.7	69.2	65.1	66.5	62.2	66.2
Spain	81.4	81.2	79.6	81.3	79.1	76.7	76.3	73.1	70.4	72.9
France	51.6	51.5	50.4	50.8	51.0	49.1	48.7	48.1	48.0	46.1
Croatia	52.5	49.0	51.6	54.6	46.0	46.6	49.4	48.9	47.0	43.8
Italy	83.4	85.9	83.0	82.9	80.8	82.6	81.4	79.2	76.8	75.9
Cyprus	100.7	102.5	95.9	97.5	96.3	100.8	92.4	97.0	96.4	93.4
Latvia	63.9	66.7	62.5	58.8	60.4	45.5	59.9	56.4	55.9	40.6
Lithuania	56.8	62.0	61.2	57.8	49.9	81.8	81.7	80.3	78.3	77.9
Luxembourg	97.4	98.2	96.7	97.5	97.5	97.1	97.3	97.5	97.0	96.6
Hungary	63.1	62.7	61.2	63.2	58.6	58.2	51.8	52.1	52.1	61.7
Malta	100.0	100.0	100.0	100.0	99.9	99.0	101.3	101.0	104.2	97.7
Netherlands	38.0	38.3	37.8	34.3	36.4	30.3	30.1	30.6	26.1	33.8
Austria	71.6	72.5	68.9	68.9	65.5	62.8	70.2	64.4	61.6	65.9
Poland	17.2	19.6	25.5	30.2	31.6	31.3	33.4	30.6	25.6	28.6
Portugal	88.6	84.0	81.4	83.4	81.4	75.1	77.7	79.3	72.9	71.6
Romania	27.6	29.4	31.7	28.0	20.3	21.9	21.6	22.7	18.5	17.0
Slovenia	52.5	52.0	52.5	55.1	48.5	48.6	47.7	51.1	46.9	44.6
Slovakia	65.3	63.8	68.3	64.4	66.5	63.1	64.3	60.2	59.2	60.9
Finland	54.2	53.6	52.9	54.1	53.7	47.8	52.9	46.3	48.5	48.8
Sweden	36.8	36.8	35.4	37.1	36.7	36.6	36.2	28.6	31.6	32.1
United Kingdom	13.4	21.2	20.5	26.2	26.4	28.4	36.2	42.3	46.4	45.5
Iceland	31.1	25.9	22.8	21.1	20.0	18.5	17.9	13.7	13.3	14.0
Norway	-703.2	-665.5	-655.3	-570.5	-580.2	-499.0	-590.9	-566.9	-470.3	-569.6
Montenegro	40.0	42.2	50.5	43.5	39.7	24.2	35.9	34.1	26.6	29.7
FYR of Macedonia	43.5	44.0	47.2	45.1	43.9	43.1	44.9	48.5	47.9	52.9
Albania	50.5	41.8	50.9	52.0	47.7	30.5	37.4	22.0	28.1	33.5
Serbia	35.3	37.2	35.9	37.2	32.2	33.2	30.4	27.8	23.7	27.5
Turkey	71.6	72.6	74.3	72.2	70.4	69.3	70.7	75.3	73.3	74.8
Bosnia and Herzegovina	6.0	3.8	7.7	4.8	4.4	6.0	12.1	12.7	7.6	21.4
Kosovo (*)	28.2	29.5	29.0	27.1	25.9	24.6	27.5	27.3	21.9	24.5

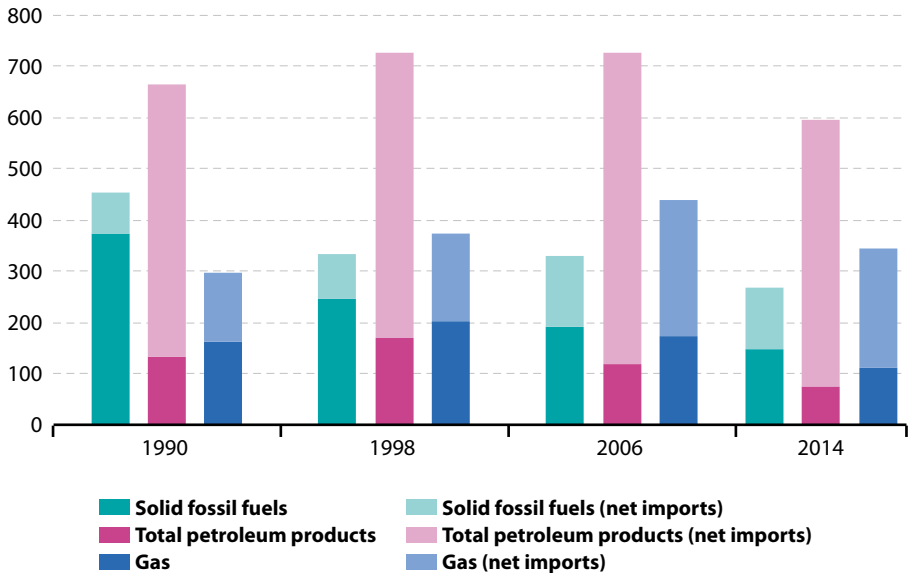
(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: tsdcc310)



Figure 2.4.3: Energy dependency by fuel, EU-28, 1990, 1998, 2006 and 2014

(Mtoe)



Source: Eurostat (online data code: nrg_100a)

The downturn in the primary production of hard coal, lignite, crude oil, natural gas and more recently nuclear energy led to a situation where the EU was increasingly reliant on primary energy imports in order to satisfy demand, although this situation stabilised in the aftermath of the financial and economic crisis. The EU-28's imports of primary energy exceeded exports by some 881 Mtoe in 2014.

The largest net importers of primary energy were generally the most populous EU Member States, with the exception of Poland (where some indigenous reserves of coal remain). In 2004, Denmark had been the only net exporter of primary energy among the EU Member States, but in 2013 Danish energy imports exceeded exports such that there were no longer any

Member States that were net exporters of energy. Relative to population size, the largest net importers in 2014 were Luxembourg, Malta and Belgium.

The origin of EU-28 energy imports has changed somewhat in recent years, although Russia has maintained its position as the main supplier of crude oil and natural gas (despite seeing its share reduced somewhat in recent years) and also emerged as the leading supplier of solid fuels. In 2014, some 29.0% of the EU-28's imports of crude oil were from Russia: it became the principal supplier of solid fuels in 2006, overtaking South Africa, having overtaken Australia in 2004 and Colombia in 2002. Russia's share of EU-28 solid fuels imports rose from



Table 2.4.4: Energy dependence — solid fuels and derivatives, total petroleum products and natural gas, 2005–14 (part 1)
(%)

	Solid fuels and derivatives					Total petroleum products					Natural gas				
	2005	2010	2013	2014	2014	2005	2010	2013	2014	2014	2005	2010	2013	2014	2014
EU-28	39.4	39.5	44.1	45.6	87.4	82.1	84.5	87.4	87.4	87.4	57.1	62.2	65.2	67.4	67.4
EA-19	56.2	58.8	59.5	60.9	96.4	97.4	96.4	96.4	95.9	95.9	72.2	70.8	70.2	74.8	74.8
Belgium	101.3	97.9	95.3	102.3	101.4	100.8	101.4	102.0	101.1	101.1	100.6	98.8	100.5	101.2	101.2
Bulgaria	37.0	24.7	16.4	14.5	103.9	102.2	101.1	103.9	97.9	97.9	87.7	92.6	92.8	94.1	94.1
Czech Republic	-16.1	-16.2	-11.6	-5.0	96.4	97.5	96.5	96.4	97.6	97.6	97.8	84.8	100.2	96.3	96.3
Denmark	94.4	69.4	90.7	105.1	-43.4	-102.7	-43.4	-12.0	-6.4	-6.4	-113.5	-68.1	-23.1	-46.4	-46.4
Germany	31.7	40.1	44.5	44.8	96.1	97.0	95.9	96.1	95.2	95.2	79.6	81.2	86.9	89.8	89.8
Estonia	0.7	-0.6	-0.1	0.3	59.9	70.8	57.5	59.9	51.5	51.5	100.0	100.0	100.0	100.0	100.0
Ireland	70.8	49.0	72.4	60.0	100.2	100.0	97.3	100.2	97.6	97.6	86.7	95.5	96.8	96.5	96.5
Greece	4.1	5.1	3.2	2.9	94.6	97.7	98.6	94.6	99.8	99.8	99.1	99.9	100.0	99.3	99.3
Spain	70.1	85.5	70.5	77.1	97.4	101.2	99.9	97.4	101.7	101.7	101.2	99.3	98.6	103.5	103.5
France	94.5	101.0	93.4	98.6	99.0	99.3	97.7	99.0	98.5	98.5	99.3	93.0	97.4	103.6	103.6
Croatia	91.3	102.5	110.1	92.4	77.1	79.4	80.4	77.1	74.0	74.0	23.7	18.1	31.8	28.6	28.6
Italy	99.4	101.0	96.1	98.7	90.7	91.8	93.5	90.7	88.6	88.6	84.7	90.5	88.1	89.7	89.7
Cyprus	121.0	65.5	100.0	127.3	100.9	102.3	104.2	100.9	98.1	98.1	:	:	:	:	:
Latvia	94.3	102.8	88.8	76.5	100.4	102.2	94.4	100.4	92.4	92.4	105.6	61.8	115.6	72.1	72.1
Lithuania	94.2	91.9	99.7	89.4	93.2	91.9	98.7	93.2	92.9	92.9	100.7	99.7	100.0	103.8	103.8
Luxembourg	100.0	100.0	100.0	100.0	100.3	99.4	99.4	100.3	100.5	100.5	100.0	100.0	99.6	99.5	99.5
Hungary	42.8	41.9	26.9	28.1	85.0	81.2	85.0	85.0	88.0	88.0	81.1	78.7	71.2	97.7	97.7
Malta	:	:	:	:	104.6	100.0	99.2	104.6	98.3	98.3	:	:	:	:	:

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the (CJ) Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: tsdcc310)



Table 2.4.4: Energy dependence — solid fuels and derivatives, total petroleum products and natural gas, 2005–14 (part 2)
(%)

	Solid fuels and derivatives				Total petroleum products				Natural gas			
	2005	2010	2013	2014	2005	2010	2013	2014	2005	2010	2013	2014
Netherlands	101.5	121.7	111.5	108.9	96.1	94.1	95.6	92.4	-59.3	-61.6	-85.4	-73.1
Austria	99.7	99.9	94.5	100.6	91.6	89.9	92.5	92.0	87.7	75.3	74.7	96.8
Poland	-23.9	-5.2	-10.4	-8.7	97.5	97.0	91.3	93.1	69.7	69.3	74.2	72.0
Portugal	96.3	98.3	95.4	96.9	102.3	97.5	96.3	96.6	103.8	100.4	101.5	100.0
Romania	33.4	17.6	18.9	17.4	38.5	51.9	46.8	53.2	30.1	16.8	11.8	5.0
Slovenia	21.0	19.2	19.4	23.0	101.3	99.2	97.3	97.7	99.6	99.3	99.6	99.6
Slovakia	88.4	75.7	80.6	83.2	88.2	89.6	89.9	91.0	97.5	99.9	95.3	104.8
Finland	67.7	57.6	65.3	80.4	98.4	89.4	104.4	94.8	100.0	100.0	99.9	99.9
Sweden	97.2	102.2	82.4	94.7	104.0	93.6	101.5	101.7	95.1	98.8	99.1	99.1
United Kingdom	72.1	52.2	82.1	87.4	-3.2	14.6	40.2	42.2	7.0	37.9	50.1	45.0
Iceland	100.0	96.3	100.0	100.0	102.0	97.0	97.0	99.0	:	:	:	:
Norway	-53.1	-50.2	-86.8	-30.4	-1 126.0	-627.4	-456.7	-653.2	-1 743.1	-1 128.4	-1 566.7	-1 823.1
Montenegro	-2.1	-3.7	-1.2	-1.5	100.0	100.0	100.0	103.0	:	:	:	:
FYR of Macedonia	8.2	9.5	8.6	10.7	102.5	97.8	93.9	100.7	99.5	100.0	100.1	99.8
Albania	16.5	97.8	99.0	100.0	73.9	50.6	31.3	31.4	0.0	0.0	0.0	0.0
Serbia	8.5	9.2	3.4	7.4	:	75.0	59.4	60.6	88.3	84.5	80.5	69.0
Turkey	51.7	43.1	54.4	53.8	90.8	92.5	92.5	92.7	97.1	98.1	97.8	99.6
Bosnia and Herzegovina	1.7	10.4	12.2	14.3	:	:	:	:	100.0	100.0	100.0	100.0
Kosovo (1)	1.5	1.6	0.6	0.2	:	:	:	:	:	:	:	:

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the (CJ) Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: tsdcc310)



18.0% in 2004 to 30.0% by 2009, before falling somewhat to 25.7% by 2012 and rebounding to 29.0% in 2014. By contrast, Russia's share of EU-28 imports of natural gas declined from 43.6% to 32.1% between 2004 and 2010, but this development was reversed with increases thereafter leading to a share of 37.5% in 2014. From 2004 to 2014, Norway remained the second largest supplier of EU imports of crude oil and natural gas.

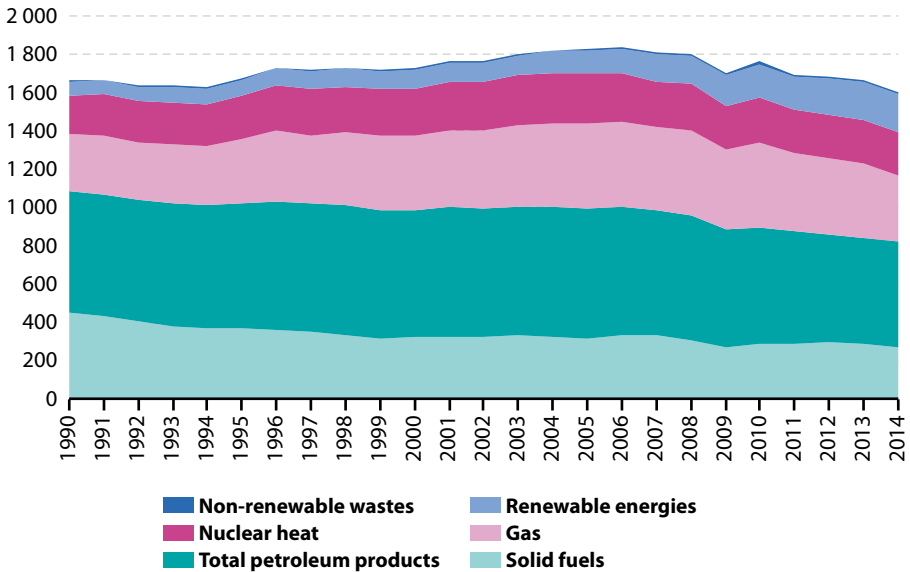
The security of the EU's primary energy supplies may be threatened if a high proportion of imports are concentrated among relatively few partners. More than two thirds (69.1%) of the EU-28's imports of natural gas in 2014 came from

Russia or Norway — as such there was a greater concentration of imports than in 2010 when the same two countries accounted for 59.6% of natural gas imports. A similar analysis shows that 43.5% of EU-28 crude oil imports came from Russia and Norway in 2014 (with Nigeria, Saudi Arabia and Kazakhstan accounting for sizeable shares), while 70.7% of the EU-28's imports of solid fuels originated in Russia, Colombia and the United States. There was some evidence of new partner countries emerging between 2004 and 2014. This was notably the case for crude oil imports from Nigeria, Kazakhstan, Azerbaijan and Iraq, or natural gas imports from Qatar and Libya.



2.5 Energy consumption

Figure 2.5.1: Gross inland energy consumption, EU-28, 1990–2014
(Mtoe)



Source: Eurostat (online data code: nrg_100a)

Gross inland energy consumption in the EU-28 in 2014 was 1 606 Mtoe, 3.6% lower than in 2013. It was relatively stable during the period 1990–2010, with a strong decrease in 2009 as a result of the financial and economic crises (!). In 2009, gross inland energy consumption decreased by 5.8% compared to 2008. The sharpest decrease was in solid fuels by 11.9%, followed by gas (6.4%) and petroleum products by 5.6% each.

There was a recovery in 2010, when gross inland energy consumption increased by 3.7%,

afterwards followed by consecutive decreases. The gross inland consumption in 2013 was just below the level recorded in 1990 and in 2014 it was 3.7% below the 1990 levels. An 11.5% drop in gas consumption and 6.2% drop in solid fuels contributed the most to the 2014 decrease, while renewable energies recorded small increase (1.5%). In fact, the gross inland energy consumption in the EU-28 in 2014 was the lowest since the historic time series allows for comparison (since 1990).



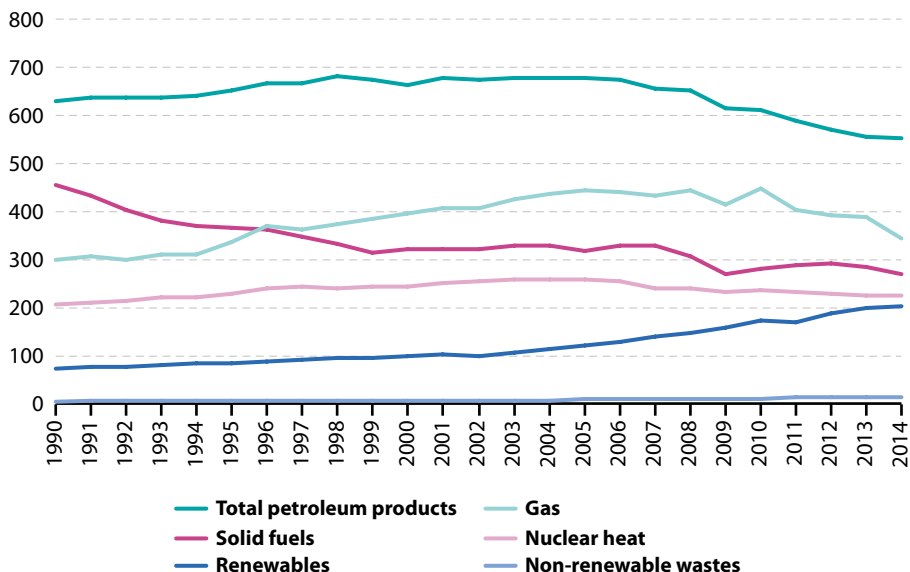
As for the structure of gross inland energy consumption in 2013, petroleum products held the biggest share (34.4%), followed by gas (21.4%) and solid fossil fuels (16.7%). The share of nuclear heat was 14.1% and renewables accounted for 12.5%. Since 1990, the amount and share of solid fuels has fallen significantly (from 27.3% in 1990, to 18.6% in 2000, to 16.7% in 2014). On the other hand, renewable energy sources have increased their share of the total, from 4.3% in 1990, to 5.7% in 2000, to 12.5% in

2014, while gas has risen from 17.9% in 1990, to 22.9% in 2000 and to 21.4% in 2014.

The mixture of fuels and their shares in gross inland energy consumption in different countries depends on the natural resources available, the structure of their economies and also national choices in energy systems. In 2014, 73.3% of all energy in the EU-28 was produced from fossil sources (coal, crude oil, natural gas, non-renewable wastes).

Figure 2.5.2: Gross inland energy consumption, EU-28, 1990–2014

(Mtoe)



Source: Eurostat (online data code: nrg_100a)

(1) Since 2010, a trend of decrease can be noticed. The weather, especially during winter periods, also influences consumption of energy.



Table 2.5.1: Total gross inland consumption of energy, 1990–2014
(Mtoe)

	1990	1995	2000	2005	2010	2011	2012	2013	2014
EU-28	1 667.9	1 674.7	1 730.0	1 831.0	1 763.7	1 698.1	1 684.7	1 666.7	1 605.9
Belgium	48.6	53.8	59.3	59.1	61.2	57.0	54.6	56.5	53.4
Bulgaria	27.6	22.7	18.5	19.8	17.8	19.1	18.2	16.8	17.7
Czech Republic	49.9	41.7	41.1	45.1	44.7	43.0	42.8	42.2	41.5
Denmark	17.9	20.2	19.7	19.6	20.0	18.6	17.9	18.2	16.9
Germany	356.3	341.6	342.3	341.9	333.0	316.7	318.6	324.5	313.0
Estonia	9.9	5.5	5.0	5.6	6.2	6.2	6.1	6.7	6.7
Ireland	10.3	11.1	14.4	15.3	15.2	13.9	13.8	13.7	13.6
Greece	22.3	23.9	28.3	31.4	28.8	27.9	27.7	24.3	24.4
Spain	90.1	102.1	123.6	144.2	130.3	128.5	128.1	119.3	116.7
France	227.8	241.8	257.5	276.6	267.1	257.5	257.8	258.9	248.5
Croatia	9.5	7.9	8.4	9.8	9.4	9.3	8.9	8.6	8.2
Italy	153.5	161.8	174.2	190.1	177.9	172.5	165.7	159.5	151.0
Cyprus	1.6	2.0	2.4	2.5	2.7	2.7	2.5	2.2	2.2
Latvia	7.9	4.6	3.9	4.6	4.6	4.4	4.5	4.5	4.5
Lithuania	15.9	8.6	7.1	8.7	6.8	7.0	7.1	6.7	6.7
Luxembourg	3.5	3.3	3.7	4.8	4.6	4.6	4.5	4.3	4.2
Hungary	28.8	26.2	25.3	27.6	25.7	25.0	23.5	22.7	22.8
Malta	0.6	0.8	0.8	1.0	0.9	0.9	1.0	0.9	0.9
Netherlands	66.7	75.4	78.1	84.4	86.1	80.4	80.8	80.4	76.8
Austria	25.0	27.1	29.0	34.2	34.3	33.3	33.2	33.7	32.7
Poland	103.3	98.8	88.6	92.2	100.7	100.8	97.6	98.0	94.3
Portugal	18.2	20.6	25.3	27.5	24.3	23.6	22.2	22.4	22.1
Romania	58.1	46.3	36.6	39.2	35.8	36.6	35.4	32.4	32.3
Slovenia	5.7	6.1	6.5	7.3	7.3	7.3	7.1	6.9	6.7
Slovakia	21.8	17.7	18.3	19.0	17.9	17.4	16.7	17.0	16.2
Finland	28.8	29.4	32.4	34.5	37.1	35.9	34.7	34.1	34.6
Sweden	47.4	51.5	48.9	51.0	50.8	49.7	49.8	49.1	48.2
United Kingdom	210.6	222.3	230.6	234.0	212.5	198.2	204.0	202.2	189.3
Iceland	2.4	2.3	3.3	3.4	5.9	6.3	5.8	6.1	6.1
Norway	21.4	23.8	26.4	27.2	34.3	28.4	30.1	33.7	29.2
Montenegro	:	:	:	1.1	1.2	1.1	1.1	1.0	1.0
FYR of Macedonia	2.4	2.5	2.7	2.8	2.8	3.1	3.0	2.7	2.6
Albania	2.6	1.3	1.8	2.2	2.1	2.2	2.1	2.4	2.3
Serbia	19.6	13.6	13.7	15.7	15.6	16.2	14.5	14.9	13.3
Turkey	52.3	62.1	76.7	85.6	106.9	113.9	119.8	118.5	124.0
Bosnia and Herzegovina	5.0	0.9	3.2	3.9	4.7	5.4	5.1	5.0	7.8
Kosovo (¹)	:	:	1.5	1.9	2.5	2.5	2.4	2.3	2.1

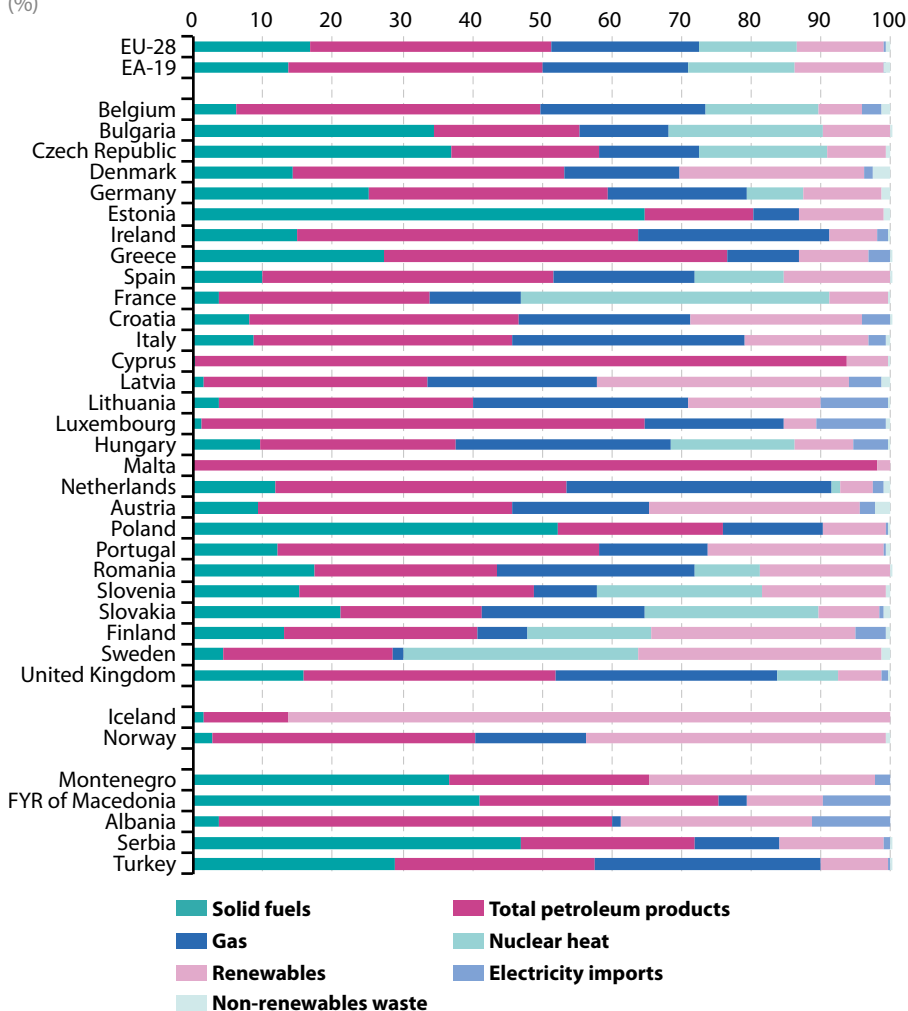
(¹) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence
Source: Eurostat (online data code: nrg_100a)



Only in three EU countries the share of fossil fuels in gross inland energy consumption is below 50 % (Sweden 31.3 %, France 47.3 % and Finland 48.6 %). It should be noted that France

and Sweden are the countries with the highest contribution of nuclear energy to the gross inland energy consumption (44 % and 34 % respectively).

Figure 2.5.3: National shares of fuels in gross inland energy consumption, 2014
(%)



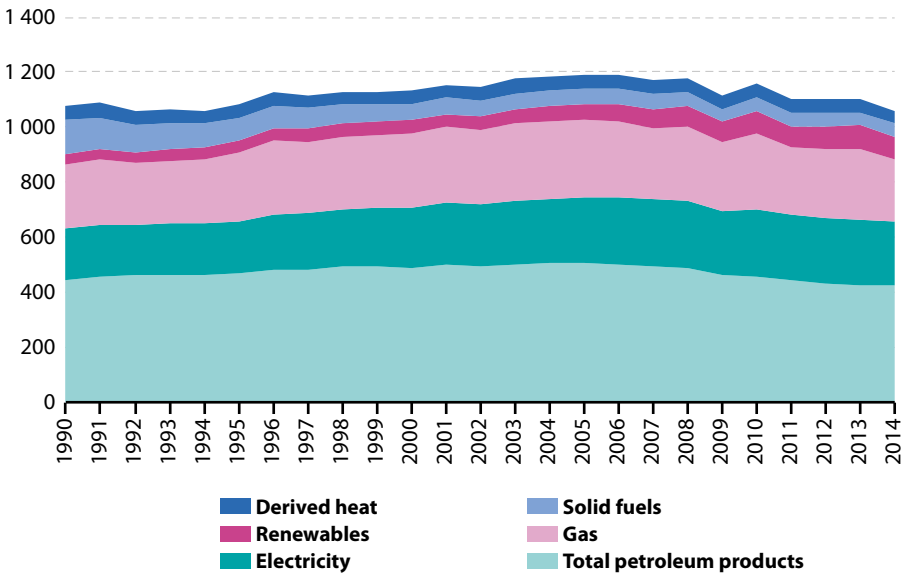
Source: Eurostat (online data code: nrg_110a)



The biggest shares of total petroleum products in gross inland energy consumption were observed in: Malta 98.0%, Cyprus 93.6% and Luxembourg 63.4%. This is due to specific national characteristics: Cyprus and Malta are located on a small island while Luxembourg consumption is affected by 'fuel tourism' due to lower prices of fuels used in the transport sector.

In 2014, there were 14 Member States with nuclear power plants. The highest nuclear share was in France (a 44.3% share of nuclear heat in gross inland energy consumption), followed by Sweden (33.8%), Slovakia (25.0%), Slovenia (23.8%) and Bulgaria (22.1%).

Figure 2.5.4: Final energy consumption, by fuel, EU-28, 1990–2014
(Mtoe)



Source: Eurostat (online data code: nrg_100a)

Table 2.5.2: Final energy consumption, 1990–2014
(Mtoe)

	1990	1995	2000	2005	2010	2011	2012	2013	2014
EU-28	1 081.1	1 082.7	1 132.8	1 191.3	1 163.8	1 105.5	1 104.9	1 106.6	1 061.7
Belgium	31.5	34.4	37.6	36.6	38.6	35.2	35.0	36.2	34.0
Bulgaria	16.4	11.4	9.1	10.2	8.8	9.3	9.2	8.8	9.0
Czech Republic	32.5	26.1	24.8	26.0	24.9	24.1	23.7	23.9	23.0
Denmark	13.5	14.8	14.7	15.5	15.5	14.8	14.2	14.1	13.5
Germany	228.9	221.6	220.0	218.5	219.7	208.8	212.1	217.7	208.9
Estonia	5.7	2.6	2.4	2.9	2.9	2.8	2.9	2.9	2.8
Ireland	7.3	8.0	10.8	12.6	12.0	10.9	10.6	10.7	10.8
Greece	14.7	15.8	18.7	21.0	19.1	19.0	17.1	15.3	15.6
Spain	57.1	64.0	79.9	97.8	89.1	86.7	83.2	80.8	79.2
France	136.2	143.5	155.3	160.2	155.0	143.8	148.0	151.9	141.7
Croatia	6.5	5.3	6.0	7.2	7.2	7.0	6.7	6.6	6.2
Italy	107.7	114.6	124.7	137.2	128.5	123.1	121.8	118.5	113.4
Cyprus	1.1	1.4	1.6	1.8	1.9	1.9	1.8	1.6	1.6
Latvia	6.4	3.8	3.3	4.0	4.1	3.9	4.0	3.9	3.9
Lithuania	9.7	4.6	3.8	4.6	4.8	4.7	4.8	4.7	4.8
Luxembourg	3.3	3.1	3.5	4.5	4.3	4.3	4.2	4.1	4.0
Hungary	19.9	16.2	16.1	18.2	16.5	16.1	14.8	15.3	15.4
Malta	0.3	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Netherlands	41.8	51.0	52.3	54.2	55.1	51.6	51.5	51.6	47.3
Austria	19.3	21.4	23.7	27.8	28.0	27.1	27.0	27.9	26.8
Poland	59.9	62.9	55.3	58.5	66.4	64.8	64.4	63.3	61.6
Portugal	11.9	13.9	17.9	19.0	18.1	17.3	16.0	15.9	15.8
Romania	40.8	27.0	22.8	24.7	22.6	22.8	22.8	21.8	21.7
Slovenia	3.7	4.1	4.5	4.9	5.0	5.0	4.9	4.8	4.6
Slovakia	15.2	11.0	11.0	11.6	11.5	10.8	10.3	10.6	10.1
Finland	21.7	22.0	24.3	25.2	26.2	25.0	25.2	24.7	24.4
Sweden	31.2	35.1	35.0	33.7	34.1	32.4	32.4	31.6	31.2
United Kingdom	136.9	142.7	153.2	152.7	143.3	132.0	135.9	137.2	129.8
Iceland	1.4	1.5	1.9	2.0	2.6	2.7	2.7	2.9	2.9
Norway	16.1	16.9	18.1	18.6	19.6	18.7	18.8	19.0	18.4
Montenegro	:	:	:	0.8	0.8	0.7	0.7	0.7	0.6
FYR of Macedonia	1.4	1.5	1.6	1.7	1.8	1.9	1.8	1.8	1.7
Albania	1.9	0.9	1.5	1.9	1.9	2.0	1.9	2.0	2.1
Serbia	11.8	6.1	6.9	9.6	9.0	9.2	8.5	8.3	7.8
Turkey	38.6	45.1	56.2	63.4	74.0	78.7	84.2	82.9	85.9
Bosnia and Herzegovina	3.3	0.8	1.2	1.5	1.9	2.0	2.0	1.9	4.5
Kosovo (1)	:	:	0.8	1.0	1.2	1.3	1.2	1.2	1.2

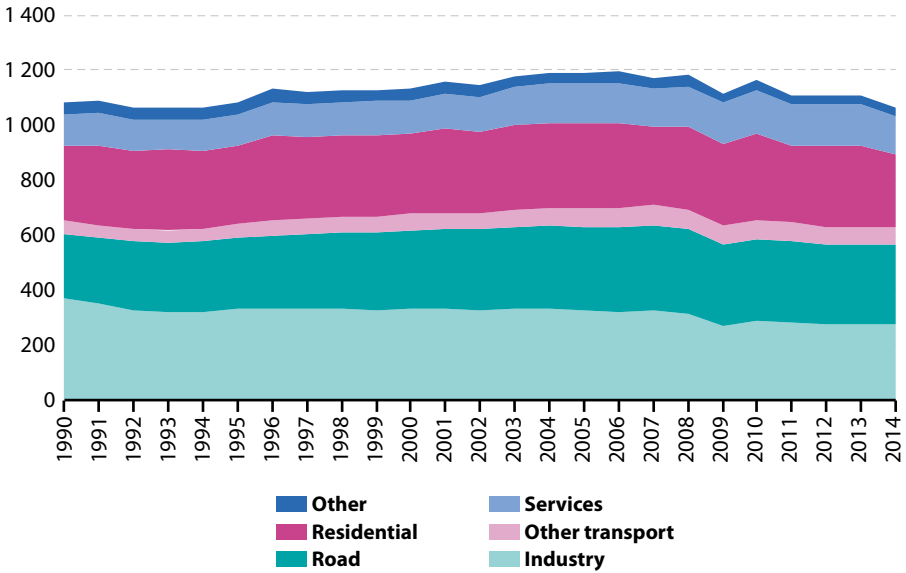
(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: [ten00095](#))



Figure 2.5.5: Final energy consumption, by sector, EU-28, 1990–2014

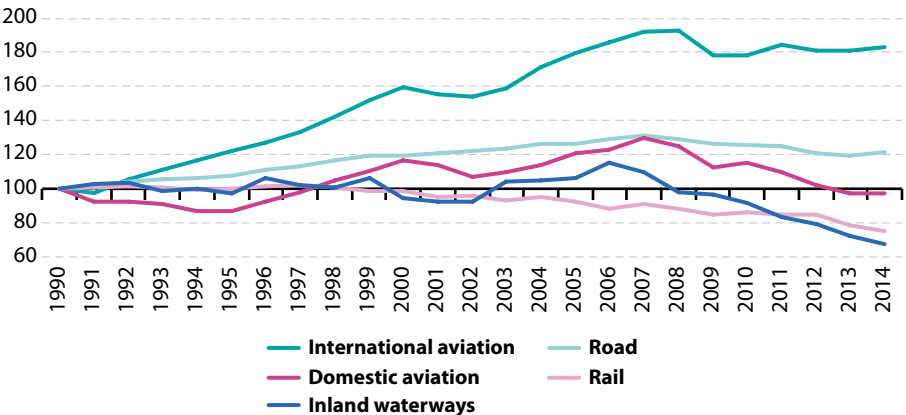
(Mtoe)



Source: Eurostat (online data code: nrg_100a)

Figure 2.5.6: Energy consumption by transport mode, EU-28, 1990–2014

(Index 1990 = 100, based on toe)



Source: Eurostat (online data code: nrg_100a)

Table 2.5.3: Final energy consumption of industry, 1990–2014
(Mtoe)

	1990	1995	2000	2005	2010	2012	2013	2014
EU-28	368.2	331.7	333.5	328.1	287.8	277.2	278.7	274.8
EA-19	232.8	218.2	232.6	235.2	210.5	203.3	203.0	199.2
Belgium	12.1	12.0	14.2	11.8	12.9	11.5	11.8	11.7
Bulgaria	9.0	6.0	4.0	4.0	2.6	2.6	2.6	2.6
Czech Republic	17.3	12.5	10.1	9.7	7.9	7.6	7.6	7.5
Denmark	2.7	3.0	2.9	2.8	2.4	2.3	2.1	2.1
Germany	72.2	60.1	57.6	59.1	60.6	60.6	60.7	60.7
Estonia	2.5	0.8	0.6	0.7	0.6	0.6	0.6	0.6
Ireland	1.7	2.0	2.5	2.6	2.1	2.2	2.2	2.2
Greece	4.0	4.0	4.5	4.2	3.5	3.0	2.8	3.1
Spain	20.2	20.5	25.4	31.0	21.4	20.8	20.8	20.0
France	35.6	36.2	37.3	33.5	28.5	28.1	30.0	27.9
Croatia	2.2	1.3	1.4	1.6	1.4	1.1	1.1	1.1
Italy	35.8	36.0	39.7	39.9	31.3	29.1	26.8	26.2
Cyprus	0.3	0.4	0.4	0.3	0.2	0.2	0.2	0.2
Latvia	2.0	0.7	0.6	0.7	0.8	0.8	0.8	0.8
Lithuania	3.3	1.0	0.8	1.0	0.9	1.0	1.0	1.0
Luxembourg	1.7	1.2	0.7	0.8	0.7	0.7	0.6	0.6
Hungary	6.5	3.8	3.5	3.4	2.9	2.6	3.9	4.1
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	12.3	16.1	16.5	17.0	15.4	14.8	14.5	14.3
Austria	6.2	6.4	7.3	8.7	9.2	9.0	9.2	9.1
Poland	25.4	23.0	18.5	15.3	14.1	14.5	15.0	15.1
Portugal	4.7	4.9	6.3	5.8	5.5	4.6	4.6	4.4
Romania	25.3	15.1	9.3	10.0	6.9	6.8	6.3	6.5
Slovenia	1.5	1.2	1.4	1.6	1.3	1.2	1.2	1.2
Slovakia	7.2	4.7	4.5	4.7	4.4	4.3	4.3	4.4
Finland	9.5	9.9	12.2	11.9	11.3	10.8	10.8	10.7
Sweden	12.3	13.8	14.3	12.6	12.2	11.7	11.5	11.2
United Kingdom	34.6	34.9	36.9	33.4	26.9	24.8	25.7	25.5
Iceland	0.4	0.4	0.7	0.7	1.3	1.4	1.4	1.4
Norway	6.1	6.1	6.9	6.8	6.2	5.9	5.9	5.9
Montenegro	:	:	:	0.3	0.2	0.2	0.2	0.1
FYR of Macedonia	0.7	0.5	0.5	0.6	0.5	0.6	0.6	0.5
Albania	0.7	0.2	0.3	0.2	0.4	0.4	0.3	0.4
Serbia	4.6	1.6	2.2	3.5	2.6	2.5	2.5	2.1
Turkey	12.0	13.2	20.9	22.5	24.8	28.0	26.8	27.9
Bosnia and Herzegovina	1.6	0.2	0.5	0.6	0.8	0.9	0.9	0.9
Kosovo (!)	0.0	0.0	0.1	0.2	0.3	0.3	0.3	0.2
Moldova	1.2	0.7	0.5	0.7	0.7	0.6	0.5	0.2
Ukraine	91.5	48.9	39.0	39.4	31.1	30.1	27.9	25.3

(!) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_110a)



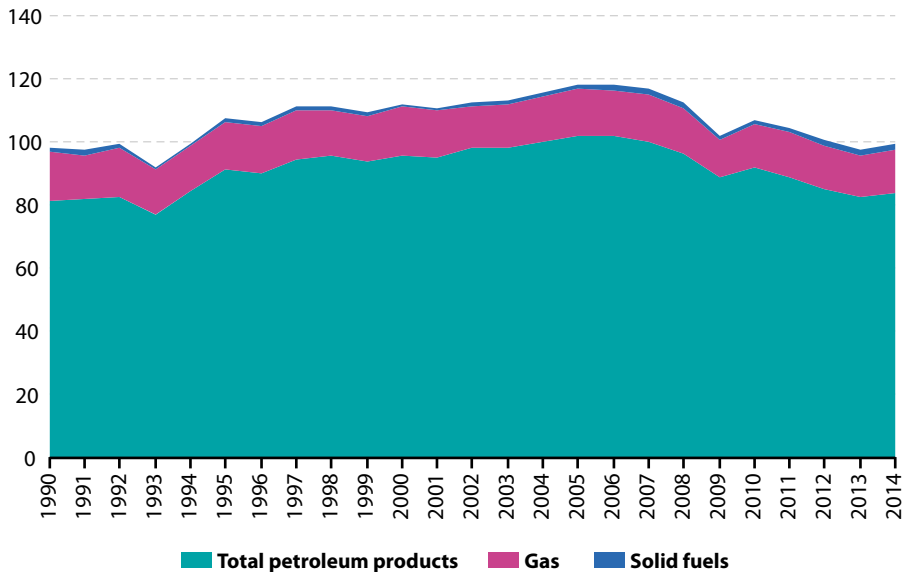
Final energy consumption in EU-28 in 2014 was 1 062 Mtoe, 4.1 % lower than in 2013. Final energy consumption has increased slowly since 1994, reaching its highest value, 1 193 Mtoe, in 2006. By 2014, the final energy consumption decreased from its peak levels by 11.0 %.

Since 2006, decreases were recorded in the use of gas (16.5 %), solid fuels (16.1 %), petroleum

products (16.0 %), derived heat (11.9 %) and electricity (4.6 %).

The biggest share in the structure of final energy consumption in 2013 was for petroleum products (39.8 %), followed by electricity (21.9 %) and gas (21.6 %). Solid fossil fuels contributed only 4.4 % to the final energy consumption at the end-use level.

Figure 2.5.7: Non-energy consumption by fuel, EU-28, 1990–2014
(Mtoe)



Source: Eurostat (online data codes: nrg_100a and nrg_103a)

Table 2.5.4: Final energy consumption of transport, 1990–2014
(Mtoe)

	1990	1995	2000	2005	2010	2012	2013	2014
EU-28	284.2	306.9	344.9	369.4	364.6	351.8	348.2	352.9
EA-19	206.2	226.9	254.4	268.0	261.1	250.0	248.4	251.2
Belgium	7.8	8.6	9.7	9.9	10.5	9.8	9.7	10.0
Bulgaria	2.6	1.8	2.0	2.9	2.9	3.1	2.8	3.1
Czech Republic	2.8	2.8	4.4	6.1	6.2	6.1	6.0	6.2
Denmark	4.0	4.5	4.8	5.3	5.2	4.9	4.8	4.9
Germany	59.7	63.7	66.8	62.3	61.1	61.4	62.6	63.5
Estonia	0.9	0.5	0.6	0.8	0.8	0.8	0.8	0.8
Ireland	2.0	2.4	4.1	5.1	4.7	4.1	4.2	4.5
Greece	5.9	6.5	7.3	8.2	8.3	6.3	6.3	6.5
Spain	22.7	26.4	33.2	39.9	37.2	33.3	31.8	32.0
France	42.2	45.9	50.6	50.5	49.7	49.5	49.3	49.5
Croatia	1.4	1.2	1.5	1.9	2.1	2.0	2.0	2.0
Italy	34.2	38.6	42.5	44.8	41.7	39.4	38.7	40.1
Cyprus	0.6	0.8	0.9	1.0	1.0	1.0	0.9	0.8
Latvia	1.1	0.7	0.7	1.1	1.2	1.1	1.1	1.1
Lithuania	2.0	1.0	1.1	1.4	1.5	1.6	1.6	1.7
Luxembourg	1.0	1.3	1.9	2.8	2.6	2.6	2.5	2.5
Hungary	3.1	2.7	3.3	4.3	4.3	3.9	3.6	4.0
Malta	0.2	0.3	0.3	0.2	0.3	0.3	0.3	0.3
Netherlands	10.4	12.6	14.2	15.2	15.1	14.7	14.5	13.9
Austria	5.0	5.8	7.0	9.0	8.7	8.4	8.8	8.7
Poland	7.4	8.3	9.9	12.5	17.7	17.2	16.3	16.4
Portugal	3.8	4.9	6.6	7.2	7.3	6.5	6.4	6.5
Romania	3.1	3.1	3.5	4.3	5.1	5.4	5.4	5.5
Slovenia	0.9	1.3	1.3	1.5	1.8	1.9	1.8	1.8
Slovakia	1.4	1.4	1.5	2.4	2.6	2.3	2.4	2.2
Finland	4.3	4.2	4.3	4.7	4.9	4.8	4.9	4.8
Sweden	7.4	7.8	8.2	8.6	8.6	8.3	8.3	8.5
United Kingdom	46.2	47.7	52.9	55.5	51.5	50.9	50.6	51.1
Iceland	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5
Norway	3.8	4.3	4.4	4.7	5.3	5.0	5.3	5.4
Montenegro	:	:	:	0.2	0.2	0.2	0.2	0.2
FYR of Macedonia	0.3	0.3	0.4	0.3	0.5	0.5	0.5	0.5
Albania	0.2	0.2	0.5	0.8	0.8	0.8	0.8	0.8
Serbia	1.7	1.0	0.8	2.3	2.3	1.8	2.0	2.1
Turkey	9.5	12.1	12.4	13.6	16.0	18.8	20.7	23.7
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
Kosovo (1)	0.0	0.0	0.2	0.3	0.3	0.3	0.3	0.3
Moldova	0.9	0.5	0.3	0.4	0.6	0.6	0.6	0.6
Ukraine	21.5	12.9	10.7	12.1	13.2	12.1	12.0	10.4

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_110a)



Table 2.5.5: Final energy consumption of households, trade, services, etc., 1990–2014
(Mtoe)

	1990	1995	2000	2005	2010	2012	2013	2014
EU-28	427.7	442.7	452.9	492.3	510.3	474.9	478.6	432.9
EA-19	283.9	295.0	307.6	340.2	352.0	326.6	331.8	299.0
Belgium	11.6	13.9	13.8	14.9	15.2	13.6	14.7	12.3
Bulgaria	4.8	3.6	3.1	3.2	3.4	3.6	3.4	3.3
Czech Republic	12.4	10.7	10.3	10.2	10.7	10.0	10.3	9.3
Denmark	6.5	7.1	6.8	7.2	7.8	7.0	7.0	6.4
Germany	97.1	97.8	95.7	97.0	98.0	90.0	94.3	84.7
Estonia	2.3	1.2	1.3	1.4	1.5	1.5	1.5	1.5
Ireland	3.6	3.6	4.2	4.9	5.1	4.3	4.3	4.1
Greece	4.8	5.3	6.9	8.6	7.4	7.7	6.1	6.0
Spain	14.3	17.0	21.3	26.8	30.4	29.0	28.1	27.1
France	57.9	61.0	66.9	75.8	76.5	70.0	72.3	64.0
Croatia	2.8	2.8	3.0	3.7	3.7	3.5	3.4	3.1
Italy	37.5	39.8	42.2	52.1	55.2	53.1	52.8	46.9
Cyprus	0.2	0.3	0.3	0.5	0.6	0.6	0.6	0.5
Latvia	3.3	2.4	1.9	2.2	2.1	2.1	2.0	2.0
Lithuania	4.4	2.5	1.9	2.2	2.3	2.3	2.2	2.1
Luxembourg	0.6	0.6	0.9	0.9	1.0	0.9	1.0	0.9
Hungary	10.3	9.7	9.3	10.5	9.4	8.3	7.8	7.3
Malta	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Netherlands	19.2	21.9	21.3	21.6	24.4	21.8	22.4	18.9
Austria	8.1	9.1	9.4	10.1	10.2	9.5	9.9	9.0
Poland	27.1	31.6	26.8	30.6	34.5	32.8	32.1	30.2
Portugal	3.4	4.0	5.0	6.0	5.2	4.9	4.8	4.8
Romania	12.4	8.7	10.0	10.4	10.6	10.6	10.2	9.8
Slovenia	1.3	1.6	1.8	1.8	2.0	1.8	1.8	1.6
Slovakia	6.6	4.9	5.0	4.5	4.6	3.7	4.0	3.4
Finland	7.8	7.9	7.8	8.6	10.0	9.5	9.0	8.9
Sweden	11.4	13.4	12.5	12.4	13.2	12.4	11.8	11.4
United Kingdom	56.1	60.1	63.4	63.8	64.9	60.2	60.8	53.2
Iceland	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.0
Norway	6.1	6.6	6.3	6.6	7.7	7.3	7.3	6.7
Montenegro	:	:	:	0.3	0.3	0.3	0.3	0.3
FYR of Macedonia	0.4	0.7	0.7	0.8	0.8	0.8	0.7	0.7
Albania	1.0	0.5	0.7	0.8	0.8	0.8	0.8	0.8
Serbia	5.6	3.5	3.9	3.8	4.1	4.2	3.8	3.7
Turkey	17.2	19.8	22.8	27.4	33.2	37.3	35.4	34.2
Bosnia and Herzegovina	1.7	0.5	0.7	1.0	1.1	1.1	1.1	2.6
Kosovo (¹)	0.0	0.0	0.4	0.5	0.6	0.6	0.6	0.6
Moldova	4.9	2.0	0.9	1.2	1.1	1.1	1.2	1.1
Ukraine	45.1	35.6	27.9	29.3	30.5	30.7	31.5	27.1

(¹) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_110a)

Table 2.5.6: Energy consumption of households, 1990–2014
 (Mtoe)

	1990	1995	2000	2005	2010	2012	2013	2014
EU-28	52.4	56.5	61.7	69.0	73.1	71.6	71.3	67.5
EA-19	35.1	37.6	41.8	47.1	50.9	50.0	49.8	47.2
Belgium	1.6	1.9	2.0	2.2	1.7	1.7	1.7	1.6
Bulgaria	0.9	0.9	0.8	0.8	0.9	0.9	0.9	0.9
Czech Republic	0.8	1.3	1.2	1.3	1.3	1.3	1.3	1.2
Denmark	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Germany	11.8	10.9	11.2	12.1	12.2	11.8	11.7	11.1
Estonia	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1
Ireland	0.4	0.4	0.5	0.6	0.7	0.7	0.7	0.7
Greece	0.8	1.0	1.2	1.5	1.6	1.6	1.5	1.5
Spain	2.6	3.1	3.8	5.4	6.5	6.5	6.1	6.1
France	8.3	9.4	11.1	11.9	13.9	13.6	14.4	12.8
Croatia	0.4	0.4	0.5	0.5	0.6	0.6	0.5	0.5
Italy	4.5	4.9	5.3	5.8	6.0	6.0	5.8	5.5
Cyprus	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Latvia	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
Lithuania	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Luxembourg	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Hungary	0.8	0.8	0.8	1.0	1.0	0.9	0.9	0.9
Malta	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Netherlands	1.4	1.6	1.7	1.9	2.0	2.0	2.0	2.0
Austria	1.0	1.2	1.3	1.5	1.6	1.6	1.5	1.5
Poland	1.7	1.6	1.8	2.2	2.5	2.4	2.4	2.4
Portugal	0.5	0.7	0.9	1.1	1.2	1.1	1.1	1.0
Romania	0.5	0.6	0.7	0.8	1.0	1.0	1.0	1.0
Slovenia	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Slovakia	0.3	0.4	0.5	0.4	0.4	0.4	0.4	0.4
Finland	1.3	1.4	1.5	1.7	2.0	1.9	1.8	1.8
Sweden	3.3	3.6	3.6	3.7	4.0	3.8	3.7	3.2
United Kingdom	8.1	8.8	9.6	10.8	10.2	9.9	9.8	9.4
Iceland	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Norway	2.6	3.0	3.0	2.9	3.4	3.3	3.3	3.2
Montenegro	:	:	:	0.1	0.1	0.1	0.1	0.1
FYR of Macedonia	0.1	0.2	0.2	0.3	0.3	0.3	0.3	0.3
Albania	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.3
Serbia	0.9	1.4	1.4	1.2	1.3	1.2	1.2	1.2
Turkey	0.8	1.2	2.1	2.7	3.6	3.9	3.9	4.0
Bosnia and Herzegovina	0.3	0.2	0.3	0.3	0.4	0.4	0.4	0.4
Kosovo (1)	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.2

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: [tsdpc310](#))



The structure of final energy consumption in 2014 by sector shows that residential (24.8%), road transport (27.3%) and industry (25.9%) accounted for the biggest shares. The service sector accounted for 13.3%, other transport 5.9% and the remaining other sectors 2.8%.

Final non-energy consumption includes fuels that are used as raw materials and are not

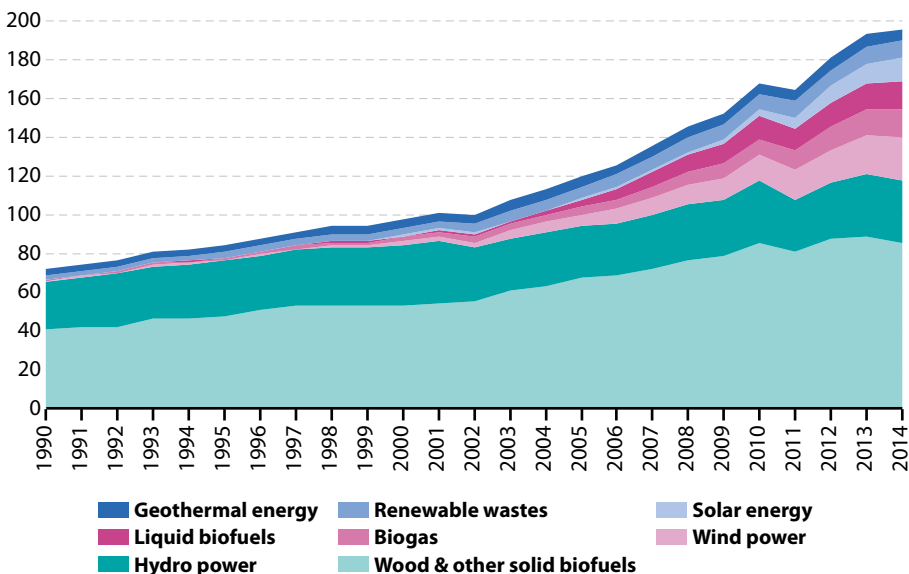
consumed as fuel or transformed into another fuel (for example, chemical reactions or bitumen for road construction). Non-energy consumption in 2014 amounted to almost 100 Mtoe.

Petroleum products accounted for 84.5%, gas 13.7%, and 1.5% of all non-energy consumption was of solid fuels.



2.6 Renewable energy sources

Figure 2.6.1: Primary production of energy from renewable sources, EU-28, 1990–2014 (Mtoe)



Source: Eurostat (online data code: [nrg_110a](#))

Primary production of renewable energies is on a long-term increasing trend. Between 1990 and 2014 it increased by 174% (an average annual growth rate of 4.3%). However, in 2011, the primary production of renewables declined by 2.2%; this was mainly due to the annual variation in hydropower production and decrease in the combustion of solid biomass. This was only the second decrease recorded since 1990 — the first in 2002 (– 1.6%) was also a consequence of hydropower variation. The Renewable Energy

Directive requires that — for accounting purposes — hydropower and wind power production is normalised (?) for annual variations.

In 2014, the primary production of renewables increased by 1.6% compared with 2013. In fact, with the exception of years 2002 and 2011 (when primary production of renewables decreased) this is the lowest annual increase in the last 15 years. When compared to the primary production 5 years ago, it is now 29% higher.

(?) In calculating the contribution of hydropower and wind power the effects of weather variation is smoothed through the use of data for several years. Please see Annex II of Directive 2009/28/EC for the applied rules.



Table 2.6.1: Primary production of renewable energy — wood & other solid biomass and hydropower, 2005–14
(1 000 toe)

	Wood & other solid biomass				Hydropower			
	2005	2010	2013	2014	2005	2010	2013	2014
EU-28	66 999.2	85 202.2	88 518.4	85 744.0	26 904.3	32 408.4	31 947.6	32 242.0
EA-19	44 886.5	56 373.8	58 333.2	56 478.4	17 092.5	22 954.7	23 424.8	23 086.7
Belgium	527.9	1 200.2	1 388.5	1 104.1	24.8	26.8	32.7	23.6
Bulgaria	717.7	942.5	1 122.4	1 086.5	372.9	434.8	350.8	396.0
Czech Republic	1 537.2	2 094.4	2 292.6	2 301.0	204.6	239.8	235.1	164.1
Denmark	1 260.1	1 703.2	1 431.2	1 304.5	2.0	1.8	1.1	1.3
Germany	7 975.5	11 010.2	10 902.3	11 424.7	1 688.6	1 801.6	1 977.5	1 684.2
Estonia	682.1	957.7	1 067.3	1 122.1	1.9	2.3	2.2	2.3
Ireland	180.4	190.3	183.3	210.4	54.3	51.5	51.5	61.0
Greece	956.9	724.9	846.6	869.2	431.4	641.4	545.7	384.9
Spain	4 176.0	4 665.6	5 204.8	5 160.6	1 581.5	3 637.5	3 169.8	3 367.9
France	9 078.9	10 287.5	10 383.3	9 073.9	4 426.5	5 392.3	6 080.5	5 402.3
Croatia	1 243.9	1 338.9	1 464.7	1 374.7	605.0	784.7	741.4	774.5
Italy	4 148.4	7 011.9	7 448.0	6 539.4	3 101.2	4 395.2	4 537.7	5 034.0
Cyprus	6.4	5.4	5.0	8.5	0.0	0.0	0.0	0.0
Latvia	1 553.7	1 596.0	1 751.6	2 046.1	286.0	302.7	250.4	171.5
Lithuania	845.3	1 002.2	1 041.2	1 116.6	38.8	46.4	44.8	34.3
Luxembourg	40.0	49.0	48.2	65.8	8.1	9.3	10.2	9.3
Hungary	1 039.8	1 524.2	1 423.6	1 402.8	17.4	16.2	18.3	26.0
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Netherlands	938.5	1 208.7	1 201.7	1 290.1	7.6	9.0	9.8	9.6
Austria	3 387.4	4 500.4	4 699.1	4 377.0	3 153.7	3 298.6	3 612.6	3 525.5
Poland	4 166.2	5 866.2	6 836.8	6 179.5	189.3	251.1	209.7	187.7
Portugal	2 713.3	2 806.2	2 684.1	2 684.1	406.8	1 388.5	1 180.6	1 338.7
Romania	3 228.9	3 900.0	3 656.7	3 645.7	1 737.5	1 709.6	1 286.1	1 617.0
Slovenia	469.5	625.4	628.2	559.9	297.6	388.5	398.0	523.8
Slovakia	397.8	740.4	768.6	759.5	398.8	451.8	416.9	361.9
Finland	6 808.5	7 791.8	8 081.6	8 066.4	1 185.2	1 111.1	1 103.9	1 151.9
Sweden	7 936.6	9 499.6	9 211.4	8 923.1	6 259.9	5 709.2	5 276.1	5 482.7
United Kingdom	982.2	1 959.4	2 745.8	3 047.8	423.2	306.5	404.3	506.0
Iceland	0.0	0.0	0.0	0.0	603.5	1 082.7	1 106.0	1 106.9
Norway	1 119.1	1 233.5	1 054.2	840.5	11 667.1	10 038.7	11 019.3	11 684.8
Montenegro	204.2	228.5	173.8	178.1	160.4	236.5	215.3	150.6
FYR of Macedonia	151.1	199.0	160.0	157.9	128.3	209.0	136.2	103.8
Albania	230.0	205.0	201.5	202.0	462.0	650.6	598.4	406.2
Serbia	902.8	1 036.4	1 118.3	1 111.1	1 034.6	1 022.4	877.3	946.1
Turkey	5 325.0	4 449.4	4 281.0	3 152.2	3 401.6	4 453.7	5 109.2	3 494.8
Bosnia and Herzegovina	181.7	180.1	179.3	1 767.4	515.7	690.1	622.2	510.3
Kosovo (*)	166.4	235.1	248.3	249.3	9.6	13.4	12.3	13.0
Moldova	70.5	171.0	267.8	293.2	32.4	35.0	26.7	5.1
Ukraine	261.6	1 666.0	2 155.4	2 383.0	1 063.0	1 130.9	1 186.7	728.7

(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_107a)

Table 2.6.2: Primary production of renewable energy — geothermal, wind and solar energy, 2005–14
(1 000 toe)

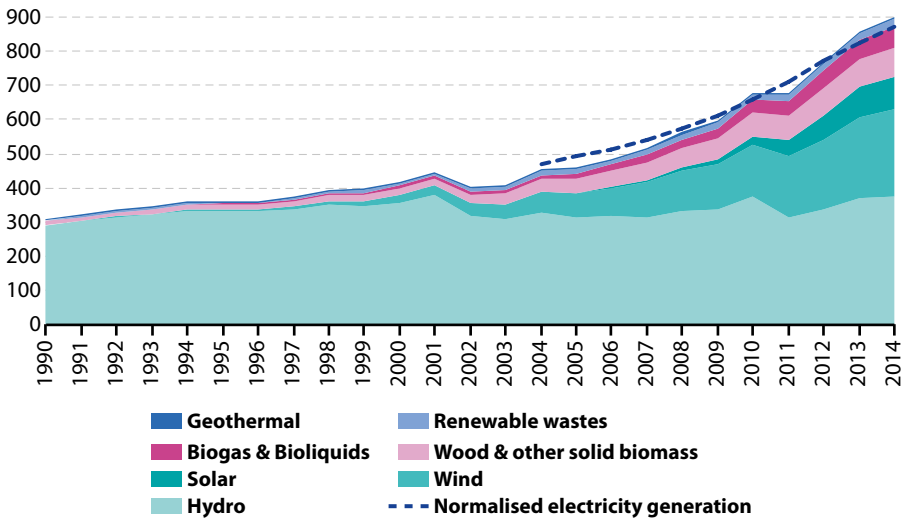
	Geothermal			Wind			Solar		
	2005	2010	2014	2005	2010	2014	2005	2010	2014
EU-28	5 309.2	5 517.4	6 195.3	6 057.9	12 842.4	21 767.6	829.0	3 716.8	12 008.0
EA-19	5 155.8	5 337.0	5 969.0	5 143.4	10 673.4	15 456.3	775.9	3 554.5	11 005.6
Belgium	3.1	4.3	3.1	19.5	111.1	396.7	2.8	60.3	268.4
Bulgaria	32.7	32.7	33.4	0.4	58.6	114.4	0.0	11.5	127.4
Czech Republic	0.0	0.0	0.0	1.8	28.8	41.0	2.5	61.6	198.4
Denmark	4.1	5.1	4.0	568.7	671.5	1 124.6	10.2	16.2	80.5
Germany	46.1	86.2	182.2	2 341.3	3 249.6	4 931.8	370.8	1 492.6	3 726.8
Estonia	0.0	0.0	0.0	4.6	23.8	51.9	0.0	0.0	0.0
Ireland	0.0	0.0	0.0	95.6	242.0	442.0	0.5	7.5	12.3
Greece	12.3	16.0	11.7	108.9	233.4	317.2	101.0	196.9	517.8
Spain	7.3	16.0	18.8	1 820.8	3 806.6	4 472.3	64.9	1 034.8	3 107.5
France	189.5	174.6	218.8	82.7	855.1	1 483.1	25.6	117.6	606.7
Croatia	0.0	6.8	10.7	0.9	12.0	62.8	2.3	5.2	12.2
Italy	4 791.2	4 775.8	5 235.0	201.5	784.7	1 305.1	30.0	298.0	2 097.6
Cyprus	:	0.8	1.6	0.0	2.7	15.6	41.3	61.3	74.0
Latvia	0.0	0.0	0.0	4.0	4.2	12.1	0.0	0.0	0.0
Lithuania	2.9	4.5	1.9	0.2	19.3	54.9	0.0	0.0	6.3
Luxembourg	0.0	0.0	0.0	4.5	4.7	6.9	1.7	2.8	11.2
Hungary	86.6	98.6	128.9	0.9	45.9	56.5	1.9	5.5	11.0
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.8	10.2
Netherlands	0.0	7.6	35.9	177.7	343.4	498.5	20.2	28.5	94.4
Austria	29.8	34.5	32.7	114.4	177.5	330.7	92.9	167.5	249.7
Poland	11.4	13.4	20.2	11.6	143.1	660.0	0.1	8.4	17.8
Portugal	65.7	180.6	188.4	152.5	789.5	1 041.4	22.7	66.3	130.8
Romania	17.9	23.0	28.3	0.0	26.3	533.2	0.0	0.1	139.5
Slovenia	0.0	27.7	31.9	0.0	0.0	0.3	0.0	9.3	33.0
Slovakia	8.0	8.3	7.1	0.5	0.5	0.5	0.0	5.8	57.1
Finland	0.0	0.0	0.0	14.6	25.3	95.2	0.7	1.3	2.1
Sweden	0.0	0.0	0.0	80.5	301.1	966.0	6.1	11.0	15.2
United Kingdom	0.8	0.8	0.8	249.7	881.8	2 752.8	0.7	3.5	348.2
Iceland	1 778.2	3 706.8	4 113.0	0.0	0.0	0.7	0.0	0.0	0.0
Norway	0.0	0.0	0.0	42.9	75.6	190.5	0.0	0.0	0.0
Montenegro	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FYR of Macedonia	10.1	11.9	8.6	0.0	0.0	6.1	0.0	0.0	1.2
Albania	0.0	0.0	0.0	0.0	0.0	0.0	2.3	6.7	12.4
Serbia	0.0	5.4	5.6	0.0	0.0	0.0	0.0	0.0	0.5
Turkey	1 007.0	1 966.1	3 523.6	5.1	250.7	732.6	384.8	432.0	804.5
Bosnia and Herzegovina	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kosovo (¹)	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.3
Moldova	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1
Ukraine	0.0	0.0	0.0	3.3	4.3	97.2	0.0	0.1	36.9

(¹) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_107a)



Figure 2.6.2: Gross electricity generation from renewable sources, EU-28, 1990–2014 (GWh)



Source: Eurostat (online data code: nrg_105a)

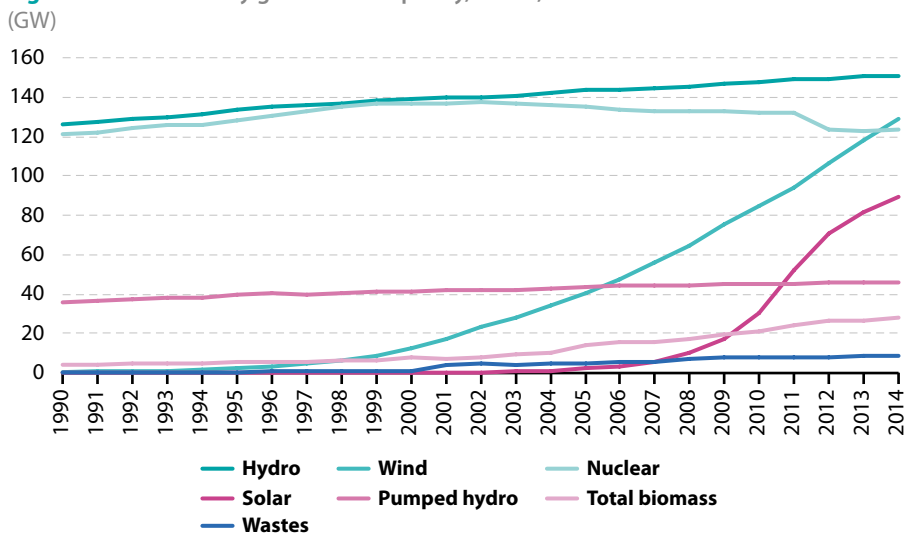
In 2014, gross electricity generation from renewables increased by 4.9% compared with 2013. However, the picture varies depending on the energy source: from an increase of 0.9% for electricity generation from hydro to a 14.1% increase for solar power. Between 1990 and 2014, total electricity generation from renewables increased by 191%. In 2014, renewable electricity generation accounted for 28% of total gross electricity generation ⁽³⁾.

Hydropower plants generate by far the largest share of electricity from renewable energy sources. Electricity generation from hydropower increased by 29% between 1990 and 2014, even if its share of total renewable electricity generation shrank from 94% to 42% over the same period. This is due to the more rapid expansion of electricity generation from other renewable sources. Wind power generation

more than tripled over the period 2005–14: since 2000, it has been the second largest contributor to renewable electricity, replacing wood and other solid biomass, which had held that position since 1990. Solar power electricity generation has increased rapidly in recent years and in 2014 accounted for 11% of all renewable electricity. Also, in 2013 the electricity generated from solar energy surpassed wood and other solid biomass and is now the third most important contributor to the electricity production from renewable sources. Solid renewables (wood and other solid biomass, excluding renewable wastes) are also used in conventional thermal generation power plants: their share in electricity from renewable sources grew from 3.5% in 1990 to 10% in 2014. Bioliquids and biogas, which were negligible in 1990, reached 7% in 2013.

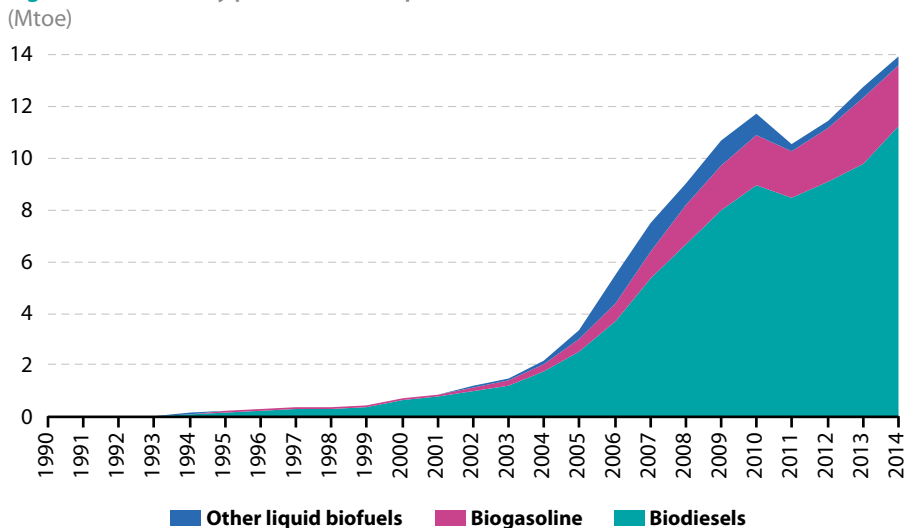
⁽³⁾ Please see (nrg_105a) for detailed data on electricity generation.

Figure 2.6.3: Electricity generation capacity, EU-28, 1990–2014



Source: Eurostat (online data code: nrg_113a)

Figure 2.6.4: Primary production of liquid biofuels, EU-28, 1990–2014



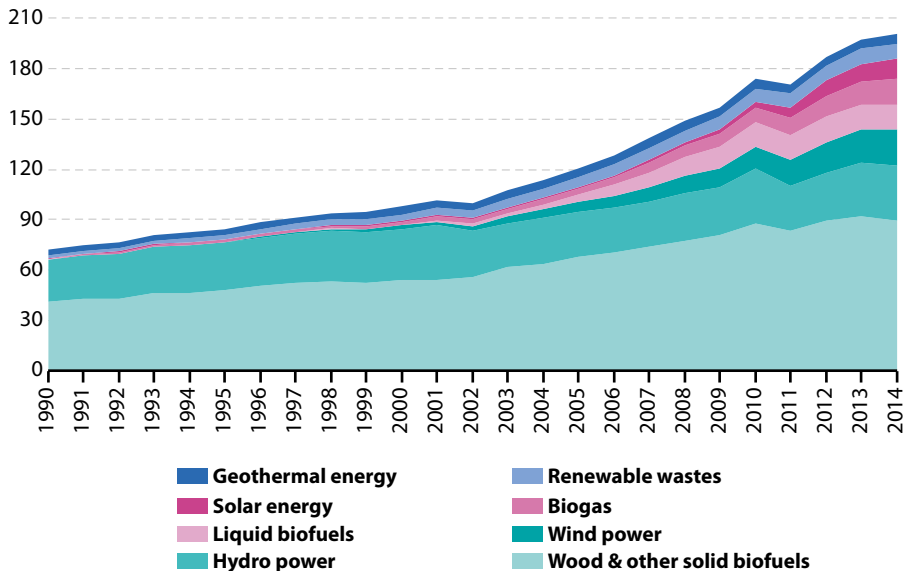
Source: Eurostat (online data code: nrg_110a)



The available capacity of renewable electricity generation has increased significantly over the last 20 years. Wind power capacity had already begun to increase rapidly in the late 1990s and from 2005 there was a boom in solar generation capacity. Additional capacity increases for other renewables were much more modest than for these two. Solar and wind generation are intermittent energy sources: their utilisation rate is much lower than for those renewables used in conventional thermal power stations (as well as compared with fossil fuels and

nuclear power). Pumped-storage hydropower plants can be reliably used to deal with surplus electricity generation from intermittent sources. The capacity of pumped-storage hydropower plants did not increase at the same rate as solar and wind. To put into perspective electricity generation capacities from renewable sources, which in 2014 was in total around 400 gigawatt (GW), the existing electricity generation capacity of fossil fuel plants in the EU was around 450 GW in 2014.

Figure 2.6.5: Gross inland consumption of renewables, EU-28, 1990–2014
(Mtoe)



Source: Eurostat (online data code: nrg_110a)

Table 2.6.3: Share of energy from renewable sources in gross final consumption of energy, 2005–14 (part 1)
(%)

	2005–2014										2013–14 average	2020 target	Indicative trajectory				S2005
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014			2011–12	2013–14	2015–16	2017–18	
EU-28	9.0	9.5	10.4	11.0	12.4	12.8	13.1	14.3	15.0	16.0	15.5	20	:	:	:	:	:
Belgium	2.3	2.7	3.4	3.8	5.1	5.5	6.2	7.2	7.5	8.0	7.8	13	4.4	5.4	7.1	9.2	2.2
Bulgaria	9.4	9.6	9.2	10.5	12.1	14.1	14.3	16.0	19.0	18.0	18.5	16	10.7	11.4	12.4	13.7	9.4
Czech Republic	6.0	6.4	7.4	7.6	8.5	9.5	9.5	11.4	12.4	13.4	12.9	13	7.5	8.2	9.2	10.6	6.1
Denmark	16.0	16.4	17.8	18.6	20.0	22.1	23.5	25.6	27.3	29.2	28.2	30	19.6	20.9	22.9	25.5	17.0
Germany	6.7	7.7	9.1	8.6	9.9	10.5	11.4	12.1	12.4	13.8	13.1	18	8.2	9.5	11.3	13.7	5.8
Estonia	17.5	16.1	17.1	18.9	23.0	24.6	25.5	25.8	25.6	26.5	26.0	25	19.4	20.1	21.2	22.6	18.0
Ireland	2.9	3.1	3.6	4.1	5.1	5.6	6.6	7.1	7.7	8.6	8.2	16	5.7	7.0	8.9	11.5	3.1
Greece	7.0	7.2	8.2	8.0	8.5	9.8	10.9	13.4	15.0	15.3	15.2	18	9.1	10.2	11.9	14.1	6.9
Spain	8.4	9.2	9.7	10.8	13.0	13.8	13.2	14.3	15.3	16.2	15.8	20	11.0	12.1	13.8	16.0	8.7
France	9.6	9.3	10.2	11.1	12.1	12.6	11.1	13.4	14.0	14.3	14.2	23	12.8	14.1	16.0	18.6	10.3
Croatia	23.8	22.7	22.2	22.0	23.6	25.1	25.4	26.8	28.1	27.9	28.0	20	14.1	14.8	15.9	17.4	12.6
Italy	7.5	8.4	9.8	11.5	12.8	13.0	12.9	15.4	16.7	17.1	16.9	17	7.6	8.7	10.5	12.9	5.2
Cyprus	3.1	3.3	4.0	5.1	5.6	6.0	6.0	6.8	8.1	9.0	8.5	13	4.9	5.9	7.4	9.5	2.9
Latvia	32.3	31.1	29.6	29.8	34.3	30.4	33.5	35.7	37.1	38.7	37.9	40	34.1	34.8	35.9	37.4	32.6
Lithuania	17.0	17.0	16.7	18.0	20.0	19.8	20.2	21.7	23.0	23.9	23.4	23	16.6	17.4	18.6	20.2	15.0
Luxembourg	1.4	1.5	2.7	2.8	2.9	2.9	2.9	3.1	3.6	4.5	4.1	11	2.9	3.9	5.4	7.5	0.9

Source: Energy (online data code: nrg_ind_335a)

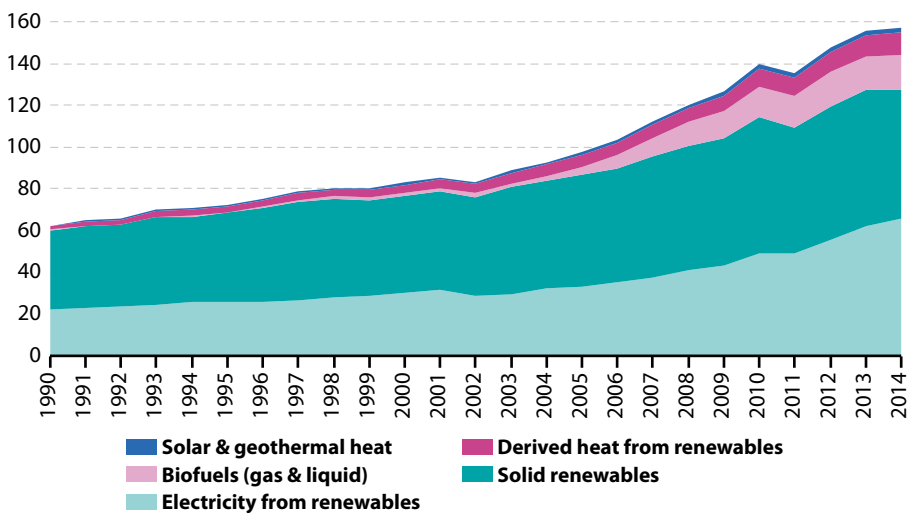


Table 2.6.3: Share of energy from renewable sources in gross final consumption of energy, 2005–14 (part 2)
(%)

	2005–2014										2013–14 average	2020 target	Indicative trajectory				S2005
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014			2011–12	2013–14	2015–16	2017–18	
Hungary	4.5	5.1	5.9	6.5	8.0	8.6	9.1	9.6	9.5	9.5	9.5	13	6.0	6.9	8.2	10.0	4.3
Malta	0.2	0.2	0.2	0.2	0.2	1.1	1.9	2.9	3.7	4.7	4.7	10	2.0	3.0	4.5	6.5	0.0
Netherlands	2.5	2.8	3.3	3.6	4.3	3.9	4.5	4.7	4.8	5.5	5.2	14	4.7	5.9	7.6	9.9	2.4
Austria	23.8	25.3	27.3	28.2	30.2	30.6	30.8	31.6	32.3	33.1	32.7	34	25.4	26.5	28.1	30.3	23.3
Poland	6.9	6.9	6.9	7.7	8.7	9.2	10.3	10.9	11.3	11.4	11.4	15	8.8	9.5	10.7	12.3	7.2
Portugal	19.5	20.8	21.9	23.0	24.4	24.2	24.7	25.0	25.7	27.0	26.3	31	22.6	23.7	25.2	27.3	20.5
Romania	17.6	17.1	18.3	20.5	22.7	23.4	21.4	22.8	23.9	24.9	24.4	24	19.0	19.7	20.6	21.8	17.8
Slovenia	16.0	15.6	15.6	15.0	20.0	20.5	20.2	20.9	22.5	21.9	22.2	25	17.8	18.7	20.1	21.9	16.0
Slovak Republic	6.4	6.6	7.8	7.7	9.4	9.1	10.3	10.4	10.1	11.6	10.9	14	8.2	8.9	10.0	11.4	6.7
Finland	28.8	30.0	29.6	31.4	31.4	32.4	32.8	34.4	36.7	38.7	37.7	38	30.4	31.4	32.8	34.7	28.5
Sweden	40.6	42.7	44.2	45.3	48.2	47.2	49.0	51.1	52.0	52.6	52.3	49	41.6	42.6	43.9	45.8	39.8
United Kingdom	1.4	1.6	1.8	2.7	3.3	3.7	4.2	4.6	5.6	7.0	6.3	15	4.0	5.4	7.5	10.2	1.3
Iceland	60.1	60.8	71.5	67.5	69.7	70.4	71.6	73.2	72.2	77.1	74.6	64	56.8	57.7	59.1	60.9	55.0
Norway	59.8	60.3	60.2	61.8	64.9	61.2	64.8	65.9	66.7	69.2	67.9	67.5	60.1	61.0	62.4	64.2	58.2

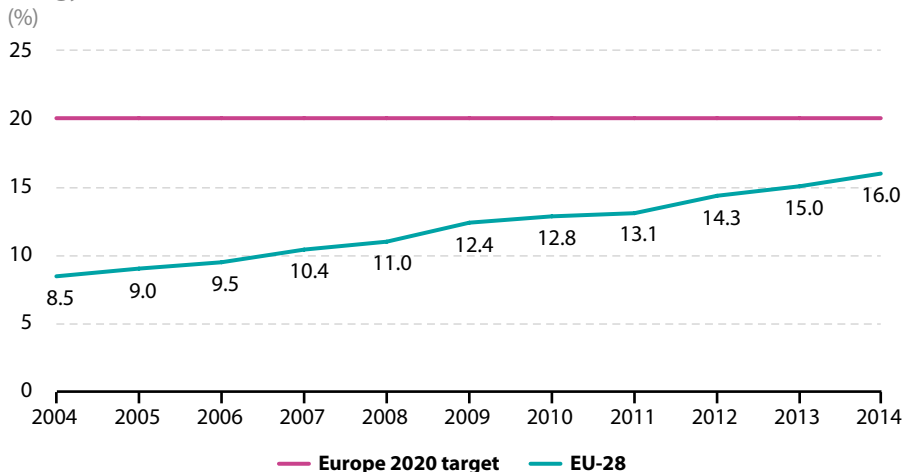
Source: Energy (online data code: nrg_ind_335a)

Figure 2.6.6: Renewable energy available for final consumption, EU-28, 1990–2014 (Mtoe)



Source: Eurostat (online data codes: nrg_105a, nrg_106a and nrg_110a)

Figure 2.6.7: Share of energy from renewable sources in gross final consumption of energy, EU-28, 2004–14 (%)



Source: Energy (online data code: nrg_ind_335a)



In the EU-28, the share of energy from renewable sources in gross final consumption of energy increased from 8.5% in 2004 to 16.0% in 2014. This is evidence of a progress towards the Europe 2020 target of 20%. As some countries have not yet fully implemented all provisions of the Renewable Energy Directive, some biofuels and bioliquids are not counted as compliant (sustainable) in the period 2011–14. Some countries have also not yet improved their national statistical system to fully account for all renewable energy sources (for example for the renewable energy with respect to heat pumps). The increased share between 2010 and 2011 is not due to increased use of renewables but rather because of a decline in the use of fossil energies (oil products and natural gas). Allowing for the 2020 targets of the Energy Efficiency Directive (2012/27/EU), further decreases in the EU's energy consumption could be expected up to 2020.

The latest data for 2005 shows a small variation with respect to data available during the preparation and adoption of the Directive in 2007–08. Changes are due to revisions in data sets transmitted by Member States in response

to annual energy questionnaires. Comparing the average of 2011–12 to the indicative trajectory set out in the Renewable Energy Directive, it can be seen that France and the Netherlands were below the first indicative trajectory values, while all other countries were above. Comparing the average of 2013–14 to the indicative trajectory set out in the Renewable Energy Directive, it can be seen that the Netherlands was below the second indicative trajectory values, while all other countries were above.

The renewable share in Estonia has been above the 2020 target value since 2011. Bulgaria and Sweden have been reaching their 2020 levels since 2012. In 2014, the Czech Republic, Italy, Lithuania, Romania and Finland were also above their 2020 target. Due to revision of data for biomass consumption in the residential sector, the updated data for Croatia indicates that its consumption of energy from renewable sources is above its 2020 target since 2004 (the first year for which values are available).

In 2014 the highest share amongst the EU-28 Member States was observed in Sweden (52.6%) and the lowest in Luxembourg (4.5%).

Table 2.6.4: Share of electricity from renewable sources in gross electricity consumption, 2005–14

(%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	14.9	15.4	16.1	17.0	19.0	19.7	21.7	23.5	25.4	27.5
Belgium	2.4	3.1	3.6	4.6	6.2	7.1	9.1	11.3	12.4	13.4
Bulgaria	9.3	9.3	9.4	10.0	11.3	12.7	12.9	16.1	18.9	18.9
Czech Republic	3.7	4.0	4.6	5.2	6.4	7.5	10.6	11.6	12.8	13.9
Denmark	24.6	24.0	25.0	25.9	28.3	32.7	35.9	38.7	43.1	48.5
Germany	10.5	11.8	13.6	15.1	17.4	18.1	20.9	23.6	25.3	28.2
Estonia	1.1	1.5	1.5	2.1	6.1	10.4	12.3	15.8	13.0	14.6
Ireland	7.2	8.7	10.4	11.2	13.4	14.5	17.2	19.5	20.8	22.7
Greece	8.2	8.9	9.3	9.6	11.0	12.3	13.8	16.4	21.2	21.9
Spain	19.1	20.0	21.7	23.7	27.8	29.8	31.6	33.5	36.7	37.8
France	13.7	14.1	14.3	14.4	15.1	14.8	16.3	16.4	16.8	18.3
Croatia	35.8	35.2	34.0	33.8	35.9	37.6	37.6	38.8	42.2	45.3
Italy	16.3	15.9	16.0	16.6	18.8	20.1	23.5	27.4	31.3	33.4
Cyprus	0.0	0.0	0.1	0.3	0.6	1.4	3.4	4.9	6.6	7.4
Latvia	43.0	40.4	38.6	38.7	41.9	42.1	44.7	44.9	48.8	51.1
Lithuania	3.8	4.0	4.7	4.9	5.9	7.4	9.0	10.9	13.1	13.7
Luxembourg	3.2	3.2	3.3	3.6	4.1	3.8	4.1	4.6	5.3	5.9
Hungary	4.4	3.5	4.2	5.3	7.0	7.1	6.4	6.1	6.6	7.3
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1	1.6	3.3
Netherlands	6.3	6.5	6.0	7.5	9.1	9.6	9.8	10.4	10.0	10.0
Austria	62.4	62.4	64.6	65.2	67.8	65.7	66.0	66.5	68.0	70.0
Poland	2.7	3.0	3.5	4.4	5.8	6.6	8.2	10.7	10.7	12.4
Portugal	27.7	29.3	32.3	34.1	37.6	40.7	45.9	47.6	49.1	52.1
Romania	28.8	28.1	28.1	28.1	30.9	30.4	31.1	33.6	37.5	41.7
Slovenia	28.7	28.2	27.7	30.0	33.8	32.2	31.0	31.6	33.1	33.9
Slovakia	15.7	16.6	16.5	17.0	17.8	17.8	19.3	20.1	20.8	23.0
Finland	26.9	26.4	25.5	27.3	27.3	27.7	29.4	29.5	30.9	31.4
Sweden	50.9	51.8	53.2	53.6	58.3	56.0	59.9	60.0	61.8	63.3
United Kingdom	4.1	4.5	4.8	5.5	6.7	7.4	8.8	10.7	13.8	17.8
Iceland	94.9	93.5	113.7	90.8	92.9	92.4	93.9	95.4	96.7	97.1
Norway	96.8	100.2	98.5	99.6	104.7	97.9	105.5	104.4	106.9	109.6

 Source: Energy (online data code: [nrg_ind_335a](#))



Table 2.6.5: Share of renewable energy sources in heating and cooling, 2005–14
(%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	10.8	11.4	12.8	13.1	14.7	14.8	15.4	16.2	16.6	17.7
Belgium	3.4	3.7	4.5	5.0	5.9	5.8	6.7	7.3	7.5	7.8
Bulgaria	14.3	14.8	13.9	17.3	21.7	24.4	24.9	27.5	29.2	28.3
Czech Republic	9.1	9.7	11.4	11.2	11.8	12.6	13.2	14.1	15.4	16.7
Denmark	22.8	23.8	26.9	28.1	29.5	30.9	32.3	33.6	34.9	37.8
Germany	6.8	7.0	8.4	7.4	9.2	9.8	10.5	10.4	10.6	12.2
Estonia	32.2	30.7	32.7	35.5	41.8	43.3	44.1	43.1	43.2	45.2
Ireland	3.5	3.6	3.9	3.6	4.3	4.5	4.9	5.1	5.4	6.6
Greece	12.8	12.5	14.4	14.3	16.4	17.8	19.4	23.3	26.5	26.9
Spain	9.4	11.4	11.3	11.7	13.3	12.6	13.6	14.1	14.1	15.8
France	12.3	11.6	12.6	13.1	14.9	15.9	15.9	16.9	17.8	17.8
Croatia	30.0	29.1	29.2	28.7	31.2	32.8	33.7	36.5	37.2	36.2
Italy	8.2	10.1	13.3	15.3	16.4	15.6	13.8	17.0	18.1	18.9
Cyprus	10.0	10.4	13.1	14.5	16.3	18.2	19.2	20.8	21.7	21.8
Latvia	42.7	42.6	42.4	42.9	47.9	40.7	44.7	47.3	49.7	52.2
Lithuania	30.1	29.7	29.8	32.8	34.4	33.2	33.7	35.5	37.7	41.6
Luxembourg	3.6	3.6	4.4	4.6	4.7	4.8	4.8	5.0	5.8	7.4
Hungary	6.0	7.5	8.9	8.3	10.5	11.0	12.3	13.5	12.6	12.4
Malta	2.2	2.6	3.2	3.6	1.8	7.4	10.7	13.1	14.6	14.6
Netherlands	2.4	2.8	3.0	3.1	3.4	3.1	3.7	3.9	4.1	5.2
Austria	22.1	22.9	25.7	26.1	28.1	29.8	30.2	31.2	32.7	32.6
Poland	10.2	10.2	10.4	10.9	11.6	11.7	13.1	13.4	14.1	13.9
Portugal	32.1	34.2	35.0	37.5	38.0	33.9	35.2	34.0	34.5	34.0
Romania	18.0	17.6	19.4	23.2	26.4	27.2	24.3	25.8	26.2	26.8
Slovenia	18.9	18.6	20.4	19.2	27.3	28.3	30.2	31.7	33.7	33.3
Slovakia	5.0	4.5	6.2	6.1	8.2	7.9	9.3	8.8	7.9	8.7
Finland	39.1	41.4	41.5	43.4	43.4	44.3	46.0	48.5	50.8	51.9
Sweden	51.9	56.4	58.7	61.1	63.6	60.9	62.5	65.8	67.1	68.1
United Kingdom	0.8	0.9	1.1	2.0	2.5	2.8	3.1	3.3	3.8	4.5
Iceland	53.4	56.9	58.6	62.0	62.1	63.9	65.2	67.2	62.1	76.7
Norway	28.9	28.6	29.6	31.2	32.3	32.9	34.6	34.2	33.4	32.5

Source: Energy (online data code: [nrg_ind_335a](#))

Table 2.6.6: Share of renewable energy sources in transport, 2005–14
(%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	1.4	2.1	2.8	3.6	4.3	4.8	3.4	5.0	5.4	5.9
Belgium	0.2	0.2	1.3	1.3	3.4	4.2	4.0	4.4	4.3	4.9
Bulgaria	0.3	0.6	0.4	0.5	0.5	1.0	0.4	0.3	5.6	5.3
Czech Republic	0.5	0.8	1.0	2.3	3.7	4.5	0.5	5.5	5.6	6.1
Denmark	0.2	0.3	0.3	0.3	0.4	0.9	3.3	5.5	5.7	5.8
Germany	3.7	6.5	7.6	6.1	5.6	6.0	5.9	6.9	6.4	6.6
Estonia	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.2	0.2
Ireland	0.0	0.1	0.5	1.3	1.9	2.4	3.8	4.0	4.9	5.2
Greece	0.0	0.7	1.2	1.0	1.1	1.9	0.7	1.0	1.0	1.4
Spain	1.0	0.7	1.2	1.9	3.5	4.7	0.4	0.4	0.5	0.5
France	1.7	2.0	3.6	5.8	6.2	6.1	0.5	7.0	7.2	7.8
Croatia	0.4	0.4	0.6	0.6	0.8	0.6	0.4	0.4	2.2	2.1
Italy	0.8	0.9	0.8	2.3	3.7	4.6	4.7	5.7	4.9	4.5
Cyprus	0.0	0.0	0.0	1.9	2.0	2.0	0.0	0.0	1.1	2.7
Latvia	1.3	1.2	0.9	0.9	1.1	3.3	3.2	3.1	3.1	3.2
Lithuania	0.5	1.7	3.7	4.2	4.3	3.6	3.7	4.8	4.6	4.2
Luxembourg	0.1	0.1	2.1	2.1	2.1	2.0	2.1	2.2	3.8	5.2
Hungary	0.4	0.6	1.0	4.6	5.2	5.4	5.4	5.2	5.6	6.9
Malta	0.0	0.0	0.0	0.0	0.0	0.0	2.1	3.2	3.5	4.7
Netherlands	0.2	0.5	2.9	2.7	4.2	3.0	4.5	4.5	4.6	5.7
Austria	2.8	5.5	6.3	7.5	9.0	8.7	7.7	7.8	7.8	8.9
Poland	1.0	1.2	1.2	3.6	4.9	6.2	6.4	6.0	6.0	5.7
Portugal	0.2	1.3	2.2	2.3	3.6	5.3	0.4	0.4	0.7	3.4
Romania	1.0	0.8	1.8	2.8	3.9	3.2	2.1	4.0	4.6	3.8
Slovenia	0.3	0.6	1.1	1.4	2.0	2.8	2.1	2.9	3.5	2.6
Slovakia	1.1	2.9	3.5	3.9	4.9	4.8	5.0	4.8	5.3	6.9
Finland	0.4	0.4	0.4	2.4	4.0	3.8	0.4	0.4	9.6	21.6
Sweden	3.8	4.7	5.7	6.3	6.9	7.2	10.0	12.6	17.0	19.2
United Kingdom	0.3	0.6	1.0	2.1	2.6	3.1	2.9	3.6	4.4	4.9
Iceland	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5	0.6
Norway	1.2	1.3	1.9	3.2	3.6	4.0	1.4	1.6	1.6	4.8

Source: Energy (online data code: nrg_ind_335a)



2.7 Energy savings, efficiency & intensity

Primary energy consumption decreased between 1990 and 2014 by 4%. While consumption of solid fossil fuels (coal and coal products) decreased by 41% and oil (including petroleum products) decreased by 15%, consumption of renewables increased by 180%, natural gas (including manufactured gases) increased by 17% and nuclear energy increased by 10%. Primary energy consumption peaked in 2006 and then decreased by 12% by 2014.

In 2014, primary energy consumption of oil and petroleum products reached a record low since

1990; however oil and petroleum products are still the most important source of primary energy consumption with a 31% share. Renewables reached record high levels in 2014 and their share in primary energy consumption was 13%. Fossil fuels together (solid, gaseous and liquid) account for 71% of total primary energy consumption.

The indicator measuring progress towards the 20% target of the Europe 2020 strategy for the primary energy reached 15.7% in 2014.

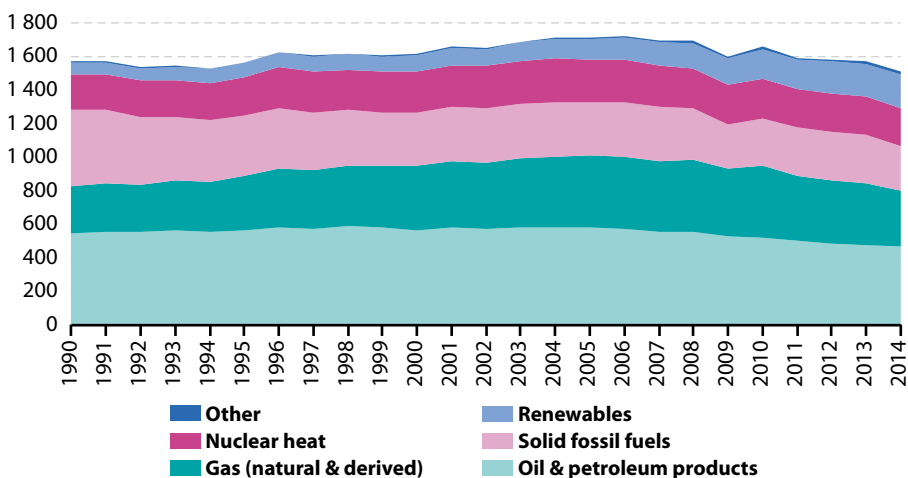
Table 2.7.1: Energy consumption in the EU-28, 1990–2014
(Mtoe)

	1990	1995	2000	2005	2011	2012	2013	2014	2020 target
Primary Energy	1 569.4	1 567.5	1 617.9	1 712.8	1 593.3	1 584.0	1 569.1	1 507.1	1 483
Solid Fossil Fuels	453.2	363.9	320.2	316.7	285.7	292.4	284.7	267.0	
Oil & Petroleum Products	548.9	563.0	566.8	578.5	501.5	483.7	473.1	468.7	
Gas (Natural & Derived)	282.5	321.5	380.7	430.0	389.0	379.5	373.8	330.0	
Nuclear Heat	205.2	227.3	243.8	257.5	234.0	227.7	226.3	226.1	
Renewables	71.9	84.4	98.3	121.0	170.9	187.3	197.9	201.3	
Other	7.7	7.4	8.0	9.2	12.2	13.4	13.3	14.0	
Final Energy	1 081.1	1 082.7	1 132.8	1 191.8	1 105.0	1 104.5	1 106.2	1 061.2	1 086
Solid Fossil Fuels	124.7	83.0	61.9	54.0	49.2	47.9	47.8	46.6	
Oil & Petroleum Products	446.5	466.1	490.5	503.8	444.9	429.9	426.3	422.5	
Gas (Natural & Derived)	230.0	247.6	267.7	281.4	242.2	252.5	258.7	229.3	
Electricity	186.0	194.1	217.4	239.5	239.8	240.1	238.3	232.7	
Derived Heat	54.3	46.3	45.3	53.1	48.7	49.1	49.0	45.5	
Renewables	38.7	44.1	48.9	58.6	77.6	82.1	83.0	81.4	
Non-renewable wastes	0.9	1.6	1.0	1.5	2.8	2.7	3.0	3.3	

Source: Eurostat (online data code: nrg_ind_334a)

Figure 2.7.1: Primary energy consumption, EU-28, 1990–2013

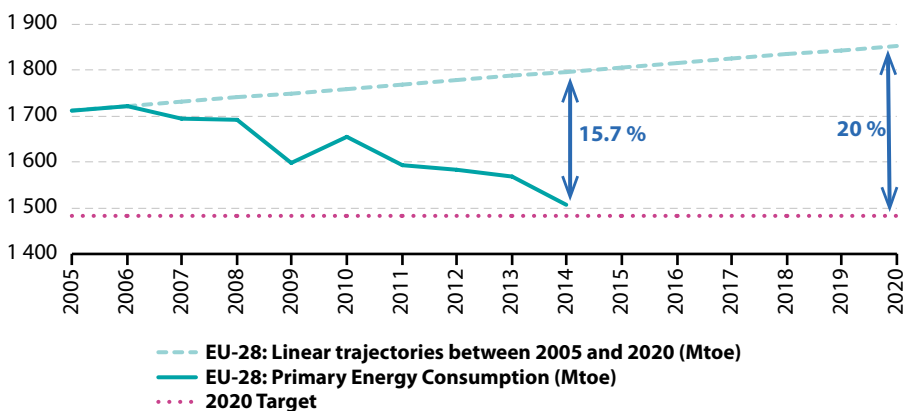
(Mtoe)



Source: Eurostat (online data code: nrg_ind_334a)

Figure 2.7.2: Primary energy savings, EU-28, 2005–20

(Mtoe)



Source: Eurostat (online data code: nrg_ind_334a)

**Table 2.7.2: Energy saving in the EU-28, 2005–14**

(%)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2020 target
Primary energy	0.0	0.0	2.0	2.6	8.1	5.6	9.5	10.5	11.8	15.7	20
Final energy	0.0	0.7	3.0	3.3	8.9	6.2	11.3	12.1	12.8	16.9	20

Source: Eurostat (online data code: nrg_ind_334a)

Final energy consumption decreased between 1990 and 2014 by 2%. While consumption of solid fossil fuels (coal and coal products) decreased by 63% and consumption of derived heat (heat sold) by 16%, final energy consumption of renewables increased by 110% and final consumption of electricity increased by 25%. Final energy consumption peaked in 2006 and then decreased by 11% by 2013.

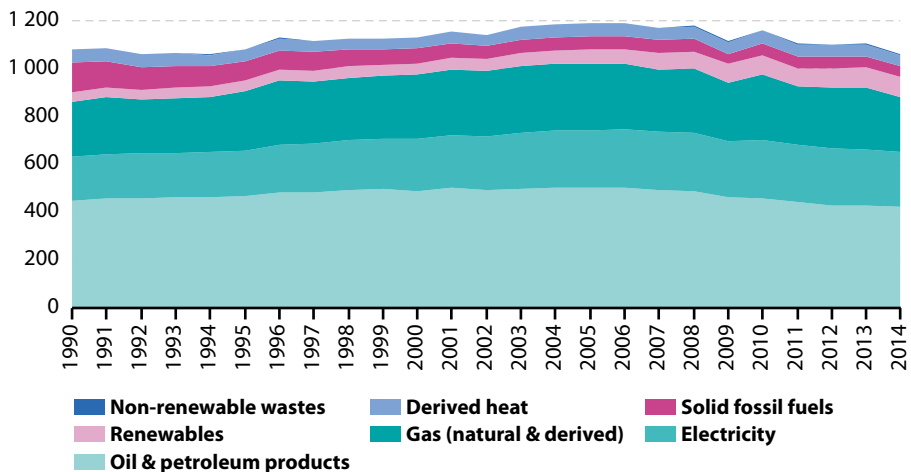
In 2014, final energy consumption of oil and petroleum products reached a record low since 1990, however oil and petroleum products are still the most important source of final energy

consumption with a 40% share. Solid fossil fuels are undergoing a long term decreasing trend and contribute only 4% to final energy consumption. Fossil fuels together (solid, gaseous and liquid) account for 66% of total final energy consumption. Electricity and natural gas have 22% share each.

The indicator measuring progress towards the 20% target of the Europe 2020 strategy for the final energy reached 16.9% in 2014. The actual final energy consumption in year 2014 was 2% lower than the target value in Article 3 of Directive 2012/27/EU on energy efficiency.

Figure 2.7.3: Final energy consumption, EU-28, 1990–2014

(Mtoe)



Source: Eurostat (online data code: nrg_ind_334a)

Table 2.7.3: Final energy consumption, 1990–2014
 (Mtoe)

	1990	1995	2000	2005	2010	2012	2013	2014	Target
EU-28	1 081.1	1 082.7	1 132.8	1 191.8	1 163.3	1 104.5	1 106.2	1 061.2	1 086
EA-19	723.6	741.2	795.8	844.6	824.5	780.8	784.2	750.3	:
Belgium	31.5	34.4	37.6	36.6	38.6	35.0	36.2	34.0	32.5
Bulgaria	16.4	11.4	9.1	10.2	8.8	9.2	8.8	9.0	8.6
Czech Republic	32.5	26.1	24.8	26.0	24.9	23.7	23.9	23.0	25.3
Denmark	13.5	14.8	14.7	15.5	15.5	14.2	14.1	13.5	14.8
Germany	228.9	221.6	220.0	218.5	219.7	212.1	217.7	208.9	194.3
Estonia	5.7	2.6	2.4	2.9	2.9	2.9	2.9	2.8	2.8
Ireland	7.3	8.0	10.8	12.6	12.0	10.6	10.7	10.8	11.7
Greece	14.7	15.8	18.7	21.0	19.1	17.1	15.3	15.6	18.4
Spain	57.1	64.0	79.9	97.8	89.1	83.2	80.8	79.2	80.1
France	136.2	143.5	155.3	160.2	155.0	148.0	151.9	141.7	131.4
Croatia	6.5	5.3	6.0	7.2	7.2	6.7	6.6	6.2	7.0
Italy	107.7	114.6	124.7	137.2	128.5	121.8	118.5	113.4	124.0
Cyprus	1.1	1.4	1.6	1.8	1.9	1.8	1.6	1.6	1.8
Latvia	6.4	3.8	3.3	4.0	4.1	4.0	3.9	3.9	4.5
Lithuania	9.7	4.6	3.8	4.6	4.8	4.8	4.7	4.8	4.3
Luxembourg	3.3	3.1	3.5	4.5	4.3	4.2	4.1	4.0	4.2
Hungary	19.9	16.2	16.1	18.2	16.1	14.3	14.9	14.9	14.4
Malta	0.3	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.5
Netherlands	41.8	51.0	52.3	54.2	55.1	51.5	51.6	47.3	52.2
Austria	19.3	21.4	23.7	27.8	28.0	27.0	27.9	26.8	25.1
Poland	59.9	62.9	55.3	59.0	66.4	64.4	63.3	61.6	71.6
Portugal	11.9	13.9	17.9	19.0	18.1	16.0	15.9	15.8	17.4
Romania	40.8	27.0	22.8	24.7	22.6	22.8	21.8	21.7	30.3
Slovenia	3.7	4.1	4.5	4.9	5.0	4.9	4.8	4.6	5.1
Slovakia	15.2	11.0	11.0	11.6	11.5	10.3	10.6	10.1	9.0
Finland	21.7	22.0	24.3	25.2	26.2	25.2	24.7	24.4	26.7
Sweden	31.2	35.1	35.0	33.7	34.1	32.4	31.6	31.2	30.3
United Kingdom	136.9	142.7	153.2	152.7	143.3	135.9	137.2	129.8	129.2
Iceland	1.4	1.5	1.9	2.0	2.6	2.7	2.9	2.9	:
Norway	16.1	16.9	18.1	18.6	19.6	18.8	19.0	18.4	:
Montenegro	:	:	:	0.8	0.8	0.7	0.7	0.6	:
FYR of Macedonia	1.4	1.5	1.6	1.7	1.8	1.8	1.8	1.7	:
Albania	2.0	1.0	1.5	1.9	1.9	1.9	2.0	2.1	:
Serbia	11.8	6.1	6.9	9.6	9.0	8.5	8.3	7.8	:
Turkey	38.6	45.1	56.2	63.4	74.0	84.2	82.9	85.9	:
Bosnia and Herzegovina	3.3	0.8	1.2	1.5	1.9	2.0	1.9	4.5	:
Kosovo (1)	:	:	0.8	1.0	1.2	1.2	1.2	1.2	:

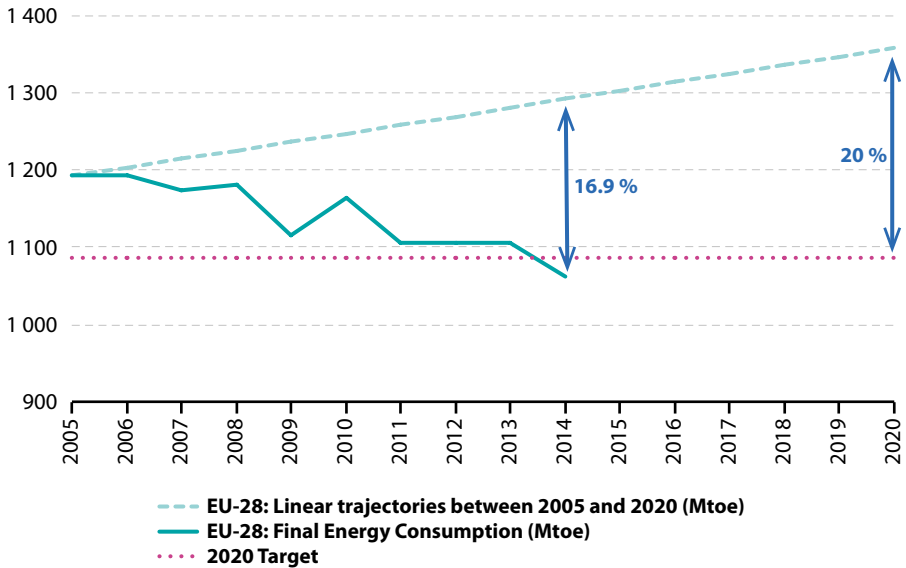
(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: [t2020_34](#))



Figure 2.7.4: Final energy savings, EU-28, 2005–20

(Mtoe)



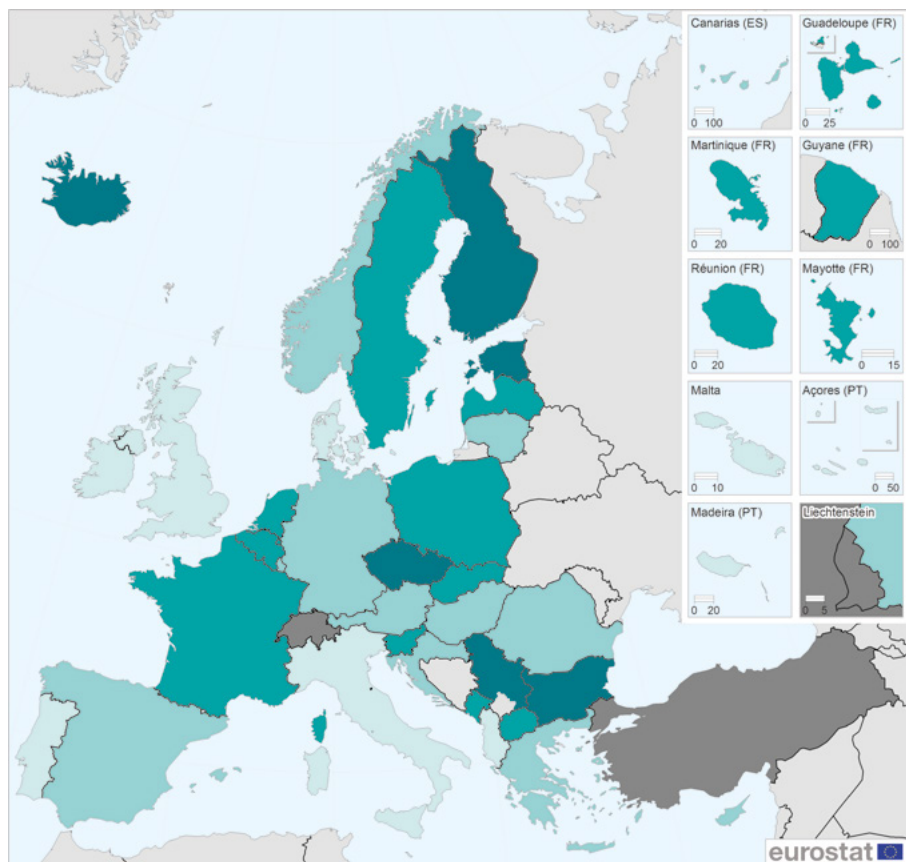
Source: Eurostat (online data code: [nrg_ind_334a](#))

Energy intensity can be considered as an approximation of the energy efficiency of a nation's economy and shows how much energy is needed to produce a unit of gross domestic product (GDP). There are various reasons for observing improvements in energy intensity: the general shift from industry towards a service

based economy in Europe, a shift within industry to less energy-intensive activities and production methods, the closure of inefficient units, or more energy-efficient appliances. With the exception of Estonia and Greece, energy intensity improved in all EU countries in last 5 years (between 2009 and 2014).



Map 2.7.1: Energy intensity of the economy, 2014
(toe/million euro PPS)

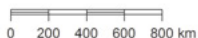


(tons of oil equivalent (toe) per million euro PPS)

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat - GISCO, 07/2016

EU-28 = 115

- < 100
- 100 — <125
- 125 — <150
- ≥ 150
- Data not available



Source: Eurostat (online data codes: nrg_100a and nama_10_gdp)



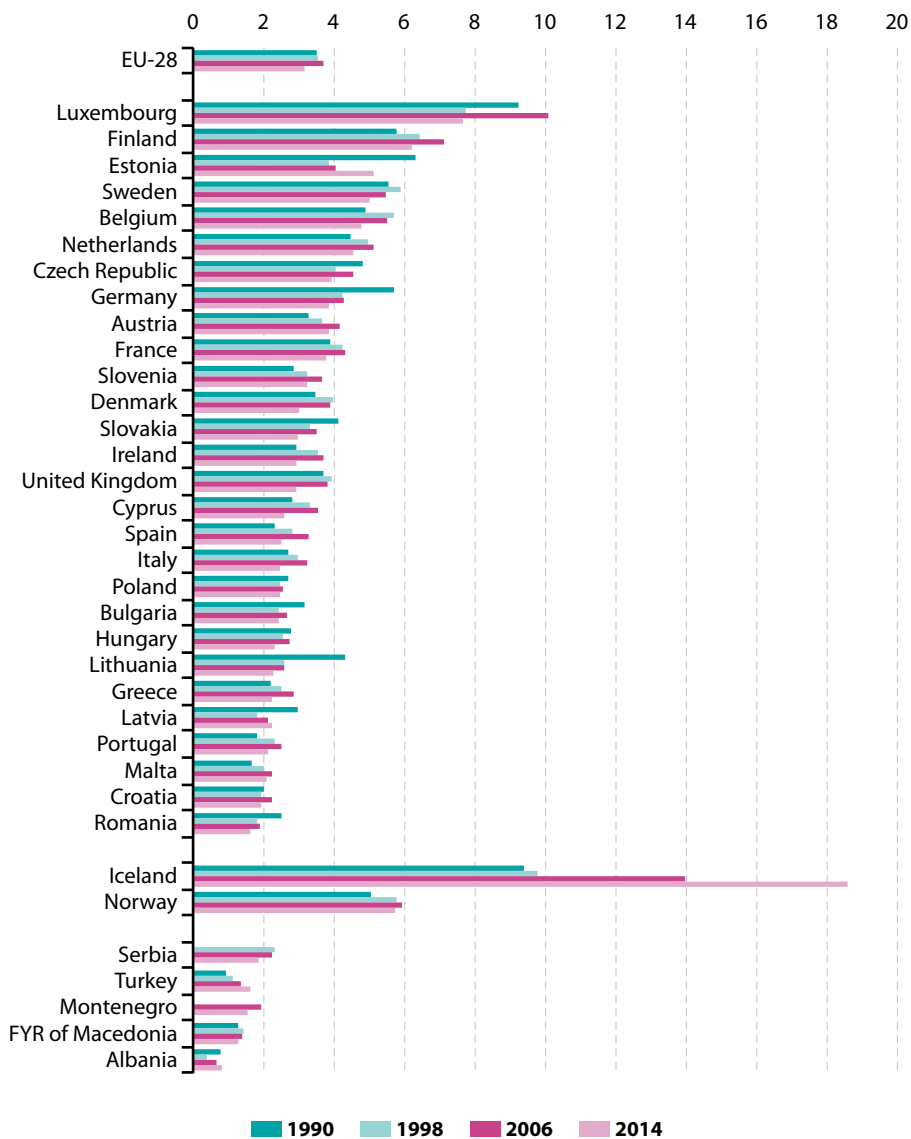
Table 2.7.4: Energy intensity of the economy, 2005–14
(kg of oil equivalent per 1 000 EUR of GDP)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	149.5	145.4	138.8	137.7	135.7	137.9	130.4	130.0	128.3	122.0
EA-19	141.1	137.1	131.0	130.4	128.9	130.6	123.5	123.5	122.8	117.4
Belgium	173.4	166.1	158.0	163.2	159.8	167.5	153.3	146.8	151.8	141.5
Bulgaria	609.4	589.5	537.8	506.2	464.3	471.2	498.3	474.7	430.7	448.8
Czech Republic	325.4	312.5	296.2	281.9	277.8	285.7	269.8	270.5	267.9	256.3
Denmark	81.1	84.1	81.3	78.6	79.6	83.0	76.1	73.5	74.8	68.6
Germany	140.9	139.8	128.4	128.6	128.0	129.1	118.4	118.7	120.5	114.4
Estonia	374.6	331.8	345.1	352.9	372.7	417.8	390.4	367.2	396.2	386.4
Ireland	93.5	90.3	88.8	91.5	90.6	90.7	83.0	83.3	82.0	74.9
Greece	136.7	130.1	125.7	127.4	128.0	127.6	135.8p	145.2p	131.8p	131.7p
Spain	140.7	135.2	132.0	126.5	120.8	120.5	120.1	122.9p	116.5p	112.3p
France	143.8	138.5	133.9	134.3	132.3	133.6	126.2	126.1	126.0	120.1p
Croatia	222.5	210.9	209.2	199.4	208.1	209.5	207.3	201.9	197.7	189.4
Italy	116.6	113.2	111.5	111.6	110.1	110.9	106.9	105.6	103.5	98.4
Cyprus	149.9	148.9	148.2	150.5	149.4	143.3	140.1	134.3	124.1	129.5p
Latvia	252.6	234.2	218.4	217.7	244.1	260.5	231.8	231.1	220.8	215.0
Lithuania	329.5	300.8	294.9	286.6	307.3	242.2	235.8	229.9	209.3	203.3
Luxembourg	137.2	128.4	116.2	117.2	116.7	117.4	112.6	111.0	103.4	96.6
Hungary	278.3	266.6	259.3	255.3	257.9	261.8	250.4	238.7	226.6	219.5
Malta	162.8	150.1	153.4	148.1	136.6	141.8	139.1	141.5	121.1	118.7
Netherlands	142.4	136.2	131.0	128.6	129.9	136.3	125.3	127.2	126.9	119.4
Austria	123.8	120.3	114.7	113.9	111.3	116.6	110.1	108.8	110.2	106.2
Poland	321.8	318.3	297.2	288.3	270.6	278.3	265.4	252.9	250.8	233.7
Portugal	157.4	147.8	144.1	139.6	142.0	135.0	133.8	131.2	133.6	130.7
Romania	357.2	342.1	318.8	293.0	278.3	282.5	285.4	274.4	243.0	235.0p
Slovenia	220.2	208.4	195.1	199.7	197.0	202.6	201.0	198.6	195.7	184.6
Slovakia	356.3	325.7	278.0	269.7	261.5	265.0	251.0	237.2	238.2	221.2
Finland	192.2	200.8	189.9	181.8	186.8	198.5	186.8	183.5	181.8	185.6
Sweden	149.5	138.8	134.2	134.3	130.5	137.6	131.2	131.8	128.4	123.1
United Kingdom	130.0	124.9	117.6	116.6	115.0	115.9	106.5	108.2	105.2	95.6
Iceland	352.2	417.2	447.0	507.0	562.0	585.6	614.2	561.7	563.5	551.0
Norway	87.9	87.2	85.8	99.7	98.5	106.1	87.0	89.6	99.3	84.4
Montenegro	:	:	:	:	:	:	351.9	342.4	319.0	294.6
FYR of Macedonia	470.8	465.8	454.0	426.6	400.9	398.6	423.1	408.1	363.6	341.4p
Serbia	601.7	610.4	569.5	546.7	514.1	523.8	536.6	486.9	487.4	441.9
Kosovo (1)	:	:	:	539.6	577.0	571.7	553.2	504.7	473.5	432.2

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: tsdec360)

Figure 2.7.5: Gross inland energy consumption per capita, 1990, 1998, 2006 and 2014 (toe per capita)

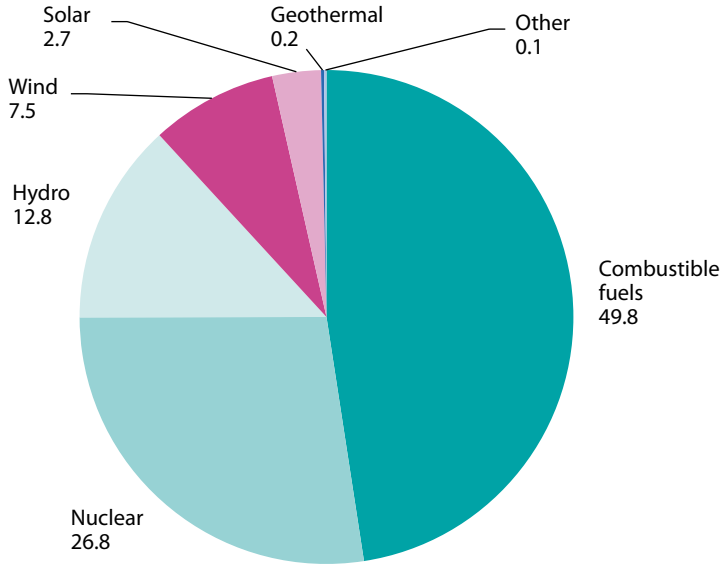


Source: Eurostat (online data codes: nrg_100a and demo_pjan)



2.8 Energy industry

Figure 2.8.1: Net electricity generation, EU-28, 2014 (1)
(% of total, based on GWh)



(1) Figures do not sum to 100 % due to rounding.

Source: Eurostat (online data code: nrg_105a)

Total net electricity generation in the EU-28 was 3.03 million gigawatt hours (GWh) in 2014 — which was 2.4% less than the year before. This was the fourth consecutive fall in output, following on from reductions of 2.2%, 0.1% and 0.6% in 2011, 2012 and 2013. As such, the level of net electricity generation in 2014 was 5.7% lower than its peak level of 2008 (3.22 million GWh).

Germany had the highest level of net electricity generation in 2014 among the EU Member States, accounting for 19.5% of the EU-28 total, just ahead of France (17.8%); the United Kingdom was the only other Member State with a double-digit share (10.6%).

Table 2.8.1: Net electricity generation 1990–2014
(1 000 GWh)

	1990	1995	2000	2005	2010	2012	2013	2014
EU-28	2 432.5	2 584.7	2 873.4	3 153.4	3 199.5	3 127.3	3 107.1	3 032.1
EA-19	1 655.3	1 774.4	2 007.7	2 222.3	2 281.6	2 221.6	2 216.5	2 159.6
Belgium	67.3	70.6	80.3	83.4	91.5	79.8	80.2	70.0
Bulgaria	37.5	37.4	36.9	40.3	42.2	42.9	39.8	43.2
Czech Republic	58.1	56.9	68.0	76.2	79.5	81.1	80.9	79.9
Denmark	24.3	34.7	34.4	34.4	36.9	29.2	33.2	30.8
Germany	508.6	498.9	538.5	582.7	594.8	592.7	601.8	592.0
Estonia	15.4	7.6	7.6	9.1	11.7	10.5	11.8	11.0
Ireland	13.7	16.8	22.7	24.8	27.4	26.5	25.1	25.3
Greece	32.1	38.4	49.9	55.7	53.4	53.7	52.6	46.7
Spain	144.6	159.1	214.4	282.1	291.0	286.6	275.4	268.4
France	401.2	472.6	516.1	550.0	544.1	541.2	548.5	539.4
Croatia	8.6	8.9	10.9	12.7	14.4	10.4	13.7	13.2
Italy	205.1	229.2	263.3	290.6	290.7	287.8	278.8	269.1
Cyprus	1.9	2.4	3.2	4.1	5.1	4.5	4.1	4.1
Latvia	5.9	3.5	3.7	4.4	6.1	5.7	5.8	4.7
Lithuania	26.3	12.4	10.0	13.6	5.3	4.7	4.5	4.1
Luxembourg	1.3	1.2	1.1	4.1	4.6	3.8	2.9	2.9
Hungary	25.9	31.3	32.3	33.2	34.6	32.4	28.0	27.1
Malta	1.0	1.4	1.8	2.1	2.0	2.2	2.1	2.1
Netherlands	69.4	77.8	86.0	95.6	114.8	98.6	96.9	98.8
Austria	48.4	54.9	59.1	63.5	68.1	69.5	64.9	62.3
Poland	123.4	127.4	132.2	143.6	143.5	147.6	150.1	145.2
Portugal	27.3	31.9	42.2	45.0	52.8	45.3	50.4	51.5
Romania	56.7	52.9	48.6	55.5	55.9	53.7	54.1	60.7
Slovenia	11.2	11.8	12.8	14.1	15.4	14.7	15.1	16.5
Slovakia	23.0	23.4	27.7	29.3	25.4	26.1	27.2	25.0
Finland	51.6	60.5	67.3	67.8	77.2	67.7	68.4	65.5
Sweden	142.5	144.2	141.6	154.6	145.3	162.8	149.5	150.0
United Kingdom	300.1	316.6	360.8	380.5	365.7	345.6	341.3	322.4
Iceland	4.5	4.9	7.6	8.5	16.7	17.2	17.8	17.7
Norway	120.8	122.6	142.3	137.4	123.1	147.2	133.4	141.6
Montenegro	:	:	:	2.8	3.9	2.7	3.8	3.0
FYR of Macedonia	5.4	5.8	6.3	6.5	6.8	5.8	5.7	5.0
Albania	3.2	4.4	4.7	5.4	7.6	4.7	7.0	4.7
Serbia	38.2	32.5	31.3	34.6	35.7	34.2	37.2	31.9
Turkey	54.2	81.9	118.7	155.5	203.0	227.7	229.0	239.4
Bosnia and Herzegovina	11.7	4.3	8.7	11.2	16.2	13.0	16.5	15.2
Kosovo (1)	:	:	2.6	4.0	4.6	5.3	5.9	5.0

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_105a)



Table 2.8.2: Total gross electricity generation, 1990–2014
(1 000 GWh)

	1990	1995	2000	2005	2010	2012	2013	2014
EU-28	2 595.1	2 743.6	3 035.8	3 325.4	3 366.4	3 297.5	3 270.6	3 190.7
EA-19	1 760.1	1 880.3	2 119.4	2 340.1	2 393.8	2 335.2	2 324.8	2 264.7
Belgium	70.9	74.4	84.0	87.0	95.2	82.9	83.5	72.7
Bulgaria	42.1	41.8	40.9	44.4	46.7	47.3	43.8	47.5
Czech Republic	62.6	60.8	73.5	82.6	85.9	87.6	87.1	86.0
Denmark	26.0	36.8	36.1	36.2	38.9	30.7	34.8	32.2
Germany	550.0	537.3	576.5	622.6	633.0	629.8	638.7	627.8
Estonia	17.2	8.7	8.5	10.2	13.0	12.0	13.3	12.4
Ireland	14.5	17.9	24.0	26.0	28.7	27.6	26.1	26.3
Greece	35.0	41.6	53.8	60.0	57.4	61.0	57.2	50.5
Spain	151.9	167.1	224.5	294.1	301.5	297.6	285.6	278.7
France	420.8	494.3	540.0	576.1	569.1	565.7	572.3	562.8
Croatia	9.1	9.3	11.3	13.2	14.9	10.8	14.1	13.6
Italy	216.6	241.5	276.6	303.7	302.1	299.3	289.8	279.8
Cyprus	2.0	2.5	3.4	4.4	5.3	4.7	4.3	4.4
Latvia	6.6	4.0	4.1	4.9	6.6	6.2	6.2	5.1
Lithuania	28.4	13.9	11.4	14.8	5.7	5.0	4.8	4.4
Luxembourg	1.4	1.2	1.2	4.1	4.6	3.8	2.9	3.0
Hungary	28.4	34.0	35.2	35.8	37.4	34.6	30.3	29.4
Malta	1.1	1.6	1.9	2.2	2.1	2.3	2.3	2.2
Netherlands	71.9	81.2	89.6	99.9	119.3	103.3	101.7	103.4
Austria	50.3	56.2	61.3	66.4	71.1	72.6	68.3	65.4
Poland	136.3	139.0	145.2	156.9	157.7	162.1	164.6	159.1
Portugal	28.5	33.3	43.8	46.6	54.1	46.6	51.7	52.8
Romania	64.3	59.3	51.9	59.4	61.0	59.0	58.9	65.7
Slovenia	12.4	12.9	13.6	15.1	16.4	15.7	16.1	17.4
Slovakia	26.1	26.8	31.2	31.5	27.9	28.7	28.8	27.4
Finland	54.4	64.0	70.0	70.6	80.7	70.4	71.3	68.1
Sweden	146.5	148.4	145.3	158.4	148.6	166.6	153.2	153.7
United Kingdom	319.7	334.0	377.1	398.4	381.8	363.6	359.2	338.9
Iceland	4.5	5.0	7.7	8.7	17.1	17.5	18.1	18.1
Norway	121.8	123.2	143.0	138.0	123.6	147.7	134.0	142.3
Montenegro	0.0	0.0	0.0	2.9	4.0	2.8	3.9	3.2
FYR of Macedonia	5.8	6.1	6.8	6.9	7.3	6.3	6.1	5.4
Albania	3.2	4.4	4.7	5.4	7.6	4.7	7.0	4.7
Serbia	40.9	34.5	34.1	36.5	38.1	36.8	39.9	34.1
Turkey	57.5	86.2	124.9	162.0	211.2	239.5	240.2	252.0
Bosnia and Herzegovina	14.6	4.4	10.4	12.6	17.1	14.1	17.5	16.2
Kosovo (¹)	0.0	0.0	3.0	4.5	5.2	5.9	6.5	5.4
Moldova	16.2	7.6	5.6	6.0	6.1	5.8	4.5	1.0
Ukraine	298.8	194.0	171.4	186.1	188.6	198.9	194.4	182.8

(¹) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence

Source: Eurostat (online data code: nrg_105a)



The pattern observed for the EU-28 of falling electricity generation over the period covering 2010–14 was reproduced in the majority of EU Member States, while net electricity generation rose in Romania, Sweden, Poland, Slovenia, Bulgaria, the Czech Republic and Malta. By contrast, there were relatively large contractions in electricity generation in the United Kingdom, Spain, Italy, Belgium, the Netherlands and Finland during the period 2010–14.

In 2014, the largest annual increases in electricity generation were recorded for Romania (12.1%), Slovenia (9.1%) and Bulgaria (8.6%), while none of the other EU Member States reported growth of more than 3.0%. By contrast, 18 Member States reported a fall in electricity generation, with the largest reductions recorded for Latvia (–18.4%), Belgium (–12.8%) and Greece (–11.1%).

More than one quarter (27.4%) of the net electricity generated in the EU-28 in 2014 came from nuclear power plants, while almost double this share (47.6%) came from power stations

using combustible fuels (such as natural gas, coal and oil). Among the renewable energy sources, the highest share of net electricity generation in 2014 was from hydropower plants (13.2%), followed by wind turbines (8.3%) and solar power (3.2%).

One measure that is used to monitor the extent of electricity market liberalisation is the market share of the largest generator in each country. The small island nations of Cyprus and Malta were both characterised by a complete monopoly in 2014, with 100% of their electricity being generated by the largest (sole) generator. Four other EU Member States — France, Estonia, Slovakia and Croatia — reported shares of at least 80%. In 11 of the 26 EU Member States for which data are available (no data for Bulgaria or the Netherlands), the largest generator provided less than 50% of the total electricity generated, with the lowest share (18%) being recorded in Poland.



Table 2.8.3: Gross electricity generation by fuel, EU-28, 1990–2014
(GWh)

	1990	1995	2000	2005	2010	2014
Total gross electricity production	2 595 149	2 743 612	3 035 750	3 325 382	3 366 431	3 190 681
Solid fossil fuels	1 019 429	945 866	933 855	960 291	829 473	808 746
Anthracite	0	0	0	18 184	10 494	12 531
Coking Coal	52 696	59 159	37 874	37 230	16 232	9 440
Other Bituminous Coal	599 054	538 704	530 968	538 355	462 906	447 345
Sub-Bituminous Coal	7 679	10 640	6 380	5 771	3 378	4 613
Lignite/Brown Coal	337 807	320 479	344 081	341 162	313 652	315 606
Peat	5 137	7 843	5 902	7 486	9 290	6 135
Patent Fuel	0	0	0	0	0	0
Coke Oven Coke	837	0	0	0	2	2
Gas Coke	0	0	0	0	0	0
Coal Tar	0	0	64	100	19	0
BKB	1 510	765	923	2 715	2 455	2 767
Oil shale and oil sands	14 709	8 276	7 663	9 288	11 045	10 302
Peat products	0	0	0	0	0	5
Crude oil and petroleum products	224 247	230 303	181 296	142 772	86 938	57 372
Crude Oil and NGL	0	0	0	15	0	0
Refinery Gas	2 083	2 941	3 798	7 707	9 088	6 845
LPG (Liquefied Petroleum Gases)	23	186	22	490	447	373
Naphtha	0	0	0	0	99	16
Kerosene Type Jet Fuel	0	0	0	1	1	1
Other Kerosene	1	10	0	2	23	13
Gas / Diesel Oil	2 475	3 586	4 109	5 633	11 144	9 173
Residual Fuel Oil	149 056	172 760	140 496	103 923	47 041	26 693
Bitumen	0	2 231	3 776	223	0	0
Petroleum Coke	7	93	336	4 754	2 671	1 642
Other Oil Products	70 602	48 496	28 759	20 024	16 424	12 616
Natural gas and derived gases	223 528	294 383	513 148	704 047	799 417	490 067
Natural Gas	192 637	268 361	479 559	668 287	764 847	457 405
Gas Works Gas	81	37	1 615	2 115	2 699	2 514
Coke Oven Gas	9 308	5 932	7 908	6 615	7 120	6 111
Blast Furnace Gas	20 992	19 398	23 447	25 494	23 456	22 791
Other Recovered Gases	510	655	619	1 536	1 295	1 246
Nuclear	794 863	880 821	944 993	997 699	916 610	876 293
Renewable energies	327 752	382 568	448 585	495 678	710 444	930 924
Hydro	308 897	353 037	386 881	347 982	407 979	406 473
<i>of which Pumped hydro</i>	18 457	21 029	29 988	35 085	31 069	31 499
Wind	778	4 068	22 225	70 453	149 357	253 157
Solar Photovoltaic	12	41	119	1 460	22 503	92 325
Solar Thermal	0	0	0	0	761	5 455
Tide, Wave and Ocean	503	507	507	481	478	483
Solid biofuels excluding charcoal	10 925	15 150	20 309	43 613	70 000	85 853
Biogases	914	2 472	6 427	12 815	31 821	56 683
Municipal Waste (Renewable)	2 497	3 815	7 332	11 709	16 970	19 429
Liquid Biofuels	0	0	0	1 768	4 973	4 847
Geothermal	3 226	3 478	4 785	5 397	5 602	6 219
Waste (non-renewable)	5 292	8 746	12 128	14 240	19 167	22 614
Industrial Waste	2 911	5 012	5 205	2 816	3 435	4 074
Municipal Waste (Non-Renewable)	2 381	3 734	6 923	11 424	15 732	18 540
Other	38	717	1 338	10 622	4 302	4 572
Heat from Chemical Sources	38	29	266	741	798	984
Other Sources	0	688	1 072	9 881	3 504	3 588

Source: Eurostat (online data code: nrg_105a)

3

Transport indicators

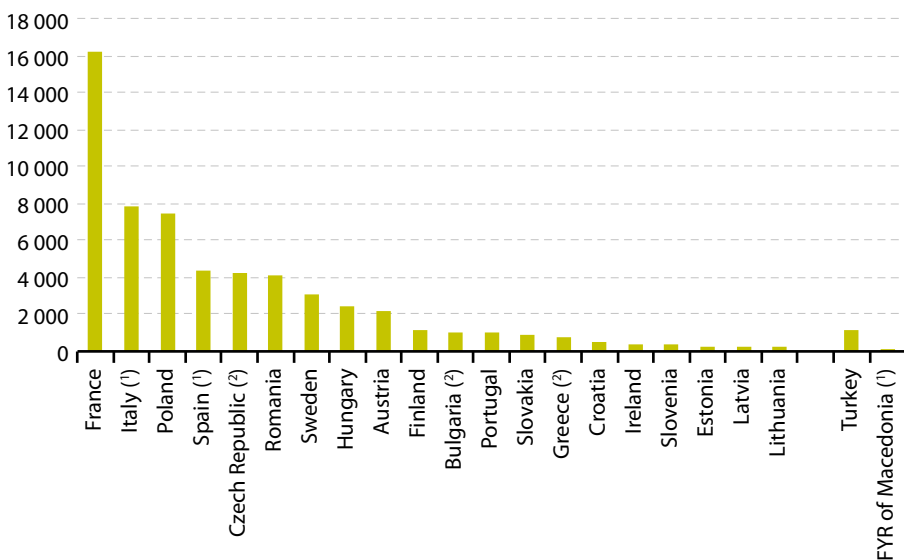


3.1 Transport equipment

Since 2005 increases in the national capacity (number of seats) of passenger railway vehicles have only been reported in a few EU Member States: Belgium (until 2009), Estonia, Croatia, Italy (until 2011), Latvia, Lithuania, Poland, Slovenia,

Slovakia, Finland and Sweden. For most EU Member States for which data were available however, decreases ranging from – 8.3 % to – 55.6 % were registered.

Figure 3.1.1: Number of passenger railway vehicles, selected countries, 2014



(¹) 2012 data instead of 2014

(²) 2013 data instead of 2014

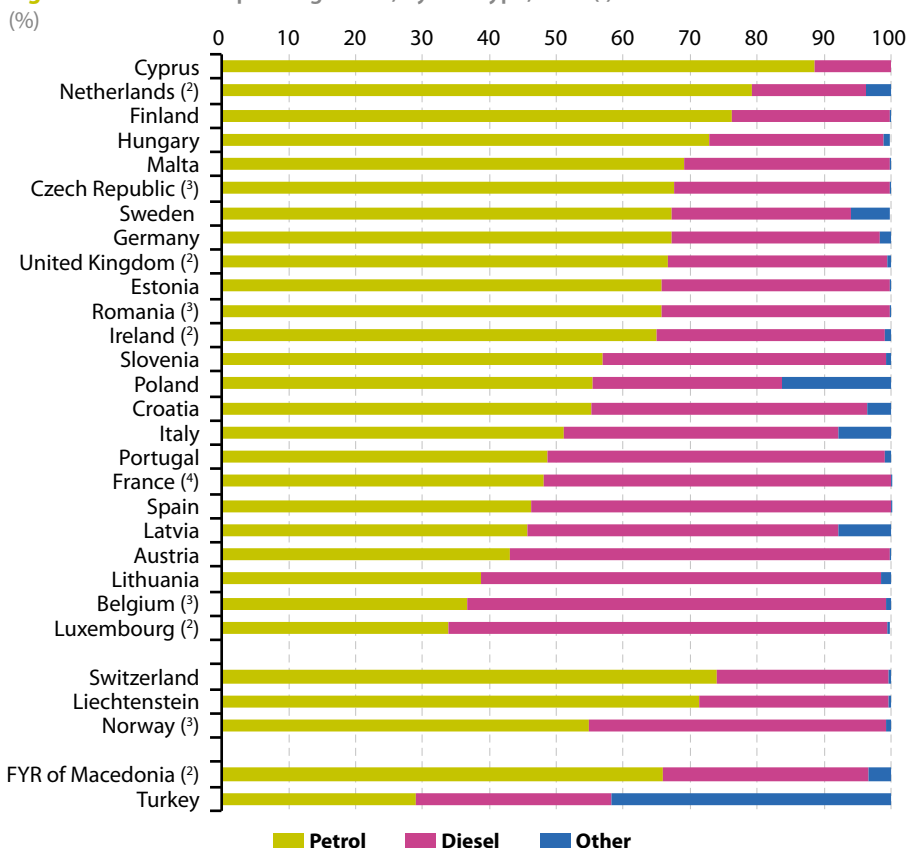
Source: Eurostat (online data code: [rail_eq_pa_nty](#))



Table 3.1.1: Capacity of passenger railway vehicles, 2005–14
(1 000 seats)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgium	284	282	288	294	305	:	:	:	:	:
Bulgaria	:	:	:	:	105	86	84	84	87	:
Czech Republic	330	323	313	305	307	309	301	293	288	:
Denmark	:	120	121	121	:	:	:	:	:	:
Germany	:	:	:	:	:	:	:	:	:	:
Estonia	:	16	16	17	16	15	15	18	24	25
Ireland	:	:	:	:	:	:	:	41	41	41
Greece	34	36	32	33	30	:	:	:	:	:
Spain	250	270	263	258	324	283	275	170	:	:
France	1.295	:	:	1.329	:	:	:	:	:	:
Croatia	36	35	34	34	33	32	32	33	33	33
Italy	788	798	865	860	845	845	772	:	:	:
Cyprus	:	:	:	:	:	:	:	:	:	:
Latvia	38	38	37	30	23	22	22	22	22	22
Lithuania	36	36	34	27	25	24	19	18	18	16
Luxembourg	:	19	20	19	19	22	21	:	:	:
Hungary	200	:	:	193	197	182	204	:	:	:
Malta	:	:	:	:	:	:	:	:	:	:
Netherlands	:	:	:	:	:	:	:	:	:	:
Austria	:	:	342	:	:	253	248	253	269	253
Poland	598	588	587	550	538	534	524	501	490	458
Portugal	:	:	:	:	:	:	:	:	:	:
Romania	412	411	365	338	:	:	:	:	:	:
Slovenia	25	24	23	22	22	22	22	22	22	22
Slovakia	90	87	83	75	73	63	57	69	64	61
Finland	72	71	69	69	69	71	73	76	78	77
Sweden	124	126	134	143	141	131	149	173	177	184
United Kingdom	:	:	:	:	:	:	:	:	:	:
FYR of Macedonia	7	7	7	7	6	4	4	4	:	:
Turkey	111	108	108	107	107	102	114	134	159	166

Source: Eurostat (online data code: rail_eq_pa_csb)

Figure 3.1.2: Share of passenger cars, by fuel type, 2014 (¹)

(¹) Data not available for Bulgaria, Denmark, Greece and Slovakia.

(²) 2012 instead of 2014

(³) 2013 instead of 2014.

(⁴) 2007 instead of 2014

Source: Eurostat (online data codes: road_eqs_carmot and road_eqs_caralt)

In 16 out of 24 EU Member States for which data were available in 2014, more than 50% of the cars were petrol driven. The highest percentage of petrol-driven cars was reported by Cyprus (almost 90%), followed by the Netherlands (79.3%, 2012 data) and Hungary (72.9%). Diesel-driven cars exceeded the 50% threshold in Luxembourg (65.5%, 2012 data) and Belgium (62.6%, 2013 data), Lithuania (59.8%), Austria

(56.7%), Spain (53.7%) and France (51.9%, 2007 data). The contribution of **alternative fuels** was significant in Poland (16.2%), Italy and Latvia (almost 8%). In the seven-year period from 2006 to 2012, all EU Member States recorded increased numbers of diesel-driven passenger cars. In Poland, Sweden and Hungary the increase was almost threefold.



Table 3.1.2: Motorisation rate of passenger cars, 2005–14
(number of passenger cars / 1 000 inhabitants)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgium	471	473	477	481	483	487	492	491	492	:
Bulgaria	:	232	275	315	335	351	366	383	400	416
Czech Republic	388	402	417	428	425	430	437	448	450	:
Denmark	:	457	469	471	:	:	:	:	:	:
Germany	559	565	:	503	509	517	525	531	535	550
Estonia	363	410	390	412	408	415	432	454	476	496
Ireland	404	:	434	:	:	:	429	426	:	:
Greece	392	413	435	454	463	469	468	466	466	468
Spain	:	478	486	485	475	476	477	475	471	:
France	480	481	482	:	488	490	489	492	492	483
Croatia	319	331	350	360	358	353	354	338	340	347
Italy	599	608	613	616	616	621	625	624	619	610
Cyprus	484	552	586	480	578	565	560	551	548	558
Latvia	330	369	410	426	418	300	295	302	314	329
Lithuania	434	484	489	520	532	538	561	584	609	410
Luxembourg	666	672	676	678	672	672	675	678	:	:
Hungary	286	319	324	304	300	298	297	301	307	315
Malta	528	538	552	563	570	582	596	598	608	625
Netherlands	435	443	452	460	462	467	472	473	473	:
Austria	507	509	513	516	523	532	539	545	549	552
Poland	323	351	383	422	433	453	476	492	509	526
Portugal	:	:	:	:	:	444	446	404	413	451
Romania	:	152	168	195	208	213	215	223	235	:
Slovenia	481	489	504	520	521	519	520	519	517	518
Slovakia	243	248	267	287	295	310	324	338	347	360
Finland	464	477	487	509	521	538	554	562	572	582
Sweden	461	464	467	466	465	464	467	469	470	475
United Kingdom	470	:	:	461	455	455	452	452	:	:
Iceland	637	:	:	:	:	:	:	:	:	:
Liechtenstein	705	696	693	720	728	749	756	768	763	:
Norway	440	449	460	464	468	475	483	490	495	:
Switzerland	521	523	527	525	521	524	529	535	538	539
FYR of Macedonia	124	119	122	129	138	151	152	147	:	:
Serbia	:	204	200	202	224	214	:	:	:	:
Turkey	85	89	93	96	99	104	110	116	123	129

Source: Eurostat (online data code: [road_eqs_carhab](#))

Table 3.1.3: Renewal rate of passenger cars, 2005–14
(passenger cars first registration / total passenger cars, %)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgium	9.9	10.7	10.5	10.5	9.2	10.5	10.7	9.0	8.9	:
Bulgaria	6.6	10.3	16.8	14.9	8.0	7.2	7.1	7.0	6.9	7.0
Czech Republic	3.2	2.9	3.0	3.2	3.6	3.7	3.8	3.7	3.5	
Denmark	:	5.3	9.9	7.1	:	:	:	:	:	:
Germany	7.3	7.4	:	7.5	9.1	6.9	7.4	7.1	6.7	6.8
Estonia	:	4.6	5.9	4.5	1.8	1.9	3.0	3.2	3.1	3.2
Ireland	:	:	9.3	:	:	:	5.3	4.0	:	
Greece	7.0	6.7	6.6	5.9	4.8	2.9	2.1	1.2	1.3	1.7
Spain	:	7.9	7.5	5.4	4.4	4.5	3.7	3.2	3.4	:
France	:	6.6	6.7	:	7.2	7.0	6.8	5.8	5.4	5.6
Croatia	7.4	8.0	7.2	6.2	3.5	3.1	3.2	2.8	3.2	4.6
Italy	:	:	7.0	6.1	6.0	5.4	4.8	3.8	3.5	:
Cyprus	10.9	10.0	12.4	11.6	8.1	7.1	5.9	4.3	3.1	3.7
Latvia	9.4	11.8	11.8	5.9	1.9	4.2	7.1	8.1	8.8	2.0
Lithuania	11.9	11.6	13.9	11.5	8.1	9.5	7.7	8.7	8.6	11.6
Luxembourg	15.8	16.1	15.9	16.0	14.3	14.7	14.4	14.2	:	:
Hungary	:	4.7	4.2	5.8	:	2.1	2.6	3.6	4.2	5.3
Malta	4.7	4.6	4.3	4.2	6.7	5.6	6.4	5.2	5.1	5.8
Netherlands	6.6	6.7	6.8	6.6	5.1	6.2	7.1	6.3	5.3	:
Austria	:	7.3	7.0	6.9	7.3	7.4	7.9	7.3	6.9	6.5
Poland	7.9	6.9	7.7	8.0	5.2	5.1	5.1	4.8	5.1	5.2
Portugal				:	:	5.3	3.8	2.6	:	4.2
Romania	:	9.7	12.3	14.6	7.7	7.2	4.1	5.4	6.0	:
Slovenia	6.3	6.1	6.7	6.8	5.4	5.7	5.6	4.7	4.9	5.1
Slovakia	:	:	10.2	9.8	9.3	7.6	7.5	7.2	6.1	6.5
Finland	:	5.8	4.9	5.2	3.3	3.9	4.3	3.7	3.3	3.3
Sweden	7.2	7.2	7.6	6.0	5.3	7.1	7.4	6.8	6.5	7.1
United Kingdom	:	:	:	7.4	7.0	7.0	6.7	:	:	:
Iceland	11.8	:	:	:	:	:	:	:	:	:
Liechtenstein	:	7.8	8.2	7.9	6.3	6.6	7.4	7.5	6.8	:
Norway	:	6.8	7.6	6.3	5.6	6.9	7.1	7.0	7.0	:
Switzerland	6.7	6.9	7.2	7.2	6.6	7.3	7.9	7.8	7.2	6.9
FYR of Macedonia	6.3	5.1	6.8	6.8	4.6	15.9	12.8	10.9		
Turkey	7.0	6.5	5.5	5.2	5.0	6.4	7.4	6.5	7.1	5.9

Source: Eurostat (online data codes: road_eqr_carm and road_eqs_carmot)



Table 3.1.4: Motorisation rate of lorries and road tractors, 2005–14
(number of lorries and road tractors / 1 000 inhabitants)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgium	62	64	65	67	67	68	69	70	:	:
Bulgaria	43	30	35	40	43	45	47	50	53	57
Czech Republic	43	48	54	59	58	57	57	58	57	:
Denmark	:	9	9	9	:	:	:	:	:	:
Germany	34	34	30	31	31	32	33	34	34	:
Estonia	:	:	:	62	61	61	63	66	70	73
Ireland	:	:	:	:	:	:	:	70	68	:
Greece	:	:	:	:	:	:	:	:	:	:
Spain	:	116	120	118	116	114	113	110	:	:
France	90	90	92	87	87	88	89	90	83	99
Croatia	37	38	38	39	38	36	35	32	33	33
Italy	:	:	69	69	70	70	70	70	68	:
Cyprus	161	156	155	157	156	147	141	132	126	122
Latvia	50	54	59	59	56	34	35	37	39	42
Lithuania	37	41	45	47	46	43	45	46	48	34
Luxembourg	64	66	68	71	70	71	72	71	:	:
Hungary	41	46	47	45	47	46	47	47	47	48
Malta	101	102	102	106	104	103	103	102	103	104
Netherlands	62	61	62	63	62	61	59	58	57	:
Austria	44	44	45	46	47	48	49	50	50	51
Poland	60	63	66	71	73	78	82	83	85	88
Portugal	:	:	:	:	:	137	135	119	119	129
Romania	:	21	24	31	32	33	34	36	:	:
Slovenia	33	35	39	42	41	41	41	41	:	:
Slovakia	:	39	44	50	54	55	56	57	58	59
Finland	73	73	76	82	85	89	93	96	:	101
Sweden	51	53	55	56	55	56	58	58	59	60
United Kingdom	62	:	:	61	59	59	59	:	:	:
Iceland	87	:	:	:	:	:	:	:	:	:
Liechtenstein	:	72	73	76	76	78	80	83	84	:
Norway	101	105	110	110	109	108	108	109	:	:
Switzerland	41	42	43	43	43	43	44	45	46	47
FYR of Macedonia	9	8	8	8	9	9	16	15	:	:
Turkey	30	33	38	40	41	10	10	10	49	50

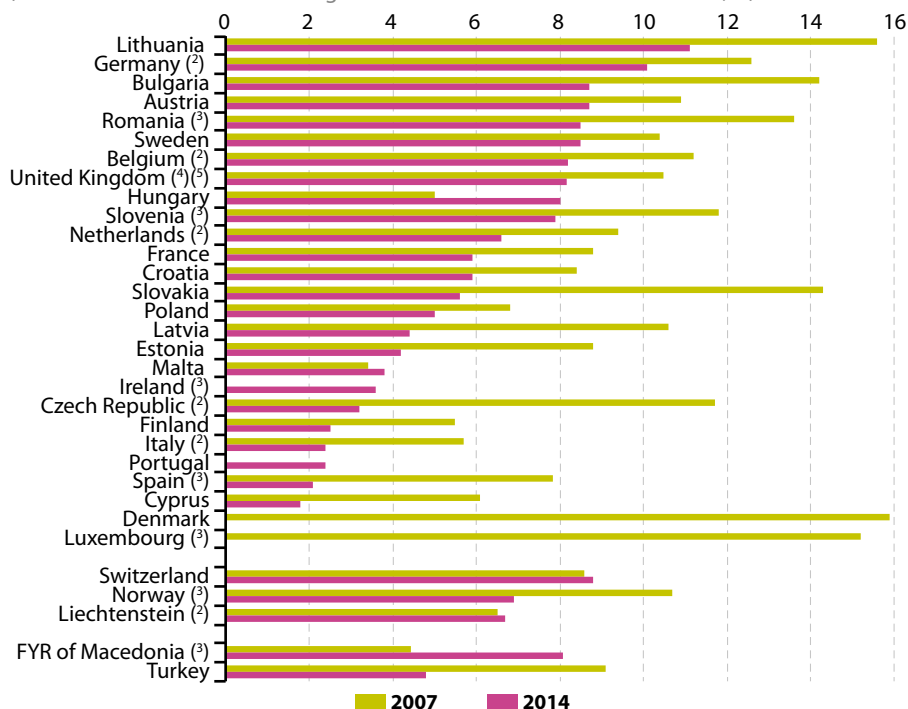
Source: Eurostat (online data codes: road_eqs_lorroa and demo_pjan)

In the EU-28 most EU Member States have reported an increase in the motorisation rates of passenger cars over the last ten years (2005–14). Passenger cars are road motor vehicles, other than mopeds or motorcycles, intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). The highest increases were recorded in Poland (62.8%) and Slovakia (48.1%). The only exceptions were Lithuania (–5.5%) and Germany (–1.6%). The lowest motorisation rates in 2014 were reported by Romania (235), Hungary (307) and Latvia (314). The highest motorisation rates

were recorded in Malta (625), Italy (610), Finland (582), Cyprus (558) and Austria (552). In these five EU Member States there was one car for every two inhabitants.

In 2014, the renewal rate of passenger cars (the ratio of first registered to total passenger cars) in the EU-28 ranged from 2.0% in Latvia to 11.6% in Lithuania. Renewable rates of passenger cars have had a tendency to decrease in the majority of EU Member States since 2008, likely as a consequence of the global financial and economic crisis.

Figure 3.1.3: Renewal rate of lorries and road tractors, 2007 and 2014 (*)
(lorries and road tractors first registration/total lorries and road tractors, %)



(1) Data missing for Greece.

(2) 2013 data instead of 2014.

(3) 2012 data instead of 2014.

(4) No data for 2007 (tractors), 2008 data.

(5) 2011 data instead of 2014.

Source: Eurostat (online data codes: road_eqr_lrstn and road_eqs_lorra)

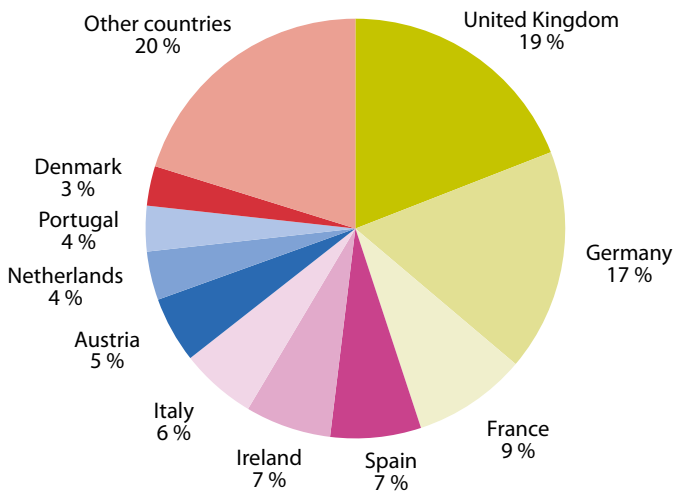


In 2014, the motorisation rate of lorries and road tractors in the EU-28 varied from 33 lorries and road tractors per 1 000 inhabitants in Croatia to 129 in Portugal. Besides Portugal, rates above 100 were also recorded in Cyprus (122), Malta (104) and Finland (101). By contrast, the lowest rates were recorded in Lithuania (34) and Croatia (33). These variances are probably partly due to the fact that countries register very light lorries and vans differently. Between 2005 and 2014, the trend was not consistent among EU Member States. The highest increases were observed in eastern EU Member States, especially Poland

(46.7%), Finland (38.4%) and Bulgaria (32.6%). On the other hand, the highest decreases were recorded in Cyprus (– 24.2%), Latvia (– 16%) and Croatia (– 10.8%).

Among those EU Member States for which data were available, only two recorded renewal rates of lorries and road tractors above 10% in 2014: Lithuania (10.1%) and Germany (10.1%, 2013 data). Furthermore when comparing the 2007 rate with that of 2014 only two EU Member States showed increases in the renewal rates of lorries and road tractors: Hungary and Malta.

Figure 3.1.4: EU airfleet by operator country, top 10 countries, 2014
(%)



Source: Eurostat (online data code: avia_eq_arc_typ)



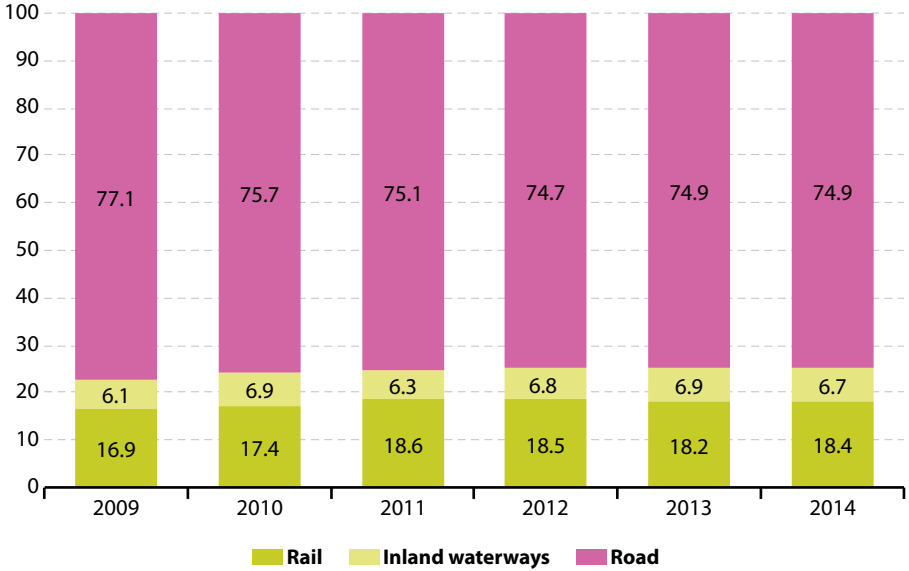
In 2014, there were 6 513 commercial aircraft in the EU-28, a 2.0 % decrease compared with 2012. The largest numbers of commercial aircraft were reported by the four largest EU Member States and Ireland. The largest air fleet was recorded in the United Kingdom (1 242 aircraft accounting for a 19 % share of the EU total), followed by

Germany (1 113; 17 % share), France (571; 9 % share), Spain (455; 7 % share) and Ireland (431; 7 % share). In terms of number of aircraft per million inhabitants, Malta (247) and Luxembourg (216) held the highest value, Poland and Romania the lowest (less than 3 for both).



3.2 Freight transport

Figure 3.2.1: Modal split of inland freight transport, EU-28, 2009–14 (¹)
(% of total inland tkm)



(¹) EU-28 includes rail transport estimates for Belgium (2012-2014) and does not include road freight transport for Malta (negligible).

Source: Eurostat (online data codes: [rail_go_typeall](#) (rail), [iww_go_atygo](#) (inland waterways), [road_go_ta_tott](#) (national road transport), [road_go_ca_c](#) (road cabotage transport) and Eurostat computations (international road transport)

Table 3.2.1: Evolution of total freight transport by rail, 2013 and 2014

	2013			2014			Change 2013–14			Change 2013–14
	Detailed reporting	Simplified reporting	Total	Detailed reporting	Simplified reporting	Total	Detailed reporting	Simplified reporting	Total	Total
	(million tkm)									(%)
EU-28 (¹)	398 823	7 989	406 812	402 172	8 934	411 106	3 349	945	4 295	1.1
Belgium	:	:	:	:	:	:	:	:	:	:
Bulgaria	2 591	655	3 246	2 572	867	3 439	-19	212	193	6.0
Czech Republic	13 965	-	13 965	14 574	-	14 574	609	-	609	4.4
Denmark (²)	2 448	-	2 448	2 452	-	2 452	4	-	4	0.2
Germany	112 613	-	112 613	112 629	-	112 629	16	-	16	0.0
Estonia	4 722	-	4 722	3 256	-	3 256	-1 466	-	-1 466	-31.0
Ireland	99	-	99	100	-	100	1	-	1	1.0
Greece	237	-	237	311	-	311	75	-	75	31.5
Spain	8 706	631	9 338	10 068	753	10 821	1 361	122	1 483	15.9
France	32 010	-	32 010	32 217	-	32 217	207	-	207	0.6
Croatia	2 086	-	2 086	2 119	-	2 119	33	-	33	1.6
Italy	17 594	1 443	19 037	18 123	1 949	20 072	529	506	1 034	5.4
Cyprus	-	-	-	-	-	-	-	-	-	-
Latvia	19 532	-	19 532	19 441	-	19 441	-92	-	-92	-0.5
Lithuania	13 344	-	13 344	14 307	-	14 307	963	-	963	7.2
Luxembourg	218	-	218	208	-	208	-10	-	-10	-4.5
Hungary	9 722	-	9 722	10 158	-	10 158	436	-	436	4.5
Malta	-	-	-	-	-	-	-	-	-	-
Netherlands	6 078	-	6 078	6 169	-	6 169	92	-	92	1.5
Austria	17 934	1 344	19 278	19 270	1 224	20 494	1 336	-121	1 215	6.3
Poland	48 544	2 337	50 881	47 439	2 634	50 073	-1 105	297	-808	-1.6
Portugal	2 290	-	2 290	2 434	-	2 434	144	-	144	6.3
Romania	12 567	374	12 941	12 085	180	12 264	-482	-194	-676	-5.2
Slovenia	3 534	265	3 799	3 847	263	4 110	313	-2	311	8.2
Slovakia	8 335	159	8 494	8 544	284	8 829	209	125	334	3.9
Finland	9 470	-	9 470	9 597	-	9 597	127	-	127	1.3
Sweden	20 970	-	20 970	21 296	-	21 296	326	-	326	1.6
United Kingdom	22 401	-	22 401	22 143	-	22 143	-258	-	-258	-1.2
Liechtenstein	-	9	9	-	12	12	-	3	3	31.8
Norway	3 383	-	3 383	3 539	-	3 539	156	-	156	4.6
Switzerland	11 015	797	11 812	11 667	646	12 313	652	-151	501	4.2
Montenegro	-	105	105	-	94	94	-	-10	-10	-9.9
FYR of Macedonia	421	-	421	411	-	411	-10	-	-10	-2.4
Turkey	10 750	-	10 750	11 601	-	11 601	851	-	851	7.9

Note: the simplified reporting can be used by EU Member States as an alternative to the detailed reporting for undertakings, for which the total volume of goods is less than 500 million tonne-km.

(¹) EU-28 data estimated (2011 data used for Belgium).

(²) 2014 data based on quarterly figures.

Source: Eurostat (online data code: rail_go_typeall)



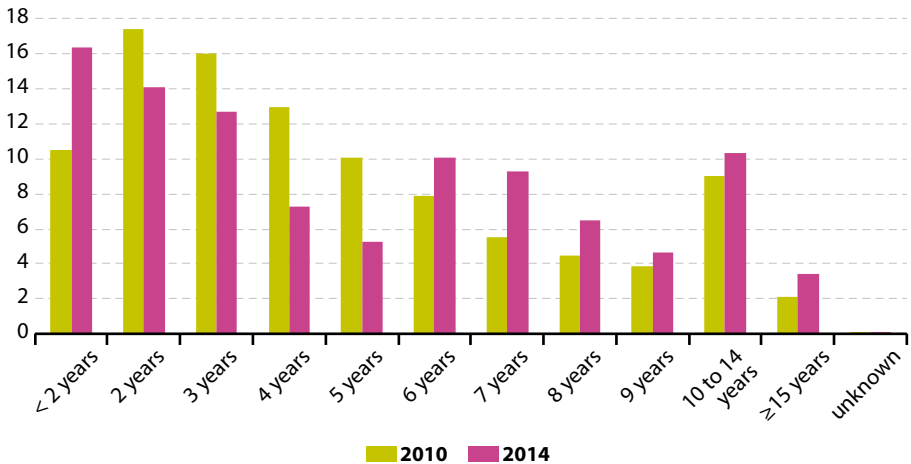
Freight transport by road continued to dominate at EU-28 level in 2014, accounting for close to three-quarters of the total inland tonne-kilometres (tkm) performed. This share has remained almost unchanged since 2009. However, a slight decrease in the share of road is noted over the observed time-span. In 2014, road freight transport accounted for a share of 74.9%, a decrease of 2.2 percentage points (pp) compared with 2009. In 2014, the share of rail remained almost unchanged compared with the previous year (+ 0.2 pp). This continued the stabilisation at this level observed for rail transport since 2011, following the drop to 16.9% in 2009 and subsequent recovery. During the period observed, the share of inland waterways fluctuated between 6% and 7%. In 2014, it reached 6.7% of the total inland transport performance.

The total performance of the rail freight transport sector in the EU-28 was estimated at around

411 billion tkm in 2014, showing an increase of about 1.1% compared with 2013. This confirms signs of recovery in rail transport performance observed at the end of the previous year.

Despite the general increasing trend, the patterns at national level show substantial differences among EU Member States. Six EU Member States recorded a decrease in freight transport performance between 2013 and 2014. The highest increase in rail freight transport performance was recorded by Greece (+ 31.5%), followed by Spain (+ 15.9%) and Slovenia (+ 8.2%). At the other end of the scale, the largest decrease between 2013 and 2014 was recorded in Estonia (- 31.0%), followed by Romania (- 5.2%). In absolute terms, Estonia recorded the largest decrease (- 1.5 billion tkm) between 2013 and 2014. In contrast, Spain, Austria and Italy reported absolute increases of more than 1 billion tkm over the same period.

Figure 3.2.2: Road goods transport by age of vehicle, EU-28, 2010 and 2014
(% of total tkm)



Source: Eurostat (online data code: road_go_ta_agev)

Table 3.2.2: Road freight transport by axle configuration, 2014
(million tkm)

	Lorry	Lorry and trailer	Road tractor and semi-trailer	Total
EU-28	149816	169339	1179389	1498898
Belgium	2616	628	28563	31808
Bulgaria	2477	2032	23113	27854
Czech Republic	3773	3718	46599	54092
Denmark	1469	3512	11203	16184
Germany	23175	67028	219938	310142
Estonia	277	336	5697	6310
Ireland	1789	128	7835	9751
Greece	5015	2252	11912	19223
Spain	11106	3259	181393	195767
France	17990	3789	143440	165224
Croatia	885	1348	7147	9381
Italy	:	:	:	:
Cyprus	158	:	380	538
Latvia	490	1488	11690	13668
Lithuania	1624	2949	23488	28067
Luxembourg	795	684	8120	9599
Hungary	:	:	:	:
Malta	:	:	:	:
Netherlands	:	:	:	:
Austria	3277	4301	16721	24299
Poland	24477	12136	214317	250931
Portugal	2233	587	32042	34863
Romania	7040	6427	21668	35136
Slovenia	851	2080	13294	16252
Slovakia	1950	1547	27849	31358
Finland	2424	16527	4441	23401
Sweden	2416	32230	7318	41964
United Kingdom	31509	353	111221	143086
Norway	4382	8433	8775	21594

Source: Eurostat (online data code: road_go_ta_axle)



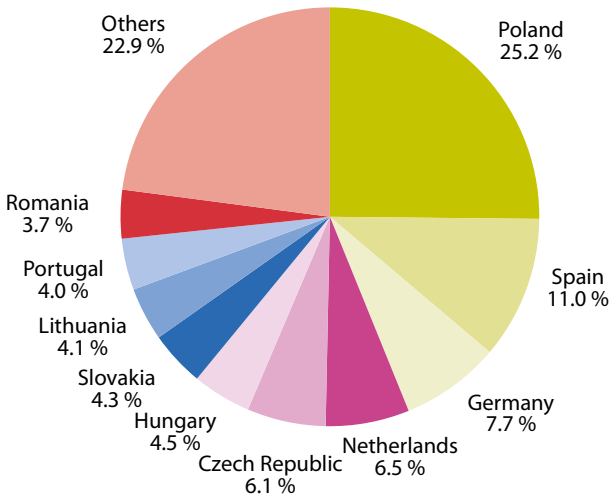
Expectedly, new road freight vehicles are used intensively and those under 2 years of age account for the highest transport performance share among the road vehicle age classes in 2014 with around 283 billion tkm (more than 16 % of the total tkm). Vehicles 5 years old or less accounted for about 56 % of the total tkm with those over 10 years old performing only 14 % of tkm.

Between 2010 and 2014 there has been a strong decline in road freight transport in tkm performed by vehicles of 4 years old and less; in contrast, transport performed by vehicles aged 5 years or more has increased over the same period, which may be linked to the lower

renewal rate of freight vehicles during the 2008–11 financial and economic crisis. Transport performed by very old road freight vehicles (over 15 years) has continuously increased between 2010 and 2014 (+ 55.7 %), increasing strongly by 28 % between 2013 and 2014; however, it represents less than 4 % of the total tkm.

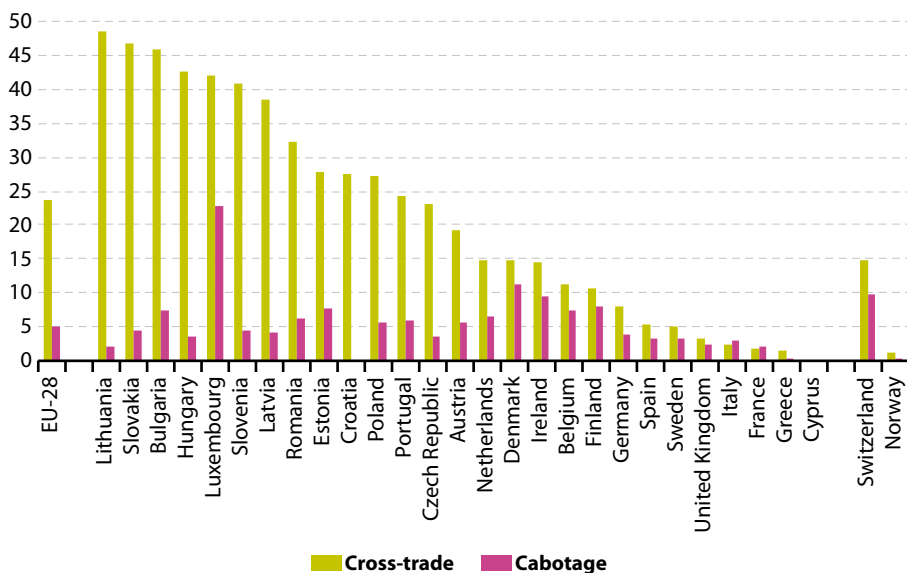
Road tractors and semi-trailers performed nearly 79 % of total EU-28 tkm in 2014. At individual EU Member State level, almost all countries had more than 60 % of their transport performance done by road tractors and semi-trailers. Only Sweden and Finland had a large majority of tkm performed by lorries and trailers (77 % in Sweden and 71 % in Finland).

Figure 3.2.3: Shares of EU Member States in EU-28 international road freight transport, 2014
(% of total tkm)



Source: Eurostat (online data code: road_go_ta_tot)

Figure 3.2.4: Share of cross-trade and cabotage in international road freight transport, 2014 (¹)
(% of total tkm)



(¹) Data for Malta not available.

Source: Eurostat (online data code: road_go_ta_tott)

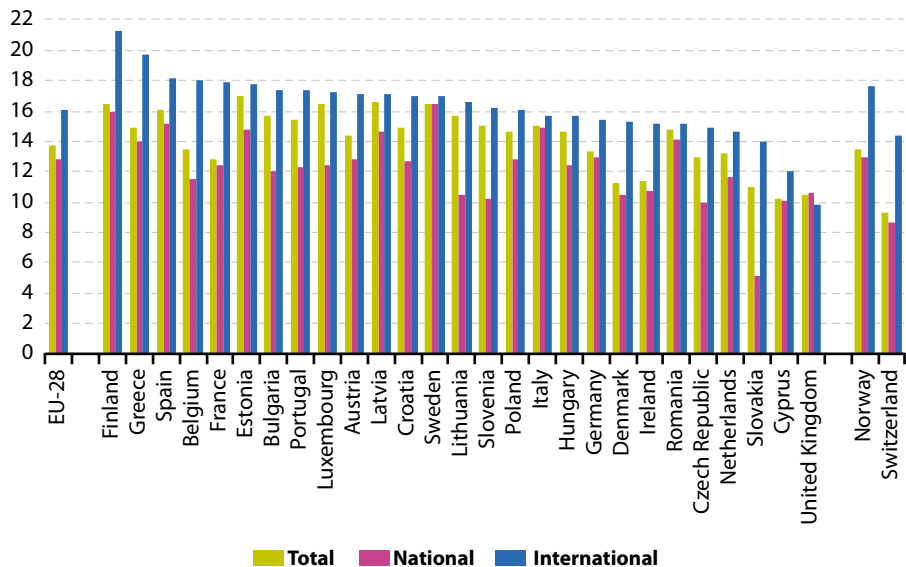
In 2014, Poland continued to have the highest share in EU international road freight transport (25.2% of the total number of tkm performed at the level of the EU-28) and saw its share of international transport in total road freight transport growing from 59% in 2010 to 61% in 2014.

The share of [cross-trade](#) in international transport in the EU-28 accounted for 24% in

2014, while [cabotage](#) represented 5%. For six Member States (Lithuania, Slovakia, Bulgaria, Hungary, Luxembourg and Slovenia), the share of cross-trade in international transport represented more than 40% of international transport. It can be observed that for Luxembourg the share of cabotage is also very high with 23%. This can be explained by the small geographical size and location of the country.



Figure 3.2.5: Average loads in road freight transport, 2014 (1)
(tonnes)



(1) Data for Malta not available.

Source: Eurostat (online data code: road_go_ta_tot)

Average load provides information on the average weight in tonnes carried per road vehicle. EU-28 average vehicle loads were 13.8 t in 2014, with national loads of 12.8 t and international loads of 16.0 t. Finland had the highest international load at 21.3 t while Sweden had the highest national load at 16.5 t. Vehicle loads were higher for longer distance journeys with the sole exception of the United Kingdom. It can be noticed that the average load in national transport in Slovakia was around 60 % below the EU average.

At EU-28 level, most of the goods are carried over distances between 300 km and 1 000 km (38 %

in 2014). This is also the case for most of the individual countries. However, in specific cases, some countries have different patterns.

For some small islands or countries with an important domestic market, the share of road freight transport over short distances (less than 150 km) is higher: Ireland, Cyprus, the Netherlands and Austria. On the opposite, countries with important international transport usually have a higher share of road freight transport over long distances (over 1 000 km), such as Bulgaria, Estonia, Latvia, Lithuania, Hungary, Portugal, Romania and Slovakia.

Table 3.2.3: Road freight transport by distance class, 2014

	Less than 150 km		From 150 to 299 km		From 300 to 999 km		Over 1 000 km	
	2014 (million tkm)	Change 2010–14 (%)	2014 (million tkm)	Change 2010–14 (%)	2014 (million tkm)	Change 2010–14 (%)	2014 (million tkm)	Change 2010–14 (%)
EU-28	405 403	-1.7	348 397	-0.2	656 657	-3.4	313 438	1.8
Belgium	10 824	1.5	8 948	-1.7	15 885	-8.5	1 460	-36.1
Bulgaria	3 152	20.8	2 370	9.0	7 888	54.6	14 546	51.9
Czech Republic	9 888	21.7	7 644	19.0	22 046	6.9	14 512	-12.8
Denmark	5 261	5.0	4 325	25.3	5 702	18.1	896	-48.2
Germany	89 932	15.4	71 989	3.9	127 502	-8.9	11 348	-32.8
Estonia	893	16.1	749	4.0	1 597	21.8	3 046	8.3
Ireland	3 844	-8.0	3 429	-2.3	1 537	-20.8	731	-30.5
Greece	6 160	-33.5	3 182	-42.5	6 097	-43.0	3 556	-11.5
Spain	31 122	-17.0	24 412	-5.8	86 535	-7.4	53 694	1.0
France	52 233	-0.2	37 700	-6.8	71 012	-14.0	4 293	-37.6
Croatia	1 810	-14.8	1 640	0.9	3 814	16.7	2 114	20.0
Italy	29 930	-32.4	31 989	-26.7	46 332	-33.0	9 559	-48.8
Cyprus	510	-51.1	18	-33.3	1	-80.0	9	-30.8
Latvia	1 847	16.2	1 266	15.5	2 577	66.6	7 693	22.9
Lithuania	1 350	27.0	1 537	46.1	5 925	77.4	19 201	37.9
Luxembourg	1 595	8.7	1 861	7.3	5 502	18.2	620	-24.3
Hungary	5 424	-8.7	4 982	-5.8	12 997	35.6	14 001	9.2
Malta	:	:	:	:	:	:	:	:
Netherlands	23 488	27.2	19 044	8.7	21 760	-31.4	6 847	-15.4
Austria	8 578	6.7	5 581	2.3	8 226	-21.5	2 132	-46.1
Poland	33 108	10.8	33 118	25.3	99 981	33.8	84 683	18.8
Portugal	4 524	-31.1	4 037	-7.3	9 422	16.8	16 171	-1.1
Romania	4 612	-0.8	3 704	33.4	11 136	71.6	15 673	30.9
Slovenia	1 625	-13.9	1 518	14.0	6 834	15.1	6 243	-7.6
Slovakia	3 307	4.2	2 890	15.5	11 751	34.5	13 363	1.9
Finland	7 675	-21.3	6 229	-16.9	8 229	-22.4	1 270	-24.3
Sweden	11 422	15.2	9 628	21.8	15 225	16.0	2 560	5.3
United Kingdom	51 289	-5.4	54 607	4.4	41 145	2.0	2 903	-3.7
Norway	7 552	18.2	4 316	28.4	7 894	-1.3	1 830	-8.4
Switzerland	8 077	13.5	2 861	6.6	1 784	-30.6	156	-74.7

Source: Eurostat (online data code: road_go_ta_dc)



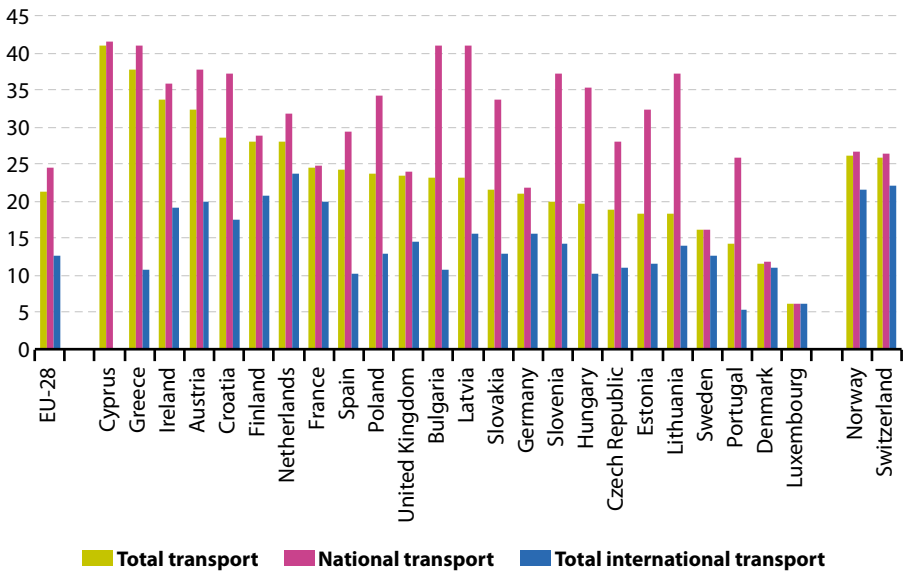
At EU-28 level, a fifth of journeys were performed by empty vehicles (21 % in 2014). The share of empty journeys grew to 25 % for national transport, but was only 13 % for international transport in 2014, probably a result of the liberalisation of international road freight transport.

At the total transport level, most Member States fall in the range between 15 % and 30 % empty journeys. However, the figure for Cyprus is 41 %, probably a reflection of the journeys carrying goods imported through ports and construction traffic, which is largely one way. The same holds true for Ireland and Greece, recording

38 % and 34 % empty vehicle-kilometres (vkm) respectively. At the other extreme are Luxembourg with 6 % empty vkm and Denmark with 12 % and Portugal with 14 %.

The total figures largely reflected performance in national transport. In contrast, for international transport, all EU Member States reported substantially lower levels of empty runnings, only the Netherlands, Finland and Austria being over 20 %. This shows the economic importance of finding loads for international return journeys, while empty journeys can be more present in domestic transport.

Figure 3.2.6: Share of empty journeys in the total journeys by type of operation, 2014 ⁽¹⁾ (% of vkm)



(¹) No empty vkm reported by Belgium, Italy, Malta and Romania.

Source: Eurostat (online data code: road_go_ta_tott)

Table 3.2.4: Road freight transport by group of goods (NST 2007), EU-28, 2012–14

Product group	Million tonnes					Billion tkm				
	2012	2013	2014	Share 2014 (%)	Change 2013–14 (%)	2012	2013	2014	Share 2014 (%)	Change 2013–14 (%)
Agriculture, forestry and fishery products	1 224	1 232	1 290	9.1	4.8	183	185	189	11.0	1.9
Coal, lignite, crude petroleum and natural gas	168	184	109	0.8	-40.9	10	11	10	0.6	-5.9
Metal ores and peat	3 621	3 515	3 629	25.7	3.2	128	126	129	7.5	2.4
Food products, beverages and tobacco	1 640	1 647	1 626	11.5	-1.3	290	294	290	16.8	-1.5
Textiles, textile products, leather and leather products	68	71	64	0.5	-10.5	17	19	17	1.0	-11.4
Wood and wood products except furniture, pulp, paper and paper products, printed matter and recorded media	553	565	564	4.0	-0.2	116	118	114	6.6	-3.6
Coke and refined petroleum products	511	474	470	3.3	-0.7	52	49	48	2.8	-1.4
Chemicals, chemical products, rubber and plastic products, nuclear fuel	573	536	561	4.0	4.8	128	121	123	7.1	1.6
Other non metallic mineral products	1 865	1 777	1 771	12.5	-0.4	140	137	136	7.9	-0.4
Basic metals and metal products except machinery and equipment	554	544	549	3.9	0.9	123	122	121	7.0	-0.5
Machinery and equipment	274	262	262	1.9	-0.2	58	55	54	3.1	-2.9
Transport equipment	233	235	255	1.8	8.5	62	63	66	3.8	4.6
Furniture and other manufactured goods	97	96	103	0.7	8.3	28	29	30	1.8	5.1
Secondary raw materials, wastes	1 106	1 100	1 135	8.0	3.2	63	63	67	3.9	5.9
Mail, parcels	175	173	171	1.2	-1.4	36	37	36	2.1	-1.7
Equipment and material for transport of goods	263	256	279	2.0	9.1	39	38	38	2.2	0.9
Goods moved in the course of household and office removals, baggage accompanying travellers	128	139	148	1.0	6.4	12	13	14	0.8	7.0
Grouped goods: a mixture of types of goods which are transported together	701	819	811	5.7	-1.0	152	175	179	10.4	1.9
Unidentifiable goods	126	159	162	1.1	1.9	20	26	26	1.5	-3.0
Other goods	162	168	176	1.2	4.9	32	35	36	2.1	2.1

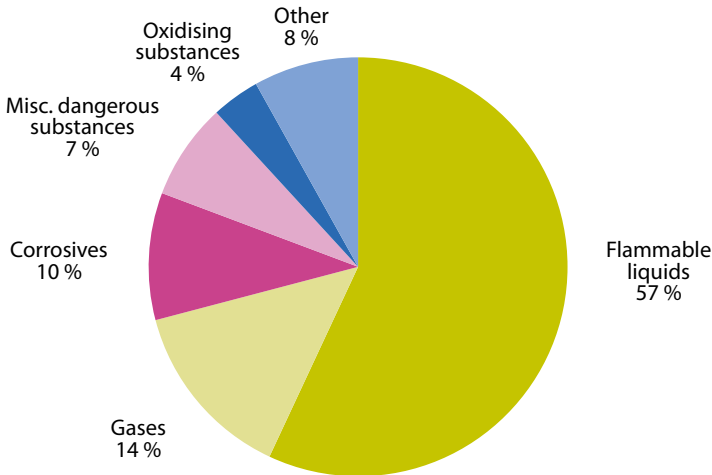
Source: Eurostat (online data code: [road_go_ta_tg](#))



In 2014, European road freight transport increased in terms of tonnage by 1.3% compared with the previous year. The major product groups in terms of tonnage were mining and quarrying products (25.7% of the total), other non-metallic mineral products (12.5%), food, beverages and tobacco (11.5%) and agricultural products (9.1%). The most marked rises concerned equipment and material utilized in the transport of goods (+ 9.1%) and transport equipment (+ 8.5%). Coal, lignite, crude petroleum and natural gas (− 40.9%) and textiles, textile products, leather and leather products (− 10.5%) saw the heaviest decreases.

In terms of tkm, the major product groups were food, beverages and tobacco (16.8% of the total), agricultural products (11%), other non-metallic mineral products (7.9%), metal ores and metal products (7.5% and 7.0% respectively) as well as chemicals and wood products (7.1% and 6.6% respectively). There were falls of 11.4% for textiles, textile products, leather and leather products and 5.9% for coal, lignite, crude petroleum and natural gas. There was a rise of 7% in goods moved in the course of household and office removals between 2013 and 2014.

Figure 3.2.7: Transport of dangerous goods by type of dangerous goods, EU-28, 2014
(% of tkm)



Source: Eurostat (online data code: road_go_ta_dg)

Table 3.2.5: Extra EU-28 road goods transport, main country-to-country flows, 2014

Rank	Pair of countries		Million tonnes	% of total extra EU-28 tonnes
1	Germany	Switzerland	19.6	24.3
2	France	Switzerland	9.4	11.6
3	Sweden	Norway	9.3	11.5
4	Italy	Switzerland	6.3	7.8
5	Poland	Russia	3.6	4.5
6	Austria	Switzerland	2.6	3.2
7	Lithuania	Russia	1.6	2.0
8	Finland	Russia	1.5	1.9
9	Denmark	Norway	1.4	1.8
10	Bulgaria	Turkey	1.1	1.4
11	Netherlands	Switzerland	1.1	1.4
12	Spain	Switzerland	1.0	1.3

Source: Eurostat (online data codes: road_go_ta_tot, road_go_ia_ugtt, road_go_ia_lgtt and road_go_cta_gtt)

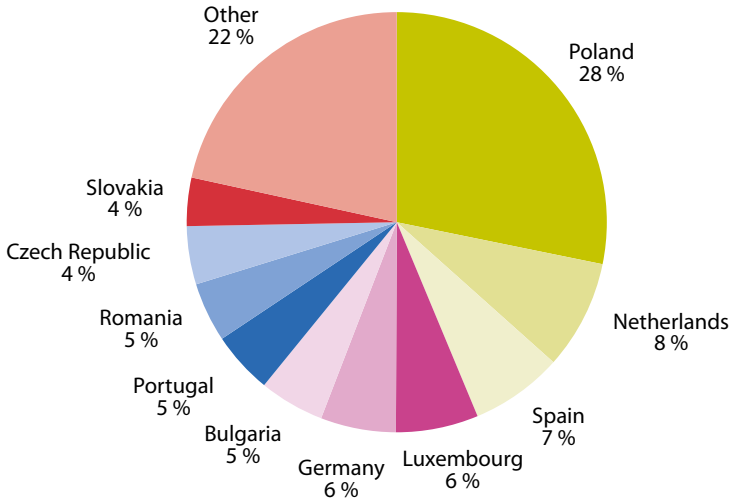
The transport of dangerous goods in the EU-28 slightly increased from 74 billion tkm in 2013 to 75 billion tkm in 2014 (+ 1.5%). The largest specific product group was flammable liquids, taking over more than half of the total. Two other groups, gases (compressed, liquefied or dissolved under pressure) and corrosives, accounted for 14% and 10% respectively. This represents very little change compared with previous years showing a very similar distribution between product groups.

When looking at the European road transport at the more detailed country-to-country level,

four extra-EU countries emerged as main trading partners in terms of tonnes loaded and unloaded, namely Switzerland, Norway, Russia and Turkey. With two exceptions, all the trading was with close neighbours. Switzerland's main exchange was with Germany (24.3% of the total extra-EU transport), France, Italy and Austria, while Norway had links with Sweden and Denmark. Russia mainly traded with Poland, Lithuania and Finland, and Turkey with Bulgaria.

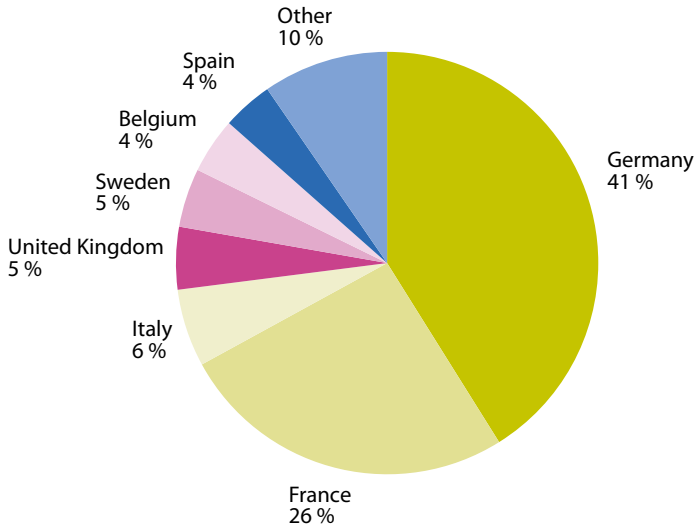


Figure 3.2.8: Cabotage performed by hauliers from reporting countries, 2014
(% of tkm)



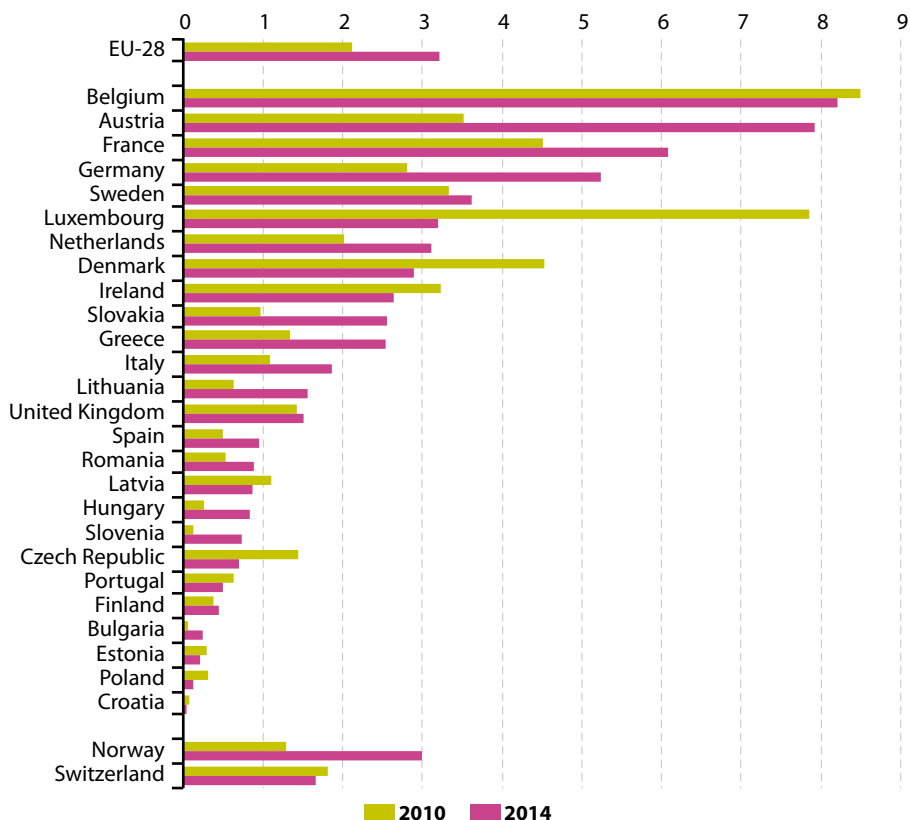
Source: Eurostat (online data code: road_go_ta_tot)

Figure 3.2.9: Cabotage transport by country in which cabotage takes place, 2014
(% of tkm)



Source: Eurostat (online data code: road_go_ca_c)

Figure 3.2.10: Cabotage penetration rate for hire and reward transport by country in which cabotage takes place, 2010 and 2014 (¹)
(% based on tkm)



(¹) Data for Cyprus and Malta not available.

Source: Eurostat (online data codes: road_go_ta_tott and road_go_ca_c)

Cabotage is the transport of goods on the national territory of one country carried out by hauliers from another country. It is declared by EU Member States for hauliers registered in their country that performed transport on the territory of another country. From the point of view of the reporting country, it is considered as [international transport](#), from the point of view of

the movements of goods, it could be considered as [national transport](#).

Cabotage transport represents only a small percentage of total [road freight transport](#). In 2014, 1.8% of the tonne-kilometres performed by EU-28 hauliers and 0.8% of the tonnes carried consisted of cabotage transport.



The cabotage penetration rate for **hire and reward transport** is the share of cabotage transport in total national transport of a country (national transport for hire and reward + cabotage transport). For the EU-28, it rose from 2.1% in 2010 to 3.2% in 2014. Most individual countries also saw increased penetration with Belgium and Austria recording rates around 8% in 2014 - nearly double the 2010 level for

Austria. France at 6.1% and Germany at 5.2% also recorded substantial rises, although the figure for France grew slower. Among the other major transport markets, Poland (0.1%) and Spain (0.9%) had much smaller penetration rates, with little variations since 2010. In contrast, Luxembourg recorded an important fall in its cabotage penetration rate, from 7.9% in 2010 to 3.2% in 2014.

Table 3.2.6: Performance of inland waterways transport of goods by type of transport, 2012–15

	2012	2013	2014	2015				Growth 2014–15			
	Total			Natl	Intl	Transit	Total	Natl	Intl	Transit	Total
	(million tkm)							(%)			
EU-28 (¹)	149988	152796	150877	35927	79430	31971	147327	-2.9	-1.6	-3.0	-2.2
Belgium	10420	10365	10451	3971	5384	1071	10426	-2.1	0.8	2.0	-0.2
Bulgaria	5349	5374	5074	23	342	5230	5595	-47.7	-6.2	12.1	10.3
Czech Republic	38	25	27	25	8	-	33	62.2	-27.2	-	24.3
Germany	58488	60070	59093	10845	34345	10125	55315	-3.2	-4.0	-16.4	-6.4
France	8916	9213	8803	4798	2859	859	8516	-5.6	-2.9	11.0	-3.3
Croatia	772	771	716	11	29	838	879	-0.3	-4.8	24.3	22.7
Italy	81	89	64	:	-	-	:	:	-	-	:
Lithuania	1	0	0	0	-	-	0	-13.7	-	-	-13.7
Luxembourg	290	313	285	-	15	220	235	-	96.1	-20.5	-17.4
Hungary	1982	1924	1811	11	871	942	1824	-18.1	2.5	-0.6	0.7
Netherlands	47533	48627	49295	13034	27538	7964	48535	2.7	-2.4	-5.2	-1.5
Austria	2191	2353	2177	67	1098	641	1806	-14.1	-15.0	-20.8	-17.1
Poland	131	91	110	44	44	0	88	-36.5	9.4	-13.2	-19.9
Romania	12520	12242	11760	2931	6846	3391	13168	-17.5	18.3	40.2	12.0
Slovakia	986	1006	905	1	52	689	741	-73.3	3.4	-19.1	-18.1
Finland	124	121	136	:	-	-	:	:	-	-	:
United Kingdom	165	211	169	166	-	-	166	-1.7	-	-	-1.7

(¹) The growth rates have been calculated excluding data for Italy and Finland, as they are not available in 2015.

Source: Eurostat (online data code: [iww_go_atygo](#))

Table 3.2.7: Gross weight of seaborne goods handled in all ports, 2005–14

	2005	2010	2011	2012	2013	2014			Growth 2013–14 (%)
	Total					Inwards	Outwards	Total	
	(million tonnes)								
EU-28	3 743.1	3 670.3	3 767.9	3 739.5	3 719.2	2 271.7	1 523.3	3 795.0	2.0
Belgium	206.5	228.2	232.8	224.0	228.1	126.2	111.7	237.9	4.3
Bulgaria	24.8	22.9	25.2	26.0	28.8	12.3	14.9	27.2	-5.6
Denmark	99.7	87.1	92.6	87.8	87.8	53.1	39.2	92.4	5.2
Germany	284.9	276.0	296.0	298.8	297.3	178.4	125.3	303.7	2.2
Estonia	46.5	46.0	48.5	43.5	42.9	13.7	29.9	43.6	1.6
Ireland	52.1	45.1	45.1	47.6	46.7	29.1	18.4	47.5	1.6
Greece	151.3	129.1	135.3	153.3	161.0	91.9	78.2	170.1	5.7
Spain	400.0	376.4	403.7	422.2	397.5	253.4	174.3	427.7	7.6
France (¹)	341.5	316.1	322.3	303.3	304.2	205.0	97.9	302.9	-0.4
Croatia	26.2	24.3	21.9	19.0	19.4	11.2	7.4	18.6	-3.9
Italy	508.9	494.1	499.9	476.8	457.1	284.0	159.2	443.1	-3.0
Cyprus	7.3	7.0	6.6	6.2	7.2	4.7	2.5	7.2	0.2
Latvia	59.7	58.7	67.0	72.7	67.1	8.5	63.4	71.8	7.0
Lithuania	26.1	37.9	42.7	41.0	39.8	14.0	27.1	41.1	3.4
Malta	3.5	3.8	3.3	3.3	3.1	3.2	0.3	3.5	11.6
Netherlands	460.9	538.7	532.7	551.8	557.9	398.7	171.8	570.5	2.3
Poland	54.8	59.5	57.7	58.8	64.3	39.0	29.8	68.7	6.9
Portugal	65.3	66.0	67.5	67.9	78.2	46.3	33.8	80.2	2.4
Romania	47.7	38.1	38.9	39.5	43.6	18.4	25.3	43.8	0.4
Slovenia	12.6	14.6	16.2	16.9	17.2	12.2	5.8	18.0	4.8
Finland	99.6	109.3	115.5	105.1	105.1	52.4	53.1	105.5	0.4
Sweden	178.1	179.6	177.1	173.0	161.6	90.5	76.3	166.9	3.3
United Kingdom	584.9	511.9	519.5	500.9	503.3	325.5	177.7	503.2	-0.0
Iceland	5.7	6.0	6.1	6.4	6.8	:	:	6.7	:
Norway	201.7	195.1	199.0	206.0	207.0	63.5	137.4	200.8	-3.0
Montenegro	:	:	:	1.2	1.3	0.7	0.5	1.2	-2.0
Turkey	:	338.1	359.1	374.7	379.4	222.8	155.9	378.7	-0.2

(¹) Data have been partially estimated by Eurostat for some French ports in period 2009–14.

Source: Eurostat (online data code: [mar_mg_aa_cwhd](#))



Following the global financial and economic crisis of 2008, activity in inland waterways transport has been very volatile. After a decrease of 1 % in overall transport performance in 2014 measured in tkm, the fall continued in 2015 with a decline of 3 % in national and transit transports and 2 % in international transport, leading to an overall decrease of 2 % at the total level. The main contributors to the EU inland waterways transport performance are by far Germany and the Netherlands. These two countries together accounted for more than 70 % of the EU inland waterways transport performance in 2015. In 10 countries (out of 17 reporting transport on inland waterways), the transport performance in tkm has decreased in 2015. The largest decrease was observed by Poland with 20%, followed by Slovakia with 18%, Luxembourg and Austria with 17% and Lithuania with 14%. The decrease observed by Germany is the one impacting the most the EU levels with a loss of almost 4 billion tkm in 2015 compared with 2014. In contrast, the Czech Republic and Croatia registered the largest increases in 2015 of 24% and 23%, respectively.

The total **gross weight of goods** handled in EU ports is estimated at close to 3.8 billion tonnes in 2014, an increase of 2 % from 2013. The EU port freight activity started on a path towards recovery in the second half of 2013, a trend that continued throughout 2014. Even so, the gross weight of goods handled in EU ports in 2014 was still lower than the annual volumes handled before the economic downturn in Europe in 2009.

The Netherlands has recorded the largest annual tonnage of maritime freight transport in Europe every year since overtaking the United Kingdom in 2010. At close to 571 million tonnes, the volume of seaborne goods handled in Dutch ports in 2014 represented 15 % of the EU-28 total. The Netherlands was followed by the United Kingdom and Italy, with shares of 13.3 % and 11.7 % of the EU total, respectively.

Compared with 2013, the biggest relative increases in port activity were recorded by Malta (+ 11.6 % from a low base), Spain (+ 7.6 %), Latvia (+ 7.0 %) and Poland (+ 6.9 %). The largest relative decreases were recorded in Bulgaria (– 5.6 %), Croatia (– 3.9 %) and Italy (– 3.0 %).

The growing importance of the international transport segment is reflected in air freight and mail transport figures at EU level. Growths of 6.4 % and 3.3 % were recorded for international intra-EU and extra-EU freight and mail transport respectively in 2014 compared with 2013. In contrast, domestic freight and mail transport recorded a decrease of 0.2 % over the same period. The evolution of freight and mail transport by air between 2013 and 2014 varies significantly at country level, ranging from – 40.1 % in Latvia to + 40.0 % in Denmark.

Table 3.2.8: Overview of air freight and mail carried, 2014

	Total		National		International intra-EU-28 transport		International extra-EU-28 transport	
	Volume of freight and mail (1 000 tonnes)	Growth 2013–14 (%)	Volume of freight and mail (1 000 tonnes)	Growth 2013–14 (%)	Volume of freight and mail (1 000 tonnes)	Growth 2013–14 (%)	Volume of freight and mail (1 000 tonnes)	Growth 2013–14 (%)
EU-28 (¹)	14 327.4	7.0	580.7	6.6	2 316.8	8.0	11 429.9	6.9
Belgium	1 014.6	6.0	0.4	28.0	333.0	9.3	681.2	4.5
Bulgaria	23.1	17.9	0.0	18.5	14.5	4.4	8.6	50.8
Czech Republic	58.3	0.3	0.3	-62.4	25.2	11.3	32.8	-5.4
Denmark	208.6	40.0	0.8	11.8	71.7	34.8	136.0	43.2
Germany	4 336.2	2.5	117.3	-0.1	971.0	3.6	3 247.9	2.3
Estonia	19.4	-6.9	0.0	-	8.3	10.5	11.1	-16.6
Ireland	138.2	8.5	5.0	4.4	72.2	0.9	61.0	19.5
Greece	60.3	-8.7	6.1	-24.4	37.7	-4.5	16.6	-10.9
Spain	593.9	2.2	60.9	2.9	166.3	3.4	366.7	1.6
France	2 300.2	28.7	198.5	23.2	536.6	25.5	1 565.2	30.5
Croatia	6.9	0.8	0.7	-3.6	4.6	1.6	1.6	0.3
Italy	864.1	6.1	43.9	12.8	260.4	2.2	559.8	7.5
Cyprus	28.1	-0.8	0.0	-	18.9	-2.5	9.2	2.9
Latvia	31.4	-40.1	0.0	-	10.3	7.8	21.1	-50.8
Lithuania	13.2	-16.7	0.0	-	8.9	7.2	4.3	-42.9
Luxembourg	707.2	5.0	0.0	-	51.4	-1.9	655.7	5.6
Hungary	62.0	-3.4	0.0	-	40.6	3.1	21.4	-13.7
Malta	15.6	-2.7	0.0	-	11.3	1.8	4.3	-12.8
Netherlands	1 727.5	6.6	0.0	-	61.4	25.3	1 666.0	6.0
Austria	217.8	10.9	0.2	-27.1	61.1	18.7	156.4	8.2
Poland	84.3	8.8	3.9	-36.2	46.0	2.7	34.4	29.4
Portugal	135.0	6.6	14.7	-2.9	49.3	4.6	70.9	10.4
Romania	31.1	1.7	0.0	-42.6	25.1	5.6	6.0	-11.7
Slovenia	8.6	7.5	0.0	-	7.1	9.4	1.5	-0.8
Slovakia	18.5	-10.2	0.0	-66.7	16.3	-19.3	2.2	535.8
Finland	190.6	-1.0	2.4	-15.2	70.6	2.3	117.6	-2.6
Sweden	141.9	8.8	15.2	0.9	56.1	5.5	70.6	13.5
United Kingdom	2 406.4	1.5	110.1	-2.3	396.4	-0.6	1 899.8	2.2

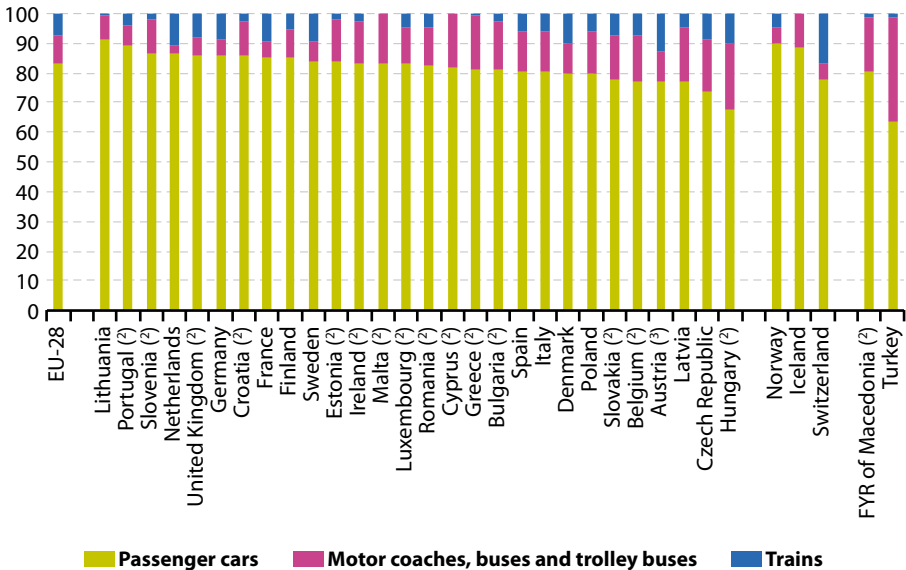
(¹) Double counting is excluded in the intra-EU-28 and total EU-28 aggregates by taking into consideration only departure declarations.

Source: Eurostat (online data code: [avia_goooc](#))



3.3 Passenger transport

Figure 3.3.1: Modal split of inland passenger transport, 2013 (¹)
(% of total inland passenger-km)



(¹) Excluding powered two-wheelers. Cyprus, Malta and Iceland: railways not applicable.

(²) Includes estimates or provisional data.

(³) The railway in Liechtenstein is owned and operated by the Austrian ÖBB and included in their statistics.

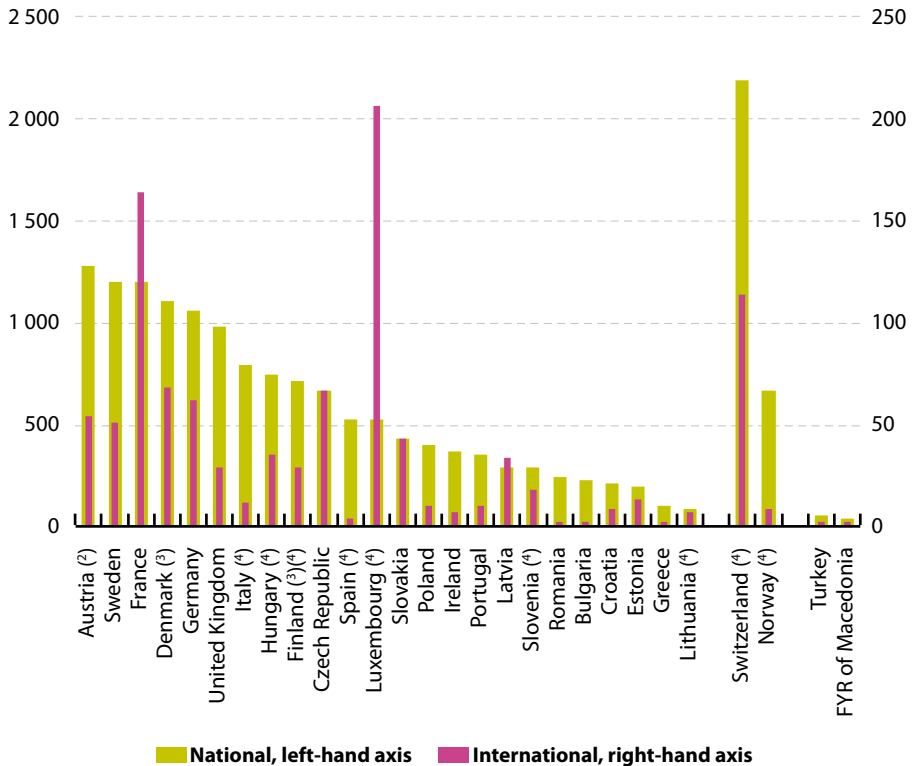
Source: Eurostat (online data code: tran_hv_psmmod)

Passenger cars accounted for 83.2% of inland passenger transport in the EU-28 in 2013, with motor coaches, buses and trolley buses (9.2%) and trains (7.6%) both accounting for less than a tenth of all traffic (as measured by the number of inland *passenger-kilometres (pkm)* travelled by each mode). Between 2003 and 2013 the relative importance of the use of passenger cars was relatively stable, with its share always within the range of 83.0% to 83.7%. Over this period, the relative importance of passenger transport by train increased fairly steadily (although there

was a fall between 2008 and 2009), from 6.7% at the beginning of the period under consideration to 7.6% by the end of it. Combined with this development was a fall in the importance of passenger transport by motor coaches, buses and trolley buses, down from 9.9% in 2003 to 9.2% by 2013, with most of this fall occurring between 2008 and 2009.

Based on the latest data available (generally for 2014), there were 381 billion pkm travelled on national railway networks of the EU-28 (including

Figure 3.3.2: Rail passenger transport, 2014 ⁽¹⁾
(passenger-km per inhabitant)



⁽¹⁾ Cyprus, Malta and Iceland: not applicable. Belgium and the Netherlands: not available.

⁽²⁾ The railway in Liechtenstein is owned and operated by the Austrian ÖBB and included in their statistics.

⁽³⁾ 2013.

⁽⁴⁾ Provisional.

Source: Eurostat (online data codes: [rail_pa_typepkm](#) and [demo_gind](#))

2013 data for Denmark and Finland; excluding Belgium and the Netherlands). This figure was considerably higher than the 22 billion pkm travelled on international journeys (the comparison is based on the same availability and reference years for each EU Member State).

In order to compare the relative importance of rail transport between countries, the data can be normalised by expressing the level of passenger traffic in relation to population. On average each inhabitant of Austria, Sweden, France, Denmark (2013 data) and Germany



travelled more than 1 000 km in 2014 on the national railway network; this was well below the average recorded in Switzerland (2 182 km per inhabitant). By contrast, among the EU Member States in 2014 the lowest average distances

travelled on national railway networks were recorded in Greece (98 km per inhabitant) and Lithuania (85 km), while the averages in Turkey (56 km) and the former Yugoslav Republic of Macedonia (38 km) were lower still.

Table 3.3.1: Overview of air passengers carried, 2014

	Total		National		International intra-EU-28 transport		International extra-EU-28 transport	
	Number of passengers (1 000)	Growth 2013–14 (%)	Number of passengers (1 000)	Growth 2013–14 (%)	Number of passengers (1 000)	Growth 2013–14 (%)	Number of passengers (1 000)	Growth 2013–14 (%)
EU-28⁽¹⁾	876 885	4.1	155 423	1.9	386 615	6.0	334 846	3.0
Belgium	28 775	9.0	39	-3.3	20 149	11.6	8 587	3.6
Bulgaria	7 519	6.2	167	-8.7	5 157	5.0	2 196	10.6
Czech Republic	12 080	1.6	89	7.1	8 203	2.7	3 788	-0.9
Denmark	29 004	5.6	1 952	3.3	18 964	5.6	8 088	6.3
Germany	186 446	3.1	22 789	0.8	97 976	4.6	65 680	1.8
Estonia	2 020	3.1	17	-13.4	1 529	3.2	475	3.6
Ireland	26 311	6.9	62	7.9	22 418	6.2	3 831	11.7
Greece	39 118	16.3	6 267	22.6	25 267	18.6	7 583	5.3
Spain	165 354	4.8	29 207	2.1	110 885	6.8	25 263	-0.2
France	136 362	-1.2	27 921	-3.5	58 728	-2.2	49 712	1.2
Croatia	6 141	7.3	465	5.4	4 621	7.8	1 055	6.1
Italy	121 156	5.1	29 175	2.7	67 968	6.5	24 013	4.3
Cyprus	7 329	4.5	0.0	-	4 930	2.1	2 398	9.9
Latvia	4 802	0.4	0.1	-47.8	3 454	3.8	1 348	-7.2
Lithuania	3 798	9.1	0.2	64.9	2 941	4.6	857	27.7
Luxembourg	2 434	12.2	0.6	-39.6	2 023	12.2	411	12.6
Hungary	9 055	7.3	0.2	-49.4	7 157	4.3	1 898	20.0
Malta	4 290	6.4	0.0	-98.8	3 832	8.1	458	-5.9
Netherlands	60 963	5.0	0.5	-58.0	36 663	7.2	24 299	1.8
Austria	26 379	2.4	579	-6.8	17 751	3.8	8 049	0.2
Poland	25 714	10.5	1 477	21.4	18 659	8.6	5 577	14.6
Portugal	32 558	9.6	2 960	4.3	23 426	11.0	6 172	7.4
Romania	10 907	8.9	502	-11.3	8 862	8.1	1 544	23.4
Slovenia	1 307	3.3	0	-	744	4.4	563	1.8
Slovakia	1 671	7.3	22	12.5	1 323	9.0	327	0.6
Finland	17 172	3.7	2 516	3.1	10 657	3.5	3 999	4.5
Sweden	32 766	4.2	7 355	4.1	18 826	2.5	6 585	9.6
United Kingdom	220 022	4.5	21 862	2.5	128 068	5.8	70 092	2.9

(1) Double counting is excluded in the intra-EU-28 and total EU-28 aggregates by taking into consideration only departure declarations.

Source: Eurostat (online data code: avia_paoc)

Table 3.3.2: Number of seaborne passengers embarked and disembarked in all ports, 2011–14

	2011	2012	2013	2014					Growth 2013–14 (%)
	Total	Total	Total	Inwards	Out-wards	Cruise	Non-cruise	Total	
	(1 000 passengers)								
EU–28	412 744	398 146	399 674	201 307	200 609	11 298	390 618	401 916	0.6
Belgium	824	850	859	409	412	384	437	821	-4.4
Bulgaria	1	1	2	0	1	0	1	1	-43.7
Denmark	41 527	40 965	40 968	20 885	20 411	360	40 935	41 295	0.8
Germany	29 233	29 481	29 848	15 134	15 646	1 104	29 675	30 780	3.1
Estonia	11 846	12 654	13 146	6 799	6 855	16	13 638	13 654	3.9
Ireland	2 906	2 758	2 747	1 373	1 382	2	2 753	2 755	0.3
Greece	79 183	72 899	72 918	37 733	37 678	377	75 034	75 411	3.4
Spain	21 868	21 629	22 871	11 786	11 700	2 272	21 214	23 486	2.7
France	25 552	24 815	25 637	13 378	13 260	888	25 750	26 638	3.9
Croatia	26 947	26 706	27 355	11 908	11 616	9	23 514	23 523	-14.0
Italy	81 895	76 735	73 238	36 106	36 119	3 822	68 403	72 225	-1.4
Cyprus	92	91	99	37	39	75	1	76	-23.0
Latvia	786	826	872	393	409	0	802	802	-8.1
Lithuania	281	286	280	136	144	0	280	280	0.2
Malta	8 621	8 535	9 170	4 837	4 832	93	9 575	9 669	5.4
Netherlands (1)	1 770	1 706	1 738	911	908	0	1 819	1 819	4.6
Poland	2 528	2 358	2 201	1 111	1 113	0	2 224	2 224	1.0
Portugal	677	565	555	275	276	47	504	551	-0.7
Romania	0	0	0	0	0	1	0	1	346.2
Slovenia	36	34	28	13	14	0	27	27	-4.4
Finland	18 074	18 264	18 524	9 277	9 209	0	18 487	18 487	-0.2
Sweden	30 094	29 471	29 146	14 841	14 416	71	29 185	29 256	0.4
United Kingdom	28 002	26 516	27 472	13 964	14 171	1 776	26 359	28 135	2.4
Iceland	404	710	751	:	:	:	:	723	-3.7
Norway (2)	6 130	6 003	7 898	4 207	3 701	122	7 786	7 908	0.1
Montenegro	:	319	184	52	56	0	108	108	-41.5
Turkey	1 842	1 828	2 058	1 088	1 062	470	1 680	2 150	4.5

(1) Data exclude cruise passengers.

(2) Data on international maritime passenger transport only.

Source: Eurostat (online data codes: [mar_mp_aa_cph](#) and [mar_mp_aa_cphd](#))



In 2014, 879 million passengers travelled by air in the EU, an increase of 4.4 % compared with 2013. The total growth of air passengers by Member State between 2013 and 2014 shows a disparity that is particularly marked at country level, with year-on-year growths ranging from + 0.4 % in Latvia to + 16.3 % in Greece. In 2014, London/Heathrow remained the largest EU-28 airport in terms of passenger transport.

The year-on-year growth in air passenger transport for 2014 in the EU-28 underlines the continued growth in air transport of passengers in 2014: each of the four quarters of 2014 shows an increase compared with the corresponding quarters of 2013 (+ 2.9 %, + 5.1 %, + 4.6 % and + 3.2 % respectively). The intra-EU share in total transport was 44 %, ahead of extra-EU transport (38 %) and domestic passenger transport (18 %).

The total number of passengers embarking and disembarking in EU-28 ports is estimated at 402 million in 2014, a rise of 0.6 % from the previous year. The slight overall increase in the number of seaborne passengers over the last two years might be an indication that the decline

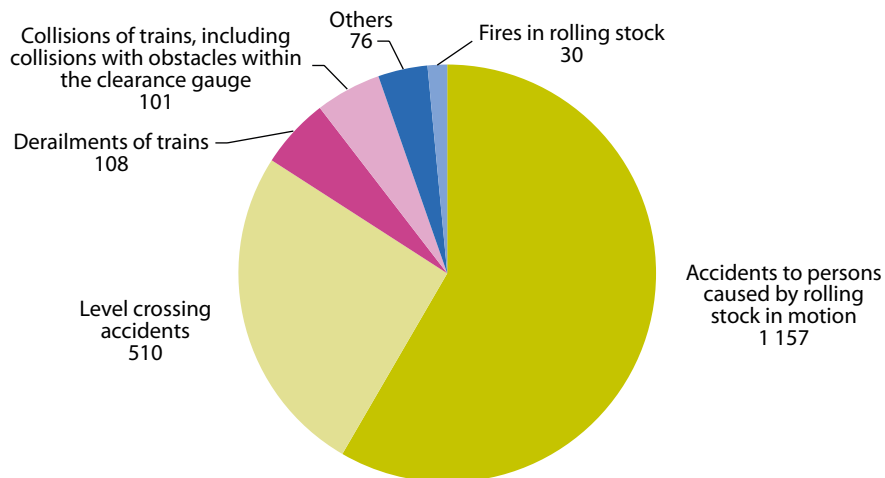
in the number of seaborne passengers observed from 2009 to 2012 has come to an end.

Unlike goods movements (roughly 60 % of the total tonnage handled in EU ports are unloaded and about 40 % loaded) the difference between the number of passengers embarking ('outwards') and disembarking ('inwards') in European ports is normally small. This reflects the fact that seaborne passenger transport in Europe is mainly carried by national or intra-EU ferry services, with the same passengers being counted twice in the statistics (once when they embark the ferry in one port and once when they disembark in another).

Greece recorded a rise of 3.4 % in the number of seaborne passengers passing through its ports in 2014, overtaking Italy as the major seaborne passenger transport country in the EU. With 75 million and 72 million seaborne passengers in 2014, respectively, Greek and Italian ports handled a combined share of 37 % of the total number of passengers embarking and disembarking in EU ports in 2014, followed by Danish ports with 10 % of the EU seaborne passengers (41 million passengers).

3.4 Transport safety

Figure 3.4.1: Number of rail accidents, EU-28, 2013



Source: Eurostat/ERA (online data code: tran_sf_railac)

Table 3.4.1: Victims in rail accidents, by type of victim and accident, EU-28, 2013

	Total	Passengers	Railway employees	Others	Killed
	(number of killed and injured)	(%)			
Total	2 042	14.2	4.9	81.0	55.3
Collisions of trains, including collisions with obstacles within the clearance gauge	39	25.6	64.1	10.3	17.9
Collisions (excluding level-crossing accidents)	0	0.0	0.0	0.0	0.0
Derailments of trains	188	94.7	2.7	2.7	45.7
Level crossing accidents	614	1.1	1.1	97.7	50.0
Accidents to persons caused by rolling stock in motion	1 162	7.6	4.2	88.2	62.3
Fires in rolling stock	1	0.0	100.0	0.0	0.0
Others	38	15.8	34.2	50.0	15.8

Source: Eurostat/ERA (online data code: tran_sf_railvi)



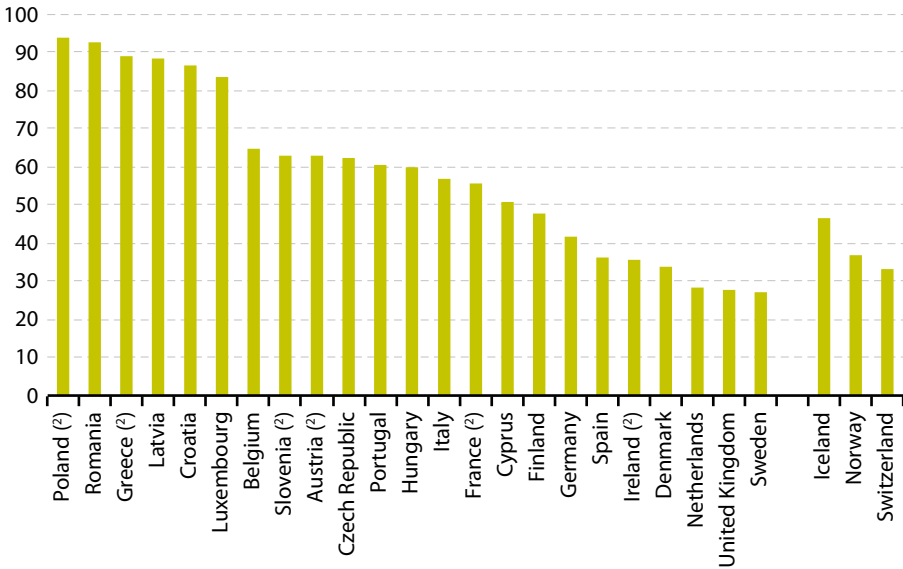
Data on railway accidents are collected by the European Railway Agency (ERA), which was formed to develop common technical specifications and common approaches to safety among EU Member States. In 2013, in the EU-28, 1 982 rail accidents occurred, a decrease of 4.2% compared with 2012. Two EU Member States reported more than 200 accidents (Germany and Poland) and seven less than 20 (Denmark, Estonia, Greece, Finland, Ireland, Luxembourg and Slovenia). The majority of accidents (58%) were accidents to persons caused by rolling stock in motion.

In 2013, railway accidents claimed 2 042 victims, 1 130 of which were fatalities. With a share of

just over 14%, railway passengers represented only a small share. Most victims were counted in the 'Others' category, the majority of which in accidents at level crossings or involving unauthorised persons on the tracks.

There was a slight decrease in the number of suicides (which are not considered as accidents) involving railways (2 819 suicides in 2013). Some EU Member States reported increases however, the largest of which were reported for Romania (+ 175.0% from 2007 to 2013), Poland (+ 153.6%) and the Czech Republic (+ 38.0%).

Figure 3.4.2: People killed in road accidents, 2013 ⁽¹⁾
(per million inhabitants)



⁽¹⁾ Data not available for Bulgaria, Estonia, Lithuania, Malta and Slovakia.

⁽²⁾ 2012 data.

Source: Eurostat/CARE (online data codes: [tran_sf_roadse](#) and [demo_gind](#))

Table 3.4.2: People killed in road accidents, by road user, 2013

(%)

	Driver	Passenger	Pedestrian	Unknown
Belgium	71.4	14.8	13.7	0.1
Bulgaria	:	:	:	:
Czech Republic	59.5	15.7	24.8	:
Denmark	63.4	19.4	17.3	0.0
Germany	69.2	14.0	16.8	:
Estonia	:	:	:	:
Ireland (*)	62.3	19.8	17.9	0.0
Greece (*)	65.9	16.9	17.2	:
Spain	60.6	17.3	22.1	:
France (*)	69.1	17.5	13.4	0.0
Croatia	58.4	22.8	18.8	0.0
Italy	67.9	15.9	16.2	:
Cyprus	65.9	15.9	18.2	0.0
Latvia	46.4	14.5	39.1	:
Lithuania	:	:	:	:
Luxembourg	77.8	11.1	11.1	:
Hungary	55.0	20.1	24.9	0.0
Malta	:	:	:	:
Netherlands	80.3	9.0	10.7	0.0
Austria (*)	70.4	14.3	15.3	0.0
Poland (*)	49.2	18.4	32.4	0.0
Portugal	60.8	16.6	22.6	:
Romania	38.7	22.3	39.0	:
Slovenia (*)	70.8	14.6	14.6	0.0
Slovakia	:	:	:	:
Finland	70.2	16.7	13.2	:
Sweden	65.8	16.2	16.2	1.9
United Kingdom	60.9	16.2	22.9	:
Iceland	66.7	26.7	6.7	:
Norway	72.7	17.6	9.6	:
Switzerland	63.6	10.8	25.7	:

(*) 2012 data.

Source: Eurostat/CARE (online data code: tran_sf_roadus)

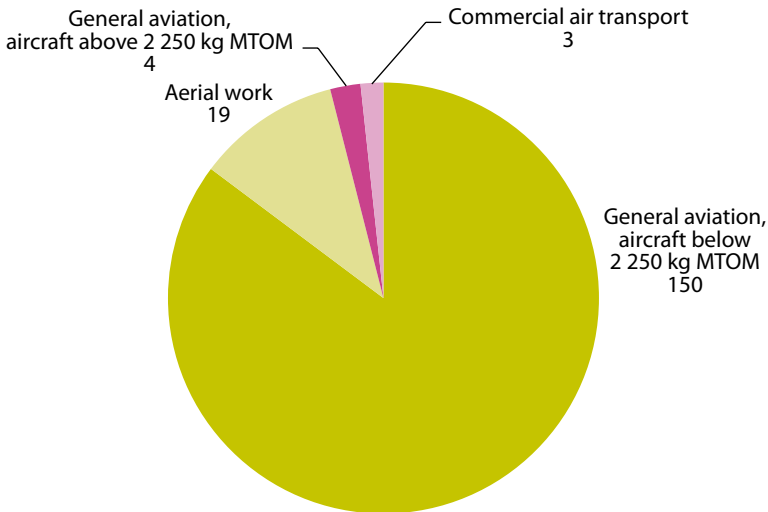


Data on road accidents are collected through CARE, the European centralised database on road accidents (managed by DG MOVE) resulting in death or injury across the EU, and are available for 27 out of the 28 EU Member States (data are not available for Lithuania) for the period 1999–2013. Since 2001, the number of persons killed in road accidents has been decreasing regularly. While there were 54 439 persons killed in road accidents in the EU-27 in 2001, this figure reached 27 101 in 2013 (data for 23 out of 27 EU Member States). In 2013, Germany, France, Italy and Poland together account for around 50% of the EU road fatalities. In terms of persons killed per million inhabitants, Poland and

Romania held the highest values. In 2013 the percentage of persons killed between the ages of 18 and 24 ranged from 8% in Hungary to 41% in Cyprus. On average, 34% of the persons killed were aged between 25 and 49 (2013 data; average value for 20 EU Member States).

In 2013, on average 9% of the total road accident fatalities took place on motorways (data for 18 EU Member States), 38% on urban roads (data for 17 EU Member States) and 53% on rural roads (data for 17 EU Member States). The majority of people killed in road accidents were drivers but a surprisingly high number of pedestrians were recorded in several countries.

Figure 3.4.3 : Number of people killed in air accidents on the territory of the EU involving aircraft registered in EU-28 countries, by aviation category, 2014 (*)



(*) Provisional data.

Source: Eurostat (online data codes: tran_sf_aviaca, tran_sf_aviaaw, tran_sf_aviagah and tran_sf_aviagal)

Aviation safety data are collected via the European Aviation Safety Agency (EASA), an agency of the European Union. In 2014, a total of 176 persons died in accidents occurring on EU territory involving aircraft registered in the countries of the European Union. Most air accident fatalities (85 %) were registered in the category 'general aviation' (includes all civil aviation operations other than 'commercial air transport' and 'aerial work'), under the sub-category of aircraft with a maximum take-off mass (MTOM) of under 2 250 kg (small aeroplanes, gliders, microlights, but also balloons). There were only 4 accidents involving aircraft with a MTOM above 2 250 kg.

A further 11 % of air accident fatalities (corresponding to 19 fatalities) were registered in 'aerial work' (operation of aircraft for specialised services, such as agriculture, construction, photography, surveying, observation and patrol, search and rescue as well as aerial advertisement). Three persons (2 % of the total) lost their lives in 'commercial air transport'; these fatalities occurred in two accidents, one in Romania (2 fatalities) and one in France (1 fatality). In the latter category, a very serious crash in Mali (Africa) claimed 116 lives. The aircraft involved was registered in Spain, but operated as an Air Algérie flight.

4

Environment indicators



4.1 Emissions of greenhouse gases and air pollutants

In the reporting of emissions of **greenhouse gases (GHG)** and air pollutants two different approaches are internationally established: air emissions accounts and national air emission inventories. The inventories are used, for example, for reporting obligations under the Kyoto Protocol. Significant differences between the national totals of the two approaches may occur in certain countries where very large resident businesses engage in international water and air transport services. For instance, in Denmark, carbon dioxide (CO₂) emissions reported in the accounts are almost twice as high as those reported in inventories. This difference is due to a very large Danish shipping business operating vessels worldwide and hence bunkering most of its fuel and emitting most of its emissions outside Denmark: these emissions abroad are not accounted for in the Danish emission inventory. For the EU as a whole, the differences between national totals from air emissions accounts and national totals from emission inventories are much less pronounced.

According to the greenhouse gas inventories, in 2014 greenhouse gas emissions in the EU-28

were down by 22.9% compared with 1990 levels, representing an absolute reduction of 1 136 million tonnes of CO₂-equivalents, putting the EU on track to surpass its 2020 target, which is to reduce greenhouse gas emissions by 20% by 2020 and by 40% by 2030 compared with 1990.

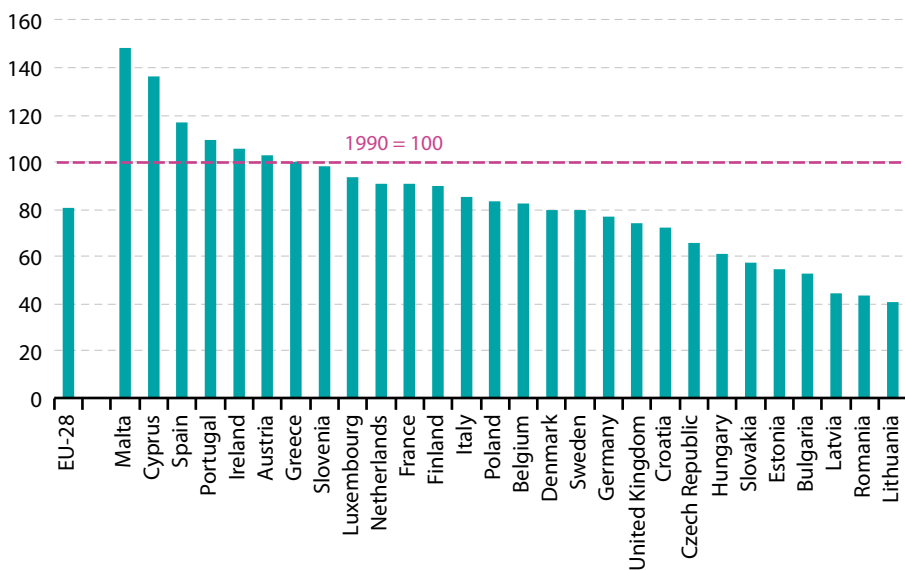
There was a general downward trend to greenhouse gas emissions during the 1990–99 period (aside from a relative peak in 1996, when a cold winter led to an increase in heating requirements). From 1999 to 2006 the evolution of greenhouse gas emissions within the EU-28 remained relatively unchanged, although it started falling at a modest pace through to 2008. The year 2009 saw a sharp drop in emissions as a consequence of the global financial and economic crisis and the resulting reduced industrial activity. Emissions increased in 2010 and decreased again from 2011 onwards. Incidentally, 2014 marked the year with the lowest emissions on record since the beginning of the time series.

Table 4.1.1: Differences between inventories and accounts

National air emission inventories (territory principle)	Air emission accounts (residence principle)
The emissions are attributed to the country where the emission takes place.	The emissions are attributed to the country in which the economic operator causing the emission is resident.
Emissions are assigned to processes which are classified according to their technical nature (for example combustion in power plants or solvent use).	Emissions are classified to the economic activity following the NACE classification of the system of national accounts.
Emissions from international navigation and aviation are allocated to countries in which the associated fuel is bunkered independent of where the operator is resident.	Emissions from international navigation and aviation are allocated to countries in which the operator of the ship/ aircraft is resident independent of where the emission geographically takes place.



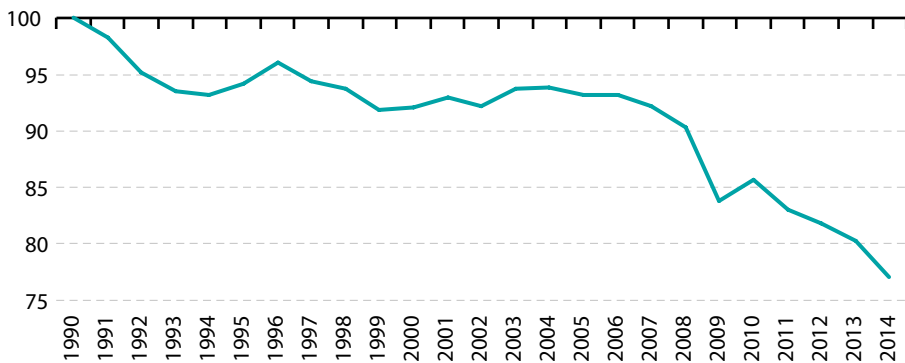
Figure 4.1.1: Total greenhouse gas emissions (¹), 2014
(1990 = 100)



(¹) Including international aviation, indirect CO₂ and excluding LULUCF.

Source: Eurostat (online data code: env_air_gge), European Environment Agency

Figure 4.1.2: Greenhouse gas emissions trend, EU-28, 1990–2014
(1990 = 100)



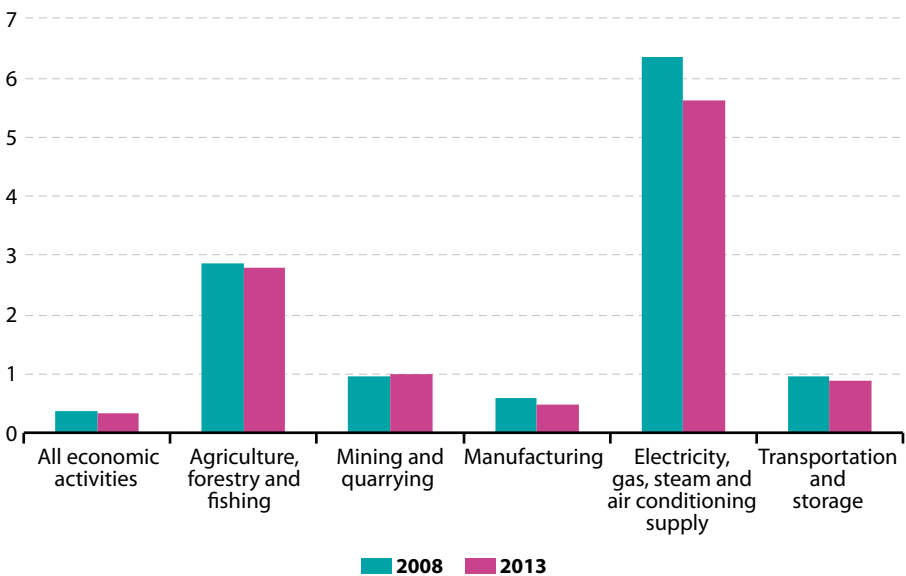
(¹) Including international aviation, indirect CO₂ and excluding LULUCF.

Source: Eurostat (online data code: env_air_gge), European Environment Agency

Across EU Member States in 2014, greenhouse gas emissions were the highest in Germany (21.9% of the EU-28 total or 969.1 million tonnes of CO₂-equivalents), followed by the United Kingdom and France. The biggest decreases compared to 1990 were reported for Lithuania

(– 59.3%), Romania (– 56.3%) and Latvia (– 55.7%). On the other side of the spectrum, the biggest increases compared to 1990 were reported for Malta (+ 48.7%), Cyprus (+ 36.4%) and Spain (+ 16.9%).

Figure 4.1.3: Greenhouse gas intensity by economic activity, EU-28, 2008 and 2013 (¹)
(kg of CO₂ equivalents per EUR)



(¹) Estimates. The gross value added data used as the denominator for this index are chain-linked volumes presented with 2010 as the reference year.

Source: Eurostat (online data codes: [env_ac_ainah_r2](#) and [nama_10_a64](#))



Table 4.1.2: Greenhouse gas emissions by economic activity, 2013
(1 000 tonnes of CO₂ equivalents)

	All economic activities	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing	Electricity, gas, steam and air conditioning supply	Transport	Other services, water supply and construction	Households
EU-28	3 704 369	530 006	81 125	864 733	1 226 035	500 838	501 631	902 685
Belgium	93 019	12 373	25	34 283	17 119	12 541	16 677	27 948
Bulgaria	45 665	4 153	336	5 577	28 741	5 401	1 457	9 310
Czech Republic	106 444	8 268	7 258	20 382	50 420	8 598	11 518	11 522
Denmark	81 330	12 232	1 847	5 713	15 896	39 309	6 332	8 173
Germany	802 984	75 288	12 184	171 542	364 500	90 832	88 638	200 133
Estonia	21 341	1 334	131	2 299	14 457	2 210	909	1 090
Ireland	44 254	19 794	238	5 829	10 889	2 674	4 831	13 171
Greece (¹)	84 444	9 789	32	16 550	44 257	6 777	7 038	14 870
Spain	251 133	45 975	2 947	75 913	58 637	36 658	31 003	61 529
France	348 894	93 759	1 149	100 283	36 669	43 090	73 944	130 426
Croatia	18 940	3 079	475	5 502	5 029	1 645	3 210	4 982
Italy	329 595	38 960	3 636	90 205	104 848	46 810	45 136	103 755
Cyprus	6 358	776	24	1 336	2 842	463	916	1 701
Latvia	9 982	2 803	55	1 485	2 047	2 027	1 564	2 030
Lithuania	20 582	4 570	10	5 276	2 949	6 120	1 656	3 511
Luxembourg	7 622	970	6	1 425	816	3 399	1 006	1 623
Hungary	44 670	8 123	742	9 290	13 170	3 364	9 981	13 502
Malta	5 346	109	7	56	1 703	3 279	192	349
Netherlands	187 493	28 869	3 263	43 649	48 154	28 617	34 941	41 129
Austria	59 472	8 340	1 191	27 290	8 395	6 589	7 669	15 651
Poland	339 286	45 687	16 769	63 743	157 698	24 726	30 661	52 522
Portugal	55 822	9 192	257	17 730	12 441	5 359	10 843	8 946
Romania	96 674	17 493	5 169	23 373	29 063	7 191	14 384	15 530
Slovenia	18 484	1 906	399	2 904	8 170	4 025	1 079	3 147
Slovakia	37 985	3 670	1 035	17 737	5 658	5 687	4 198	5 122
Finland	60 318	8 257	438	14 281	19 133	11 270	6 941	5 746
Sweden	52 411	9 325	1 519	14 135	7 737	12 414	7 281	9 737
United Kingdom	473 821	54 911	19 983	86 949	154 594	79 760	77 624	135 528
Norway	58 588	6 563	14 450	12 218	1 793	20 006	3 558	5 345
Switzerland	34 259	6 827	76	8 388	800	7 328	10 841	20 492
Turkey	357 950	52 892	6 546	127 862	110 907	23 103	36 640	94 483

(¹) Provisional.

Source: Eurostat (online data code: env_ac_ainah_r2)

Among the EU Member States, the greenhouse gases emitted by the various producers and households varied. These differences are, in part, due to different economic structures and different mixes of **renewable** and non-renewable energy sources. In nearly half (13) of the EU Member States businesses supplying energy, gas, steam and air conditioning were the main producers of greenhouse gases in 2013 while in seven more Member States manufacturing was the main producer. In Ireland and Latvia the agriculture, forestry and fishing activities were the main emitters while in Denmark, Lithuania, Luxembourg and Malta transportation and storage activities were the main source. Households were the main source of greenhouse gases in France and Hungary.

The ratio of greenhouse gas emissions (in tonnes of CO₂-equivalents) to **gross value added** (in million euros) measures the greenhouse gas intensity in economic activities. Gross value added is valued at basic prices, and the time series are compiled using chain-linked volumes to eliminate the effects of **inflation**: the gross value added data are presented with 2010 as the reference year. With 5.6 kg of CO₂-equivalents per euro the supply of electricity, gas, steam and air conditioning had by far the highest greenhouse gas intensity in the EU-28 in 2013. Agriculture, forestry and fishing had the second highest greenhouse gas intensity, 2.8 kg of CO₂-equivalents per euro. Between 2008 and 2013, the largest fall in greenhouse gas intensity in relative terms was observed in manufacturing (– 17.2%), while the biggest reduction in absolute terms was observed for the supply of electricity, gas, steam and air conditioning (– 0.75 kg of CO₂-equivalents per euro). There were also reductions in intensity for the other

activities except for mining and quarrying where the intensity increased by 5.3%.

The **CO₂ emissions** induced by the final use of products are often referred to as the ‘carbon footprint’. The EU-28 final use of products encompasses the consumption by **private households** and government as well as the use of products for **gross fixed capital formation** (in other words investments such as buildings, plant and machinery, motor vehicles, and infrastructure).

The EU-28’s total carbon footprint was equal to 7.61 tonnes CO₂ per person in 2012, whereas the EU-28 itself emitted 6.2 tonnes CO₂ per person in 2012. The carbon footprint was composed of about 1.67 tonnes per person (t/person) associated with the direct emissions by private households burning **fossil fuels** (for example for heating **dwellings** and fuelling private vehicles) and 5.94 t/person induced indirectly along the production chains of products, either consumed or invested within the EU. A majority of the latter — 4.94 t/person — stemmed from domestic production activities actually located in the EU. A smaller part, equal to 1.00 t/person, is estimated to have originated from production activities outside the EU that created intermediate and final products that were then imported into the EU for final use.

The final use of electricity, gas, steam and air-conditioning in the EU-28 induced worldwide the most CO₂ emissions, 0.97 t/person or 973 kilogrammes per person (kg/person). Next ranks the final use of constructions and construction works with 682 kg/person while the final use of food products, beverages and tobacco products ranks third with a ‘carbon footprint’ of 394 kg/person.

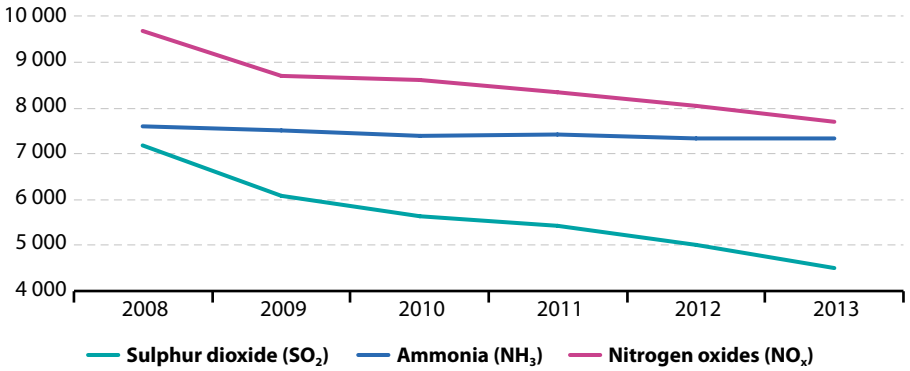


Table 4.1.3: Domestic and imported CO₂ emissions induced by final use of products, EU-28, 2012

Product group	Final consumption expenditure		Gross capital formation		Domestic final use, total	
	domestic emissions	imported emissions	domestic emissions	imported emissions	Global emissions	
	(kg of CO ₂ per inhabitant)					(%)
Electricity, gas, steam and air-conditioning	928	42	3	0	973	12.8
Constructions and construction works	29	4	565	84	682	9.0
Food products, beverages and tobacco products	329	60	4	1	394	5.2
Coke and refined petroleum products	139	118	8	7	271	3.6
Retail trade services, except of motor vehicles and motorcycles	194	23	8	1	225	3.0
Accommodation and food services	196	27	0	0	223	2.9
Public administration and defence services; compulsory social security services	185	26	1	0	212	2.8
Wholesale trade services, except of motor vehicles and motorcycles	151	25	31	5	212	2.8
Land transport services and transport services via pipelines	187	17	5	0	210	2.8
Real estate services (excl. imputed rents)	170	21	4	1	197	2.6
Human health services	159	27	0	0	186	2.4
Motor vehicles, trailers and semi-trailers	84	23	44	12	163	2.1
Air transport services	127	32	0	0	160	2.1
Education services	99	9	0	0	108	1.4
Products of agriculture, hunting and related services	77	19	7	2	104	1.4
Machinery and equipment n.e.c.	2	1	68	32	103	1.4
Scientific research and development services	10	2	66	16	94	1.2
Textiles, wearing apparel and leather products	38	50	1	2	91	1.2
Other products	822	205	205	108	1 339	17.6
Total products	3 925	730	1 019	271	5 945	78.1
Direct emissions by private households	1 666	0	0	0	1 666	21.9
Total products plus direct emissions by private households	5 592	730	1 019	271	7 612	100.0

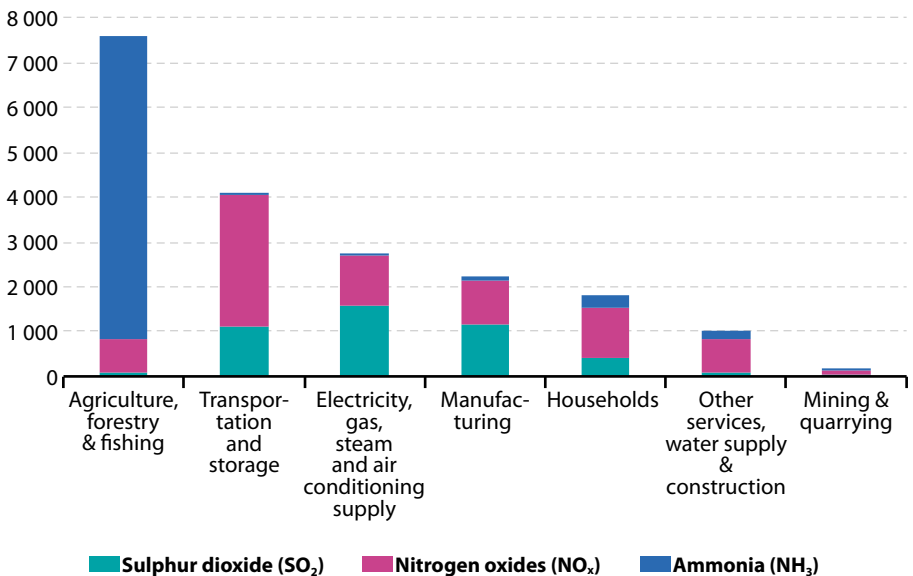
Source: Eurostat (online data codes: env_ac_io10 and demo_gind)

Figure 4.1.4: Emissions of acidifying gases, EU-28, 2008–13
(1 000 tonnes of SO₂ equivalents of SO₂, NO_x and NH₃)



Source: Eurostat (online data code: [env_ac_ainah_r2](#))

Figure 4.1.5: Emissions of acidifying gases, analysis by economic activity, EU-28, 2013
(1 000 tonnes of SO₂ equivalents of SO₂, NO_x and NH₃)



Source: Eurostat (online data code: [env_ac_ainah_r2](#))



Several air pollutants contribute to the acidification of the environment. The most important ones comprise sulphur dioxide (SO₂), nitrogen oxides (NO_x) and ammonia (NH₃). The impact of SO₂, NO_x and NH₃ can be observed in the progressive degradation of soils, water and forests. They also contribute to the formation of fine particles in the air that cause respiratory diseases. The acidifying potential of SO₂, NO_x and NH₃ is commonly measured in SO₂ equivalents (SO₂-eq.).

The emission of acidifying gases decreased by 20.2% between 2008 and 2013. This represents a reduction of 4.9 million tonnes of SO₂-eq. emissions. Emissions of nitrogen oxides fell by 20.4%, ammonia by 3.5% and sulphur dioxide by 37.4%. In 2013, emissions of nitrogen oxides accounted for the highest share of the acidifying potential (39.4% or 7.7 million tonnes of SO₂-eq.) followed by ammonia (37.6% or 7.3 million tonnes of SO₂-eq.) and sulphur dioxide (23% or 4.5 million tonnes of SO₂-eq.).

Agriculture, forestry and fishing account for the largest share of all industries: In 2013, these activities emitted 38.8% of total acidifying potential, compared with 32.3% in 2008. Although it has decreased between 2008 and 2013 by 4% (in absolute terms by 0.3 million tonnes of SO₂-eq.), mainly due to the reduction in livestock numbers, changes in the management of organic manures and the decreased use of nitrogenous fertilisers, it has decreased less than most of the other economic activities discussed in this chapter. Ammonia is the largest contributor to the acidifying emissions from agriculture, forestry and fishing with 6.8 million tonnes of SO₂-eq.

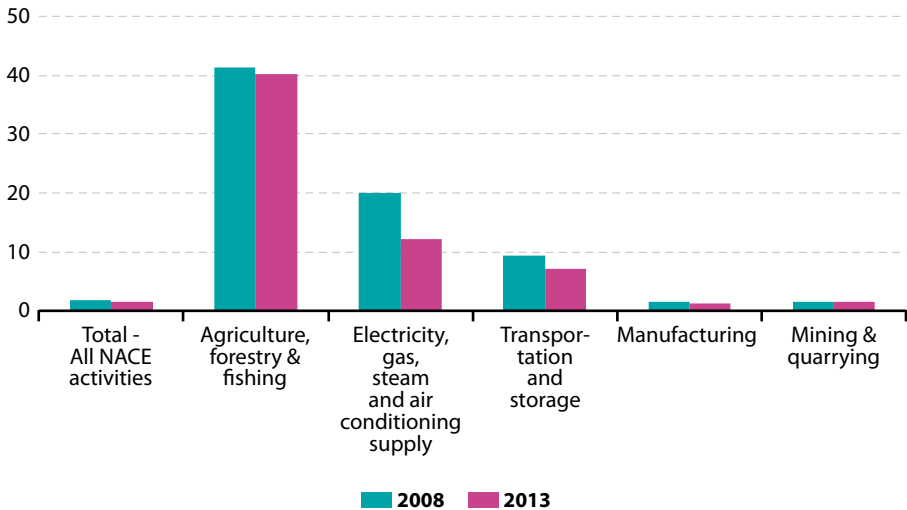
The second largest activity with contribution to acidifying emissions in 2013 was transportation and storage with a share of 20.9% or 4.2 million tonnes of SO₂-eq., closely followed by the electricity, gas, steam and air conditioning supply industry (13.8% or 2.7 million tonnes of SO₂-eq.). While the largest share of emissions in transport came from NO_x, in the electricity, gas, steam and air conditioning supply industry SO₂ emissions were predominant.

All activities recorded significant drops in acidifying emissions. The biggest decrease was observed in electricity, gas, steam and air conditioning supply industry, which dropped from 4.4 to 2.7 million tonnes of SO₂-eq. (-39%) between 2008 and 2013. The more systematic use of end-of-pipe pollution filters and the use of more efficient combustion technologies in the electricity and heat production are the main contributors to this development.

The ratio of acidifying emissions in tonnes of SO₂-eq. per million euros of gross value added (GVA) measures the intensity of acidifying gas emissions of industries. In 2013, with 40.1 grams per euro, a predominance of agriculture, forestry and fishing over other industries can be observed. This is due to the fact that the agriculture, forestry and fishing industry has large emissions of ammonia and has a comparatively low contribution to the GVA of the economy. Compared to the year 2008 the intensity of acidifying gas emissions decreased in all main industries. The biggest decrease was recorded for the electricity, gas, steam and air conditioning industry (-39%).

Figure 4.1.6: Emissions of acidifying gases per value added, analysis by economic activity, EU-28, 2008 and 2013

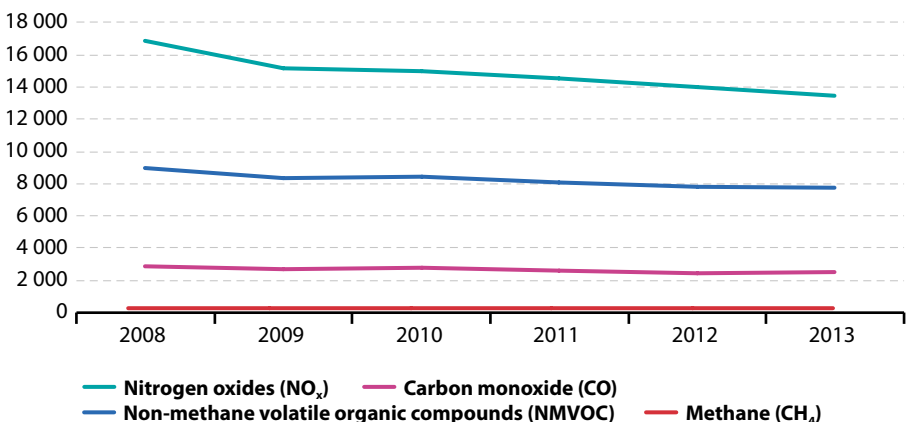
(grams of SO₂ equivalents of SO₂, NO_x and NH₃ emissions per EUR)



Source: Eurostat (online data codes: env_ac_ainah_r2 and nama_10_a64)

Figure 4.1.7: Emissions of ozone precursors, EU-28, 2008–13

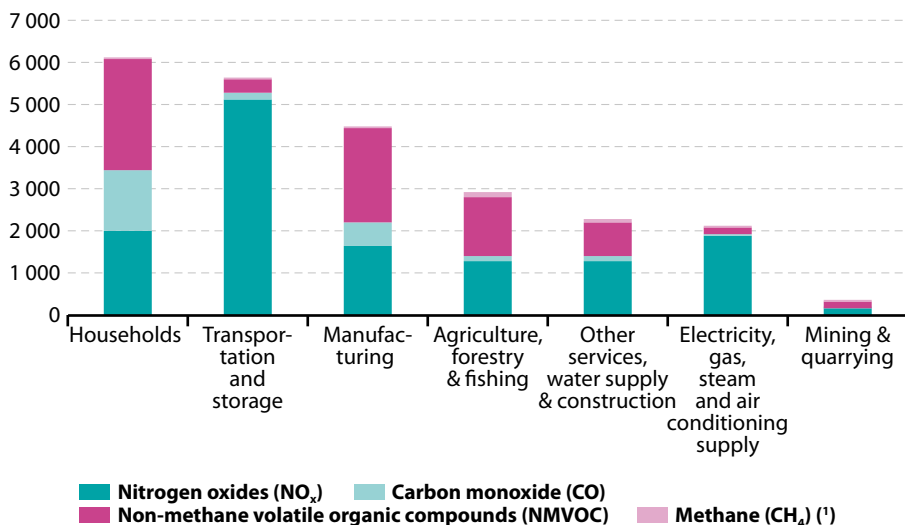
(1 000 tonnes of NMVOC equivalents of NO_x, CO, NMVOC and CH₄)



Source: Eurostat (online data code: env_ac_ainah_r2)



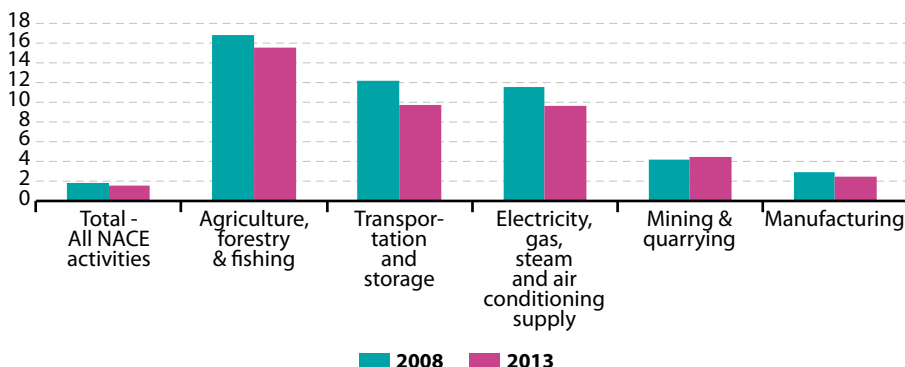
Figure 4.1.8: Emissions of ozone precursors, analysis by economic activity, EU-28, 2013
(1 000 tonnes of NMVOC equivalents of NO_x, CO, NMVOC and CH₄)



(¹) Relatively low emissions in NMVOC-equivalents renders them often unseen in the figure above.

Source: Eurostat (online data code: env_ac_ainah_r2)

Figure 4.1.9: Intensity of ozone precursor emissions, analysis by economic activity, EU-28, 2008 and 2013
(grams of NMVOC equivalents of NO_x, CO, NMVOC and CH₄ per EUR)



Source: Eurostat (online data codes: env_ac_ainah_r1, env_ac_ainah_r2 and nama_nace64_k)

Similarly to the emissions of **acidifying gases**, the emissions of **ozone precursors** in the EU fell between 2008 and 2013 for all pollutants.

The total change in emissions of **non-methane volatile organic compounds (NMVOC)**, NO_x , CO and CH_4 was a decrease of 17.5 % or 5.1 million tonnes of NMVOC equivalents (NMVOC-eq.). The main pollutants contributing to the tropospheric ozone formation are NO_x and NMVOC with 56.1 % and 32.4 % respectively. Between 2008 and 2013, the emissions of NO_x fell by 25.7 % or 3.4 million tonnes of NMVOC-eq., and NMVOC by 15.2 % or 1.2 million tonnes.

The highest EU emitters of ozone precursors in 2013 were households with 25.6 % and the transport industry with 23.5 % of total EU ozone precursor emissions. The **manufacturing** industry is the third largest emitter (18.7 % of total ozone precursor emissions). Between 2008 and 2013,

the biggest absolute drop occurred in transport industry (1.6 million tonnes of NMVOC-eq. or – 23 %).

Intensity of ozone precursor emissions is the ratio of ozone precursor emissions in tonnes of NMVOC equivalents per million euros of GVA. In 2013, agriculture, forestry and fishing (15.6 grams NMVOC-eq. per euro) was, relative to GVA, the most important contributor to ozone precursor emissions in the EU, followed by mining and quarrying, electricity, gas, steam and air conditioning supply and transportation and storage. Compared to year 2008 the intensity decreased in all main industries except mining and quarrying, where an 8.1 % increase was detected. The biggest decrease was observed in transportation and storage (– 20.4 %).



4.2 Material flow accounts

Table 4.2.1: Domestic material consumption by main material category, 2015
(tonnes per capita)

	Total	Biomass	Metal ores	Non-metallic minerals	Fossil energy materials
EU-28	13.2	3.5	0.6	6.1	3.0
Belgium	13.9	4.6	0.6	5.4	3.4
Bulgaria	20.5	2.8	4.1	7.8	6.1
Czech Republic	15.6	2.3	0.5	7.2	5.6
Denmark	19.4	5.4	0.0	10.4	3.3
Germany	16.1	3.6	0.5	6.9	5.1
Estonia	27.0	5.2	0.1	10.4	11.5
Ireland	22.4	8.8	1.5	7.9	4.1
Greece	12.7	2.2	0.5	4.1	5.9
Spain	8.3	2.7	0.4	3.4	1.9
France	11.2	3.7	0.3	5.3	1.8
Croatia	9.5	2.8	0.1	4.8	1.6
Italy	8.4	2.3	0.3	3.7	2.1
Cyprus	11.1	1.7	1.6	5.2	2.4
Latvia	21.3	11.6	0.0	8.6	1.1
Lithuania	14.4	6.2	0.1	6.6	1.8
Luxembourg	23.7	4.6	1.0	13.2	3.9
Hungary	12.3	3.5	0.3	6.2	2.4
Malta	13.5	1.5	0.7	5.3	5.7
Netherlands	11.3	3.3	0.4	2.6	5.0
Austria	21.8	5.1	0.8	12.9	2.8
Poland	17.2	4.8	1.1	7.3	4.1
Portugal	15.1	3.1	1.2	8.9	1.7
Romania	23.3	3.1	0.3	17.6	2.3
Slovenia	13.3	2.5	0.3	7.2	3.4
Slovakia	13.5	3.4	0.7	6.7	2.5
Finland	30.5	6.2	2.7	17.8	3.5
Sweden	23.8	6.5	6.2	9.0	1.7
United Kingdom	9.0	2.8	0.2	3.5	2.4
Norway (1)	28.2	2.4	2.6	14.0	9.7
Switzerland (2)	12.1	2.1	0.3	7.3	2.0
Serbia (1)	14.5	5.1	2.5	1.9	5.0
Turkey (2)	11.9	3.2	0.9	6.0	1.9

(1) 2014.

(2) 2013.

Source: Eurostat (online data codes: env_ac_mfa and demo_gind)

Eurostat's [material flow accounts](#) are a comprehensive data framework that systematically records the inputs of materials to European economies, breaking them down by four main material categories, i.e. [biomass](#), [metal ores](#), [non-metallic minerals](#) and [fossil energy materials](#).

Various [indicators](#) are taken from the economy-wide material flow accounts framework — most prominently [domestic material consumption \(DMC\)](#). DMC related to [gross domestic product \(GDP\)](#) is used to monitor [resource productivity](#) in the context of the [Europe 2020 Strategy](#).

The EU-28's DMC was dominated by non-metallic minerals, making up nearly half of the total in 2015, around 6.1 tonnes [per capita](#). Biomass and fossil energy materials each made up approximately a quarter of DMC, some 3.5 and 3.0 tonnes per capita respectively. Metal ores constitute the smallest of the four main categories, their consumption being at a level of 0.6 tonnes per capita.

The level of DMC differed greatly among the EU Member States, ranging from around 8.3 tonnes per capita in Spain and Italy to 30.5 tonnes per capita in Finland in 2015. Furthermore, the structure of DMC — by main material category — varies between the Member States. The composition of DMC in each Member State is influenced by domestic extraction and by natural endowments with material resources, and the latter may form an important structural element of each economy.

The consumption of non-metallic minerals was lowest in the Netherlands (2.6 tonnes per capita) and highest in Finland (17.8 tonnes per capita). Non-metallic minerals constitute a significant part of DMC in several other EU Member States, notably Romania (17.6 tonnes per capita), Luxembourg (13.2 tonnes per capita), Austria (12.9 tonnes per capita), Denmark and Estonia (both 10.4 tonnes per capita). Consumption of

biomass was highest in Latvia (11.6 tonnes per capita), Ireland (8.8 tonnes per capita), Sweden (6.5 tonnes per capita), Finland and Lithuania (both 6.2 tonnes per capita). In Ireland, [fodder crops](#) and grazed biomass made up the biggest share of this category, while in the other EU Member States with high values forestry played a major role in the economy. Consumption of biomass was lowest in Malta (1.5 tonnes per capita).

EU Member States with substantial amounts of fossil fuel consumption included Estonia (11.5 tonnes per capita, due to the domestic extraction of oil shale), Bulgaria (6.1 tonnes per capita), Greece (5.9 tonnes per capita), Malta (5.7 tonnes per capita), the Czech Republic (5.6 tonnes per capita), Germany (5.1 tonnes per capita, due to the domestic extraction of lignite) and the Netherlands (5.0 tonnes per capita). Latvia, Croatia, Sweden, Portugal, Lithuania, France and Spain reported the lowest consumption among the Member States for fossil energy materials, below 2.0 tonnes per capita.

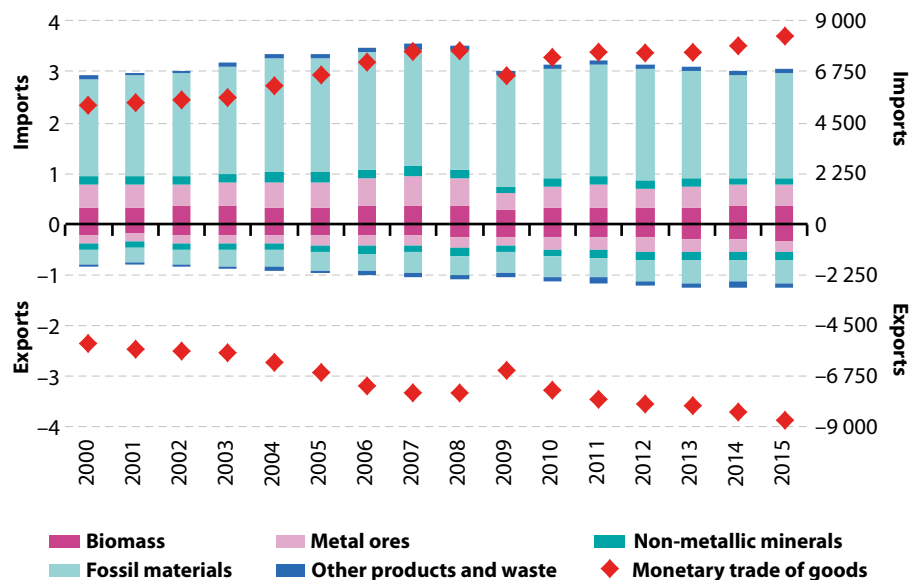
Finally, consumption of metal ores was by far highest in Sweden (6.2 tonnes per capita), Bulgaria (4.1 tonnes per capita) and Finland (2.7 tonnes per capita) because of their metal mining activities.

Besides the structure of the economy and climatic conditions, [population density](#) may explain — at least in part — differences between EU Member States in relation to consumption patterns. More densely populated Member States such as the Netherlands, the United Kingdom, Italy and Malta tend to consume somewhat lower amounts per capita than the EU-28 average whereas higher per capita consumption may be observed for low population density Member States like Finland and Sweden.



Figure 4.2.1: Physical trade of goods and monetary trade of goods by main material category, EU-28, 2000–15

(tonnes per capita, left Y-axis; EUR per capita, right Y-axis) (1)



(1) Monetary trade of goods in euro, chain linked volumes, reference year 2010.

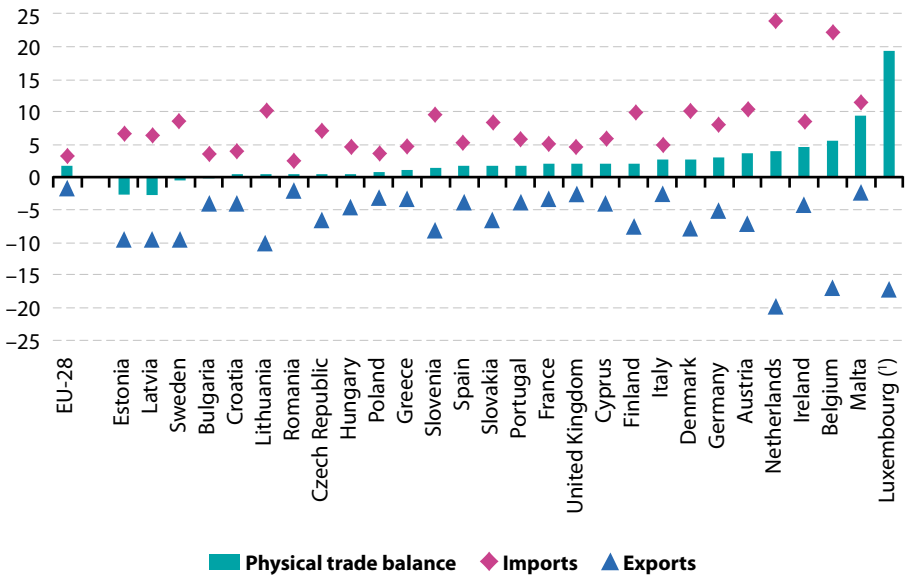
Source: Eurostat (online data codes: [env_ac_mfa](#), [nama_10_gdp](#) and [demo_gind](#))

Table 4.2.2: Extra-EU imports and exports, by stage of manufacturing, EU-28, 2015
(1 000 tonnes per capita)

	Stage of manufacturing	
Imports	Finished products	0.4
	Semi-finished products	0.5
	Raw products	2.1
Exports	Finished products	0.5
	Semi-finished products	0.5
	Raw products	0.2

Source: Eurostat (online data codes: [env_ac_mfa](#) and [demo_gind](#))

Figure 4.2.2: Physical trade balance (imports minus exports), 2015
(tonnes per capita)



(¹) Physical imports of Luxembourg account for 36.6 tonnes per capita.

Source: Eurostat (online data codes: env_ac_mfa and demo_gind)

In monetary terms EU imports and exports of goods are more or less balanced. From a physical perspective however — measured as the actual weight of traded goods — the EU's trade pattern with the rest of the world is quite different.

At 3.2 tonnes per capita on average per year, physical imports of goods are about three times the size of exports, which account for 1.0 tonne per capita on average per year from 2000 to 2015.

Between 2000 and 2008, both [physical imports](#) and [exports](#) increased by 23.2% and 33.4%, respectively. However, the economic crisis had different effects on trade: in the period 2008–15, imports decreased to the 2003 level, while

exports continued strongly increasing, except for a short decrease between 2008 and 2009.

Most EU Member States import more than they export (i.e. net importers); excluding Luxembourg, outlier with a balance of 19.2 tonnes per capita, there are three EU Member States with high net imports, between 4.4 and 9.5 tonnes per capita: Ireland, Belgium and Malta. Main net exporting countries are Estonia (wood, fossil energy materials), Latvia (wood) and Sweden (metal ores).

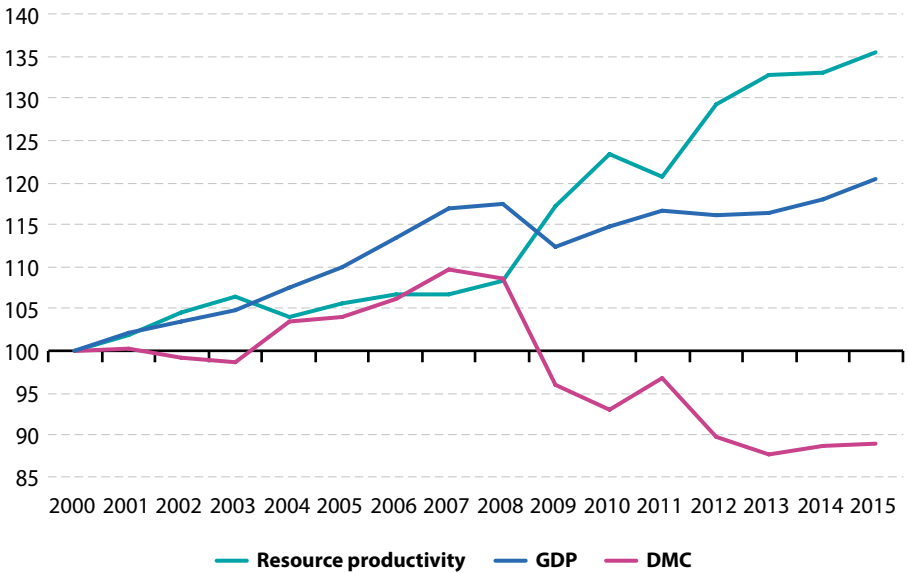
Data on physical imports and exports of goods are available in a breakdown by stage of manufacturing: finished products, semi-finished



products and raw products. The EU's exports of finished products (0.5 tonnes per capita) are about 16% higher than its imports (0.4 tonnes per capita). Exports of semi-finished products are at the same level than their imports (0.5 tonnes per capita). And, as regards raw products, a factor 9 difference can be observed between

imports and exports in 2015. Physical trade data show a certain dependency on the rest of the world for raw materials driven by the aptitude of EU economy to transform low-value raw products into high-value finished and semi-finished products.

Figure 4.2.3: Resource productivity in comparison to GDP (1) and DMC, EU-28, 2000–15
(2000 = 100)



(1) GDP in chain-linked volumes, reference year 2010.

Source: Eurostat (online data codes: [nama_10_gdp](#) and [env_ac_mfa](#))

Table 4.2.3: Resource productivity, GDP ⁽¹⁾ and DMC, 2015

	GDP _{PPS} per capita	DMC per capita	Resource productivity (GDP _{PPS} /DMC)	
	(PPS per capita)	(tonnes per capita)	(PPS per kilogram)	(Index EU-28 = 100)
EU-28	28 743	13.2	2.18	100.0
Belgium	33 634	13.9	2.42	111.1
Bulgaria	13 345	20.5	0.65	29.8
Czech Republic	24 977	15.6	1.60	73.3
Denmark	35 485	19.4	1.83	83.9
Germany	35 905	16.1	2.23	102.2
Estonia	21 368	27.0	0.79	36.2
Ireland	49 613	22.4	2.21	101.3
Greece	20 329	12.7	1.60	73.4
Spain	26 298	8.3	3.16	144.7
France	30 325	11.2	2.71	124.3
Croatia	16 740	9.5	1.77	81.1
Italy	27 388	8.4	3.27	149.9
Cyprus	23 253	11.1	2.09	95.8
Latvia	18 517	21.3	0.87	39.8
Lithuania	21 133	14.4	1.46	67.1
Luxembourg	77 686	23.7	3.27	150.1
Hungary	19 499	12.3	1.59	72.8
Malta	25 425	13.5	1.89	86.4
Netherlands	36 811	11.3	3.27	149.8
Austria	36 612	21.8	1.68	77.0
Poland	19 924	17.2	1.16	53.2
Portugal	22 243	15.1	1.48	67.7
Romania	16 325	23.3	0.70	32.1
Slovenia	23 721	13.3	1.78	81.6
Slovakia	22 008	13.5	1.64	74.9
Finland	31 244	30.5	1.02	46.9
Sweden	35 406	23.8	1.48	68.0
United Kingdom	31 617	9.0	3.52	161.2

(¹) GDP in current prices, Purchasing Power Standards (PPS).

Source: Eurostat (online data codes: [env_ac_mfa](#), [nama_10_gdp](#) and [demo_gind](#))



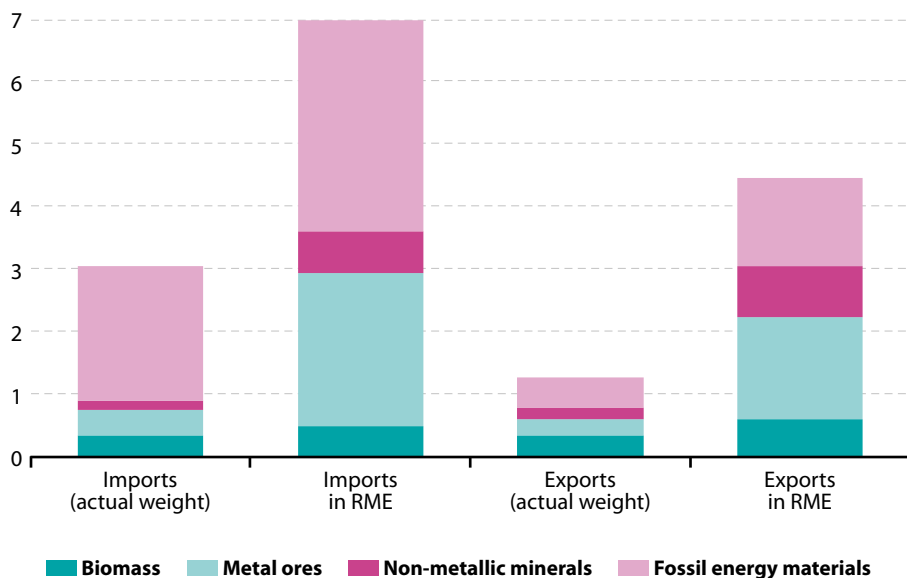
Resource productivity is measured as gross domestic product (GDP) over domestic material consumption. For the sake of comparison, two different versions of GDP are used. For comparisons over time, the GDP at market prices expressed as chain-linked volume (which eliminates the effect of inflation) is used. When comparing countries however, the GDP at market prices expressed in **purchasing power standards (PPS)** is used.

Resource productivity in the EU-28 economy increased by 35.4% between 2000 and 2015. Starting from the economic crisis (– 4.4% in GDP in 2008–09) the significant increase in resource

productivity (25.2%) in the period 2008–15 was caused mostly by a 18.2% fall of DMC in the same period. The crisis affected the material-intensive industries of manufacturing and construction more than the services industries. Material consumption therefore fell more than GDP, which recovers as of 2009.

Expressed in GDP in PPS over DMC, the resource productivity amounts to 2.18 PPS/kg for the aggregated EU-28 economy in 2015. The ratio varies considerably across EU Member States from 0.65 PPS/kg in Bulgaria to 3.52 PPS/kg in the United Kingdom.

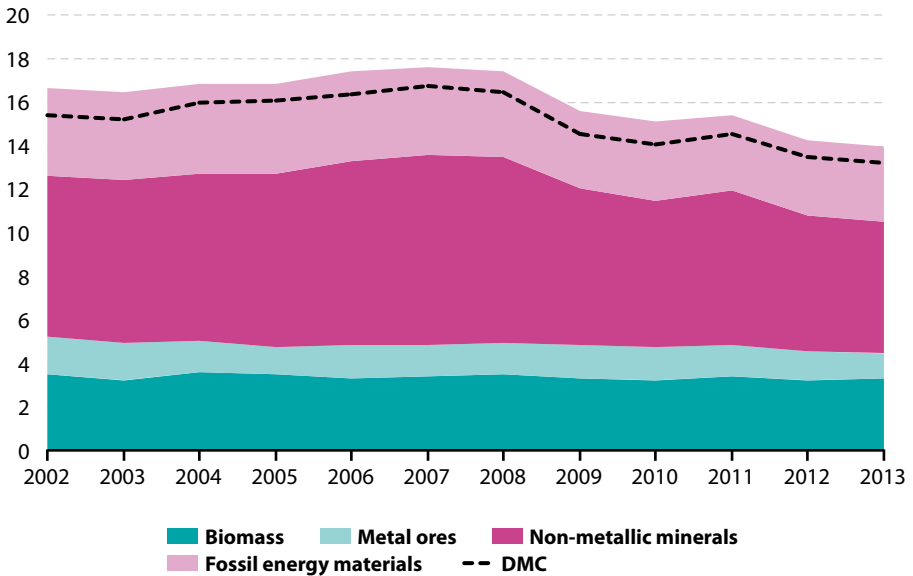
Figure 4.2.4: Comparison of the actual weight of traded goods with trade in raw material equivalents (RME), EU (¹), 2013
(tonnes per capita)



(¹) EU-27 for trade in RME, EU-28 for trade flows in actual weight.

Source: Eurostat (online data codes: [env_ac_rme](#), [env_ac_mfa](#) and [demo_gind](#))

Figure 4.2.5: Raw material consumption (RMC) by main material categories, EU (1), 2002–13
(tonnes per capita)



(1) EU-27 for trade in RME, EU-28 for physical trade.

Source: Eurostat (online data codes: [env_ac_mfa](#), [env_ac_rme](#) and [demo_gind](#))

A complementary picture on material consumption can be obtained when converting the traded goods into their raw material equivalents (RME), i.e. amounts of domestic raw material extractions required to provide the respective traded goods. Eurostat has developed a model to estimate the RME of imports and exports for the aggregated EU-27 economy.

Imports in RME and exports in RME are both substantially higher than the same flows measured in the actual weight of the traded

goods as they cross the border. In 2013, imports in RME for the EU are estimated at 7.0 tonnes per capita, 2.3 times higher than actual physical imports. At 4.5 tonnes per capita, exports in RME are 3.5 times higher than actual physical exports.

The physical trade balance (imports minus exports) in RME is 2.5 tonnes per capita whereas the actual physical trade balance itself is 1.8 tonnes per capita. As for imports and exports, the difference is mostly due to the material category of metal ores.



The adjustment of the trade flows from actual weight when crossing the border to RME also impacts the [material flow indicators](#). The main RME-based indicator is raw material consumption (RMC), which is also referred to as the EU's material footprint. RMC represents the total amount of extracted raw materials needed to produce the goods and services consumed by residents of the EU.

The development of the EU's RMC over time is captured by combining the four areas reflecting the different material categories. For comparison, the development of DMC is included in the graph as a dotted line. Both indicators show almost the same development. For 2013, the difference between RMC and DMC is 0.75 tonnes per capita. The minimum difference over the time period shown is 0.73, in 2005 and 2012, and the maximum difference is 1.22 tonnes per capita in 2002.

The RMC of non-metallic minerals is the major driver of the observed trend given that its development over time has the largest impact on the overall development. As the physical trade of non-metallic minerals is small and the

trade balance in RME is close to zero, the total amount of RMC of this material category is close to the domestic extraction. This means that the development of total RMC is mainly determined by domestic extraction of non-metallic minerals. Non-metallic minerals are mostly composed of construction minerals such as sand and gravel. Gross value added in construction increased by 14% in the EU-27 between 2000 and 2007. Domestic extraction of non-metallic minerals increased by 18% in the same period. Gross value added in construction decreased by 11% during the economic crisis (2010 compared to 2008) and by 3% in 2013. Domestic extraction of non-metallic minerals decreased by 22% (2010 compared to 2007) and by 9% (2013 compared to 2010). It therefore seems that domestic extraction of non-metallic minerals tends to increase or decrease more than gross value added in construction. It also suggests that gross value added in construction is not only the main factor affecting the development of domestic extraction of construction minerals, but that it also drives the development of RMC.

4.3 Waste

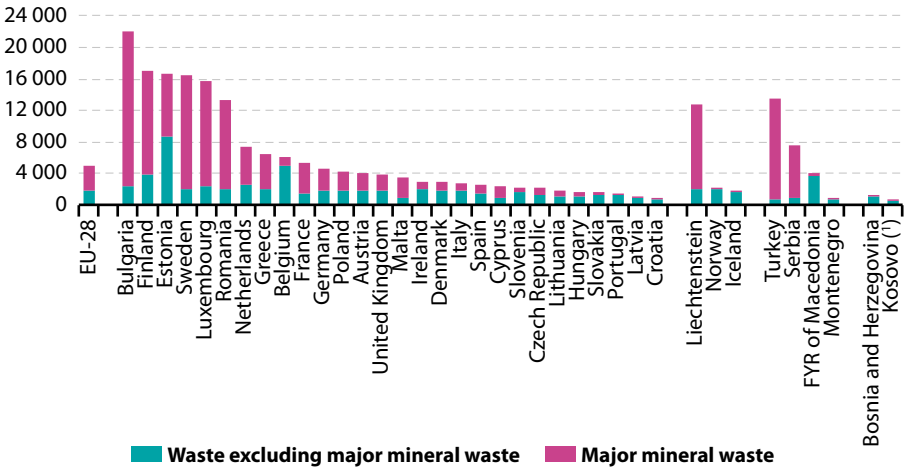
Table 4.3.1: Hazardous waste generation, 2010 and 2012

	Total waste generation		Hazardous waste		Hazardous waste share of total waste generation (%)
	(1 000 tonnes)				
	2010	2012	2010	2012	2012
EU-28	2 460 330	2 514 220	97 490	99 850	4.0
Belgium	62 537	67 630	4 479	4 258	6.3
Bulgaria	167 396	161 252	13 553	13 407	8.3
Czech Republic	23 758	23 171	1 363	1 481	6.4
Denmark	16 218	16 332	1 225	1 193	7.3
Germany	363 545	368 022	19 931	21 984	6.0
Estonia	19 000	21 992	8 962	9 159	41.6
Ireland	19 808	13 421	1 972	1 385	10.3
Greece	70 433	72 328	292	297	0.4
Spain	137 519	118 562	2 991	3 114	2.6
France	355 081	344 732	11 538	11 303	3.3
Croatia	3 158	3 379	73	123	3.6
Italy	158 628	162 765	8 543	9 474	5.8
Cyprus	2 373	2 086	37	31	1.5
Latvia	1 498	2 310	68	95	4.1
Lithuania	5 578	5 679	105	137	2.4
Luxembourg	10 441	8 397	380	315	3.8
Hungary	16 735	16 310	541	700	4.3
Malta	1 353	1 452	25	29	2.0
Netherlands	120 384	123 613	4 485	4 860	3.9
Austria	34 883	34 047	1 473	1 066	3.1
Poland	159 458	163 378	1 492	1 737	1.1
Portugal	17 313	14 184	667	545	3.8
Romania	219 310	266 976	666	671	0.3
Slovenia	5 986	4 547	117	133	2.9
Slovakia	9 384	8 425	415	370	4.4
Finland	104 337	91 824	2 559	1 654	1.8
Sweden	117 645	156 307	2 528	2 697	1.7
United Kingdom	236 568	241 101	7 004	7 631	3.2
Iceland	511	529	8	16	3.1
Liechtenstein	312	467	8	4	0.8
Norway	9 433	10 721	1 763	1 357	12.7
Montenegro	:	386	:	3	0.7
FYR of Macedonia	2 328	8 472	150	679	8.0
Serbia	33 616	55 003	11 161	14 457	26.3
Turkey	783 423	1 013 226	3 226	3 988	0.4
Bosnia and Herzegovina	:	4 457	:	946	21.2

Source: Eurostat (online data code: env_wasgen)



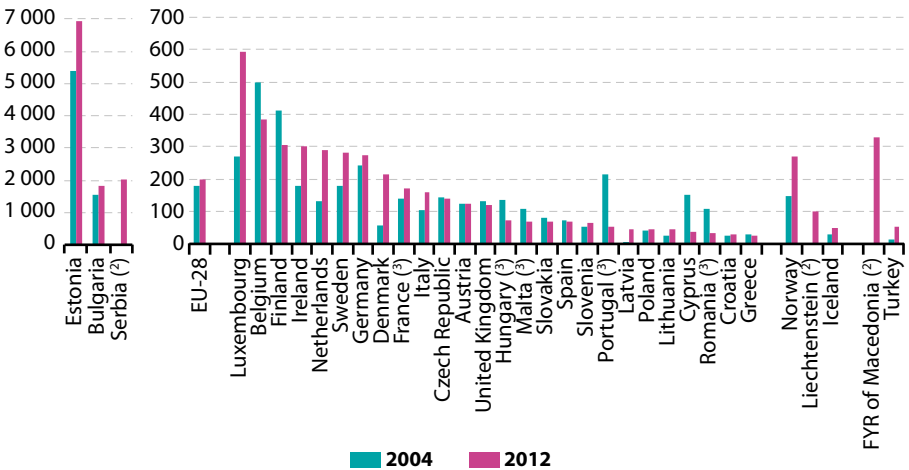
Figure 4.3.1: Waste generation, 2012
(kg per capita)



(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: env_wasgen)

Figure 4.3.2: Hazardous waste generation, 2004 and 2012 (1)
(kg per capita)



(1) Note that the two parts of the figure have different scales for the y-axis.

(2) 2004: not available.

(3) 2004: estimate.

Source: Eurostat (online data code: env_wasgen)

In 2012, the total waste generated in the EU-28 by all economic activities and households amounted to 2 514 million tonnes; this was slightly higher than in 2010 and 2008 (2 460 million tonnes and 2 427 million tonnes) but lower than in 2004 (2 565 million tonnes). The relatively low figures for 2008 and 2010 may, at least in part, reflect the downturn in economic activity as a result of the global financial and economic crisis. There were considerable variations across EU-28 Member States in 2012, both in the amount of waste generated and in the activities that mostly contributed to waste generation.

The total waste generated by economic activities and households in 2012 may also be expressed in relation to population size. The average amount of waste generated across the EU-28 in 2012 was equivalent to almost five tonnes (4 982 kg) per capita. However, big differences between EU Member States can be observed which are mainly due to differences in the generation of mineral waste.

A majority (63%) of the total waste generated in the EU-28 was mineral waste. The relative share of mineral waste in the total waste generated varied considerably between EU Member States, which may reflect, at least to some degree, different economic structures. In general, those Member States that had higher shares of mineral waste were those that were characterised as having sizeable mining and quarrying activities (such as Bulgaria, Finland, Sweden and Romania) and / or construction and demolition activities (such as Luxembourg). These two activities accounted for 3.0 tonnes out of a total of 3.2 tonnes per capita of mineral waste, equivalent to 93.5% of the total mineral waste generated across the EU-28 in 2012.

Among the waste generated in the EU-28 in 2012, some 99.9 million tonnes (4.0% of the total) were classified as hazardous waste. This was equivalent to an average of 198 kg of hazardous waste per capita in the EU-28.

Compared with 2010, 2.0% more non-hazardous waste was generated in 2012 in the EU-28 and 2.6% more hazardous waste, the latter increasing in quantity terms from 97.5 to 99.9 million tonnes. In 2012, the share of hazardous waste in total waste generation was below 10.0% in all of the EU Member States except for Estonia, where it made up a 41.6% share of the total, and for Ireland where its share was 10.3%. The very high share for Estonia was principally due to energy production from oil shale. Among the non-member countries, Serbia recorded the highest share of hazardous waste in total waste generation (26.3%) due to intensive activity in mining and quarrying, and was followed by Bosnia and Herzegovina (21.2%) and Norway (12.7%).

The generation of hazardous waste (harmful for health or the environment) in 2012 across EU Member States ranged from a low of 27 kg per capita in Greece to a high of 593 kg per capita in Luxembourg. For Luxembourg the amount is mainly due to construction activities.

Between 2004 and 2012, the EU-28 experienced a 10% increase in hazardous waste generation per capita. The large increases in some EU Member States (for example, Latvia and Denmark) were offset, to some extent, by reductions in 11 other EU Member States (for example, Cyprus, Portugal and Romania).

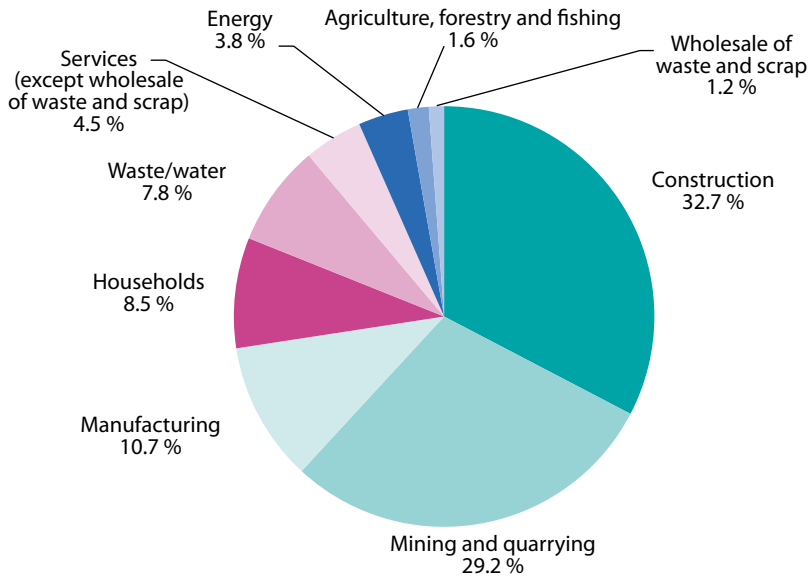


Table 4.3.2: Waste generation by economic activity and households, 2012
(1 000 tonnes)

	Total	Mining and quarrying	Manufacturing	Energy	Construction	Other economic activities	Households
EU-28	2 514 220	733 980	269 630	96 480	821 160	379 560	213 410
Belgium	67 630	115	17 736	1 314	24 570	18 891	5 004
Bulgaria	161 252	141 083	3 009	9 533	1 033	3 841	2 755
Czech Republic	23 171	167	4 376	1 063	8 593	5 739	3 233
Denmark	16 332	18	1 610	893	3 867	6 216	3 727
Germany	368 022	8 625	56 596	8 050	197 528	60 752	36 472
Estonia	21 992	9 355	4 121	6 258	657	1 165	436
Ireland	13 421	2 025	4 599	396	366	4 379	1 657
Greece	72 328	47 832	4 183	12 259	813	2 383	4 859
Spain	118 562	22 509	14 594	5 772	26 129	28 333	21 224
France	344 732	2 477	21 431	2 100	246 702	42 024	29 996
Croatia	3 379	5	425	108	682	968	1 191
Italy	162 765	720	34 142	3 616	52 966	41 708	29 613
Cyprus	2 086	218	98	2	965	353	451
Latvia	2 310	2	396	133	8	558	1 213
Lithuania	5 679	26	2 551	29	419	1 477	1 177
Luxembourg	8 397	131	509	2	7 079	426	249
Hungary	16 310	91	2 991	2 872	4 038	3 638	2 681
Malta	1 452	45	9	2	1 041	201	155
Netherlands	123 613	179	14 115	1 342	81 354	17 758	8 864
Austria	34 047	51	3 636	622	19 471	6 247	4 020
Poland	163 378	68 035	31 135	20 706	15 368	18 809	9 324
Portugal	14 184	243	3 188	422	928	4 672	4 731
Romania	266 976	223 293	6 029	9 043	1 325	22 638	4 647
Slovenia	4 547	14	1 345	1 069	535	941	641
Slovakia	8 425	311	2 516	1 046	806	2 090	1 657
Finland	91 824	52 880	14 531	1 011	16 034	5 635	1 734
Sweden	156 307	129 481	6 158	1 852	7 656	6 967	4 193
United Kingdom	241 101	24 044	13 596	4 965	100 230	70 759	27 506
Iceland	529	0	93	2	11	191	233
Liechtenstein	467	29	12	0	107	2	316
Norway	10 721	470	2 639	89	1 881	3 205	2 438
Montenegro	386	1	33	351	0	0	0
FYR of Macedonia	8 472	802	1 304	6	0	6 360	0
Serbia	55 003	47 896	760	5 744	364	238	0
Turkey	1 013 226	950 587	13 141	18 424	0	289	30 785
Bosnia and Herzegovina	4 457	72	1 213	3 171	0	0	0

Source: Eurostat (online data code: env_wasgen)

Figure 4.3.3: Waste generation by economic activity and households, EU-28, 2012
(%)



Source: Eurostat (online data code: [env_wasgen](#))

When looking at the share of each economic activity and of households in total waste generation in the EU-28 for 2012 we observe that construction contributed 33% of the total (with 821 million tonnes) and was followed by mining and quarrying (29% or 734 million tonnes),

manufacturing (11% or 270 million tonnes), households (8% or 213 million tonnes) and energy (4% or 96 million tonnes); the remaining 15% was waste generated from other economic activities.

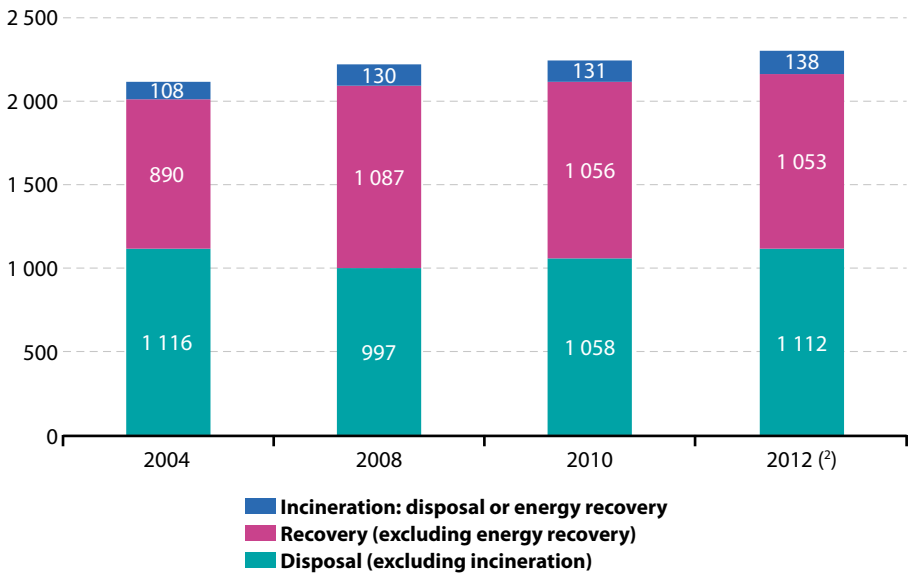


Table 4.3.3: Waste treatment, 2012
(1 000 tonnes)

	Total	Recycling	Energy recovery	Backfilling	Incineration	Landfill
EU-28	2 302 490	838 960	101 200	213 850	36 460	1 112 020
Belgium	41 328	30 237	4 612	0	3 331	3 148
Bulgaria	158 752	1 789	172	0	14	156 777
Czech Republic	18 263	8 420	959	5 137	76	3 670
Denmark	14 070	8 147	3 255	0	0	2 668
Germany	352 996	152 807	33 953	91 469	11 017	63 750
Estonia	20 610	7 903	349	4 196	0	8 162
Ireland	8 033	827	403	1 985	13	4 805
Greece	71 334	2 928	118	5 440	21	62 827
Spain	108 475	48 745	3 269	8 194	7	48 259
France	315 147	151 724	11 637	39 591	7 153	105 042
Croatia	2 999	994	39	42	0	1 923
Italy	130 460	98 809	2 593	160	5 814	23 084
Cyprus	2 077	409	2	232	7	1 429
Latvia	1 573	808	153	0	1	612
Lithuania	4 287	999	106	66	1	3 115
Luxembourg	10 302	4 691	36	1 934	134	3 507
Hungary	12 964	4 637	960	436	90	6 842
Malta	1 351	116	0	46	6	1 183
Netherlands	119 835	61 796	9 057	0	1 425	47 556
Austria	32 122	14 272	3 305	2 795	75	11 675
Poland	160 697	80 941	3 567	35 103	328	40 757
Portugal	10 188	4 598	1 735	0	70	3 785
Romania	264 647	18 849	1 708	1 037	182	242 871
Slovenia	5 068	2 965	326	1 102	36	639
Slovakia	7 052	2 651	270	0	71	4 059
Finland	90 478	31 700	10 317	0	445	48 015
Sweden	151 225	18 732	6 712	774	43	124 964
United Kingdom	186 163	77 467	1 585	14 114	6 102	86 895
Iceland	521	344	14	3	0	160
Norway	10 103	4 303	4 271	143	86	1 300
FYR of Macedonia	9 023	68	19	0	41	8 896
Serbia	55 023	793	49	0	0	54 180
Turkey	983 046	307 467	440	:	44	675 095

Source: Eurostat (online data code: [env_wastrt](#))

Figure 4.3.4: Development of waste treatment, EU-28, 2004–12⁽¹⁾
(million tonnes)



⁽¹⁾ 2006: data not available.

⁽²⁾ Estimates.

Source: Eurostat (online data code: [env_wastrt](#))

In 2012, some 2 302 million tonnes of waste were treated in the EU-28; this includes the treatment of waste imported into the EU. Looking at the types of waste treatment operation employed, almost half (48.3%) of the waste treated in the EU-28 in 2012 was subject to disposal operations other than waste incineration. This was predominantly deposits onto or into land (for example, landfills) but also included land treatment and waste discharges into water bodies. A further 45.7% of the waste treated in the EU-28 in 2012 was sent to **recovery** operations (other than energy recovery), which comprises **recycling** (36.4%) and backfilling (9.3%) operations. Backfilling is the use of waste in excavated areas for the purpose of

slope reclamation or safety or for engineering purposes in landscaping. The remaining 6.0% of the waste treated in the EU-28 was sent for incineration: 4.4% with energy recovery and 1.6% without. Significant differences could be observed among the EU Member States concerning the use they made of the various treatment methods. For instance, some EU Member States had very high recovery (other than energy recovery) rates (for example, Slovenia, Italy, Belgium, Poland and Germany), while others favoured waste disposal (for example, Bulgaria, Romania, Greece and Malta).

Waste disposal accounted for almost half (47.8%) of the hazardous waste that was treated in the

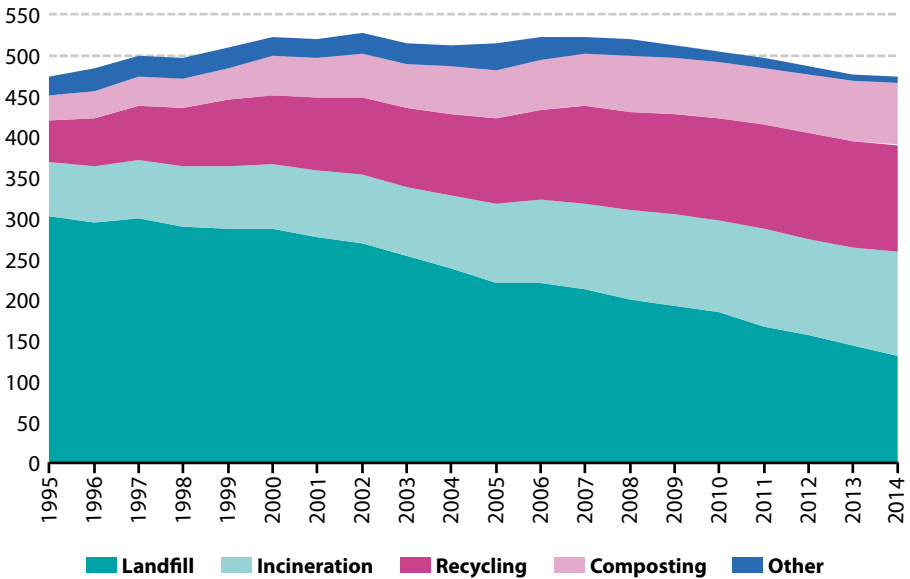


EU-28 in 2012. Some 10.5 million tonnes (or 13.9%) of all hazardous waste was **incinerated** or used for energy recovery, and 28.8 million tonnes (or 38.3%) was recovered.

The quantity of waste treated by disposal in 2012 was slightly (0.4%) lower than it had been in 2004. The quantity of waste recovered (excluding energy recovery) grew from 890 million

tonnes in 2004 to 1 053 million tonnes in 2012, an increase of 18.3%. As a result, the share of recovery in total waste treatment rose from 42.1% in 2004 to 45.7% by 2012. Waste incineration (including energy recovery) saw an overall increase between 2004 and 2012 of 27.4%.

Figure 4.3.5: Municipal waste treatment, EU-27, 1995–2014
(kg per capita)



Source: Eurostat (online data code: env_wasmun)

Table 4.3.4: Municipal waste generated, 1995–2014
(kg per capita)

	1995	2000	2004	2008	2011	2014	Change 1995–2014 (%)
EU–28	:	521	511	520	496	475	:
EU–27	473	523	513	521	497	475	0
Belgium	455	471	485	479	456	435	–4
Bulgaria	694	612	599	599	508	442	–36
Czech Republic	302	335	279	306	320	310	3
Denmark	521	610	620	741	781	759	46
Germany	623	642	587	589	614	618	–1
Estonia	371	453	445	392	301	357	–4
Ireland	512	599	737	718	617	586	14
Greece	:	412	436	458	503	510	:
Spain	510	658	600	551	485	435	–15
France	475	514	519	541	538	511	8
Croatia	:	262	304	415	384	387	:
Italy	454	509	540	552	529	488	7
Cyprus	595	628	684	728	683	626	5
Latvia	264	271	318	345	350	281	6
Lithuania	426	365	373	428	442	433	2
Luxembourg	587	654	679	697	666	616	5
Hungary	460	446	454	454	382	385	–16
Malta	395	546	623	674	589	600	52
Netherlands	539	598	599	600	568	527	–2
Austria	437	580	574	600	573	565	29
Poland	285	320	256	320	319	272	–5
Portugal	352	457	445	518	490	453	29
Romania	342	355	349	411	259	272	–20
Slovenia	596	513	485	542	415	432	–28
Slovakia	295	254	261	313	311	321	9
Finland	413	502	469	521	505	482	17
Sweden	386	428	460	483	449	438	13
United Kingdom	498	577	602	541	491	482	–3
Iceland	426	462	503	495	320	345	–19
Norway	624	613	414	487	485	423	–32
Switzerland	600	656	660	736	689	730	22
Montenegro	:	:	:	:	:	508	:
FYR of Macedonia	:	:	:	:	357	370	:
Serbia	:	:	:	347	375	302	:
Turkey	441	465	440	400	416	405	–8
Bosnia and Herzegovina	:	:	:	:	340	349	:

Source: Eurostat (online data code: env_wasmun)



For 2014, **municipal waste** generation totals vary considerably, ranging from 759 kg per capita in Denmark to 272 kg per capita in Poland and Romania. The variations reflect differences in consumption patterns and economic wealth, but also depend on how municipal waste is collected and managed. There are differences between countries regarding the degree to which waste from commerce, trade and administration is collected and managed together with waste from households.

Even though more waste is being generated in the EU-27, the total amount of municipal waste **landfilled** has diminished. In the reference period, the total municipal waste landfilled in the EU-27 fell by 78 million tonnes, or 54 %, from 144 million tonnes (302 kg per capita) in 1995 to 66 million tonnes (131 kg per capita) in 2014. This corresponds to an average annual decline of 4.0 %. Since 2004, landfilling has fallen by as much as 5.6 % per year on average.

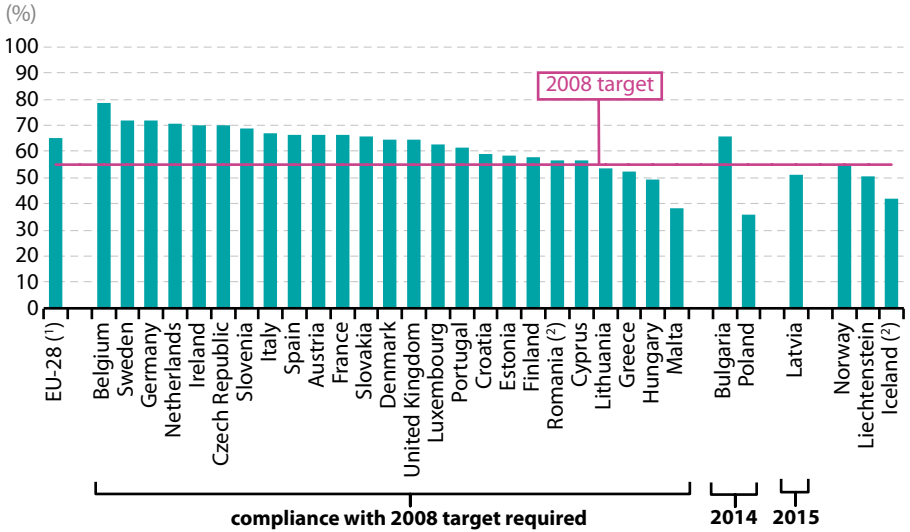
As a result, the landfilling rate compared with municipal waste generation, dropped from 63.8 % in 1995 to 27.5 % in 2014 in the EU-27.

The amount of waste **recycled** rose from 25.0 million tonnes (52 kg per capita) in 1995 to 66 million tonnes (132 kg per capita) in 2014 at an average annual rate of 5.2 %. The share of municipal waste recycled overall rose from 11 % to 28 %.

The recovery of organic material by composting has grown with an average annual rate of 5.3 % from 1995 to 2014. Recycling and composting together accounted for 44 % in 2014, relative to waste generation.

Waste incineration has also grown steadily in the reference period, though not as much as recycling and composting. Since 1995, the amount of municipal waste incinerated in the EU-27 has risen by 32 million tonnes or 100 % and accounted for 64 million tonnes in 2014. Municipal waste incinerated has thus risen from 67 kg per capita to 128 kg per capita.

Figure 4.3.6: Recycling rate for all packaging, 2013

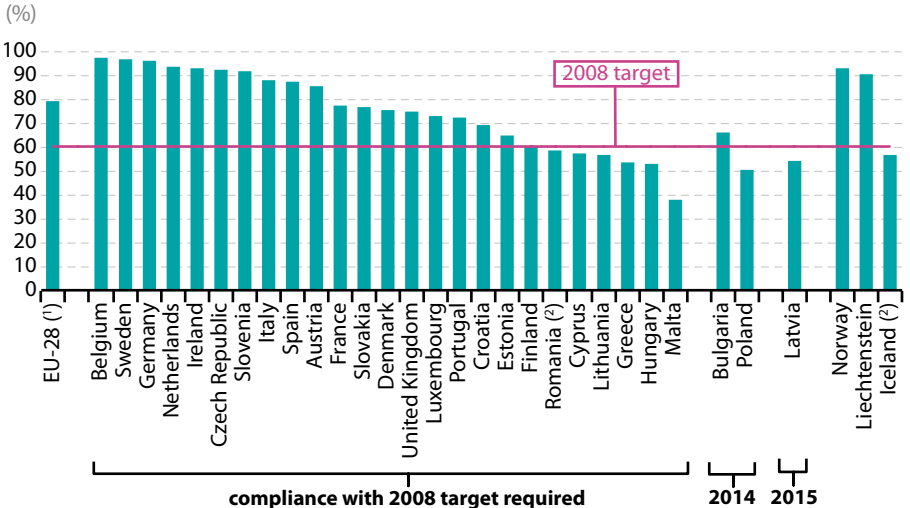


(1) Estimate.

(2) 2012 data.

Source: Eurostat (online data code: env_waspac)

Figure 4.3.7: Recovery rate for all packaging, 2013



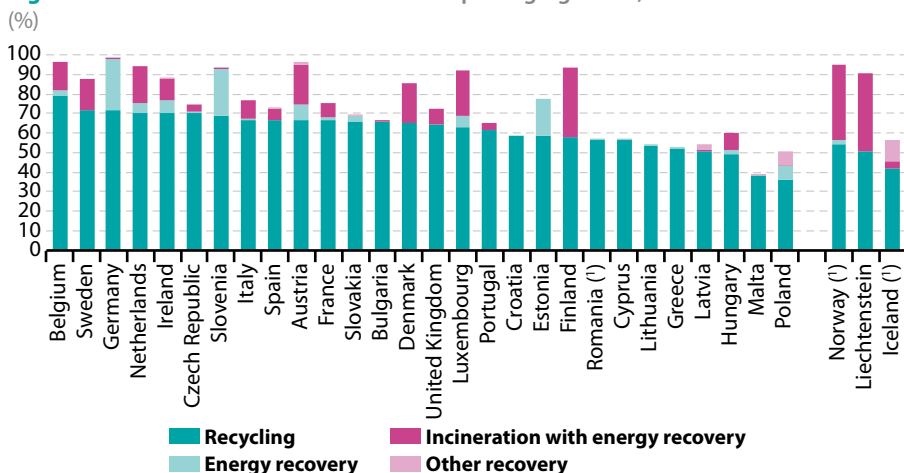
(1) Estimate.

(2) 2012 data.

Source: Eurostat (online data code: env_waspac)



Figure 4.3.8: Share of treatment for overall packaging waste, 2013

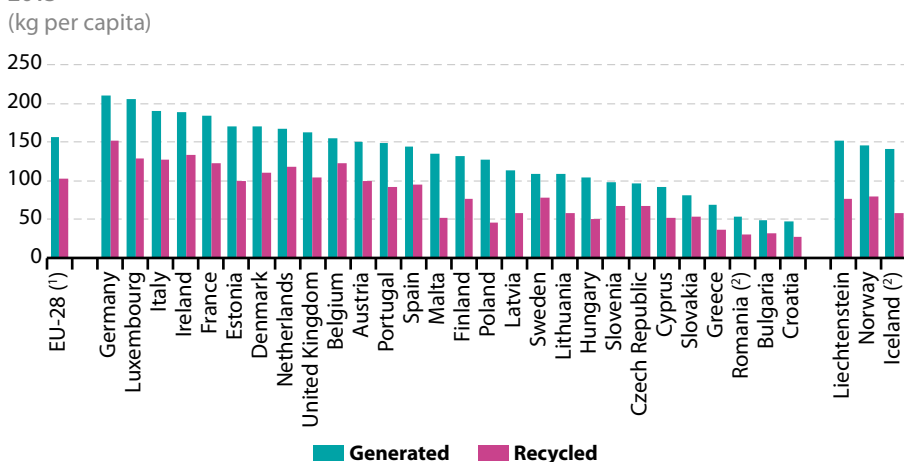


Note: ranked on 'Recycling'.

(1) Romania and Iceland: 2012 data; Norway: 2012 data for 'Incineration'.

Source: Eurostat (online data code: env_waspac)

Figure 4.3.9: Volume of overall packaging waste generated and recycled per capita, 2013



Note: ranked on 'Waste generated'.

(1) Estimate.

(2) 2012 data.

Source: Eurostat (online data code: env_waspac)

In 2013, Germany held the EU-28's highest recovery rate (97.7%) and Belgium the highest recycling rate (78.7%).

The [Packaging Waste Directive \(94/62/EC\)](#) sets out the targets of a minimum of 60% for a recovery rate (including waste incineration) and 55% for a recycling rate. These are also referred to as 2008 targets, however, not all EU Member States received the same deadline to attain them.

Looking at the recycling rates of packaging waste in 2013, as well as the targets each group of EU Member States were to meet in 2013, we can observe that Lithuania, Greece, Hungary and Malta did not reach the 55.0% target, while Bulgaria already had recycling rates above the 2008 target.

Similarly, comparing the recovery rates of packaging waste in 2013 for each EU Member State with the target which needs to be met, we find out that the recovery rates in Croatia, Romania, Cyprus, Lithuania, Greece and Malta were below the 2008 target of 60.0% which should have been reached. Bulgaria, whose targets were set in the future, already had met the 2008 target and showed rates above 60%.

Recycling was the major form of recovery in all EU Member States, while other forms of

recovery had a minor share in total treatment for overall packaging waste. In some EU Member States 'Energy recovery' and 'Incineration with energy recovery' contributed significantly to the overall recovery rate. Especially EU Member States which utilise 'Incineration with energy recovery' as a standard method of waste disposal achieved a significantly higher recovery rate. This was typically the case of Nordic countries but also Belgium, the Netherlands, Ireland, Austria and Luxembourg. These EU Member States all presented incineration values with energy recovery rates at over 10%.

In 2013, the Member States that joined the EU before 2004 generally showed the highest amount of packaging waste generated except Greece. Of these EU Member States, Austria, Portugal, Spain, Finland and Sweden showed a significantly lower amount of packaging waste generated (all under 150 kg/capita). Romania, Bulgaria and Croatia (53 kg, 48 kg and 47 kg/capita, respectively) exhibited the lowest amount of all EU Member States. Estonia had the highest figure (170 kg/capita) for packaging waste generation among the Member States that joined the EU after 2004.



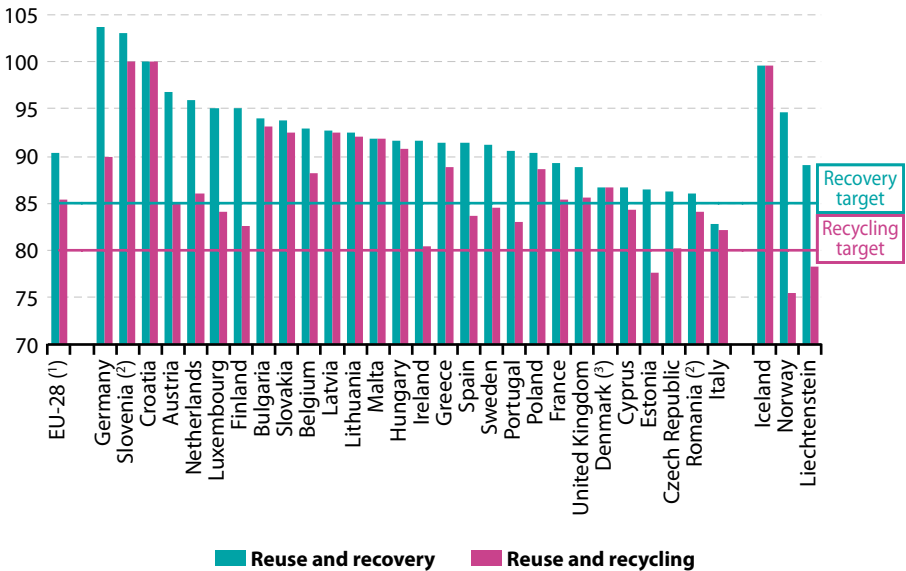
Table 4.3.5: Total number of end-of-life vehicles, 2007–13
(number of cars)

	2007	2008	2009	2010	2011	2012	2013
EU-28	:	:	:	:	:	6 290 000	6 250 000
EU-27	6 500 000	6 270 000	9 000 000	7 350 000	6 750 000	6 250 000	6 220 000
Belgium	127 949	141 521	140 993	170 562	165 016	160 615	134 506
Bulgaria	23 433	38 600	55 330	69 287	62 937	57 532	61 673
Czech Republic	72 941	147 259	155 425	145 447	132 452	125 587	121 838
Denmark	99 391	101 042	96 830	100 480	93 487	106 504	125 650
Germany	456 436	417 534	1 778 593	500 193	466 160	476 601	500 322
Estonia	12 664	13 843	7 528	7 268	11 413	12 835	14 712
Ireland	112 243	127 612	152 455	158 237	134 960	102 073	92 467
Greece	47 414	55 201	115 670	95 162	112 454	84 456	86 205
Spain	881 164	748 071	952 367	839 637	671 927	687 824	734 776
France	946 497	1 109 876	1 570 593	1 583 283	1 515 432	1 209 477	1 115 280
Croatia	:	:	:	:	:	35 213	32 135
Italy	1 692 136	1 203 184	1 610 137	1 246 546	952 461	902 611	876 052
Cyprus	2 136	14 273	17 303	13 219	17 145	17 547	13 212
Latvia	11 882	10 968	10 590	10 640	9 387	10 228	9 003
Lithuania	15 906	19 534	19 656	23 351	26 619	22 885	26 482
Luxembourg	3 536	2 865	6 908	6 303	2 341	2 834	2 290
Hungary	43 433	37 196	26 020	15 907	13 043	15 357	14 897
Malta	:	:	:	330	2 526	2 530	1 198
Netherlands	166 004	152 175	191 980	232 448	195 052	187 143	183 451
Austria	62 042	63 975	87 364	82 144	80 004	64 809	73 993
Poland	171 258	189 871	210 218	259 576	295 152	344 809	402 416
Portugal	90 509	107 746	107 946	107 419	77 929	92 008	92 112
Romania	36 363	51 577	55 875	190 790	128 839	57 950	:
Slovenia	8 409	6 780	7 043	6 807	6 598	5 447	:
Slovakia	28 487	39 769	67 795	35 174	39 717	33 469	36 858
Finland	15 792	103 000	96 270	119 000	136 000	119 000	99 300
Sweden	228 646	150 197	133 589	170 658	184 105	185 616	189 748
United Kingdom	1 138 496	1 210 294	1 327 517	1 157 438	1 220 873	1 163 123	1 149 459
Iceland	:	9 386	5 109	4 195	4 075	5 824	4 463
Liechtenstein	82	91	72	107	94	114	326
Norway	95 128	130 018	95 000	112 537	124 563	119 905	141 452

Source: Eurostat (online data code: env_waselvt)

Figure 4.3.10: Recovery and recycling rate for end-of-life vehicles, 2013

(%)



Note: ranked on 'Reuse and recovery'.

(1) Eurostat estimates.

(2) 2012 data.

(3) Estimates.

Source: Eurostat (online data code: [env_waselvt](#))

The total number of end-of-life vehicles reported in the EU-27 rose sharply, from 6.3 million in 2008 to 9.0 million in 2009. Germany was the primary contributor to this rise with an increase of 1.4 million vehicles, while other major contributors included France with 0.46 million more vehicles, Italy with 0.41 million more and Spain with 0.20 million more. From 2009 to 2013 the number of reported end-of-life vehicles fell by 31%, to 6.2 million vehicles. This reduction was mostly due to the decrease in the number of vehicles in Germany (1.3 million), Italy (0.7 million), France (0.5 million), Spain and

the United Kingdom (both 0.2 million). In 2013, the end-of-life vehicles in these five EU Member States made up 70% of the EU-28 total.

No later than 2006, EU Member States were required to meet rates for reuse and recycling of $\geq 80\%$ and for reuse and recovery of $\geq 85\%$. All reporting EU Member States, except Estonia, were in compliance with the recycling targets. Italy was the only EU Member State that did not comply with the recovery and reuse target in 2013 having achieved a share of 82.2%. In 2009 several temporary national scrapping schemes



were established causing visible effects on the reported data. For instance in Germany, the new scheme had a knock-on effect on stock numbers. The total amount of end-of-life vehicles is correctly reported to have been very high in 2009. Due to capacity limitations not all vehicles were treated in the same year, resulting in a decline in the recycling / recovery rate during 2009. From 2010 to 2013 most of the remaining stocks from the previous years were treated resulting in high calculated recycling / recovery rates (over 100%). However, this was reportedly only due to these stock effects.

Waste electrical and electronic equipment (WEEE) is one of the fastest growing waste streams in the EU. WEEE contains substances that pose environmental and health risks if treated inadequately, while their recycling offers opportunities of making secondary raw materials available on the market. EU legislation promoting

the collection and recycling of such equipment had been in force since February 2003 and provides for the return of used waste equipment free of charge by consumers. WEEE data are grouped in 10 product categories.

In 2013, the tonnes of WEEE collected by EU Member States ranged between 1 704 in Malta and 727 998 in Germany. Large household appliances accounted for 1.6 million tonnes or 46.0% of the total WEEE collected in the EU-28. IT and telecommunications equipment came second and consumer equipment was the third most important category in terms of quantity, with 575 000 tonnes and 553 000 tonnes respectively. Small household appliances contributed 254 000 tonnes to WEEE collection. The remaining seven categories together totalled 201 000 tonnes or 5.7% of the collected WEEE.

Table 4.3.6: Waste electrical and electronic equipment (WEEE) collected, by EEE category, 2013
(tonnes)

	Total waste	Large household appliances	Small household appliances ⁽¹⁾	IT and telecommunications equipment ⁽¹⁾	Consumer equipment ⁽¹⁾	Other ⁽¹⁾
EU-28	3 513 906	1 616 200	254 406	575 260	553 421	200 603
Belgium	120 365	52 112	15 576	18 482	24 961	9 234
Bulgaria	35 162	26 341	1 677	2 851	2 224	2 069
Czech Republic	54 215	25 925	4 112	8 753	12 308	3 116
Denmark	72 080	32 342	5 053	12 797	19 250	2 638
Germany	727 998	274 093	91 677	157 357	147 818	57 053
Estonia	4 658	1 584	321	1 138	1 397	218
Ireland	42 629	19 463	1 883	7 197	8 954	5 132
Greece	38 268	21 722	2 961	4 641	7 305	1 639
Spain	209 505	127 972	9 636	23 510	37 486	10 901
France	479 694	264 468	29 682	64 151	98 673	22 720
Croatia	15 025	6 228	267	2 650	5 187	693
Italy ⁽²⁾	437 090	123 070	:	:	:	:
Cyprus	2 283	1 124	279	477	326	77
Latvia	4 827	2 364	448	466	504	1 046
Lithuania	16 154	8 119	1 318	3 317	1 461	1 939
Luxembourg	5 176	2 364	466	754	1 239	354
Hungary	49 778	26 004	5 691	9 606	6 635	1 843
Malta	1 704	1 005	27	419	230	23
Netherlands	117 499	58 517	7 362	14 437	27 547	9 636
Austria	76 835	31 400	7 679	17 503	15 223	5 031
Poland	171 728	76 518	16 614	30 781	27 736	20 080
Portugal	50 051	30 851	5 938	7 151	4 868	1 242
Romania ⁽³⁾	23 083	11 399	864	4 976	3 514	2 331
Slovenia	8 539	4 124	515	1 497	1 775	628
Slovakia	22 584	11 299	2 000	3 629	2 665	2 990
Finland	57 919	28 862	3 453	8 230	14 329	3 046
Sweden	176 567	84 744	5 484	30 895	46 371	9 073
United Kingdom	492 490	262 186	33 423	137 595	33 435	25 851
Iceland	2 469	1 321	186	616	254	92
Liechtenstein	290	71	76	78	64	1
Norway	104 927	45 400	5 435	14 153	16 453	23 486

⁽¹⁾ EU-28 estimate excluding Italy.

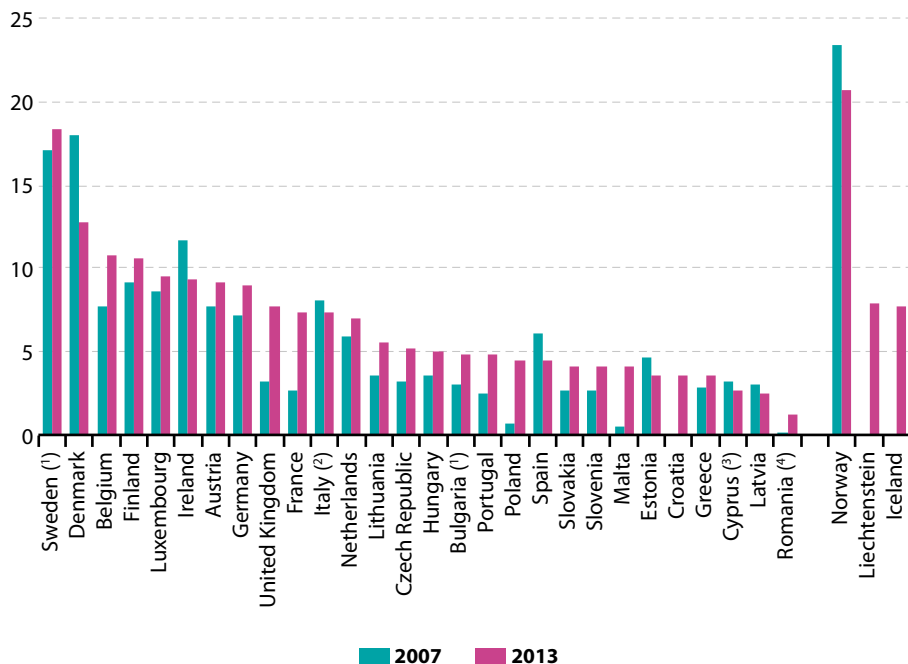
⁽²⁾ Total waste: definition differs, see metadata.

⁽³⁾ 2012 data.

Source: Eurostat (online data code: [env_waselee](#))



Figure 4.3.11: Waste electrical and electronic equipment (WEEE) collected, 2007 and 2013
(kg per capita)



(1) 2007: Eurostat estimate.

(2) 2013: definition differs, see metadata.

(3) 2013: estimate.

(4) 2013: 2012 data instead.

Source: Eurostat (online data code: [env_waselee](#))

In 2013, the amount of WEEE collected varied considerably across EU Member States, from 1.2 kg/capita in Romania to 18.4 kg/capita in Sweden. Norway presented 20.7 kg/capita. The considerable variation in the amounts collected reflects differences in EEE consumption levels as well as the different performance levels of the waste collection schemes in place. A comparison

of WEEE collection in 2007 and 2013 shows that separate collection has improved significantly in most EU Member States. Decreasing amounts for WEEE collection were reported by only seven EU Member States including Denmark and Ireland where the level of separate collection was already high in 2007.

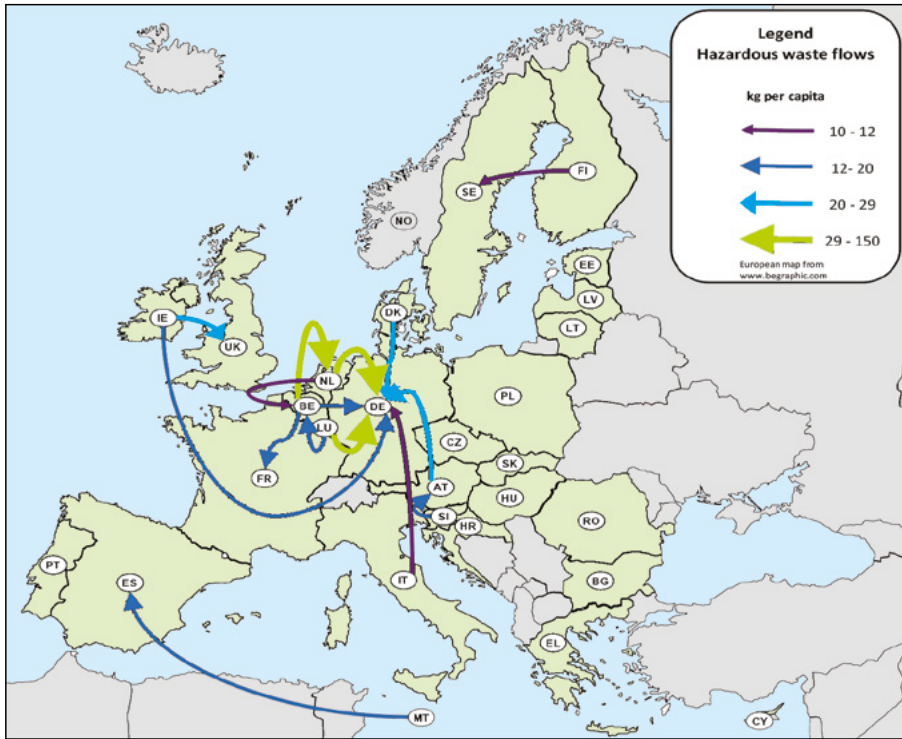
Table 4.3.7: Shipment of hazardous waste, 2001–13
(1 000 tonnes)

	2001	2003	2005	2007	2008	2009	2010	2011	2012	2013
EU-28	3 164.3	4 444.5	6 488.8	8 046.9	7 966.8	7 427.9	6 255.6	6 125.1	5 231.6	5 874.6
Belgium	721.2	792.5	829.0	1 026.2	861.2	672.6	688.8	836.2	631.1	679.8
Bulgaria	:	:	:	0.3	0.9	0.4	9.4	5.0	6.0	3.0
Czech Republic	1.9	1.1	1.5	3.5	5.9	7.3	15.2	11.4	18.1	31.2
Denmark	177.2	136.1	85.6	117.0	166.5	176.1	102.0	64.3	154.8	193.9
Germany	270.0	186.3	229.5	249.3	248.7	163.7	308.9	317.0	334.3	495.6
Estonia	3.2	1.3	0.3	2.7	0.7	4.7	0.9	1.6	3.4	9.5
Ireland	282.0	388.6	257.2	322.5	575.6	190.9	199.5	211.1	193.4	245.9
Greece	0.8	3.2	3.2	8.5	25.5	23.1	39.0	44.1	21.9	22.2
Spain	61.2	48.9	44.1	60.2	52.1	53.9	51.7	104.4	59.0	74.2
France	149.2	709.6	400.4	863.4	759.9	971.7	1 400.4	1 223.3	985.3	851.8
Croatia	:	:	:	:	:	:	:	:	21.0	19.3
Italy	182.6	243.5	671.9	1 243.4	1 237.4	1 404.9	1 458.7	1 353.8	976.8	851.7
Cyprus	2.5	2.4	2.8	4.1	2.1	2.3	4.7	7.9	5.4	3.8
Latvia	16.6	16.2	0.8	7.2	2.3	10.9	17.4	14.4	11.9	13.9
Lithuania	:	84.4	2.3	4.1	6.5	17.3	17.8	23.9	21.4	23.5
Luxembourg	89.1	85.8	45.8	72.7	44.3	114.1	88.7	80.7	88.7	92.4
Hungary	18.3	31.5	76.0	72.2	76.6	69.3	48.9	29.4	19.1	25.7
Malta	4.5	:	1.3	1.8	2.0	1.9	17.8	16.7	14.3	10.2
Netherlands	808.1	1 177.3	3 221.1	3 120.6	3 030.9	2 743.4	738.1	813.0	788.5	777.4
Austria	106.2	150.3	191.1	284.9	199.2	172.9	278.7	284.7	270.0	319.6
Poland	17.9	37.0	10.0	66.4	13.0	25.6	20.3	13.7	13.7	13.5
Portugal	63.3	92.3	107.7	7.5	6.4	61.4	54.3	62.5	17.4	69.9
Romania	:	:	:	37.2	2.4	23.4	3.9	2.1	7.0	14.4
Slovenia	7.9	14.7	22.0	69.7	102.6	57.6	35.1	45.4	46.6	46.6
Slovakia	0.3	2.2	2.6	2.2	3.4	3.0	4.3	4.4	5.0	7.1
Finland	39.0	59.9	68.5	74.2	113.5	107.0	119.6	92.1	94.8	106.5
Sweden	105.3	119.2	94.8	176.0	255.6	184.3	310.0	269.9	249.0	164.3
United Kingdom	35.9	60.3	119.5	149.3	171.6	164.4	221.7	192.1	173.9	707.6

Source: Eurostat, Environmental Data Centre on Waste



Map 4.3.1: Hazardous waste shipments between EU Member States (larger flows), 2013

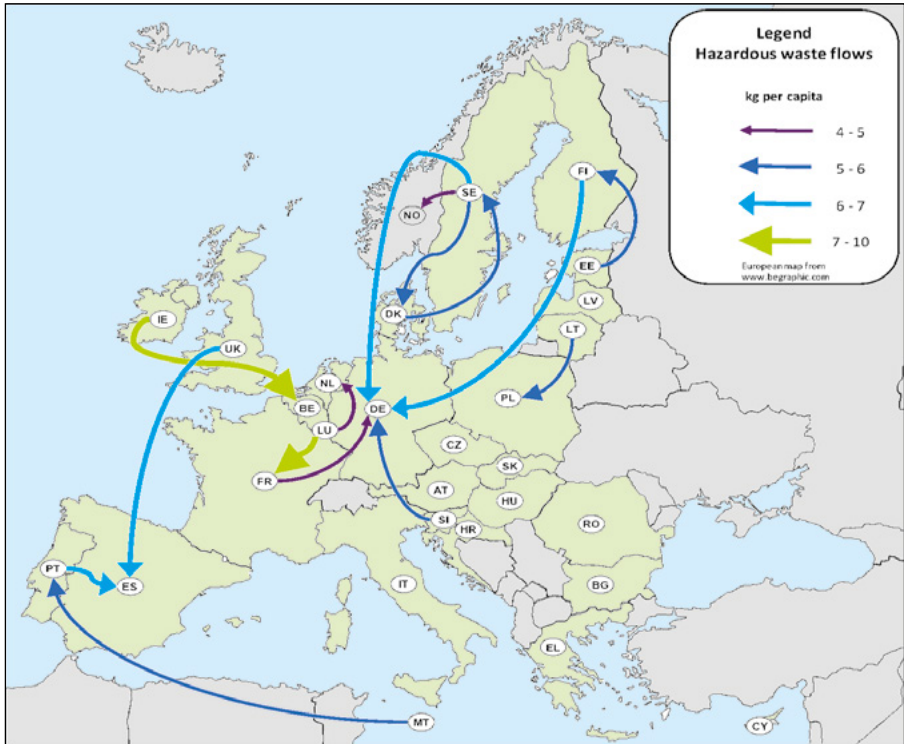


Source: Eurostat, Environmental Data Centre on Waste

Between 2001 and 2013, the amount of hazardous waste shipments from EU Member States to other EU Member States or out of the EU has increased by 86%, from 3 164 000 tonnes in 2001 to 5 875 000 tonnes in 2013, although shipments peaked in 2007 at 8 047 000 tonnes.

There has been an increase of 10% from 2012 to 2013, largely due to increased export from Germany and the United Kingdom. France and Italy showed the largest decrease of hazardous waste shipments.

Map 4.3.2: Hazardous waste shipments between EU Member States (smaller flows), 2013



Source: Eurostat, Environmental Data Centre on Waste

Two thirds of the countries have increased their shipments from 2001 to 2013. France, Germany, Italy, and the United Kingdom especially, have seen a large increase in waste exports: Germany and the United Kingdom mainly due to the increase from 2012 to 2013. The Netherlands had a large fall in exported hazardous waste from 2009 to 2013. This decrease can be partly explained by changes in the classification of the

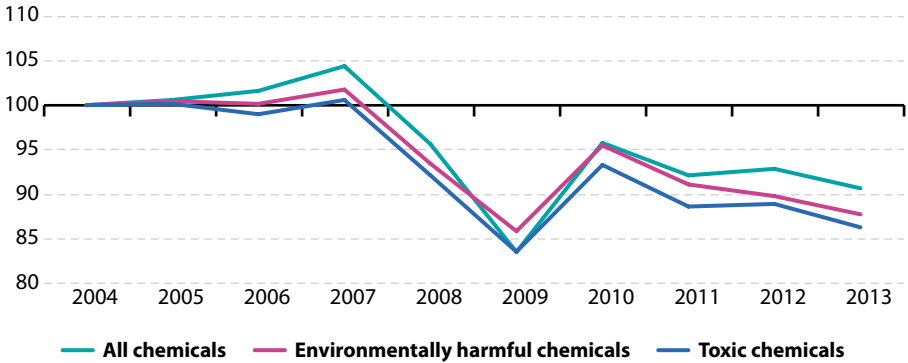
reported waste: some waste reported earlier as hazardous were in fact non-hazardous.

Almost all Member States ship hazardous waste to Germany and this is reflected by the large number of arrows into Germany on the maps. Belgium and France also receive waste from a number of countries.



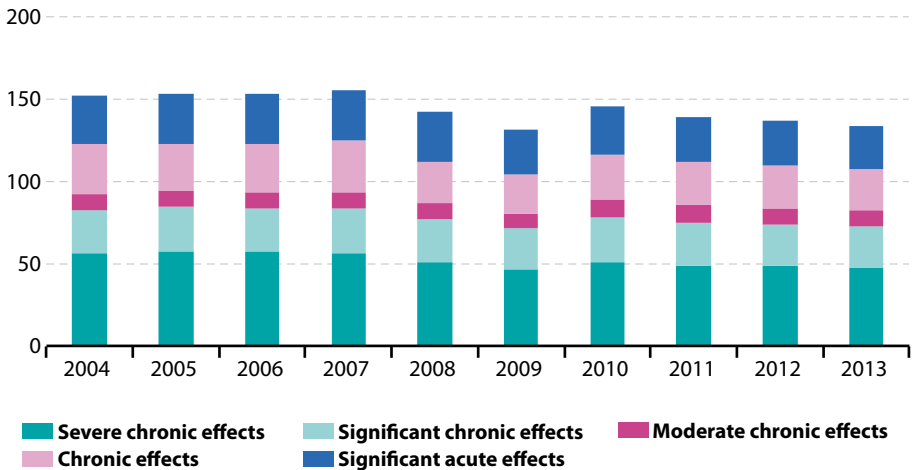
4.4 Chemicals

Figure 4.4.1: Production of chemicals, EU-28, 2004–13
(Index 2004 = 100)



Source: Eurostat (online data codes: tsdph320 and ten00011)

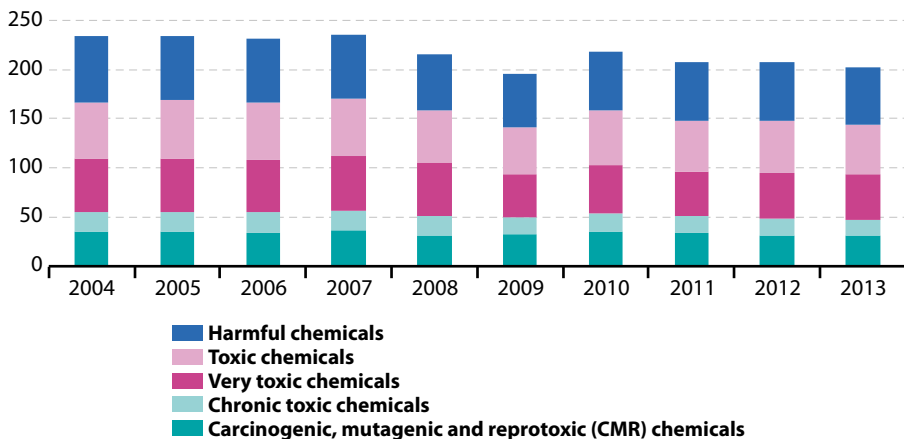
Figure 4.4.2: Production of chemicals harmful to the aquatic environment, EU-28, 2004–13 (¹)
(million tonnes)



(¹) The different classes of chemicals are ranked according to their environmental impact from the most harmful (bottom class) up to the least harmful (top class).

Source: Eurostat (online data code: ten00011)

Figure 4.4.3: Production of toxic chemicals, EU-28, 2004–13 (¹)
(million tonnes)



(¹) The different classes of chemicals are ranked according to their toxicity from the most dangerous (bottom class) up to the least dangerous (top class).

Source: Eurostat (online data code: tsdph320)

The EU-28's production of toxic chemicals (all five toxicity classes together) increased by 0.6% between 2004 and 2007 to reach a peak of 235 million tonnes. Production fell by 20 million tonnes in 2008 (or by 8.4%) and by the same amount in 2009 (or 9.3%) to a level of 196 million tonnes. The rebound in activity in 2010 (up 11.7%) made up for the losses recorded in 2009 but was followed by further reductions in 2011 (–5.0%) and 2013 (–3.0%). As a result of these developments, the EU-28's level of production of toxic chemicals in 2013 was 202 million tonnes, some 32 million tonnes less than in 2004.

The share of all toxic chemicals (all five classes) in total EU-28 chemicals production generally followed a gradual downward path over the 10 years. From a peak of 66.0% of total chemicals production in 2004, the share of all toxic chemicals fell to 63.5% in 2008. While there was a spike in the share of all toxic chemicals in 2009 (which may be attributed to a rapid decline in the overall production of chemicals during the financial and economic crisis, rather

than an increase in the production of all toxic chemicals), the share subsequently continued to fall, reaching 62.7% in 2013.

EU-28 production of the most toxic chemicals — **carcinogenic, mutagenic and reprotoxic (CMR) chemicals** — fluctuated between 34 and 36 million tonnes from 2004 to 2007. Production fell by 5.3 million tonnes (or 14.8%) between 2007 and 2008 to stand at 30.6 million tonnes. There was a recovery in the level of production of CMRs in 2009 and 2010, as the production of CMR chemicals rose to 34.7 million tonnes — back to a level of production that was similar to that recorded prior to the financial and economic crisis. From 2010, the level of production of CMR chemicals declined once more at a relatively steady rate to reach 30.7 million tonnes by 2013.

The relative share of CMR chemicals in total EU-28 chemical production fell from 9.9% in 2004 to 9.0% by 2008. After a jump to 10.9% in 2009 the relative share decreased to 9.5% by 2013.



4.5 Forestry and biodiversity

Table 4.5.1: Forest area and ownership, 2010 and 2015

	Land area 2010 without inland water (¹)	Forest and other wooded land 2015	Forest 2015	Forest available for wood supply 2015	Forest ownership 2010	
					Public	Private (²)
					(%)	
EU-28	424 978	181 918	160 931	134 486	39.7	60.3
Belgium	3 038	719	683	670	46.5	53.5
Bulgaria	10 899	3 845	3 823	2 213	87.9	12.1
Czech Republic	7 724	2 667	2 667	2 301	76.6	23.4
Denmark	4 243	658	612	572	23.7	76.3
Germany	34 877	11 419	11 419	10 888	52.0	48.0
Estonia	4 343	2 456	2 232	1 994	41.3	58.7
Ireland	6 839	801	754	632	53.2	46.8
Greece	13 082	6 539	3 903	3 595	77.5	22.5
Spain	50 176	27 627	18 418	14 711	29.2	70.8
France	55 010	17 579	16 989	16 018	24.7	75.3
Croatia	5 659	2 491	1 922	1 740	71.7	28.3
Italy	29 511	11 110	9 297	8 216	33.6	66.4
Cyprus	921	386	173	41	68.8	31.2
Latvia	6 220	3 468	3 356	3 151	52.3	47.7
Lithuania	6 268	2 284	2 180	1 924	61.4	38.6
Luxembourg	259	88	87	86	47.1	52.9
Hungary	8 961	2 190	2 069	1 779	57.6	42.4
Malta	32	0	0	:	:	:
Netherlands	3 376	376	376	301	48.5	51.5
Austria	8 242	4 022	3 869	3 339	25.8	74.2
Poland	30 633	9 435	9 435	8 234	81.9	18.1
Portugal	9 068	4 907	3 182	2 088	3.0	97.0
Romania	23 006	6 951	6 861	4 627	67.0	33.0
Slovenia	2 014	1 271	1 248	1 139	25.3	74.7
Slovakia	4 904	1 940	1 940	1 785	50.2	49.8
Finland	30 391	23 019	22 218	19 465	30.4	69.6
Sweden	41 034	30 505	28 073	19 832	24.3	75.7
United Kingdom	24 251	3 164	3 144	3 144	28.4	71.6
Iceland	10 024	193	49	26	33.3	66.7
Liechtenstein	16	7	6	4	85.7	14.3
Norway	30 547	14 124	12 112	8 259	12.3	87.7
Switzerland	4 000	1 324	1 254	1 208	86.1	13.9
Montenegro	1 345	964	827	675	52.4	47.6
FYR of Macedonia	24 913	1 131	988	804	91.6	8.4
Serbia	8 746	3 228	2 720	:	50.9	49.1
Turkey	76 960	21 862	11 943	8 183	99.9	0.1

(¹) Latest available year; France: only covers the mainland.

(²) Includes any other form of ownership.

Source: Eurostat (online data codes: [demo_r_d3area](#) and [for_area](#))

— Food and Agriculture Organization of the United Nations, Global Forest Resources Assessment, 2015

— Forest Europe 2015, as published on UNECE database (http://w3.unece.org/PXWeb2015/pxweb/en/STAT/STAT__26-TMSTAT1/)

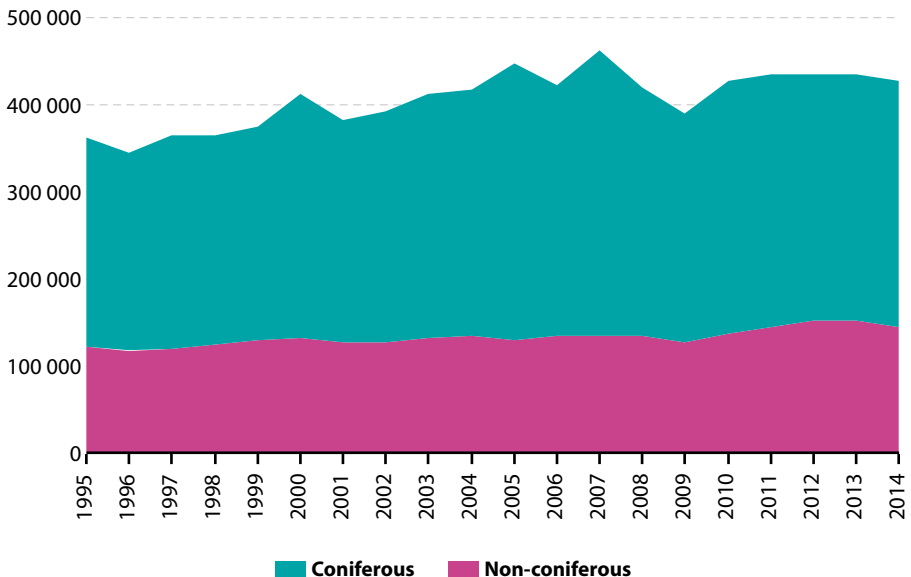
The EU-28 had close to 182 million hectares (ha) of forests and other wooded land, corresponding to 43 % of its land area. As such, wooded land covers a slightly greater proportion of land area than that which is used for agriculture (some 41 %). Across the EU Member States, seven countries reported that in excess of half of their land area was covered by forests and other wooded land in 2015. Just over three quarters of the land area was wooded in Finland and Sweden, while Slovenia reported 63 %; the remaining four EU Member States, each with shares in the range of 54–56 %, were Estonia, Latvia, Spain and Portugal, and in Greece the share of wooded area was 50 %.

Sweden reported the largest wooded area in 2015 (30.5 million ha), followed by Spain

(27.6 million ha), Finland (23.0 million ha), France (17.6 million ha), Germany (11.4 million ha) and Italy (11.1 million ha). In relative terms, Sweden accounted for 16.8 % of the total area in the EU-28 that was covered by wooded land in 2015. Spain (15.2 %) and Finland (12.7 %) were the only other EU Member States to record double-digit shares.

Just 60.3 % of the EU-28's forests were privately owned in 2010. There were 11 EU Member States where the share of privately owned forests was above the EU-28 average, peaking at 97.0 % in Portugal. By contrast, the share of privately owned forests was below 20 % in Poland and Bulgaria (where the lowest proportion was recorded, at 12.1 %).

Figure 4.5.1: Annual production of roundwood, EU-28, 1995–2014 (1)
(1 000 m³)



(1) All data are estimated, 2011 provisional.

Source: Eurostat (online data code: [for_remov](#))



Table 4.5.2: Roundwood production, 2000–14
(1 000 m³)

	2000	2005	2010	2011	2012	2013	2014
EU-28	411 764	447 502	427 611	433 657p	433 173	434 326	425 351
EA (1)	236 540	232 925	234 993	237 590p	237 347	237 044	225 127
Belgium	4 510	4 950	4 827	5 128	6 663	:	:
Bulgaria	4 784	5 862	5 668	6 205	6 092	6 155	5 570
Czech Republic	14 441	15 510	16 736	15 381	15 061	15 331	15 476
Denmark	2 952	2 962	2 669	2 583	:	3 180	3 180
Germany	53 710	56 946	54 418	56 142	52 338	53 207	54 356
Estonia	8 910	5 500	7 200	7 110	7 290	7 655	8 460
Ireland	2 673	2 648	2 618	2 635	2 580	2 760	2 831
Greece	2 245	1 523	1 048	1 196	:	:	:
Spain	14 321	15 531	16 089	15 428	14 657	15 758	15 911
France	65 865	52 499	55 808	55 041p	51 495	51 671	51 671
Croatia	3 669	4 018	4 477	5 258	5 714	5 436	5 003
Italy	9 329	8 691	7 844	7 744	7 744	:	:
Cyprus	21	10	9	8	11	9	9
Latvia	14 304	12 843	12 534	12 833	12 530	12 708	12 597
Lithuania	5 500	6 045	7 097	7 004	6 921	7 053	7 351
Luxembourg	260	249	275	261	:	:	:
Hungary	5 902	5 940	5 740	6 232	5 946	6 027	5 671
Malta	0	0	0	0	0	0	0
Netherlands	1 039	1 110	1 081	982	8 063	1 108	1 337
Austria	13 276	16 471	17 831	18 696	18 021	17 390	17 089
Poland	26 025	31 945	35 467	37 180	38 015	38 939	40 565
Portugal	10 831	10 746	9 648	10 961	10 711	10 642	:
Romania	13 148	14 501	13 112	14 359	16 088	15 195	15 068
Slovenia	2 253	2 733	2 945	3 388	3 341	3 415	5 099
Slovakia	6 163	9 302	9 599	9 213	8 063	9 168	:
Finland	54 542	52 250	50 952	50 767	49 967	56 992	57 033
Sweden	63 300	98 200	72 200	71 900	69 499	69 600	70 100
United Kingdom	7 791	8 519	9 718	10 020	10 120	10 821	11 184
Iceland	0	0	:	:	4	:	:
Liechtenstein	:	:	25	26	23	19	19
Norway	8 156	9 667	10 443	10 291	10 572	11 598	12 386
Switzerland	9 238	5 285	4 938	4 861	4 466	4 577	4 709
Montenegro	:	:	915	915	915	915	915
FYR of Macedonia	1 052	822	631	597	779	691	691
Turkey	15 939	16 185	20 597	21 039	21 959	20 858	22 835
Brazil	235 402	231 570	235 432	253 144	266 769	264 443	264 443
Canada	201 845	203 121	142 013	148 178	148 183	152 076	154 259
China	323 646	302 037	350 633	346 359	341 662	347 512	347 512
Indonesia	137 830	123 791	113 849	117 994	117 523	115 232	115 232
India	318 553	350 451	358 066	358 293	357 761	357 226	357 226
Russia	158 101	182 000	175 499	191 225	192 055	194 461	203 000
United States	466 549	467 347	376 572	395 141	387 512	396 818	398 693

Note: The data not available were nevertheless estimated by Eurostat and are included in the EU aggregates.

(1) EA-11 for 2000, EA-12 for 2005, EA-16 for 2010, EA-17 for 2011–13, EA-18 for 2014.

Source: Eurostat (online data code: [for_remove](#))

Table 4.5.3: Sawnwood production, 2000–14
(1 000 m³)

	2000	2005	2010	2011	2012	2013	2014
EU-28	100 706	108 706	100 815	101 994	100 058	99 695	101 854
EA (*)	61 337	66 777	59 673	60 627	57 947	57 644	57 048
Belgium	1 150	1 285	1 383	1 388	1 342	:	:
Bulgaria	312	569	554	728	698	803	:
Czech Republic	4 106	4 003	4 744	4 454	4 259	4 037	3 861
Denmark	364	196	448	372	:	358	358
Germany	16 340	21 931	22 059	22 628	21 081	21 459	21 772
Estonia	1 436	2 063	1 771	1 503	1 491	1 558	1 600
Ireland	888	1 015	772	761	782	825	907
Greece	123	191	118	106	:	109	108
Spain	3 760	3 660	2 038	2 162	1 971	2 047	2 245
France	10 536	9 715	8 316	8 675p	8 067	7 901	7 697
Croatia	642	624	677	754	851	1 192	1 294
Italy	1 630	1 590	1 200	1 250	1 370	1 360	1 430
Cyprus	9	4	4	3	3	2	2
Latvia	3 900	4 227	3 150	3 432	3 316	3 367	3 657
Lithuania	1 300	1 445	1 272	1 260	1 150	1 120	1 345
Luxembourg	133	133	94	78	:	:	:
Hungary	291	215	133	:	302	109	121
Malta	0	0	0	0	0	0	0
Netherlands	389	279	231	238	1 430	216	228
Austria	10 390	11 074	9 603	9 636	8 952	8 534	8 351p
Poland	4 262	3 360	4 220	4 422	4 249	4 321	4 719
Portugal	1 427	1 010	1 045	1 044	1 097	854	919
Romania	3 396	4 321	4 323	4 442	5 500	5 532	5 762
Slovenia	439	527	760	703	660	660	700
Slovakia	1 265	2 621	2 576	2 204	1 430	1 430	1 750
Finland	13 420	12 269	9 473	9 750	9 440	10 440	10 940
Sweden	16 176	17 600	16 750	16 500	16 492	16 074	17 500
United Kingdom	2 622	2 780	3 101	3 279	3 409	3 581	3 764
Iceland	0	0	:	:	0	:	:
Liechtenstein	:	:	4	8	:	0	0
Norway	2 280	2 326	2 118	2 271	2 289	2 206	2 407
Switzerland	1 625	1 591	1 457	1 313	1 135	1 044	1 140
Montenegro	:	:	52	58	53	53	53
FYR of Macedonia	36	18	5	3	8	4	4
Turkey	5 528	6 445	6 243	6 461	6 682	6 405	6 635
Brazil	21 300	23 557	17 452	16 201	15 167	15 397	15 397
Canada	50 465	60 187	38 667	38 880	40 564	42 813	43 351
China	6 675	17 960	37 231	44 638	55 740	63 040	68 440
India	7 900	14 789	6 889	6 889	6 889	6 889	6 889
Indonesia	6 500	4 330	4 169	4 169	4 169	4 169	4 169
Russia	20 000	23 913	28 870	31 215	32 230	33 500	33 900
United States	91 076	97 020	60 013	63 174	67 474	71 115	74 803

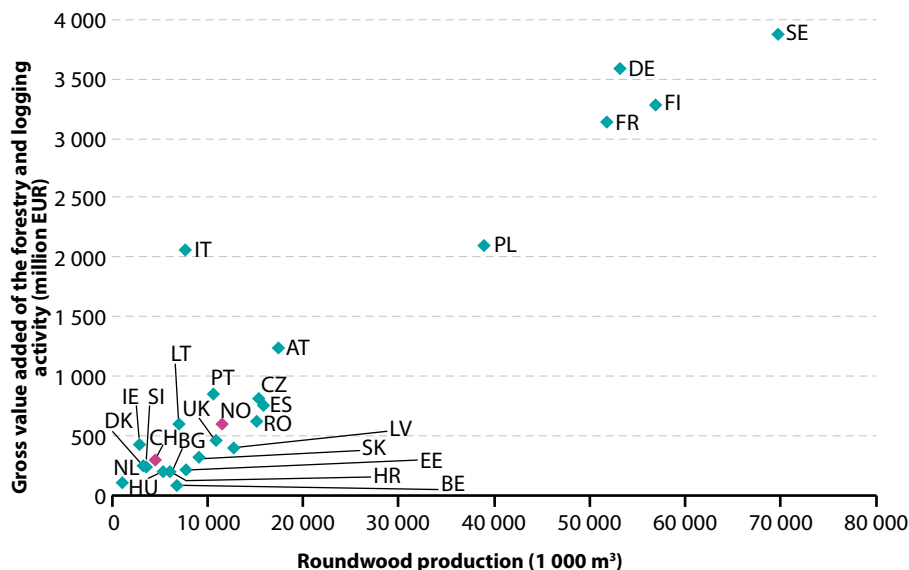
Note: The data not available were nevertheless estimated by Eurostat and are included in the EU aggregates.

(*) EA-11 for 2000, EA-12 for 2005, EA-16 for 2010, EA-17 for 2011–13, EA-18 for 2014.

Source: Eurostat (online data code: [for_swpan](#))



Figure 4.5.2: Roundwood production and gross value added of forestry and logging, 2013 (1)



(1) EU Member States that are not shown: not available or values too low. Belgium, Italy: 2009. Ireland, Spain and Italy: estimate.

Source: Eurostat (online data codes: [for_remov](#) and [for_eco_cp](#))

Among the EU Member States, Sweden produced the most roundwood (70 million m³) in 2014, followed by Finland, Germany and France (each producing between 52 and 57 million m³). Slightly more than one fifth of the EU-28's roundwood production in 2014 was used as fuelwood, while the remainder was industrial roundwood used either for [sawnwood](#) and veneers, or for pulp and paper production.

In 2014, two EU Member States (Sweden and Ireland) reported that over 90% of their total roundwood production was used as industrial roundwood. Denmark, France and Cyprus were the only EU Member States where over half of the roundwood produced in 2014 was used

as fuelwood, while Bulgaria, Hungary, Croatia, Estonia and Lithuania reported proportions between 32 and 45%. In many EU Member States, however, no estimates of actual fuelwood consumption by households are included in the numbers reported. Separate studies would be needed to produce such estimates, because this wood may be acquired informally, including from forests owned by households. The numbers reported here are probably under-reported in several EU Member States, given the recent increases in the EU's production of wood pellets and other agglomerates used for energy and the share of wood in gross inland energy consumption.

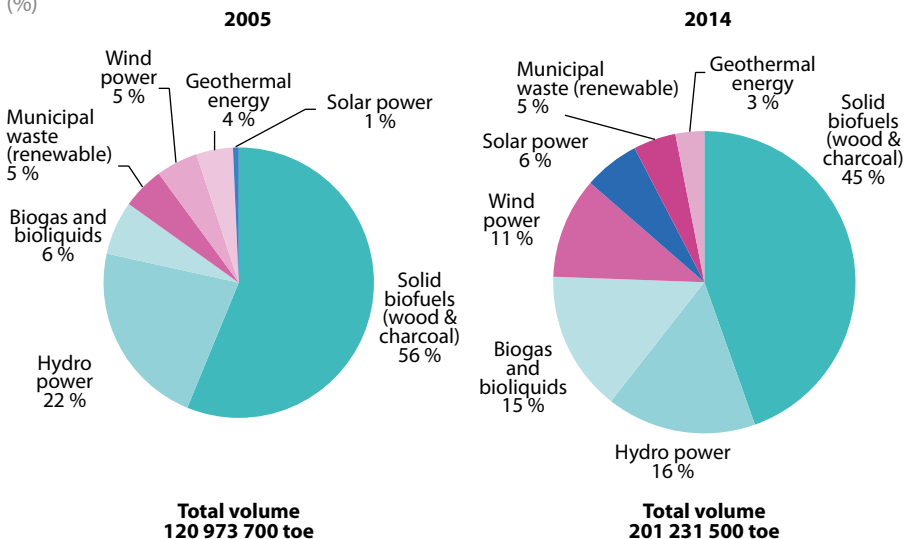
The overall level of EU-28 roundwood production reached an estimated 425 million m³ in 2014, some 37 million m³ (8%) less than the peak output level recorded in 2007. Note that some of the peaks (most recently 2000, 2005 and 2007) in roundwood production were due to forestry and logging having to cope with unplanned numbers of trees that were felled by severe storms.

From 1996 to 2007, there was a steady increase in the level of roundwood production in the EU-28. While the output of non-coniferous (broadleaved or hardwood) species remained relatively stable, there were greater year-on-year differences for coniferous (softwood) species. The effects of the financial and economic crisis led to a drop of the level of EU-28 coniferous production in 2008, a pattern confirmed by a further reduction in 2009. The output has since returned to pre-crisis levels of approximately 280 million m³ per annum.

Non-coniferous production increased relative to coniferous production ever since the crisis years. In 2010, EU-28 total roundwood production rebounded strongly by 10% and continued to rise in 2011, but has since levelled out at –2% in 2014.

The total output of sawnwood across the EU-28 was approximately 100 million m³ per year from 2010 to 2014, some 14% lower than in 2007, the first year of the global financial and economic crisis, which was also the year of the all-time maximum in production at 116 million m³. The situation has now returned to the average production level of the years preceding the crisis. Germany and Sweden were the EU's leading sawnwood producers, regularly accounting for approximately 21% and 17% of the EU-28 total output over the past few years.

Figure 4.5.3: Gross inland consumption of renewable energy, EU-28, 2005 and 2014 (%)

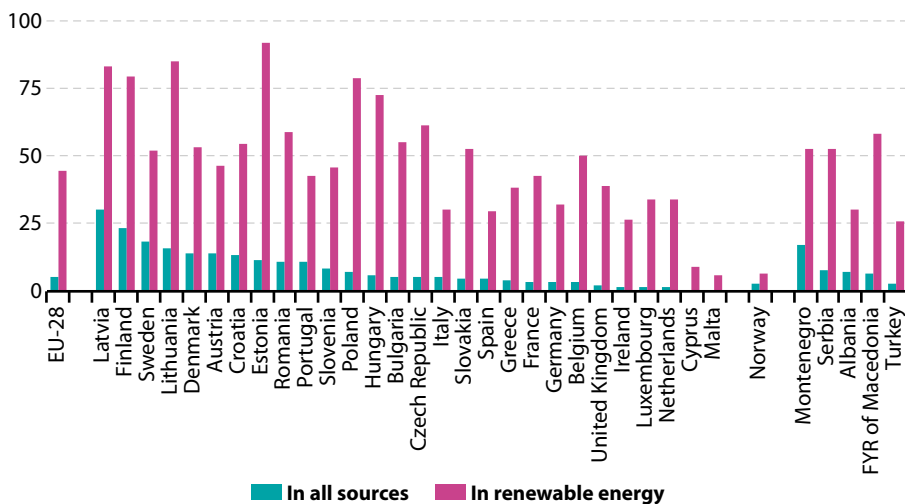


Source: Eurostat (online data code: nrg_107a)



Figure 4.5.4: Wood as a source of energy, 2014

(% share of wood and wood products in gross inland energy consumption, in toe)



Source: Eurostat (online data codes: [nrg_100a](#) and [nrg_107a](#))

Between 2005 and 2014, the consumption of renewable energy within the EU-28 increased by 66%. Some renewable energy sources grew exponentially. The consumption of solar energy for example, grew by 1349% between 2005 and 2014. However, the consumption of more established renewable energy sources, such as **biomass** other than wood (including municipal waste) also increased substantially (+184%) during the same period. Among renewable energy sources, total biomass (wood and other biomass including municipal waste) plays an important role, accounting for just over two thirds (64%) of the gross inland energy consumption of **renewables** in the EU-28 in 2014. As part of this biomass total, wood and agglomerated wood products such as pellets and briquettes provided the highest share of energy from organic, non-fossil materials of biological origin, accounting for almost

half (45%) of the EU-28's gross inland energy consumption of renewables in 2014.

In many EU Member States, wood was the most important single source of energy from renewables. Wood and wood products accounted for 5.6% of the total energy consumed within the EU-28 in 2014. The share of wood and wood products in gross inland energy consumption ranged from over 20% in Latvia and Finland down to less than 1% in Cyprus and Malta.

Wood was the source for more than three quarters of the renewable energy consumed in Estonia, Lithuania, Latvia, Finland and Poland. By contrast, the relative weight of wood in the mix of renewables was relatively low in Cyprus and Malta (where the lowest share was reported, 6.2%); this was also the case in oil- and gas-rich Norway (6.4%).

Table 4.5.4: Economic indicators for forestry and logging, 2005 and 2013

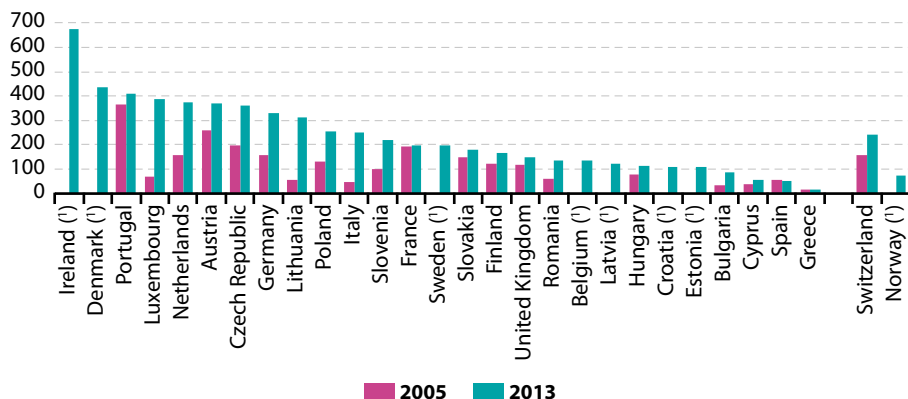
	Gross output		Gross value added at basic prices		Gross fixed capital formation		Gross value added/forest area available for wood supply		
	(million EUR)								(EUR / ha)
	2005	2013	2005	2013	2005	2013	2005	2013 (¹)	
EU-28	:	52 715	:	26 155	:	:	:	194	
Belgium	:	436	:	91	:	:	:	135	
Bulgaria	266	579	84	197	11	18	33	89	
Czech Republic	1 424	2 308	496	833	63	107	197	362	
Denmark	:	556	:	249	:	:	:	435	
Germany	4 141	8 780	1 738	3 581	168	272	160	329	
Estonia	:	500	:	216	:	:	:	108	
Ireland	:	998	:	426	:	:	:	674	
Greece	71	79	54	60	4	16	16	17	
Spain	1 582	944	787	762	:	:	57	52	
France	5 531	6 129	2 968	3 136	472	261	195	196	
Croatia	:	299	:	189	:	19	:	109	
Italy	456	2 698	365	2 061	83	222	47	251	
Cyprus	2	5	2	2	2	1	38	55	
Latvia	:	1 020	:	392	:	:	:	124	
Lithuania	172	1 344	102	602	10	183	55	313	
Luxembourg	9	94	6	33	1	3	69	387	
Hungary	339	451	132	200	24	:	79	113	
Malta	:	0	:	0	:	0	:	0	
Netherlands	133	267	46	113	10	7	157	375	
Austria	1 786	2 533	873	1 232	155	167	261	369	
Poland	1 991	4 663	1 110	2 097	137	268	132	255	
Portugal	1 066	1 175	810	856	93	82	367	410	
Romania	531	1 523	314	634	:	47	62	137	
Slovenia	195	385	115	250	8	14	99	220	
Slovakia	624	720	259	322	33	24	148	180	
Finland	3 235	4 655	2 422	3 278	388	442	121	168	
Sweden	:	8 425	:	3 878	:	692	:	196	
United Kingdom	791	1 149	357	464	20	54	118	148	
Norway	:	1 163	:	597	:	66	:	72	
Switzerland	525	778	186	294	83	112	158	244	

(¹) 2015 forest area used for the calculation.

Source: Eurostat (online data codes: for_eco_cp and for_area)



Figure 4.5.5: Forestry and logging value added per forest area available for wood supply, 2005 and 2013
(EUR per hectare)



Note: ranked on 2013. Malta: not applicable. Forest area: 2015 data used for the calculation.

(*) 2005: not available.

Source: Eurostat (online data codes: [for_eco_cp](#) and [for_area](#))

The ratio of value added generated within the forestry and logging sector compared with the forest area available for wood supply is an indicator that can be used to analyse the productivity of forestry activities across the EU. The indicator shows that in 2013, the highest shares of value added per forest area in the EU were in Ireland, Denmark, Portugal, Luxembourg, the Netherlands and Austria.

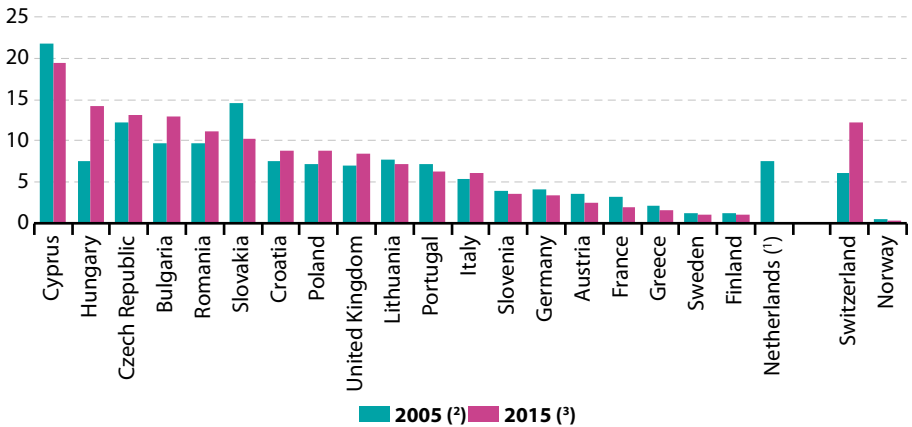
The largest workforce in the EU's forestry and logging sector was recorded in Poland, with 72 500 persons employed in 2013. There were also relatively large workforces in Romania (53 900), Italy (47 000), Germany (35 300) and France (32 000).

The ratio of labour input per area of exploited forest provides some information on the labour intensity of the forestry sector across the EU Member States. This indicator varies considerably between countries, ranging from a high of

around 14.6 employed persons per 1 000 ha in Cyprus to less than 2 employed persons per 1 000 ha in Spain, Sweden, Greece and Finland. Some of the differences across EU Member States may, at least in part, be explained by the local terrain in areas where forestry and logging takes place, as work in mountainous areas will generally require a higher level of labour input than work on large tracts of flat land.

The labour productivity of the forestry and logging sector (calculated as gross value added per person employed) also varied substantially across the EU Member States in 2013. The highest levels of labour productivity using this measure were recorded in Sweden (EUR 156 400 per person employed) and Finland (EUR 152 500 per person employed), while at the other end of the range, Bulgaria, Cyprus and Hungary recorded productivity levels that were below EUR 10 000 per person employed.

Figure 4.5.6: Employment per area of forest available for wood supply, 2005 and 2015
(persons employed per 1 000 hectares)



Note: ranked on 2015. EU Member States that are not shown are not available or not applicable.

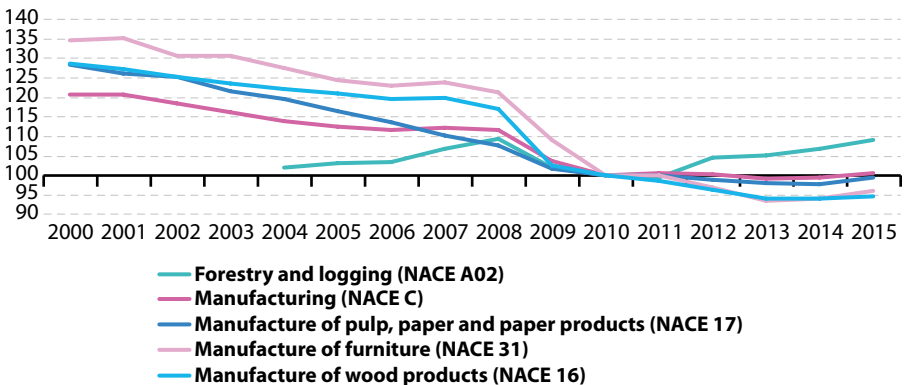
(¹) 2015 data not available.

(²) 2008 Labour Force Survey (LFS) employment data used for the calculation; Cyprus, Lithuania and the Netherlands: LFS data unreliable because of the small sample it is based upon.

(³) Cyprus, the Netherlands and Slovenia: LFS data unreliable.

Source: Eurostat (online data codes: [for_emp_lfs](#) and [for_area](#))

Figure 4.5.7: Employment in wood-based industries compared with total manufacturing, EU-28, 2000–15
(Index 2010 = 100)



Source: Eurostat (online data codes: [sts_inlb_a](#), [for_emp_lfs1](#) and [for_emp_lfs](#))



Across the EU-28, manufacturing employment fell by 16.7% during the 2000–15 period, while the largest losses among the three wood-based industries were recorded for furniture manufacturing (28.7% fewer persons employed). Pulp, paper and paper products was the least affected manufacturing industry, noting a 22.4% reduction in employment during the 2000–15 period, while employment in manufacturing of wood products dropped by 26.3%.

Each of these wood-based industries, in keeping with most manufacturing sectors, experienced a reduction in the number of persons employed

during the 2000–14 period. The development of EU-28 employment for wood and wood products and furniture manufacturing closely followed the overall pattern for total manufacturing during the period 2000–08. Thereafter, with the onset of the global financial and economic crisis, job losses for these two wood-based industries accelerated at a faster pace than the manufacturing average. In contrast, employment in the upstream supply of timber to the wood-based industries presented a peak in 2008 (following the 2007 storms) and an increase from 2011 onward.

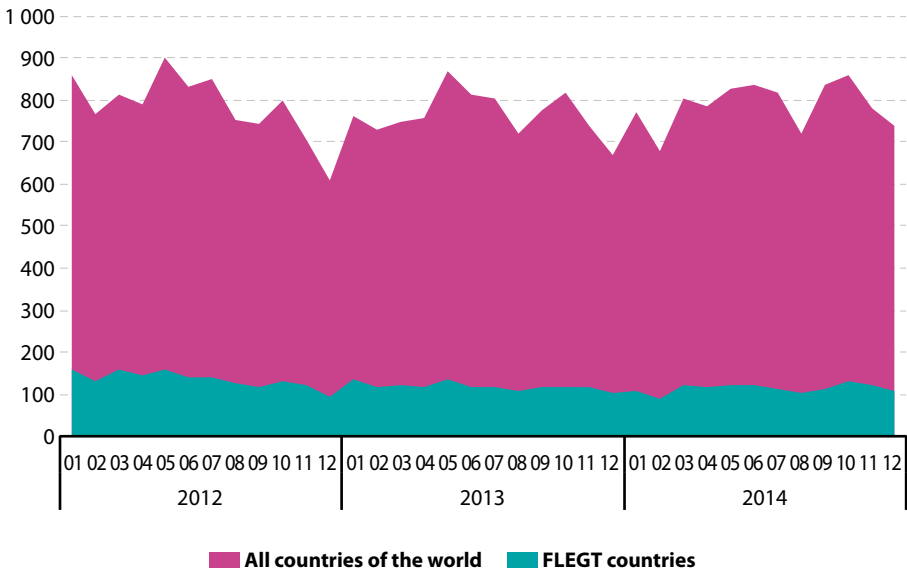
Figure 4.5.8: Value of EU-28 imports of tropical wood, 2012–14
(million EUR, monthly data)



Note: the numbers 01 to 12 in the horizontal axis of this figure correspond to the 12 months of the year.

Source: Eurostat (online data code: for_trop)

Figure 4.5.9: Value of EU-28 imports of wood, all species, 2012–14
(million EUR, monthly data)



Note: the numbers 01 to 12 in the horizontal axis of this figure correspond to the 12 months of the year.

Source: Eurostat (online data code: [for_trop](#))

The value of wood imports into the EU-28 from the 15 tropical countries (FLEGT countries) that have signed or are in the process of signing voluntary partnership agreements (VPAs) with the EU reached a peak of EUR 2.7 billion in 2007, before falling by 10% in 2008 and by another 33% in 2009. This shows how hard the global financial and economic crisis hit these high-value imports. There was a modest recovery in 2010, but a further decline in the period 2011–14, when

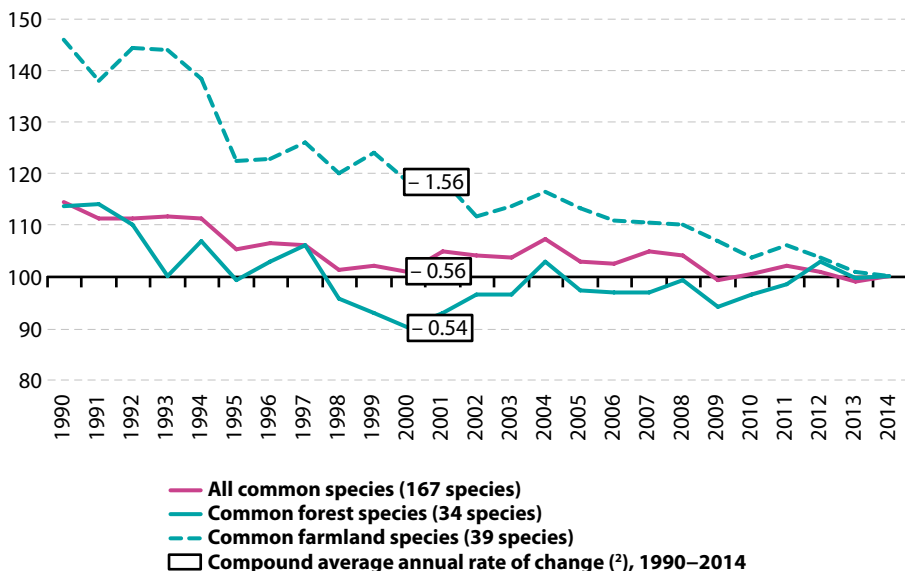
the EU-28's imports from these countries totalled EUR 1 372 million.

The numbers also show that the FLEGT countries' share in the EU's total imports of wood and wood products has diminished over the years from 30% to 15%. By contrast, when looking at only specified tropical wood, the FLEGT countries' share was stable over the years and even increased of late to close to 80%.



Figure 4.5.10: Common bird indices, EU, 1990–2014 ⁽¹⁾

(aggregated index of population estimates of selected groups of breeding bird species, 2014 = 100)



⁽¹⁾ Estimates. EU: aggregate changing according to the context.

⁽²⁾ This variable is independent of the base year chosen and gives the same result for any of them, using the formula $RCH_C_AVG = (Y_t/Y_{t0})^{1/t-t_0} - 1$, where: t_0 = the earliest year; t = the most recent year; Y_{t0} = indicator value in the earliest year; and Y_t = indicator value in the most recent year.

Source: EBCC / RSPB / BirdLife / Statistics Netherlands; Eurostat (online data code: [env_bio3](#))

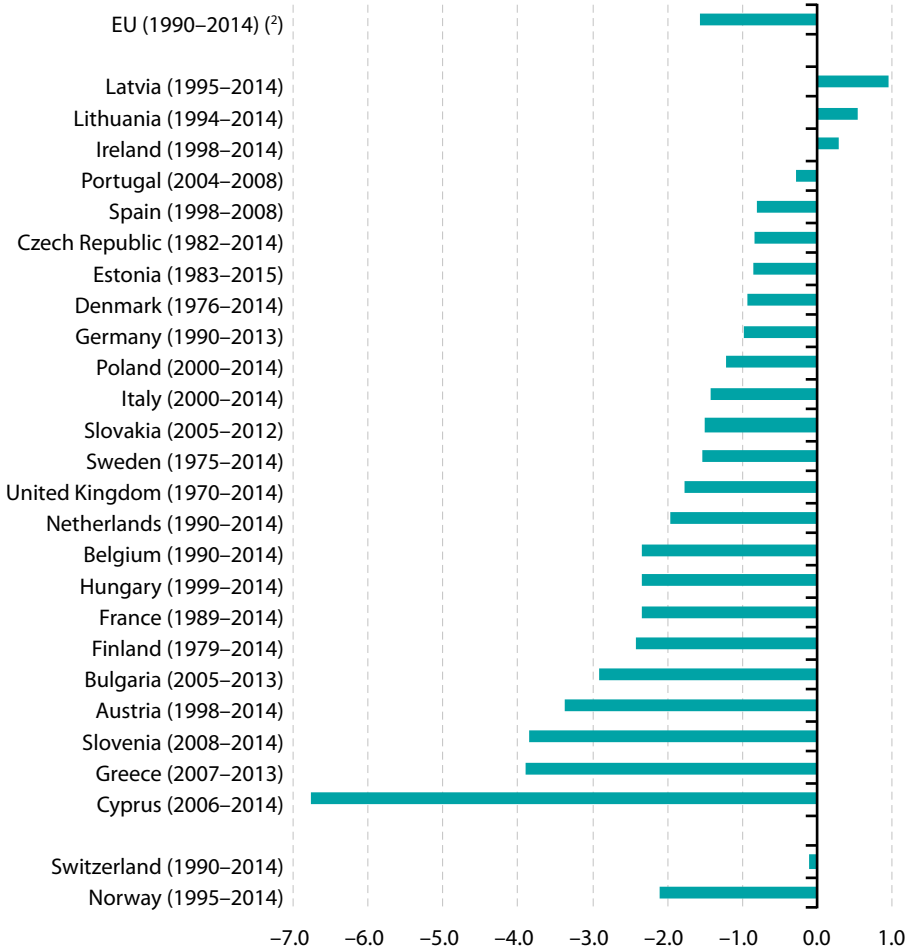
Between 1990 and 2000 there was a general decline in the EU's populations of both common farmland birds and common forest birds. This pattern was even sharper before 2000 for common farmland birds, resulting in a huge decline by 46% between 1990 and 2014 (indexed on 2014). Many of these losses can be attributed to changes in land use and agricultural practices, including the intensification of crop rotation patterns and of pesticide use. While

the number of common forest birds in the EU declined by 24 percentage points between 1990 and 2000 (indexed on 2014), there was a small recovery during the period 2000–14, so that the overall decline between 1990 and 2014 was around 14%, which was the same for all common species in the same period.

Figure 4.5.10 also presents within each bird category the changes in the indicators through

Figure 4.5.11: Compound average annual rate of change of the common farmland bird index⁽¹⁾

(T / T₀, %)



⁽¹⁾ This variable is independent of the base year chosen and gives the same result for any of them, using the formula $RCH_C_AVG = (Y_t/Y_{t_0})^{1/t-t_0} - 1$, where: t_0 = the earliest year; t = the most recent year; Y_t = indicator value in the earliest year; and Y_t = indicator value in the most recent year.

⁽²⁾ Estimates. EU: aggregate changing according to the context.

Source: Eurostat (online data code: [env_bio2](#))



the compound annual rate of change (values in the boxes). This indicator is independent of the base year chosen and allows comparability throughout the various bird categories as well as among Member States. This variable makes it possible to compare the average annual rates of change between countries with different starting and end years of their time series. At -1.56 , the EU value of the compound average annual rate of change is highest for common farmland birds, while the value for common forest species was -0.54 , and -0.56 for the aggregated value of all the monitored species. Using these average annual rates of change, the EU's farmland birds declined by 'only' 39% over 25 years (1990–2014), while the forest birds and all birds each declined by 14%.

Figure 4.5.11 shows the compound average annual rate of change for the common farmland

species at national level for the available countries. The different time coverage of the data reflects each country's participation in the pan-European common bird monitoring scheme, so there are fewer data available going back to 1990. Only Latvia, Lithuania and Ireland had any improvement in their farmland bird index. In 11 countries (Portugal, Spain, the Czech Republic, Estonia, Denmark, Germany, Poland, Italy, Slovakia, Sweden and Switzerland) although negative, the indicator was above the EU average (-1.56). In the remaining 12 countries the values indicated poorer performances, with a compound average annual rate of change below -3.00 in Austria, Slovenia and Greece and reaching -6.76 in Cyprus.

4.6 Water

There are considerable differences in the amounts of freshwater abstracted within each of the EU Member States. This reflects in part the size of each country and the resources available, but also abstraction practices, climate and the industrial and agricultural structure of each country. Total abstraction of freshwater ranged between 43 million m³ in Luxembourg (2013 data) and 37.3 billion m³ in Spain (2012 data). Between 2003 and 2013, the volume of freshwater abstracted rose at its fastest pace in Malta (42.5%) and Slovenia (36.2%), while the largest decreases were recorded in Slovakia (–38.7%) and Lithuania (–80.4%).

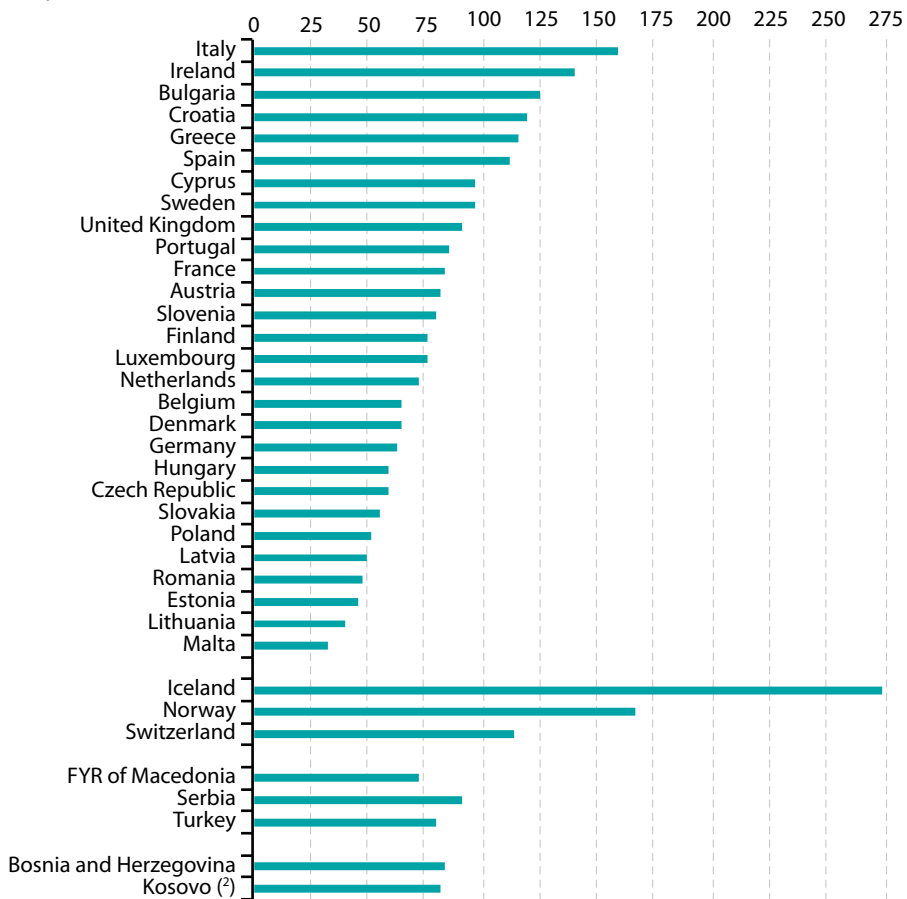
Differences among EU Member States are also apparent when looking at the breakdown of [water abstraction](#) between [groundwater](#) and [surface water resources](#). In Finland (2006 data), surface water abstraction accounted for around 24 times the volume of water abstracted from groundwater resources, while the ratio of surface

to groundwater resources was around 10:1 in the Netherlands (2012 data), Romania and Bulgaria (both 2013 data). At the other end of the range, the volume of water abstracted from groundwater resources was at least twice as high as the volume of surface water abstraction in Croatia (2013 data), Denmark (2012 data) and Malta (2013 data), the latter not disposing of exploitable [surface waters](#) at all.

In terms of water abstractions per inhabitant, EU Member States had annual rates of freshwater abstraction between 33 m³ (Malta) and 159 m³ (Italy). The extremes of freshwater abstraction reflect specific conditions: for example, in Ireland (140 m³ per inhabitant) the use of water from the public supply was still free of charge in 2013; while in Bulgaria (125 m³ per inhabitant) there are particularly high losses from the public network. Abstraction rates were also very high in some non-EU Member States, notably Iceland and Norway where water resources are abundant.



Figure 4.6.1: Total freshwater abstraction by public water supply, 2013 ⁽¹⁾
(m³ per inhabitant)



⁽¹⁾ Ireland: 2007; Belgium: 2009; Germany, Austria and Sweden: 2010; Greece: 2011; Denmark, Spain, France, Italy, Lithuania, the Netherlands, Portugal, the United Kingdom, Iceland, Turkey and Bosnia and Herzegovina: 2011; Finland: estimate; Croatia: provisional.

⁽²⁾ This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: env_wat_abs)

Table 4.6.1: Groundwater and surface water abstraction, 2003–13
(million m³)

	Groundwater abstraction			Surface water abstraction		
	2003	2008	2013	2003	2008	2013
Belgium ⁽¹⁾	685	612	602	5 981	5 517	4 480
Bulgaria	648	616	558	6 270	5 810	4 910
Czech Republic	421	380	371	1 695	1 608	1 279
Denmark ⁽²⁾	633	688	644	19	8	8
Germany ⁽³⁾⁽⁴⁾⁽⁵⁾	6 033	5 825	5 841	29 524	26 476	27 195
Estonia	267	330	213	1 436	1 276	1 535
Ireland ⁽⁴⁾⁽⁶⁾	364	213	:	435	517	:
Greece ⁽⁴⁾	3 721	3 651	:	5 735	5 821	:
Spain ⁽²⁾	6 073	6 174	6 884	30 526	29 199	30 465
France ⁽²⁾	6 804	5 824	5 608	28 593	23 379	24 400
Croatia	:	450	444	:	214	189
Italy	:	:	:	:	:	:
Cyprus	158	130	140	84	31	115
Latvia	109	131	155	146	97	92
Lithuania ⁽²⁾	168	171	132	3 156	2 095	518
Luxembourg ⁽⁷⁾	:	27	25	:	20	18
Hungary ⁽²⁾⁽⁸⁾	722	506	535	4 363	4 926	4 516
Malta	32	36	45	0	0	0
Netherlands ⁽²⁾	1 132	984	940	9 290	9 725	9 784
Austria	:	:	:	:	:	:
Poland	2 526	2 638	2 608	9 022	8 727	8 635
Portugal	:	:	:	:	:	:
Romania	811	659	581	5 689	6 561	5 837
Slovenia ⁽⁹⁾	200	186	181	649	854	975
Slovakia	420	351	329	621	313	308
Finland ⁽¹⁰⁾	285	264	:	:	6 298	:
Sweden ⁽⁴⁾⁽⁵⁾	628	346	348	2 048	2 285	2 342
United Kingdom ⁽²⁾⁽¹¹⁾	2 389	2 139	2 046	7 970	6 208	6 168
Iceland ⁽¹²⁾	160	:	466	5	:	:
Switzerland ⁽²⁾	:	:	1 005	:	:	1 000
FYR of Macedonia	125	155	:	701	561	:
Albania	:	:	388	:	:	2 225
Serbia	485	522	478	2 724	3 492	3 673
Turkey ⁽¹³⁾	11 176	12 419	13 560	29 673	29 589	36 950
Bosnia and Herzegovina ⁽²⁾	162	152	146	176	184	182
Kosovo ⁽¹⁴⁾	137	127	135	19	19	19

(1) Data for 2011 instead of 2013.

(2) Data for 2012 instead of 2013.

(3) Data for 2004 instead of 2003.

(4) Data for 2007 instead of 2008.

(5) Data for 2010 instead of 2013.

(6) Data for 2005 instead of 2003.

(7) Data for 2009 instead of 2008.

(8) Surface water abstraction: data for 2005 instead of 2003.

(9) Break in series; 2013.

(10) Data for 2006 instead of 2008.

(11) England and Wales only; 2003.

(12) Groundwater abstraction: data for 2012 instead of 2013.

(13) Surface water abstraction: data for 2012 instead of 2013.

(14) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: env_wat_abs)



Table 4.6.2: Water use by economic sector — public water supply, 2013 ⁽¹⁾
(million m³)

	All NACE activities	of which:		of which:		Households
		Agriculture, forestry and fishing	Industry and construction	Manufacturing	Services	
Belgium	185.0	9.0	103.0	103.0	73.0	107.0
Bulgaria	127.1	3.1	81.0	24.7	43.0	260.7
Czech Republic	160.7	7.6	42.9	:	110.1	317.6
Denmark	:	:	:	:	:	:
Germany	:	:	:	:	:	:
Estonia	:	0.3	:	7.9	:	:
Ireland	:	:	:	:	:	:
Greece	125.4	21.5	72.1	:	31.8	884.5
Spain	932.8	47.8	361.9	351.2	523.1	2,688.0
France	366.0	:	:	:	:	3,506.0
Croatia	:	:	84.5	:	:	194.1
Italy	:	:	:	:	:	:
Cyprus	2.4	:	2.4	2.3	:	76.5
Latvia	:	:	:	:	:	:
Lithuania	40.2	0.1	13.4	7.8	26.7	58.0
Luxembourg	:	:	:	:	:	:
Hungary	105.8	1.3	58.2	6.4	46.3	331.3
Malta	7.9	0.2	2.1	1.8	5.7	18.6
Netherlands	287.4	39.3	146.0	132.0	102.1	783.0
Austria	206.0	:	:	:	:	381.0
Poland	330.7	145.2	27.0	12.5	158.5	1,191.1
Portugal	98.9	0.7	:	17.1	10.8	619.3
Romania	388.0	1.4	272.3	:	114.3	587.5
Slovenia	29.7	1.8	9.3	10.7	18.5	78.6
Slovakia	:	:	:	:	:	:
Finland	:	:	:	:	:	:
Sweden	:	:	:	:	:	:
United Kingdom	1,066.0	120.0	345.0	263.0	601.0	2,902.0
Norway	:	:	:	165.1	118.6	372.4
Switzerland	264.0	41.2	80.0	76.5	141.8	544.0
FYR of Macedonia	:	:	354.6	352.9	:	84.4
Serbia	127.0	4.3	21.3	15.6	101.0	323.7
Turkey	635.8	6.0	115.0	74.5	515.0	2,377.5
Bosnia and Herzegovina	30.8	1.5	12.6	:	14.3	109.3
Kosovo ⁽²⁾	63.0	52.0	7.0	5.0	4.0	43.0

(1) Belgium, Greece, France and the United Kingdom: 2011; Spain, the Netherlands and Switzerland: 2012; Austria and Turkey: 2010; Portugal and Norway: 2009.

(2) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: env_wat_cat)

Table 4.6.3: Use of water by the domestic sector (households and services) — all sources, 2003–13
(m³ per inhabitant)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Belgium ⁽¹⁾	:	:	29.1	29.5	28.2	26.4	26.0	26.0	20.9	:	:
Bulgaria	:	43.6	43.4	45.2	46.6	46.4	45.5	44.9	45.3	46.1	46.9
Czech Republic ⁽²⁾	46.0	46.3	44.8	:	:	:	:	:	:	:	:
Denmark ⁽²⁾	53.0	53.7	:	:	:	:	:	:	:	:	:
Germany	:	:	:	:	:	:	:	:	:	:	:
Estonia	:	:	:	:	:	:	:	:	:	:	:
Ireland	:	:	:	:	:	:	:	:	:	:	:
Greece ⁽²⁾	55.2	56.3	58.0	57.8	56.0	:	:	:	82.5	:	:
Spain	82.0	81.1	78.4	75.3	80.9	79.5	76.5	72.6	69.5	70.0	:
France	:	:	:	:	:	:	:	:	:	:	:
Croatia ⁽²⁾	52.3	50.3	50.2	:	:	:	:	:	:	:	:
Italy	:	:	:	:	:	:	:	:	:	:	:
Cyprus	:	:	:	:	:	:	:	:	:	:	:
Latvia	:	:	:	:	:	:	:	:	:	:	:
Lithuania	:	:	:	:	:	29.1	28.1	28.1	29.1	35.2	:
Luxembourg	:	:	:	:	:	:	:	:	:	:	:
Hungary ⁽²⁾⁽³⁾	:	:	47.0	:	:	:	:	39.0	39.0	39.2	38.2
Malta	:	:	55.0	59.3	59.2	60.2	54.9	57.0	58.2	60.6	60.8
Netherlands	:	:	54.0	54.7	54.0	54.0	53.7	53.4	52.9	52.8	:
Austria ⁽⁴⁾	:	:	:	:	:	:	:	:	:	:	:
Poland ⁽²⁾⁽⁵⁾	38.1	36.7	36.4	36.6	36.0	36.4	35.9	36.0	36.0	35.9	35.5
Portugal ⁽²⁾	:	:	47.2	50.0	53.3	57.0	59.6	:	:	:	:
Romania	:	:	:	:	:	:	:	:	:	:	:
Slovenia ⁽²⁾	49.3	47.0	46.5	:	:	:	:	:	:	49.0	47.1
Slovakia	:	:	:	:	:	:	:	:	:	:	:
Finland	:	:	:	:	:	:	:	:	:	:	:
Sweden ⁽²⁾	69.0	68.7	65.2	:	:	:	:	:	:	:	:
United Kingdom ⁽²⁾	:	:	:	:	:	:	:	:	55.2	:	:
Iceland	:	:	:	:	:	:	:	:	:	:	:
Norway ⁽²⁾	:	94.0	98.4	100.3	100.0	100.5	101.7	:	:	:	:
Switzerland	:	:	:	:	:	:	:	:	:	119.3	:
FYR of Macedonia ⁽²⁾	42.8	40.8	41.3	:	:	:	:	:	:	:	:
Albania	:	:	:	:	:	:	:	:	:	:	:
Serbia ⁽²⁾⁽⁶⁾	:	56.2	61.8	60.3	60.7	60.2	59.3	58.4	60.0	59.9	59.3
Turkey ⁽²⁾	:	:	:	:	:	:	:	39.5	:	42.3	:
Bosnia and Herzegovina ⁽²⁾	:	:	32.3	29.8	31.6	32.5	33.0	33.2	33.7	34.0	32.2
Kosovo ⁽²⁾⁽⁶⁾⁽⁷⁾	:	:	:	:	:	:	:	:	26.2	26.6	:

⁽¹⁾ Break in series: 2004 and 2010.

⁽²⁾ Public water supply only.

⁽³⁾ Break in series: 2012.

⁽⁴⁾ Excluding households.

Source: Eurostat (online data codes: env_wat_cat and demo_gind)

⁽⁵⁾ Break in series: 2010.

⁽⁶⁾ Break in series: 2011.

⁽⁷⁾ This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.



The main users of water from public water supply in the EU are households. Across almost all of the EU Member States for which data are available, a higher share of water from public water supply was used by households than by enterprises (as defined by all [NACE](#) activities). Belgium (2011 data) was the only exception to this rule, with a higher volume of public water supply used by enterprises.

While some EU Member States reported a decrease in their [water use](#) by the domestic sector, others reported an increase: the highest increases over the past decade were recorded in Greece (49.6%; 2003–11) and Lithuania (20.8%; 2008–12), while the largest decrease was observed in Hungary (–18.8%; 2005–13). Per capita water use by the domestic sector was particularly high among the Mediterranean EU Member States, with Greece (82.5 m³ in 2011) and Spain (70.0 m³ in 2012) recording the highest values, followed by Sweden, Malta and Portugal. Four EU Member States reported per capita water use values below 40 m³: Hungary, Poland, Lithuania and Belgium.

Self and other water supply is the major source of water for the manufacturing sector in several

EU Member States; water is an important coolant in electricity production and often used as such. In the Netherlands, for example, self and other water supply for economic activities accounted for 3.6 billion m³ of water use in 2011, while public supply accounted for 0.1 billion m³. The volume of water use from self and other water supplies was 50 times as high as that from public supply in Poland, just under 30 times as high in Slovenia and the Netherlands (2011 data).

Statistics on the proportion of the population connected to at least secondary [wastewater treatment](#) integrate sewage treatment of any type (urban, other, and independent). This share has been gradually increasing and is above 80% in 14 EU Member States for which data are available (mixed reference years), and is even exceeding 90% in nine EU Member States (the United Kingdom, the Netherlands, Luxembourg, Germany, Spain, Austria, Malta, Greece and Denmark). At the other end of the range, less than one in two households were connected to at least secondary [urban wastewater treatment](#) in Romania and Croatia, while the same was also true in Turkey, Albania, Serbia, Bosnia and Herzegovina, and Kosovo (1).

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Table 4.6.4: Water use in the manufacturing industry by supply category, 2003–13
(million m³)

	Public water supply						Self and other water supply					
	2003	2005	2007	2009	2011	2013	2003	2005	2007	2009	2011	2013
Belgium	97	102	103	95	103	:	1217	1276	1291	1120	1158	:
Bulgaria	51	46	48	36	35	25	304	293	305	203	175	169
Czech Republic	:	:	:	:	:	:	:	:	:	253	234	215
Denmark	:	:	:	:	:	:	:	:	:	:	:	:
Germany	:	:	:	:	:	:	:	:	:	:	:	:
Estonia	:	:	:	:	7	8	:	:	:	:	22	20
Ireland	:	:	:	:	:	:	:	:	:	:	:	:
Greece	:	:	:	:	:	:	:	:	:	:	:	:
Spain	424	485	446	385	371	:	1338	1209	993	794	738	:
France	:	:	:	:	:	:	:	:	:	1819	1767	:
Croatia	:	:	:	:	:	:	:	:	:	181	286	125
Italy	:	:	:	:	:	:	:	:	:	:	:	:
Cyprus	3	3	3	3	2	:	16	3	4	3	2	:
Latvia	75	57	59	:	:	:	:	:	:	:	:	:
Lithuania	9	:	:	11	8	:	:	:	:	25	29	:
Luxembourg	:	:	:	:	:	:	:	:	:	:	:	:
Hungary	:	11	:	:	7	6	:	:	:	:	:	:
Malta	2	2	2	2	2	2	:	1	1	1	1	1
Netherlands	208	143	144	141	134	:	3956	3433	3449	3897	3602	:
Austria	:	:	:	:	:	:	:	:	:	:	:	:
Poland	19	20	19	13	13	13	616	651	685	573	652	628
Portugal	:	8	9	17	:	:	:	:	:	281	:	:
Romania	:	:	:	:	:	:	:	:	:	:	:	:
Slovenia (1)	13	12	:	:	:	11	:	:	:	152	:	305
Slovakia	:	:	:	:	:	:	:	:	:	:	:	:
Finland	:	:	:	:	:	:	:	:	:	:	:	:
Sweden	90	102	:	:	:	:	:	:	:	:	:	:
United Kingdom	:	:	:	:	263	:	:	:	:	:	:	:
Iceland	5	:	:	:	:	:	:	:	:	:	10	:
Norway	90	185	191	165	:	:	791	969	1000	862	:	:
Switzerland	:	:	:	:	:	:	:	:	:	:	:	:
FYR of Macedonia	40	194	:	:	203	353	:	:	:	:	254	421
Serbia	:	37	29	19	14	16	176	109	104	88	75	56
Turkey	:	:	:	:	:	:	:	:	:	:	:	:
Kosovo (2)	:	:	:	:	4	5	:	:	:	:	4	5

(1) Break in series: 2013.

(2) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: [env_wat_ind](#))



Table 4.6.5: Share of the population connected to at least secondary urban wastewater treatment, 2003–13

(%)

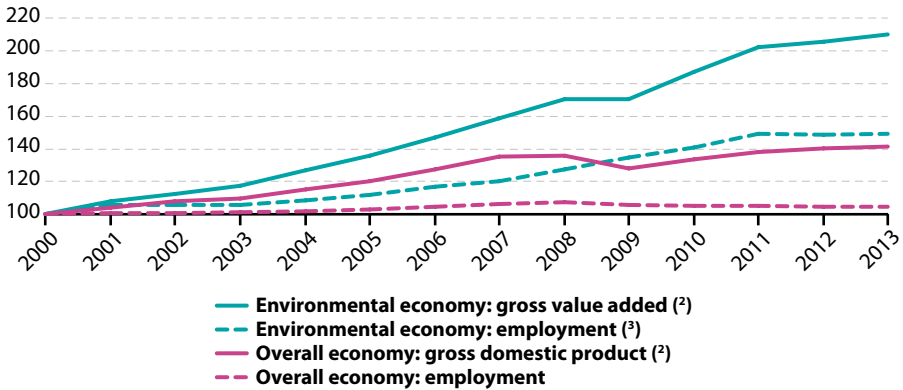
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Belgium	51.4	53.2	54.4	57.4	68.7	71.0	72.8	75.0	77.0	82.0	84.0
Bulgaria	37.9	38.0	38.3	38.8	39.7	41.4	42.7	45.1	53.6	53.9	54.5
Czech Republic	70.6	70.8	72.8	71.9	73.0	75.4	75.7	76.9	78.0	78.0	79.8
Denmark	:	:	:	:	:	:	89.4	88.0	88.4	88.4	90.1
Germany	:	93.8	97.3	:	91.9	:	:	95.3	:	:	:
Estonia	70.0	71.0	73.0	73.0	73.5	79.5	79.5	78.3	81.1	81.2	82.1
Ireland	:	:	:	:	:	:	:	:	:	:	:
Greece	:	:	:	:	85.0	:	87.3	87.3	88.1	92.0	:
Spain	:	:	:	88.0	:	88.0	:	93.0	:	94.8	:
France	:	79.5	:	:	:	:	:	:	56.1	56.1	55.4
Croatia	:	:	:	:	:	:	:	:	27.0	:	:
Italy	:	:	93.6	:	:	:	83.0	:	:	:	:
Cyprus	22.9	28.4	29.8	:	:	:	:	:	:	:	:
Latvia	68.3	64.3	63.8	62.9	60.9	54.3	60.9	58.1	63.9	66.0	67.2
Lithuania	27.6	:	:	:	:	:	:	:	:	63.1	:
Luxembourg	88.1	:	:	:	:	:	:	91.3	90.9	96.1	96.3
Hungary	38.9	40.2	41.7	45.3	49.8	50.0	52.1	69.5	71.1	72.8	72.6
Malta	16.1	13.3	13.2	9.3	8.4	14.8	15.2	6.6	93.2	93.1	92.9
Netherlands	98.6	98.9	99.0	99.1	:	99.3	:	99.4	:	99.4	:
Austria	:	88.9	:	:	:	92.6	:	93.9	:	94.5	:
Poland	55.5	56.8	58.1	60.7	61.8	62.9	64.1	64.5	65.5	68.5	70.2
Portugal	32.0	:	42.6	37.0	51.0	52.0	55.8	:	:	:	:
Romania	:	16.9	16.9	:	:	:	:	22.0	31.0	32.7	35.5
Slovenia	19.9	29.3	32.1	47.6	48.8	51.1	52.9	52.5	54.0	54.2	54.9
Slovakia	:	:	:	:	:	:	:	:	:	:	:
Finland	:	:	:	:	:	:	:	83.0	83.0	83.0	83.0
Sweden	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	86.0	87.0	87.0
United Kingdom	:	:	:	:	:	96.9	97.0	99.5	:	:	:
Iceland	1.0	1.0	2.0	:	:	2.0	:	:	:	:	:
Norway	55.4	56.2	58.0	58.6	58.5	58.8	59.3	59.2	61.4	62.6	62.6
Switzerland	:	:	:	:	:	:	:	:	:	:	98.0
Albania	:	:	:	:	:	:	:	4.7	4.7	7.4	22.0
Serbia	5.4	5.8	6.4	6.9	6.9	7.5	8.9	8.6	8.9	9.0	9.4
Turkey	21.1	24.8	:	:	31.1	31.4	35.2	37.6	:	42.0	:
Bosnia and Herzegovina	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8
Kosovo (1)	:	:	:	:	:	:	:	:	0.6	0.6	0.6

(1) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/99 and the ICJ Opinion on the Kosovo declaration of independence.

Source: Eurostat (online data code: env_ww_con)

4.7 Environmental goods and services

Figure 4.7.1: Development of key indicators for the environmental economy and the overall economy, EU-28, 2000–13 ⁽¹⁾
(2000 = 100)



⁽¹⁾ Estimates.

⁽²⁾ In current prices.

⁽³⁾ In full-time equivalents.

Source: Eurostat (online data codes: [env_ac_egss1](#), [env_ac_egss3](#), [nama_10_pe](#) and [nama_gdp_c](#))

The environmental economy encompasses two broad groups of activities and/or products: environmental protection (all activities related to preventing, reducing and eliminating pollution and any other degradation of the environment) and resource management (preserving and maintaining the stock of natural resources and hence safeguarding against depletion).

Employment in the EU-28's environmental economy rose from 2.8 million full-time equivalents (FTEs) in 2000 to 4.2 million FTEs in 2013. The environmental economy in the EU-28 generated EUR 699 billion of output and EUR 284 billion of value added in 2013. Between

2000 and 2013, the environmental economy consistently outperformed the overall economy in terms of the growth of its employment and value added/gross domestic product (GDP), with the exception of employment in 2003 and value added in 2012.

During the period 2000–13 there was a steady pattern of net job creation within the environmental economy. Annual employment increases were in the range of 2–6% most years, with lower growth in 2002 and 2003, as well as 2012 (when a slight contraction was recorded) and 2013.

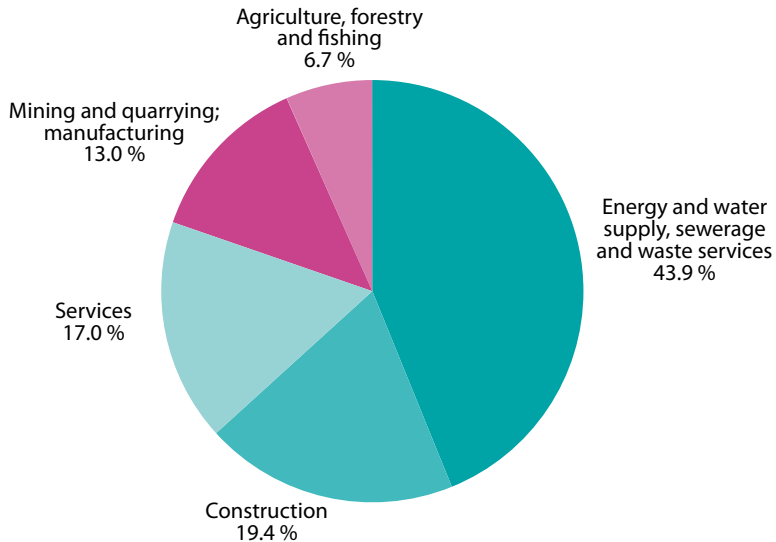


Table 4.7.1: Employment, production and value added in the environmental economy, by activity, EU-28, 2013

	Employment (thousand full-time equivalents)	Production value (billion EUR)	Gross value added (billion EUR)
Total	4 154	699	284
Agriculture, forestry and fishing	319	31	19
Mining, quarrying and manufacturing	557	116	37
Energy and water supply, sewerage and waste services	1 393	328	125
Construction	1 154	144	55
Services	731	80	48

Source: Eurostat (online data code: env_ac_egss3)

Figure 4.7.2: Gross value added of the environmental economy, by activity, EU-28, 2013 ⁽¹⁾
(%)



(1) Estimates.

Source: Eurostat (online data code: env_ac_egss3)

Most employment within the environmental economy of the EU-28 in 2013 was found in: energy and water supply, sewerage, waste management and remediation activities (NACE Sections D and E) with 1.4 million FTEs; and construction (NACE Section F) with 1.2 million FTEs. By contrast, the environmental economy employed 731 thousand FTEs in services activities, 557 thousand FTEs in mining, quarrying and manufacturing, and 319 thousand FTEs in agriculture, forestry and fishing.

The activity with the highest contribution to the gross value added of the EU-28's environmental economy in 2013 was energy and water supply, sewerage, waste management and remediation activities, with EUR 125 billion, or 44% of the total. This was by far the largest activity, and mainly includes the production of energy from renewable sources and gas from agricultural by-products and waste. The activity with the second highest contribution to the gross value added of the environmental economy was construction, reporting EUR 55 billion of value

added, 19% of the total. This activity includes the construction of buildings with low-energy consumption and passive buildings, as well as the refurbishment of existing buildings to improve energy consumption, noise insulation work, maintenance and repair of water networks, construction work for wastewater and waste treatment plants and sewerage systems. The third largest activity grouping was services, which generated EUR 48 billion of value added, 17% of the total for the environmental economy. The remaining activities contributed 13% of the total in the case of mining, quarrying and manufacturing and 7% in the case of agriculture, forestry and fishing.

Note that the energy and water supply, sewerage, waste management and remediation activities generated 44% of the value added of the environmental economy with 34% of the labour input, whereas construction generated 19% of the value added with 28% of the labour input.



4.8 Environmental taxes

Environmental taxes have a tax base with a proven, specific negative impact on the environment. European statistics distinguish environmental taxes relating to energy, transport, pollution and resources.

The total revenue from environmental taxes in the EU-28 in 2014 was EUR 343.6 billion; this figure equates to 2.5 % of gross domestic product (GDP) and to 6.3 % of the total revenues derived from all taxes and social contributions.

From 2002 to 2014, the total environmental tax revenue in the EU increased by 2.2 % per year

(at current prices) on average whereas GDP at market prices rose at an annual average of 2.5 %. In 2014, the level of environmental tax revenues was some EUR 79 billion higher than in 2002. However, from 2008 onwards the financial and economic crisis caused a reduction in economic activity in the EU, leading to lower tax receipts in 2008 and 2009. In 2010, environmental tax revenues returned to an upward path.

Figure 4.8.1: Total environmental tax revenue by type of tax, EU-28, 2002–14 (billion EUR)



Source: Eurostat (online data code: env_ac_tax)

Table 4.8.1: Environmental tax revenue by type, 2014
(million EUR)

	Total environmental taxes	Energy taxes	Transport taxes	Taxes on pollution/ resources
EU-28	343 641	263 031	68 322	12 288
Belgium	8 228	4 922	2 796	510
Bulgaria	1 168	1 016	122	31
Czech Republic	3 281	3 038	215	29
Denmark	10 622	6 167	3 885	570
Germany	58 189	48 689	9 490	10
Estonia	533	464	11	58
Ireland	4 597	2 797	1 742	57
Greece	6 537	5 226	1 311	0
Spain	19 251	16 095	2 487	669
France	43 720	34 656	6 074	2 990
Croatia	1 661	1 004	369	289
Italy	57 977	47 668	9 737	572
Cyprus	536	413	123	0
Latvia	630	495	114	21
Lithuania	619	580	22	17
Luxembourg	975	900	70	6
Hungary	2 713	2 022	470	221
Malta	234	128	95	11
Netherlands	22 265	12 648	6 555	3 062
Austria	7 988	5 038	2 875	74
Poland	10 305	8 738	829	737
Portugal	3 907	2 877	1 014	16
Romania	3 641	3 238	394	9
Slovenia	1 452	1 124	171	158
Slovakia	1 349	1 118	157	74
Finland	5 912	3 956	1 847	109
Sweden	9 535	7 567	1 847	121
United Kingdom	55 816	40 446	13 502	1 868
Norway	8 705	4 545	3 706	454
Switzerland (¹)	8 690	4 915	3 612	164
Serbia	1 346	1 137	94	115

(¹) 2014 data not available, 2013 data instead.

Source: Eurostat (online data code: [env_ac_tax](#))



Table 4.8.2: Environmental tax revenue by type, 2014
(% of taxes and social contributions)

	Total environmental taxes	Energy taxes	Transport taxes	Taxes on pollution/resources
EU-28	6.35	4.86	1.26	0.23
Belgium	4.53	2.71	1.54	0.28
Bulgaria	9.84	8.55	1.02	0.26
Czech Republic	6.22	5.76	0.41	0.06
Denmark	8.18	4.75	2.99	0.44
Germany	5.24	4.39	0.86	0.00
Estonia	8.28	7.20	0.18	0.90
Ireland	8.17	4.97	3.10	0.10
Greece	10.24	8.19	2.05	0.00
Spain	5.50	4.60	0.71	0.19
France	4.47	3.54	0.62	0.31
Croatia	10.51	6.35	2.34	1.83
Italy	8.28	6.81	1.39	0.08
Cyprus	9.01	6.94	2.06	0.00
Latvia	9.26	7.28	1.67	0.31
Lithuania	6.13	5.75	0.22	0.16
Luxembourg	5.23	4.82	0.37	0.03
Hungary	6.79	5.06	1.18	0.55
Malta	8.51	4.66	3.46	0.40
Netherlands	8.96	5.09	2.64	1.23
Austria	5.63	3.55	2.03	0.05
Poland	7.82	6.63	0.63	0.56
Portugal	6.59	4.85	1.71	0.03
Romania	8.76	7.79	0.95	0.02
Slovenia	10.61	8.21	1.25	1.15
Slovakia	5.76	4.77	0.67	0.32
Finland	6.57	4.40	2.05	0.12
Sweden	5.18	4.11	1.00	0.07
United Kingdom	7.54	5.46	1.82	0.25
Norway	5.92	3.09	2.52	0.31
Switzerland (!)	6.23	3.52	2.59	0.12
Serbia	10.82	9.14	0.76	0.92

(!) 2014 data not available, 2013 data instead.

Source: Eurostat (online data code: env_ac_tax)

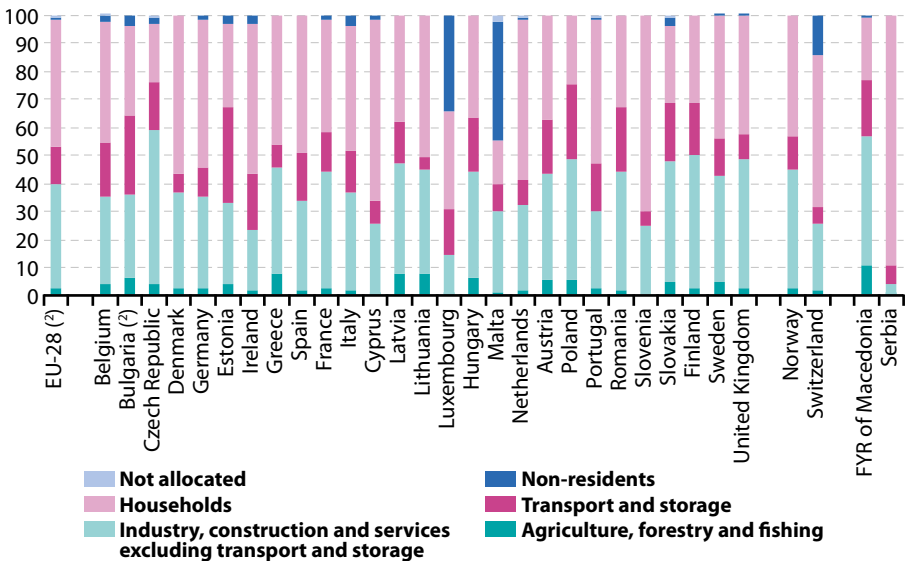
Energy taxes (which include taxes on transport fuels) represented by far the highest share of overall environmental tax revenue, accounting for 76.5 % of the EU-28 total in 2014. These taxes were particularly prominent in Lithuania, the Czech Republic and Luxembourg, where they accounted for more than nine tenths of total environmental tax revenues. By contrast, energy taxes slightly exceeded 50 % of the revenues from environmental taxes in Malta and Norway.

Transport taxes represented the second most important contribution to total environmental tax revenues, with 19.9 % of the EU-28 total in 2014. Their relative significance was considerably higher in Malta (40.6 % of all revenues from environmental taxes), Ireland (38 %), Denmark (37 %), Austria (36 %) and also in Norway (42.6 %)

the smallest shares of transport taxes in total revenues from environmental taxes were in Estonia (2.1 %) and in Lithuania (3.5 %).

Pollution and resource taxes represented a relatively small share (3.6 %) of total environmental tax revenues in the EU-28 in 2014. This category of taxes was implemented more recently in most EU Member States. However, a much higher share for pollution and resource taxes was observed in Croatia (17.4 %), and in the Netherlands (13.8 %). By contrast, in some EU Member States (Germany, Greece and Cyprus), no taxes of this category have been levied. This can be due to specificities in the management of water and waste charges which may be collected by schemes other than taxes.

Figure 4.8.2: Energy taxes by economic activity, 2013 (1)
(% of energy tax revenue)



(1) Croatia: not available.

(2) Estimates for non-residents.

Source: Eurostat (online data code: [env_ac_taxind2](#))



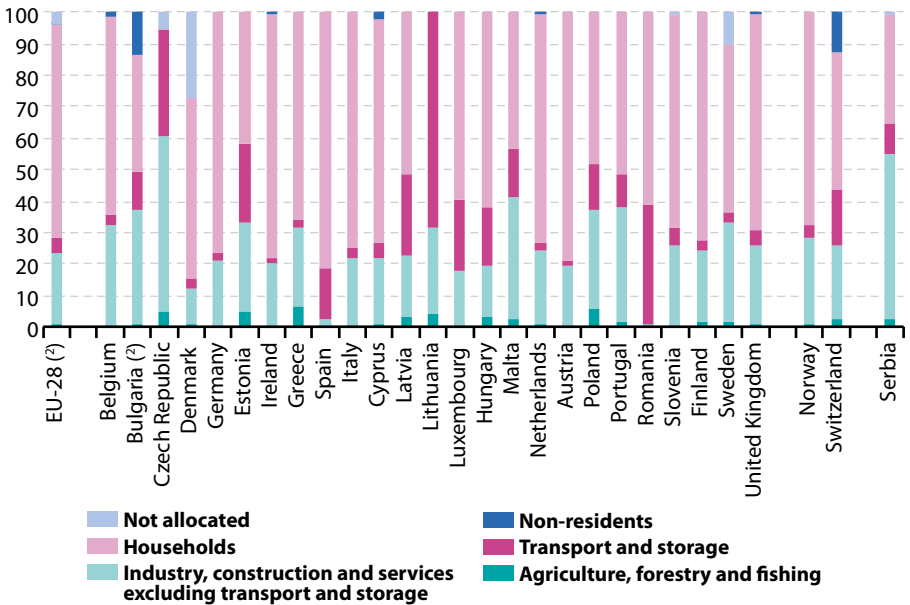
Table 4.8.3: Energy taxes by economic activity, 2013 ⁽¹⁾
(million EUR)

	Agriculture, forestry and fishing	Industry, construction and services excluding transport and storage	Transport and storage	Households	Non-residents	Not allocated
EU-28	6 792.0	93 919.3	34 006.7	113 175.2	3 651.8	1 032.7
Belgium	194.4	1 474.4	903.2	2 068.5	97.1	1.1
Bulgaria	61.5	313.4	286.1	334.4	37.0	0.0
Czech Republic	127.9	1 723.4	530.1	647.1	58.1	28.8
Denmark	157.2	2 154.6	399.3	3 570.8	0.0	0.0
Germany	1 255.2	15 658.7	5 233.8	25 200.9	788.5	0.0
Estonia	17.9	119.9	142.5	122.8	12.3	0.0
Ireland	59.0	576.9	540.5	1 440.5	87.4	0.0
Greece	305.1	1 516.8	349.7	1 833.4	0.0	0.0
Spain	296.8	5 183.6	2 704.2	7 879.4	0.0	0.0
France	930.4	14 049.0	4 810.7	13 625.6	398.4	0.0
Croatia	:	:	:	:	:	:
Italy	702.7	15 806.6	6 593.1	19 923.6	1 617.0	0.0
Cyprus	0.9	90.3	29.4	235.2	4.0	0.0
Latvia	33.9	171.6	63.7	165.7	0.0	0.0
Lithuania	41.1	200.4	24.4	271.9	0.0	0.0
Luxembourg	4.1	129.8	151.7	322.7	318.4	0.0
Hungary	121.6	728.9	376.0	711.6	0.0	0.0
Malta	1.0	31.5	11.1	16.8	46.2	2.2
Netherlands	254.0	3 848.0	1 054.0	7 281.0	52.0	101.0
Austria	267.9	1 949.8	991.9	1 897.4	0.0	0.0
Poland	462.4	3 555.2	2 215.6	2 037.0	0.0	0.0
Portugal	71.3	779.8	479.6	1 448.6	22.1	13.7
Romania	51.6	1 078.6	575.1	840.5	0.0	0.0
Slovenia	0.0	270.3	51.2	754.5	0.0	0.0
Slovakia	53.2	469.0	232.1	299.4	34.5	4.4
Finland	94.7	1 911.5	727.8	1 251.8	0.0	0.0
Sweden	408.5	3 131.3	1 131.1	3 589.8	8.9	0.0
United Kingdom	817.9	16 983.9	3 399.1	15 404.5	70.0	0.0
Norway	127.1	2 076.4	585.9	2 098.1	0.0	0.0
Switzerland	80.6	1 175.2	290.3	2 688.1	680.4	0.0
FYR of Macedonia	13.7	57.3	25.1	28.2	0.8	0.0

(¹) Croatia: not available (99% of all energy tax revenue could not be allocated to economic activity).

Source: Eurostat (online data code: env_ac_taxind2)

Figure 4.8.3: Transport taxes by economic activity, 2013 (1)
(% of transport tax revenue)



(1) France, Croatia and Slovakia: not available.

(2) Estimates.

Source: Eurostat (online data code: [env_ac_taxind2](#))

Across the EU Member States, businesses paid a little more than half (53%) of all energy tax revenue collected by governments, while the contribution of households rose to 45%. The remainder (2%) was paid by non-residents or not allocated. The share of the whole energy tax revenue collected from non-residents peaked at 42% in Malta. In Luxembourg this share rose to 34%, largely due to non-resident purchases of petrol and diesel.

Among the EU Member States for which data are available, the share of energy taxes paid by households was highest in Slovenia (70%), Cyprus (65%), the Netherlands (58%) and Denmark (57%). The share of taxes borne by households was lowest in Malta (15%) and the

Czech Republic (21%). The share of energy tax revenues coming from industry, construction and services other than transportation and storage amounted to 37% for the EU-28 as a whole. The third most important contribution to energy tax revenue (13% for the EU-28) originated from transportation and storage activities. In some Member States this activity contributed to more than a quarter of total energy tax revenue: Estonia (34%), Bulgaria (28%) and Poland (27%). The contribution of agriculture, forestry and fishing to the total energy taxes amounted to 3% for the EU-28, ranging from 0% in Slovenia to 8% in Latvia, Lithuania and Greece.



Table 4.8.4: Transport taxes by economic activity, 2013 ⁽¹⁾
(million EUR)

	Agriculture, forestry and fishing	Industry, construction and services excluding transport and storage	Transport and storage	Households	Non-residents	Not allocated
EU-28	497.3	14 892.9	3 152.9	44 915.0	193.3	2 243.4
Belgium	9.7	910.0	92.7	1 786.7	44.0	0.0
Bulgaria	1.3	40.9	14.1	42.3	15.0	0.0
Czech Republic	10.8	121.0	73.1	0.4	0.0	10.7
Denmark	28.7	438.0	109.1	2 200.7	0.0	1 034.6
Germany	18.5	1 970.5	258.9	7 197.5	0.0	0.0
Estonia	0.6	3.0	2.8	4.6	0.0	0.0
Ireland	3.3	326.0	31.6	1 265.4	3.2	0.0
Greece	84.2	312.8	40.7	836.3	0.0	0.0
Spain	2.7	62.7	430.1	2 166.5	0.0	0.0
France	:	:	:	:	:	:
Croatia	:	:	:	:	:	:
Italy	28.5	2 076.2	311.7	7 345.7	0.0	0.0
Cyprus	1.2	22.3	4.8	76.8	1.9	0.0
Latvia	3.4	19.9	26.6	53.1	0.0	0.0
Lithuania	0.6	4.3	10.7	0.0	0.0	0.0
Luxembourg	0.1	12.2	15.2	40.4	0.0	0.0
Hungary	14.6	77.6	88.0	295.1	0.0	0.0
Malta	2.1	34.1	13.4	37.4	0.0	0.0
Netherlands	26.7	1 481.0	132.3	4 478.0	8.0	0.0
Austria	8.8	485.8	45.3	2 019.0	0.0	0.0
Poland	44.9	236.2	113.9	368.4	0.0	0.0
Portugal	11.2	326.3	90.1	460.7	0.0	0.0
Romania	0.0	3.4	152.5	241.8	0.0	0.0
Slovenia	0.2	41.7	10.3	111.2	0.0	0.2
Slovakia	:	:	:	:	:	:
Finland	23.2	414.6	62.4	1 299.7	0.0	0.0
Sweden	33.4	603.5	54.7	1 025.5	0.0	190.4
United Kingdom	103.0	3 032.3	566.8	8 449.2	38.2	0.0
Norway	22.4	1 137.3	187.0	2 793.2	0.0	0.0
Switzerland	84.6	849.0	640.9	1 584.5	452.9	0.0

(¹) France, Croatia and Slovakia: not available.

Source: Eurostat (online data code: env_ac_taxind2)

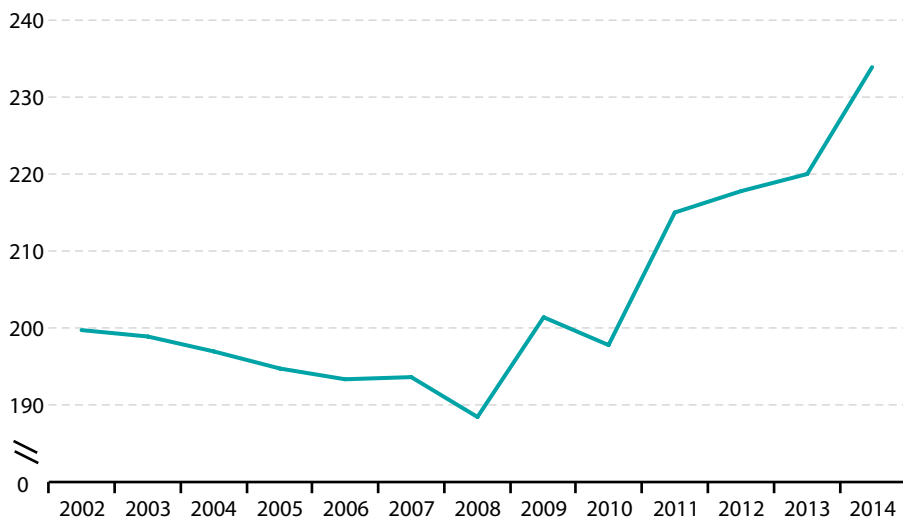
Table 4.8.5: Implicit tax rate on energy (deflated), 2007–14
(EUR per tonne of oil equivalent)

	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	193	188	201	198	215	218	220	234
Belgium	137	125	130	126	143	137	124	136
Bulgaria	101	112	110	105	99	99	109	104
Czech Republic	128	131	134	133	145	139	131	137
Denmark	375	346	374	370	400	412	424	432
Germany	224	217	232	212	234	225	211	219
Estonia	103	107	131	130	133	139	130	144
Ireland	154	158	186	210	242	241	243	250
Greece	135	130	137	221	225	275	342	351
Spain	152	153	161	162	159	160	199	203
France	191	183	190	192	214	211	217	236
Croatia	135	119	123	136	118	115	136	162
Italy	265	246	275	275	320	365	362	401
Cyprus	165	158	161	183	197	197	230	253
Latvia	82	82	93	87	95	94	100	112
Lithuania	97	97	114	103	100	99	104	109
Luxembourg	222	220	217	205	212	214	203	201
Hungary	122	120	119	134	133	136	129	135
Malta	275	186	202	184	211	205	193	217
Netherlands	203	214	228	218	232	222	237	258
Austria	170	170	171	164	181	179	174	175
Poland	122	119	118	116	123	127	129	139
Portugal	184	179	179	176	177	178	177	177
Romania	88	76	91	99	95	96	108	136
Slovenia	172	167	216	215	207	227	225	236
Slovakia	103	104	101	93	102	102	100	108
Finland	118	128	131	123	153	151	149	147
Sweden	228	231	237	227	227	227	230	220
United Kingdom	221	219	242	237	254	246	250	272
Norway	233	219	236	216	213	200	213	227
Serbia	68	71	95	92	89	92	107	131

Source: Eurostat (online data code: [tsdcc360](#))



Figure 4.8.4: Implicit tax rate on energy (deflated), EU-28, 2002–14
(EUR per tonne of oil equivalent)



Source: Eurostat (online data code: tsdcc360)

In general, the share of transport taxes paid by households was much higher than the share paid by businesses: 68% compared with 28% on average among the EU Member States. This is because households contribute more than businesses to motor vehicle tax revenues in most EU Member States. However, in some EU Member States less than half of transport tax revenues were paid by households, this being the case in Bulgaria, the Czech Republic, Estonia, Lithuania, Malta and Poland, and this was also the case in Switzerland.

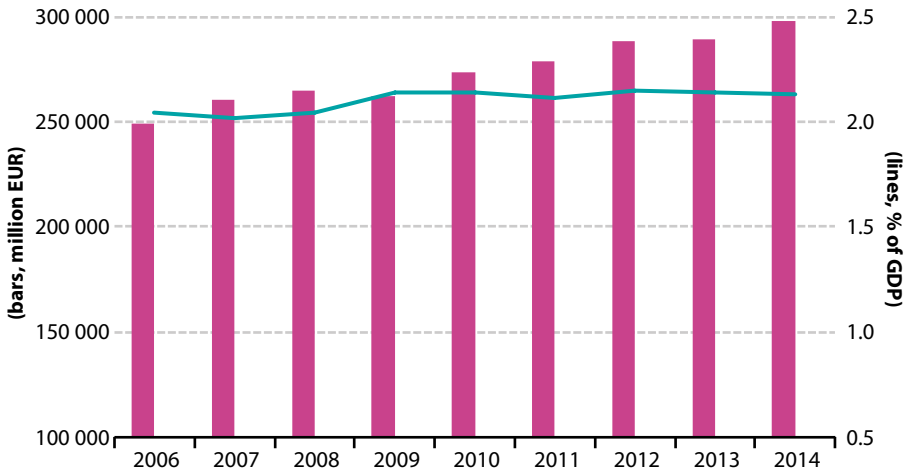
The implicit tax rate on energy is defined as the ratio of energy tax revenues to final energy consumption calculated for a calendar year. Energy tax revenues are measured in constant price euros (deflated with the implicit GDP deflator, prices of year 2010) and final energy

consumption is measured in tonnes of oil equivalent (toe); as such the implicit tax rate on energy is expressed in euros per tonne of oil equivalent (EUR per toe). The implicit tax rate on energy is not influenced by the size of the tax base and provides a measure of the effective level of energy taxation.

From 2002 to 2014, the implicit tax rate on energy increased by 17% in real terms (in other words, after deflating the energy tax revenue), changing from EUR 199.6 per toe to EUR 233.7 per toe. Between 2002 and 2008, the implicit tax rate on energy followed a slight downwards trend. Since 2008, strong annual increases have been observed except in 2010. This movement reflects the fact that energy use is more and more costly as regards the amount of tax that is levied for each unit consumed.

4.9 Environmental protection expenditure

Figure 4.9.1: National expenditure on environmental protection, EU-28, 2006–14 (¹)
(million EUR and % of GDP)



(¹) Estimates.

Source: Eurostat (online data codes: [env_ac_pepsgg](#), [env_ac_pepsp](#), [env_ac_pepsns](#) and [nama_10_gdp](#))

Environmental protection expenditure relates to expenditure that is carried out with the purpose of protecting the environment. This covers spending on activities that are directly aimed at preventing, reducing and eliminating pollution or any other degradation of the environment.

The main aggregate is the national expenditure on environmental protection, which represents the sum of current and capital expenditure on environmental protection activities by the country, including also the net financing of those services with the rest of the world. In 2014 the national expenditure on environmental protection amounted to EUR 297 billion in EU-28. Between 2006 and 2014 it grew by 20% at current prices. In the first three years of that period, a growth of 7% was registered followed

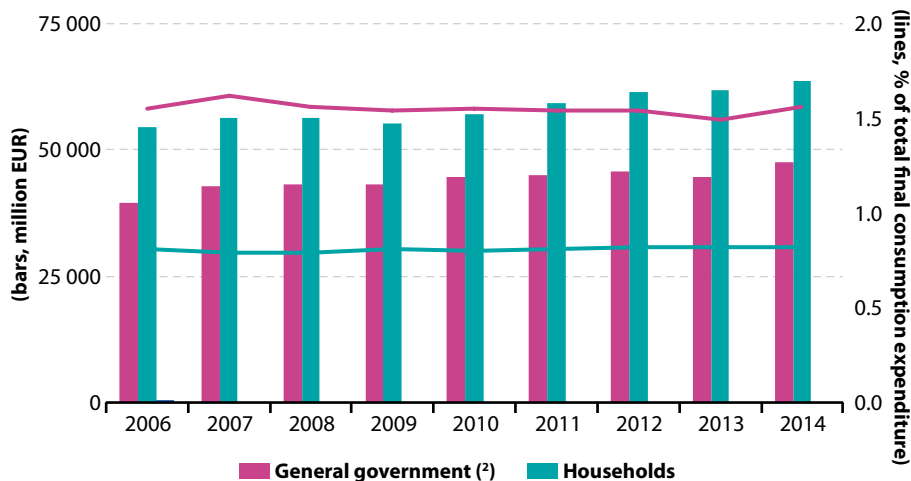
by a slight decrease (1%) between 2008 and 2009, as the global financial and economic crisis unfolded. During the years 2009–14 national expenditure on environmental protection grew stronger again, by 13% in total.

National expenditure on environmental protection as percentage of GDP was 2.1% in 2014. It recorded a small but steady increase over the whole period 2006–14: during 2006–08 this ratio stood at 2% while as from 2009 it increased by 0.1 percentage point (pp) to 2.1%. In the year 2009 spending on environmental protection decreased less than GDP. Since 2010 the ratio remained unchanged, that is the national expenditure on environmental protection at current prices followed the growth of the GDP.



Figure 4.9.2: Final consumption expenditure on environmental protection services, EU-28, 2006–14 ⁽¹⁾

(million EUR and % of sectoral total final consumption expenditure)



⁽¹⁾ Estimates.

⁽²⁾ Including non-profit institutions serving households (NPISH). Estimates for the total final consumption expenditure of general government and NPISH (used as the denominator for the share in %) do not include expenditure by non-profit institutions serving households in Germany, Ireland and the United Kingdom.

Source: Eurostat (online data codes: [env_ac_cepsgh](#), [nasa_10_nf_tr](#) and [nama_10_fcs](#))

Final consumption expenditure is one of the key components of national expenditure on environmental protection. In 2014 households in the EU-28 spent some EUR 63 billion on environmental protection, accounting for about 57% of the total final consumption expenditure on environmental protection. The general government (including non-profit institutions serving households) spent about EUR 47 billion (43 % of the total).

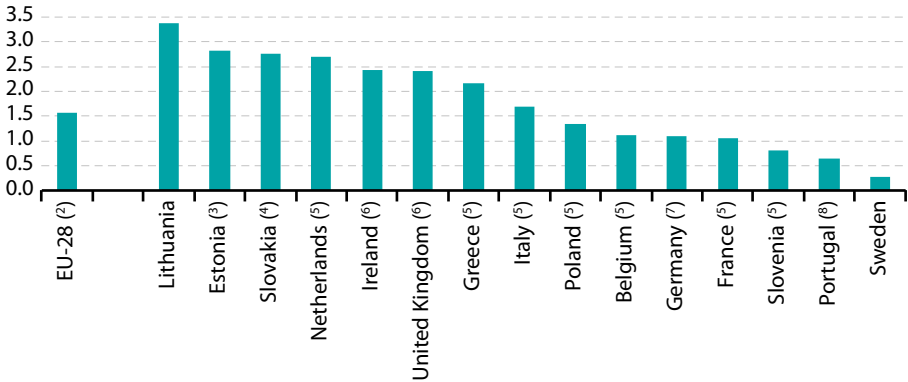
Between 2006 and 2014, the general government expenditure at current prices grew by 20% and the households expenditure by 16%. Expenditure by households dipped in 2009 as a consequence of the global financial and economic crisis, while expenditure by the

government sector showed constant growth since 2006 except for year 2013.

The share of environmental protection expenditure out of total final consumption expenditure indicates the importance of environmental protection relative to total final consumption. In the EU-28, for the general government, this indicator stood at 1.6% of final consumption expenditure by government in 2014, compared with 0.8% for households. Between 2006 and 2014 the share of environmental protection expenditure in the total final consumption expenditure grew for general government by 0.01 pp, while for households it increased by 0.02 pp.

Figure 4.9.3: Final consumption expenditure on environmental protection services, 2014 ⁽¹⁾

(% of general government and NPISH total final consumption expenditure)



⁽¹⁾ Bulgaria, the Czech Republic, Denmark, Spain, Croatia, Latvia, Luxembourg, Hungary, Malta, Austria, Romania and Finland: not available.

⁽²⁾ Estimate. The estimate for the total final consumption expenditure of general government and NPISH (used as the denominator) does not include expenditure by NPISH in Germany, Ireland and the United Kingdom.

⁽³⁾ 2010.

⁽⁴⁾ 2012.

⁽⁵⁾ 2013.

⁽⁶⁾ The total final consumption expenditure of general government and NPISH (used as the denominator) does not include expenditure by NPISH.

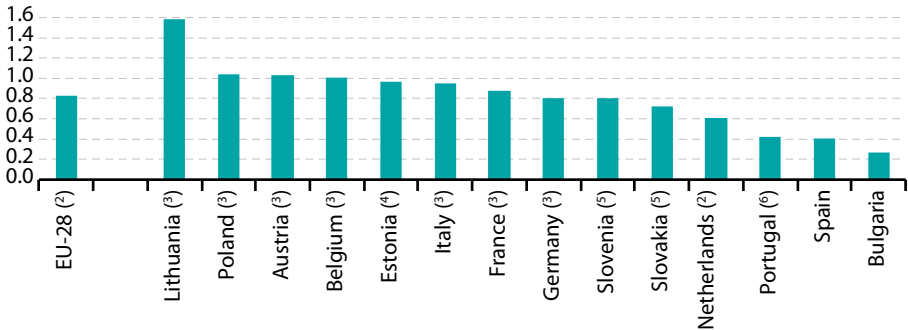
⁽⁷⁾ 2013. The total final consumption expenditure of general government and NPISH (used as the denominator) does not include expenditure by NPISH.

⁽⁸⁾ 2011.

Source: Eurostat (online data codes: [env_ac_cepsgh](#) and [nasa_10_nf_tr](#))

Figure 4.9.4: Households final consumption expenditure on environmental protection services, 2014 ⁽¹⁾

(% of households total final consumption expenditure)



⁽¹⁾ The Czech Republic, Denmark, Ireland, Greece, Croatia, Cyprus, Latvia, Luxembourg, Hungary, Malta, Romania, Finland, Sweden and the United Kingdom: not available.

⁽²⁾ Estimate.

⁽³⁾ 2013.

⁽⁴⁾ 2010.

⁽⁵⁾ 2012.

⁽⁶⁾ 2011.

Source: Eurostat (online data codes: [env_ac_cepsgh](#) and [nama_10_fcs](#))

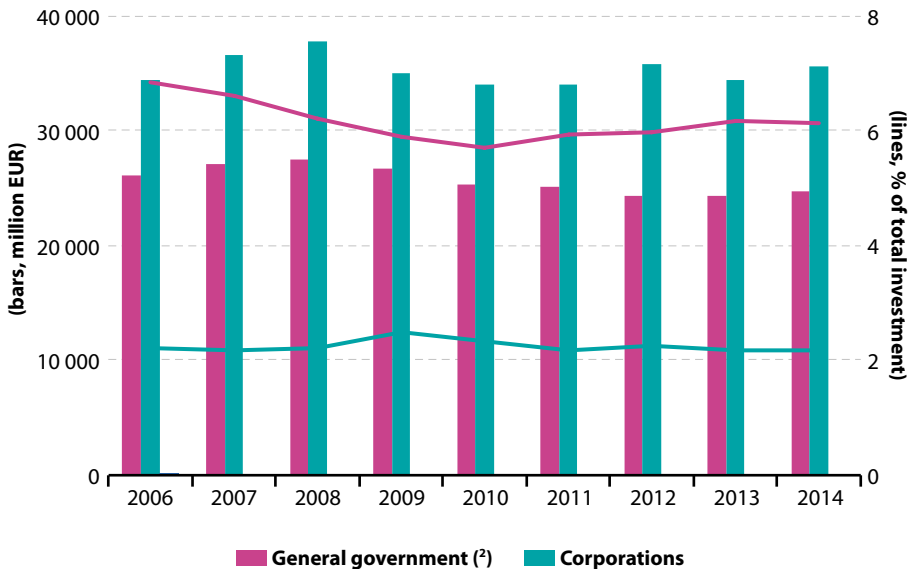


In most EU Member States for which data were available, general government final consumption expenditure on environmental protection ranged from 2.43 % to 1.06 % of the total final consumption expenditure in 2014. The only countries below this range were Sweden (0.27 %), Portugal (0.65 %, 2011 data) and Slovenia (0.81 %, 2013 data), while relatively high levels of general government final consumption expenditure on environmental protection were recorded in Lithuania (3.37 %), Estonia (2.82 %, 2010 data), Slovakia (2.75 %, 2012 data) and the Netherlands (2.70 %, 2013 data).

For households, the share of final consumption expenditure on environmental protection

over total final consumption also varied across countries, although the country differences were much smaller than for government: most countries recorded a household final consumption expenditure on environmental protection between 1.04 % and 0.61 % relative to the sector's total final consumption expenditure. Only Portugal (0.42 %, 2011 data), Spain (0.41 %) and Bulgaria (0.26 %) were below this range, while the highest share of household final consumption expenditure on environmental protection was recorded in Lithuania (1.58 %, 2013 data).

Figure 4.9.5: Investment for environmental protection, EU-28, 2006–14 ⁽¹⁾
(million EUR and % of total investment)



⁽¹⁾ Estimates. Investment comprises gross fixed capital formation and acquisitions less disposals of non-financial non-produced assets.

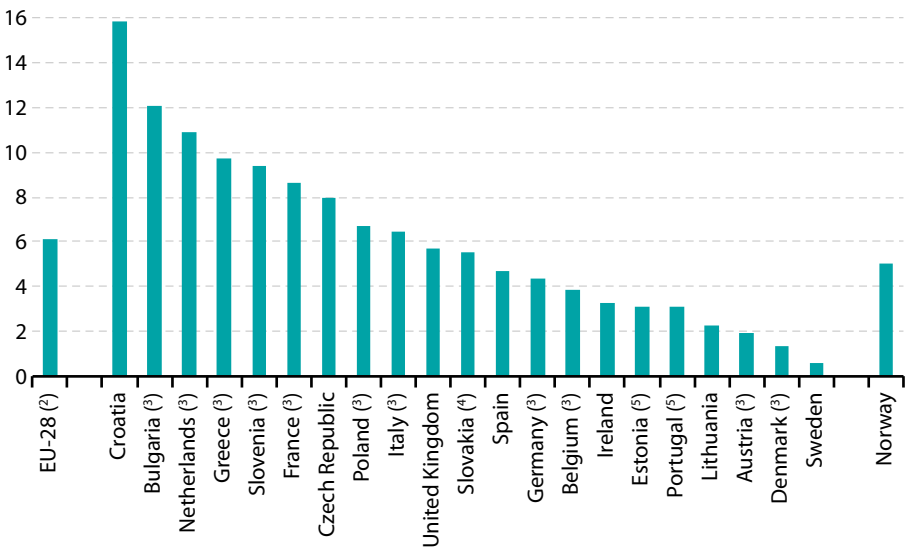
⁽²⁾ Including non-profit institutions serving households (NPISH). Estimates for the total investment of general government and NPISH (used as the denominator for the share in %) do not include the total investment by NPISH.

Source: Eurostat (online data codes: [env_ac_pepsgg](#), [env_ac_pestsp](#), [env_ac_pestnsp](#) and [nasa_10_nf_tr](#))

Another component of the national expenditure on environmental protection is the capital expenditure (in terminology of national accounts: gross fixed capital formation plus acquisitions less disposals of non-financial non-produced assets; further referred to as 'GFCF' or 'investment'). In 2014 corporations accounted for some EUR 36 billion or about 59% of the GFCF on environmental protection

in the EU-28. The general government had a net investment of about EUR 25 billion, corresponding to a share of 41% of the total GFCF on environmental protection. Between 2006 and 2014, the corporations' investment on environmental protection at current prices grew by 3.2%, while the general government investment decreased by 5.2%

Figure 4.9.6: General government and non-profit institutions serving households (NPISH): investment for environmental protection, 2014 (1)
(% of general government total investment)



(1) Investment comprises gross fixed capital formation and acquisitions less disposals of non-financial non-produced assets. Estimates for the total investment (used as the denominator for the share in%) do not include the total investment by NPISH. Cyprus, Latvia, Luxembourg, Hungary, Malta, Romania and Finland: not available.

(2) Estimates.

(3) 2013.

(4) 2012.

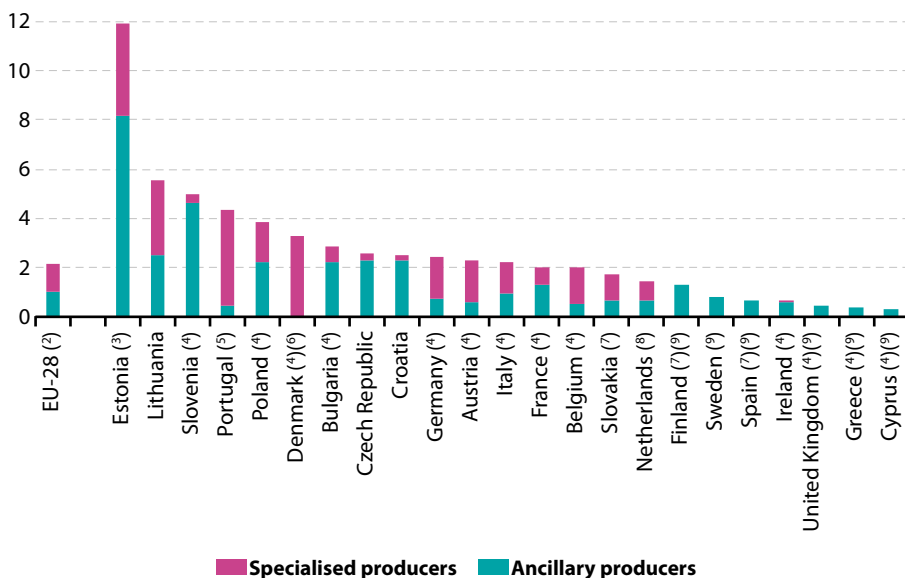
(5) 2010.

(6) 2011.

Source: Eurostat (online data codes: env_ac_pepsgg and nasa_10_nf_tr)



Figure 4.9.7: Corporations: investment for environmental protection, 2014 ⁽¹⁾
(% of corporations' total investment)



⁽¹⁾ Investment comprises gross fixed capital formation and acquisitions less disposals of non-financial non-produced assets. Luxembourg, Latvia, Hungary and Malta, Romania: not available.

⁽²⁾ Estimates.

⁽³⁾ Ancillary producers: 2012. Specialised producers: 2010.

⁽⁴⁾ 2013.

⁽⁵⁾ Specialised producers: 2011.

⁽⁶⁾ Ancillary producers: not available.

⁽⁷⁾ 2012.

⁽⁸⁾ Ancillary producers: 2012. Specialised producers: 2013.

⁽⁹⁾ Specialised producers: not available.

Source: Eurostat (online data codes: [env_ac_pestsp](#), [env_ac_pestnsp](#) and [nasa_10_nif_tr](#))

In most EU Member States, GFCF on environmental protection by the general government ranged between 3.07% and 9.73% of their total GFCF in 2014. Only Sweden (0.61%), Denmark (1.32%, 2013 data), Austria (1.91%, 2013 data) and Lithuania (2.28%) had lower shares. Shares of general government sector environmental protection GFCF above that range were recorded in Croatia (15.82%), Bulgaria (12.08%, 2013 data) and the Netherlands (10.95%, 2013 data). Most of the countries with lower GFCF by the general government are the ones having highest GFCF by specialised

producers in the corporate sector, indicating the complementarity of public and private investment according to the structure of their production of environmental protection services. Examples are Estonia, Portugal, Denmark and Lithuania.

Regarding corporations, on average, 2.2% of their total GFCF was spent on environmental protection in the EU-28 in 2014. In the EU Member States, it generally ranged between 3.82% and 1.49% of the total GFCF. Finland, Sweden, Spain, Ireland, the United Kingdom,

Greece, Cyprus had lower shares, however for these countries data are available only for corporations with ancillary production, which means data have under-coverage. Countries with shares above that range are Estonia (2010 data),

Lithuania, Slovenia (2013 data) and Portugal (2011 data), recording the highest ratios by far (11.9%, 5.5%, 5.0% and 4.3% of total GFCF, respectively).

Table 4.9.1: General government and non-profit institutions serving households: output of environmental protection services, 2014
(million EUR)

	Wastewater	Waste	Biodiversity	Pollution abatement	Other domains	Total
EU-28	15 973.6	59 145.2	10 357.3	4 340.0	15 936.8	105 753.0
Belgium ⁽¹⁾	195.7	1 230.2	152.7	160.5	330.8	2 069.8
Bulgaria	16.5	199.1	1.0	1.3	33.0	250.9
Czech Republic	:	:	:	:	:	:
Denmark ⁽¹⁾	0.0	3.5	102.8	11.9	30.0	148.3
Germany ⁽¹⁾	5 726.0	4 790.0	1 053.0	1 066.0	2 318.0	14 953.0
Estonia ⁽²⁾	0.7	8.5	7.7	3.3	89.7	109.8
Ireland	:	:	:	:	:	:
Greece	:	:	:	:	:	:
Spain	980.0	4 611.0	691.0	185.0	692.0	7 159.0
France ⁽¹⁾	2 879.5	1 502.3	806.4	329.8	4 700.1	10 218.1
Croatia	:	:	:	:	:	:
Italy ⁽¹⁾	690.0	9 287.0	3 488.0	701.0	771.0	14 937.0
Cyprus	:	:	:	:	:	:
Latvia	:	:	:	:	:	:
Lithuania	95.4	83.5	7.8	11.1	42.0	239.8
Luxembourg	:	:	:	:	:	:
Hungary	:	:	:	:	:	:
Malta	:	:	:	:	:	:
Netherlands ⁽¹⁾	3 262.5	2 412.2	468.9	576.3	988.0	7 707.8
Austria ⁽¹⁾	0.0	378.8	32.1	60.0	9.0	479.9
Poland ⁽¹⁾	221.9	149.7	28.8	383.0	259.4	1 042.8
Portugal ⁽³⁾	129.6	448.0	7.0	19.3	307.9	911.8
Romania	:	:	:	:	:	:
Slovenia ⁽¹⁾	8.3	3.3	23.9	7.1	26.4	68.9
Slovakia ⁽⁴⁾	10.9	194.0	27.9	18.5	61.1	312.4
Finland	:	:	:	:	:	:
Sweden	:	:	:	:	:	:
United Kingdom	:	:	:	:	:	:
Serbia	0.0	0.5	0.1	0.1	3.1	3.7
Turkey ⁽¹⁾	100.4	1 625.6	132.4	9.4	268.1	2 135.9

⁽¹⁾ 2013.

⁽²⁾ 2010.

⁽³⁾ 2011.

⁽⁴⁾ 2012.

Source: Eurostat (online data code: env_ac_pepsgg)



Table 4.9.2: Specialised producers: market output of environmental protection services for CEPA 2, CEPA 3 and CEPA 4, 2014
(million EUR)

	Wastewater	Waste	Remediation of soil, groundwater and surface water	Total
EU-28	33 126.9	84 638.7	6 778.4	124 543.9
Belgium ⁽¹⁾	1 315.4	2 868.7	200.0	4 384.1
Bulgaria	53.2	183.4	0.6	237.2
Czech Republic	63.2	885.4	27.5	976.0
Denmark ⁽¹⁾	1 266.2	2 310.2	17.2	3 593.5
Germany ⁽¹⁾	:	:	:	28 930.0
Estonia ⁽²⁾	125.4	206.0	4.0	335.3
Ireland ⁽¹⁾	137.4	1 015.7	4.7	1 157.8
Greece	:	:	:	:
Spain	:	:	:	:
France ⁽¹⁾	3 990.9	13 357.9	638.8	17 987.7
Croatia	:	:	:	:
Italy ⁽¹⁾	3 235.2	12 818.3	1 480.2	17 533.6
Cyprus	:	:	:	:
Latvia	:	:	:	:
Lithuania ⁽¹⁾	47.7	331.0	0.1	378.7
Luxembourg	:	:	:	:
Hungary	:	:	:	:
Malta	:	:	:	:
Netherlands ⁽¹⁾	680.8	3 869.2	404.0	4 954.0
Austria ⁽¹⁾	1 916.6	3 539.0	839.9	6 295.6
Poland ⁽¹⁾	2 158.0	1 620.6	23.1	3 801.6
Portugal ⁽³⁾	580.3	1 061.8	9.3	1 651.3
Romania	:	:	:	:
Slovenia ⁽¹⁾	16.6	155.7	1.1	174.7
Slovakia ⁽⁴⁾	191.9	336.8	4.8	533.6
Finland	:	:	:	:
Sweden	:	:	:	:
United Kingdom	:	:	:	:
Serbia	1.5	131.0	6.2	138.7
Turkey ⁽¹⁾	148.6	2 016.8	0.0	2 165.4

⁽¹⁾ 2013.

⁽²⁾ 2010.

⁽³⁾ 2011.

⁽⁴⁾ 2012.

Source: Eurostat (online data code: env_ac_peppsp)

Table 4.9.3: Ancillary producers: output of environmental protection services, 2014
(million EUR)

	Air	Wastewater	Waste	Other domains	Total
EU-28	6 590.9	6 404.5	5 567.2	9 522.9	28 085.5
Belgium ⁽¹⁾	27.6	69.0	57.9	36.3	190.8
Bulgaria	45.6	31.0	33.1	35.2	144.9
Czech Republic	78.1	215.6	109.0	90.1	492.7
Denmark	:	:	:	:	:
Germany ⁽¹⁾	2 377.6	1 468.8	905.0	87.1	4 838.5
Estonia ⁽²⁾	1.0	5.8	10.2	3.9	20.8
Ireland	:	:	:	:	:
Greece	:	:	:	:	:
Spain ⁽²⁾	297.2	329.4	281.0	177.3	1 085.0
France ⁽¹⁾	606.0	702.5	577.6	3 471.6	5 357.7
Croatia ⁽¹⁾	6.0	13.2	14.8	12.0	45.9
Italy	:	:	:	:	:
Cyprus ⁽¹⁾	9.5	4.3	5.1	0.8	19.7
Latvia	:	:	:	:	:
Lithuania	0.3	1.1	6.3	4.4	12.0
Luxembourg	:	:	:	:	:
Hungary	:	:	:	:	:
Malta	:	:	:	:	:
Netherlands ⁽¹⁾	c	c	c	543.4	935.5
Austria ⁽¹⁾	258.1	166.8	209.6	767.6	1 402.1
Poland ⁽¹⁾	482.6	182.8	220.5	173.1	1 059.0
Portugal ⁽³⁾	21.2	35.8	43.1	34.6	134.7
Romania	:	:	:	:	:
Slovenia ⁽¹⁾	30.0	36.2	47.4	22.2	135.7
Slovakia ⁽²⁾	7.1	62.6	33.7	23.5	126.9
Finland ⁽²⁾	134.3	135.1	36.7	33.1	339.3
Sweden	:	:	:	:	435.9
United Kingdom ⁽¹⁾	131.3	435.6	209.1	427.1	1 203.1
Serbia	3.5	6.4	7.3	7.5	24.6
Turkey ⁽¹⁾	148.6	79.0	214.7	42.6	484.9

⁽¹⁾ 2013.⁽²⁾ 2012.⁽³⁾ 2011.Source: Eurostat (online data code: [env_ac_pepsnsp](#))



Regarding the production of environmental protection services, the main producers are the general government and the specialised producers which are part of the corporate sector.

In most EU Member States the output of environmental protection services by the general government was concentrated in the following environmental protection activities: waste management, wastewater treatment and in protection of biodiversity. Poland was one exception as 37% of the environmental protection output was generated for pollution abatement. Estonia and France were also exceptions as more than 80% and 45% of their

output on environmental protection services by general government was recorded in the miscellaneous category, which includes research and development, general environmental administration and management, education, training and information relating to the environment, as well as activities leading to indivisible expenditure and activities not elsewhere classified.

As regards the specialised producers in the corporate sector, in all of the EU Member States the vast majority of their market output was waste management and wastewater treatment.

Annexes



Annex A: Glossary of terms used in the energy section

These are the main definitions. More can be found in the glossary of Statistics Explained http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Energy_glossary

Biofuels

Liquid or gaseous fuels used primarily for transport produced from biomass. Biofuels comprise biogasoline, biodiesel and other liquid biofuels. Second-generation biofuels refer to biofuels produced from wastes, residues, non-food cellulosic material and lingo-cellulosic material.

CHP

See 'Combined heat and power'.

Cogeneration

See 'Combined heat and power'.

Combined heat and power

A combined heat and power (also referred to as a cogeneration or a CHP) unit is an installation in which heat energy released from fuel is transmitted to electrical generator sets which are designed and operated in such a way that energy is partly used for generating electrical energy and partly for supplying heat for various purposes. The thermal efficiency of a combined heat and power unit is significantly higher than that of a unit producing electricity only.

Energy balance sheets

The energy balance sheets expressed in specific units and in tonnes of oil equivalent, for the European Union as a whole, as well as for each EU Member State, Iceland, Norway, and all candidate countries can be found on the Eurostat website

<http://ec.europa.eu/eurostat/web/energy/data/energy-balances>

Energy dependency

Energy dependency shows the extent to which a country relies upon imports in order to meet its energy needs. It is calculated using the following formula: net energy imports/(gross inland energy consumption + international maritime bunkers).

Energy intensity

Energy intensity gives an indication of the effectiveness with which energy is being used to produce added value. It is defined as the ratio of Gross Inland Energy Consumption to Gross Domestic Product.

Final energy consumption

Final energy consumption is the energy consumed in the following sectors: industry, transport, commercial and public services, agriculture/forestry, fishing, residential and other. It excludes the non-energy consumption, deliveries to the energy transformation sector and for the own use of the energy sector.

GCV

See 'Gross calorific value'.

Gross calorific value

The gross calorific value (GCV) is the total amount of heat released by a unit quantity of fuel, when it is burned completely with oxygen, and when the products of combustion are returned to ambient temperature. This quantity includes the heat of condensation of any water vapour contained in the fuel and of the water vapour formed by the combustion of any hydrogen contained in the fuel.



Gross inland consumption

Gross inland consumption (also referred to as Gross Inland Energy Consumption) is the quantity of energy consumed within the borders of a country. It is calculated using the following formula: primary production + recovered products + imports + stock changes – exports – bunkers (i.e. quantities supplied to seagoing ships).

Hard coal and derived products

Hard coal and derived products include hard coal (anthracite, coking coal, bituminous coal and sub-bituminous coal), patent fuels, coke oven coke and coal tar.

Installed capacity

Installed capacity represents the maximum active power that can be supplied, continuously, with all plants running.

Lignite and derived products

Lignite and derived products include lignite, peat, brown coal/lignite briquettes and peat briquettes.

Natural gas

Natural gas comprises gases, occurring in underground deposits, whether liquefied or gaseous, consisting mainly of methane. It includes both 'non-associated' gas originating from fields producing hydrocarbons only in gaseous form, and 'associated' gas produced in association with crude oil as well as methane recovered from coal mines.

NCV

See 'Net calorific value'.

Net calorific value

The net calorific value (NCV) is the amount of heat released by a unit quantity of fuel, when it is burned completely with oxygen, and when the products of combustion are returned to ambient temperature. This quantity does not include the heat of condensation of the water vapour formed by the combustion of hydrogen contained in the fuel.

Net import

Net import is calculated as the difference between imports and exports.

Power station efficiency

The efficiency of a thermal or nuclear power station is defined as the ratio between the output, i.e. the gross electricity generated, and the fuel input. In the case of a combined heat and power installation the output is the gross electricity generated plus the heat produced.

Primary energy production

Primary energy production is the extraction of energy from a natural source. The precise definition depends on the fuel involved:

- *Hard coal, lignite:* Quantities of fuels extracted or produced, calculated after any operation for removal of inert matter. In general, production includes the quantities consumed by the producer during the production process (e.g. for heating or operation of equipment and auxiliaries) as well as any quantities supplied to other on-site producers of energy for transformation or other uses.
- *Crude oil:* Quantities of fuels extracted or produced within national boundaries, including off-shore production. Production includes only marketable production, and excludes any quantities returned to formation.



- *Natural gas*: Quantities of dry gas within national boundaries, measured after purification and extraction of natural gas liquids and sulphur. The production includes only marketable production, and excludes any quantities re-injected, vented and flared, and any extraction losses. The production includes all quantities used within the natural gas industry, in gas extraction, pipeline systems and processing plants.
- Nuclear heat: Quantities of heat produced in a reactor. Production is the actual heat produced or the heat calculated on the basis of the gross electricity generated and the thermal efficiency of the nuclear plant.
- Hydropower, wind, solar photovoltaic: Quantities of electricity generated. Production is calculated on the basis of the gross electricity generated and a conversion factor of 3 600 kJ/kWh.
- Geothermal energy: Quantities of heat extracted from geothermal fluids. Production is calculated on the basis of the difference between the enthalpy of the fluid produced in the production borehole and that of the fluid disposed of via the re-injection borehole.
- Biomass/wastes: In the case of municipal solid wastes (MSW), wood, wood wastes and other solid wastes, production is the heat produced after combustion and corresponds to the heat content (NCV) of the fuel. In the case of anaerobic digestion of wet wastes, production is the heat content (NCV) of the biogases produced. The production includes all quantities of gas consumed in the installation for the fermentation processes, and excludes all quantities of flared gases.

In the case of biofuels, the production is the heat content (NCV) of the fuel.

RES

See 'Renewable energy'.

Renewable energy

Renewable energy includes hydroelectricity, biomass, wind, solar, tidal and geothermal energies.



Annex B: Terms and methodology used in the transport section

The main terms used in the field of transport statistics are defined in the 'Eurostat concepts and definitions database' (CODED) accessible on the Eurostat website under http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL_GLOSSARY&StrNom=CODED2&StrLanguageCode=EN. Further clarification of the terms used in transport statistics can be found in the Eurostat/ITF/UNECE 'Illustrated Glossary for Transport Statistics' publication, available at http://ec.europa.eu/eurostat/ramon/other_documents/transport_glossary_4_ed/index.cfm?TargetUrl=DSP_TRANSPORT_GLOSSARY_4_ED and in the glossary of Statistics Explained under http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Transport_glossary.

The indicators presented in the transport section of this statistical book represent a small part of the very detailed data collected by Eurostat in the framework of legal acts and voluntary data agreements. According to a commonly agreed breakdown, the indicators are presented on the one hand by domains of interest (equipment, vehicle-kilometres, quantity and performance for the transport of freight and passengers, safety) and on the other hand, by modes of transport (rail, road, inland waterways, pipelines, maritime and aviation). To facilitate the comparisons between smaller and bigger countries, most of the indicators combine basic transport figures with population or Gross Domestic Product (GDP). Eurostat's online database has been used as the main source for the indicators, while figures from the DG for Mobility and Transport have been used as an additional source. For some missing data, figures from miscellaneous international or national bodies have been used and some estimates (put in italics) have been made.

Two main channels are used by Eurostat to collect statistical data:

1. Legal acts on transport statistics which cover detailed data collections for all the main modes of transport:

- *Rail*: Regulation (EC) No 91/2003 of the European Parliament and of the Council of 16 December 2002 on rail transport statistics (O.J. L 14 of 21.1.2003)
- *Road*: Regulation (EU) No 70/2012 of the European Parliament and of the Council on statistical returns in respect of the carriage of goods by road (recast) (O.J. L 32 of 3.2.2012)
- *Inland waterways*: Regulation (EC) 1365/2006 of the European Parliament and of the Council of 6 September 2006 on statistics of goods transport by inland waterways and repealing Council Directive 80/1119/EEC (O.J. L 264 of 25.9.2006)
- *Maritime*: Directive 2009/42/EC of the European Parliament and of the Council of 6 May 2009 on statistical returns in respect of carriage of goods and passengers by sea (O.J. L 141 of 6.6.2009)
- *Aviation passengers, freight and traffic*: Regulation (EC) No 437/2003 of the European Parliament and of the Council of 27 February 2003 on statistical returns in respect of the carriage of passengers, freight and mail by air (O.J. L 66 of 11.3.2003)
- *Road accidents*: Council Decision 93/704/EC of 30 November 1993 (O.J. L 329 of 30.12.1993)

2. The 'Common Questionnaire' of Eurostat, UNECE and ITF, which is used to collect, on a voluntary basis, annual aggregated data covering many aspects of inland modes of transport (rail, road, inland waterways and pipelines). Other voluntary agreements cover the collection of other types of data such as regional transport indicators.

The main dissemination channel used for Eurostat data is the online database which

covers, starting from the early 1980s, millions of transport figures from EU Member States plus, to a lesser extent, statistics from EFTA, Mediterranean and candidate countries. Some miscellaneous publications in paper and electronic formats are also available, such as the '*Statistics in Focus*'. <http://ec.europa.eu/eurostat/web/transport/publications>

Annex C: Glossary of terms used in the environment section

These are the main definitions. More can be found in the glossary of Statistics Explained http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Environment_glossary

CO₂ equivalent

CO₂ equivalent is a metric measure used to compare the emissions from various greenhouse gases on the basis of their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide with the same global warming potential.

Domestic extraction

Domestic extraction is one indicator derivable from Eurostat's economy-wide Material Flow Accounts. Domestic extraction is the amount of raw materials (without water and air) extracted from the domestic natural environment and further processed in the economy.

Domestic material input (DMI)

Domestic material input (DMI) is one indicator derivable from Eurostat's economy-wide Material Flow Accounts. DMI measures the amount of materials (without water and air) which is actually

being made available in an economy to produce goods and services (output). It is composed of the domestic extraction used plus the simple mass weight of imported goods.

Domestic material consumption (DMC)

Domestic material consumption (DMC) is one indicator derivable from Eurostat's economy-wide Material Flow Accounts. DMC measures the amount of materials (without water and air) which is actually used by the categories of domestic final demand (consumption by households and government, and gross fixed capital formation). DMC is defined and calculated as domestic material input minus the simple mass weight of exports.

Environmental domains

The scope of environmental protection is defined according to the [Classification of Environmental Protection Activities](#) (CEPA 2000), which distinguishes nine environmental domains: protection of ambient air and climate (CEPA 1); wastewater management (CEPA 2); waste management (CEPA 3); protection and



remediation of soil, groundwater and surface water (CEPA 4); noise and vibration abatement (CEPA 5); protection of biodiversity and landscape (CEPA 6); protection against radiation (CEPA 7); research and development (CEPA 8) and other environmental protection activities (CEPA 9).

Environmental goods and services sector

The environmental goods and services sector, abbreviated as EGSS and also called environment industry or eco-industries, consists of a heterogeneous set of producers of goods and services aiming at the protection of the environment and the management of natural resources.

Environmental taxes by economic activities

Environmental taxes are taxes whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment, and which is identified in ESA as a tax. Environmental taxes comprise four types: energy, transport, pollution and resource taxes. Carbon dioxide taxes are included under energy as they are often an integral part of general energy taxes. General [value added tax \(VAT\)](#) is excluded.

Environmental taxes are broken down by economic activity from the perspective of the entities paying the taxes:

- producers, in a breakdown by the classification of economic activities, NACE Rev.2 (A*64 aggregation level as set out in ESA),
- households,
- non-residents.

EPEA National expenditure on environmental protection

National expenditure on environmental protection is calculated in Environmental Protection Expenditure Accounts (EPEA) as the sum for all EU Member States of the following components:

- total environmental protection output,
- plus environmental protection investment (including gross fixed capital formation and acquisition less disposals of non-financial non-produced assets),
- minus intermediate consumption of environmental protection services by corporations as specialist producers.

The imports, exports and international transfers of environmental protection services between the EU-28 and the rest of the world, as well as the VAT and other taxes less subsidies on environmental protection services, are not estimated yet due to incomplete data sources

For the specific economic categories (e.g. output, gross fixed capital formation, intermediate consumption), the ESA 2010 definitions are followed.

EPEA sectors

Institutional sectors are defined in SEEA CF 2012 and ESA 2010. In Environmental Protection Expenditure Accounts (EPEA), the following groupings are used: corporations, general government (and non-profit institutions serving households), households and the rest of the world (as beneficiary or origin of transfers for environmental protection; results for the sector are, however, not presented in chapter 4.9 of the publication).

The corporations sector covers all units classified in national accounts in sectors S.11 and S.12. The corporations sector comprises:

- I. 'specialist producers' of environmental protection services, i.e. the units whose principal activity is the production of environmental protection services (primarily the entities classified to NACE Divisions 37 and 39 and Groups 38.1 and 38.2),
- II. corporations producing environmental protection services as their secondary activities,
- III. corporations producing environmental protection services as their ancillary activities.

In chapter 4.9, the group of corporations which undertake environmental protection services as their principal or secondary activities (as under points (i) and (ii) above) is referred to as 'specialised producers' (please note a broader scope of the notion compared to the concept of 'specialist producers' covered under point (i)).

Global warming potential (GWP)

The global warming potential is the estimated potential of a greenhouse gas contributing to global warming in the atmosphere. It is based on its effect over a 100-year time horizon. These substances have individual GWP ranging from 1 (carbon dioxide), 21 (methane), 310 (nitrous oxide) to 23 900 (sulphur hexafluoride). Hydrofluorocarbons and perfluorocarbons comprise a large number of different gases that have different GWPs (Intergovernmental Panel on Climate Change — IPCC, 1996).

Greenhouse gases (GHG)

These emissions are reported under the 1992 United Nations Framework Convention on Climate Change and, for the EU Member States, under the [Decision 280/2004/EC](#). According to the Kyoto Protocol anthropogenic emissions of the six greenhouse gases (the 'Kyoto basket') are aggregated using the global warming potential: carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) and hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF₆).

Implicit tax rate on energy

The indicator expresses energy tax revenue in relation to final energy consumption calculated for a calendar year. Energy tax revenues are measured in euro (deflated) and the final energy consumption in tonnes of oil equivalent (TOE). The indicator measures the taxes levied on the use of energy which contributes to foster energy efficiency.

Energy tax revenue is the sum of taxes on energy products used for both mobile and stationary purposes.

Final energy consumption includes energy consumed in the transport, industrial, commercial, agricultural, public and households sectors but excludes deliveries to the energy transformation sector and to the energy industries themselves. The different energy products are aggregated on the basis of their net calorific value, and expressed in tonnes of oil equivalent.



NACE

Nomenclature statistique des activités économiques dans la Communauté Européenne; in English: Statistical classification of economic activities in the European Community. NACE is organised in sections and sub-sections.

Sections of NACE rev 2

- A. Agriculture, forestry and fishing
- B. Mining and quarrying
- C. Manufacturing
- D. Electricity, gas, steam and air conditioning supply
- E. Water supply; sewerage, waste management and remediation activities
- F. Construction
- G. Wholesale and retail trade; repair of motor vehicles and motorcycles
- H. Transportation and storage
- I. Accommodation and food service activities
- J. Information and communication
- K. Financial and insurance activities
- L. Real estate activities
- M. Professional, scientific and technical activities
- N. Administrative and support service activities
- O. Public administration and defence; compulsory social security
- P. Education
- Q. Human health and social work activities
- R. Arts, entertainment and recreation
- S. Other service activities
- T. Activities of households as employers
- U. Activities of extraterritorial organisations and bodies

Raw material consumption (RMC)

Raw material consumption (RMC) is an indicator estimate based on Eurostat's economy-wide Material Flow Accounts in combination with economic data and modelling. RMC is the amount of raw materials (without water and air) which is extracted domestically and abroad to produce the goods and services used by the categories of domestic final demand (consumption by households and government, and gross fixed capital formation). RMC is defined and calculated as raw material input minus the exported goods expressed in tonnes raw material equivalents.

Raw material equivalents (RME)

Raw material equivalents are a measurement concept in Eurostat's economy-wide Material Flow Accounts related to traded goods. Traded goods (imports and exports) are usually reported in simple mass weight as they pass the border. Raw material equivalents are the amount of extracted raw materials (without water and air) which was necessary to produce the traded good. Imports and exports expressed in raw material equivalents are components of the RMI and RMC indicators.

Raw material input (RMI)

Raw material input (RMI) is an indicator estimate based on Eurostat's economy-wide Material Flow Accounts in combination with economic data and modelling. RMI is the amount of raw materials (without water and air) which is extracted domestically and abroad, to be used in the economy to produce goods and services (output). It is composed of the raw materials domestically extracted and the imported goods expressed in tonnes raw material equivalents.

Stage of manufacturing

Traded goods are classified according to their stage of manufacturing. The following three stages of manufacturing are defined:

- *raw products*: raw materials like products produced by primary industries such as agriculture, forestry, fishing, and mining;
- *semi-manufactured products*: products which are further processed raw products but do not yet constitute finished products; they obviously need to be further processed;
- *finished products*: products which are finalised, i.e. are not processed or transformed anymore; note that finished products are potentially used for final consumption by households, governments etc. but also as intermediate input to industries.

In operational terms the stage of manufacturing is defined by a correspondence list between CN (combined nomenclature) and the three groupings above — developed by Eurostat and the European Statistical System.

Waste

Waste means any substance or object which the holder discards or intends or is required to discard. Municipal waste generated consists of waste collected by or on behalf of municipal authorities and disposed of through the waste management system. The bulk of this waste stream is from households, though similar wastes from sources such as commerce, offices and public institutions are included. For areas not covered by a municipal waste scheme, an estimate has been made of the amount of waste generated.

Waste recovery:

Any operation whose principal result is either waste that serves a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in a plant or in the wider economy. Some examples of recovery operations are: solvent reclamation/regeneration, recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes), recycling/reclamation of metals and metal compounds, regeneration of acids or bases, oil re-refining or other reuses of oil.

Waste recycling:

Waste recycling is any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.

Water

Water net abstraction (= water withdrawal):

Water gross abstraction minus returned water.

Cooling water:

This is water which is used to absorb and remove heat. In the questionnaire cooling water is broken down into cooling water used in the generation of electricity in power stations, and cooling water used in other industrial processes.

**Public water supply:**

Water supplied by economic units engaged in collection, purification and distribution of water (including desalting of sea water to produce water as the principal product of interest, and excluding system operation for agricultural purposes and treatment of waste water solely in order to prevent pollution). It corresponds to division 41 (NACE/ISIC) independently of the sector involved. Deliveries of water from one public supply undertaking to another are excluded.

Wastewater treatment:

The major aim of wastewater treatment is to remove as much of the pollution (dissolved substances and suspended solids) as possible before the remaining water, called effluent, is discharged back to the environment. Primary treatment typically removes about 60 % of suspended solids from wastewater by means of settling. Secondary treatment (biological) removes more than 90 % of suspended solids and a considerable part of the nutrients. Tertiary treatment includes targeted removal of nutrients such as phosphorus and nitrogen and practically all suspended and organic matter from wastewater.

Annex D: Calorific values and conversion factors

Calorific values

		kJ (NCV)	kgoe (NCV)
Hard coal	1 kg	>20 000	>0.478
Recovered hard coal	1 kg	13 800 - 28 300	0.330 - 0.676
Patent fuels	1 kg	26 800 - 31 400	0.640 - 0.750
Hard coke	1 kg	28 500	0.681
Brown coal	1 kg	5 600 - 10 500	0.134 - 0.251
Lignite	1 kg	<20 000	<0.478
Peat	1 kg	7 800 - 13 800	0.186 - 0.330
Brown coal briquettes	1 kg	20 000	0.478
Tar	1 kg	37 700	0.900
Benzol	1 kg	39 500	0.943
Oil equivalent	1 kg	41 868	1
Crude oil	1 kg	41 600 - 42 800	0.994 - 1.022
Feedstocks	1 kg	42 500	1.015
Refinery gas	1 kg	49 500	1.182
LPG	1 kg	46 000	1.099
Motor spirit	1 kg	44 000	1.051
Kerosenes, jet fuels	1 kg	43 000	1.027
Naphtha	1 kg	44 000	1.051
Gas diesel oil	1 kg	42 600	1.017
Residual fuel oil	1 kg	40 000	0.955
White spirit, industrial spirit	1 kg	43 600	1.041
Lubricants	1 kg	42 000	1.003
Bitumen	1 kg	39 000	0.931
Petroleum cokes	1 kg	32 000	0.764
Other petroleum products (paraffins, waxes, etc.)	1 kg	40 000	0.955
Natural gas	1 MJ (GCV)	900	0.0215
Coke-oven gas	1 MJ (GCV)	900	0.0215
Blast-furnace gas	1 MJ (GCV)	1 000	0.0239
Works gas	1 MJ (GCV)	900	0.0215
Nuclear energy	1 MJ (GCV)	1 000	0.0239
Biomass	1 MJ (GCV)	1 000	0.024
Solar energy	1 MJ (GCV)	1 000	0.024
Geothermal energy	1 MJ (GCV)	1 000	0.024
Hydro energy	1 kWh	3 600	0.086
Wind energy	1 kWh	3 600	0.086
Derived heat	1 MJ (GCV)	1 000	0.024
Electrical energy	1 kWh	3 600	0.086

The tonne of oil equivalent (TOE) is a conventional standardised unit defined on the basis of a tonne of oil with a net calorific value of 41 868 kilojoules/kg. The conversion coefficients

from the specific units to kgoe (kilogramme of oil equivalent) are thus computed by dividing the conversion coefficients to the kilojoules by 41 868.



Calorific values

The following prefixes are used for multiples of TOE, joules, watts and watt hours:

kilo (k)	= 1 000	or	10^3
mega (M)	= 1 000 000	or	10^6
giga (G)	= 1 000 000 000	or	10^9
tera (T)	= 1 000 000 000 000	or	10^{12}
peta (P)	= 1 000 000 000 000 000	or	10^{15}

Energy conversion

From \ To	TJ	Gcal	Mtoe	MBtu	GWh
TJ	1	238.8	2.388×10^{-5}	947.8	0.2778
Gcal	4.1868×10^{-3}	1	1×10^{-7}	396.8	1.163×10^{-3}
Mtoe	4.1868×10^4	1×10^7	1	3.968×10^7	11 630
Mbtu	1.0551×10^{-3}	0.252	2.52×10^{-8}	1	2.931×10^{-4}
GWh	3.6	860	8.6×10^{-5}	3412	1

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Energy, transport and environment indicators

This publication presents a selection of topical data. Most data cover the European Union and its Member States, while some indicators are provided for other countries, such as members of EFTA, and candidate and potential candidates to the European Union.

This publication may be viewed as an introduction to European statistics and provides a starting point for those who wish to explore the wide range of data that is freely available on Eurostat's website at <http://ec.europa.eu/eurostat/>

