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Energy, transport and environment indicators

2014 edition

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Introduction

The 2014 edition presents facts and figures from the Energy, Transport and Environment sectors, all in a single volume. With a view of the growing global political importance of issues such as climate change and energy security, the three sectors have become increasingly interconnected. This creates the need for a comprehensive approach, comprising reliable and comparable statistical data, necessary for the better understanding of the complexity of the issues, for sound policy-making and the setting of effective measures.

The indicators present national data for the 28 EU Member States, the EFTA and 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 2001 and 2012. In the energy chapter, the main data sources are being reported under Regulation (EC) No 1099/2008 on Energy Statistics and Directive 2008/92/EC concerning transparency of gas and electricity prices.

In the transport chapter, the most important data sources are being reported under the EU legal acts on transport statistics and the Eurostat/UNECE/ITF common questionnaire.

Regarding environment, data on waste derive from reporting under Regulation (EC) N° 2150/2002 on waste statistics. Data on water are collected in cooperation with the OECD by means of a Joint Questionnaire. Environmental accounts are collected by Eurostat under Regulation (EC) Nº 691/2011 on Environmental Economic Accounts and emissions data are taken from the European Environment Agency. 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.

'General data' offer a first macroscopic overview of the main characteristics of the EU and its position with regard to the main economies worldwide.

'Energy' indicators include supply, final consumption, renewable sources, and the structure of the industry; energy dependency, energy efficiency, and energy prices. The Directive on the

promotion of the use of energy from renewable sources ([1]), an integral part of the Europe 2020 strategy, defines the share of energy from renewable sources in gross final energy consumption. This publication presents data on certain indicators, for example biofuels, relevant for the policy on the promotion of renewable energy.

'Transport' indicators cover equipment, volume of passengers and freight transport, modes of transport, transport infrastructure, road safety and transport-related emissions.

The 'Environment' chapter includes indicators on climate change and greenhouse gas emissions, waste generation and treatment, water resources, abstraction and use, wastewater treatment, forestry and biodiversity, chemicals, material flow accounts and relevant financial indicators such as environmental protection expenditure and environmental taxes.

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

([1]) Directive of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (2009/28/EC).

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 is to be the leading provider of high quality statistics on 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 Community 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 and candidate countries.

Eurostat online data code(s) — easy access to the freshest data

Eurostat online data codes, such as tps00001 and nama_gdp_c ([2]), 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.

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) ([3]), 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 2014.

([2]) 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.

([3]) 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.

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 on the right-hand side of Eurostat's 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 2014 Statistics Explained contained well over 800 statistical and background articles and some 1 800 glossary pages in English; their number is continuously growing. About 100 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 18 other EU languages. As a result, 570 articles in 20 languages besides English can be consulted.

Users can search for articles using navigational features in the left-hand menu. The top-right menu bar of Statistics Explained offers tools, among others, to print, forward, cite, blog or share content easily.

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Material flow accounts — Cristina Popescu, Stephan Moll

Environmental taxes — Anda Marina Georgescu, Gerald Weber

Environmental protection expenditure — Annamaria Szirony, Gerald Weber

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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:

:	No data available
0	Figure less than half of the unit used
–	Not applicable
%	Percentage
1234	*Estimates are printed in italic*
c	Confidential
N/A	Not available

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	Giga Watt
GWh	Gigawatt hour
ha	Hectare
kg	Kilogram
kgoe	Kilograms of oil equivalent
km	Kilometre
km^2	Square kilometre
ktoe	Thousand tonnes of oil equivalent
kWh	Kilo Watt hour
m^3	Cubic metre
mio	Million (10^6)
Mt	Million tonnes
Mtoe	Million tonnes of oil equivalent

MW	Mega Watt
PJ	Peta Joule
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_2O	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
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 International 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

Abbreviations of countries

EU-28	The 28 Member States of the European Union from 1 July 2013 (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, HR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK)
EU-27	The 27 Member States of the European Union from 1 January 2007 (BE, BG, CZ, DK, DE, EE, IE, EL, ES, FR, IT, CY, LV, LT, LU, HU, MT, NL, AT, PL, PT, RO, SI, SK, FI, SE, UK)
EA-18	The 18 Member States of the Euro Area from 1 January 2014 (BE, DE, EE, IE, EL, ES, FR, IT, CY, LV, LU, MT, NL, AT, PL, PT, SI, FI)
EFTA	European Free Trade Association
BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DK	Denmark
DE	Germany
EE	Estonia
IE	Ireland
EL	Greece
ES	Spain
FR	France
HR	Croatia
IT	Italy
CY	Cyprus
LV	Latvia
LT	Lithuania
LU	Luxembourg
HU	Hungary
MT	Malta
NL	Netherlands
AT	Austria
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovakia
FI	Finland
SE	Sweden

UK	United Kingdom
IS [4]	Iceland
LI	Liechtenstein
NO	Norway
CH	Switzerland
AL	Albania
BA	Bosnia and Herzegovina
ME	Montenegro
MK [5]	The former Yugoslav Republic of Macedonia
RS	Serbia
TR	Turkey
BR	Brazil
CA	Canada
CN	China
IN	India
ID	Indonesia
JP	Japan
RU	Russia
US	United States

[4] Also a candidate country.
[5] Provisional code which does not prejudge in any way the definitive nomenclature for this country, which will be agreed following the conclusion of negotiations currently taking place on this subject at the United Nations.

1

General data

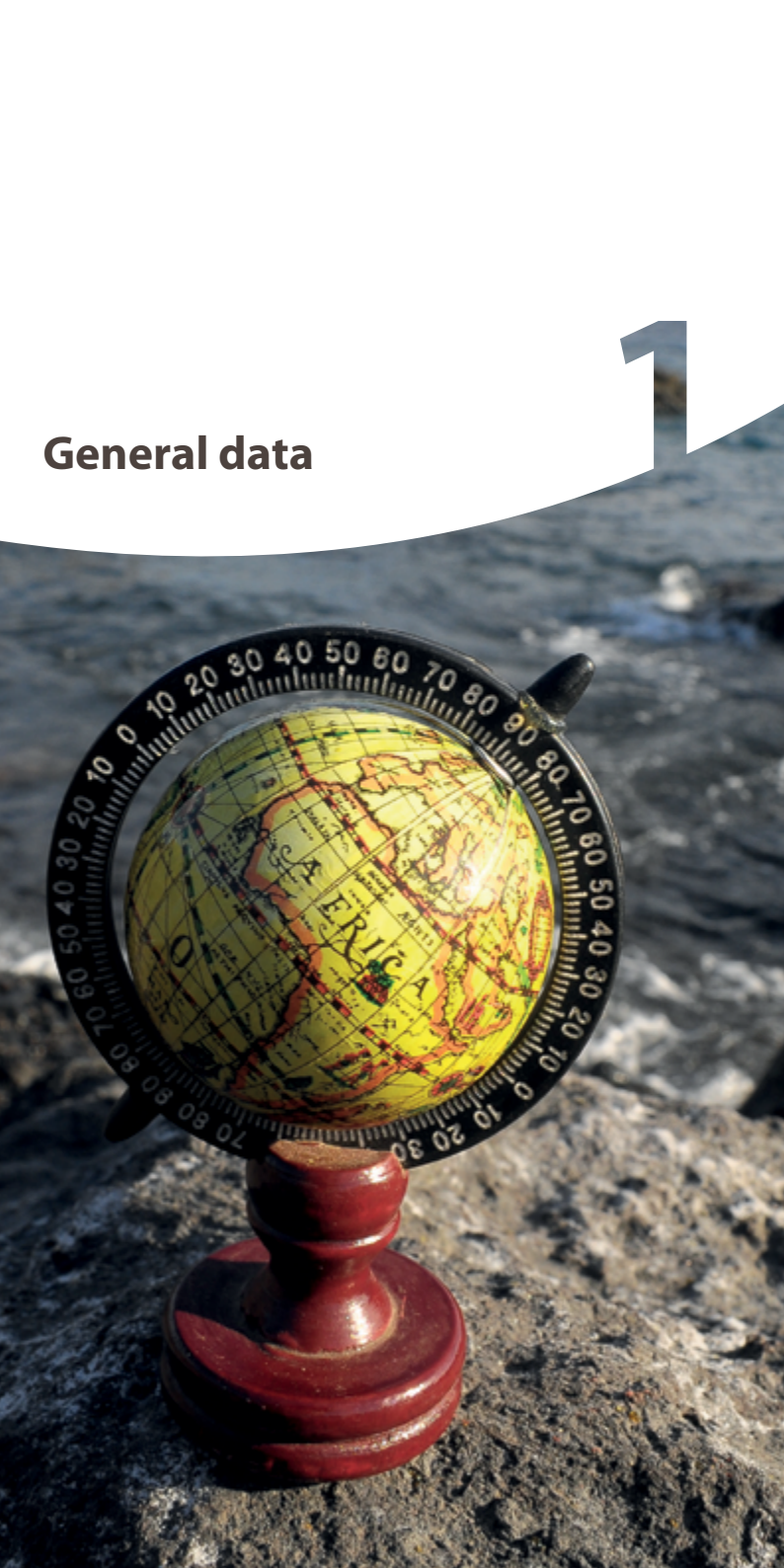
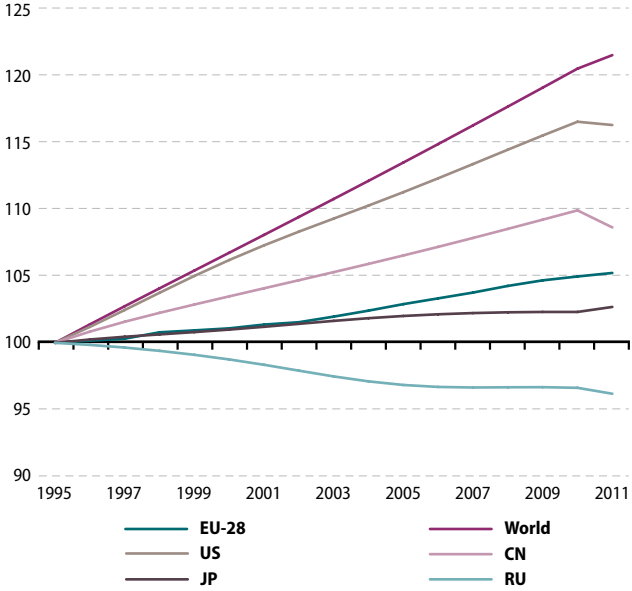


Table 1.1.1: Area and population worldwide, 2011

	Land area (1 000 km²)	Population (thousand)	Population density (inhabitants/km²)
EU-28	4 381	506 781	116
CN	9 597	1 344 100	140
JP	378	127 817	338
RU	17 098	142 961	8
US	9 629	311 592	32
World	136 127	6 974 036	51

Source: Population: United Nations Demographic Yearbook; EU-28: Eurostat (online data code: demo_pjan), Land area: United Nations Demographic Yearbook.

Figure 1.1.1: Population index worldwide
(1995 = 100)



The world's population reached 6 974 million inhabitants in 2011. China was the most populous country with 1 344 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 reached 507 million inhabitants in 2011, followed by the United States (312 million), Russia (143 million) and Japan (128 million). The trend in world population growth has been unbroken since 1995. The overall increase between 1995 and 2011 was 21 %. Over this period, the fastest population growth was recorded in the United States (16 %), followed by China (9 %), the EU-28 (5 %) and Japan (3 %). In contrast, Russia recorded a 4 % decrease between 1995 and 2011.

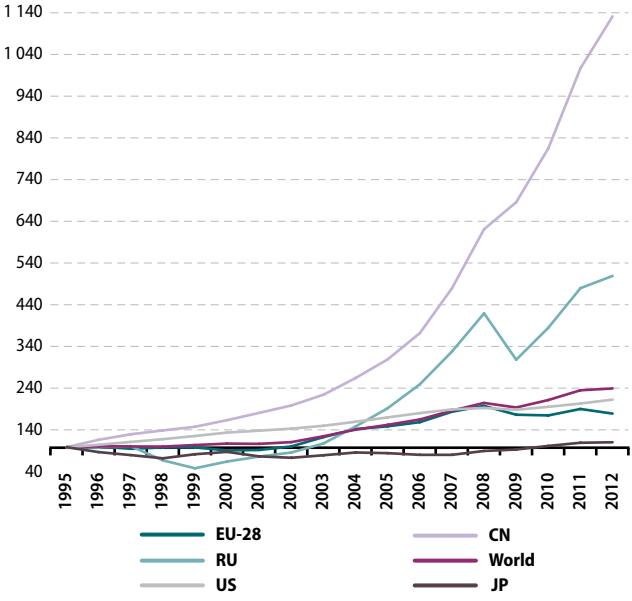
Population density is the ratio of the population of the territory to the surface (land) area of the territory. In 2011, world population density was estimated at 51 inhabitants/km^2. The most densely populated country was Japan (338 inhabitants/km^2), followed by China (140) and the EU-28 (116). The United States and Russia presented densities below the world average (32 and 8 inhabitants/km^2 respectively).

Table 1.1.2: GDP, GDP share in the world, GDP per head in PPP worldwide, 2012

	GDP at current prices (million USD)	Share of world GDP (%)	GNI per capita in PPP (world = 100)
EU-28	16 633 942	23.2	272.8
CN	8 227 103	11.5	76.2
JP	5 959 718	8.3	300.7
RU	2 014 775	2.8	188.4
US	15 684 800	21.9	419.0
World	71 666 350	100.0	100.0

Source: The World Bank

Figure 1.1.2: GDP
(1995 = 100)



Source: The World Bank

In 2012, the world's Gross Domestic Product (GDP) was valued at USD 71 666 billion. The EU-28 accounted for USD 16 634 billion, a 23.2 % share of the world's GDP; while the United States accounted for a 21.9 % share. The share of China in the world's GDP was 11.5 %, Japan's 8.3 % and Russia's 2.8 %. Compared to 1995, all major economies increased their GDPs in 2012. Over this period, China presented an 11-fold increase and Russia a fivefold increase.

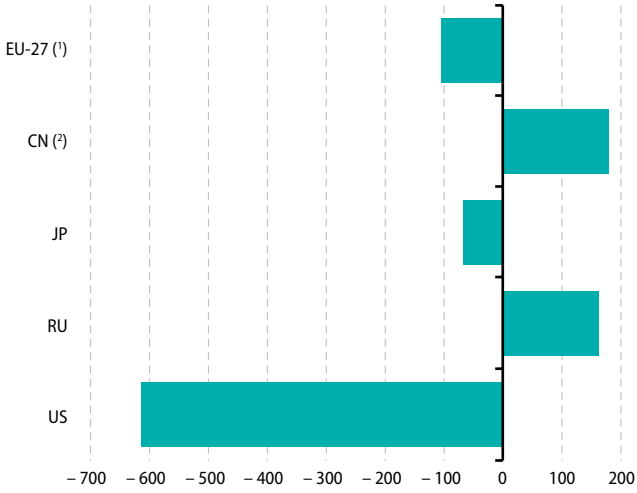
Gross national income (GNI) is the sum of gross primary incomes receivable by resident institutional units/sectors. Therefore, it is GDP less primary income payable to non-residents plus primary income receivable from non-residents. With the use of GNI per capita in purchasing power parity (PPP) the relative position of individual countries can be expressed through a comparison with the world value (100). The highest value among the major world economies was recorded for the United States (419.0 compared to world average), followed by Japan (300.7), EU-28 (272.8) and Russia (188.4); while for China it was 76.2.

Table 1.1.3: Trade in goods worldwide
(million EUR)

	Exports				Imports				Net exports			
	2001	2006	2011	2012	2001	2006	2011	2012	2001	2006	2011	2012
EU-27 (1)	884 707	1 161 776	1 561 890	1 686 295	979 143	1 363 882	1 726 514	1 791 618	– 94 436	– 202 106	– 164 624	– 105 323
CN (2)	297 117	771 691	1 363 785	1 594 631	271 944	630 345	1 252 439	1 415 161	25 173	141 346	111 346	179 470
JP	450 384	515 073	591 368	621 550	390 018	461 185	614 497	689 480	60 366	53 888	– 23 129	– 67 930
RU	111 510	239 920	371 403	408 285	46 746	109 754	219 893	245 942	64 764	130 166	151 510	162 343
US	816 219	825 923	1 063 025	1 202 962	1 317 635	1 528 351	1 625 421	1 816 474	– 501 416	– 702 428	– 562 396	– 613 512

(1) Data for EU–28 not available.
(2) Except Hong Kong.
Source: Eurostat (online data code: ext_lt_introle)

Figure 1.1.3: Net exports, 2012
(billion EUR)



(1) Data for EU–28 not available.
(2) Except Hong Kong.
Source: Eurostat (online data code: ext_lt_introle)

In 2012, the EU-27 presented the highest absolute values of exports (EUR 1 686 billion), followed by China (EUR 1 595 billion); while the United States presented the highest value of imports (EUR 1 816 billion). As far as net exports (exports minus imports) are concerned, in 2012 the net exporting countries were China (except Hong Kong, EUR 179 billion) and Russia (EUR 162 billion), while the United States, the EU-27 and Japan were net importers with EUR 614 billion, 105 billion and 68 billion respectively.

For the period between 2001 and 2012, all countries presented increased exports and imports. The highest increases in exports were recorded in China (fivefold) and Russia (fourfold); while in imports the highest increase was recorded in Russia, followed by China (fivefold).

2 Energy indicators

2.1 Energy prices

Electricity prices have been following an upward trend. The highest electricity prices for households during the second semester of 2013 were found in Denmark (0.29 EUR/kWh), Germany (0.29 EUR/kWh) and Cyprus (0.25 EUR/kWh), whereas the lowest prices were recorded in Bulgaria (0.09 EUR/kWh) and Romania (0.13 EUR/kWh). Electricity prices in the EU-28 for the industrial sector have also been increasing. The highest electricity prices for the industrial sector were observed in Cyprus (0.20 EUR/kWh) followed by Malta (0.18 EUR/kWh), while the lowest prices were observed in Sweden (0.08 EUR/kWh) and Bulgaria (0.08 EUR/kWh). Electricity prices in Bosnia and Herzegovina (0.07 EUR/kWh) were particularly low.

The largest price increases for households among EU Member States (between the second half of 2012 and the second half of 2013, based on national currency figures) were observed in Estonia (22 %) and in Greece (20 %) whereas decreases in electricity prices were observed in eleven Member States. Regarding electricity prices for the industry, the highest increase is reported in Estonia (19 %) and the highest decrease in Cyprus (–14 %).

On average gas prices in the EU-28 for households have been following a slight increasing trend. The highest price was found in Sweden (0.12 EUR/kWh) followed by Denmark (0.11 EUR/kWh). On the other hand the lowest prices were reported in Hungary (0.04 EUR/kWh) and Romania (0.03 EUR/kWh). In the industrial sector, the highest prices were observed in Sweden (0.06 EUR/kWh) and Greece (0.05 EUR/kWh).

Between the second half of 2012 and the second half of 2013, natural gas prices for households rose by 1 % in the EU-28. Across the twenty five Member States for which data are available (Cyprus, Malta and Finland not available), prices rose by 12 % in Romania and more than 9 % in Portugal and Spain. By contrast, there were thirteen Member States where natural gas prices fell, among which Hungary (–15 %) and Greece (–13 %) reported the largest reductions.

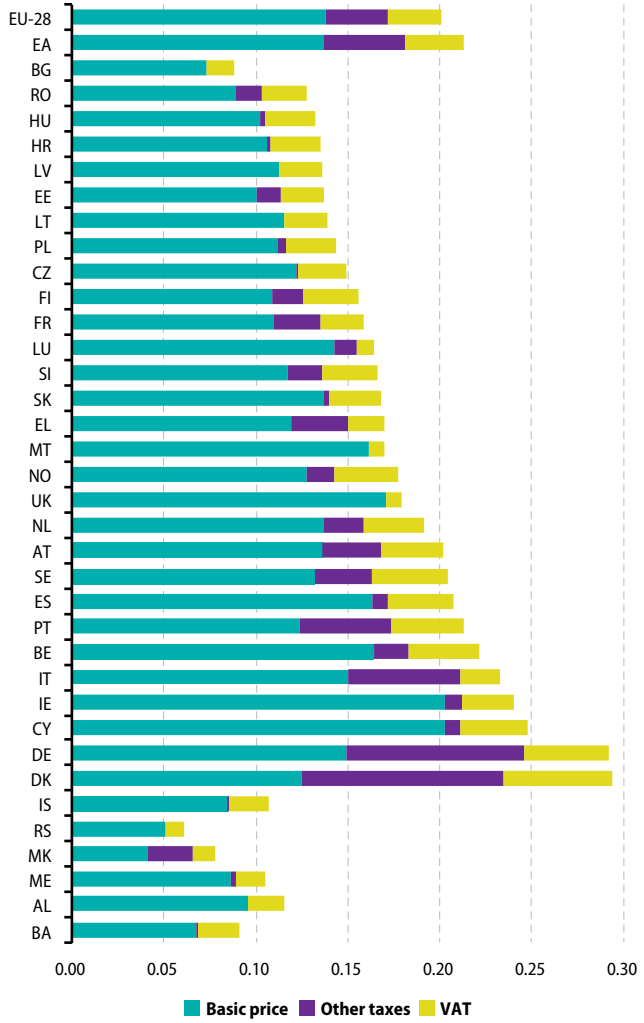
For industrial consumers, the medium standard industrial consumption band is used, which corresponds to an annual natural gas consumption between 2 778 and 27 778 GWh, in other words between 10 000 and 100 000 GJ. Prices for industrial users correspond to the basic price including non-deductible taxes and levies and therefore exclude deductible VAT and other refundable taxes and levies. For industrial users the prices increased in eight EU Member States. The highest increases between the second semester of 2012 and the second semester of 2013 were observed in Germany (25 %) and the United Kingdom (12 %), while the highest decreases were recorded in Slovenia (–14 %) and Greece (–12.3 %).

Table 2.1.1 : Half-yearly electricity prices
(EUR)

	Electricity prices (per kWh)					
	Households (1)			Industry (2)		
	2011s2	2012s2	2013s2	2011s2	2012s2	2013s2
EU-28	0.184	0.195	0.201	0.112	0.116	0.119
EA	0.195	0.205	0.213	0.118	0.122	0.126
BE	0.212	0.222	0.222	0.115	0.111	0.110
BG	0.087	0.096	0.088	0.067	0.078	0.073
CZ	0.147	0.150	0.149	0.108	0.103	0.099
DK	0.298	0.297	0.294	0.093	0.099	0.100
DE	0.253	0.268	0.292	0.124	0.130	0.144
EE	0.104	0.112	0.137	0.075	0.082	0.097
IE	0.209	0.229	0.241	0.129	0.140	0.137
EL	0.124	0.142	0.170	0.111	0.122	0.124
ES	0.209	0.228	0.208	0.116	0.120	0.120
FR	0.142	0.145	0.159	0.081	0.079	0.085
HR	0.115	0.138	0.135	0.089	0.094	0.094
IT	0.207	0.230	0.232	0.166	0.178	0.172
CY	0.241	0.291	0.248	0.211	0.234	0.201
LV	0.134	0.137	0.136	0.110	0.111	0.115
LT	0.122	0.127	0.139	0.104	0.114	0.123
LU	0.166	0.171	0.165	0.100	0.101	0.100
HU	0.155	0.162	0.133	0.100	0.100	0.098
MT	0.170	0.170	0.170	0.180	0.180	0.180
NL	0.184	0.190	0.192	0.094	0.097	0.094
AT	0.197	0.202	0.202	0.113	0.112	0.111
PL	0.135	0.153	0.144	0.094	0.096	0.088
PT	0.188	0.206	0.213	0.101	0.115	0.114
RO	0.109	0.108	0.128	0.080	0.076	0.082
SI	0.149	0.154	0.166	0.096	0.094	0.095
SK	0.171	0.172	0.168	0.126	0.127	0.127
FI	0.157	0.156	0.156	0.075	0.074	0.075
SE	0.204	0.208	0.205	0.083	0.078	0.075
UK	0.158	0.179	0.180	0.104	0.119	0.120
IS	:	0.107	0.107	:	:	:
NO	0.187	0.178	0.178	0.091	0.086	0.087
AL	0.116	0.117	0.115	:	:	:
ME	0.085	0.101	0.105	0.064	0.071	0.073
MK	:	0.079	0.078	:	:	0.075
RS	:	:	0.061	:	:	0.066
TR	0.115	0.147	:	0.076	0.096	:
BA	0.079	0.080	0.080	0.064	0.066	0.066

(1) Annual consumption: 2 500 kWh < consumption < 5 000 kWh.
(2) Annual consumption: 500 MWh < consumption < 2 000 MWh.
Source: Eurostat (online data codes: nrg_pc_204 and nrg_pc_205)

Figure 2.1.1: Electricity prices for household consumers, 2nd semester 2013
(EUR/kWh)



Source: Eurostat (online data code: nrg_pc_204)

Table 2.1.2 : Half-yearly gas prices
(EUR)

	Gas prices (per kWh)					
	Households (1)			Industry (2)		
	2011s2	2012s2	2013s2	2011s2	2012s2	2013s2
EU-28	0.065	0.070	0.071	0.036	0.038	0.040
EA	0.071	0.078	0.079	0.037	0.039	0.041
BE	0.073	0.073	0.067	0.033	0.035	0.034
BG	0.047	0.056	0.052	0.032	0.040	0.035
CZ	0.060	0.066	0.058	0.035	0.034	0.033
DK	0.109	0.108	0.111	0.043	0.048	0.047
DE	0.064	0.065	0.069	0.041	0.038	0.048
EE	0.044	0.052	0.048	0.031	0.036	0.035
IE	0.062	0.067	0.072	0.039	0.042	0.047
EL	:	0.102	0.089	:	0.058	0.051
ES	0.054	0.086	0.089	0.033	0.038	0.038
FR	0.065	0.068	0.073	0.038	0.040	0.039
HR	0.037	0.047	0.047	0.043	0.046	0.043
IT	0.088	0.097	0.095	0.035	0.040	0.038
CY	:	:	:	:	:	:
LV	0.046	0.056	0.050	0.033	0.040	0.037
LT	0.054	0.061	0.061	0.043	0.046	0.041
LU	0.058	0.059	0.057	0.050	0.051	0.045
HU	0.057	0.052	0.042	0.044	0.047	0.048
MT	:	:	:	:	:	:
NL	0.074	0.084	0.085	0.034	0.037	0.036
AT	0.072	0.076	0.075	0.037	0.043	0.043
PL	0.050	0.058	0.051	0.032	0.038	0.036
PT	0.074	0.085	0.093	0.038	0.042	0.042
RO	0.028	0.027	0.031	0.025	0.026	0.029
SI	0.079	0.073	0.066	0.052	0.055	0.047
SK	0.051	0.051	0.052	0.041	0.041	0.039
FI	:	:	:	0.046	0.048	0.047
SE	0.117	0.127	0.122	0.056	0.055	0.055
UK	0.052	0.058	0.059	0.028	0.034	0.036
IS	:	:	:	:	:	:
NO	:	:	:	:	:	:
AL	:	:	:	:	:	:
ME	:	:	:	:	:	:
MK	:	:	:	0.042	0.050	0.039
RS	:	:	:	:	:	0.038
TR	0.029	0.041	:	0.021	0.030	:
BA	0.054	0.056	0.052	0.055	0.057	0.053

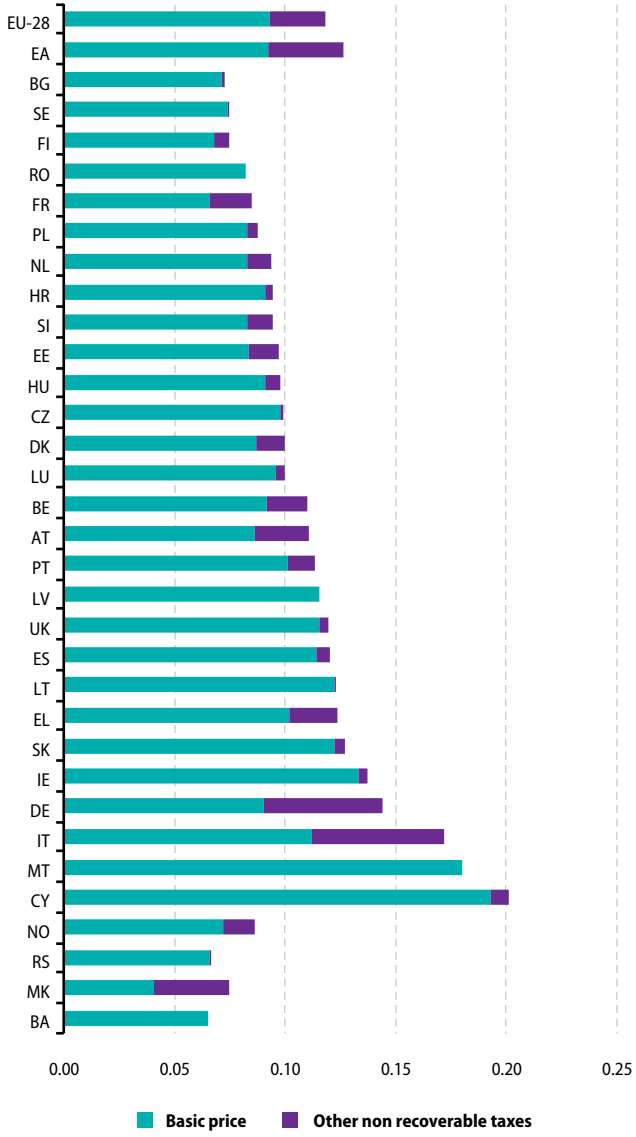
(1) Annual consumption: 5 600 kWh < consumption < 56 000 kWh (20 - 200 GJ).
(2) Annual consumption: 2 778 MWh < consumption < 27 778 MWh (10 000 - 100 000 GJ).
Source: Eurostat (online data codes: nrg_pc_202 and nrg_pc_203)

Table 2.1.3: Electricity — share of taxes and levies paid by household consumers, 2nd semester 2013

	Basic price	Other taxes and levies (excl. VAT)	VAT	All taxes and levies (%)
	(in EUR per kWh)			
BE	0.164	0.019	0.039	25.91
BG	0.074	0.000	0.015	16.67
CZ	0.122	0.001	0.026	18.08
DK	0.125	0.110	0.059	57.46
DE	0.149	0.097	0.047	49.02
EE	0.101	0.013	0.023	26.34
IE	0.203	0.009	0.029	15.76
EL	0.119	0.031	0.020	29.70
ES	0.163	0.008	0.036	21.40
FR	0.110	0.026	0.023	30.84
HR	0.106	0.002	0.027	21.48
IT	0.150	0.061	0.021	35.39
CY	0.203	0.008	0.037	18.26
LV	0.112	0.000	0.024	17.38
LT	0.115	0.000	0.024	17.33
LU	0.143	0.012	0.009	13.18
HU	0.102	0.003	0.028	23.15
MT	0.162	0.000	0.009	5.00
NL	0.137	0.021	0.033	28.25
AT	0.136	0.032	0.034	32.56
PL	0.112	0.005	0.027	21.99
PT	0.124	0.049	0.040	41.67
RO	0.090	0.014	0.025	29.95
SI	0.118	0.018	0.030	29.03
SK	0.137	0.003	0.028	18.59
FI	0.109	0.017	0.030	30.28
SE	0.132	0.032	0.041	35.43
UK	0.171	0.000	0.009	4.73
IS	0.085	0.001	0.022	21.08
NO	0.128	0.014	0.036	28.07
AL	0.096	0.000	0.019	16.64
ME	0.086	0.003	0.016	18.50
MK	0.041	0.025	0.012	47.44
RS	0.050	0.000	0.010	17.27
TR	:	:	:	:
BA	0.068	0.000	0.012	14.57

Source: Eurostat (online data code: nrg_pc_204)

Figure 2.1.2: Electricity prices for industrial consumers, 2nd semester 2013
(EUR/kWh)



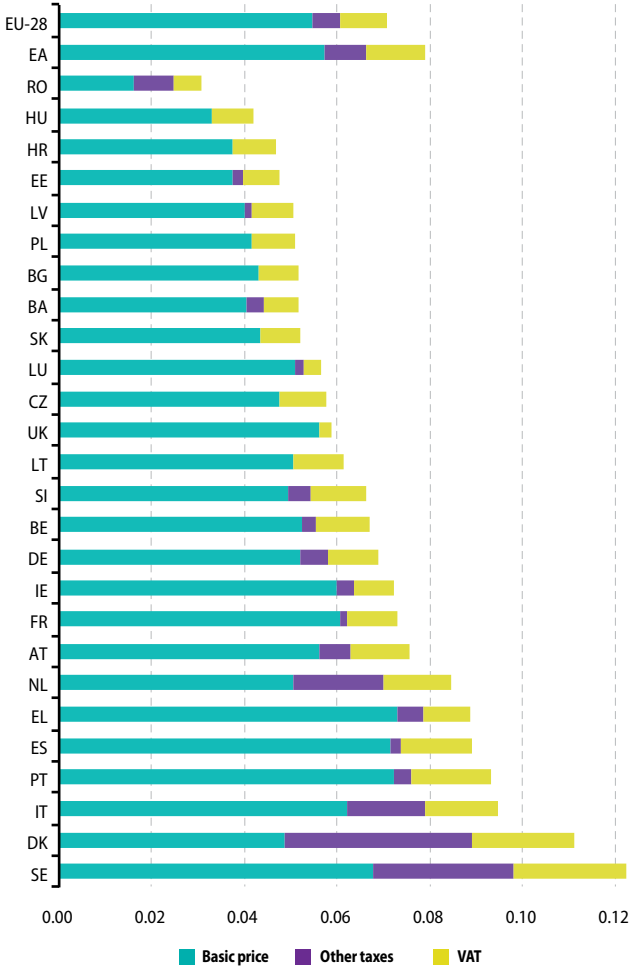
Source: Eurostat (online data code: nrg_pc_205)

Table 2.1.4: Electricity — share of taxes and levies paid by industrial consumers, 2nd semester 2013

	Basic price	Non recoverable taxes and levies	
	(in EUR per kWh)		(%)
BE	0.092	0.018	16.47
BG	0.072	0.001	1.38
CZ	0.098	0.001	1.11
DK	0.087	0.013	12.73
DE	0.091	0.054	37.33
EE	0.084	0.013	13.61
IE	0.133	0.004	2.84
EL	0.102	0.022	17.76
ES	0.114	0.006	4.91
FR	0.066	0.019	22.51
HR	0.091	0.003	3.28
IT	0.112	0.060	34.87
CY	0.193	0.008	4.02
LV	0.115	0.000	0.00
LT	0.123	0.000	0.16
LU	0.096	0.004	4.30
HU	0.091	0.007	6.73
MT	0.180	0.000	0.00
NL	0.083	0.011	11.81
AT	0.086	0.024	21.81
PL	0.083	0.005	5.47
PT	0.101	0.013	11.25
RO	0.082	0.000	0.00
SI	0.083	0.012	12.59
SK	0.122	0.005	3.55
FI	0.068	0.007	9.48
SE	0.074	0.001	0.80
UK	0.116	0.004	3.34
IS	:	:	:
NO	0.072	0.014	16.63
MK	0.041	0.034	45.27
RS	0.066	0.000	0.60
TR	:	:	:
BA	0.066	0.000	0.00

Source: Eurostat (online data code: nrg_pc_205)

Figure 2.1.3: Natural gas prices for household consumers, 2nd semester 2013
(EUR/kWh)



Source: Eurostat (online data code: nrg_pc_202)

In 2013, the highest electricity price for household consumers was reported in Denmark (0.29 EUR/kWh), followed by Germany (0.29 EUR/kWh) and Cyprus (0.25 EUR/kWh). The highest proportions of tax and levies (including VAT) were recorded in Denmark (57.5 %), Germany (49 %) and Portugal (41.7 %). Only two Member States reported proportions of tax and levies (including VAT) below 10 %: Malta (5 %) and the United Kingdom (4.7 %). In the non-EU countries, the proportion of taxes and levies exceeds 14 % and reaches the maximum of 47.4 % in the former Yugoslav Republic of Macedonia.

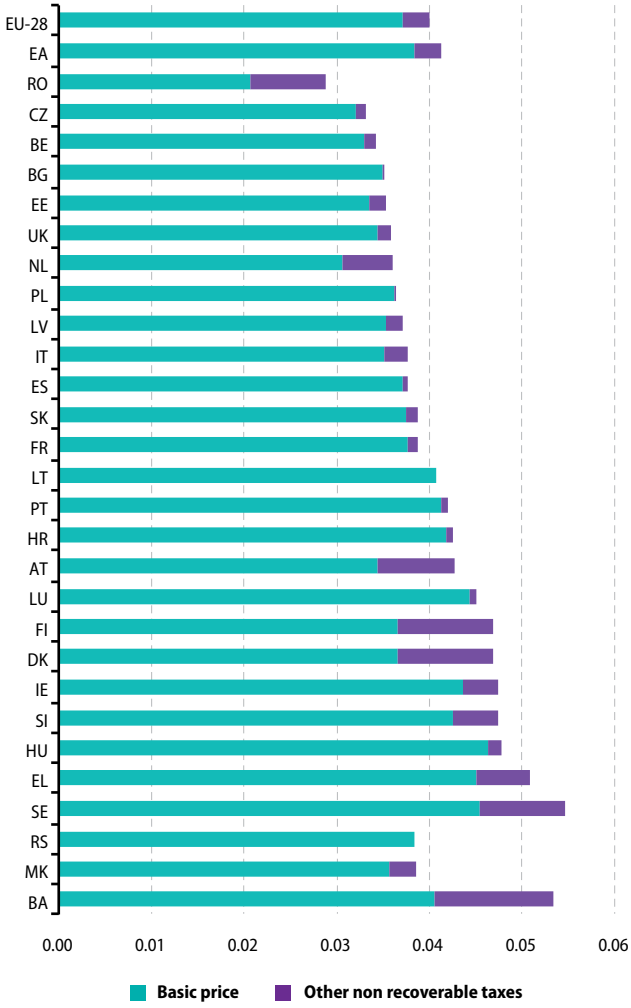
For industrial consumers, electricity prices during the second semester of 2013 were the highest in Cyprus (0.20 EUR/kWh), Malta (0.18 EUR/kWh) and Italy (0.17 EUR/kWh). No energy or other taxes are applied in Latvia, Malta and in Romania. The highest taxes were charged in Germany, where nearly 37 % of the electricity price is made up of non-recoverable taxes and levies. Three other Member States (France, Italy and Austria) report a tax proportion higher than 20 %, whereas two countries apply taxes in a proportion lower than 1 % (Lithuania 0.16 %, Sweden 0.80 %). In general, the proportion of taxes applied to industrial consumers (9.4 % on average in the EU-28) is lower than that applied to household consumers (25.5 % on average in the EU-28). The highest difference is noted in Portugal (household consumers 41.7 %; industrial consumers 11.3 %) and the lowest in Italy (household consumers 35.4 %; industrial consumers 34.9 %).

Table 2.1.5 : Natural gas — share of taxes and levies paid by household consumers, 2nd semester 2013

	Basic price	Other taxes and levies (excl. VAT)	VAT	All taxes and levies (%)
	(in EUR per kWh)			
BE	0.052	0.003	0.012	21.71
BG	0.043	0.000	0.009	16.60
CZ	0.048	0.000	0.010	17.39
DK	0.049	0.040	0.022	56.38
DE	0.052	0.006	0.011	24.67
EE	0.037	0.002	0.008	21.43
IE	0.060	0.004	0.009	17.04
EL	0.073	0.006	0.010	18.02
ES	0.071	0.002	0.016	19.96
FR	0.061	0.002	0.011	16.87
HR	0.037	0.000	0.009	20.09
IT	0.062	0.017	0.016	34.36
LV	0.040	0.002	0.009	20.83
LT	0.051	0.000	0.011	17.43
LU	0.051	0.002	0.004	10.25
HU	0.033	0.000	0.009	21.19
NL	0.051	0.019	0.015	40.19
AT	0.056	0.007	0.013	25.73
PL	0.041	0.000	0.010	18.66
PT	0.072	0.004	0.017	22.51
RO	0.016	0.009	0.006	47.56
SI	0.050	0.005	0.012	25.23
SK	0.043	0.000	0.009	16.57
FI	:	:	:	:
SE	0.068	0.030	0.025	44.69
UK	0.056	0.000	0.003	4.76
MK	:	:	:	:
TR	:	:	:	:
BA	0.041	0.004	0.008	21.62

Source: Eurostat (online data code: nrg_pc_202)

Figure 2.1.4 : Natural gas prices for industrial consumers, 2nd semester 2013
(EUR/kWh)



Source: Eurostat (online data code: nrg_pc_203)

Table 2.1.6: Natural gas — share of taxes and levies paid by industrial consumers, 2nd semester 2013

	Basic price	Non recoverable taxes and levies	
	(in EUR per kWh)		(%)
BE	0.033	0.001	4.08
BG	0.035	0.000	0.57
CZ	0.032	0.001	3.61
DK	0.037	0.010	21.96
DE	0.044	0.004	8.56
EE	0.034	0.002	5.10
IE	0.044	0.004	7.81
EL	0.045	0.006	11.22
ES	0.037	0.001	1.59
FR	0.038	0.001	3.09
HR	0.042	0.001	1.41
IT	0.035	0.002	6.38
LV	0.035	0.002	4.58
LT	0.041	0.000	0.00
LU	0.044	0.001	1.33
HU	0.046	0.002	3.14
NL	0.031	0.005	14.72
AT	0.035	0.008	19.39
PL	0.036	0.000	0.27
PT	0.041	0.001	1.90
RO	0.021	0.008	28.13
SI	0.043	0.005	10.13
SK	0.037	0.001	3.36
FI	0.037	0.010	22.01
SE	0.046	0.009	16.67
UK	0.034	0.001	3.91
MK	0.036	0.003	7.51
RS	0.038	0.000	0.00
TR	:	:	:
BA	0.041	0.013	23.97

Source: Eurostat (online data code: nrg_pc_203)

For household consumers, the EU-28 average natural gas price (weighted with the latest available national consumption volumes for the household sector, i.e. 2012) was 0.07 EUR kWh in the second semester of 2013. The lowest values were found in Romania (0.03 EUR/kWh), Hungary (0.04 EUR kWh) and Croatia (0.05 EUR/kWh) and the highest in Sweden (0.12 EUR/kWh), Denmark (0.11 EUR/kWh) and Italy (0.10 EUR/kWh). The tax burden as a share of the total price of natural gas was lowest in the United Kingdom (4.8 % of the total price) and Luxembourg (10 %). Denmark reported the highest taxation (56.4 %), followed by Romania (47.6 %) and Sweden (44.7 %).

During the second semester of 2013, the EU-28 average natural gas price for industrial consumers (weighted with 2012 national consumption for industrial consumers) was 0.04 EUR/kWh. Natural gas prices were the highest in Sweden (0.06 EUR kWh), Greece (0.05 EUR/kWh) and Germany (0.05 EUR/kWh), whereas the lowest natural gas prices charged to medium level industrial consumers in the EU-28 were found in Romania (0.03 EUR/kWh), the Czech Republic (0.03 EUR/kWh) and Belgium (0.03 EUR/kWh). Three Member States reported a tax proportion of over 20 % (Denmark, Romania and Finland). Low tax proportions (<3 %) were reported in seven EU Member States (Bulgaria, Spain, Croatia, Latvia, Luxembourg, Poland and Portugal). Following the pattern in electricity, the proportion of taxes for industrial consumers (7.9 % on average for 26 EU Member States) is lower than that for the household consumers (24 % on average for 25 EU Member States).

Table 2.1.7: Consumer prices of petroleum products, end of second half 2013 ([1])
(EUR per 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])	0.65	1.53	0.71	1.43	0.49	0.74
EA ([1])	0.66	1.57	0.72	1.41	0.56	0.82
BE	0.63	1.51	0.70	1.36	0.60	0.73
BG	0.74	1.32	0.80	1.36	0.49	0.71
CZ	0.62	1.31	0.70	1.33	0.46	0.65
DK	0.70	1.62	0.78	1.49	:	:
DE	0.64	1.55	0.71	1.41	0.52	0.72
EE	0.65	1.29	0.73	1.35	0.53	0.72
IE	0.66	1.56	0.71	1.49	:	:
EL	0.66	1.65	0.78	1.38	:	:
ES	0.69	1.40	0.74	1.35	0.61	0.78
FR	0.64	1.50	0.67	1.33	0.66	0.86
HR	0.64	1.35	0.71	1.31	0.59	0.75
IT	0.69	1.73	0.74	1.66	0.57	0.87
CY	0.69	1.33	0.77	1.39	:	:
LV	0.64	1.30	0.72	1.30	0.35	0.60
LT	0.65	1.32	0.74	1.29	0.39	0.68
LU	0.66	1.29	0.71	1.20	0.59	0.68
HU	0.66	1.36	0.75	1.43	0.62	0.93
MT	0.72	1.43	0.75	1.36	:	:
NL	0.64	1.69	0.71	1.41	0.53	0.77
AT	0.63	1.35	0.71	1.35	:	:
PL	0.64	1.28	0.70	1.29	0.41	0.64
PT	0.67	1.54	0.75	1.38	0.52	0.72
RO	0.62	1.22	0.71	1.29	0.46	0.65
SI	0.63	1.45	0.69	1.39	0.58	0.81
SK	0.64	1.45	0.74	1.38	0.50	0.72
FI	0.66	1.59	0.75	1.51	:	:
SE	0.63	1.56	0.72	1.57	:	:
UK	0.61	1.55	0.68	1.65	:	:

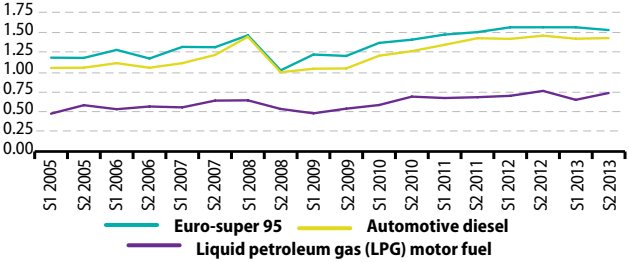
([1]) Weighted average.
Source: Oil bulletin, Directorate-General for Energy, European Commission

Consumer prices for petroleum products are reported with and without tax. The consumer prices for petroleum products have been fluctuating since 2005 with a peak in the first semester of 2008, followed by a price reduction for Euro-super 95 gasoline and automotive diesel. LPG motor fuel recorded a fluctuation as well, which follows the trend of the other two types of petroleum products. All types of petroleum products recovered from the price reduction of the second semester of 2008 and at the present the prices are higher compared to the first semester of 2008. Compared to 2012 the price of LPG motor fuel went down in the first semester of 2013 before increasing in the second semester. In 2013 the price for Euro-super 95 gasoline and automotive diesel remained low compared to 2012.

The highest price for Euro-super 95 gasoline was recorded in Italy (EUR 1.73 per litre) and the lowest in Romania (EUR 1.22 per litre). The highest prices for automotive diesel were recorded in Italy (EUR 1.66 per litre) and the United Kingdom (EUR 1.65 per litre), while the lowest price was found in Luxembourg (EUR 1.20 per litre). Finally, for LPG the highest price was recorded in Hungary (EUR 0.93 per litre) and the lowest in Poland (EUR 0.64 per litre) and Romania and the Czech Republic (EUR 0.65 per litre).

The price of Euro-super 95 gasoline without tax, ranges between EUR 0.61 and EUR 0.74 per litre. However the tax varies between 79 % in Bulgaria and 164 % in the Netherlands. For LPG the tax ranges between 16 % in Luxembourg and 73 % in Lithuania. Significant increases in price due to taxes were also observed for automotive diesel which ranged between 69 % in Bulgaria and 140 % in the United Kingdom.

Figure 2.1.5 : Consumer prices of petroleum products, EU, 2005–13 ([1])
(EUR per litre)



([1]) Weighted average. Inclusive of taxes and duties. Reference periods refer to the end of each semester.

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

2.2 Electricity and natural gas markets

Table 2.2.1: Number of generating companies representing at least 95 % of the national net electricity generation, 2003–12

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
BE	2	3	3	4	4	7	11	4	41	46
BG	13	14	14	15	15	15	15	22	20	28
CZ	20	17	18	16	16	16	19	24	51	73
DK	>1 000	>1 000	>1 000	>1 000	>1 000	>1 000	>1 000	>1 000	>1600	~1300
DE	> 450	> 450	> 450	>450	>450	>450	>450	>450	>450	>450
EE	2	2	2	2	2	2	5	6	6	5
IE	5	3	4	4	5	5	5	8	6	5
EL (1)	1	1	1	1	1	2	3	4	:	:
ES (1)	:	:	:	:	:	:	:	:	:	:
FR	4	4	4	5	>5	>5	>5	>5	3	>5
HR	2	2	2	2	2	2	2	2	2	2
IT	79	83	88	92	105	114	167	185	219	291
CY	1	1	1	1	1	1	1	1	1	1
LV	5	7	6	2	8	8	10	11	17	17
LT	5	5	6	7	7	7	8	9	10	17
LU	9	9	>12	>12	>12	>12	>12	3	4	4
HU	30	30	40	57	61	52	69	68	68	32
MT	1	1	1	1	1	1	1	1	1	1
NL	≥87	120	100	200	1 000	1 000	900	700	700	800
AT	34	39	53	91	106	137	128	126	129	145
PL	31	54	70	51	54	55	59	68	73	111
PT	36	46	59	77	97	107	95	107	104	112
RO	11	12	12	12	18	15	10	10	10	11
SI	3	3	3	4	3	2	2	3	3	3
SK	6	6	6	7	7	6	7	8	9	11
FI	25	29	27	28	29	34	29	29	30	30
SE	7	14	14	11	9	8	11	24	64	74
UK	22	20	17	18	18	17	17	19	19	17
NO	161	165	175	:	167	173	183	184	188	178
MK	:	:	1	1	2	1	1	1	1	2
RS (1)	:	:	:	:	:	:	:	:	:	:
TR	148	172	29	30	36	39	69	60	60	54

(1) Information on number of generating companies representing at least 95% of the national net electricity generation not available.

Source: Eurostat (Data not yet available in Eurostat dissemination database)

Table 2.2.2: Number of main electricity generating companies, 2003–12 ([1])

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
BE	2	2	2	2	2	2	2	3	3	2
BG	5	5	5	5	5	5	4	5	6	5
CZ	1	1	1	1	1	1	1	1	1	1
DK	2	3	3	2	2	2	2	2	2	2
DE	4	4	4	4	4	4	4	4	4	4
EE	2	1	1	2	1	1	1	1	1	1
IE	3	2	4	4	5	3	5	6	5	5
EL	1	1	1	1	1	1	1	1	:	3
ES	5	5	4	4	3	3	4	4	4	4
FR	1	1	1	1	1	1	1	1	1	1
HR	2	2	2	2	2	2	2	2	2	2
IT	4	4	4	5	5	5	4	5	4	3
CY	1	1	1	1	1	1	1	1	1	1
LV	1	1	1	1	2	2	1	1	1	1
LT	2	2	3	4	4	4	3	5	6	6
LU	1	1	2	2	2	2	2	2	2	2
HU	6	4	3	4	5	6	3	3	3	4
MT	1	1	1	1	1	1	1	1	1	1
NL	4	4	5	5	4	4	4	5	5	4
AT	7	5	4	4	4	4	4	4	4	4
PL	7	5	5	5	5	5	5	5	5	4
PT	3	3	3	3	3	3	3	2	4	4
RO	7	6	7	7	7	7	6	6	6	5
SI	3	2	2	2	2	2	2	2	2	2
SK	1	1	1	2	2	2	1	1	1	1
FI	4	5	4	5	5	5	5	4	4	4
SE	3	3	3	3	3	3	3	5	5	3
UK	6	7	7	6	7	9	8	8	7	7
NO	6	5	4	:	3	4	4	3	2	2
MK	:	:	1	1	2	1	1	1	1	1
RS	:	:	:	:	:	:	:	:	:	:
TR	3	4	3	3	3	3	3	2	2	2

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

Source: Eurostat (Data not yet available in Eurostat dissemination database)

The number of generating companies representing at least 95 % of national net electricity generation at the EU-28 level ranges from one to over one thousand. In seven EU Member States the average number of electricity generating companies (representing at least 95 % of national net electricity generation) was five or fewer. This number remained stable between 2011 and 2012 in nine EU Member States, whereas increases were observed in thirteen EU Member States.

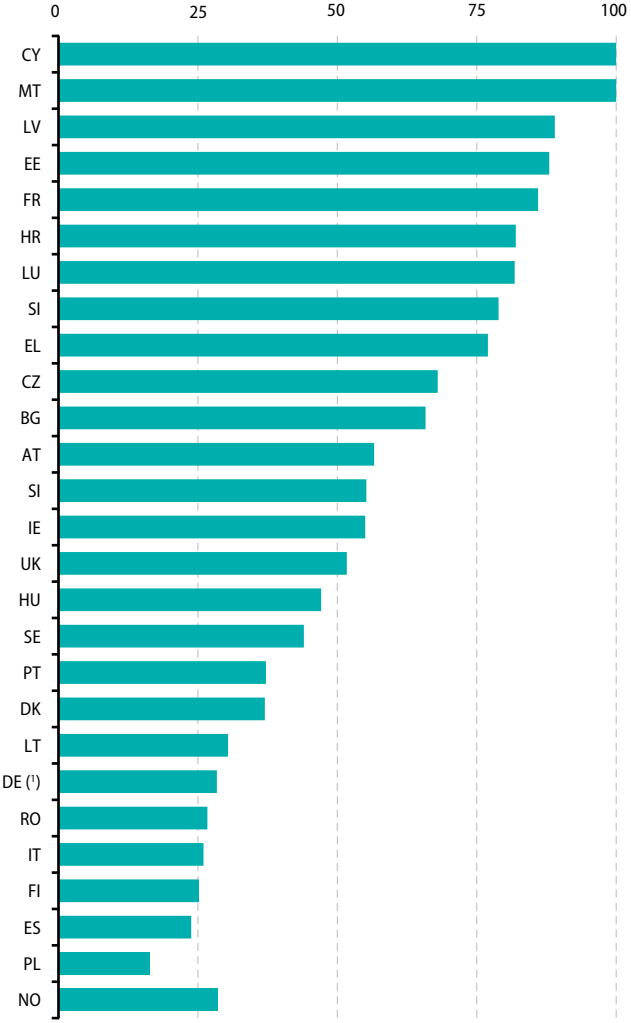
At the EU-28 level there are between 82 and 90 electricity generating enterprises. In 2012, seven EU Member States had one single enterprise with a significant share of electricity generation at national level. In the United Kingdom there were seven electricity generating companies and in Lithuania six. In Sweden the number of enterprises went down by two units in 2012 compared to 2011.

Table 2.2.3: Market share of the largest generator in the electricity market , 2000–12 ([1])
(%)

	2000	2005	2008	2009	2010	2011	2012
BE	91.1	85.0	80.0	77.7	79.1	70.7	65.8
BG ([2])	:	:	:	:	:	:	:
CZ	69.2	72.0	72.9	73.7	73.0	68.0	68.0
DK	36.0	33.0	56.0	47.0	46.0	42.0	37.0
DE ([2])	34.0	31.0	30.0	26.0	28.4	:	:
EE	91.0	92.0	96.5	90.0	89.0	87.0	88.0
IE	97.0	71.0	45.6	37.0	34.0	38.0	55.0
EL	97.0	97.0	91.6	91.8	85.1	:	77.0
ES	42.4	35.0	22.2	32.9	24.0	23.5	23.8
FR	90.2	89.1	87.3	87.3	86.5	86.0	86.0
HR	:	87.0	85.0	92.0	88.0	83.0	82.0
IT	46.7	38.6	31.3	29.8	28.0	27.0	26.0
CY	99.6	100.0	100.0	100.0	100.0	100.0	100.0
LV	95.8	92.7	87.0	87.0	88.0	86.0	89.0
LT	72.8	70.3	71.5	70.9	35.4	24.9	30.4
LU	:	:	:	:	85.4	82.0	81.8
HU	41.3	38.7	42.0	43.1	42.1	44.1	47.1
MT	100.0	100.0	100.0	100.0	100.0	100.0	100.0
NL ([2])	:	:	:	:	:	:	:
AT	32.6	:	:	:	:	55.3	56.6
PL	19.5	18.5	18.9	18.1	17.4	17.8	16.4
PT	58.5	53.9	48.5	52.4	47.2	44.9	37.2
RO	:	36.4	28.3	29.3	33.6	26.0	26.7
SI	:	50.1	53.0	55.0	56.3	52.4	55.2
SK	85.1	83.6	71.9	81.7	80.9	77.7	78.9
FI	23.3	23.0	24.0	24.5	26.6	25.6	25.2
SE	49.5	47.0	45.2	44.0	42.0	41.0	44.0
UK	20.6	20.5	15.3	24.5	21.0	45.6	51.7
NO	30.6	30.0	27.4	29.5	29.8	33.6	28.6
MK	:	:	:	:	:	:	92.6
RS ([2])	:	:	:	:	:	56.0	:
TR ([2])	75.0	38.0	:	:	:	:	:

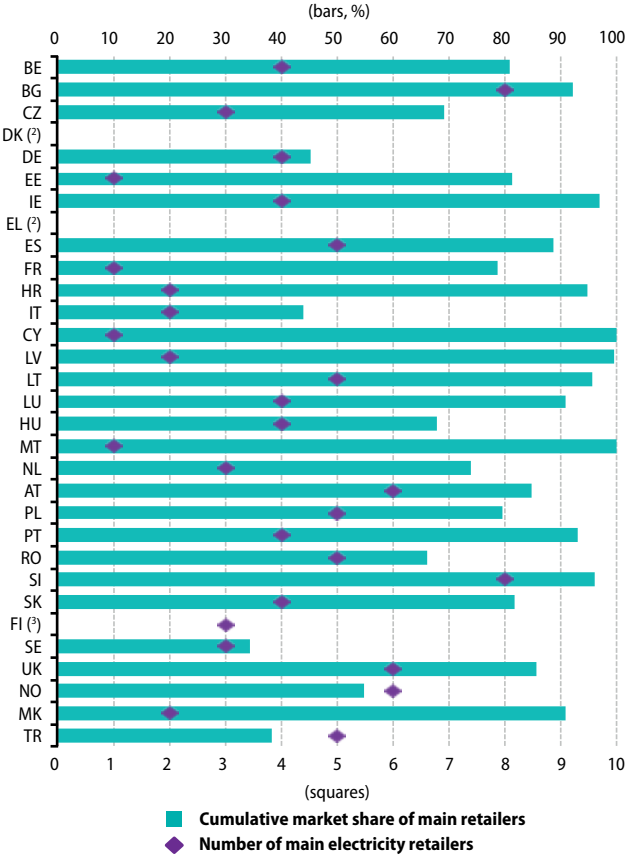
([1]) Due to statistical confidentiality, some countries do not provide individual market shares for individual electricity generators.
([2]) Information not available.
Source: Eurostat (online data code: nrg_ind_331a)

Figure 2.2.1: Market share of the largest generator in the electricity market, 2012
(%)



(1) 2010
Source: Eurostat (online data code: nrg_ind_331a)

Figure 2.2.2: Number of main electricity retailers and their cumulative market share, 2012 (1)



(1) Retailers are considered as 'main' if they sell at least 5 % of the total national electricity consumption.
(2) Information not available.
(3) Cumulative market share not available
Source: Eurostat (Data not yet available in Eurostat dissemination database)

In 2012, the market share of the largest electricity generator among EU-28 Member States ranged between 16.4 % in Poland and 100 % in Cyprus and Malta, which report a monopoly situation. Electricity generators with the highest market shares were seen in Latvia (89 %), Estonia (88 %), France (86 %), Croatia (82 %) and Luxembourg (81.8 %). At the other end of the range, leading electricity generators with a market share below 25 % were found in Poland (16.4 %) and Spain (23.3 %).

Table 2.2.4: Total number of electricity retailers to final consumers, 2005–12

	2005	2006	2007	2008	2009	2010	2011	2012
BE	54	23	28	31	34	37	31	33
BG	13	13	7	7	17	36	45	24
CZ	286	285	293	281	281	324	356	360
DK	70	65	38	36	33	33	33	55
DE	940	1 042	1 020	940	>1 000	>1 000	>1000	~1000
EE	40	43	40	37	40	41	40	42
IE	9	9	9	9	9	8	6	6
EL	4	4	2	2	3	11	:	14
ES ([1])	382	375	394	459	142	202	188	121
FR	166	160	>177	177	177	177	183	183
HR	1	1	2	2	2	3	7	9
IT	430	380	400	350	360	268	347	412
CY	1	1	1	1	1	1	1	1
LV	4	4	6	4	4	4	5	6
LT	7	7	7	8	9	15	27	27
LU	11	12	13	14	11	11	11	11
HU	17	12	17	24	35	38	39	43
MT	1	1	1	1	1	1	1	1
NL	32	38	39	38	32	36	35	35
AT	125	136	160	141	>140	129	155	152
PL	265	168	158	137	150	146	135	134
PT	10	4	4	4	6	10	10	10
RO	40	48	51	48	47	56	61	54
SI	11	13	14	14	17	16	16	13
SK	34	35	36	47	67	77	68	71
FI	>100	>100	>100	>100	>100	>100	~100	~100
SE	122	119	120	113	75	134	121	120
UK	33	26	23	23	21	22	29	29
NO	223	:	163	173	184	184	201	203
MK	1	1	1	1	2	3	9	11
RS ([2])	:	:	:	:	:	:	6	:
TR	165	245	263	317	362	466	647	767

([1]) Until end of June 2009, distribution companies were included in the number of electricity retailers to final customers. Starting with July 2009, a new law was implemented and the distribution companies deal only with grid management.
([2]) Information not available.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

Table 2.2.5: Number of main electricity retailers, 2005–12 ([1])

	2005	2006	2007	2008	2009	2010	2011	2012
BE	3	3	3	3	3	3	4	4
BG	8	9	5	5	5	5	6	8
CZ	8	3	3	3	3	3	3	3
DK ([2])	7	8	:	:	:	:	:	:
DE	3	3	3	3	3	3	4	4
EE	1	1	1	1	1	1	1	1
IE	5	4	3	4	5	5	4	4
EL ([2])	1	1	1	1	1	1	:	:
ES	6	4	3	3	3	4	5	5
FR	1	1	1	1	1	1	1	1
HR	1	1	2	2	2	2	2	2
IT	2	3	3	3	2	3	2	2
CY	1	1	1	1	1	1	1	1
LV	1	1	1	1	1	1	1	2
LT	2	2	2	2	2	3	3	5
LU	3	4	4	4	4	4	4	4
HU	8	4	3	4	8	5	6	4
MT	1	1	1	1	1	1	1	1
NL	5	5	4	4	4	3	3	3
AT	6	8	7	6	6	6	6	6
PL	6	6	6	6	7	7	6	5
PT	1	1	1	1	2	4	4	4
RO	9	9	9	8	8	8	5	5
SI	6	6	6	7	7	7	8	8
SK	5	5	5	5	6	5	5	4
FI	3	3	3	3	3	3	3	3
SE	3	3	3	3	3	3	3	3
UK	7	7	7	7	6	6	6	6
NO	4	:	5	4	5	5	5	6
MK	1	1	1	1	2	2	2	2
RS ([2])	:	:	:	:	:	:	5	:
TR	2	6	7	7	7	8	5	5

([1]) Retailers are considered as 'main' if they sell at least 5 % of the total national electricity consumption.
([2]) Information not available.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

The number of main retailers that sell electricity to final customers has remained the same (around 100 companies) over the last decade. The highest number of companies (eight) is located in Bulgaria and Slovenia. There are several countries where only one main company operates; these are Estonia, France, Cyprus and Malta.

Table 2.2.6: Number of entities bringing natural gas into the country, 2005–12

	2005	2006	2007	2008	2009	2010	2011	2012
BE	3	3	3	4	4	4	15	c
BG	4	4	4	4	4	3	3	5
CZ	6	7	8	10	10	24	17	29
DK (1)	1	1	1	1	2	2	:	:
DE	20	20	19	19	20	22	31	38
EE	2	2	2	2	2	1	1	1
IE	8	10	14	11	11	13	16	13
EL (1)	1	1	1	1	1	3	:	:
ES	15	14	13	19	17	18	18	19
FR	13	15	12	14	14	16	13	20
HR	1	1	1	1	2	2	2	5
IT	38	38	36	39	43	63	75	85
LV	1	1	1	1	1	1	1	1
LT	5	5	5	5	5	5	5	5
LU	2	2	2	2	3	4	5	4
HU	6	6	9	11	18	22	28	30
NL	c	c	c	c	c	c	c	c
AT	5	5	6	6	8	15	6	6
PL	13	15	16	16	19	17	19	22
PT	1	1	1	2	5	7	5	6
RO	12	13	16	16	15	19	19	18
SI	2	2	3	4	4	4	4	5
SK	1	1	2	3	7	7	7	8
FI	1	1	1	1	1	1	1	1
SE	1	1	1	2	1	2	1	1
UK	23	26	23	27	27	25	23	23
MK	1	1	1	1	1	1	2	4
RS (1)	:	:	:	:	:	:	3	:
TR	4	4	7	7	12	13	14	14

(1) Information not available.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

In 2012, the market shares of 'minor' electricity retail companies (with a market coverage under 5 %) were below 25 % in eighteen EU Member States, with the exception of Sweden (65 %), Italy (56 %) and Germany (54 %) which had the largest market share.

Figure 2.2.3: Number of main entities bringing gas into the country and their cumulative market share, 2012 (1)

(1) Entities are considered as 'main' if they deal with at least 5 % of the natural gas (indigenous production or imports).
(2) Information on market share not available.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

Table 2.2.7: Market share of the largest production and import gas company, 2007–12
(%)

	2007	2008	2009	2010	2011	2012
BE (1)	77.6	80.4	79.4	70.0	80.4	:
BG	92.1	94.1	99.4	97.1	99.8	:
CZ	95.0	89.8	89.9	72.6	64.0	87.4
DK (1)	100.0	100.0	:	:	:	:
DE	:	:	36.1	:	27.1	30.1
EE	79.0	77.0	95.0	100.0	100.0	100.0
IE	28.0	30.7	42.9	36.3	28.6	42.3
EL (1)	100.0	100.0	100.0	88.6	:	:
ES	41.5	43.1	43.8	43.7	44.2	48.2
FR	85.0	86.0	77.0	73.0	58.0	59.0
HR	100.0	100.0	87.0	72.0	75.0	60.8
IT	67.9	62.7	47.9	41.3	42.8	47.1
LV	100.0	100.0	100.0	100.0	100.0	100.0
LT	39.3	38.3	43.5	50.5	39.7	43.6
LU (1)	:	:	:	:	:	:
HU	70.2	66.1	41.3	32.6	47.3	32.9
NL (2)	:	:	:	:	:	:
AT (1)	:	:	:	:	:	:
PL	95.9	96.2	96.1	96.8	96.9	94.8
PT	100.0	100.0	95.0	95.8	85.3	84.1
RO	40.9	36.8	47.6	48.4	45.2	41.7
SI	99.7	94.6	95.0	94.2	91.7	90.0
SK	97.9	88.3	82.8	77.7	71.7	61.8
FI	100.0	100.0	100.0	100.0	100.0	100.0
SE	100.0	:	100.0	52.0	100.0	100.0
UK	21.0	19.0	18.0	23.0	24.0	31.0
MK	100.0	100.0	100.0	100.0	97.6	55.1
RS (1)	:	:	:	:	73.4	:
TR (1)	:	:	:	:	:	:

(1) Information not available.
(2) Confidential data.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

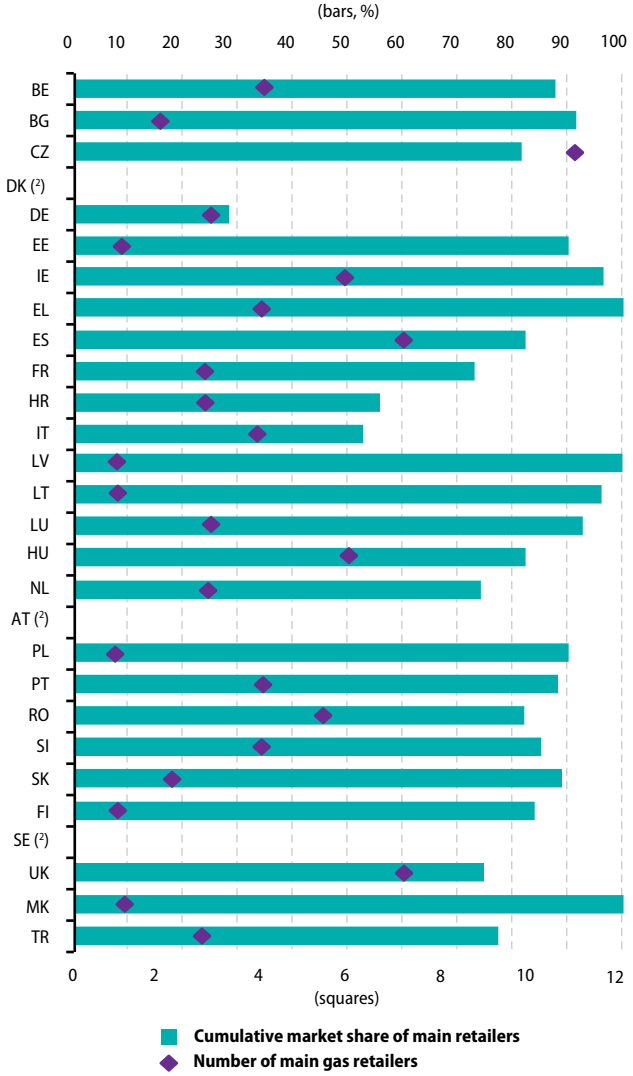
Table 2.2.8: Number of retailers selling natural gas to final customers, 2003–12

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
BE	27	32	41	41	41	41	41	41	17	22
BG	8	8	11	12	15	16	18	18	19	20
CZ	14	9	10	10	9	13	18	28	47	57
DK	4	7	5	12	17	16	13	13	14	14
DE	701	700	700	700	700	700	820	820	864	851
EE	14	15	23	27	20	30	27	22	22	23
IE	2	2	4	4	4	6	8	8	8	8
EL	1	2	4	4	4	4	4	4	:	4
ES	43	41	40	42	43	44	28	32	33	36
FR	31	34	36	36	34	36	36	50	60	77
HR	3	27	30	39	39	42	42	42	38	36
IT	412	389	415	323	312	396	295	303	308	462
LV	1	1	1	1	1	1	1	1	1	1
LT	7	5	5	5	6	6	6	5	5	5
LU	6	6	6	7	7	7	7	8	8	7
HU	14	16	16	15	18	20	26	28	27	30
NL	24	25	21	24	31	30	24	29	32	32
AT	29	27	28	30	30	31	>30	40	36	41
PL	40	47	57	66	66	58	52	52	55	61
PT	10	10	11	11	11	13	15	18	20	22
RO	27	28	39	47	51	55	56	63	67	65
SI	14	18	17	18	18	18	19	19	20	21
SK	1	1	1	1	4	8	10	14	19	22
FI	27	30	30	29	29	30	25	25	25	25
SE	7	7	7	7	6	6	6	5	6	7
UK	23	15	18	17	17	17	17	19	16	16
MK	:	:	1	1	1	1	2	2	5	2
RS ([1])	:	:	:	:	:	:	:	:	37	:
TR	12	19	61	68	85	92	98	103	104	109

([1]) Information not available.

Source: Eurostat (Data not yet available in Eurostat dissemination database)

Figure 2.2.4: Number of main natural gas retailers to final customers and their cumulative market share, 2012 ([1])



([1]) Retailers are considered as 'main' if they sell at least 5 % of the total natural gas consumed by final customers.
([2]) Information not available.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

Table 2.2.9: Number of main natural gas retailers, 2003–12 ([1])

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
BE	3	2	3	5	5	5	5	5	4	4
BG	1	1	2	2	2	2	2	2	2	2
CZ	7	7	7	7	7	8	3	2	5	11
DK ([2])	4	5	3	6	:	:	5	5	5	:
DE	1	1	1	4	2	2	3	2	2	3
EE	1	1	1	1	1	1	1	1	1	1
IE	1	2	1	3	3	3	3	5	5	6
EL	1	2	1	1	2	2	3	3	:	4
ES	3	4	5	5	5	6	6	6	6	7
FR	2	2	3	3	3	2	2	3	3	3
HR	3	4	5	4	4	4	4	4	4	3
IT	5	5	4	2	2	3	5	5	5	4
LV	1	1	1	1	1	1	1	1	1	1
LT	3	2	1	1	1	1	1	1	1	1
LU	3	4	2	4	4	4	5	4	3	3
HU	7	7	7	7	7	6	9	10	6	6
NL	4	5	6	6	3	3	3	3	3	3
AT ([2])	3	5	4	4	4	4	4	3	3	:
PL	7	7	7	7	5	1	1	1	1	1
PT	4	4	4	4	4	4	5	6	4	4
RO	4	5	6	6	6	6	6	5	5	5
SI	2	2	2	3	2	4	3	4	5	4
SK	1	1	1	1	1	1	2	3	3	2
FI	1	1	1	1	1	1	1	1	1	1
SE ([2])	5	5	5	5	5	:	6	4	:	:
UK	5	7	7	7	7	7	8	6	6	7
MK	:	:	1	1	1	1	1	1	2	1
RS ([2])	:	:	:	:	:	:	:	:	2	:
TR	3	3	4	4	4	3	3	2	3	3

([1]) Retailers are considered as 'main' if they sell at least 5 % of the total natural gas consumed by final customers.
([2]) Information not available.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

The total number of natural gas IMPRO (IMport and PROduction) companies increased significantly (from 174 in 2003 to 364 companies in 2012), indicating that a significant number of new (small size) companies have entered the IMPRO natural gas market.

Table 2.2.10: Market share of the largest natural gas retailer, 2007–12
(%)

	2007	2008	2009	2010	2011	2012
BE	44.8	39.3	48.5	31.0	42.7	41.5
BG (1)	97.0	92.8	94.8	94.1	92.7	:
CZ	22.9	21.4	64.9	62.4	32.7	13.1
DK (2)	:	:	:	:	:	:
DE	7.0	9.0	12.6	8.7	7.3	14.5
EE	95.0	91.0	92.0	97.0	90.0	89.0
IE	87.2	76.5	74.8	65.0	57.8	49.2
EL	87.8	87.8	82.5	84.7	:	33.0
ES	37.7	36.0	27.1	26.8	28.4	32.9
FR	75.0	78.0	81.0	65.0	64.0	60.0
HR	37.6	36.6	38.4	36.9	36.1	36.9
IT	43.9	37.5	31.9	24.7	25.7	28.1
LV	100.0	100.0	100.0	100.0	100.0	100.0
LT	95.0	97.5	97.6	98.4	98.0	98.1
LU (2)	:	:	:	:	:	:
HU	22.1	19.6	19.4	15.6	21.9	19.2
NL (2)	:	:	:	:	:	:
AT (2)	:	:	49.0	43.0	:	:
PL	57.6	93.6	92.8	93.0	93.5	90.7
PT	58.7	58.7	35.6	36.3	54.9	55.1
RO	23.2	23.9	25.9	26.2	25.8	24.6
SI	76.0	70.0	70.0	69.5	62.2	63.3
SK	96.4	94.6	82.9	76.0	69.6	70.0
FI	95.0	95.0	95.0	95.0	85.0	:
SE	53.0	:	:	47.0	:	:
UK (3)	55.0	56.4	51.5	54.7	50.9	27.8
MK	100.0	100.0	99.7	98.3	73.0	99.7
RS (2)	:	:	:	:	76.0	:
TR (3)	97.0	89.0	86.9	:	79.0	75.0

(1) Aggregated share of top 2 retailers.
(2) Information not available.
(3) Aggregated share of top 3 retailers.
Source: Eurostat (Data not yet available in Eurostat dissemination database)

In four EU Member States (Latvia, Estonia, Sweden and Finland) the number of IMPRO companies remained at one unit in 2012. In these countries the use of natural gas is low to moderate. In seven EU Member States the total number of IMPRO companies remained stable but in twelve EU Member States the number increased. In Ireland the number of IMPRO companies decreased by 3 units.

The market coverage of IMPRO companies ranged from 7 % (Greece) to 100 % (Estonia, Finland, Latvia and Sweden). The market penetration of main companies is relatively moderate in Hungary (65 % market coverage), Italy (65 % market coverage) and the United Kingdom (75 % market coverage).

The largest IMPRO company market shares in 2012, as a percentage of national indigenous production and import, were found in Poland (94.8 %) and Slovenia (90 %). The lowest market penetrations at the national level were observed in Germany (30.1 %) and the United Kingdom (31 %).

Minor changes were observed in the number of retailers selling natural gas to final consumers in 2012, compared to 2011. Only in Italy a significant increase (50 %) was noticed in the number of retailers.

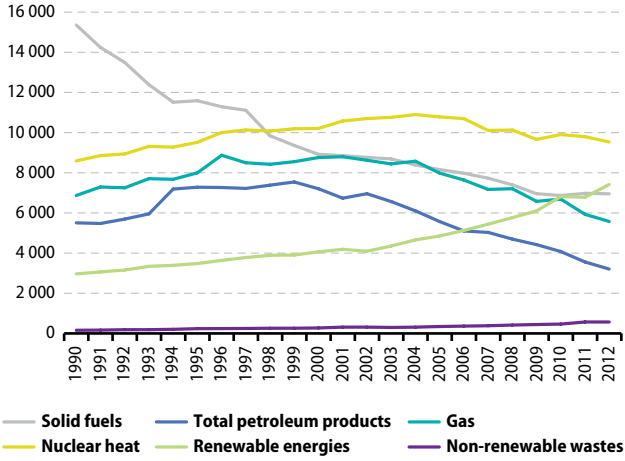
Looking at the cumulative market shares of main natural gas retailer for all EU Member States (Denmark, Austria and Sweden did not report for this indicator), plus Turkey and the former Yugoslav Republic of Macedonia, 'minor' retail companies have the largest market share in Germany (71.5 %). In 7 out of 23 EU Member States however, 'minor' companies have a market share of less than 10 %.

The number of 'main' retailers (companies that cover at least 5 % of the total national natural gas consumption) has remained largely stable since 2004. There are however some remarkable observation: the number of retailers has more than doubled in the Czech Republic (from 5 in 2011 to 11 in 2012). Spain and the United Kingdom have 7 retailers. The Estonian, Latvian, Lithuanian, Polish and Finnish markets are covered by a single retailer.

The largest market shares of single-retailer countries (figures above 90 %) can be found in Lithuania (98.1 %), Poland (90.7 %) and Estonia (89 %). Latvia is excluded as there is only one entity in the market. Low market penetration of 'main' retailers is noted in the Czech Republic (13.1 %), Germany (14.5 %) and Hungary (19.2 %).

2.3 Primary energy production

Figure 2.3.1: Primary energy production, EU-28, 1990–2012
(1 000 TJ)



Source: Eurostat (Energy database: nrg)

Primary production of energy within the EU-28 in 2012 went down by 1 % compared to 2011 (33 million TJ). The biggest decrease was noted in petroleum products (10 %) followed by a 6 % decrease in the natural gas production. Production of renewable energies, on the other hand, increased by 9 %.

In primary energy production the biggest contribution in 2012 stemmed from nuclear heat (29 %), followed by renewable energies (22 %), solid fuels (21 %), gas (17 %), petroleum products (10 %) and non-renewable wastes (2 %).

Between 2002 and 2012 the trend in primary energy production was negative for most energy sources. The energy production from petroleum products decreased by 54 % and from gas by 35 %. Energy production from renewable energies increased by 81 %.

Table 2.3.1: Total production of primary energy, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	934.1	930.1	900.2	881.6	856.5	850.7	816.0	831.6	802.9	794.3
EA-18	458.7	471.4	463.6	466.7	460.1	465.0	449.0	475.2	465.0	466.0
BE	13.5	13.5	13.7	13.6	14.2	13.9	14.6	15.1	17.6	15.7
BG	10.1	10.2	10.6	11.0	9.9	10.2	9.7	10.5	12.3	11.7
CZ	33.4	33.1	32.9	33.5	33.7	32.8	31.2	31.5	32.0	32.0
DK	28.3	30.9	30.8	29.3	26.8	26.4	24.0	23.2	20.5	18.9
DE	134.8	136.7	136.7	138.7	136.4	132.8	126.6	129.4	123.1	123.5
EE	3.9	3.7	3.9	3.7	4.4	4.2	4.2	4.9	5.0	5.1
IE	1.8	1.9	1.6	1.6	1.4	1.5	1.5	1.8	1.7	1.3
EL	9.9	10.3	10.3	10.1	10.2	9.9	10.1	9.5	9.6	10.4
ES	32.8	32.4	30.0	31.2	30.1	30.2	30.1	34.1	31.7	33.2
FR	134.3	135.4	135.4	135.0	133.1	135.2	127.7	134.2	134.7	133.3
HR	3.8	3.9	3.8	4.1	4.1	3.9	4.1	4.2	3.8	3.5
IT	27.8	28.2	27.8	27.3	26.3	26.8	26.6	29.3	30.9	31.8
CY	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LV	1.7	1.8	1.9	1.8	1.8	1.8	2.1	2.1	2.1	2.3
LT	5.2	5.1	3.9	3.4	3.7	3.8	4.1	1.3	1.3	1.3
LU	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HU	10.4	10.2	10.3	10.3	10.2	10.4	10.9	11.0	10.7	10.5
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	58.7	68.0	62.2	61.1	61.4	66.7	63.2	70.0	64.5	64.9
AT	9.6	9.9	10.0	10.1	10.9	11.2	11.6	12.1	11.5	12.8
PL	79.2	78.5	78.2	77.2	72.0	70.8	67.1	66.9	67.9	71.1
PT	4.3	3.9	3.6	4.4	4.6	4.5	4.9	5.6	5.3	4.6
RO	29.5	28.6	28.2	28.2	28.0	29.2	28.5	27.8	27.9	27.4
SI	3.3	3.4	3.5	3.4	3.4	3.7	3.6	3.7	3.8	3.5
SK	6.4	6.2	6.3	6.4	5.7	6.2	5.7	6.0	6.2	6.2
FI	15.8	15.7	16.6	18.1	16.0	16.3	16.4	17.3	17.0	17.1
SE	30.4	33.8	34.2	32.4	33.1	32.8	29.9	32.7	32.9	35.7
UK	244.9	224.3	203.8	185.5	175.0	165.3	157.4	147.4	128.7	116.4

Source: Eurostat (online data code: ten00076)

Table 2.3.2: Primary production of coal and lignite, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	207.5	200.4	194.8	190.5	184.6	176.8	166.1	164.0	166.6	166.0
EA-18	82.5	80.4	79.3	76.3	75.4	69.4	66.2	65.1	65.2	65.1
BE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BG	4.6	4.5	4.1	4.3	4.7	4.8	4.5	4.9	6.2	5.6
CZ	24.3	23.5	23.5	23.8	23.8	22.7	20.8	20.7	20.9	20.1
DK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DE	57.7	58.3	56.4	53.2	54.3	50.0	46.3	45.9	46.7	47.6
EE	3.2	3.0	3.1	3.1	3.6	3.4	3.2	3.9	4.0	4.0
IE	1.0	0.9	0.8	0.8	0.6	0.6	0.5	0.9	0.7	0.3
EL	8.1	8.5	8.5	8.1	8.3	8.1	8.1	7.3	7.5	8.0
ES	6.9	6.4	6.2	6.0	5.4	4.1	3.8	3.3	2.6	2.4
FR	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HU	2.7	2.1	1.7	1.7	1.7	1.6	1.5	1.5	1.6	1.6
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
AT	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PL	70.1	68.8	68.4	67.1	61.9	60.5	56.1	55.0	55.3	57.5
PT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RO	6.5	6.3	5.7	6.4	6.8	6.9	6.5	5.9	6.6	6.3
SI	1.1	1.2	1.1	1.2	1.2	1.1	1.1	1.2	1.2	1.0
SK	0.8	0.8	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.5
FI	1.8	0.9	2.1	3.1	1.0	1.0	2.1	1.8	1.6	0.9
SE	0.2	0.2	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.1
UK	16.3	14.3	11.6	10.4	9.8	10.3	10.0	10.4	10.4	9.5

Source: Eurostat (online data code: ten00076)

Table 2.3.3: Primary production of crude oil, 2003–12 ([1])
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	142.4	132.4	119.5	109.0	108.2	100.6	95.4	89.3	78.5	70.4
EA-18	14.3	13.6	13.4	12.7	13.4	12.1	10.7	10.7	11.0	11.1
BE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BG	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CZ	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
DK	18.4	19.6	18.5	17.1	15.3	14.2	13.2	12.3	11.1	10.2
DE	3.7	3.5	3.5	3.4	3.3	3.0	2.7	2.5	2.6	2.6
EE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EL	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
ES	0.3	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
FR	1.2	1.2	1.1	1.1	1.0	1.0	0.9	0.9	0.9	0.8
HR	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.6
IT	5.6	5.5	6.2	5.8	5.9	5.3	4.6	5.1	5.4	5.5
CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	0.4	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HU	1.1	1.1	0.9	0.9	0.8	0.8	0.8	0.7	0.6	0.6
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	2.3	2.1	1.5	1.4	2.1	1.8	1.3	1.0	1.1	1.1
AT	0.9	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.8	0.8
PL	0.8	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.7
PT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RO	5.6	5.6	5.3	4.9	4.7	4.7	4.6	4.4	4.3	4.0
SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
FI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UK	100.4	90.2	79.2	71.4	72.2	67.0	64.4	59.6	50.0	43.0

([1]) Without NGL.
Source: Eurostat (online data code: ten00076)

Table 2.3.4: Primary production of natural gas, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	201.6	204.9	190.7	182.5	171.3	172.2	157.1	159.8	141.7	133.1
EA-18	83.5	90.7	83.6	82.6	80.2	83.2	78.6	83.9	77.8	76.5
BE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
BG	0.0	0.3	0.4	0.4	0.2	0.2	0.0	0.1	0.4	0.3
CZ	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2
DK	7.2	8.5	9.4	9.3	8.3	9.0	7.5	7.3	5.9	5.2
DE	15.9	14.5	14.3	14.9	14.9	13.2	13.0	11.1	10.9	9.6
EE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IE	0.5	0.7	0.5	0.4	0.3	0.4	0.3	0.2	0.2	0.2
EL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ES	0.2	0.3	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
FR	1.3	1.1	0.9	1.1	0.9	0.8	0.8	0.6	0.5	0.5
HR	1.8	1.8	1.9	2.2	2.4	2.2	2.2	2.2	2.0	1.6
IT	11.4	10.6	9.9	9.0	7.9	7.6	6.6	6.9	6.9	7.0
CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HU	2.3	2.4	2.3	2.4	2.0	2.0	2.3	2.2	2.1	1.8
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	52.2	61.6	56.3	55.4	54.4	59.9	56.4	63.4	57.7	57.5
AT	1.8	1.7	1.4	1.6	1.6	1.3	1.4	1.5	1.5	1.6
PL	3.6	3.9	3.9	3.9	3.9	3.7	3.7	3.7	3.8	3.8
PT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RO	10.4	10.4	9.7	9.6	9.2	9.0	8.9	8.6	8.7	8.7
SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SK	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
FI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UK	92.6	86.8	79.4	72.0	64.9	62.7	53.7	51.5	40.8	35.0

Source: Eurostat (online data code: ten00076)

Table 2.3.5: Primary production of nuclear energy, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	257.0	260.3	257.5	255.5	241.4	241.9	230.8	236.6	234.0	227.7
EA-18	197.4	200.0	198.8	199.8	188.9	191.6	178.6	187.3	182.0	174.1
BE	12.2	12.2	12.3	12.0	12.4	11.8	12.2	12.4	12.4	10.4
BG	4.5	4.4	4.8	5.0	3.8	4.1	4.0	4.0	4.2	4.1
CZ	6.7	6.8	6.4	6.7	6.8	6.9	7.0	7.2	7.3	7.8
DK	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DE	42.6	43.1	42.1	43.1	36.3	38.3	34.8	36.3	27.9	25.7
EE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ES	16.0	16.4	14.8	15.5	14.2	15.2	13.6	16.0	14.9	15.9
FR	113.8	115.6	116.5	116.1	113.4	113.4	105.7	110.5	114.1	109.7
HR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	4.0	3.9	2.7	2.3	2.6	2.6	2.8	0.0	0.0	0.0
LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HU	2.9	3.1	3.6	3.5	3.8	3.8	4.0	4.1	4.1	4.1
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	1.0	1.0	1.0	0.9	1.1	1.1	1.1	1.0	1.1	1.0
AT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
PT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RO	1.3	1.4	1.4	1.5	2.0	2.9	3.0	3.0	3.0	3.0
SI	1.3	1.4	1.5	1.4	1.5	1.6	1.5	1.5	1.6	1.4
SK	4.7	4.4	4.6	4.7	4.0	4.4	3.7	3.8	4.0	4.0
FI	5.9	5.9	6.0	5.9	6.0	5.9	6.1	5.9	6.0	5.9
SE	17.4	20.0	18.7	17.3	17.3	16.5	13.5	14.9	15.6	16.5
UK	22.9	20.6	21.1	19.5	16.3	13.5	17.8	16.0	17.8	18.2

Source: Eurostat (online data code: ten00080)

Table 2.3.6: Primary production of renewable energy, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	104.0	111.2	115.9	122.5	129.9	137.7	145.7	162.8	162.0	177.3
EA-18	73.4	78.1	79.4	85.7	91.5	96.9	102.9	116.1	115.2	125.6
BE	0.7	0.8	0.9	0.9	1.1	1.4	1.7	2.0	2.5	2.8
BG	1.0	1.0	1.1	1.2	1.0	1.1	1.2	1.5	1.4	1.6
CZ	1.7	1.9	2.0	2.2	2.4	2.4	2.6	2.9	3.0	3.2
DK	2.3	2.4	2.5	2.5	2.8	2.8	2.8	3.1	3.1	3.1
DE	12.6	14.5	16.8	20.0	23.3	23.0	24.2	28.4	29.8	32.9
EE	0.7	0.7	0.7	0.6	0.7	0.8	0.9	1.0	1.0	1.1
IE	0.2	0.3	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7
EL	1.5	1.6	1.6	1.8	1.7	1.7	1.8	2.0	2.0	2.3
ES	9.2	8.8	8.4	9.2	10.0	10.3	12.3	14.5	13.8	14.5
FR	15.5	15.8	15.5	15.6	16.3	18.4	18.9	20.6	17.8	20.8
HR	0.8	1.0	0.9	0.9	0.7	0.9	1.0	1.2	1.1	1.2
IT	9.9	11.3	10.9	11.4	11.1	12.6	14.2	15.7	17.2	17.9
CY	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
LV	1.7	1.8	1.9	1.8	1.8	1.8	2.1	2.1	2.1	2.3
LT	0.8	0.8	0.9	1.0	1.0	1.1	1.2	1.2	1.2	1.2
LU	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HU	0.9	0.9	1.2	1.2	1.3	1.6	1.9	1.9	1.9	2.0
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	1.6	1.8	1.9	2.0	2.1	2.4	2.8	2.9	3.1	3.8
AT	6.1	6.6	7.2	7.1	7.8	8.3	8.5	8.9	8.4	9.6
PL	4.2	4.3	4.5	4.8	4.9	5.4	6.0	6.9	7.4	8.5
PT	4.2	3.8	3.5	4.2	4.5	4.3	4.8	5.4	5.1	4.4
RO	4.0	4.6	5.0	4.8	4.7	5.3	5.3	5.7	5.0	5.2
SI	0.7	0.8	0.8	0.8	0.7	0.8	1.0	1.0	1.0	1.0
SK	0.7	0.7	0.9	0.9	1.0	1.0	1.2	1.4	1.4	1.4
FI	7.9	8.7	8.2	8.8	8.7	9.2	7.9	9.4	9.1	9.9
SE	12.4	13.1	14.8	14.4	15.3	15.6	15.8	17.0	16.5	18.5
UK	2.6	2.9	3.6	3.9	4.3	4.6	5.1	5.2	6.2	7.1

Source: Eurostat (online data code: ten00081)

Table 2.3.7: Primary energy production, by fuel ([1])

	Total production (Mtoe)			Share of each fuel to total production, 2012 (%)				
	2001	2006	2012	Coal and lignite	Crude oil	Natural gas	Nuclear energy	Renewable energy
EU-28	942.7	881.6	794.3	20.9	8.9	16.8	28.7	22.3
EA-18	455.0	466.7	466.0	14.0	2.4	16.4	37.4	27.0
BE	13.1	13.6	15.7	0.0	0.0	0.0	66.3	18.0
BG	10.3	11.0	11.7	48.0	0.2	2.6	35.0	14.0
CZ	31.3	33.5	32.0	63.0	0.5	0.7	24.5	10.2
DK	27.0	29.3	18.9	0.0	53.9	27.5	0.0	16.5
DE	134.5	138.7	123.5	38.5	2.1	7.7	20.8	26.6
EE	3.2	3.7	5.1	79.3	0.0	0.0	0.0	20.7
IE	1.8	1.6	1.3	24.5	0.0	14.3	0.0	57.8
EL	10.0	10.1	10.4	77.1	0.9	0.1	0.0	21.8
ES	33.3	31.2	33.2	7.4	0.4	0.2	47.8	43.7
FR	130.7	135.0	133.3	0.0	0.6	0.3	82.4	15.6
HR	3.8	4.1	3.5	0.0	16.1	47.3	0.0	34.2
IT	26.7	27.3	31.8	0.2	17.3	22.2	0.0	56.3
CY	0.0	0.1	0.1	0.0	0.0	0.0	0.0	100.0
LV	1.5	1.8	2.3	0.1	0.0	0.0	0.0	99.8
LT	4.2	3.4	1.3	1.3	7.9	0.0	0.0	90.8
LU	0.1	0.1	0.1	0.0	0.0	0.0	0.0	74.5
HU	11.3	10.3	10.5	15.3	6.0	16.8	38.8	18.7
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0
NL	61.4	61.1	64.9	0.0	1.7	88.6	1.6	5.8
AT	9.8	10.1	12.8	0.0	6.5	12.2	0.0	75.3
PL	79.9	77.2	71.1	80.9	0.9	5.4	0.0	11.9
PT	4.1	4.4	4.6	0.0	0.0	0.0	0.0	94.8
RO	27.8	28.2	27.4	23.2	14.5	31.7	10.8	19.2
SI	3.1	3.4	3.5	30.9	0.0	0.0	40.3	27.9
SK	6.5	6.4	6.2	9.1	0.2	2.0	64.9	23.0
FI	15.2	18.1	17.1	5.8	0.0	0.0	34.7	58.1
SE	33.3	32.4	35.7	0.4	0.0	0.0	46.3	51.8
UK	258.9	185.5	116.4	8.2	37.0	30.1	15.6	6.1

([1]) Figures do not sum to 100 % due to other fuels.
Source: Eurostat (online data codes: ten00076, ten00080 and ten00081)

Total production of primary energy for the EU-28 was 794.3 million tonnes of oil equivalent in 2012. The EU-28's major primary energy producers are France (16.8 %), Germany (15.5 %), the United Kingdom (14.6 %) followed by Poland (8.9 %) and the Netherlands (8.2 %).

It is important to note that in the 2002–12 decade the United Kingdom has reduced its primary energy production by more than 50 %. In 2012, eleven EU Member States decreased their energy production while the rest increased it. The highest decrease was observed in Ireland (– 23 %) and the highest increase in Malta (+ 114 %).

Primary energy production from coal and lignite accounts for 80.9 % in Poland, 79.3 % in Estonia, 77.1 % in Greece and 63 % in the Czech Republic. Crude oil is used at a very low percentage by the majority of EU Member States except for Denmark (53.9 %), the United Kingdom (37 %), Italy (17.3 %) and Croatia (16.1 %).

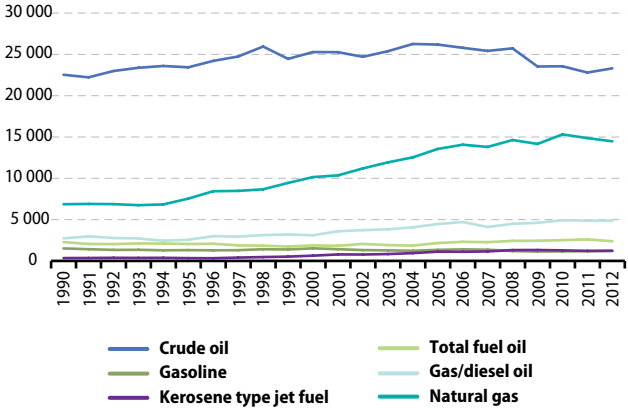
The proportion of natural gas in primary energy production is highest in the Netherlands with 88.6 %, followed by Croatia (47.3 %), Romania (31.7 %), the United Kingdom (30.1 %) and Denmark (27.5 %). Nuclear energy is used in 50 % of the EU-28 Member States. Lithuania has stopped producing nuclear energy in 2009. EU Member States with high nuclear energy production are France (82.3 %), Belgium (66.3 %), Slovakia (64.9 %), Spain (47.8 %), Sweden (46.2 %), Slovenia (40.2 %), Hungary (38.8 %) and Bulgaria (35 %).

Primary energy production from renewables in the EU-28 has increased by 81 % during the 2002–12 decade. Renewables are used for the production of primary energy almost exclusively by Malta and Cyprus (100 %), Latvia (99.8 %), Portugal (94.8 %) and Lithuania (90.8 %). The lowest rates are reported in the United Kingdom (6 %), the Czech Republic (10 %) and Poland (12 %).

2.4 Energy trade and dependency

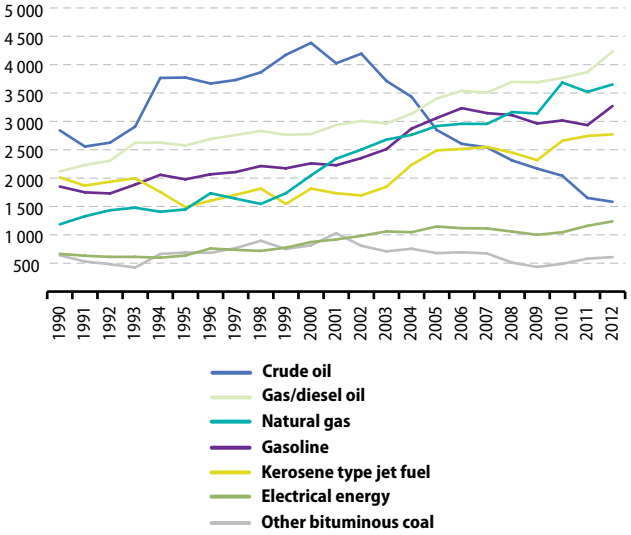
Primary production of energy within the EU-28 in 2012 has decreased by 1 % compared to 2011 values (33.3 million TJ in 2012; 33.6 million TJ in 2011). The gradual decrease of primary energy production in the EU-28 over the past decade resulted in increased imports of primary energy and energy products. The quantity of imported natural gas doubled over the period 1994–2012 to nearly 14.5 million TJ, although there is a slight decrease over the last two years. Crude oil ranked next in terms of quantities imported, though for 2012, the figure was 23 million TJ, 9 % lower than in 2008. Exports are much lower than imports. In 2012, gas/diesel oil (4.2 million TJ) ranked highest, followed by natural gas (3.7 million TJ) and gasoline (3.3 million TJ).

Figure 2.4.1: Imports of selected energy products, EU-28, 1990–2012
(1 000 TJ)



Source: Eurostat (Energy database: nrg)

Figure 2.4.2 : Exports of selected energy products, EU-28, 1990–2012
(1 000 TJ)



Source: Eurostat (Energy database: nrg)

Table 2.4.1: Main origin of primary energy imports, EU-28, 2002–12
(% of extra EU-28 imports)

	Solid fuels					
	2002	2005	2009	2010	2011	2012
Russia	13.1	23.7	30.0	26.9	26.2	25.9
Colombia	12.1	11.7	17.4	19.9	23.6	23.7
United States	8.1	7.6	13.5	16.8	17.8	23.0
Australia	16.1	13.1	7.5	10.5	8.7	7.4
South Africa	30.1	25.0	15.8	9.6	7.7	6.3
Indonesia	6.6	7.2	7.0	5.5	5.0	4.6
Canada	3.1	3.2	1.4	2.0	2.2	1.7
Ukraine	2.3	2.2	1.7	1.9	2.3	1.4
Venezuela	1.8	1.0	0.7	0.4	0.5	0.5
Others	6.7	5.2	5.0	6.4	6.0	5.5
	Crude oil					
	2002	**2005**	**2009**	**2010**	**2011**	**2012**
Russia	29.5	32.9	33.5	34.7	34.8	33.7
Norway	19.3	16.8	15.1	13.7	12.5	11.1
Saudi Arabia	10.1	10.5	5.7	5.9	8.0	8.8
Nigeria	3.5	3.2	4.5	4.1	6.1	8.2
Libya	7.4	8.7	8.9	10.1	2.8	8.2
Kazakhstan	2.4	4.4	5.3	5.5	5.7	5.1
Iraq	3.0	2.1	3.8	3.2	3.6	4.1
Azerbaijan	1.0	1.3	4.0	4.4	4.9	3.9
Algeria	2.7	3.5	1.6	1.2	2.6	2.9
Others	21.1	16.5	17.6	17.1	19.1	14.0
	Natural gas					
	2002	**2005**	**2009**	**2010**	**2011**	**2012**
Russia	45.2	40.7	33.0	29.5	31.6	32.0
Norway	26.1	23.8	29.4	27.5	27.4	31.3
Algeria	21.1	17.6	14.2	14.0	13.0	13.5
Quatar	0.9	1.5	5.5	9.7	11.0	8.4
Nigeria	2.2	3.4	2.4	4.1	4.3	3.6
Libya	0.3	1.6	2.9	2.7	0.7	1.9
Trinidad and Tobago	0.2	0.2	2.2	1.4	1.0	0.9
Peru	0.0	0.0	0.0	0.0	0.0	0.8
Egypt	0.0	1.6	2.1	1.3	1.2	0.6
Others	4.1	9.5	8.2	9.7	9.8	7.1

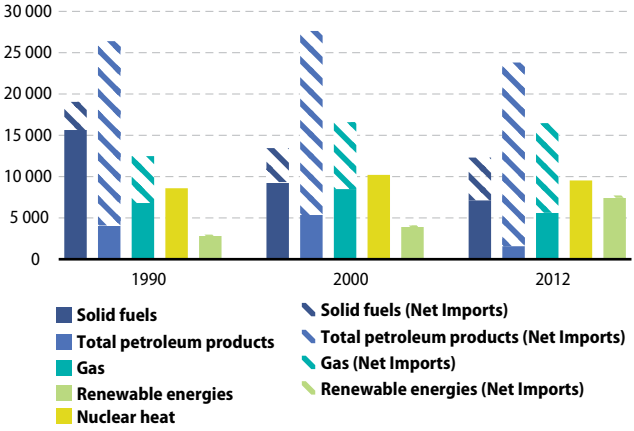
Source: Eurostat (online data codes: nrg_122a, nrg_123a and nrg_124a)

Table 2.4.2: Net imports of primary energy, 2002–12

	2002	2008	2012	2002	2008	2012
	(1 000 tonnes of oil equivalent)			(tonnes of oil equivalent per inhabitant)		
EU-28 (1)	857 127	1 014 782	922 756	1.75	2.03	1.83
EA-18 (2)	813 082	850 160	744 057	2.55	2.58	2.24
BE (2)	48 789	56 061	46 131	4.73	5.26	4.16
BG (3)	8 589	10 359	6 597	1.09	1.38	0.90
CZ	11 215	12 644	10 776	1.10	1.22	1.03
DK	– 8 724	– 4 468	– 630	– 1.63	– 0.82	– 0.11
DE (2)	208 505	207 089	196 772	2.53	2.52	2.45
EE	1 527	1 539	1 115	1.10	1.15	0.84
IE	13 744	14 366	11 832	3.52	3.22	2.58
EL	23 382	25 595	19 979	2.13	2.29	1.80
ES	107 843	122 285	99 409	2.63	2.68	2.12
FR (2)	137 440	139 126	125 316	2.24	2.17	1.92
HR	4 956	5 438	4 355	1.15	1.26	1.02
IT	152 664	156 875	133 814	2.68	2.67	2.25
CY	2 591	3 059	2 622	3.67	3.94	3.04
LV	2 537	2 880	2 692	1.09	1.31	1.32
LT	3 662	5 407	5 786	1.06	1.68	1.93
LU (2)	3 948	4 506	4 338	8.89	9.31	8.27
HU (2)	14 721	16 835	12 329	1.45	1.68	1.24
MT	1 559	1 879	2 041	3.95	4.61	4.89
NL	30 830	33 892	29 247	1.91	2.07	1.75
AT	20 916	23 577	21 409	2.59	2.83	2.55
PL (2)	9 418	29 809	30 098	0.25	0.78	0.78
PT	22 758	21 643	18 131	2.19	2.05	1.72
RO	9 267	11 293	8 024	0.42	0.55	0.40
SI (3)	3 478	4 307	3 641	1.74	2.14	1.77
SK	12 061	11 772	10 023	2.24	2.19	1.85
FI	18 512	19 710	15 547	3.56	3.72	2.88
SE	19 582	19 016	14 749	2.20	2.07	1.56
UK	– 28 640	58 288	86 615	– 0.48	0.95	1.36
IS	975	1 208	801	3.40	3.83	2.51
NO	– 208 676	– 188 535	– 172 312	– 46.13	– 39.80	– 34.56
ME (4)	:	561	365	0.00	0.89	0.59
MK	1 155	1 328	1 424	0.57	0.65	0.69
RS (2)	4 020	6 209	3 991	0.54	0.84	0.55
TR (2)	51 486	72 815	90 310	0.75	1.03	1.21

(1) Tonnes of oil equivalent per inhabitant, 2008 and 2012: 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) Tonnes of oil equivalent per inhabitant, 2010: break in series.
Source: Eurostat (online data codes: nrg_100a and tps00001)

Figure 2.4.3 : Energy dependency by fuel, EU-28, 1990–2000–2012
(1 000 TJ)



Source: Eurostat (Energy database: nrg)

Russia is the main exporting country to Europe, accounting for about 30 % of energy-related imports, followed by Colombia and the Unites States for imports of hard coal, Norway and Libya for oil and Norway and Algeria for natural gas. In terms of net imports per capita, the countries with the highest values are Luxembourg (about 9 tonnes of oil equivalent per inhabitant), Malta (about 5.8 tonnes of oil equivalent per inhabitant) and Belgium (about 4.9 tonnes of oil equivalent per inhabitant). Norway and Denmark are the only countries with negative net imports (exporting countries).

In 2012 in the EU-28, the highest need was for petroleum products, 24 million TJ, of which 93 % were imported. For natural gas, gross inland consumption in 2012 was 16 million TJ, 66 % of it covered by imports. The trend since 1990 is towards increased import dependency. On the aggregated level, this is increasing for oil (petroleum products), coal (solid fuels), natural gas and also for renewable fuels (biofuels).

Table 2.4.3 : Energy dependence — All products, 2003–12
(%)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	48.8	50.1	52.2	53.6	52.9	54.7	53.7	52.7	53.9	53.4
EA-18	64.2	64.1	65.2	65.5	63.9	64.9	63.8	62.1	62.2	61.0
BE	79.5	79.7	80.0	79.5	76.7	81.1	75.9	78.2	73.9	74.0
BG	46.3	48.1	46.7	45.6	50.7	51.7	45.1	39.6	36.0	36.1
CZ	25.1	25.5	28.0	27.8	25.1	27.9	27.1	25.5	27.7	25.2
DK	– 31.4	– 47	– 49.9	– 35.5	– 24.1	– 21.4	– 20.3	– 16.1	– 6.1	– 3.4
DE	60.5	60.9	60.4	60.8	58.4	60.8	61.0	60.0	61.5	61.1
EE	26.8	28.6	26.1	29.3	24.8	24.8	22.0	13.7	12.1	17.1
IE	89.6	90.4	89.3	91.0	87.5	90.6	88.8	86.5	89.6	84.8
EL	67.5	72.7	68.6	71.9	71.2	73.3	67.6	69.1	65.0	66.6
ES	76.7	77.6	81.4	81.2	79.6	81.3	79.1	76.8	76.4	73.3
FR	50.6	50.8	51.7	51.5	50.4	50.8	51.0	49.1	48.7	48.1
HR	56.1	57.2	58.5	54.0	56.4	59.9	51.0	52.1	54.4	53.6
IT	84.0	84.8	84.5	87.1	85.3	85.7	83.3	84.3	81.8	80.8
CY	96.1	95.6	100.3	102.2	96.0	97.5	96.2	100.9	92.5	97.0
LV	63.2	69.4	63.9	66.7	62.5	58.8	60.4	44.3	59.9	56.4
LT	43.8	46.6	56.8	62.0	61.2	57.8	49.9	81.8	81.6	80.3
LU	98.4	97.9	97.3	98.1	96.5	97.4	97.5	97.0	97.2	97.4
HU	62.0	60.9	63.1	62.7	61.2	63.2	58.5	58.1	51.8	52.3
MT	99.8	99.8	99.9	99.9	99.9	99.9	99.9	99.1	100.7	100.5
NL	37.2	30.1	37.7	36.8	37.5	34.3	35.8	30.4	29.7	30.7
AT	70.5	70.7	71.3	72.3	68.7	68.7	65.1	62.2	70.1	63.6
PL	13.2	14.4	17.2	19.5	25.4	30.3	31.5	31.2	33.4	30.7
PT	85.5	83.9	88.6	84.0	81.4	83.4	81.4	75.1	77.6	79.5
RO	25.4	30.2	27.6	29.4	31.7	28.0	20.3	21.9	21.6	22.7
SI	53.6	52.4	52.5	52.1	52.5	55.1	48.4	49.4	48.1	51.6
SK	64.5	67.7	65.3	63.8	68.2	64.3	66.3	62.9	64.1	60.0
FI	58.8	54.3	54.2	53.5	53.0	54.3	53.9	48.0	53.4	45.4
SE	42.8	36.3	36.8	36.8	35.4	37.1	36.7	36.6	36.2	28.7
UK	– 6.6	4.5	13.4	21.2	20.5	26.2	26.3	28.3	36.2	42.2
IS	27.3	30.2	29.0	25.0	22.3	21.7	21.2	19.7	19.1	13.6
NO	– 739.0	– 739.9	– 703.0	– 665.2	– 655.0	– 616.8	– 618.5	– 514.2	– 598.0	– 562.8
ME	:	:	40.0	42.2	50.5	43.5	39.7	24.2	36.0	34.2
MK	38.1	41.2	43.5	44.0	47.2	45.1	44.0	43.1	45.0	48.3
RS	27.6	32.1	35.3	37.2	35.9	37.2	32.2	33.2	30.2	27.6
TR	71.1	70.4	71.6	72.6	74.3	72.2	70.4	69.3	70.7	75.3

Source: Eurostat (online data code: tsdcc310)

Table 2.4.4 : Energy dependence — Solid fuels and derivatives, 2003–12
(%)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	35.0	38.2	39.4	41.7	41.5	44.9	41.1	39.4	41.7	42.2
EA-18	53.3	56.4	56.1	58.9	57.2	60.9	57.0	58.8	58.4	57.2
BE	97.5	101.5	101.4	95.9	96.2	106.6	82.1	97.8	101.2	94.2
BG	35.8	40.5	37.0	35.2	38.9	42.6	27.3	24.7	24.4	21.4
CZ	– 15.9	– 13.7	– 16.1	– 16.0	– 14.7	– 15.5	– 19.4	– 16.1	– 14.0	– 13.0
DK	98.3	101.4	94.4	93.6	100.3	108.5	98.0	69.4	111.0	93.7
DE	29.5	32.5	31.7	38.0	37.0	38.2	35.5	40.1	41.5	40.0
EE	5.3	5.9	0.8	– 0.1	0.9	0.7	– 0.2	– 0.4	– 0.2	0.5
IE	65.7	78	70.8	68.4	60.9	69.1	64.0	47.8	68.9	55.4
EL	4.6	5.0	4.1	2.6	4.1	5.0	2.0	5.1	2.9	2.3
ES	63.4	67.7	70.1	73.7	67.7	79.2	84.8	85.1	69.8	76.5
FR	81.9	94.3	94.5	104.8	92.3	109.8	91.7	101.0	98.9	95.1
HR	99.8	109.3	91.3	109.0	101.8	112.2	89.7	102.5	98.4	87.9
IT	97.7	101.1	99.4	99.6	99.3	101.8	97.4	100.9	96.1	96.7
CY	99.7	77.7	93.7	96.0	78.7	100.0	96.8	85.3	2.8	100.0
LV	92.4	93.1	94.3	119.6	88.1	97.4	91.3	102.8	100.3	95.2
LT	98.0	92.1	93.9	94.1	86.9	107	78.4	91.3	104.9	89.2
LU	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
HU	26.6	32.3	42.8	40.9	44.1	46.6	37.1	41.9	37.6	36.8
MT (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	104.2	98.5	101.4	102.2	104.1	105.9	124.5	121.5	100.8	83.6
AT	86.5	98.3	99.3	91.8	104.9	103.6	98.5	99.9	93.1	102.6
PL	– 26.3	– 27.8	– 23.9	– 21.7	– 15.5	– 6.6	– 5.2	– 5.2	– 1.1	– 6.9
PT	99.7	95.2	96.3	105.6	100.5	91.2	106.7	98.3	97.3	103.3
RO	28.8	33.4	33.4	28.6	34.5	26.8	13.7	17.6	13.8	16.6
SI	20.3	21.8	21.0	20.0	20.6	28.7	17.9	19.2	17.5	21.5
SK	79.7	83.2	88.4	80.8	95.4	85.9	83.0	75.7	81.8	89.7
FI	79.8	73.3	67.7	61.2	62.7	72.1	73.3	57.8	80.9	57.7
SE	97.0	89.0	97.2	86.9	92.7	93.5	70.2	102.2	94.4	78.2
UK	51.8	60.7	72.1	76.0	69.5	75.2	77.9	51.8	64.1	69.5
IS	100.0	100.0	100.0	100.0	107.9	90.7	105.2	96.3	97.7	105
NO	– 139.5	– 109.4	– 53.1	– 126.2	– 192.8	– 175.2	– 202.1	– 50.2	– 26.5	– 2.8
ME	:	:	– 2.1	– 5.2	– 2.5	0.0	– 1.8	– 3.7	– 2.8	– 3.1
MK	10.6	6.0	8.2	10.0	10.9	10.3	3.2	9.5	9.5	10.0
RS	3.6	5.6	8.5	10.3	8.3	9.4	7.3	9.2	9.1	5.3
TR	50.9	50.5	51.7	51.2	49.8	43.6	44.1	43.1	46.1	55.5

(1) No consumption of solid fuels Malta.
Source: Eurostat (online data code: tsdcc310)

Table 2.4.5 : Energy dependence — Total petroleum products, 2003–12
(%)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	78.2	79.6	82.1	83.4	82.3	84.3	83.5	84.4	85.1	86.4
EA-18	97.1	96.6	97.5	97.2	95.8	97.1	96.2	96.3	95.5	96.0
BE	100.8	99.8	100.8	100.8	97.3	101.2	99.2	101.4	100.7	99.3
BG	97.2	97.7	102.2	98.5	100.0	98.7	101.4	101.0	97.7	96.9
CZ	95.7	93.6	97.5	96.9	96.3	97.6	96.7	96.4	95.2	95.3
DK	– 99.2	– 115.9	– 102.7	– 86.1	– 65.8	– 49.4	– 60.8	– 43.9	– 47.7	– 34.8
DE	97.1	94.8	97.0	95.3	93.9	95.3	95.4	95.9	94.2	96.0
EE	72.8	73.0	70.8	76.2	74.4	65.6	66.0	57.5	56.1	60.0
IE	100.6	100.2	99.7	101.1	97.0	101.0	99.2	97.5	101.1	98.5
EL	96.1	104.8	97.7	101.3	100.9	101.3	96.7	98.6	93.8	101.3
ES	99.6	99.4	101.2	100.8	99.6	100.4	98.9	99.9	99.8	96.7
FR	99.3	97.8	99.4	98.5	97.8	97.5	97.6	97.6	97.9	97.9
HR	70.7	77.7	79.4	76.5	81.1	84.0	77.7	80.4	79.9	71.4
IT	93.0	93.2	91.8	93.2	92.3	91.9	91.9	93.5	91.0	90.1
CY	97.8	97.8	102.3	104.2	98.6	100.1	98.9	104.2	95.8	101.0
LV	99.2	100.3	102.2	102.2	98.2	99.0	99.5	94.4	101.8	101.7
LT	88.5	93.4	91.9	96.9	94.4	92.4	89.8	98.7	91.4	93.0
LU	100.2	99.6	99.4	101.0	98.8	100.2	100.1	99.4	99.6	100.5
HU	75.5	77.4	81.2	78.8	82.2	80.6	77.4	84.1	82.2	80.8
MT	99.8	99.9	100.0	100.0	100.0	100.0	100.0	99.2	100.8	100.8
NL	91.6	95.5	97.1	95.3	93.2	98.0	96.5	93.3	91.3	96.7
AT	93.4	93.4	91.4	95.3	91.2	92.3	91.5	89.3	91.2	91.5
PL	97.5	95.5	97.5	99.6	104.5	96.3	98.7	97.0	95.9	94.7
PT	103.1	97.9	102.3	99.0	97.9	102.9	99.3	97.5	100.8	100.9
RO	31.5	46.8	38.5	43.8	51.3	51.7	51.2	51.9	47.0	51.4
SI	101.3	101.4	101.3	97.8	98.9	101.7	100.1	100.0	100.1	105.0
SK	93.2	95.0	88.2	95.0	90.0	90.5	87.8	88.7	90.0	89.7
FI	100.5	95.2	98.4	99.4	98.1	100.9	98.2	89.4	97.3	92.5
SE	105.2	98.0	104.0	99.5	99.1	102.6	101.7	93.6	99.9	95.4
UK	– 34.5	– 16.9	– 3.2	8.7	2.1	8.9	7.5	14.8	27.1	36.3
IS	94.2	103.3	102.0	97.4	99.9	99.8	101.9	97.0	100.4	100.7
NO	– 1 341.3	– 1 277.9	– 1 126.0	– 978.8	– 1 027.6	– 814.7	– 750.9	– 625.6	– 754.5	– 597.1
ME	:	:	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
MK	90.3	102.4	102.5	100.3	96.4	97.3	106.7	97.8	97.3	103.1
RS	77.7	84.5	85.3	86.5	83.5	87.1	80.4	75.0	72.5	65.2
TR	93.1	93.0	90.8	94.0	96.4	93.4	90.9	92.5	91.4	94.3

Source: Eurostat (online data code: tsdcc310)

Table 2.4.6 : Energy dependence — Natural gas, 2003–12
(%)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	52.0	53.6	57.1	60.3	59.5	61.7	63.4	62.1	67.1	65.8
EA-18	69.6	69.4	72.0	74.4	71.6	72.8	73.8	70.6	74.7	72.1
BE	98.9	99.9	100.6	100.2	99.8	100.4	99.0	98.8	100.6	98.6
BG	94.2	95.8	87.7	89.9	91.5	96.2	98.6	92.6	86.1	83.3
CZ	98.2	91.1	97.8	104.4	93.4	98.7	104.0	84.8	110.2	89.0
DK	– 55.5	– 79.4	– 113.5	– 103.1	– 99.4	– 120.7	– 91.6	– 68.1	– 55.1	– 54.0
DE	78.7	83.7	79.6	82.0	77.7	82.2	85.8	81.2	86.8	85.7
EE	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
IE	85.8	81.2	86.7	91.5	91.5	93.0	94.5	95.7	96.1	95.6
EL	98.8	97.5	99.1	99.1	99.1	100.0	99.7	99.9	100.0	100.3
ES	99.0	97.6	101.2	101.2	99.0	100.8	98.8	99.3	101.6	99.6
FR	95.5	96.3	99.3	99.6	96.5	97.8	100.9	93.0	103.3	96.6
HR	27.6	23.5	23.7	8.0	9.2	16.6	8.1	18.1	19.5	37.1
IT	80.3	83.8	84.7	91.2	87.0	90.3	88.6	90.5	90.2	90.2
CY (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LV	104.3	130.5	105.6	108.8	96.8	82.2	114.1	61.8	109.4	113.8
LT	100.0	99.8	100.6	101.0	102.9	96.3	100.4	99.7	100.3	100.1
LU	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.9	99.7
HU	83.6	79.2	81.1	82.2	79.9	88.1	85.6	78.7	65.6	72.9
MT (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	– 45.0	– 67.6	– 59.3	– 61.6	– 63.5	– 72.7	– 61.2	– 61.6	– 68.6	– 74.5
AT	78.7	78.9	87.7	87.2	81.6	87.5	85.7	74.4	103.2	86.3
PL	66.6	68.3	69.7	70.7	66.0	72.6	67.3	69.3	75.1	73.8
PT	100.3	100.0	103.8	100.6	98.7	100.1	101.2	100.4	101.6	99.7
RO	28.8	29.5	30.1	33.7	30.3	29.0	15.1	16.8	22.2	21.2
SI	99.5	99.5	99.6	99.6	99.7	99.7	99.7	99.3	99.8	99.8
SK	97.0	103.3	97.5	96.6	97.9	96.3	108.6	99.9	104.8	89.8
FI	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
SE	94.5	95.3	95.1	95.5	97.3	97.1	98.1	98.8	99.2	99.1
UK	– 8.2	1.7	7.0	11.8	20.3	26.1	31.6	37.7	44.2	47.0
IS (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	– 1 181.8	– 1 627.5	– 1 743.1	– 1 801.9	– 1 504.3	– 1 751.8	– 1 753.6	– 1 314.2	– 1 894.6	– 2 023.0
ME (1)	:	:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
MK	100.2	100.2	99.5	100.4	100.1	100.0	99.8	100.0	100.0	100.0
RS	83.8	88.9	88.3	88.2	89.9	89.3	90.4	84.5	73.1	84.9
TR	97.5	96.9	97.1	96.9	97.8	100.2	100.1	98.1	96.6	100.1

(1) No natural gas consumption for Cyprus, Malta and Iceland (2001–12) and Montenegro (2005–12)

Source: Eurostat (online data code: tsdcc310)

Energy dependency of the EU-28 on energy imports increased from 47.4 % in 2001 to 53.3 % in 2012. The dependency rate has been growing over the last decade, with the maximum value of 54.7 % recorded in 2008. Denmark is the only EU Member State with negative values; its energy dependency rate decreased from – 28 % in 2001 to – 3.4 % in 2012. On the other hand, the United Kingdom turned from being a net exporter in 2001 (– 9.3 %) to being a net importer in 2012 (42.2 %). Relative low energy dependency rates (below 30 %) are recorded in Sweden (28.7 %), the Czech Republic (25.2 %) and Romania (22.7 %).

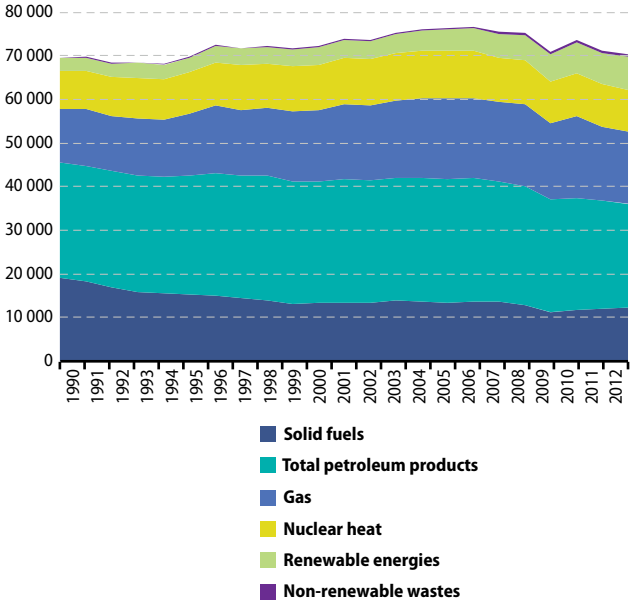
Energy dependency of the EU-28 on coal increased over the last decade, from 33.8 % in 2001 to 42.2 % in 2012. The Czech Republic and Poland are exporting countries, with dependency rates in 2012 of –13 % and –6.9 % respectively. Estonia was an importing country in 2001 (dependency rate 7.1 %) and was gradually transformed into a small exporting country (dependency rate – 0.2 % in 2011). Thirteen EU Member States are almost entirely dependent on coal imports (dependency rates over 80 %).

EU-28 dependency on crude oil and petroleum products grew from 77.3 % in 2001 to 86.4 % in 2012 (12 % increase), almost double the dependency on coal. Denmark remains the only net exporting country, as the United Kingdom became an importer in 2005. The majority of EU Member States have a dependency rate of over 80 %, with the exception of Croatia (71.4 %), Estonia (60 %), Romania (51.4 %) and the United Kingdom (36.3 %).

EU-28 dependency on gas increased by about 40 % in the 2001–12 period, an even higher increase rate than for crude oil and petroleum products. Denmark and the Netherlands are net exporting countries while the United Kingdom became an importing country in 2003. In 2012 the lowest dependency rates were recorded in Romania (21.2 %), Croatia (37.1 %) and the United Kingdom (47 %).

2.5 Energy consumption

Figure 2.5.1: Gross inland energy consumption, EU-28, 1990–2012
(1 000 TJ)



Source: Eurostat (Energy database: nrg)

Gross inland energy consumption in the EU-28 has been on a decreasing trend. In 2012 it was 1 % lower than in 2011 (approximately 70.5 million TJ). It was stable from 1990 to 2012 except in 2009, when it decreased by 6 % compared to 2008, due to the financial crisis. That year solid fuel consumption decreased by 12 %, followed by natural gas and petroleum products by 6 % each.

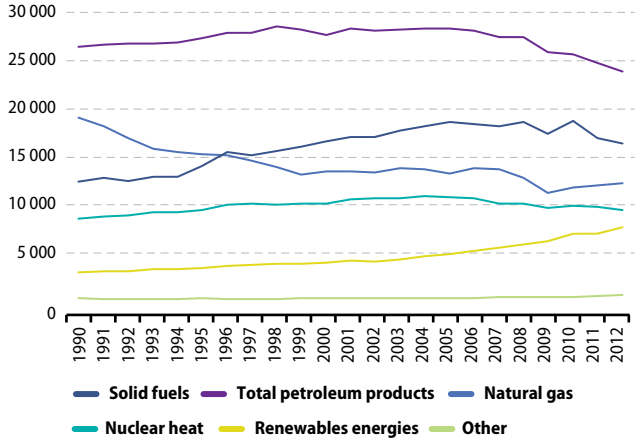
In 2010 consumption showed a recovery, only to decrease further in 2011 and 2012 when it stood just below 2009 levels. In 2012 petroleum products recorded the biggest decrease by 4 % while renewable energies recorded the biggest increase (9 %).

Table 2.5.1: Gross inland consumption of energy, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	1 796.9	1 818.1	1 824.2	1 831.9	1 803.6	1 799.2	1 694.9	1 759.7	1 699.5	1 683.5
EA-18	1 255.0	1 273.6	1 277.8	1 281.4	1 261.7	1 263.1	1 192.4	1 237.2	1 193.0	1 180.2
BE	59.4	59.0	58.7	57.5	56.0	59.6	57.1	61.0	59.7	56.3
BG	19.3	18.9	19.8	20.4	20.0	19.9	17.5	17.8	19.1	18.2
CZ	44.5	45.6	45.1	46.3	46.3	45.3	42.4	44.7	43.2	42.8
DK	20.8	20.2	19.6	21.1	20.5	20.0	19.2	20.1	18.7	18.1
DE	341.5	343.9	341.9	351.7	333.7	337.8	317.2	333.7	317.1	319.5
EE	5.5	5.7	5.6	5.5	6.2	5.9	5.4	6.2	6.2	6.1
IE	14.9	15.1	15.0	15.5	16.0	15.8	14.8	15.1	14.0	13.8
EL	30.4	30.8	31.4	31.6	31.5	31.8	30.5	28.7	27.8	27.7
ES	135.1	141.2	144.2	144.4	146.3	141.8	130.4	129.9	128.2	127.3
FR	271.4	275.5	276.4	272.9	269.9	271.5	259.5	267.1	257.8	258.4
HR	8.8	8.8	8.9	8.9	9.3	9.1	8.7	8.6	8.5	8.1
IT	183.2	185.1	187.5	185.3	183.4	180.6	168.9	174.8	172.0	163.2
CY	2.7	2.5	2.5	2.6	2.7	2.9	2.8	2.7	2.7	2.5
LV	4.4	4.5	4.6	4.8	4.9	4.7	4.5	4.8	4.4	4.5
LT	9.0	9.2	8.7	8.5	9.3	9.3	8.5	6.8	7.0	7.1
LU	4.2	4.7	4.8	4.7	4.6	4.6	4.4	4.6	4.6	4.5
HU	26.4	26.2	27.6	27.5	26.8	26.6	25.2	25.8	25.1	23.6
MT	0.9	0.9	1.0	0.9	1.0	1.0	0.9	1.0	0.9	0.8
NL	80.3	81.6	81.5	79.5	82.7	83.5	81.0	86.6	80.2	81.8
AT	32.5	33.3	34.4	34.5	34.0	34.3	32.3	34.6	33.6	33.7
PL	91.7	91.7	92.5	97.2	97.1	98.2	94.7	100.9	101.2	98.0
PT	25.9	26.8	27.5	26.2	26.2	25.4	25.1	24.3	23.6	22.2
RO	40.1	39.5	39.2	40.6	40.4	40.3	35.6	35.8	36.6	35.4
SI	6.9	7.2	7.3	7.3	7.3	7.8	7.1	7.2	7.3	7.0
SK	18.8	18.5	19.0	18.9	17.9	18.3	16.8	17.9	17.4	16.7
FI	37.0	37.3	34.5	37.6	37.3	35.9	33.9	37.1	35.5	34.1
SE	49.9	51.9	51.0	49.6	49.6	49.3	45.5	50.8	49.7	49.8
UK	231.4	232.5	234.0	230.5	222.5	218.1	205.3	211.2	197.3	202.3
IS	3.4	3.5	3.6	4.3	5.0	5.5	5.5	5.5	5.9	5.8
NO	27.3	26.8	27.2	27.6	28.0	30.1	29.6	33.2	28.1	30.3
ME	:	:	1.1	1.2	1.2	1.3	1.0	1.2	1.1	1.1
MK	2.8	2.7	2.8	2.9	3.0	2.9	2.8	2.8	3.1	2.9
RS	16.4	17.7	15.7	16.7	16.5	16.7	15.2	15.6	16.1	14.5
TR	79.1	81.8	85.6	94.3	101.4	100.2	100.0	106.9	113.9	119.8

Source: Eurostat (online data code: ten00086)

Figure 2.5.2: Gross inland energy consumption, EU-28, 1990–2012
(1 000 TJ)

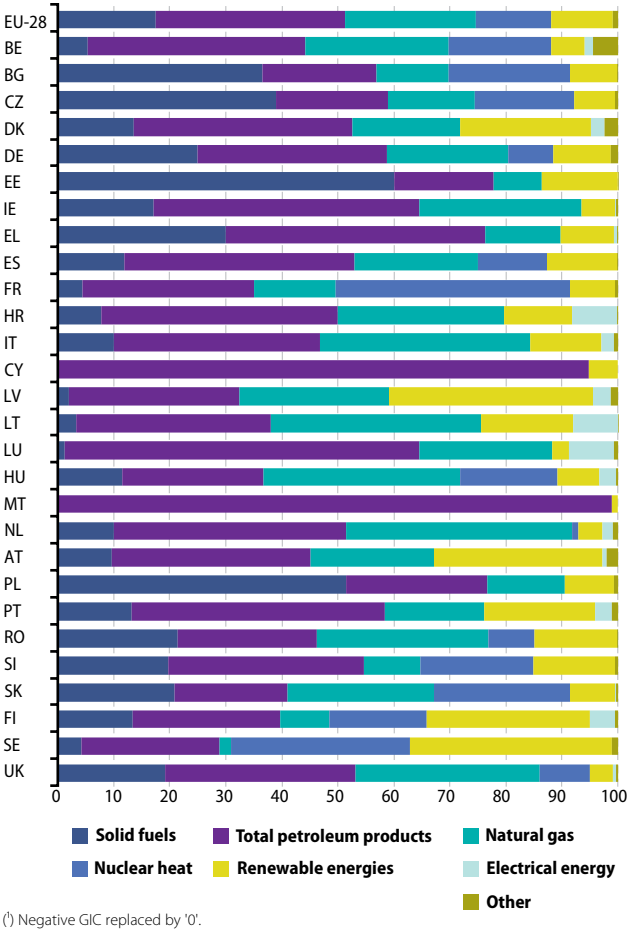


Source: Eurostat (Energy database: nrg)

The structure of gross inland energy consumption in 2012 indicates total petroleum products to hold the largest share (34 %), followed by gas (23 %) and solid fossil fuels (17 %). Nuclear heat share of consumption was 14 % and renewables 11 %. The share of consumption of solid fuels saw an overall reduction by 10 % since 1990 (from 27 % in 1990 to 17 % in 2012). Renewable energy sources on the other hand saw an increase of their share of consumption from 4 % in 1990 to 11 % in 2012.

The mixture of fuel consumption used by each country depends on available natural resources, the structure of the economy and the energy systems available. Estonia and Poland use solid fuels for over half of their gross inland consumption, while the average for the EU-28 is 17 %. The smallest shares of solid fuels in gross inland energy consumption (less than 2 %) are found in Luxembourg, Cyprus and Malta, which at the same time have the largest energy consumption in total petroleum products (Malta 99 %, Cyprus 95 % and Luxembourg 63 %).

Figure 2.5.3: National shares of fuels in gross inland energy consumption, 2012



([1]) Negative GIC replaced by '0'.
Source: Eurostat (Energy database: nrg)

In the Czech Republic and Estonia, the share of total petroleum products in inland energy consumption was under 20 % in 2012. Natural gas share in inland energy consumption was over 30 % in the Netherlands, Lithuania, Italy, Hungary and the United Kingdom and under 2 % in Sweden. Renewable energies were used in excess of 30 % in Latvia, Austria and Sweden.

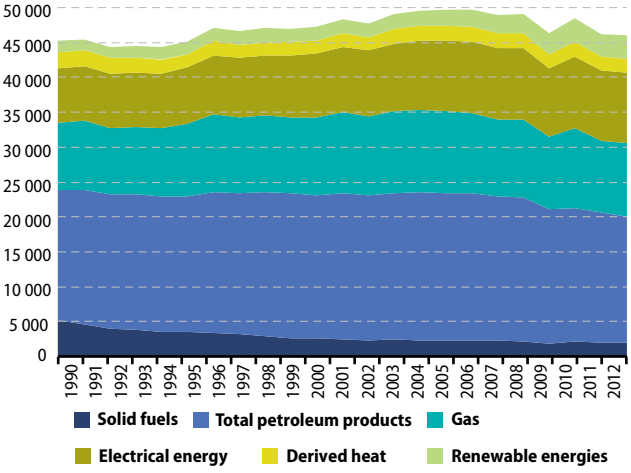
Nuclear heat was used in fourteen EU Member States, in 2012, with the largest share in France (42 %) followed by Sweden (32 %).

Table 2.5.2: Final energy consumption, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	1 173.7	1 186.6	1 188.5	1 190.1	1 170.4	1 174.6	1 107.8	1 159.8	1 108.0	1 104.5
EA-18	829.3	837.0	838.2	838.5	822.0	829.4	782.4	818.4	782.7	778.8
BE	38.5	37.8	36.8	36.3	34.8	37.8	34.6	37.5	37.8	36.6
BG	9.8	9.7	10.1	10.5	10.3	10.0	8.6	8.8	9.3	9.2
CZ	25.9	26.4	26.0	26.4	25.9	25.6	24.4	25.4	24.5	24.1
DK	15.1	15.4	15.5	15.7	15.7	15.5	14.5	15.2	14.5	14.1
DE	223.5	221.5	218.5	223.4	210.3	217.7	205.8	220.5	209.2	213.1
EE	2.8	2.8	2.9	2.9	3.1	3.1	2.8	2.9	2.8	2.9
IE	11.6	12.0	12.6	13.2	13.3	13.3	11.9	11.9	11.0	10.7
EL	20.7	20.5	21.0	21.6	22.1	21.4	20.5	19.0	18.9	17.1
ES	90.4	94.7	97.8	95.5	98.1	94.6	87.8	89.1	86.7	83.1
FR	161.7	163.3	162.8	161.5	158.2	160.1	153.1	158.4	147.2	150.8
HR	6.0	6.2	6.3	6.5	6.5	6.6	6.4	6.3	6.2	5.9
IT	131.0	132.8	134.5	132.6	129.5	128.0	120.9	124.8	122.1	119.0
CY	1.8	1.8	1.8	1.9	1.9	2.0	1.9	1.9	1.9	1.8
LV	3.8	3.9	4.0	4.2	4.4	4.2	4.0	4.3	3.9	4.0
LT	4.2	4.4	4.6	4.9	5.1	5.1	4.6	4.8	4.7	4.8
LU	4.0	4.4	4.5	4.4	4.3	4.4	4.1	4.3	4.3	4.2
HU	17.7	17.6	18.2	18.0	16.9	17.0	16.4	16.6	16.2	14.8
MT	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.5
NL	52.1	52.9	51.7	51.0	52.4	53.6	50.3	53.9	50.7	51.1
AT	26.6	27.0	28.2	27.9	27.7	27.9	26.5	28.4	27.5	27.3
PL	56.1	58.1	58.3	60.9	61.8	62.2	61.2	66.3	63.9	63.6
PT	18.6	18.9	19.0	18.8	18.9	18.4	18.2	18.1	17.3	16.2
RO	24.3	25.0	24.7	24.9	24.2	24.9	22.3	22.6	22.8	22.7
SI	4.7	4.8	4.9	4.9	4.9	5.2	4.7	4.9	5.0	4.9
SK	11.2	11.1	11.6	11.4	11.2	11.5	10.6	11.5	10.8	10.3
FI	26.0	26.4	25.3	26.7	26.5	25.8	24.0	26.4	25.1	25.3
SE	34.0	34.0	33.7	33.2	33.3	32.4	31.4	34.1	32.4	32.4
UK	151.3	153.0	152.8	150.7	148.5	145.8	135.8	141.3	130.9	134.0
IS	2.2	2.2	2.2	2.4	2.4	2.7	2.8	2.7	2.8	2.8
NO	18.0	18.5	18.6	18.5	18.9	18.9	18.2	19.6	18.7	18.3
ME	0.0	0.0	0.8	0.9	0.9	0.9	0.8	0.8	0.7	0.7
MK	1.6	1.6	1.7	1.7	1.8	1.8	1.7	1.8	1.9	1.8
RS	9.1	10.3	9.6	9.7	10.2	9.5	8.5	9.0	9.3	8.5
TR	59.1	61.1	63.4	69.1	73.3	72.2	69.7	73.8	78.5	84.2

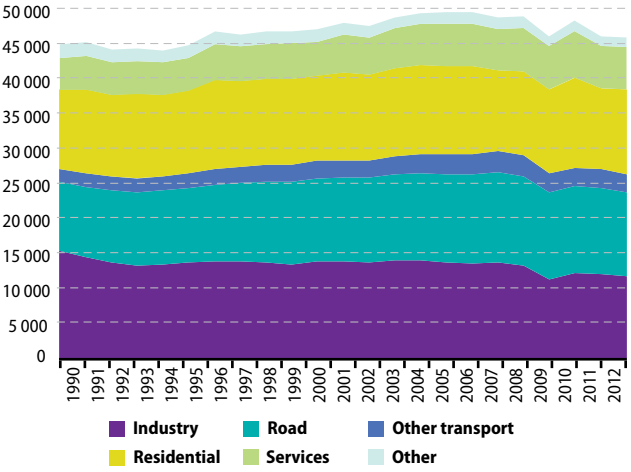
Source: Eurostat (online data code: ten00095)

Figure 2.5.4: Final energy consumption by fuel, EU-28, 1990–2012 ([1])
(1 000 TJ)



([1]) Non-renewable wastes are not included, since they are not used in the final consumption sector, or are used very little.
Source: Eurostat (Energy database: nrg)

Figure 2.5.5: Final energy consumption by sector, EU-28, 1990–2012
(1 000 TJ)



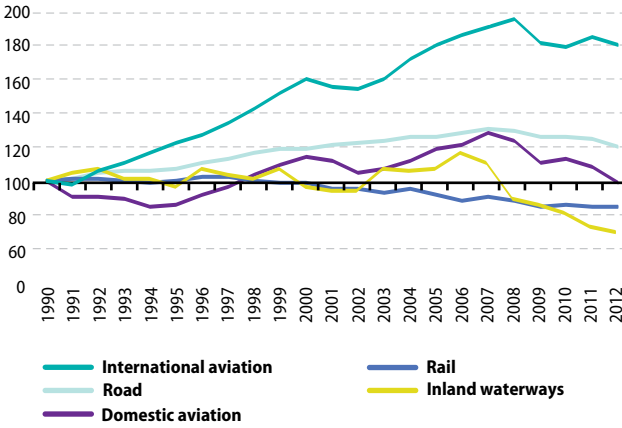
Source: Eurostat (Energy database: nrg)

Table 2.5.3: Final energy consumption by industry, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	336.1	335.2	329.7	324.0	328.7	317.2	269.8	290.7	289.4	282.8
EA-18	238.0	237.2	234.5	229.2	234.1	226.9	192.9	210.1	210.3	205.7
BE	13.0	12.6	11.8	12.5	12.3	12.1	9.7	11.8	13.9	13.3
BG	4.0	4.0	4.0	4.1	4.2	3.6	2.4	2.6	2.7	2.6
CZ	9.6	9.9	9.7	9.7	9.4	9.0	8.2	8.6	8.5	8.1
DK	2.9	2.9	2.9	2.9	2.8	2.7	2.3	2.4	2.4	2.3
DE	59.2	59.3	59.1	59.9	62.4	61.4	53.7	60.6	60.8	61.2
EE	0.7	0.7	0.7	0.7	0.8	0.8	0.5	0.6	0.6	0.6
IE	2.4	2.5	2.6	2.7	2.5	2.4	2.1	2.1	2.3	2.3
EL	4.3	4.1	4.2	4.2	4.6	4.2	3.5	3.5	3.3	3.0
ES	29.3	30.1	31.0	25.4	27.5	25.8	21.2	21.4	21.4	20.8
FR	39.1	37.7	35.7	35.5	34.8	33.9	29.0	31.0	30.8	29.6
HR	1.4	1.6	1.6	1.6	1.7	1.7	1.4	1.4	1.3	1.1
IT	40.7	40.2	39.9	38.8	38.1	36.4	29.8	31.3	30.1	29.3
CY	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
LV	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.7	0.8
LT	0.9	0.9	1.0	1.0	1.1	0.9	0.8	0.9	0.9	1.0
LU	0.7	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.6
HU	3.6	3.3	3.4	3.4	3.3	3.3	2.7	2.9	2.8	2.6
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0
NL	14.8	15.0	14.8	13.5	15.6	15.2	12.8	14.3	14.2	13.9
AT	7.8	8.2	8.8	8.8	9.0	9.1	8.3	9.1	9.3	9.1
PL	17.4	18.0	16.6	17.0	17.8	16.2	14.6	15.3	15.0	14.9
PT	5.9	5.8	5.8	5.8	5.8	5.5	5.2	5.5	5.3	4.7
RO	10.4	10.3	10.0	9.6	9.1	9.0	6.5	6.9	7.1	6.8
SI	1.5	1.5	1.6	1.7	1.6	1.5	1.2	1.3	1.2	1.2
SK	4.8	4.6	4.7	4.8	4.6	4.5	4.1	4.4	4.3	4.3
FI	12.5	12.9	12.0	13.1	12.8	12.1	10.0	11.4	11.2	10.9
SE	12.8	12.9	12.6	12.7	12.8	12.2	11.0	12.2	11.9	11.7
UK	35.2	34.0	33.4	32.9	32.3	31.6	27.0	27.5	26.4	26.0
IS	0.8	0.8	0.8	0.8	1.0	1.3	1.3	1.3	1.3	1.4
NO	6.6	6.9	6.8	6.6	6.6	6.7	5.5	6.1	6.1	5.5
ME	0.0	0.0	0.3	0.4	0.4	0.4	0.2	0.2	0.2	0.2
MK	0.5	0.5	0.6	0.6	0.7	0.6	0.4	0.5	0.6	0.6
RS	3.0	3.5	3.5	3.7	3.8	3.2	2.2	2.6	2.8	2.5
TR	22.3	22.6	22.5	24.7	25.0	19.7	20.4	24.7	26.9	28.0

Source: Eurostat (online data code: ten00099)

Figure 2.5.6: Energy consumption by transport mode, EU-28, 1990–2012
(1990 = 100, based on tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_100a)

In 2012, the total final energy consumption in the EU-28 was approximately 46 million TJ, slightly lower than 2011. Since 1994 the final energy consumption increased slowly to reach its highest point in 2006. It then remained stable until 2009, when it decreased by 6%, also due to the economic and financial crisis. An increase was noted in 2010 but in 2011 the consumption decreased by 5% and remained steady in 2012, bringing it at a level slightly below that of 2009.

Solid fuel consumption had the sharpest decrease, by 19%, followed by gas (7%), total petroleum products (6%) and electricity (5%).

The share of fuel mixture of gross inland energy consumption in each country depends on the natural resources available, the structure of their economy as well as the national choices with regards to the selection of the energy system.

Table 2.5.4: Final energy consumption by transport, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	356.9	366.4	369.6	377.1	383.0	378.4	365.2	363.7	361.9	351.7
EA-18	261.0	266.7	266.7	270.9	273.6	270.1	260.5	259.6	257.5	249.4
BE	10.3	10.3	10.0	9.7	9.6	11.3	11.1	10.8	10.7	9.9
BG	2.4	2.6	2.9	3.0	2.9	3.1	2.9	2.9	2.9	3.1
CZ	5.4	5.7	6.1	6.3	6.7	6.7	6.5	6.2	6.2	6.0
DK	5.0	5.2	5.3	5.4	5.6	5.5	4.9	4.8	4.7	4.6
DE	62.9	63.6	62.3	63.4	62.4	61.8	60.7	61.2	61.3	61.5
EE	0.7	0.7	0.8	0.8	0.9	0.8	0.7	0.8	0.8	0.8
IE	4.5	4.7	5.1	5.5	5.8	5.5	4.8	4.7	4.4	4.2
EL	7.9	8.1	8.2	8.6	8.8	8.6	9.2	8.2	7.4	6.4
ES	36.9	38.6	39.9	41.1	42.3	40.5	37.9	37.2	36.0	33.3
FR	50.6	51.0	50.5	50.9	51.6	50.4	49.5	49.7	49.8	50.3
HR	1.8	1.8	1.9	2.0	2.2	2.2	2.1	2.1	2.0	2.0
IT	44.3	45.2	44.8	45.4	45.7	44.0	42.1	41.7	41.8	39.4
CY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.0
LV	1.0	1.0	1.1	1.2	1.3	1.3	1.1	1.2	1.1	1.1
LT	1.2	1.3	1.4	1.5	1.8	1.8	1.5	1.5	1.5	1.6
LU	2.3	2.7	2.8	2.7	2.6	2.7	2.5	2.6	2.7	2.6
HU	3.8	4.0	4.3	4.6	4.7	4.8	4.7	4.3	4.2	4.0
MT	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.3	0.3	0.3
NL	14.8	15.2	15.2	15.7	15.7	15.9	15.0	15.0	15.2	14.8
AT	8.5	8.7	9.1	8.9	9.1	8.8	8.5	8.7	8.5	8.4
PL	10.4	11.7	12.5	13.9	15.3	16.3	16.6	17.6	17.8	17.3
PT	7.2	7.4	7.2	7.3	7.3	7.4	7.3	7.3	6.9	6.5
RO	4.4	4.6	4.3	4.4	4.8	5.4	5.4	5.1	5.3	5.3
SI	1.4	1.4	1.5	1.6	1.8	2.1	1.7	1.8	1.9	1.9
SK	2.1	2.2	2.4	2.3	2.5	2.7	2.4	2.6	2.6	2.3
FI	4.5	4.6	4.6	4.8	4.9	4.9	4.7	4.8	4.9	4.8
SE	8.2	8.5	8.6	8.7	8.8	8.7	8.5	8.6	8.5	8.3
UK	53.2	54.3	55.5	56.2	56.5	53.8	51.6	50.9	50.9	50.1
IS	0.3	0.3	0.4	0.5	0.5	0.4	0.4	0.4	0.4	0.4
NO	4.5	4.7	4.7	5.0	5.2	5.1	5.0	5.3	5.1	5.0
ME	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
MK	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5
RS	1.7	2.2	2.3	2.4	1.9	2.4	2.3	2.3	2.1	1.8
TR	12.8	13.1	13.6	15.1	17.2	16.5	16.5	16.0	16.1	18.8

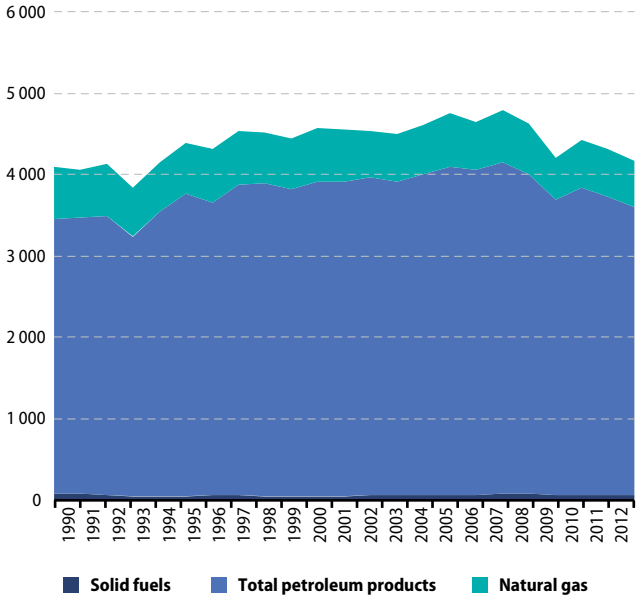
Source: Eurostat (online data code: ten00100)

Table 2.5.5: Final energy consumption by households, trade, services, etc, 2003–12
(million tonnes of oil equivalent)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	480.7	485.0	489.3	489.0	458.6	478.9	472.8	505.5	456.7	470.0
EA-18	330.3	333.1	337.0	338.4	314.2	332.4	329.0	348.7	314.9	323.7
BE	15.2	14.9	15.0	14.1	13.0	14.4	13.8	15.0	13.3	13.4
BG	3.3	3.1	3.2	3.4	3.2	3.3	3.2	3.4	3.6	3.6
CZ	10.9	10.7	10.3	10.4	9.8	10.0	9.7	10.6	9.8	9.9
DK	7.3	7.3	7.3	7.4	7.3	7.3	7.3	8.0	7.3	7.2
DE	101.4	98.7	97.0	100.1	85.5	94.5	91.5	98.7	87.1	90.5
EE	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.4	1.5
IE	4.7	4.7	4.9	5.0	5.0	5.3	5.0	5.1	4.3	4.3
EL	8.4	8.3	8.6	8.8	8.6	8.5	7.9	7.4	8.1	7.8
ES	24.2	25.9	26.8	29.0	28.3	28.3	28.7	30.4	29.3	29.0
FR	72.0	74.6	76.7	75.1	71.9	75.7	74.5	77.7	66.7	70.9
HR	2.8	2.8	2.8	2.8	2.6	2.8	2.8	2.9	2.9	2.8
IT	46.0	47.3	49.9	48.4	45.7	47.6	49.0	51.7	50.1	50.2
CY	0.4	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.6
LV	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.0	2.1
LT	2.1	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.2	2.3
LU	0.9	1.0	0.9	0.9	0.9	1.0	0.9	1.0	0.9	1.0
HU	10.3	10.2	10.5	10.0	8.9	8.9	9.0	9.4	9.1	8.3
MT	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NL	22.5	22.7	21.6	21.8	21.1	22.5	22.4	24.6	21.3	22.5
AT	10.3	10.1	10.3	10.1	9.6	10.0	9.7	10.5	9.7	9.8
PL	28.3	28.4	29.2	30.0	28.7	29.7	30.0	33.5	31.0	31.5
PT	5.4	5.7	6.0	5.7	5.8	5.5	5.7	5.3	5.1	5.0
RO	9.5	10.0	10.4	10.9	10.3	10.5	10.4	10.6	10.3	10.6
SI	1.9	1.9	1.8	1.7	1.5	1.7	1.8	1.8	1.8	1.7
SK	4.3	4.3	4.5	4.3	4.1	4.2	4.2	4.6	3.9	3.7
FI	9.0	8.8	8.7	8.8	8.8	8.8	9.3	10.1	9.0	9.5
SE	13.0	12.5	12.4	11.9	11.7	11.5	11.9	13.3	12.0	12.4
UK	62.9	64.7	63.8	61.6	59.6	60.4	57.3	62.9	53.6	57.9
IS	1.1	1.1	1.1	1.1	0.9	1.0	1.0	1.0	1.0	1.0
NO	6.9	6.9	7.1	6.9	7.1	7.1	7.7	8.1	7.4	7.7
ME	0.0	0.0	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
MK	0.8	0.8	0.8	0.8	0.7	0.7	0.8	0.8	0.8	0.8
RS	4.5	4.7	3.8	3.6	4.5	3.9	4.0	4.2	4.3	4.2
TR	24.0	25.5	27.4	29.3	31.1	36.0	32.8	33.2	35.5	37.4

Source: Eurostat (online data code: ten00101)

Figure 2.5.7: Non-energy consumption by fuel, EU-28, 1990–2012 ([1])
(1 000 TJ)



([1]) Renewable energies are not included, since they are not used in the non-energy use consumption sector, or very little.
Source: Eurostat (Energy database: nrg)

The structure of final energy consumption in 2012 by sector shows that residential, road transport and industry accounted for the biggest shares, 26 % each. The service sector accounted for 13 %, transport for 6 % and the other remaining sectors for 3 %.

Household electricity consumption has gone up steadily since 1990 with a total increase of 26 %. The countries with the highest consumptions are France (19 % of the EU-28 total), Germany (17 % of the EU-28 total) and the United Kingdom (14 % of the EU-28 total). The lowest consumptions are found in Cyprus, Latvia, Malta, Luxembourg and Estonia (less than 0.3 %). In terms of per capita consumption of electricity, values range between 0.05 tonnes of oil equivalent per capita (Romania, 2011 value) and 0.34 tonnes of oil equivalent per capita (Finland, 2011 value).

Table 2.5.6: Electricity consumption of households, 1990–2012
(million tonnes of oil equivalent)

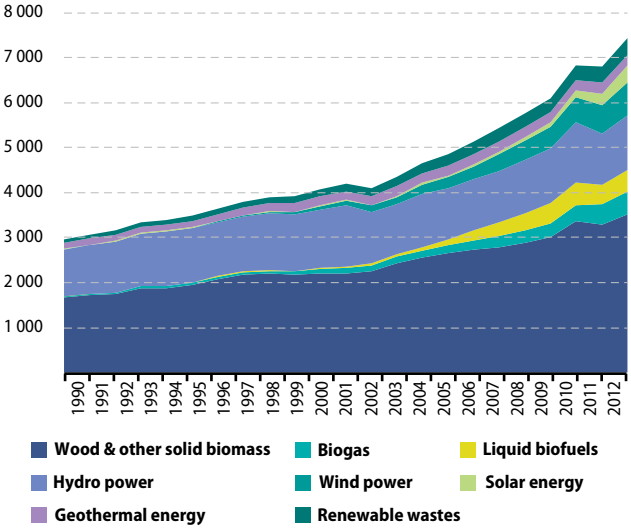
	1990	2000	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	52.4	61.9	69.3	70.3	69.7	70.5	70.5	72.7	69.0	71.2
EA-18	35.0	41.8	47.2	48.1	47.8	48.8	48.7	50.7	48.1	49.8
BE	1.6	2.0	2.2	2.0	1.9	1.7	1.7	1.7	1.7	1.7
BG	0.9	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9
CZ	0.8	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3
DK	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
DE	11.8	11.2	12.1	12.2	12.0	12.0	12.0	12.2	11.7	11.8
EE	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
IE	0.4	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7
EL	0.8	1.2	1.5	1.5	1.5	1.6	1.6	1.6	1.5	1.6
ES	2.6	3.8	5.4	5.8	5.9	6.0	6.1	6.5	6.5	6.5
FR	8.3	11.1	11.9	12.3	12.2	13.1	12.8	13.9	12.1	13.6
HR	0.4	0.5	0.5	0.6	0.5	0.6	0.6	0.6	0.6	0.6
IT	4.5	5.3	5.8	5.8	5.8	5.9	5.9	6.0	6.0	6.0
CY	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
LV	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
LT	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
LU	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
HU	0.8	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9
MT	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1
NL	1.4	1.9	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.2
AT	1.0	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
PL	1.7	1.8	2.2	2.3	2.3	2.3	2.4	2.5	2.4	2.4
PT	0.5	0.9	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.1
RO	0.5	0.7	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0
SI	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
SK	0.3	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
FI	1.3	1.6	1.8	1.8	1.8	1.8	1.8	2.0	1.8	1.9
SE	3.3	3.6	3.7	3.6	3.4	3.3	3.5	3.5	3.1	3.3
UK	8.1	9.6	10.8	10.7	10.6	10.3	10.2	10.2	9.6	9.9
IS	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NO	2.6	3.0	2.9	2.9	3.0	3.0	3.1	3.4	3.1	3.2
ME	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
MK	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
RS	0.9	1.4	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.2
TR	0.8	2.1	2.7	3.0	3.1	3.4	3.4	3.6	3.8	3.9

Source: Eurostat (online data code: tsdpc310)

The main fuel for non-energy consumption is total petroleum products at 85 %, followed by natural gas at 13 %. Solid fuels consumption for non-energy use is very low (1 %). Compared to 1990 values, the non-energy consumption of solid fuels and natural gas was reduced by 22 % and 15 % respectively. On the contrary the non-energy consumption of total petroleum products increased by 5 %.

2.6 Renewable energy sources

Figure 2.6.1: Primary production of energy from renewable sources, EU-28, 1990–2012
(petajoules)



Source: Eurostat (online data code: nrg_107a)

Primary production of renewable energies has followed an increasing trend; from 1990 to 2012 production increased by 150 %. Energy production from all renewable sources, except for hydropower, has also been increasing. In 2012, wood and solid biofuels accounted for 47.2 % of total primary energy produced by renewables, followed by hydropower (16.3 %) and wind power (10 %).

By 2012 renewable electricity generation accounted for 23.3 % of total gross electricity generation. Hydropower is the major contributor to electricity generation, followed by wind power. The contribution of hydropower to total electricity generation was reduced from 94 % in 1990 to 44 % (28 811 ktoe), due to the expansion of electricity generation by other forms of renewable energy production. In 2012, the country with the largest hydropower generation in the EU-28 was Sweden (6 786.9 ktoe) followed by France (5 048.8 ktoe). The highest decrease of electricity generation by hydropower in 2012 compared to 2001 took place in Portugal (– 60 %) and the greatest increase in Estonia (+ 500 %).

Table 2.6.1: Primary production of renewable energy — Wood & other solid biomass, 1990–2012
(1 000 tonnes of oil equivalent)

	1990	1995	2000	2005	2010	2011	2012
EU-28	39 833.0	46 593.3	52 829.4	63 507.8	7 958.8	8 396.6	8 738.3
EA-18	29 318.1	30 327.2	33 891.7	41 437.3	6 032.1	6 403.7	6 519.7
BE	335.9	268.7	318.8	527.9	329.4	482.4	333.1
BG	174.3	218.8	550.2	717.7	10.0	9.9	20.8
CZ	808.6	955.4	1 046.4	1 537.2	62.7	79.9	83.7
DK	751.7	833.9	891.5	1 260.1	496.5	506.4	492.5
DE	2 944.0	2 961.7	4 691.7	7 975.5	2 333.6	2 404.5	2 595.6
EE	187.9	351.1	509.8	682.1	0.0	0.0	0.0
IE	105.5	89.0	113.2	180.4	6.4	10.6	44.4
EL	892.9	897.0	944.6	956.9	0.0	0.0	0.0
ES	3 955.9	3 300.4	3 623.3	4 176.0	174.2	195.0	175.7
FR	9 769.2	9 589.2	8 433.4	8 965.0	1 188.5	1 186.4	1 261.7
HR	312.4	266.8	373.5	352.7	0.0	0.0	0.0
IT	672.7	978.1	1 179.4	1 664.1	778.4	843.0	806.8
CY	6.1	11.4	8.8	6.4	0.0	0.0	0.0
LV	675.2	1 101.4	1 150.1	1 553.7	0.0	0.0	0.0
LT	284.9	468.9	652.6	845.3	0.0	0.0	0.0
LU	0.0	15.4	15.2	44.4	10.1	11.1	10.7
HU	676.7	742.7	699.7	1 039.8	53.2	41.6	45.0
MT	0.5	0.5	0.6	0.6	0.5	0.3	0.7
NL	348.5	356.0	518.3	826.6	817.0	876.3	849.7
AT	2 234.3	2 554.2	2 827.8	3 486.3	131.1	138.4	143.7
PL	1 448.4	3 748.5	3 594.3	4 166.2	2.9	32.0	32.5
PT	2 476.8	2 546.9	2 594.8	2 713.3	95.9	98.5	86.0
RO	602.2	1 361.6	2 762.6	3 228.9	0.0	0.0	0.0
SI	236.9	233.9	454.3	469.5	0.0	0.0	0.0
SK	166.4	76.3	99.6	397.8	21.7	17.8	18.6
FI	4 309.7	4 996.0	6 408.1	6 810.8	145.4	139.6	193.0
SE	5 152.6	6 783.7	7 708.0	7 936.6	742.8	713.5	769.5
UK	303.0	885.9	658.9	986.1	558.4	609.7	774.6
IS	0.0	0.0	0.0	0.0	0.4	0.0	0.0
NO	923.6	1 004.2	1 194.4	1 119.1	:	:	:
ME	0.0	0.0	0.0	204.2	0.0	0.0	0.0
MK	0.0	186.6	206.2	151.1	0.0	0.0	0.0
RS	1 169.0	735.6	869.4	902.8	0.0	0.0	0.0
TR	7 206.5	7 066.6	6 493.6	5 325.0	0.0	0.0	0.0

Source : Eurostat (online data code: nrg_107a)

Table 2.6.2: Primary production of renewable energy — hydropower, 1990–2012
(1 000 tonnes of oil equivalent)

	1990	1995	2000	2005	2010	2011	2012
EU-28	24 890.3	28 442.0	30 647.7	26 803.3	32 266.4	26 762.7	28 811.4
EA-18	16 468.5	19 700.3	21 068.4	17 013.2	22 833.9	18 226.8	19 442.0
BE	22.9	29.1	39.6	24.8	26.8	16.9	30.7
BG	161.5	199.0	229.8	372.9	434.8	250.8	277.4
CZ	99.8	172.1	151.2	204.6	239.8	168.8	183.1
DK	2.4	2.6	2.6	2.0	1.8	1.5	1.5
DE	1 447.0	1 803.2	1 812.7	1 632.7	1 756.1	1 484.5	1 822.4
EE	0.0	0.2	0.4	1.9	2.3	2.6	3.6
IE	59.9	61.3	72.7	54.3	51.5	60.8	69.0
EL	152.1	303.4	317.5	431.4	641.4	344.9	378.6
ES	2 190.0	1 984.5	2 429.6	1 581.5	3 637.5	2 630.8	1 766.6
FR	4 631.6	6 287.1	5 771.4	4 441.8	5 364.4	3 851.3	5 048.8
HR	322.3	452.7	505.1	544.5	716.2	386.2	398.9
IT	2 719.3	3 248.7	3 801.4	3 101.2	4 395.2	3 940.3	3 600.6
CY	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LV	386.6	252.5	242.4	286.0	302.7	248.2	318.7
LT	35.6	32.1	29.2	38.8	46.4	41.3	36.4
LU	6.0	7.6	10.7	8.1	9.3	5.0	8.3
HU	15.3	14.0	15.3	17.4	16.2	19.1	18.3
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	7.3	7.6	12.2	7.6	9.0	4.9	8.9
AT	2 709.3	3 187.2	3 597.2	3 153.7	3 298.2	2 943.4	3 765.3
PL	121.8	162.3	181.1	189.3	251.1	200.4	175.2
PT	787.4	717.4	973.6	406.8	1 388.5	992.3	483.4
RO	981.2	1 435.3	1 270.7	1 737.5	1 709.6	1 266.4	1 037.5
SI	253.7	279.6	329.7	297.6	388.0	306.0	334.7
SK	161.7	419.6	396.8	398.8	451.8	324.8	352.8
FI	933.7	1 111.3	1 260.5	1 185.2	1 111.1	1 070.1	1 449.6
SE	6 234.1	5 855.7	6 757.0	6 259.9	5 709.2	5 712.3	6 786.9
UK	447.7	416.0	437.3	423.2	307.4	489.2	454.4
IS	361.5	402.6	546.5	603.5	1 082.7	1 075.4	1 060.8
NO	10 416.6	10 449.7	12 194.2	11 667.1	10 038.7	10 343.1	12 200.5
ME	:	:	:	160.4	236.5	103.5	127.0
MK	42.2	68.9	100.6	128.3	209.0	123.2	89.5
RS	814.4	1 048.4	1 031.8	1 034.6	1 022.4	745.2	798.5
TR	1 990.4	3 056.0	2 655.1	3 401.6	4 453.7	4 500.3	4 975.5

Source : Eurostat (online data code: nrg_107a)

Table 2.6.3: Primary production of renewable energy — geothermal energy, 1990–2012
(1 000 tonnes of oil equivalent)

	1990	1995	2000	2005	2010	2011	2012
EU-28	3 185.8	3 440.5	4 588.4	5 251.9	5 438.9	5 679.1	5 698.7
EA-18	3 096.7	3 351.5	4 489.2	5 091.4	5 254.0	5 490.4	5 500.6
BE	2.1	2.7	3.2	3.1	4.3	3.9	4.3
BG	0.0	0.0	0.0	32.7	32.7	33.0	33.4
CZ	0.0	0.0	0.0	0.0	0.0	0.0	0.0
DK	2.3	2.2	2.8	8.2	5.1	4.0	6.9
DE	0.0	0.0	0.0	46.1	86.2	77.7	90.0
EE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
EL	2.6	2.7	1.6	10.3	21.9	23.2	21.7
ES	3.7	4.1	5.4	7.3	16.0	16.8	17.6
FR	110.4	131.9	126.0	130.0	91.0	83.4	188.7
HR	0.0	0.0	0.0	0.0	6.8	6.9	7.0
IT	2 971.1	3 167.4	4 258.5	4 791.2	4 775.8	5 015.1	4 957.3
CY	0.0	0.0	0.0	0.0	0.8	1.1	1.5
LV	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	0.0	0.0	0.0	2.9	4.5	3.2	3.8
LU	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HU	86.0	86.0	86.0	86.6	98.6	104.4	107.2
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	0.0	0.0	0.0	0.0	7.6	7.5	11.8
AT	3.6	4.9	24.8	29.8	34.5	32.6	34.4
PL	0.0	0.0	3.0	11.4	13.4	12.7	15.8
PT	3.2	37.7	69.8	65.7	180.6	193.3	135.0
RO	0.0	0.0	6.7	17.9	23.0	23.8	23.3
SI	0.0	0.0	0.0	0.0	26.9	29.4	32.5
SK	0.0	0.0	0.0	8.0	8.3	6.4	5.9
FI	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
UK	0.8	0.8	0.8	0.8	0.8	0.8	0.8
IS	1 038.8	1 161.7	1 757.9	2 030.2	3 345.6	3 728.4	4 050.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ME	:	:	:	0.0	0.0	0.0	0.0
MK	0.0	14.7	15.6	10.1	11.9	12.5	10.8
RS	0.0	0.0	0.0	0.0	5.4	6.4	6.2
TR	433.2	510.7	683.6	1 007.0	1 966.1	2 059.8	2 236.5

Source : Eurostat (online data code: nrg_107a)

Table 2.6.4: Primary production of renewable energy — wind power, 1990–2012
(1 000 tonnes of oil equivalent)

	1990	1995	2000	2005	2010	2011	2012
EU-28	66.9	349.8	1 913.4	6 058.0	12 835.9	15 436.6	17 692.7
EA-18	13.2	206.4	1 427.6	5 143.4	10 653.8	12 125.0	13 592.8
BE	0.6	0.8	1.4	19.5	111.1	198.8	236.5
BG	0.0	0.0	0.0	0.4	58.6	74.0	105.0
CZ	0.0	0.0	0.0	1.8	28.8	34.1	35.8
DK	52.5	101.2	364.7	568.7	671.5	840.4	883.1
DE	6.1	147.2	804.1	2 341.3	3 249.6	4 203.2	4 356.8
EE	0.0	0.0	0.0	4.6	23.8	31.6	37.3
IE	0.0	1.4	21.0	95.6	242.0	376.6	344.8
EL	0.2	2.9	38.8	108.9	233.4	285.0	331.0
ES	1.2	23.2	406.4	1 820.8	3 806.6	3 690.3	4 253.8
FR	0.0	0.4	6.6	82.9	854.9	1 036.3	1 282.3
HR	0.0	0.0	0.0	0.9	12.0	17.3	28.3
IT	0.2	0.8	48.4	201.5	784.7	847.5	1 152.8
CY	0.0	0.0	0.0	0.0	2.7	9.8	15.9
LV	0.0	0.0	0.3	4.0	4.2	6.1	9.8
LT	0.0	0.0	0.0	0.2	19.3	40.8	46.4
LU	0.0	0.0	2.3	4.5	4.7	5.5	6.4
HU	0.0	0.0	0.0	0.9	45.9	53.8	66.2
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	4.8	27.3	71.3	177.7	343.3	438.5	428.4
AT	0.0	0.1	5.8	114.4	177.5	166.3	211.8
PL	0.0	0.1	0.4	11.6	143.1	275.6	408.2
PT	0.1	1.4	14.4	152.5	789.5	787.7	882.1
RO	0.0	0.0	0.0	0.0	26.3	119.3	227.0
SI	0.0	0.0	0.0	0.0	0.0	0.0	0.0
SK	0.0	0.0	0.0	0.5	0.5	0.4	0.5
FI	0.0	0.9	6.7	14.6	25.3	41.4	42.5
SE	0.5	8.5	39.3	80.5	301.1	522.6	616.1
UK	0.8	33.6	81.4	249.7	875.7	1 333.5	1 683.9
IS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.9	2.7	42.9	75.6	110.3	133.8
ME	:	:	:	0.0	0.0	0.0	0.0
MK	0.0	0.0	0.0	0.0	0.0	0.0	0.0
RS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR	0.0	0.0	2.8	5.1	250.7	406.1	503.9

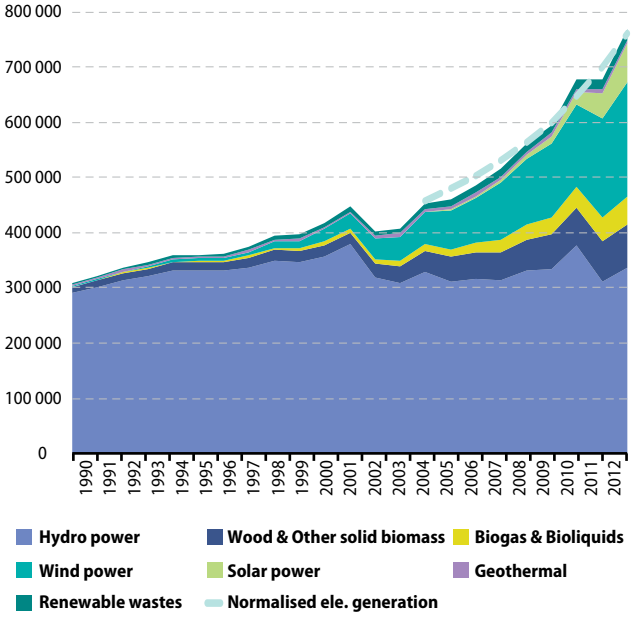
Source : Eurostat (online data code: nrg_107a)

Table 2.6.5: Primary production of renewable energy — solar energy (thermal and photovoltaic), 1990–2012
(1 000 tonnes of oil equivalent)

	1990	1995	2000	2005	2010	2011	2012
EU-28	137.9	282.3	282.3	824.2	3 764.4	6 111.9	9 101.5
EA-18	122.1	262.1	262.1	773.2	3 543.9	5 692.8	8 482.9
BE	0.8	0.9	0.9	2.8	60.3	115.0	200.0
BG	0.0	0.0	0.0	0.0	11.5	22.5	85.4
CZ	0.0	0.0	0.0	2.5	61.6	198.5	198.1
DK	2.4	5.1	5.1	10.2	16.2	20.1	38.9
DE	11.3	38.4	38.4	370.8	1 492.6	2 238.9	2 844.4
EE	0.0	0.0	0.0	0.0	0.0	0.0	0.0
IE	0.0	0.1	0.1	0.5	6.6	8.1	10.2
EL	56.4	82.2	82.2	101.0	196.9	235.4	330.1
ES	0.5	25.9	25.9	64.9	1 034.8	1 352.9	2 407.3
FR	19.4	19.7	19.7	22.0	110.5	250	421.6
HR	0.0	0.0	0.0	0.0	5.2	6.1	7.3
IT	5.1	8.1	8.1	30.0	298.0	1 068.7	1 777.1
CY (1)	0.0	0.0	0.0	41.3	61.3	63.7	66.4
LV	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LT	0.0	0.0	0.0	0.0	0.0	0.0	0.2
LU	0.0	0.0	0.0	1.7	2.8	3.6	5.0
HU	0.0	0.0	0.0	1.9	5.5	6.0	6.6
MT	0.0	0.0	0.0	0.5	0.9	1.4	2.2
NL	2.1	4.7	4.7	21.1	29.1	33.5	47.3
AT	14.8	35.8	35.8	92.9	167.4	183.2	203.3
PL	0.0	0.0	0.0	0.1	8.4	10.4	13.1
PT	11	14.8	14.8	22.7	66.3	83.6	101.2
RO	0.0	0.0	0.0	0.0	0.1	0.1	0.8
SI	0.0	0.0	0.0	0.0	9.4	14.4	23.4
SK	0.0	0.0	0.0	0.0	5.8	39.2	41.9
FI	0.4	0.5	0.5	0.7	1.3	1.4	1.7
SE	3.2	4.9	4.9	6.1	11.0	11.9	12.9
UK	10.2	10.2	10.2	30.1	100.9	143.4	255.2
IS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NO	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ME	:	:	:	0.0	0.0	0.0	0.0
MK	0.0	0.0	0.0	0.0	0.0	0.1	0.2
RS	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TR	28.0	143.0	143.0	384.8	432.0	630.0	768.0

(1) Only thermal energy for 2000.
Source : Eurostat (online data code: nrg_107a)

Figure 2.6.2: Gross electricity generation from renewable sources EU-28, 1990–2012
(GWh)

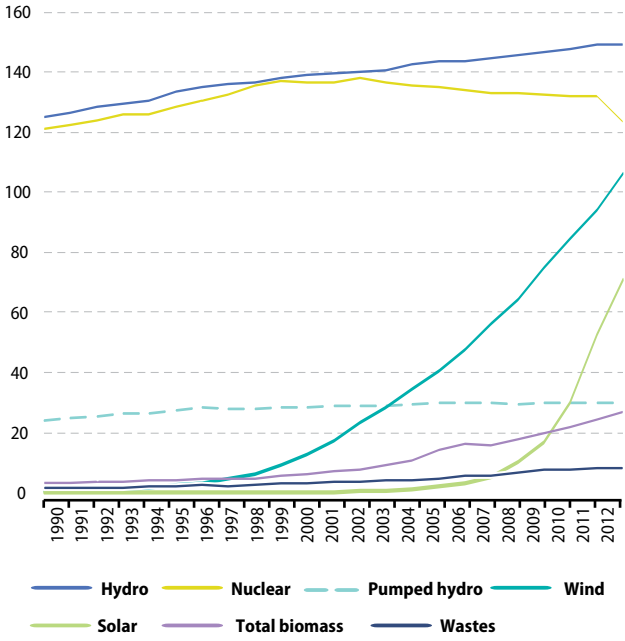


Source: Eurostat (online data code: nrg_105a)

In 1990 wind power electricity in the EU-28 was non-existent in 18 Member States. Denmark was the highest producer with 52.5 ktoe when total production in the EU-28 was 66.9 ktoe. Between 1990 and 1995 wind power generation increased by 423 % and between 1995 and 2000 by 446 %. The wind power generation increase between 2000 and 2012 was notable with 825 % (17 692.7 ktoe) making it the second largest renewable energy producing system.

In 2012 solar (thermal and photovoltaic) power accounted for 9.3 % (3 320.2 ktoe from solar thermal energy; 5 781.3 ktoe from photovoltaic energy) of total electricity generation, whereas solid renewables accounted for 10.5 %. Bioliquids and biogas increased from a negligible percentage in 1990 to 6.5 % in 2012.

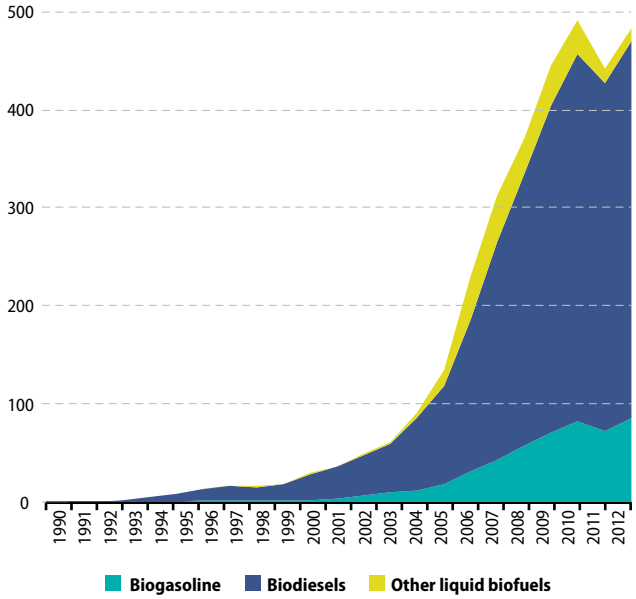
Figure 2.6.3: Electricity generation capacity, EU-28, 1990–2012
(GW)



Source: Eurostat (online data code: nrg_113a)

Solar power is the third renewable source of primary energy production. In 1990 15 EU-28 Member States did not produce any electricity from solar energy. Greece was the highest producer with 56.4 ktoe out of 137.9 ktoe produced in total. Between 1990 and 2000 solar energy increased by 105 % and between 2000 and 2012 by 3 124 %. Since 2004 electricity generation capacity from solar energy has significantly increased to produce 5.1 % of the total primary energy production in 2012. In the EU-28 on average the solar (thermal and photovoltaic) energy production has increased by 1 792 % in 2012 (9 101.5 ktoe) compared to 2001 (481.1 ktoe). Primary energy generation from municipal waste in the EU-28 in 1990 accounted for 2.9 % of the total primary energy produced from renewables (2 084.8 ktoe). The increase between 1990 and 2000 was 82 %, with a greater increase of 116 % in 2012 (8 738.3 ktoe) compared with 2001 (4 045.2 ktoe).

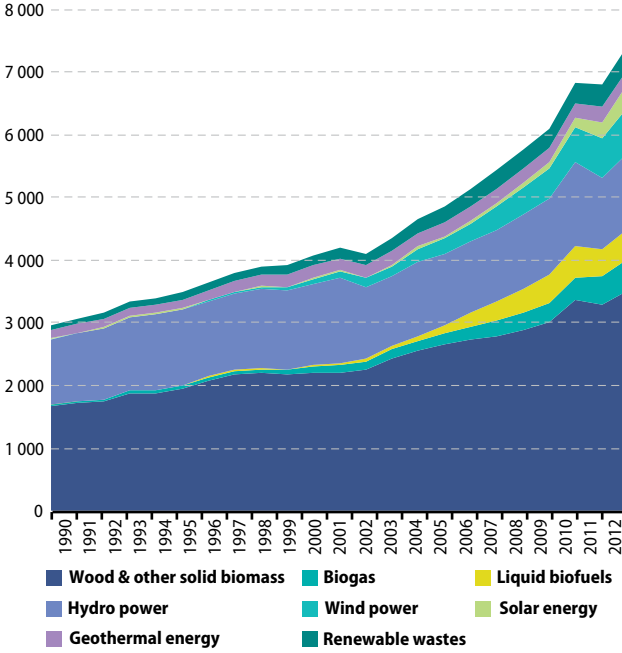
Figure 2.6.4: Primary production of liquid biofuels EU-28, 1990–2012
(petajoules)



Source: Eurostat (online data code: nrg_107a)

Total geothermal energy production in 1990 in the EU-28 was 3 186 ktoe with Italy being the main producer (2 971 ktoe). Eighteen EU Member States did not use geothermal energy, seven produced less than 4 ktoe. France produced 110.4 ktoe and Hungary 86 ktoe. Geothermal energy generation in the EU-28 increased on average by 78.8 % between 1990 and 2012. The highest increases took place in Greece (844 %) and Poland (445 %).

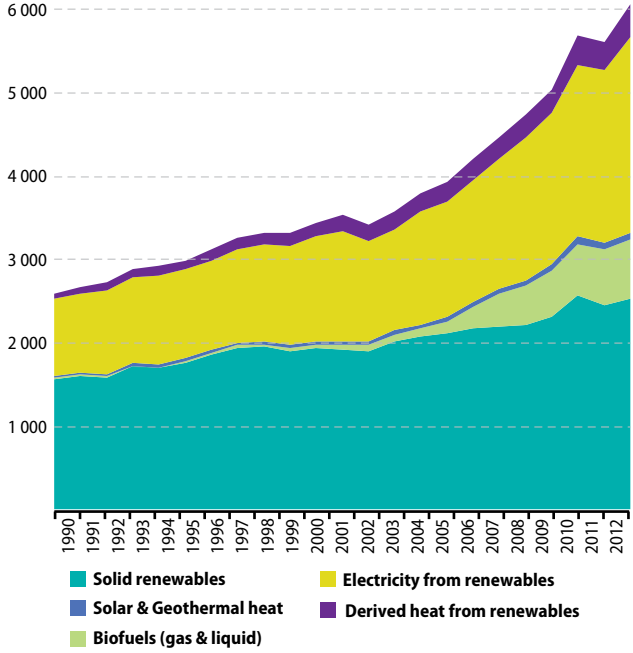
Figure 2.6.5: Gross inland consumption of renewables, EU-28, 1990–2012
(petajoules)



Source: Eurostat (online data code: nrg_107a)

Production of liquid biofuels has increased significantly from null production in 1990. Between 2000 and 2010 there was an increase of 32 %, when it reached a peak, before falling in 2011 and recovering in 2012.

Figure 2.6.6: Renewable energy available for final consumption, EU-28, 1990–2012
(petajoules)



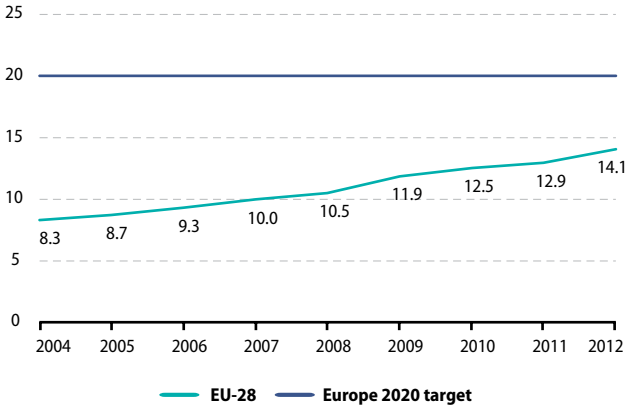
Source: Eurostat (Energy database: nrg)

Table 2.6.6: Share of energy from renewable sources in gross final consumption of energy (%)

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2011-12 average	2020 target	Indicative trajectory				
												2011-12	2013-14	2015-16	2017-18	S2005 (2)
EU-28	8.3	8.7	9.3	10.0	10.5	11.9	12.5	12.9	14.1	13.5	20.0	:	:	:	:	:
BE	1.9	2.3	2.7	3.0	3.3	4.6	5.0	5.2	6.8	6.0	13.0	4.4	5.4	7.1	9.2	2.2
BG	9.6	9.5	9.7	9.4	10.7	12.4	14.4	14.6	16.3	15.5	16.0	10.7	11.4	12.4	13.7	9.4
CZ	5.9	6.0	6.4	7.4	7.6	8.5	9.3	9.3	11.2	10.3	13.0	7.5	8.2	9.2	10.6	6.1
DK	14.5	15.6	15.9	17.9	18.6	20.4	22.6	24.0	26.0	25.0	30.0	19.6	20.9	22.9	25.5	17.0
DE	5.8	6.7	7.7	9.0	8.5	9.9	10.7	11.6	12.4	12.0	18.0	8.2	9.5	11.3	13.7	5.8
EE	18.4	17.5	16.1	17.1	18.9	23.0	24.6	25.6	25.8	25.7	25.0	19.4	20.1	21.2	22.6	18.0
IE	2.4	2.8	3.1	3.6	4.0	5.2	5.6	6.6	7.2	6.9	16.0	5.7	7.0	8.9	11.5	3.1
EL	6.9	7.0	7.2	8.2	8.0	8.5	9.8	10.9	13.8	12.3	18.0	9.1	10.2	11.9	14.1	6.9
ES	8.3	8.4	9.2	9.7	10.8	13.0	13.8	13.2	14.3	13.7	20.0	11.0	12.1	13.8	16.0	8.7
FR	9.3	9.5	9.5	10.2	11.2	12.2	12.7	11.3	13.4	12.4	23.0	12.8	14.1	16.0	18.6	10.3
HR	13.2	12.8	12.8	12.1	12.1	13.1	14.3	15.4	16.8	16.1	20.0	14.1	14.8	15.9	17.4	12.6
IT	5.7	5.9	6.4	6.5	7.4	9.3	10.6	12.3	13.5	12.9	17.0	7.6	8.7	10.5	12.9	5.2
CY	3.1	3.1	3.3	4.0	5.1	5.6	6.0	6.0	6.8	6.4	13.0	4.9	5.9	7.4	9.5	2.9
LV	32.8	32.3	31.1	29.6	29.8	34.3	32.5	33.5	35.8	34.7	40.0	34.1	34.8	35.9	37.4	32.6
LT	17.2	17.0	17.0	16.7	18.0	20.0	19.8	20.2	21.7	21.0	23.0	16.6	17.4	18.6	20.2	15.0
LU	0.9	1.4	1.5	2.7	2.8	2.9	2.9	2.9	3.1	3.0	11.0	2.9	3.9	5.4	7.5	0.9
HU	4.4	4.5	5.1	5.9	6.5	8.0	8.6	9.1	9.6	9.3	13.0	6.0	6.9	8.2	10.0	4.3
MT (1)	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.7	1.4	1.1	10.0	2.0	3.0	4.5	6.5	0.0
NL	1.9	2.3	2.6	3.1	3.4	4.1	3.7	4.3	4.5	4.4	14.0	4.7	5.9	7.6	9.9	2.4
AT	22.7	24.0	25.6	27.5	28.3	30.4	30.8	30.8	32.1	31.4	34.0	25.4	26.5	28.1	30.3	23.3
PL	7.0	7.0	7.0	7.0	7.8	8.8	9.3	10.4	11.0	10.7	15.0	8.8	9.5	10.7	12.3	7.2
PT	19.2	19.5	20.7	21.9	22.9	24.5	24.2	24.5	24.6	24.6	31.0	22.6	23.7	25.2	27.3	20.5
RO	16.8	17.6	17.1	18.3	20.4	22.6	23.2	21.2	22.9	22.1	24.0	19.0	19.7	20.6	21.8	17.8
SI	16.1	16.0	15.6	15.6	15.0	18.9	19.2	19.4	20.2	19.8	25.0	17.8	18.7	20.1	21.9	16.0
SK	5.3	5.5	5.9	7.3	7.5	9.3	9.0	10.3	10.4	10.3	14.0	8.2	8.9	10.0	11.4	6.7
FI	29.2	28.9	30.1	29.8	31.3	31.2	32.4	32.7	34.3	33.5	38.0	30.4	31.4	32.8	34.7	28.5
SE	38.7	40.5	42.6	44.1	45.2	48.2	47.2	48.8	51.0	49.9	49.0	41.6	42.6	43.9	45.8	39.8
UK	1.2	1.4	1.6	1.8	2.4	3.0	3.3	3.8	4.2	4.0	15.0	4.0	5.4	7.5	10.2	1.3
NO	58.1	59.8	60.2	60.2	61.8	64.8	61.2	64.6	64.5	64.5	67.5	60.1	61.0	62.4	64.2	58.2

(1) Data are estimated by Eurostat based on the national data transmission under Regulation (EC) N° 1099/2008 on energy statistics.
(2) Share of energy from renewable sources in gross final consumption of energy, 2005.
Source: Eurostat (online data code: nrg_ind_335a)

Figure 2.6.7: Share of energy from renewable sources in gross final consumption of energy, EU-28, 2004–2012
(%)



Source: Energy (online data code: nrg_ind_335a)

In the EU-28 the share of energy consumption from renewables is closely related to the primary energy production from renewables. The main contributor is wood and solid biomass followed by hydropower, wind power and liquid biofuels. The share of energy consumption from renewable sources to total in the EU-28 was 14.1 % in 2012, with a target to reach 20 % by 2020 (Europe 2020 strategy). Three countries (Bulgaria, Estonia and Sweden) have reached their national target of 2020 of the share of energy from renewable sources in gross final consumption. The Czech Republic, Lithuania, Austria, Romania and Norway are close to reaching their national target for 2020. Furthest from the target are Malta and the United Kingdom.

In the EU-28 the total share of electricity consumption from renewable sources reached 23.5 %; the highest share was noted in Austria (65.5 %), followed by Sweden (60 %). The lowest was recorded in Malta (1.1 %), Luxembourg (4.6 %), Cyprus (4.9 %) and Hungary (6.1 %).

Table 2.6.7: Share of electricity from renewable sources in gross electricity consumption, 2004–12
(%)

	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	14.3	14.8	15.4	16.1	17.0	19.0	19.7	21.7	23.5
BE	1.7	2.4	3.1	3.6	4.6	6.2	7.1	8.8	11.1
BG	9.5	9.8	9.9	10.0	10.7	12.1	13.7	13.9	17.0
CZ	3.6	3.7	4.0	4.6	5.2	6.4	7.5	10.6	11.6
DK	23.8	24.7	24.0	25.0	25.9	28.3	32.7	35.9	38.7
DE	9.4	10.5	11.8	13.6	15.1	17.4	18.1	20.9	23.6
EE	0.6	1.1	1.5	1.5	2.1	6.1	10.4	12.3	15.8
IE	6.0	7.2	8.7	10.1	11.1	13.7	14.9	17.6	19.6
EL	7.9	8.3	9.0	9.4	9.7	11.1	12.5	13.9	16.5
ES	19.0	19.1	20.0	21.7	23.7	27.8	29.7	31.6	33.5
FR	13.8	13.8	14.1	14.3	14.4	15.1	14.9	16.4	16.6
HR	32.5	32.8	32.2	30.9	30.8	32.6	34.2	34.2	35.5
IT	16.2	16.4	16.0	16.0	16.8	19.0	20.2	23.7	27.6
CY	0.0	0.0	0.0	0.1	0.3	0.6	1.4	3.4	4.9
LV	46.0	43.0	40.4	38.6	38.7	41.9	42.1	44.7	44.9
LT	3.6	3.8	4.0	4.7	4.9	5.9	7.4	9.0	10.9
LU	2.8	3.2	3.2	3.3	3.6	4.1	3.8	4.1	4.6
HU	2.2	4.4	3.5	4.2	5.3	7.0	7.1	6.4	6.1
MT (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.6	1.1
NL	4.4	6.3	6.6	6.0	7.5	9.1	9.7	9.8	10.5
AT	62.0	62.5	62.5	64.8	64.8	67.1	64.9	65.0	65.5
PL	2.1	2.6	3.0	3.4	4.3	5.8	6.6	8.2	10.7
PT	27.5	27.7	29.3	32.3	34.1	37.6	40.7	45.9	47.6
RO	28.4	28.8	28.1	28.1	28.1	30.9	30.4	31.1	33.6
SI	29.3	28.7	28.2	27.7	30.0	33.8	32.1	30.8	31.4
SK	10.3	11.6	13.5	14.5	16.0	17.8	17.8	19.3	20.1
FI	26.7	26.9	26.4	25.5	27.3	27.3	27.6	29.4	29.5
SE	51.2	50.9	51.8	53.2	53.6	58.3	56.0	59.9	60.0
UK	3.5	4.1	4.5	4.8	5.5	6.7	7.4	8.8	10.8
NO	97.3	96.8	100.2	98.5	99.6	104.7	97.9	105.5	104.3

(1) Data are estimated by Eurostat based on the national data transmission under Regulation (EC) No 1099/2008 on energy statistics.

Source: Eurostat (online data code: nrg_ind_335a)

Table 2.6.8: Share of renewable energy sources in heating and cooling, 2004–12
(%)

	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	9.9	10.3	10.9	11.8	12.0	13.7	14.2	15.0	15.6
BE	2.8	3.4	3.7	3.7	4.1	5.1	5.0	4.7	6.6
BG	14.1	14.3	14.8	13.9	17.3	21.7	24.4	24.9	27.5
CZ	8.4	9.1	9.6	11.4	11.2	11.9	12.1	12.6	13.6
DK	19.9	22.1	23.0	27.0	28.1	29.5	30.7	31.8	33.3
DE	6.3	6.8	6.9	8.3	7.4	9.2	10.3	10.8	11.1
EE	33.2	32.2	30.7	32.7	35.5	41.8	43.3	44.1	43.1
IE	2.8	3.5	3.5	3.8	3.5	4.2	4.3	4.9	5.1
EL	12.8	12.8	12.4	14.4	14.3	16.4	17.8	19.4	24.4
ES	9.5	9.4	11.4	11.3	11.7	13.3	12.6	13.6	14.0
FR	12.0	12.2	12.0	12.5	13.3	14.9	16.0	16.1	16.9
HR	11.7	10.8	11.4	10.5	10.4	11.6	13.0	15.6	18.3
IT	4.4	4.7	6.0	6.1	6.7	9.0	10.7	12.5	12.8
CY	9.3	10.0	10.5	13.1	14.6	16.4	18.3	19.3	21.2
LV	42.5	42.7	42.6	42.4	42.9	47.9	43.8	44.8	47.4
LT	30.4	30.1	29.7	29.8	32.8	34.4	33.2	33.7	35.5
LU	1.8	3.6	3.6	4.4	4.6	4.7	4.8	4.8	5.0
HU	6.5	6.0	7.5	8.9	8.3	10.5	11.1	12.3	13.6
MT ([1])	2.6	4.7	4.9	5.5	6.0	3.0	4.3	7.8	13.0
NL	1.9	2.0	2.4	2.5	2.6	3.0	2.7	3.3	3.4
AT	20.2	22.6	23.5	26.2	26.8	29.1	30.7	30.9	32.8
PL	10.4	10.4	10.4	10.5	11.1	11.8	11.9	13.4	13.7
PT	32.2	31.8	33.9	34.8	37.3	37.9	33.7	35.0	33.0
RO	17.4	17.9	17.6	19.5	23.2	26.4	27.2	24.3	25.7
SI	18.4	18.9	18.5	20.4	19.2	25.1	25.5	28.7	30.6
SK	5.0	5.0	4.4	6.2	6.1	8.1	7.8	9.1	8.7
FI	39.5	39.3	41.6	42.2	43.4	43.0	44.1	45.7	48.1
SE	46.6	51.8	56.2	58.6	60.9	63.5	60.9	62.5	65.6
UK	0.8	0.8	0.9	1.1	1.4	1.6	1.7	2.3	2.3
NO	25.7	29.0	28.6	29.5	31.1	32.1	32.6	33.9	31.2

([1]) Data are estimated by Eurostat based on the national data transmission under Regulation (EC) No 1099/2008 on energy statistics.

Source: Eurostat (online data code: nrg_ind_335a)

Table 2.6.9: Share of renewable energy sources in transport, 2004–12
(%)

	2004	2005	2006	2007	2008	2009	2010	2011	2012
EU-28	1.0	1.3	2.1	2.8	3.5	4.3	4.8	3.4	5.1
BE	0.2	0.2	0.2	1.3	1.3	3.3	4.1	4.0	4.5
BG	0.4	0.4	0.6	0.4	0.5	0.5	1.0	0.4	0.3
CZ	1.1	0.5	0.8	1.0	2.3	3.7	4.6	0.7	5.6
DK	0.2	0.2	0.3	0.3	0.3	0.4	0.9	3.8	5.8
DE	1.9	3.7	6.4	7.4	6.0	5.5	6.0	5.9	6.9
EE	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.2	0.3
IE	0.0	0.0	0.1	0.5	1.3	1.9	2.4	3.9	4.1
EL	0.0	0.0	0.7	1.2	1.0	1.1	1.9	0.7	1.1
ES	0.8	1.0	0.7	1.2	1.9	3.5	4.7	0.4	0.4
FR	1.1	1.3	2.0	3.6	5.7	6.2	6.2	0.5	7.1
HR	0.4	0.4	0.4	0.5	0.6	0.7	0.5	0.4	0.4
IT	1.0	0.8	0.9	0.8	2.3	3.7	4.6	4.7	5.8
CY	0.0	0.0	0.0	0.1	1.9	2.0	2.0	0.0	0.0
LV	1.1	1.3	1.2	0.9	0.9	1.1	3.3	3.2	3.1
LT	0.3	0.5	1.7	3.7	4.2	4.3	3.6	3.7	4.8
LU	0.1	0.1	0.1	2.1	2.1	2.1	2.0	2.1	2.2
HU	0.4	0.4	0.6	1.0	4.0	4.2	4.7	5.0	4.6
MT (1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
NL	0.2	0.2	0.5	2.9	2.7	4.3	3.1	4.6	5.0
AT	2.5	2.8	5.5	6.3	7.5	8.9	8.6	7.6	7.7
PL	0.7	1.0	1.2	1.2	3.6	5.1	6.3	6.5	6.1
PT	0.2	0.2	1.3	2.4	2.4	3.9	5.6	0.4	0.4
RO	0.9	1.0	0.8	1.8	2.6	3.5	3.1	2.0	4.1
SI	0.4	0.3	0.6	1.1	1.5	1.9	2.8	2.1	2.9
SK	0.6	1.1	2.9	3.5	3.9	4.9	4.8	5.0	4.8
FI	0.5	0.4	0.4	0.4	2.4	4.0	3.8	0.4	0.4
SE	3.8	3.9	4.7	5.7	6.3	6.9	7.2	9.4	12.6
UK	0.2	0.3	0.6	1.0	2.1	2.7	3.1	2.7	3.7
NO	1.3	1.2	1.3	1.9	3.2	3.6	4.0	1.4	1.5

(1) Data are estimated by Eurostat based on the national data transmission under Regulation (EC) No 1099/2008 on energy statistics.
Source: Eurostat (online data code: nrg_ind_335a)

In 2012, heating and cooling from renewable sources had increased significantly (15.6 %) since 2004 (9.9 %). The highest user was Sweden (65.6 %) followed by Finland (48.1 %), Latvia (47.4 %) and Estonia (43.1 %). Share of renewable sources of energy in transport had also increased significantly: from 1 % in 2004 to 5.1 % in 2012. The common target to be reached by all countries in 2020 is for the share of renewable energy in the transport sector to be at least 10 %. Sweden has already exceeded the target (12.6 %) while Austria (7.7 %) and Croatia (7.1 %) are close to reaching it. Four countries, (the Czech Republic, Denmark, Italy and the Netherlands) report a share higher than 5 % while the remaining 21 are less than 5 %.

2.7 Energy savings, efficiency and intensity

Total primary energy consumption stands at 1 584 Mtoe and the target for 2020 is 1 483 Mtoe. Primary energy consumption in the EU-28 was on an increasing trend until 2005 before going down again, with 2012 consumption levels being about the same as in 1990. Solid fuel consumption between 1990 and 2012 had decreased by about 35 % and by 9 % since 2000.

Primary consumption of oil and petroleum products has been decreasing as well albeit at a slower pace. There was a general 12 % decrease between 1990 and 2012. However oil and petroleum products consumption increased between 1990 and 2005 and only then started to decrease. In 2012 oil and petroleum products consumption was 17 % less than in 2005. Gas primary consumption has increased by 34 %, nuclear heat by 11 % and renewables by 159 % since 1990.

Final energy consumption increased steadily reaching a peak in 2005. Since then it has started decreasing. Solid fossil fuel consumption in final energy has been decreasing and 2012 consumption is one third that of 1990. Oil and petroleum products consumption reached a consumption peak in 2005 and then started to decrease as well. In 2012 the consumption was 15 % less compared to 2005. Gas consumption decreased by 10 % since 2005, while electricity consumption slightly increased (0.4 %). Renewables consumption in final energy has doubled since 1990.

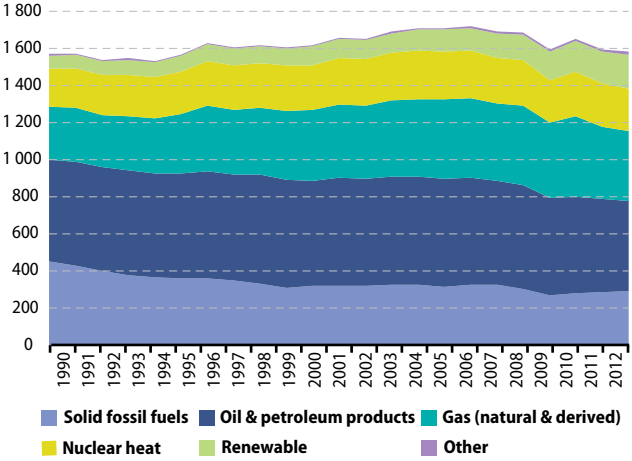
Table 2.7.1: Energy saving in the EU-28, 2005–12
(%)

	2005	2006	2007	2008	2009	2010	2011	2012	2020 target
Primary energy	0.00	0.01	2.23	2.77	8.36	5.69	9.28	10.49	20
Final energy	0.00	0.76	3.04	3.55	9.30	6.29	11.00	12.11	20

Source: Eurostat (online data code: nrg_ind_334a)

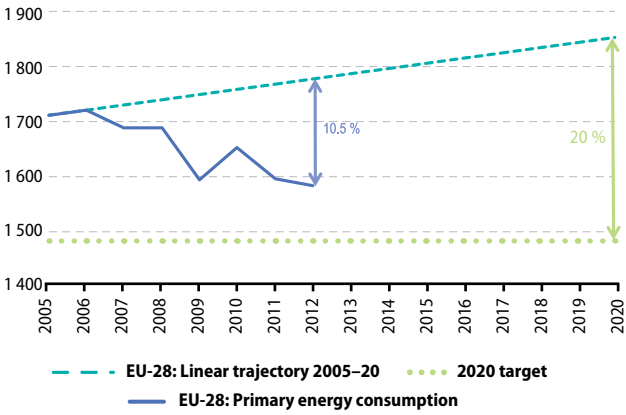
Energy savings in the EU-28 have been improving. Primary energy savings reached 10 % in 2012, half of the target set for 2020 while final energy savings reached 12 %.

Figure 2.7.1: Primary energy consumption, EU-28, 1990–2012
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_ind_334a)

Figure 2.7.2: Primary energy savings, EU-28, 2005–20
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_ind_334a)

Total primary energy consumption in 2012 increased slightly compared to 1990 (0.9 %). There was a peak in consumption in 2005 followed by steady decreases. Solid fuel consumption decreased by 35.4 % and renewables increased by 159 %. Primary energy consumption reached a peak in 2006 and then decreased by 8 % until 2012. A further 10 % reduction is necessary to reach the 2020 energy saving target.

Oil and petroleum products consumption has decreased to levels below those of 1990 however it is still a major source of primary energy with a 30.6 % share. Renewables have a share of 11.6 % and reached record consumption levels in 2012. All fossil fuels combined (solid, gaseous and liquid) account for 73 % of the total primary energy consumption.

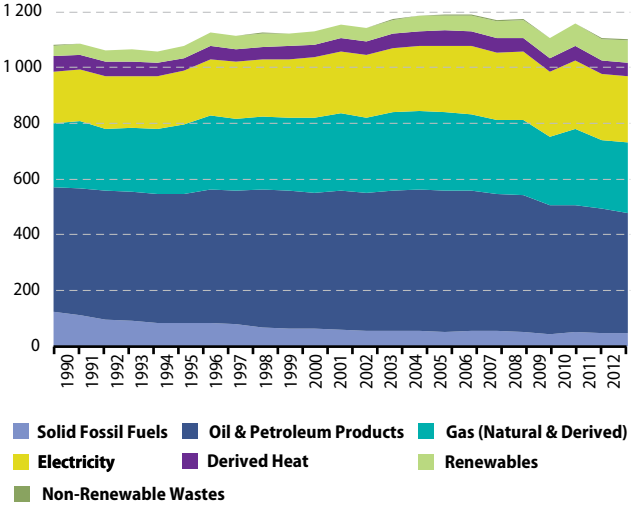
In the EU-28 there is a decreasing trend in primary energy consumption after the peak that was noted in 2006. Lithuania has decreased its consumption from 15 Mtoe to 6 Mtoe in 2012. Germany, Hungary, Poland, Romania, Slovakia and the United Kingdom have also noted a significant decrease and have reached levels below those of 1990. In Greece, France, Cyprus, Spain, Italy, the Netherlands, Austria, Finland and Sweden the consumption levels are higher compared to 1990.

Table 2.7.2: Primary energy consumption, 1990–2012
(million tonnes of oil equivalent)

	1990	2000	2005	2006	2007	2008	2009	2010	2011	2012	Target
EU-28	1 569.7	1 617.8	1 711.6	1 721.0	1 689.3	1 688.7	1 594.7	1 653.6	1 596.4	1 583.5	1 483
BE	45.6	52.4	51.2	50.4	48.9	51.3	49.4	53.0	51.6	48.7	:
BG	26.2	17.5	18.9	19.6	19.2	18.9	16.9	17.3	18.6	17.8	:
CZ	48.1	39.1	42.2	43.3	43.6	42.3	39.9	41.9	40.6	40.1	:
DK	17.6	19.5	19.3	20.8	20.2	19.7	18.9	19.9	18.5	17.9	:
DE	333.3	317.3	317.2	327.6	310.3	315.2	296.0	311.1	294.7	297.6	:
EE	9.8	4.8	5.4	5.3	5.9	5.7	5.2	6.1	6.1	6.0	:
IE	9.7	13.7	14.7	15.2	15.9	15.5	14.6	14.9	13.7	13.6	:
EL	21.6	27.6	30.6	30.7	30.7	30.9	29.6	27.7	27.0	25.9	:
ES	84.2	114.2	135.9	136.4	138.3	134.1	123.2	122.8	121.4	121.3	:
FR	214.4	241.4	261.7	258.2	254.5	257.6	247.3	255.0	245.5	246.4	:
HR	8.3	7.1	8.2	8.3	8.6	8.4	8.1	8.0	7.9	7.6	:
IT	143.0	165.6	178.9	176.2	174.6	171.6	160.4	165.0	162.6	155.2	:
CY	1.6	2.3	2.5	2.6	2.7	2.8	2.7	2.6	2.6	2.5	:
LV	7.9	3.8	4.5	4.7	4.8	4.6	4.4	4.7	4.3	4.4	:
LT	15.1	6.4	7.9	7.7	8.0	8.1	7.7	6.1	5.8	5.9	:
LU	3.5	3.6	4.8	4.7	4.6	4.6	4.3	4.6	4.5	4.4	:
HU	27.1	23.7	25.4	25.2	24.6	24.6	23.3	23.8	23.1	21.5	:
MT	0.6	0.8	1.0	0.9	1.0	1.0	0.9	0.9	0.9	0.9	:
NL	57.1	65.3	69.3	68.1	66.9	69.1	66.8	71.1	66.3	67.4	:
AT	23.4	27.3	32.6	32.5	32.2	32.5	30.5	32.7	31.9	31.8	:
PL	99.1	84.6	88.0	92.1	91.9	93.2	90.1	96.0	96.3	93.3	:
PT	16.1	23.0	25.0	24.2	23.9	23.5	23.5	22.6	21.9	20.9	:
RO	57.3	34.8	36.7	38.3	38.0	38.0	33.9	34.3	34.8	33.6	:
SI	5.7	6.2	7.0	7.0	7.0	7.5	6.8	7.0	7.2	6.9	:
SK	20.2	16.9	17.8	17.6	16.5	17.0	15.6	16.8	16.2	15.7	:
FI	27.4	31.5	33.3	36.4	35.9	34.4	32.4	35.6	34.1	32.8	:
SE	45.5	47.2	48.7	47.2	47.1	47.0	43.7	48.7	47.8	48.0	:
UK	200.4	220.2	223.0	220.0	213.6	209.7	198.2	203.3	190.4	195.4	:

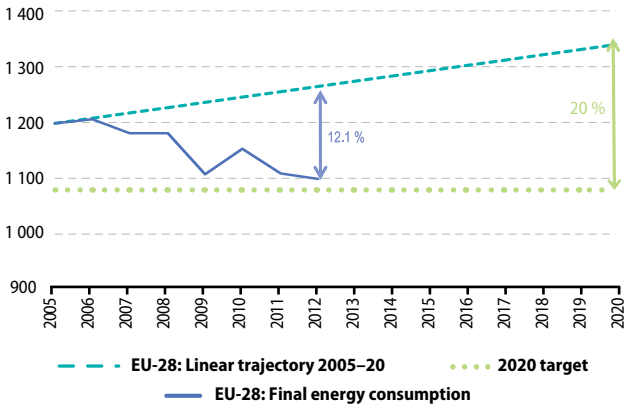
Source: Eurostat (online data code: t2020_33)

Figure 2.7.3: Final energy consumption, EU-28, 1990–2012
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_ind_334a)

Figure 2.7.4: Final energy savings, EU-28, 2005–20
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_ind_334a)

Table 2.7.3: Final energy consumption, 1990–2012
(million tonnes of oil equivalent)

	1990	2000	2005	2006	2007	2008	2009	2010	2011	2012	Target
EU-28	1 080.2	1 131.2	1 189.3	1 190.2	1 170.5	1 174.7	1 108	1 160	1 107.2	1 103.4	1 086
BE	31.6	37.6	36.8	36.3	34.8	37.8	34.6	37.5	37.8	36.6	:
BG	16.4	9.1	10.1	10.5	10.3	10	8.6	8.8	9.3	9.2	:
CZ	32.5	24.8	26	26.4	25.9	25.6	24.4	25.4	24.5	24.1	:
DK	13.5	14.7	15.5	15.7	15.7	15.5	14.5	15.2	14.5	14.1	:
DE	228.9	220	218.5	223.4	210.3	217.7	205.8	220.5	209.2	213.1	:
EE	5.8	2.4	2.9	2.9	3.1	3.1	2.8	2.9	2.8	2.9	:
IE	7.3	10.8	12.6	13.2	13.3	13.3	11.9	11.9	11	10.7	:
EL	14.7	18.7	21.0	21.6	22.1	21.4	20.6	19.0	18.9	16.3	:
ES	57.1	79.9	97.8	95.5	98.1	94.6	87.8	89.1	86.7	83.2	:
FR	136.1	155.3	162.8	161.5	158.2	160.1	153.1	158.4	146.5	150.8	:
HR	5.9	5.4	6.3	6.5	6.5	6.6	6.4	6.3	6.2	5.9	:
IT	107.7	124.7	134.5	132.6	129.5	128	120.9	124.8	122.1	119.0	:
CY	1.1	1.6	1.8	1.9	1.9	2.0	1.9	1.9	1.9	1.8	:
LV	6.4	3.3	4.0	4.2	4.4	4.2	4.0	4.3	3.9	4.0	:
LT	9.7	3.8	4.6	4.9	5.1	5.1	4.6	4.8	4.7	4.8	:
LU	3.3	3.5	4.5	4.4	4.3	4.4	4.1	4.3	4.3	4.2	:
HU	19.9	16.1	18.2	18.0	16.9	17.0	16.4	16.6	16.2	14.7	:
MT	0.3	0.4	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4	:
NL	41.4	50.6	52.4	51.1	52.5	53.7	50.4	54.0	50.7	51.1	:
AT	19.3	23.7	28.2	27.9	27.7	27.9	26.5	28.4	27.5	27.3	:
PL	59.9	55.7	58.3	60.9	61.8	62.2	61.2	66.3	63.9	63.6	:
PT	11.9	18.0	19.1	18.9	19.0	18.4	18.2	18.1	17.3	16.2	:
RO	40.8	22.8	24.7	24.9	24.2	24.9	22.3	22.6	22.8	22.7	:
SI	3.7	4.5	4.9	4.9	4.9	5.2	4.7	4.9	5.0	4.9	:
SK	15.2	11.0	11.6	11.4	11.2	11.5	10.6	11.5	10.8	10.3	:
FI	21.5	24.6	25.3	26.7	26.5	25.8	24.0	26.3	25.1	25.3	:
SE	31.2	35.0	33.7	33.2	33.3	32.4	31.4	34.1	32.4	32.4	:
UK	136.9	153.2	152.8	150.7	148.5	145.9	135.8	141.3	130.9	133.8	:

Source: Eurostat (online data code: t2020_34)

Final energy consumption increased by 2.2 % between 1990 and 2012, there was a peak in 2006 and since then a decrease by 7.3 % by 2012. Solid fuel consumption has decreased by 61.9 %, derived heat by 11.1 % while renewables increased by 108.3 %.

In 2012, oil and petroleum products reached the lowest point since 1990, but still hold the main share in final energy consumption of 39 % of the total energy consumed. Solid fossil fuels account for 4.3 % of the final energy consumption. All fossil fuels combined (solid, gaseous and liquid) account for 66.2 % of the total final energy consumption. Energy savings for EU-28 reached 12.11 % in 2012.

Final energy consumption analysis by country indicates a decreasing trend in 10 EU Member States and an increasing trend in 17 EU Member States.

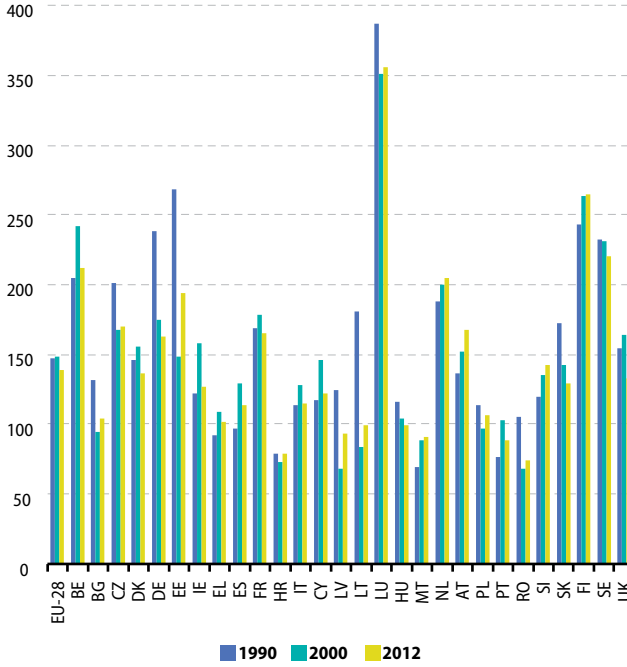
Energy intensity in the EU-28 has slightly decreased in 2012 compared to 2011 (decrease to 143.2 kgoe per EUR 1 000 from 144 kgoe per EUR 1 000). All EU Member States decreased their energy intensities, with Slovakia and Lithuania having the highest decrease by almost 45 %. Bulgaria and Estonia report in 2012 the highest amount of energy required to produce a unit of economic output (670 and 482 kgoe per EUR 1 000 respectively), even though there was a significant decreasing trend in energy intensity in the past decade (– 35 % and – 22 % respectively). The lowest level of energy intensity per GDP is noted in Ireland (82.8) and Denmark (87.2).

Table 2.7.4: Energy intensity of the economy, 2002-12
(kg of oil equivalent per 1 000 EUR)

	2002	2005	2008	2009	2010	2011	2012
EU-28	168.2	163.9	151.0	148.9	151.6	144.0	143.2
EA-18	158.0	156.6	145.0	143.3	145.9	138.4	137.9
BE	196.1	193.6	184.1	181.5	189.6	182.1	172.2
BG	962.9	849.4	711.7	661.4	668.8	705.5	669.9
CZ	472.3	431.2	370.8	363.9	374.5	355.4	355.4
DK	101.2	94.4	92.6	94.1	97.5	89.7	87.2
DE	157.1	153.7	140.3	138.9	140.5	129.2	129.2
EE	559.3	502.5	469.0	491.6	551.0	505.4	481.0
IE	107.6	92.4	89.3	89.5	92.5	83.7	82.8
EL (1)	173.3	162.7	151.3	149.5	148.3	154.4	165.7
ES	158.3	158.6	143.5	137.2	137.0	135.1	136.4
FR	163.6	160.9	150.9	148.9	150.7	142.6	142.9
HR	262.2	248.0	223.5	230.6	232.2	231.9	225.6
IT	125.5	130.5	122.4	121.2	123.2	120.7	117.3
CY	199.1	186.7	187.4	186.0	178.0	174.0	167.0
LV	410.6	355.2	305.9	357.1	382.4	333.5	328.6
LT	528.8	415.4	363.0	389.3	306.8	298.7	291.6
LU	147.8	158.4	137.7	137.4	141.7	136.7	133.8
HU	330.1	311.1	285.9	289.7	294.1	281.6	268.7
MT	174.2	197.2	177.1	163.9	172.1	163.4	147.7
NL	159.0	158.7	148.6	149.8	157.7	144.7	149.4
AT	133.1	140.1	128.3	125.7	132.2	125.0	123.9
PL	411.1	378.6	336.9	319.8	328.0	314.7	298.7
PT	174.7	178.1	158.6	161.2	153.2	150.8	146.5
RO	572.8	491.3	409.9	387.4	394.6	393.7	378.8
SI	267.2	255.0	230.6	227.9	230.5	230.6	227.7
SK	575.3	494.4	375.7	362.2	369.3	349.3	329.3
FI	242.9	219.3	206.8	213.2	225.8	210.4	204.0
SE	189.6	170.9	154.3	149.8	157.1	149.4	148.2
UK	134.4	125.3	110.8	109.9	111.3	102.8	105.1
IS	306.5	276.2	373.7	400.0	416.8	433.8	425.4
NO	111.5	111.1	117.1	117.1	130.8	109.1	114.3
ME	0.0	598.4	553.0	463.2	522.0	486.4	471.5
MK (2)	589.5	571.8	523.0	494.4	493.5	522.5	501.2
RS	917.7	774.0	726.6	686.5	696.0	709.4	646.1
TR	239.8	218.0	226.7	237.8	233.0	:	:

(1) 2008–12: provisional.
(2) 2011: estimated; 2012: provisional.
Source: Eurostat (online data code: tsdec360)

Figure 2.7.5: Gross inland consumption per capita, 1990, 2000 and 2012
(GJ per capita)

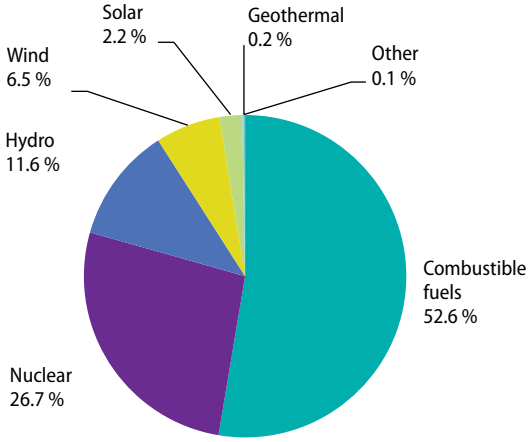


Source: Eurostat (Energy database: nrg)

The average gross inland consumption per capita in the EU-28 is 139 GJ per capita. Luxembourg is the highest intensity economy per capita in the EU-28 exceeding 350 GJ per capita of inland energy consumption, which is 3 times the average EU-28 consumption. The lowest levels of energy intensity per capita were observed in Romania and Croatia. Bulgaria has a relative small per capita consumption (about 100 GJ per capita) even though it has the highest energy intensity economy per GDP (670 kgoe per EUR 1 000).

2.8 Energy industry

Figure 2.8.1: Net electricity generation, EU-28, 2012 (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 in 2012 was 3 126.5 million gigawatt hours (GWh), being relatively stable after three years of historically quite large changes due to the financial and economic crisis. Germany had the highest level of electricity generation in the EU-28 accounting for 19 % of the total, followed by France (17.2 %) and the United Kingdom (11.1 %). The reduction by 53 % in electricity generation in Lithuania in the 2000–12 period is also notable, which might be due to the closure of the country's last nuclear reactor. Luxembourg increased its net electricity generation threefold in the same period.

The majority of electricity generation comes from power stations using combusting fuel (coal, oil and natural gas). The second important source of electricity generation is nuclear power plants accounting for about a quarter (26.7 %) of the total electricity generated in 2012. Renewable energy sources account for 20.5 %, with primary contributors hydro power (11.6 %) and wind power (6.5 %).

Table 2.8.1: Net electricity generation, 1990–2012
(1 000 GWh)

	1990	1995	2000	2005	2010	2011	2012	Share in EU-28, 2012 (%)
EU-28	2 432.3	2 583.6	2 873.6	3 153.6	3 200.3	3 129.2	3 126.5	100.0
EA-18	1 629.2	1 761.4	1 998.5	2 209.7	2 277.9	2 217.2	2 216.3	70.9
BE	67.3	70.6	80.3	83.4	91.4	86.7	79.8	2.6
BG	37.5	37.4	36.9	40.3	42.2	45.8	42.9	1.4
CZ	58.1	56.9	68.0	76.2	79.5	81.0	81.1	2.6
DK	24.3	34.7	34.4	34.4	36.9	33.6	29.2	0.9
DE	508.6	498.9	538.5	582.7	594.8	576.9	592.7	19.0
EE	15.4	7.6	7.6	9.1	11.7	11.7	10.5	0.3
IE	13.7	16.8	22.7	24.8	27.4	26.4	26.5	0.8
EL	32.1	38.4	49.9	55.7	53.4	53.9	53.7	1.7
ES	144.6	159.1	214.4	282.1	291.0	283.3	286.6	9.2
FR	401.3	472.1	516.9	550.3	545.0	535.1	539.2	17.2
HR	8.3	8.5	10.3	12.0	13.6	10.4	10.2	0.3
IT	205.1	229.2	263.3	290.6	290.7	291.4	287.8	9.2
CY	1.9	2.4	3.2	4.1	5.1	4.7	4.5	0.1
LV	5.9	3.5	3.7	4.4	6.1	5.6	5.7	0.2
LT	26.3	12.4	10.0	13.6	5.3	4.4	4.7	0.1
LU	1.3	1.2	1.1	4.1	4.6	3.7	3.8	0.1
HU	25.9	31.3	32.3	33.2	34.6	33.5	32.3	1.0
MT	1.0	1.4	1.8	2.2	2.0	2.1	2.2	0.1
NL	69.4	77.6	86.0	96.2	114.3	109.0	98.6	3.2
AT	48.4	54.9	59.1	63.5	69.5	64.1	70.9	2.3
PL	123.4	127.4	132.2	143.6	143.4	148.8	147.6	4.7
PT	27.3	31.9	42.2	45.0	52.8	51.1	45.3	1.4
RO	56.7	52.9	48.6	55.5	55.9	56.5	53.7	1.7
SI	11.2	11.8	12.8	14.1	15.4	15.0	14.7	0.5
SK	23.0	23.4	27.7	29.3	25.4	26.1	26.1	0.8
FI	51.6	60.5	67.3	67.8	77.2	70.4	67.7	2.2
SE	142.5	144.2	141.6	154.6	145.3	146.9	162.8	5.2
UK	300.1	316.6	360.8	380.5	365.7	351.0	345.8	11.1

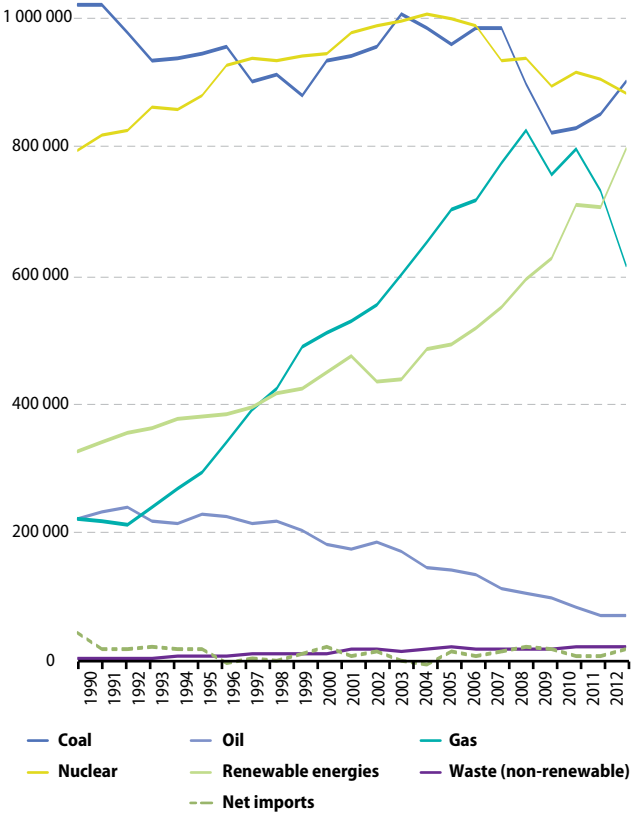
Source: Eurostat (online data code: nrg_105a)

Table 2.8.2: Total gross electricity generation, 2002–12
(1 000 GWh)

	2002	2005	2008	2009	2010	2011	2012
EU-28	3 143.9	3 325.1	3 386.8	3 221.4	3 364.4	3 295.1	3 295.2
EA-18	2 186.6	2 325.8	2 396.2	2 272.5	2 386.8	2 326.3	2 327.8
BE	82.1	87.0	84.9	91.2	95.1	90.2	82.9
BG	42.7	44.4	45.0	43.0	46.7	50.8	47.3
CZ	76.3	82.6	83.5	82.3	85.9	87.6	87.6
DK	39.3	36.2	36.6	36.4	38.9	35.2	30.7
DE	586.7	622.6	640.4	595.6	633.0	613.1	629.8
EE	8.5	10.2	10.6	8.8	13.0	12.9	12.0
IE	25.2	26.0	30.2	28.3	28.6	27.5	27.6
EL	54.6	60.0	63.7	61.4	57.4	59.4	61.0
ES	245.0	294.1	313.8	294.6	301.5	293.8	297.6
FR	559.2	576.2	573.9	535.7	569.2	560.3	564.3
HR	12.3	12.5	12.3	12.8	14.1	10.8	10.6
IT	285.3	303.7	319.1	292.6	302.1	302.6	299.3
CY	3.8	4.4	5.1	5.2	5.3	4.9	4.7
LV	4.0	4.9	5.3	5.6	6.6	6.1	6.2
LT	17.7	14.8	13.9	15.4	5.7	4.8	5.0
LU	3.7	4.1	3.6	3.9	4.6	3.7	3.8
HU	36.2	35.8	40.0	35.9	37.4	36.0	34.6
MT	2.1	2.2	2.3	2.2	2.1	2.2	2.3
NL	95.9	100.2	107.6	113.5	118.1	113.0	102.5
AT	62.5	66.4	66.9	69.1	71.1	65.8	72.6
PL	144.1	156.9	155.3	151.7	157.7	163.5	162.1
PT	46.1	46.6	46.0	50.2	54.1	52.5	46.6
RO	54.7	59.4	65.0	58.0	61.0	62.2	59.0
SI	14.6	15.1	16.4	16.4	16.4	16.1	15.7
SK	32.4	31.5	29.0	26.2	27.9	28.7	28.7
FI	74.9	70.6	77.4	72.1	80.7	73.5	70.4
SE	146.7	158.4	150.0	136.7	148.6	150.4	166.6
UK	387.2	398.4	388.9	376.8	381.8	367.5	363.8
IS	8.4	8.7	16.5	16.8	17.1	17.2	17.5
NO	130.7	138.0	142.1	131.8	123.6	127.6	147.8
ME	:	2.9	2.8	2.8	4.0	2.7	2.8
MK	6.1	6.9	6.3	6.8	7.3	6.8	6.3
RS	35.1	36.5	37.4	38.3	38.1	38.6	36.8
TR	129.4	162.0	198.4	194.8	211.2	229.4	239.5

Source: Eurostat (online data code: ten00087)

Figure 2.8.2: Gross electricity production by major fuel groups, EU-28, 1990–2012
(GWh)



Source: Eurostat (online data code: nrg_105a)

Total gross electricity generation in the EU-28 in 2012 stands at 3 295 million GWh, a decrease by 2.7 % compared to 2008 (3 387 million GWh). The highest gross electricity generating country is Germany (629.8 thousand GWh) followed by France (564.3 thousand GWh). The countries with the lowest generation of electricity are Malta (2.3 thousand GWh) and Luxembourg (3.8 thousand GWh). Lithuania's reduction in gross electricity production is notable: it fell from 15 358 GWh in 2009 to 5 043 GWh in 2012.

27 % of the fuel used for electricity generation are solid fuels (901 800 GWh) of which 55 % are bituminous coal and 38 % lignite/brown coal. Nuclear power accounts for 27 % of generated electricity, renewable energies 24 %, crude oil and petroleum products 21 % and natural gas 19 %. The role of nuclear power in electricity generation increased until 2004 when it reached its peak exceeding 1 000 000 GWh. It started to drop in 2005. Coal was the main contributor until 1996, when the use of natural gas and renewable energies for electricity production was increased, causing a gradual reduction in its usage for electricity generation. The reduction in the use of crude oil and petroleum products occurred for the same reason. Natural gas usage for electricity production increased rapidly until 2008 when it reached a peak. Its usage has since been on the decrease. Renewable energies increased steadily from 1990 until 2000. However since 2000 the increase has been more substantial, especially since 2008. In 2012 renewable energies reached 800 000 GWh.

Table 2.8.3: Gross electricity production by fuel, EU-28, 1990–2012
(GWh)

	1990	1995	2000	2005	2010	2011	2012
Total gross electricity production	2 594 781	2 742 746	3 035 549	3 325 082	3 364 200	3 294 919	3 295 170
Solid fuels	1 019 429	945 850	933 664	960 570	830 232	851 569	901 800
Anthracite	0	0	0	18 184	10 494	18 384	16 987
Coking Coal	52 696	59 159	37 874	37 092	16 064	18 409	23 975
Other Bituminous Coal	599 054	538 704	530 968	538 772	463 719	454 215	498 443
Sub-Bituminous Coal	7 679	10 640	6 380	5 771	3 378	5 631	5 292
Lignite/Brown Coal	337 807	320 463	343 890	341 162	313 653	333 501	338 213
Peat	5 137	7 843	5 902	7 486	9 400	8 348	6 768
Patent Fuel	0	0	0	0	0	0	0
Coke Oven Coke	837	0	0	0	2	4	3
Gas Coke	0	0	0	0	0	0	0
Coal Tar	0	0	64	100	19	6	3
BKB	1 510	765	923	2 715	2 455	2 166	2 411
Oil shale and oil sands	14 709	8 276	7 663	9 288	11 045	10 902	9 702
Peat products	0	0	0	0	3	3	3
Crude oil and petroleum products	224 247	230 335	181 296	142 772	86 777	72 462	72 490
Crude Oil	0	0	0	15	0	0	0
NGL (Natural Gas Liquids)	0	0	0	0	0	0	0
Refinery Gas	2 083	2 941	3 798	7 707	8 865	7 404	6 853
LPG (Liquefied PetroleumGases)	23	186	22	490	447	576	635
Naphtha	0	0	0	0	99	98	64
Kerosene Type Jet Fuel	0	0	0	1	1	0	1
Other Kerosene	1	10	0	2	23	14	10
Gas / Diesel Oil	2 475	3 618	4 109	5 633	11 018	9 158	9 684
Residual Fuel Oil	149 056	172 760	140 496	103 923	47 229	38 022	35 578
Bitumen	0	2 231	3 776	223	0	0	0
Petroleum Coke	7	93	336	4 754	2 671	2 482	2 752
Other Oil Products	70 602	48 496	28 759	20 024	16 424	14 708	16 913

Source: Eurostat (online data code: nrg_105a)

Table 2.8.3: Gross electricity production by fuel, EU-28, 1990–2012 (continued)
(GWh)

	1990	1995	2000	2005	2010	2011	2012
Natural gas & derived gases	223 528	294 111	512 894	704 172	797 752	733 810	614 704
Natural Gas	192 637	268 089	479 563	668 602	763 201	700 145	581 708
Gas Works Gas	81	37	1 615	2 115	2 699	2 573	2 498
Coke Oven Gas	9 308	5 932	7 904	6 614	7 117	6 865	7 019
Blast Furnace Gas	20 992	19 398	23 447	25 494	23 545	23 359	22 320
Other Recovered Gases	510	655	365	1 347	1 190	868	1 159
Nuclear	794 863	880 821	944 993	997 699	916 610	906 744	882 366
Nuclear	794 863	880 821	944 993	997 699	916 610	906 744	882 366
Renewable energies	327 384	382 150	448 783	495 129	709 565	705 932	798 736
Hydro	308 528	352 619	387 066	347 457	406 856	339 864	366 370
Wind	778	4 068	22 253	70 455	149 282	179 528	205 766
Solar Photovoltaic	12	41	118	1 459	22 505	45 317	67 237
Solar Thermal	0	0	0	0	761	1 959	3 775
Tide, Wave and Ocean	503	507	507	481	478	478	462
Solid biofuels excluding charcoal	10 925	15 150	20 309	43 616	70 089	73 443	80 363
Biogases	915	2 472	6 419	12 803	31 860	37 825	46 397
Municipal Waste (Renewable)	2 497	3 815	7 326	11 693	17 159	18 319	18 977
Biodiesels	0	0	0	0	1	3	2
Other Liquid Biofuels	0	0	0	1 768	4 972	3 312	3 623
Geothermal	3 226	3 478	4 785	5 397	5 602	5 884	5 764
Waste (non-renewable)	5 292	8 762	12 580	14 422	19 033	20 194	20 566
Industrial Waste	2 911	5 028	5 660	3 014	3 250	3 932	3 812
Municipal Waste (Non-Renewable)	2 381	3 734	6 920	11 408	15 783	16 262	16 754
Other	38	717	1 339	10 318	4 231	4 208	4 508
Heat from Chemical Sources	38	29	267	685	732	607	705
Other Sources	0	688	1 072	9 633	3 499	3 601	3 803

Source: Eurostat (online data code: nrg_105a)

3

Transport indicators

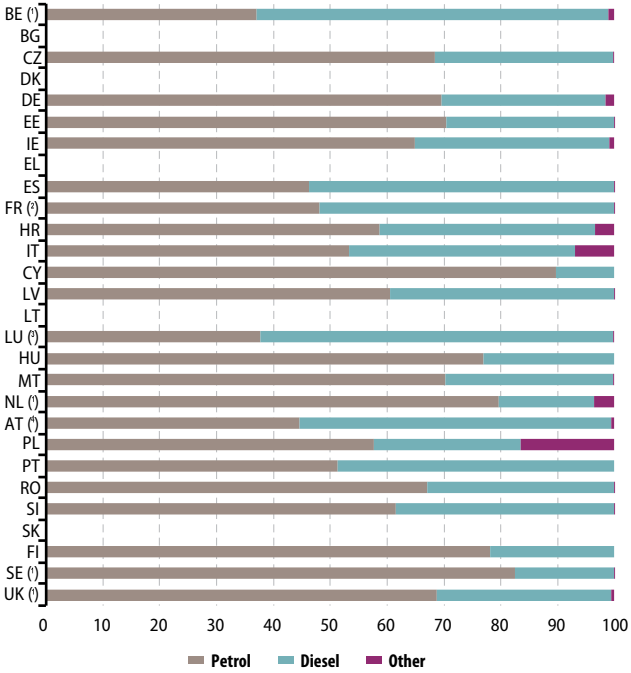
3.1 Transport equipment

Table 3.1.1: Motorisation rate of passenger cars, 2006–12
(number of passenger cars/1 000 inhabitants)

	2006	2007	2008	2009	2010	2011	2012
EU-28	455	:	:	:	:	:	:
BE	470	473	477	479	480	487	:
BG	233	277	317	337	353	368	385
CZ	401	414	424	424	429	436	448
DK	455	466	468	:	:	:	:
DE	566	:	504	510	517	525	530
EE	413	391	413	409	416	433	456
IE	:	422	:	:	:	428	425
EL	:	:	:	:	:	:	:
ES	470	476	479	473	475	476	476
FR	478	480	:	:	:	:	496
HR	331	350	360	358	355	355	339
IT	606	608	612	614	619	625	621
CY	492	529	557	563	551	545	549
LV	372	413	431	426	307	299	305
LT	490	494	525	540	554	570	:
LU	662	666	665	660	:	:	:
HU	319	325	305	301	299	299	301
MT	:	:	:	567	581	592	592
NL	442	451	457	460	464	470	:
AT	508	510	513	521	528	:	:
PL	351	383	422	432	447	470	486
PT	:	:	:	:	444	447	406
RO	152	172	197	209	214	216	224
SI	487	504	514	517	518	519	518
SK	248	267	287	295	310	324	337
FI	475	485	507	519	535	551	560
SE	461	464	462	460	460	464	:
UK	:	:	458	452	451	448	:
LI	691	689	715	722	744	:	:
NO	445	455	458	462	469	477	484
CH	519	521	518	515	518	523	529
MK	119	122	128	137	151	152	146
RS	:	201	203	225	215	:	:
TR	88	92	95	98	102	109	114

Source: Eurostat (online data code: road_eqs_carhab); International Transport Forum; United Nations Economic Commission for Europe Common Questionnaire on inland transport

Figure 3.1.1: Share of passenger cars, by fuel type, 2012
(%)



(1) No data for 2012; 2011 data.
(2) No data for 2012; 2007 data.
(3) No data for 2012; 2009 data.
(4) No data for 2012; 2010 data.
Source: Eurostat (online data codes: road_eqs_carmot and road_eqs_caralt); International Transport Forum; United Nations Economic Commission for Europe Common Questionnaire on inland transport.

In the EU-28 most Member States have reported an increase in the motorisation rates of passenger cars (number of passenger cars / 1 000 inhabitants) over the last six years (2006–12). The highest increases were recorded in Bulgaria (65 %), Romania (47 %), Poland (38 %) and Slovakia (36 %). The only exceptions were Latvia (– 18 %), Germany (– 6 %) and Hungary (– 6 %). The lowest motorisation rates were reported by Romania (214, 2010 data), Latvia (299, 2011 data) and Hungary (299, 2011 data). The highest motorisation rates in the EU-28 were recorded in Luxembourg which reported 660 (2009 data), followed by Italy (621, 2012 data), Malta (592, 2012 data), Cyprus (549, 2012 data), Germany (530, 2012 data) and Austria (528, 2010 data), indicating that there is 1 car for every 2 inhabitants.

Table 3.1.2: Renewal rate of passenger cars, 2006–12
(passenger cars first registration/total passenger cars; %)

	2006	2007	2008	2009	2010	2011	2012
BE	10.7	10.5	10.5	9.2	10.5	10.7	:
BG	10.3	16.8	14.9	8.1	7.2	7.1	7.0
CZ	2.9	3.0	3.2	3.6	3.7	3.8	3.7
DK	5.3	9.9	7.1	:	:	7.1	:
DE	7.5	:	7.5	9.1	6.9	7.4	7.1
EE	4.6	5.9	4.5	1.8	1.9	3.0	3.2
IE	9.6	9.6	:	:	:	5.3	4.0
EL	:	:	:	:	:	:	:
ES	7.9	7.5	5.4	4.4	4.5	3.7	3.2
FR	6.6	6.7	:	:	:	7.0	5.7
HR	8.0	7.2	6.2	3.5	3.1	3.2	2.8
IT	7.1	7.1	6.1	6.0	5.4	4.8	3.8
CY	10.0	12.4	11.6	8.1	7.1	5.9	4.3
LV	11.9	11.8	5.9	1.9	4.2	7.1	8.1
LT	11.6	13.9	11.5	8.1	9.5	7.7	:
LU	16.1	15.9	16.0	14.3	:	14.3	:
HU	4.7	4.2	5.8	:	2.1	2.6	3.6
MT	4.1	:	:	6.7	5.7	6.4	5.2
NL	6.7	6.8	6.6	:	:	6.4	:
AT	7.3	7.0	6.9	7.3	7.4	4.2	:
PL	6.9	7.7	8.0	5.2	5.1	5.1	4.9
PT	3.9	:	:	:	5.3	3.8	2.6
RO	9.7	12.3	14.6	7.8	7.2	4.1	5.4
SI	6.1	6.7	6.8	5.4	5.7	5.6	4.7
SK	11.0	10.2	9.8	9.3	7.6	7.5	7.2
FI	5.8	4.9	5.2	3.3	3.9	4.3	3.7
SE	7.2	7.6	6.0	5.0	:	7.4	:
UK	7.4	:	7.4	7.0	7.0	6.7	:
LI	7.8	8.2	7.9	6.3	6.6	:	:
NO	6.8	7.6	6.3	5.6	6.9	7.1	7.0
CH	6.9	7.2	7.2	6.7	7.3	7.9	7.9
MK	5.1	6.8	6.8	4.7	15.9	12.8	10.9
TR	6.5	5.5	5.2	5.1	6.4	7.4	6.5

Source: Eurostat (online data codes: road_eqr_carm and road_eqs_carmot); International Transport Forum; United Nations Economic Commission for Europe Common Questionnaire on inland transport.

In 18 out of 23 countries for which data were available, more than 50 % of the cars were petrol-driven. The highest percentage of petrol-driven cars was reported by Cyprus (almost 90 %, 2012 data), followed by Sweden (83 %, 2012 data) and the Netherlands (80 %, 2012 data). Diesel-driven cars exceeded the 50 % threshold in Belgium (62 %), Austria (55 %, 2010 data), Spain (54 %) and France (52 %, 2007 data). The contribution of alternative fuels was significant in Poland (16 %) and Italy (7 %). In the six-year period (2006–12), all EU Member States recorded increased numbers of diesel-driven passenger cars. In Poland, Ireland, and Sweden the increase was almost threefold.

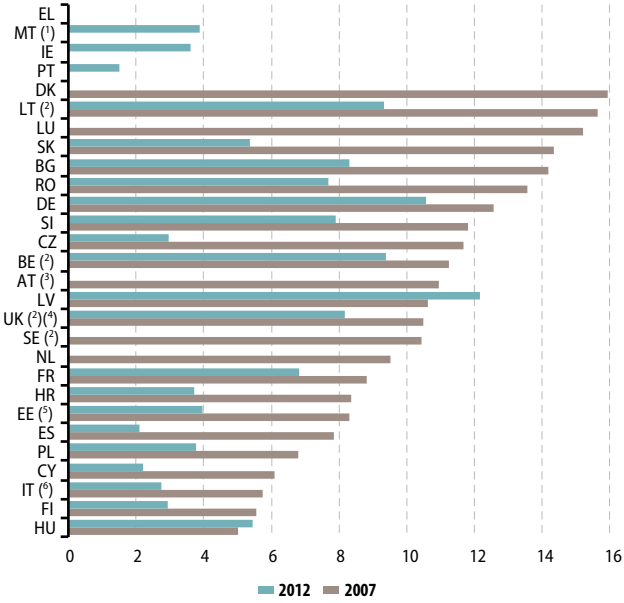
Table 3.1.3: Motorisation rate of lorries and road tractors, 2007–12
(number of lorries and road tractors / 1 000 inhabitants)

	2007	2008	2009	2010	2011	2012
BE	65.3	66.7	67.3	68	69.2	:
BG	34.5	39.8	42.6	44.9	47.2	50.1
CZ	54.1	58.7	57.7	57.2	57	57.5
DK	9.3	9	:	:	:	:
DE	30.4	30.7	31.2	32	33.2	34.4
EE	:	62.3	60.7	60.9	63.4	66.4
IE	:	:	:	:	70.2	67.6
EL	:	:	:	:	:	:
ES	119.5	118.4	115.6	114.1	112.6	109.9
FR	91.5	87.1	87.3	:	:	89.6
HR	38.2	39.4	38.3	36.1	35.4	32.4
IT	68.7	69.4	69.5	70	70.4	69.8
CY	155	156.9	155.7	147.3	140.5	132
LV	58.7	59.2	55.8	33.8	35	37.3
LT	45.4	46.7	46	42.6	44.8	:
LU	68.3	71.1	70.4	:	:	:
HU	47.4	45.4	46.5	46.4	46.6	47
MT	:	:	111	102.6	102.8	102.3
NL	61.8	62.5	61.7	60.6	59.5	:
AT	45	45.8	46.4	47.4	:	:
PL	66.1	71.1	73.3	78.1	81.3	82.5
PT	:	:	:	136.6	134.6	119.3
RO	23.8	31.3	32.4	32.9	34.5	35.8
SI	38.6	41.7	41.2	41.1	41.3	41.1
SK	43.7	49.9	53.6	55	56.3	57.4
FI	76.2	81.7	85	88.6	92.9	96.1
SE	55.3	55.6	55.6	:	58.2	:
UK	:	61	59	58.8	58.9	:
LI	73	76.3	76.2	77.8	:	:
NO	109.6	110.3	108.9	108.4	108.5	108.8
CH	43.2	43	42.6	43	44.3	45.5
MK	8.1	8.4	9	8.9	15.8	14.9
TR	37.59	39.81	41	10.01	9.88	10.06

Source: Eurostat (online data codes: road_eqs_lorroa and demo_pjan); International Transport Forum; United Nations Economic Commission for Europe Common Questionnaire on inland transport.

The renewal rate of passenger cars (the ratio of first registered to total passenger cars) in the EU-28 ranged between 2 % in Estonia (2009 data) to 17 % in Bulgaria (2007 data). Between 2006 and 2012 there was an increase in the car renewal rate in Malta, Denmark, and the Czech Republic. In contrast, the highest declines were recorded in Estonia (from 9.6 % in 2006 to 4.0 % in 2012), Cyprus (from 10.0 % to 4.3 %), Croatia (from 8.0 % to 2.8 %), Spain (from 7.9 % to 3.2 %), and Romania (from 9.7 % to 5.4 %).

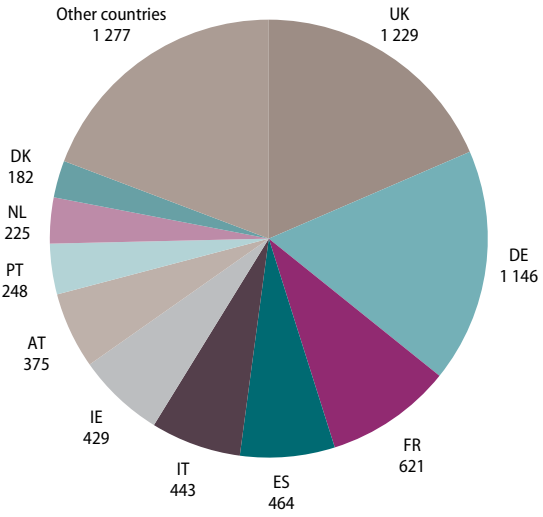
Figure 3.1.2: Renewal rate of lorries and road tractors
(lorries and road tractors first registration/total lorries and road tractors; %)



(1) No data for 2012 (tractors), 2011 data.
(2) No data for 2012, 2011 data.
(3) No data for 2012, 2010 data.
(4) No data for 2007 (tractors), 2008 data.
(5) No data for 2007 (lorries), 2008 data; No data for 2007 (tractors), 2009 data.
(6) No data for 2007, 2008 data.
Source: Eurostat (online data codes: road_eqr_lrstn, road_eqr_tracm and road_eqs_lorroa); International Transport Forum; United Nations Economic Commission for Europe Common Questionnaire on inland transport.

The motorisation rate of lorries and road tractors in the EU-28 varied from 9 lorries and road tractors per 1 000 inhabitants in Denmark (2008 data) to 155 in Cyprus (2007 data). Rates above 100 were recorded in 2012 in Spain (110), Cyprus (132), Malta (102) and Portugal (119). By contrast, low rates were recorded in Germany (34) and Croatia (32). Between 2007 and 2012, the trend was not uniform among EU Member States. The highest increases were observed in Eastern European countries, especially Bulgaria (45 %), Poland (25 %), Slovakia (31 %) and Romania (51 %). On the other hand, the highest decreases were recorded in Croatia (– 5 %), Cyprus (– 15 %) and Latvia (– 36 %).

Figure 3.1.3: Airfleet by operator country, EU-28, 2012
(top ten countries; number of commercial aircraft)



Source: Eurostat (online data code: avia_eq_arc_typ)

Only two EU Member States reported renewal rates of lorries and road tractors above 10 % in 2012: Germany (10.6 %) and Latvia (12.1 %). From 2007 to 2012, two EU Member States showed increased renewal rates of lorries and road tractors (Latvia, Hungary). In contrast, the highest decreases were recorded in the Czech Republic (9 percentage units), Slovakia (9 percentage units), Lithuania, Spain, Bulgaria and Romania (6 percentage units).

In 2012, there were 6 639 commercial aircraft in the EU-28, a 2 % decrease compared to 2011. The largest numbers of commercial aircraft were reported by the five largest EU Member States. The largest air fleet was recorded in the United Kingdom (1 229 aircraft accounting for 19 % share of the EU total), followed by Germany (1 146; 17 % share), France (621; 9 % share), Spain (464; 7 % share), and Italy (443; 7 % share). In terms of number of aircraft per million inhabitants (2012 data), Luxembourg held the highest value (244), Poland and Romania the lowest (3).

3.2 Freight transport

Table 3.2.1: Modal split of inland freight transport, 2002 and 2012 (1)
(% of total inland freight tonne-km)

	2002			2012		
	Roads	Railways	Inland waterways	Roads	Railways	Inland waterways
EU-28 (2)	75.5	18.3	6.2	75.1	18.2	6.7
BE	77.5	10.7	11.8	58.3	17.5	24.3
BG	62.9	33.1	4.0	74.7	8.9	16.4
CZ	73.3	26.6	0.1	78.2	21.8	0.1
DK	92.1	7.9	-	88.0	12.0	-
DE	66.3	18.8	14.9	64.6	23.1	12.3
EE	30.3	69.7	0.0	53.0	47.0	-
IE	97.1	2.9	-	99.1	0.9	-
EL	98.4	1.6	-	98.7	1.3	-
ES	94.1	5.9	-	95.2	4.8	-
FR	77.7	19.1	3.1	80.6	15.2	4.2
HR	76.4	22.7	0.9	73.6	19.8	6.6
IT	90.4	9.6	0.0	85.9	14.0	0.1
CY	100.0	-	-	100.0	-	-
LV	29.2	70.8	0.0	35.8	64.2	-
LT	52.3	47.7	0.0	62.3	37.7	0.0
LU	90.7	5.6	3.7	93.2	3.4	3.4
HU	66.2	28.6	5.2	75.1	20.5	4.4
MT	100.0	-	-	100.0	-	-
NL	63.3	3.3	33.4	56.2	5.1	38.7
AT (3)	65.8	29.3	4.9	54.6	40.8	4.6
PL	62.6	37.2	0.2	81.9	18.0	0.0
PT	93.1	6.9	-	93.2	6.8	-
RO	57.3	34.4	8.2	53.3	24.2	22.5
SI	70.0	30.0	-	82.1	17.9	-
SK	58.7	40.9	0.4	77.6	19.8	2.6
FI	76.6	23.2	0.3	73.0	26.6	0.4
SE	65.6	34.4	-	60.3	39.7	-
UK	89.7	10.2	0.1	87.8	12.1	0.1
IS	100.0	-	-	100.0	-	-
LI	:	:	-	96.6	3.4	-
NO	85.1	14.9	-	85.3	14.7	-
CH	57.5	42.5	-	53.9	46.1	-
MK	92.3	7.7	-	92.2	7.8	-
TR	95.5	4.5	-	94.7	5.3	-

(1) Excluding pipelines; EU, Bulgaria, Croatia and Romania: break in series.
(2) 2002: EU-27 instead of EU-28.
(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_frmod)

In the last decade, a shift towards road freight transport has been recorded, especially in newer EU Member States. The highest in reases in the share of road freight transport were observed in Estonia (23 percentage points), Poland (19), Slovakia (19), Slovenia (12) and Bulgaria (12). In contrast, 11 EU Member States presented a shift towards more environmentally friendly transport modes, most notably Belgium and Austria. In 2012, road transport made up over half of freight transport in all EU Member States, except for Latvia, where railway transport accounted for the largest share (64 %). High shares of rail transport were also recorded in Estonia (47 %), Austria (41 %), Sweden (40 %) and Lithuania (38 %). Considerable shares of inland waterways were recorded in the Netherlands (39 %), Belgium (24 %) and Romania (23 %).

Table 3.2.2: Goods transport by rail, 2003–12

	2003	2011	2012	Change (2011–12)	Change 2011–12 (%)
	(million tkm)				
EU-28	:	422 594	*407 502*	– 15 092	– 3.6
BE	7 293	7 593	:	:	:
BG	:	3 291	2 907	– 384	– 11.7
CZ	15 862	14 316	14 267	– 49	– 0.3
DK	1 985	2 614	2 278	– 336	– 12.9
DE	78 464	113 317	110 065	– 3 252	– 2.9
EE	9 670	6 271	5 129	– 1 142	– 18.2
IE	:	105	91	– 14	– 13.3
EL	456	352	283	– 69	– 19.6
ES	11 743	9 948	9 957	9	0.1
FR	46 835	34 202	32 539	– 1 663	– 4.9
HR	:	2 438	2 332	– 106	– 4.3
IT	20 299	19 787	20 244	457	2.3
CY	-	-	-	-	-
LV	17 955	21 410	21 867	457	2.1
LT	11 457	15 088	14 172	– 916	– 6.1
LU	525	288	:	:	:
HU	7 614	9 118	9 230	112	1.2
MT	-	-	-	-	-
NL	4 705	6 378	6 142	– 236	– 3.7
AT	16 866	20 345	19 499	– 846	– 4.2
PL	47 407	53 746	48 903	– 4 843	– 9.0
PT	2 073	2 322	2 421	99	4.3
RO	:	14 719	13 472	– 1 247	– 8.5
SI	3 018	3 752	3 470	– 282	– 7.5
SK	10 113	7 960	7 591	– 369	– 4.6
FI	10 047	9 395	9 275	– 120	– 1.3
SE	20 170	22 864	22 043	– 821	– 3.6
UK	18 734	20 974	21 444	470	2.2
IS	-	-	-	-	-
LI	:	10	10	0	0.0
NO	2 627	3 574	3 489	– 85	– 2.4
CH	:	11 526	11 061	– 465	– 4.0
ME	:	:	73	:	:
MK	:	479	423	– 56	– 11.7
TR	8 612	11 303	11 223	– 80	– 0.7

Source: Eurostat (online data code: rail_go_typeall)

Table 3.2.3: Goods transport by road, 2001–12

	2001	2011	2012	Change 2011–12 (%)
	(million tkm)			
EU-27	:	*1 735 531*	1 683 746	– 3.0
BE	53 182	33 107	32 105	– 3.0
BG	:	21 214	24 372	14.9
CZ	39 067	54 830	51 228	– 6.6
DK	22 156	16 120	16 679	3.5
DE	288 964	323 833	307 009	– 5.2
EE	:	5 912	5 791	– 2.0
IE	12 325	10 108	9 976	– 1.3
EL	:	20 597	20 839	1.2
ES	161 045	206 843	199 209	– 3.7
FR	206 870	185 685	172 445	– 7.1
HR	:	8 926	8 649	– 3.1
IT	186 513	142 843	124 015	– 13.2
CY	:	941	896	– 4.8
LV	:	12 131	12 178	0.4
LT	:	21 512	23 449	9.0
LU	8 700	8 835	7 950	– 10.0
HU	18 486	34 529	33 736	– 2.3
NL	78 492	73 713	67 804	– 8.0
AT	37 532	28 542	26 089	– 8.6
PL	:	207 651	222 332	7.1
PT	29 967	36 453	32 935	– 9.7
RO	:	26 349	29 662	12.6
SI	7 035	16 439	15 888	– 3.4
SK	:	29 179	29 693	1.8
FI ([1])	30 478	26 863	25 460	– 5.2
SE	34 158	36 932	33 481	– 9.3
UK	163 264	154 370	158 527	2.7
LI	:	312	280	– 10.3
NO	15 179	19 188	20 171	5.1
CH	:	13 567	12 957	– 4.5

([1]) Break in time series in 2011 due to a change in methodology.
Source: Eurostat (online data code: road_go_ta_tott)

A significant decrease in rail freight transport performance was recorded for 2012, with signs of recovery for 2013. The decline in transport performance between 2011 and 2012 could be noticed in a large majority of EU Member States. The main exception was Portugal, with an increase of 4.3 % of the total transport performance. In absolute terms, Poland recorded the largest decrease (– 4.8 billion tkm between 2011 and 2012), however the same country recorded the second highest rail transport performance in Europe, with 49 billion tkm in 2012. Two other countries reported absolute decreases of more than 1.5 billion tkm over the same period, namely Germany (– 3.3 billion tkm) and France (– 1.7 billion tkm).

European road freight transport percentage declined by 3 % in 2012 in terms of tonne-kilometres (tkm) compared to 2011, reflecting the consequences of the economic crisis. Bulgaria, Romania and Lithuania recorded a strong rise in tonne-kilometres performed, while Belgium presented a strong decline.

Table 3.2.4: Inland waterways transport of goods by type of transport

	2010	2011	2012				Growth rates 2011–12 (%)			
	(million tkm)									
	Total	Total	Natl	Intl	Transit	Total	Natl	Intl	Transit	Total
EU-28	154 667	141 955	36 002	79 527	34 459	149 988	– 0.4	8.4	6.1	5.6
BE	9 070	9 251	4 233	5 461	726	10 420	8.4	15.8	14.9	12.6
BG	6 048	4 310	39	383	4 927	5 349	– 7.1	– 7.0	27.8	24.1
CZ	43	42	16	23	:	38	– 23.8	4.5	:	– 9.5
DE	62 278	55 027	10 912	34 916	12 659	58 488	4.9	5.2	10.7	6.3
FR	9 474	9 035	5 156	2 875	885	8 916	– 3.4	0.7	5.2	– 1.3
HR	940	692	11	31	730	772	– 42.1	14.8	13.0	11.6
IT	108	144	81	:	:	81	– 43.8	:	:	– 43.8
LT	3	3	1	:	:	1	– 66.7	:	:	– 66.7
LU	359	305	:	5	285	290	:	0.0	– 5.0	– 4.9
HU	2 393	1 840	3	833	1 146	1 982	– 25.0	10.9	5.6	7.7
NL	45 708	46 446	11 982	27 203	8 349	47 533	– 2.0	2.8	7.3	2.3
AT	2 375	2 123	101	1 247	844	2 191	14.8	0.5	6.3	3.2
PL	130	161	92	38	0	131	– 13.2	– 30.9	0.0	– 18.6
RO	14 317	11 409	3 084	6 435	3 000	12 520	– 14.3	81.7	– 29.7	9.7
SK	1 189	931	2	76	908	986	– 50.0	– 3.8	7.1	5.9
FI	76	90	124	:	:	124	37.8	:	:	37.8
UK	156	144	144	:	:	144	0.0	:	:	0.0

Source: Eurostat (online data code: iww_go_atygo)

At EU-28 level, the 6 % overall rise in inland waterways transport in tonne-kilometres, in 2012, was made up by an increase of 8 % in international traffic, a 6 % rise in transit traffic but with little change in national traffic (– 0.4 %). At country level, the majority of the 17 EU Member States, for which data are available, recorded a rise in inland waterways transport in tkm between 2011 and 2012. The largest increases were observed in Finland (38 %, as an increase in national freight transport), and Bulgaria (24 %, mainly as a result of the 28 % rise in transit traffic which largely outweighed the smaller falls in national and international transport).

Table 3.2.5: Goods transport by sea (gross weight of seaborne goods handled in all ports), 2001–12
(1 000 tonnes)

	2001	2011	2012
EU-28	:	3 770 121	3 732 638
BE	174 181	232 789	223 987
BG	20 192	25 185	26 012
CZ	:	:	:
DK	93 972	92 613	87 827
DE	246 050	296 037	298 758
EE	40 383	48 479	43 503
IE	45 795	45 078	47 649
EL	122 171	135 314	153 124
ES	315 120	403 694	422 152
FR	318 188	322 251	302 997
HR	19 056	21 862	18 972
IT	444 804	499 885	476 823
CY	:	6 564	6 236
LV	56 827	67 016	72 723
LT	20 953	42 661	41 033
LU	:	:	:
HU	:	:	:
MT	:	5 578	5 511
NL	405 853	532 717	543 247
AT	:	:	:
PL	46 210	57 738	58 825
PT	56 164	67 506	67 875
RO	27 619	38 918	39 520
SI	9 146	16 198	16 907
SK	:	:	:
FI	96 150	115 452	105 120
SE	152 830	177 093	172 976
UK	566 366	519 495	500 860
IS	4 966	:	:
LI	-	-	-
NO	:	198 970	205 959
TR	:	359 082	374 714

Source: Eurostat (online data code: mar_go_aa)

Only 6 out of the 17 EU Member States, recorded a decrease in inland waterways transport. The largest decreases were reported in Lithuania (– 67 %) and Italy (– 44 %) evidenced by the decrease in national transport, and Poland (– 19 %) as a result of declines in national and international transport.

Table 3.2.6: Goods transport by air, 2004–12 ([1])
(1 000 tonnes)

	2004	2011	2012
EU-27 ([1])	:	13 532.2	13 321.6
BE	663.1	1 001.0	963.6
BG	:	21.9	18.5
CZ	57.5	69.2	58.7
DK	7.9	155.7	166.3
DE	2 786.0	4 309.6	4 218.2
EE	5.0	18.3	23.8
IE	62.2	113.4	126.8
EL	111.6	78.9	70.0
ES	520.5	612.0	593.5
FR ([2])	1 485.5	1 813.6	1 810.2
HR	:	7.2	7.0
IT	783.9	846.6	790.5
CY	37.2	29.5	27.6
LV	8.3	11.6	31.5
LT	5.2	10.0	14.3
LU	616.6	666.0	615.3
HU	60.4	68.9	61.9
MT	15.9	16.2	16.5
NL	1 512.0	1 614.9	1 563.5
AT	159.7	219.4	197.5
PL	31.4	68.4	74.7
PT	123.3	121.5	117.6
RO	19.3	26.2	28.5
SI	5.0	6.9	7.6
SK	8.2	20.5	20.9
FI	123.5	179.2	195.6
SE	151.0	164.6	141.4
UK	2 471.2	2 419.7	2 428.4
IS	56.3	37.6	40.0
NO	0.0	65.5	78.2
CH	319.1	390.3	398.7

([1]) Double counting is excluded in the intra-EU-27 and total EU-27 aggregates by taking into consideration only departure declarations.
([2]) Due to freight and mail data collection difficulties, the data for the two main airports in Paris (Charles de Gaulle and Orly) are underestimated. This also affects the aggregated freight data for France.
Source: Eurostat (online data code: avia_gooc)

Ports in the EU-28 handled 3 733 million tonnes of seaborne goods in 2012, a 1 % decrease compared to 2011. Between 2001 and 2012, four EU Member States presented decreases in goods freight transport by sea. The highest decreases were recorded in the United Kingdom (– 12 %) and Denmark (– 6 %); in contrast the highest increases were observed in Lithuania (96 %) and Slovenia (85 %). Seaports in the Netherlands handled 543 million tonnes of goods in 2012, while the United Kingdom, Italy and Spain followed with 501, 477 and 422 million tonnes respectively. These four EU Member States collectively handled 52 % of total EU-28 seaborne freight.

About 13.3 million tonnes of air freight were carried through airports of the EU-27 in 2012. Airports in Germany carried 4.2 million tonnes, an amount considerably higher compared to other EU Member States. The United Kingdom followed with 2.4 and France with 1.8 million tonnes. From the smaller EU Member States, air freight was relatively high in the Netherlands, Belgium and particularly Luxembourg, which ranked as the seventh largest air freight transporter among EU Member States.

In the last eight years six EU Member States showed decreased freight transport by air, particularly Greece (– 37 %) and Cyprus (– 26 %). On the contrary, the increase in Estonia was almost fivefold, followed by Latvia (+ 278 %) and Slovakia (+ 155 %). Denmark reported a significant increase in freight transport (8 000 tonnes in 2004, 166 000 tonnes in 2012).

3.3 Passenger transport

Table 3.3.1: Modal split of inland passenger transport, 2002 and 2012 (1)
(% of total inland passenger-km)

	2002			2012		
	Passenger cars	Motor coaches, buses and trolley buses	Trains	Passenger cars	Motor coaches, buses and trolley buses	Trains
EU-28	83.6	9.6	6.8	83.3	9.2	7.4
BE (2)	82.3	11.4	6.3	80.4	12.4	7.1
BG	*61.2*	33.4	5.4	*80.1*	16.9	3.0
CZ	73.8	18.7	7.5	*74.8*	16.8	*8.4*
DK	79.1	11.7	9.2	80.2	9.7	10.1
DE	86.2	6.7	7.1	85.4	5.7	9.0
EE	*71.7*	26.5	1.8	*83.6*	14.6	1.8
IE	*81.0*	*15.6*	3.5	*82.8*	*14.4*	2.8
EL	*75.1*	*23.0*	1.9	*81.6*	*17.7*	0.7
ES	82.5	12.3	5.2	80.7	13.7	5.6
FR	86.4	5.0	8.7	85.1	5.4	9.5
HR	*82.2*	13.3	4.5	85.8	10.7	3.5
IT	83.3	11.1	5.6	78.9	15.0	6.1
CY	*77.4*	*22.6*	-	*81.3*	*18.7*	-
LV	*76.6*	18.6	4.8	76.9	18.3	4.8
LT	82.0	15.4	2.5	*91.0*	8.2	0.8
LU	*85.7*	*10.5*	3.9	*83.0*	*12.4*	4.6
HU (2)	61.1	25.0	13.9	*67.7*	22.2	10.1
MT	*79.4*	*20.6*	-	*82.5*	*17.5*	-
NL	86.4	4.3	9.3	88.2	3.0	8.8
AT (3)	79.4	10.9	9.7	78.5	10.0	11.5
PL (4)	*77.0*	13.5	9.5	*84.6*	*10.7*	4.8
PT (4)	*84.9*	10.9	4.3	*89.3*	*6.6*	4.1
RO (4)	*75.8*	12.3	11.9	*82.2*	*12.9*	4.9
SI	83.9	13.2	3.0	86.7	*11.1*	2.3
SK	66.8	26.0	7.2	77.8	15.1	7.1
FI	84.1	11.1	4.8	84.9	9.8	5.3
SE (2)	84.0	8.2	7.8	84.3	6.7	9.1
UK (4)	88.4	*6.4*	5.2	86.0	*5.8*	8.2
IS	88.6	11.4	-	*88.5*	11.5	-
NO	89.0	6.9	4.1	89.7	5.6	*4.7*
CH	80.1	5.1	14.8	77.7	5.1	17.2
MK	*81.3*	16.7	1.9	*77.8*	20.7	1.5
TR (2)	*49.0*	*47.8*	3.1	61.6	36.6	1.7

(1) Excluding powered two-wheelers.
(2) Passenger cars: break in series.
(3) The railway in Liechtenstein is owned and operated by the Austrian ÖBB and included in their statistics.
(4) Motor coaches, buses and trolley buses: break in series.
Source: Eurostat (online data code: tran_hv_psmod)

Passenger transport is measured by the number of passenger kilometres (pkm) travelled, which represents the transport of one passenger over one kilometre. Transport by passenger cars accounted for a considerable share of total passenger transport among all EU Member States (over 67 %, 83.3 % on average in the EU-28 in 2012). The dependence on cars was considerably higher compared to passenger transport by rail and by buses and coaches. In 2007, the total pkm travelled by rail in the EU-28 reached 397 billion; while approximately 797 pkm were travelled per inhabitant. The EU Member States with the highest absolute values of pkm travelled by rail were France (91 billion in 2012) and Germany (94 billion in 2012). Between 2010 and 2012, the highest increases were reported by Lithuania (+ 14 %), Germany (+ 13 %), the Czech Republic (+ 10 %) and the United Kingdom (+ 9 %). On the contrary, the highest decreases were reported by Croatia (– 37 %), Romania (– 17 %) and Bulgaria (– 11 %).

Table 3.3.2: Passenger transport by rail, 2010–13
(million passenger-km)

	2010		2011		2012		2013	
	Natl	Intl	Natl	Intl	Natl	Intl	Natl	Intl
EU-28	:	:	:	:	:	:	:	:
BE	:	:	9 231	1 268	:	:	:	:
BG	2 045	44	2 032	27	1 848	22	1 795	26
CZ	6 263	296	6 408	261	6 793	402	6 804	709
DK	5 768	380	5 987	408	6 155	379	:	:
DE	78 515	4 321	:	:	88 794	5 124	:	:
EE	230	18	228	15	218	17	201	22
IE	1 547	131	1 607	32	1 549	29	:	:
EL	1 337	46	:	:	:	:	:	:
ES	21 850	194	22 478	167	22 022	147	23 509	133
FR	:	:	80 963	10 335	80 507	10 698	79 658	10 827
HR	1 660	51	1 405	52	1 029	51	809	36
IT	42 486	863	44 915	1 029	:	:	:	:
CY	-	-	-	-	-	-	-	-
LV	670	71	662	71	640	77	640	81
LT	226	18	249	21	255	24	252	26
LU	246	101	246	103	270	103	:	:
HU	7 316	336	7 397	365	7 357	411	:	:
MT	-	-	-	-	-	-	-	-
NL	:	:	:	:	:	:	:	:
AT	8 257	1 456	8 361	1 458	8 768	1 480	:	:
PL	17 040	445	17 103	530	16 598	512	:	:
PT	4 008	103	4 143	94	3 713	90	3 548	102
RO	5 119	129	4 998	47	4 474	44	4 303	49
SI	680	50	641	48	614	45	636	43
SK	2 122	188	2 222	209	2 243	216	2 255	230
FI	3 869	90	3 768	115	3 907	128	:	:
SE	10 617	538	10 828	551	11 330	462	:	:
UK	54 112	1 720	56 853	1 753	59 153	1 811	:	:
IS	-	-	-	-	-	-	-	-
NO	3 004	72	3 016	60	3 047	45	3 215	45
CH	16 802	998	17 322	997	17 110	1 006	:	:
MK	153	2	145	1	99	1	80	1
TR	5 378	113	5 803	80	4 541	57	3 731	44

Source: Eurostat (online data code: rail_pa_typepkm)

Table 3.3.3: Passenger transport by air, 2012

	Total transport		Natl transport		Intl intra-EU transport		Intl extra-EU transport	
	2012 (1 000 passengers)	Growth (%) 2011–12	2012 (1 000 passengers)	Growth (%) 2011–12	2012 (1 000 passengers)	Growth (%) 2011–12	2012 (1 000 passengers)	Growth (%) 2011–12
EU-27 (1)	821 266	0.6	159 464	– 4.3	350 807	0.2	316 192	3.8
BE	25 099	3.2	40	– 15.0	17 481	2.4	8 392	5.1
BG	6 652	2.5	205	0.2	4 896	0.3	1 718	9.6
CZ	12 651	– 7.2	91	– 25.8	7 967	– 8.9	3 685	– 2.7
DK	25 805	2.8	1 920	– 18.8	17 060	3.6	7 548	8.4
DE	175 316	1.9	23 501	– 3.8	89 872	1.2	65 218	5.1
EE	1 908	15.5	25	– 13.4	1 710	9.7	467	46.5
IE	23 363	1.0	54	– 52.9	20 409	0.2	3 132	8.8
EL	33 291	– 5.2	5 215	– 7.8	20 408	– 7.6	5 953	7.2
ES	165 153	– 3.3	33 213	– 12.5	102 199	– 1.2	24 359	2.4
FR	131 425	2.7	28 439	2.6	58 564	2.5	48 003	3.1
HR	4 989	8.7	461	– 6.1	:	:	:	:
IT	116 227	– 0.2	30 336	– 5.0	63 446	– 0.0	22 247	6.8
CY	7 190	1.9	0	– 95.3	5 425	– 3.2	1 904	20.1
LV	5 098	– 6.7	0	– 20.6	3 310	– 9.7	1 444	0.7
LT	2 692	17.6	0	326.9	2 662	15.2	505	32.7
LU	1 837	3.1	1	48.8	1 527	1.3	366	11.5
HU	8 885	– 5.1	0	– 100.0	7 103	3.4	1 327	– 34.2
MT	3 507	4.1	0	1 576.0	3 248	2.6	402	18.1
NL	53 895	3.3	2	122.1	32 621	2.4	23 057	4.7
AT	25 138	3.3	635	– 4.4	17 173	2.8	8 158	5.0
PL	20 635	5.6	1 770	58.2	15 352	0.4	4 669	10.6
PT	27 578	2.2	2 812	– 3.0	19 822	1.9	5 553	6.1
RO	9 687	– 0.1	656	– 10.8	7 792	– 1.1	1 226	14.1
SI	1 359	– 14.1	:	:	654	– 18.7	513	– 7.2
SK	1 808	– 13.5	30	– 13.1	1 207	– 15.9	327	– 3.8
FI	16 374	0.5	2 721	– 1.2	10 014	– 0.7	3 724	5.4
SE	29 732	2.1	7 018	1.3	17 541	1.7	5 792	4.2
UK	201 535	0.8	20 779	– 0.7	115 783	0.9	66 504	0.9
IS	2 463	11.3	:	:	:	:	:	:
NO	32 402	6.8	14 782	4.7	:	:	:	:
CH	41 440	4.3	633	– 6.0	:	:	:	:

(1) EU-28 not available. Double counting is excluded in the intra-EU-27 and total EU-27 aggregates by taking into consideration only departure declarations.

Source: Eurostat (online data code: avia_paoc)

In 2012, approximately 822 million passengers were carried by air in the EU-27, a 0.6 % increase since 2011. Among EU Member States, the United Kingdom reported the highest number of air passengers in 2012 (201 million), followed by Germany (175 million) and Spain (165 million). In 2012, increased use of air transport was recorded in all EU Member States, but Slovenia (– 14 %), Slovakia (– 13 %), Latvia (– 7 %), the Czech Republic (– 7 %), Greece (– 5 %), Hungary (– 5 %), Spain (– 3 %), Italy (– 0.2 %) and Romania (– 0.1 %). International passenger transport dominates in all EU Member States and only in four of them this share is below 80 % (Spain, France, Italy and Sweden).

Ports in the EU-28 handled 397.5 million passengers in 2012, a 3.6 % decline compared to 2011. Ports in Italy and Greece handled 19 % and 18 % of the EU-28 total respectively; followed by the ports in Denmark (10 %). However, both the main maritime passenger countries recorded significant decreases in the number of passengers passing through their ports in 2012 (– 6.3 % for Italy and – 8.1 %, respectively). On the contrary, seven EU Member States recorded increases in 2012 (Belgium, Bulgaria, Germany, Estonia, Latvia, Lithuania and Finland).

Table 3.3.4: Passenger transport by sea (number of seaborne passengers embarked and disembarked in all ports), 2001–12

	2001	2011	2012					Growth rate 2011–12 (%)
	Total	Total	Total	Inwards	Outwards	Cruise	No cruise	
	(1 000 passengers)							
EU-28	:	412 373	397 506	199 264	198 242	13 656	383 850	– 3.6
BE	1 377	824	850	420	430	384	466	3.1
BG	3	1	1	0	1	0	1	12.0
CZ	-	-	-	-	-	-	-	-
DK	47 862	41 527	40 968	20 740	20 228	438	40 530	– 1.3
DE	31 817	29 233	29 481	14 809	14 672	1 117	28 364	0.8
EE	5 740	11 846	12 455	6 194	6 261	17	12 438	5.1
IE	3 895	2 906	2 758	1 383	1 374	1	2 757	– 5.1
EL	50 149	79 183	72 805	36 403	36 402	460	72 345	– 8.1
ES	18 623	21 868	21 629	10 799	10 829	2 464	19 165	– 1.1
FR	27 724	25 552	24 815	12 380	12 435	802	24 013	– 2.9
HR	16 833	26 947	26 706	13 364	13 341	15	26 691	– 0.9
IT	86 882	81 895	76 735	38 419	38 316	5 846	70 889	– 6.3
CY	:	92	91	45	46	90	1	– 0.8
LV	26	786	826	408	418	0	826	5.1
LT	101	281	286	142	145	0	286	2.0
LU	-	-	-	-	-	-	-	-
HU	-	-	-	-	-	-	-	-
MT	:	8 250	8 185	4 093	4 093	0	8 185	– 0.8
NL	2 041	1 770	1 706	863	843	0	1 706	– 3.6
AT	-	-	-	-	-	-	-	-
PL	4 416	2 528	2 358	1 176	1 183	0	2 358	– 6.7
PT	542	677	565	282	284	57	508	– 16.5
RO	0	0	0	0	0	0	0	– 41.5
SI	34	36	34	16	18	0	34	– 4.9
SK	-	-	-	-	-	-	-	-
FI	16 729	18 074	18 264	9 203	9 060	3	18 261	1.0
SE	32 350	30 094	29 471	14 940	14 532	96	29 375	– 2.1
UK	34 516	28 002	26 516	13 184	13 332	1 876	24 640	– 5.3
IS	360	:	:	:	:	:	:	:
LI	-	-	-	-	-	-	-	-
NO	:	6 130	6 003	2 944	3 059	240	5 763	– 2.1
CH	-	-	-	-	-	-	-	-
TR	:	1 842	1 828	909	919	376	1 452	– 0.7

Source: Eurostat (online data codes: mar_mp_aa_cph, mar_mp_aa_cphd and mar_pa_aa)

3.4 Transport safety

Table 3.4.1: Persons killed in road accidents, 2008–12 ([1])

	2008	2009	2010	2011	2012
BE	944	944	840	858	:
BG	:	901	:	:	:
CZ	1 076	901	802	773	742
DK	406	303	255	220	167
DE	4 477	4 152	3 648	4 009	:
EE	132	98	:	:	:
IE	280	238	212	:	:
EL	1 553	1 456	1 258	1 141	:
ES	3 098	2 714	2 479	2 060	:
FR	4 275	4 273	3 992	3 963	3 653
HR	664	548	426	418	393
IT	4 725	4 237	4 090	:	:
CY	82	71	60	71	51
LV	316	254	218	179	177
LT	:	:	:	:	:
LU	35	48	32	33	34
HU	996	822	740	638	605
MT	9	15	13	:	:
NL	677	644	537	546	562
AT	679	633	552	523	531
PL	5 437	4 572	3 908	4 189	3 571
PT	885	840	937	891	718
RO	3 061	2 796	2 377	2 018	2 042
SI	214	171	138	141	:
SK	606	384	371	:	:
FI	344	279	272	292	255
SE	397	358	266	:	:
UK	2 645	2 337	1 905	1 960	1 802
IS	12	17	8	12	9
LI	1	1	:	:	:
NO	260	214	208	168	145
CH	357	349	327	320	339

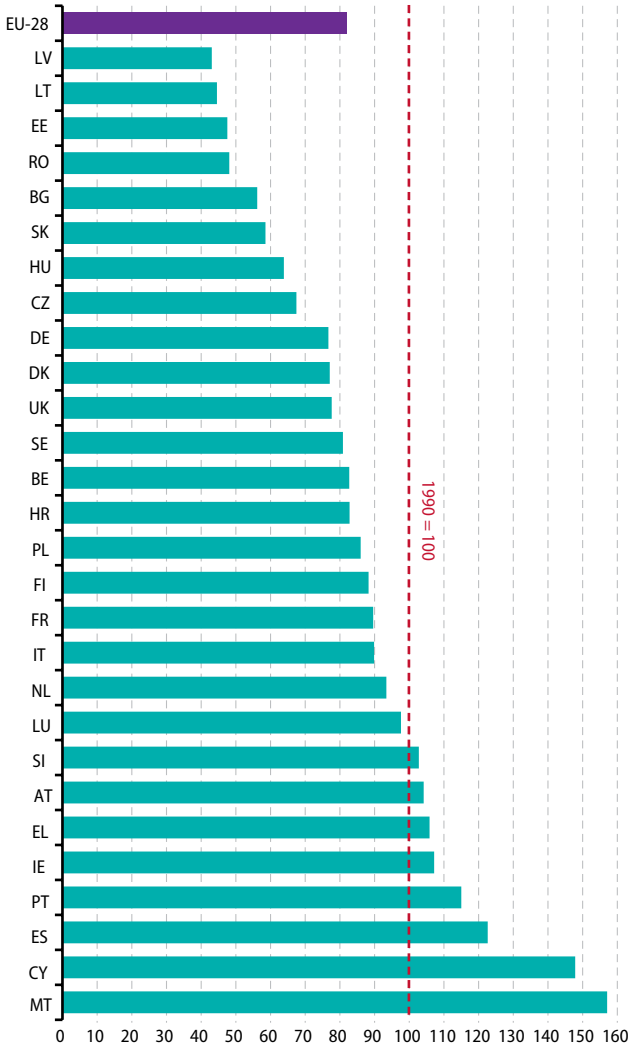
([1]) Data missing for Lithuania and EU-28.
Source: Eurostat (online data code: tran_sf_roadse)

The number of persons killed in road accidents in 2012 ranged from 34 in Luxembourg to 3 653 in France. Road fatality decreased between 2008 and 2012 in all countries for which data are available. The highest decreases were observed in Denmark (– 59 %), Latvia (– 44 %), Croatia (– 41 %), Hungary (– 39 %) and Cyprus (– 38 %), while the lowest were seen in Luxembourg (–3 %), France (– 15 %) and the Netherlands (– 17 %). Among the non-EU Member States, Norway (– 44 %) presented the highest decrease in the number of persons killed in road accidents, Switzerland the lowest (– 5 %).

4 Environment indicators

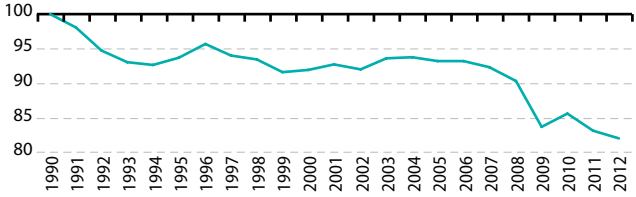
4.1 Emissions of greenhouse gases and air pollutants

Figure 4.1.1: Total greenhouse gas emissions by countries (including international aviation and excluding LULUCF), 2012 (1990 = 100)



Source: Eurostat (online data code: env_air_gge)

Figure 4.1.2: Greenhouse gas emissions (including international aviation and excluding LULUCF) trend, EU-28, 1990–2012
(1990 = 100)



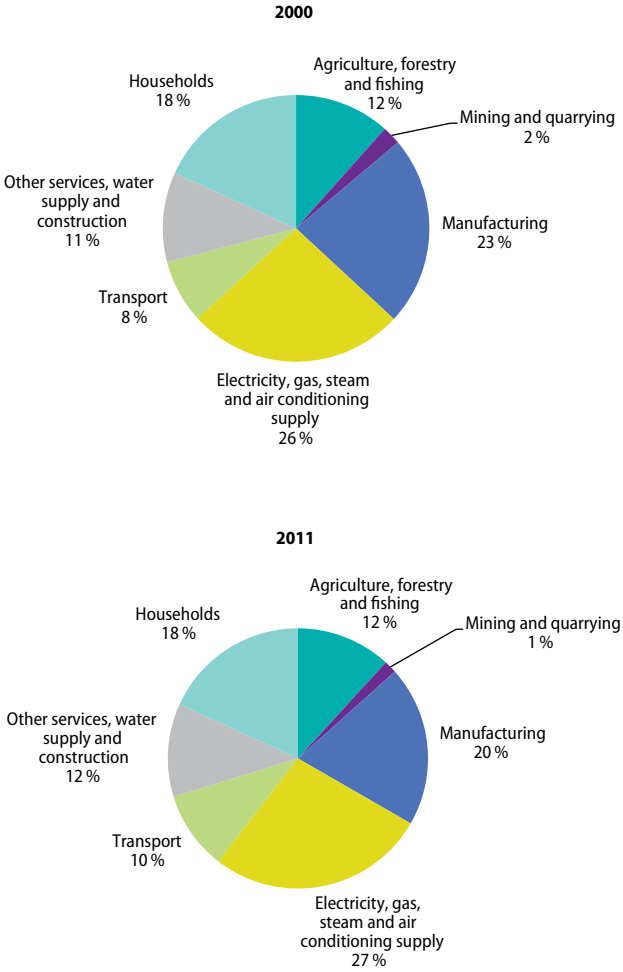
Source: Eurostat (online data code: env_air_gge); European Energy Agency; European Topic Centre on Air and Climate

Greenhouse gas emissions in the EU-28 (including international aviation but excluding LULUCF), stood at 4 678.8 million tonnes of CO_2-equivalents in 2012. This figure marked an overall reduction of 17.9 % when compared with 1990, or some 1 017 million tonnes of CO_2-equivalents. Without international aviation, EU emissions were down 19.2 % below 1990 levels.

From 1990 to 1999 there was a downward trend to GHG emissions (aside from a relative peak in 1996, when a cold winter led to an increase in heating requirements). From 1999 to 2006 the development of greenhouse gas emissions within the EU-28 remained relatively unchanged, thereafter falling at a modest pace through to 2008. The most obvious deviation to this pattern concerns the sharp downturn change in 2009 when emissions fell by 7.3 % (or 374.7 million tonnes of CO_2-equivalent) in just one year. This sharp decrease is largely attributed to the effects of the economic crisis and the reduced industrial activity. In 2010 an increase can be observed, followed by a decrease in 2011, which continued in 2012. The year 2012 marked the lowest emissions on record since the beginning of the time series.

Across the EU Member States in 2012, greenhouse gas emissions were the highest in Germany (20.62 % of the EU-28 total or 964.6 million tonnes of CO_2-equivalents in 2012), while the United Kingdom (13.10 %), France (10.82 %) and Italy (10.03 %) were the only other EU Member States to record double-digit shares. In 2012, the biggest decreases compared to 1990 were reported for Latvia (– 57.1 %), Lithuania (– 55.6 %), Estonia (– 52.6 %), and Romania (–52.0 %). On the other side of the spectrum, the biggest increases compared to 1990 were reported for Malta (+ 56.9 %) and Cyprus (+ 47.7 %).

Figure 4.1.3: Greenhouse gas (CO_2, CH_4 and N_2O) emissions by economic activity, EU-27, 2000 and 2011 ([1])
(% of total emissions in CO_2 equivalents)



([1]) 2011: estimates.
Source: Eurostat (online data codes: env_ac_ainah_r1 and env_ac_ainah_r2)

Table 4.1.1: Greenhouse gas emissions by economic activity, 2011
(1 000 tonnes of CO_2 equivalents)

	All economic activities	Agriculture, forestry and fishing	Mining and quarrying	Manufacturing
EU-28	3 833 744	553 374	74 256	936 725
BE	89 273	11 577	34	34 932
BG	58 163	4 169	535	6 691
CZ	111 844	9 213	7 606	19 249
DK	88 131	12 029	1 889	5 913
DE	772 256	78 100	11 683	181 189
EE	19 846	1 417	79	2 135
IE	45 615	18 579	251	5 312
EL	92 267	13 585	65	9 106
ES	278 109	42 672	3 012	91 453
FR	343 950	102 954	1 305	104 513
HR	23 253	4 036	585	8 231
IT	372 359	41 657	1 106	111 659
CY	8 334	831	75	991
LV	10 582	2 841	40	1 521
LT	20 838	5 207	27	6 374
LU	7 752	715	5	1 543
HU	53 872	9 797	2 419	9 948
MT	5 914	81	11	72
NL	188 982	27 850	2 684	43 979
AT	63 240	9 200	1 485	26 987
PL	356 282	51 168	13 506	68 767
PT	58 037	9 639	388	17 355
RO	111 698	20 202	1 528	30 372
SI	16 584	2 126	356	2 254
SK	39 990	3 210	979	20 496
FI	64 348	7 633	304	16 896
SE	58 868	10 571	762	16 474
UK	473 358	52 315	21 537	92 310
NO	59 186	6 482	14 095	11 948
CH	33 647	6 337	39	9 140

Source: Eurostat (online data code: env_ac_ainah_r2)

Table 4.1.1: Greenhouse gas emissions by economic activity, 2011 (continued)
(1 000 tonnes of CO_2 equivalents)

	Electricity, gas, steam and air conditioning supply	Transport	Other services, water supply and construction	Households
EU-28	1 269 436	457 146	542 807	851 149
BE	17 878	6 336	18 516	25 837
BG	39 933	4 716	2 119	7 560
CZ	56 465	7 939	11 373	8 768
DK	17 058	44 451	6 792	8 403
DE	344 686	45 953	110 645	176 422
EE	13 770	771	1 674	1 376
IE	12 154	5 070	4 249	13 079
EL	51 615	9 811	8 084	17 315
ES	73 036	41 823	26 113	62 877
FR	28 897	39 317	66 964	121 477
HR	4 219	2 948	3 233	5 131
IT	114 942	29 369	73 625	104 334
CY	3 785	1 706	946	1 833
LV	2 238	2 189	1 752	2 150
LT	3 380	4 289	1 561	1 520
LU	1 151	3 380	957	1 630
HU	14 702	8 973	8 033	11 395
MT	1 946	3 574	230	355
NL	51 717	28 524	34 230	39 169
AT	10 759	6 409	8 400	15 433
PL	161 904	26 208	34 729	46 527
PT	14 209	3 917	12 528	12 398
RO	34 167	10 986	14 445	14 124
SI	6 377	4 187	1 284	3 598
SK	6 399	4 131	4 776	4 830
FI	21 394	10 905	7 215	5 692
SE	8 954	12 875	9 231	10 574
UK	151 704	86 390	69 102	127 341
NO	2 158	20 757	3 746	5 305
CH	477	7 013	10 642	19 287

Source: Eurostat (online data code: env_ac_ainah_r2)

In 2011, the supply of electricity, gas, steam and air conditioning had the largest share of the EU-28's greenhouse gas emissions, accounting for 27 % of the total. The share of manufacturing in all emissions was around 20 %, meaning that manufacturing and the supply of electricity, gas, steam and air conditioning together contributed nearly half (47 %) of all greenhouse gas emissions in the EU-27 in 2011. Households accounted for 18 % of greenhouse gas emissions, while agriculture, forestry and fishing were responsible for a further 12 % which was the same as the combined share of other services, water supply and construction.

While transport services (including land, water and air transport) had a relatively low share of all emissions in 2011 (10 %) it should be noted that this encompasses only commercial transport (for hire and reward) and so excludes the own-account operation of motor vehicles by other activities as well as the operation of motor vehicles by private households. The remaining 2 % share was for mining and quarrying.

In most EU Member States the activity concerning the supply of energy, gas, steam and air conditioning was the main producer of greenhouse gases in 2011, followed by manufacturing. The most notable exceptions were Ireland and Latvia where agriculture, forestry and fishing were the main source of emissions, Denmark, Luxembourg and Malta where transport was the main source and France where households were the main source.

Table 4.1.2: Global and domestic CO_2 emissions induced by final use of products, EU-27, 2009 (1)

Product group	Final consumption expenditure	Gross capital formation	Exports	Final use, total	
	(kg of CO_2 per inhabitant)				(%)
Electricity, gas, steam and air-conditioning	1 032	16	48	1 097	11.7
Constructions and construction works	38	672	3	713	7.6
Food products, beverages and tobacco products	432	2	47	481	5.1
Public administration and defence services; compulsory social security services	301	1	1	303	3.2
Coke and refined petroleum products	196	-4	80	272	2.9
Motor vehicles, trailers and semi-trailers	139	45	67	251	2.7
Chemicals and chemical products	97	-4	157	250	2.7
Retail trade services, except of motor vehicles and motorcycles	217	14	16	247	2.6
Wholesale trade services, except of motor vehicles and motorcycles	156	37	49	241	2.6
Accommodation and food services	223	1	4	228	2.4
Land transport services and transport services via pipelines	199	8	18	225	2.4
Human health services	219	0	0	219	2.3
Machinery and equipment n.e.c.	6	101	110	217	2.3
Air transport services	139	-2	65	202	2.1
Water transport services	39	1	148	188	2.0
Education services	144	0	0	145	1.5
Textiles, wearing apparel and leather products	117	-3	25	139	1.5
Products of agriculture, hunting and related services	110	8	13	132	1.4
Other products	1 196	273	569	2 038	21.7
Total products	5 002	1 166	1 421	7 589	80.6
Direct emissions by private households	1 821	0	0	1 821	19.4
Total products plus direct emissions by private households	6 823	1 166	1 421	9 410	100.0

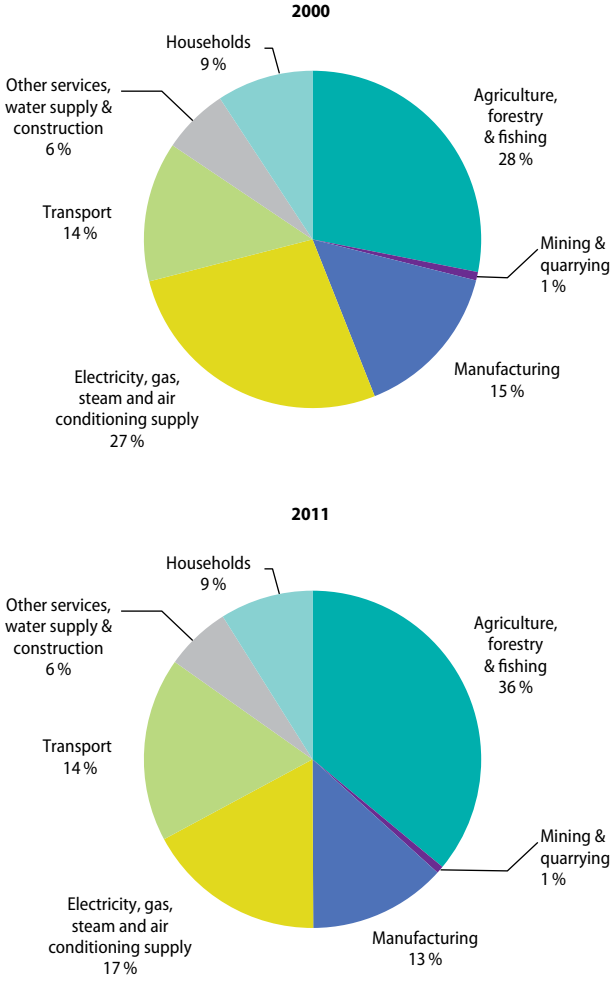
(1) Estimates.
Source: Eurostat (online data codes: env_ac_io2 and demo_gind)

Extended supply, use and input-output tables have been used to estimate carbon dioxide emissions induced by the final use of products within the EU-27. Besides the CO_2 emitted by industries within the EU while processing products for final use, the estimates presented also take into account the CO_2 that is 'embedded' within the EU's imports; these emissions arise from the worldwide production chains of goods that are imported into the EU-27. Carbon dioxide emissions that are embedded within products that are made in the EU but exported outside of the EU-27 are, in a similar vein, included in the accounts for foreign countries.

In 2009, CO_2 emissions induced by final use of products in the EU-27 amounted to 8.0 tonnes CO_2 per capita. Out of this amount, 1.2 tonnes (15 %) were induced by gross capital formation, 5.0 tonnes (63 %) were induced by final consumption expenditures and 1.8 tonnes (23 %) were directly emitted by private households.

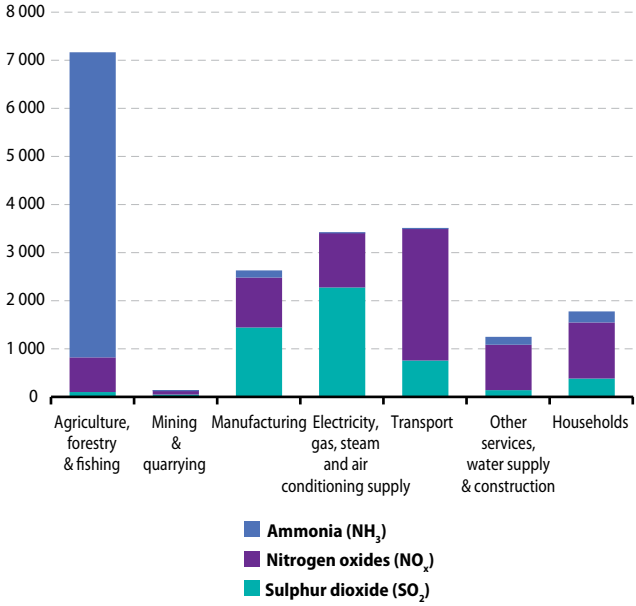
The different product groups (of CPA 2008) and categories of final use are ranked according to their importance in the terms of their respective share of emissions as follows: electricity, gas, steam and air-conditioning; constructions and construction works; food products, beverages and tobacco products; and; public administration, defence and compulsory social security services ranked as the four product groups with the highest levels of emissions per inhabitant in 2009 as a result of their final use.

Figure 4.1.4: Emissions of acidifying gases, analysis by economic activity, EU-27, 2000 and 2011
(% of total, based on tonnes of SO_2 equivalents of SO_2, NOx and NH_3)



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

Figure 4.1.5: Emissions of acidifying gases, analysis by economic activity, EU-27, 2011
(1 000 tonnes of SO_2 equivalents of SO_2, NO_x and NH_3)



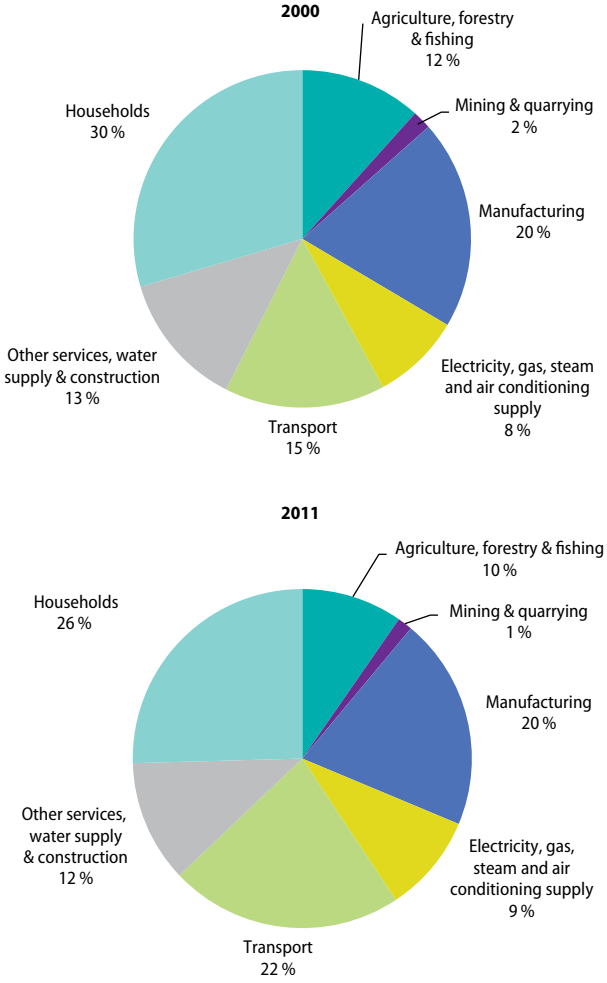
Source: Eurostat (online data code: env_ac_ainah_r2)

The emissions of acidifying gases — sulphur dioxide (SO_2), nitrogen oxides (NO_x) and ammonia (NH_3) — decreased by 32 % between 2000 and 2011. This represents a reduction of SO_2, NO_x and NH_3 of 9.4 million tonnes of SO_2 equivalents. In 2011, emissions of nitrogen oxides accounted for the highest share of the acidifying potential (39 %) followed by ammonia (35 %) and sulphur dioxide (26 %).

Agriculture, forestry and fishing account for the largest share of all industries. In 2011, they emitted 36 % of the total acidifying potential, compared to 28 % in 2000. Although it has decreased by 12 % between 2000 and 2011, 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.

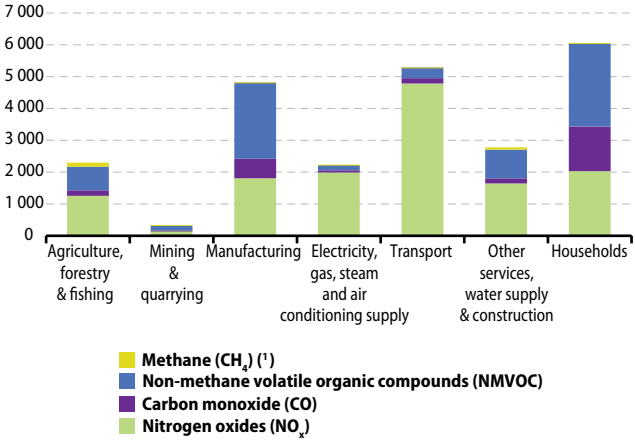
The second largest contributor to acidifying emissions in 2011 was the transport industry with a share of 18 % or 3.5 million tonnes of SO_2 equivalents, closely followed by the electricity, gas, steam and air conditioning supply industry (17 % or 3.4 million tonnes of SO_2 equivalents). All activities recorded significant drops in acidifying emissions. The most significant decrease was observed for the electricity, gas, steam and air conditioning supply industry, which dropped from 7.9 to 3.4 million tonnes of SO_2 equivalents (– 57 %) between 2000 and 2011. 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.

Figure 4.1.6 : Emissions of ozone precursors, analysis by economic activity, EU-27, 2000 and 2011
(% of total, based on tonnes of NMVOC equivalents of NO_x, CO, NMVOC and CH_4)



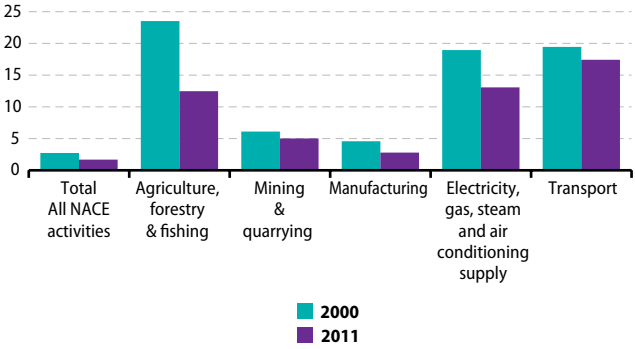
Source: Eurostat (online data codes: env_ac_ainah_r1 and env_ac_ainah_r2)

Figure 4.1.7 : Emissions of ozone precursors, analysis by economic activity, EU-27, 2011
(1 000 tonnes of NMVOC equivalents of NO_x, CO, NMVOC and CH_4)



(1) Relatively low emissions of methane in NMVOC-equivalents renders them often unseen in the figure.
Source: Eurostat (online data code: env_ac_ainah_r2)

Figure 4.1.8 : Intensity of ozone precursor emissions, analysis by economic activity, EU-27, 2000 and 2011
(grammes of NMVOC equivalents of NO_x, CO, NMVOC and CH_4 per EUR)



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

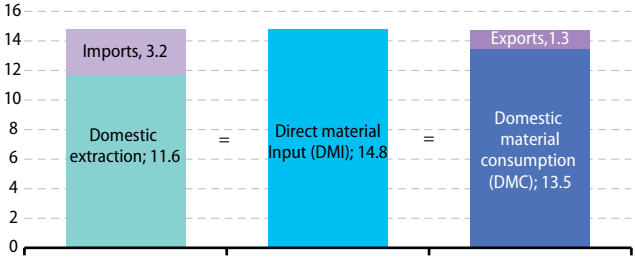
The emissions of ozone precursors (including nitrogen oxides (NO_x), methane (CH_4), carbon monoxide (CO) and non-methane volatile organic compounds (NMVOC) fell by 32 % between 2000 and 2011. The main pollutants contributing to the tropospheric ozone formation in 2011 were NO_x and NMVOC with 57 % and 31 % respectively.

The highest contributors to ozone precursor emissions in 2011 were households with 26 % and the transport industry with 22 % of total EU ozone precursor emissions. The manufacturing industry is the third largest emitter (20 % of total ozone precursor emissions). Between 2000 and 2011, the biggest absolute drop occurred in households (4.3 million tonnes of NMVOC equivalents or – 41 %), while the biggest relative drop was recorded in the mining and quarrying industry (288 000 tonnes or – 46 %).

Ozone precursor emission intensity is the ratio of ozone precursor emissions in tonnes of NMVOC equivalents per million euros of gross value added (GVA). In 2011, transport (17.4 grams NMVOC equivalents per euro) was, relative to GVA, the most important contributor to ozone precursor emissions in the EU, followed by electricity, gas, steam and air conditioning supply and by agriculture, forestry and fishing. Compared to year 2000 the intensity decreased in all main industries. The biggest decrease was observed in agriculture, forestry and fishing (– 44 %).

4.2 Material flow accounts

Figure 4.2.1 : Direct material available to EU-27 economies and how they are used, 2012
(tonnes per capita)



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

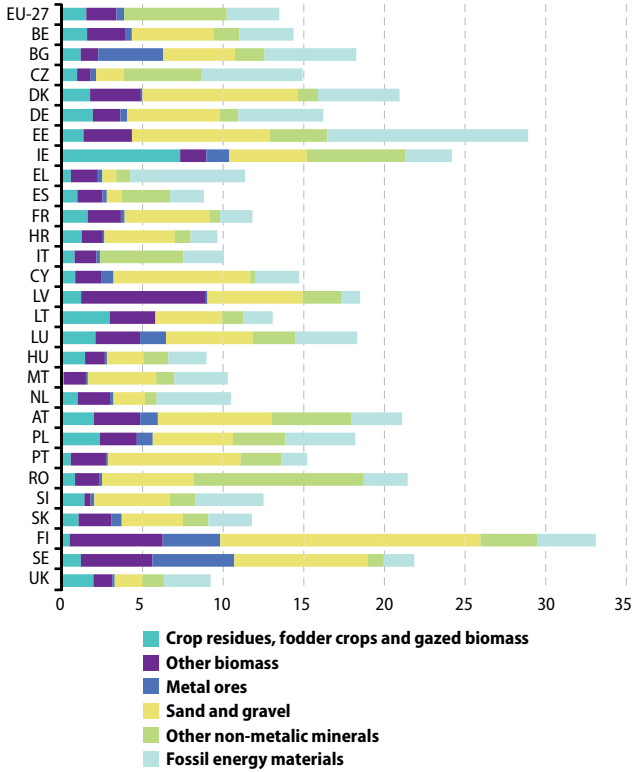
Eurostat's material flow accounts (MFA) constitute a comprehensive data framework that systematically records the inputs of materials to European economies in a detailed breakdown by material categories such as fossil energy materials, biomass, metal ores etc.

Various indicators are derived from the MFA accounting framework — most prominently domestic material consumption (DMC) which is currently related to gross domestic product (GDP) in order to monitor resource productivity in the context of the Europe 2020 Strategy.

The DMC of the aggregated EU-27 economy is dominated by non-metallic minerals which make up nearly half of the DMC in 2012 (6.4 tonnes per capita). With 3.4 and 3.3 tonnes per capita respectively, biomass and fossil energy materials each make up approximately one fourth of DMC. Metal ores constitute the smallest of the main categories with 0.5 tonnes per capita.

Obviously, the composition by material category is influenced by domestic extraction and hence depends on each country's natural endowment with material resources. The latter may form an important structural element of the respective national economy. EU Member States with high per capita tonnages of biomass include Latvia, Ireland, Finland, Lithuania and Sweden. Forestry plays a major role in Latvia, Sweden, Finland and Lithuania.

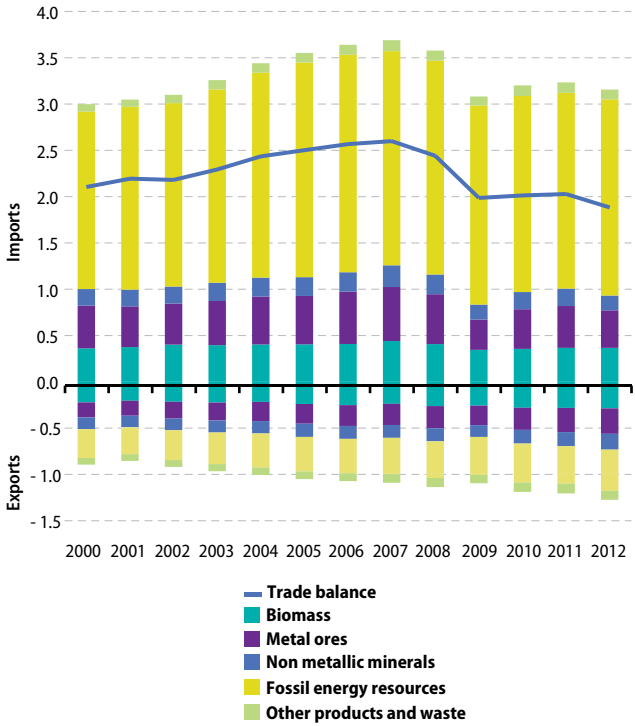
Figure 4.2.2 : Domestic material consumption (DMC) by country and main material category, 2012 ([1])
(tonnes per capita)



([1]) EU-27 and Italy: sand and gravel included in other non-metallic minerals.
Source: Eurostat (online data codes: env_ac_mfa and demo_gind)

In Ireland, fodder crops and grazed biomass make up the biggest share. EU Member States with substantial amounts of fossil fuel extraction include Estonia (oil shale), Greece, the Czech Republic, Germany (lignite) and Denmark (natural gas and crude oil). Sweden, Bulgaria and Finland are characterised by significant metal ore extraction due to their mining industries. Non-metallic minerals constitute significant parts of DMC in countries such as Finland, Romania, Estonia and Austria suggesting high levels of per capita construction activity.

Figure 4.2.3 : Physical imports and exports of goods by main material category, EU-27, 2000–12
(tonnes per capita)

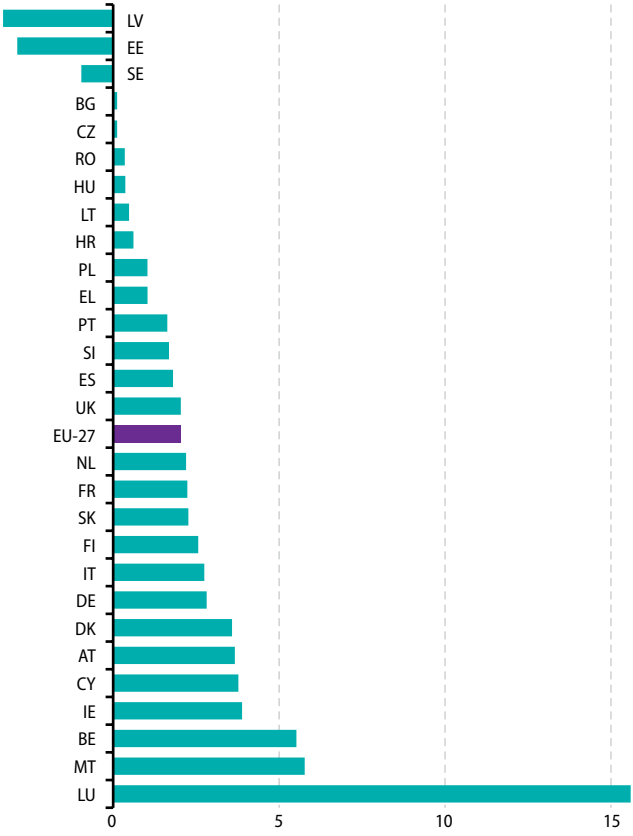


Source: Eurostat (online data codes: env_ac_mfa and demo_gind)

In monetary terms extra-EU imports and exports of goods and services 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 3.16 tonnes per capita per year, imports of goods are nearly three times the size of exports, at around 1.27 tonnes per capita per year.

Between 2000 and 2008, both physical imports and exports increased by around 25 %. In the economic crisis year of 2009 imports decreased by 13 % whereas exports fell by only 3.3 %. Between 2009 and 2012, physical exports increased by 16.8 %, while physical imports only went up by 3 %.

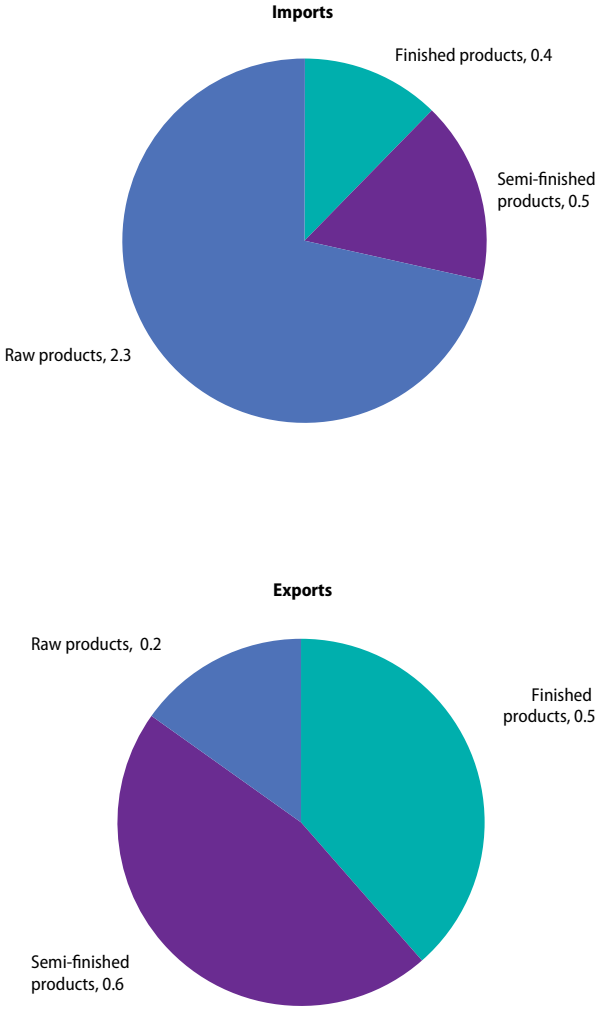
Figure 4.2.4 : Physical trade balance (imports minus exports) by country, 2012
(tonnes per capita)



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

The majority of EU Member States import more than they export (= net importers), generally in a similar proportion than the EU-27 average. There are three EU Member States with high net imports of more than 4 tonnes per capita: Luxembourg, Belgium and Malta. The high numbers in these countries are the result of high imports of fossil energy materials. Net exporting countries are Latvia (wood), Estonia (wood, fossil energy materials) and Sweden (metal ores).

Figure 4.2.5: Extra-EU imports and exports by stage of manufacturing, EU-27, 2012
(tonnes per capita)



Source: Eurostat (online data code: env_ac_mfa)

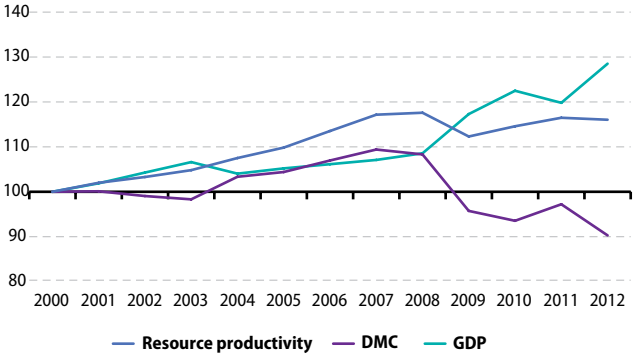
Table 4.2.1: Extra-EU imports and exports by stage of manufacturing, EU-27, 2012
(tonnes per capita)

	Stage of manufacturing	
Imports	Finished products	0.4
	Semi-finished products	0.5
	Raw products	2.3
Exports	Finished products	0.5
	Semi-finished products	0.6
	Raw products	0.2

Source: Eurostat (online data code: env_ac_mfa)

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 25 % higher than its imports (0.4 tonnes per capita). The EU's exports of semi-finished products are also higher than its imports. However, the EU imports much more raw products from the rest of the world than it exports (12 times more in 2012). The pattern shows a certain dependency on the rest of the world for raw materials. The EU economy transforms low-value raw products into high-value finished and semi-finished products.

Figure 4.2.6: Resource productivity in comparison to GDP (1) and DMC, EU-27, 2000–12
(2000=100)



(1) GDP in chain-linked volumes, reference year 2005.
Source: Eurostat (online data codes: nama_gdp_k and env_ac_mfa)

Resource productivity is measured as gross domestic product (GDP) over domestic material consumption (DMC). 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 standard (PPS) is used.

Resource productivity in the EU-27 economy increased by around 29.2 % between 2000 and 2012. There was a slow but steady increase between 2000 and 2007 with the exception of 2004. The economic crisis year of 2009 saw a big increase in resource productivity caused by a fall of 12 % in DMC. The crisis affected the material-intensive industries of manufacturing and construction more than the services industries. Material consumption therefore fell more than GDP. After a 2.2 % decrease in 2011, resource productivity increased again by 6.8 % in 2012.

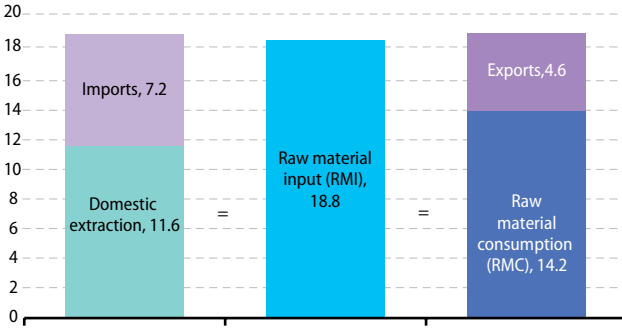
Expressed in GDP in PPS over DMC, the resource productivity amounts to 1.9 PPS/kg for the aggregated EU-27 economy. The ratio varies considerably across EU Member States from 0.63 PPS/kg in Romania to 3.5 PPS/kg in Luxembourg.

Table 4.2.2: Resource productivity ([1]), GDP and DMC, 2012

	GDP_{PPS} per capita	DMC per capita	Resource productivity (GDP_{PPS}/DMC)	
	(Purchasing power standards (PPS) per capita)	(tonnes per capita)	(PPS per kilogram)	Index (EU-27 = 100)
EU-27	25 600	13.5	1.91	100.0
BE	30 700	14.2	2.15	112.6
BG	12 100	18.0	0.67	35.1
CZ	20 700	15.0	1.38	72.3
DK	32 100	21.3	1.51	79.1
DE	31 500	16.2	1.98	103.7
EE	18 200	28.7	0.64	33.5
IE	32 900	24.2	1.36	71.2
EL	19 500	11.3	1.72	90.1
ES	24 400	8.8	2.74	143.5
FR	27 700	11.9	2.32	121.5
HR	15 600	9.8	1.60	83.8
IT	25 600	10.0	2.63	137.7
CY	23 400	14.9	1.57	82.2
LV	16 400	18.4	0.89	46.6
LT	18 300	12.8	1.43	74.9
LU	67 100	19.1	3.52	184.3
HU	17 000	8.9	1.91	100.0
MT	22 000	10.4	2.11	110.5
NL	32 500	10.5	3.11	162.8
AT	33 100	20.9	1.59	83.2
PL	17 100	18.1	0.95	49.7
PT	19 400	15.3	1.28	67.0
RO	13 500	21.5	0.63	33.0
SI	21 400	12.4	1.72	90.1
SK	19 400	11.9	1.63	85.3
FI	29 400	33.4	0.88	46.1
SE	32 200	22.2	1.45	75.9
UK	26 600	9.3	2.85	149.2

([1]) GDP/DMC (GDP in PPS, purchasing power standards).
Source: Eurostat (online data codes: nama_gdp_c , demo_gind and env_ac_mfa)

Figure 4.2.7: Raw material consumption, EU-27, 2012
(tonnes per capita)



Source: Eurostat (online data codes: env_ac_mfa 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.

For 2012, Eurostat estimates the exports in RME to amount to 4.6 tonnes RME per capita which is almost 4 times the simple weight of exported products.

The import of goods measured in raw material equivalents is estimated at 7.2 tonnes per capita. This is over twice as much as the simple weight of imported products.

For the simple weight of traded goods, imports are 2.5 times higher than exports. For the traded goods expressed in RME, imports are 1.6 times higher than exports. This is because imports are made up of raw products, notably fossil energy materials, which have a small 'material footprint' i.e. RME. Exports, on the other hand, are dominated by high-value semi-finished and finished products which have comparably high 'material footprints'.

Table 4.2.3: Raw material input, raw material consumption per capita and trade in raw material equivalents (RME), EU-27, 2012
(tonnes per capita)

	Raw material input (RMI)	RMI		Raw material consumption	Exports in RME
		Domestic extraction	Imports in RME		
Total	18.83	11.61	7.22	14.21	4.62
Biomass	3.81	3.30	0.51	3.23	4.62
Metal ores	2.95	0.34	2.61	1.34	1.61
Non metallic minerals	7.13	6.38	0.75	6.23	0.90
Fossil energy materials	4.93	1.59	3.35	3.41	1.52

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

The imports measured in tonnes RME are dominated by fossil energy materials as well as metal ores making up 82 %. The exports in RME are also dominated by these two categories however their share is significantly less at 68 %. Over the 2000–08 period, the composition of imports and exports in RME did not change much. Both dropped in 2009 due to the economic crisis, but started to pick up again from 2010.

4.3 Waste

Table 4.3.1: Total waste generated (non-hazardous, hazardous)
(1 000 tonnes)

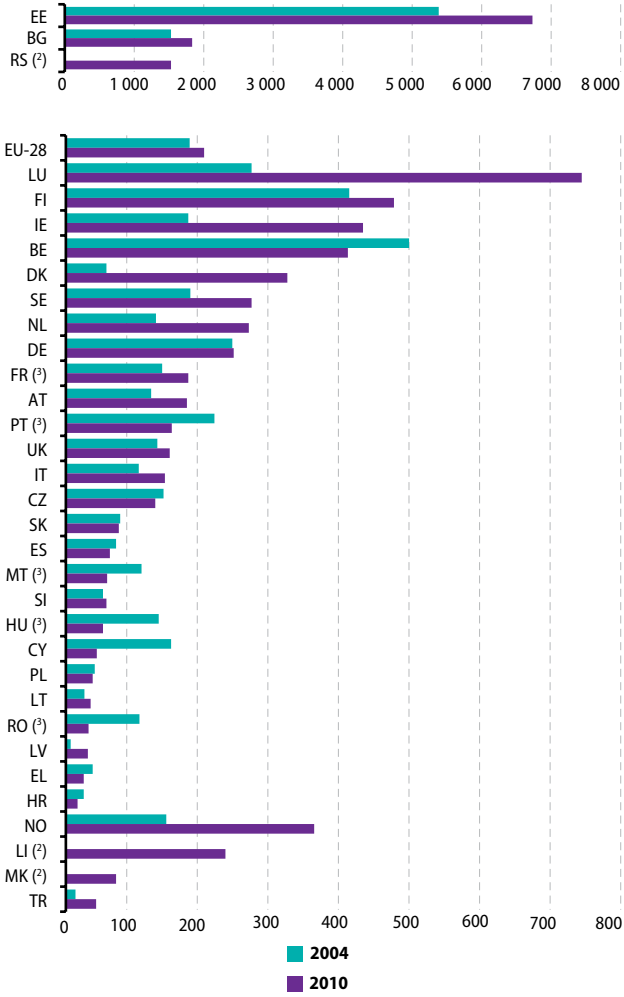
	Non-hazardous waste		Hazardous waste	
	2008	2010	2008	2010
EU-28	2 401 960	2 404 270	97 640	101 390
BE	42 703	58 058	5 919	4 479
BG	154 604	153 843	13 043	13 553
CZ	23 909	22 395	1 510	1 363
DK	14 736	19 181	420	1 784
DE	350 473	343 614	22 323	19 931
EE	12 046	10 038	7 538	8 962
IE	22 997	17 835	743	1 972
EL	68 391	70 141	253	292
ES	145 606	134 528	3 649	2 991
FR	334 109	343 543	10 893	11 538
HR	3 951	3 085	221	73
IT	172 379	150 084	6 655	8 543
CY	1 819	2 335	24	37
LV	1 428	1 430	67	68
LT	6 218	5 473	116	110
LU	9 393	10 061	199	380
HU	16 279	15 195	671	541
MT	2 344	1 328	55	25
NL	98 195	114 834	4 454	4 421
AT	54 979	33 410	1 330	1 473
PL	137 273	157 966	1 468	1 492
PT	33 112	36 723	3 368	1 625
RO	188 608	218 643	531	666
SI	4 886	5 039	153	120
SK	10 945	8 969	527	415
FI	79 630	101 778	2 163	2 559
SE	84 105	115 117	2 063	2 528
UK	326 842	249 621	7 285	9 447
IS	682	1 134	90	104
LI	376	304	7	8
NO	8 839	7 670	1 448	1 763
MK	1 356	2 178	6	150
RS	:	22 478	:	11 145
TR	63 746	780 197	1 018	3 226

Source: Eurostat (online data code: env_wasgen)

In 2010, the EU-28 generated 2404 million tonnes of non-hazardous waste and 101 million tonnes of hazardous waste (harmful for health or the environment). Compared to 2008, non-hazardous waste generation remained stable, while hazardous waste generation presented a 4% increase. In 2010, the share of hazardous waste in total waste generation was below 10% in all EU Member States but Estonia, where hazardous waste made up a 47% share of the total. This very high share was due to energy production from oil shale. Among the non-EU Member States, during 2010, Serbia presented the highest share of hazardous waste in total waste generation (33%), due to intensive activity in mining and quarrying industrial sector.

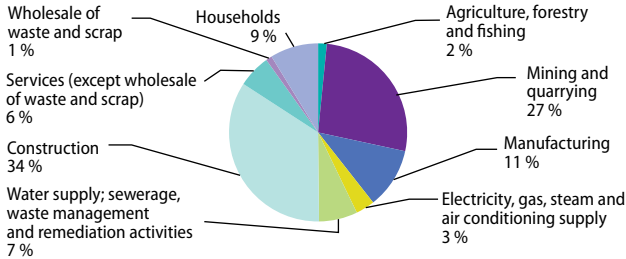
When expressed in relation to population size, the generation of hazardous waste across EU Member States and non-EU Member States in 2010 ranged between 6731 kg per capita in Estonia and 17 kg per inhabitant in Croatia. High hazardous waste generation are also observed in Bulgaria (1833 kg per capita), due to the mining of copper ores and Serbia (1529 kg per capita) due to intensive activity in mining and quarrying sector. Compared to 2004, the EU-28, presented a 12% increase in hazardous waste generation. Among EU Member States, Denmark (with a 446% increase), Latvia (357%) Luxembourg (178 %), Ireland (143%) and the Netherlands (103%) presented the highest increases. Turkey (214%) and Norway (147%) were the non-EU Member States with the largest increase of hazardous waste generation in 2010 compared to 2004. In the EU-28, the large increases between 2004 and 2010 mentioned in some countries were almost compensated by 12 EU Member States which recorded reductions. The largest decreases were presented in Cyprus (–71%), Romania (–69%) and Hungary (–60%).

Figure 4.3.1: Hazardous waste generation, 2004 and 2010 ([1])
(kg per inhabitant)



([1]) Note that the two parts of the figure have different scales for the x-axis.
([2]) 2004: not available.
([3]) 2004: estimate.
Source: Eurostat (online data code: env_wasgen)

Figure 4.3.2: Waste generation by economic activity and households, EU-28, 2010
(%)



Source: Eurostat (online data code: env_wasgen)

In 2010, the EU-28 generated 2 506 million tonnes of waste. The activities that generated particularly high levels of waste were construction, which accounted for 860 million tonnes (34 % share of the total) and mining and quarrying with 672 million tonnes (27 %). Manufacturing accounted for 276 million tonnes and an 11 % share, while households made up 9 % of the total and contributed 220 million tonnes.

There were considerable variations among EU Member States, both in the amount of waste generated in 2010 and the activities that contributed considerably to waste generation. The total amount of waste generated ranged between 1 353 thousand tonnes in Malta and 363 545 thousand tonnes in Germany. Germany, France and the United Kingdom made up a 39 % share of total EU-28 waste generation.

Regarding waste generation by activity, in 11 EU Member States, construction accounted for the largest share of generated waste, ranging from 28 % in Spain to 85 % in Luxembourg. The manufacturing industry accounted for the largest share of generated waste in Lithuania (48 %), Slovenia (29 %) and Slovakia (28 %). Mining and quarrying accounted for the largest share in Bulgaria (90 %), Romania (81 %), Sweden (76 %), Greece (64 %), Finland (53 %) and Poland (39 %). In Estonia, energy (electricity, gas, steam and air conditioning supply) made up the largest share (34 %), while in Latvia households (46 %).

Table 4.3.2: Waste generation by economic activity and households, 2010
(1 000 tonnes)

	Total waste from economic activies and households	Mining and quarrying	Manufacturing	Energy
EU-28	2 505 660	671 830	275 960	86 040
BE	62 537	1 701	14 543	1 210
BG	167 396	150 214	3 306	8 032
CZ	23 758	115	4 202	1 540
DK	20 965	41	1 919	517
DE	363 545	24 493	48 981	9 087
EE	19 000	6 453	3 716	6 534
IE	19 808	2 196	3 259	334
EL	70 433	44 793	4 941	11 029
ES	137 519	31 732	16 480	2 339
FR	355 081	1 053	20 382	993
HR	3 158	29	634	108
IT	158 628	706	35 928	2 660
CY	2 373	382	132	3
LV	1 498	1	375	25
LT	5 583	7	2 653	68
LU	10 441	18	867	2
HU	15 735	87	3 134	2 718
MT	1 353	57	9	0
NL	119 255	184	14 094	1 156
AT	34 883	269	2 958	453
PL	159 458	61 547	28 618	20 291
PT	38 347	1 206	9 766	456
RO	219 310	177 404	7 862	5 888
SI	5 159	12	1 517	558
SK	9 384	166	2 669	878
FI	104 337	54 851	15 211	1 445
SE	117 645	89 026	7 823	1 479
UK	259 068	23 092	19 970	6 239
LI	312	12	32	0
NO	9 433	366	2 687	28
MK	2 328	855	1 017	4
RS	33 623	26 458	1 146	6 019
TR	783 423	723 791	11 406	18 578

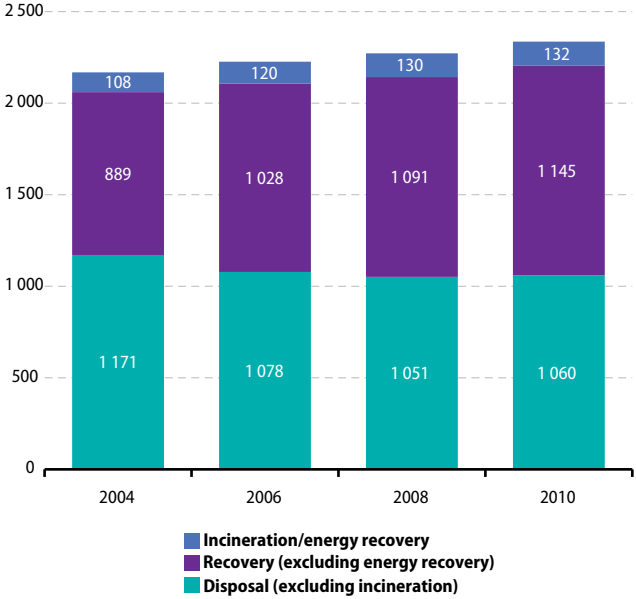
Source: Eurostat (online data code: env_wasgen)

Table 4.3.2: Waste generation by economic activity and households, 2010 (continued)
(1 000 tonnes)

	Construction & demolition	Other economic activities	Households
EU-28	859 870	392 360	219 600
BE	18 165	22 239	4 679
BG	79	2 235	3 529
CZ	9 354	5 212	3 334
DK	3 176	12 877	2 436
DE	190 990	53 682	36 312
EE	436	1 430	430
IE	1 610	10 679	1 730
EL	2 086	2 387	5 198
ES	37 947	25 823	23 198
FR	260 226	43 121	29 307
HR	8	2 379	0
IT	59 340	27 515	32 479
CY	1 068	327	461
LV	22	382	694
LT	357	1 238	1 261
LU	8 867	437	250
HU	3 072	3 859	2 865
MT	988	150	150
NL	78 064	16 685	9 072
AT	9 010	17 569	4 623
PL	20 818	19 294	8 890
PT	11 071	10 386	5 464
RO	238	21 791	6 127
SI	1 509	835	728
SK	1 786	2 167	1 719
FI	24 645	6 504	1 681
SE	9 381	5 898	4 038
UK	105 560	75 258	28 949
LI	0	268	0
NO	1 543	2 580	2 229
MK	0	0	451
RS	0	0	0
TR	0	60	29 587

Source: Eurostat (online data code: env_wasgen)

Figure 4.3.3: Development of waste treatment in the EU-27, 2004–10
(million tonnes)



Source: Eurostat (online data code: env_wastrt)

In 2010, almost half (49 %) of the waste treated in the EU-28 was subject to recovery (other than energy recovery) and 45 % was subject to disposal operations other than incineration (mostly landfilling, but also mining waste disposed in and around mining sites and waste discharges into water bodies). The remaining waste treated in the EU-27 was incinerated with energy recovery (4 %) and without energy recovery (2 %). Important differences can be observed among EU Member States in 2010. Bulgaria, Romania and Malta deposited 99 %, 91 % and 86 % of their waste. In contrast, Poland, Italy and the Czech Republic recovered 75 %, 73 % and 72 % respectively. In comparison to the EU average, energy recovery was considerably higher in Denmark (24 %), Belgium (16 %) and Portugal (12 %). Regarding incineration, the highest shares were recorded in Belgium (7 %) and Austria (6 %).

The development of waste treatment during the period 2004 to 2010 for EU-27 saw a steady decrease in the volume of waste disposed from 2004 to 2008. In 2010, this situation was reversed, mainly due to higher levels of waste treatment for mining and quarrying activities and also as a result of the greater disposal of the respective material in some countries (Romania, Sweden and Finland). However, the share of disposal in total waste treatment decreased from 54 % in 2004 to 45 % in 2010. The volume of waste recovered (excluding energy recovery) steadily increased from 889 million tonnes in 2004 to 1 145 million tonnes in 2010. Additionally, the share of recovery in total waste treatment grew from 41 % in 2004 to 49 % in 2010. Waste incineration with energy recovery also rose from 108 million tonnes in 2004 to 132 million tonnes in 2010, at a much more modest pace, with a total increase of 22 %.

Table 4.3.3: Waste treatment, 2010
(1 000 tonnes)

	Total treatment	Recycling	Energy recovery	Backfilling	Incinera-tion	Disposal
EU-28	2 338 770	901 410	89 650	243 720	42 280	1 061 700
BE	30 358	20 414	4 797	0	1 975	3 172
BG	159 955	1 922	144	0	2	157 886
CZ	18 247	7 389	767	5 830	55	4 204
DK	11 343	6 767	2 749	0	0	1 828
DE	349 564	150 504	28 423	91 059	12 646	66 932
EE	17 953	2 569	336	3 386	0	11 661
IE	9 421	1 289	168	2 068	43	5 854
EL	70 390	5 308	126	6 415	21	58 520
ES	132 688	74 575	2 523	5 714	412	49 464
FR	336 021	159 002	14 241	41 675	7 809	113 294
HR	2 585	403	110	0	24	2 048
IT	127 156	92 700	2 373	337	6 092	25 655
CY	2 371	315	7	1 066	7	976
LV	1 006	312	63	0	0	630
LT	4 546	1 062	111	0	2	3 371
LU	12 424	6 072	32	91	124	6 105
HU	13 424	4 707	859	419	82	7 357
MT	1 260	114	0	57	7	1 081
NL	113 640	57 563	5 835	0	3 552	46 691
AT	29 751	12 186	1 364	2 795	1 649	11 756
PL	146 580	76 840	3 804	32 855	369	32 712
PT	20 115	7 583	2 343	:	419	9 771
RO	212 858	16 561	1 507	0	75	194 716
SI	5 638	2 470	282	1 414	35	1 436
SK	7 692	3 559	255	0	66	3 812
FI	105 630	29 100	9 847	2 899	389	63 395
SE	110 476	15 795	6 261	792	87	87 541
UK	285 674	144 333	316	44 850	6 343	89 832
NO	6 292	2 517	1 280	49	276	2 170
MK	2 106	331	0	0	1	1 775
RS	33 151	568	27	0	0	32 556
TR	777 471	23 603	126	173 613	27	580 102

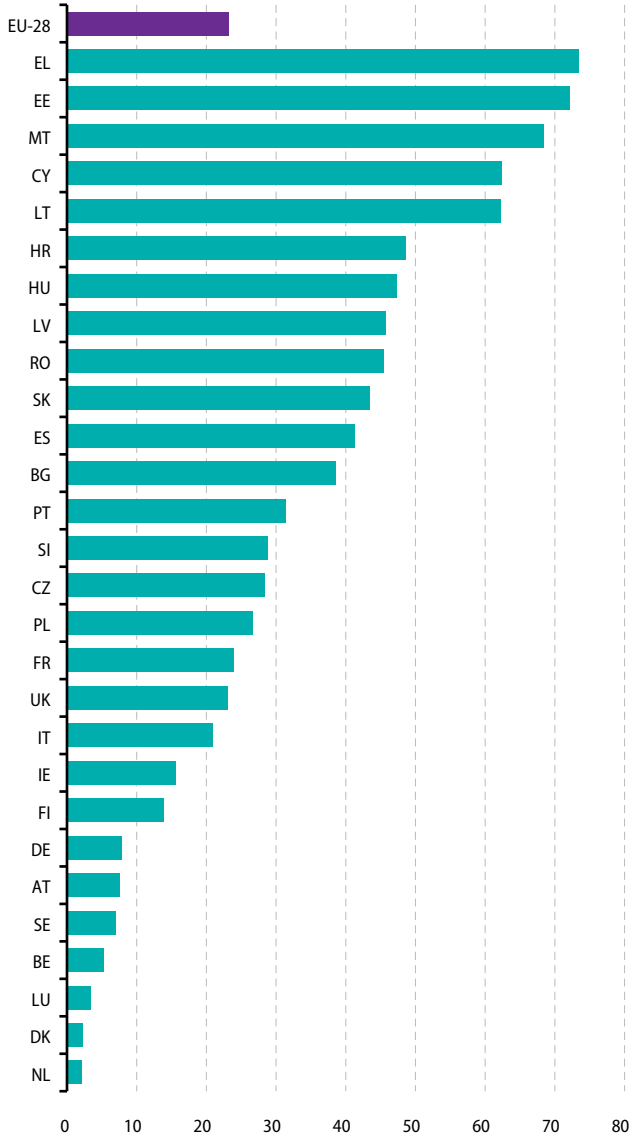
Source: Eurostat (online data code: env_wastrt)

Table 4.3.4: Generation and landfilling of waste (excluding major mineral wastes), 2010

	Waste generated		Waste landfilled	
	(1 000 tonnes)	(kg per inhabitant)	(1 000 tonnes)	(kg per inhabitant)
EU-28	929 730	1 847	215 790	429
BE	46 881	4 325	2 425	224
BG	14 809	1 995	5 713	770
CZ	12 380	1 183	3 504	335
DK	13 203	2 386	293	53
DE	140 094	1 713	11 048	135
EE	11 467	8 600	8 269	6 202
IE	12 329	2 710	1 923	423
EL	22 425	2 005	16 457	1 472
ES	62 059	1 335	25 619	551
FR	97 525	1 508	23 273	360
HR	2 896	673	1 408	327
IT	99 245	1 677	20 748	351
CY	864	1 055	539	657
LV	1 316	621	601	283
LT	5 092	1 621	3 166	1 008
LU	1 525	3 038	51	102
HU	11 557	1 154	5 456	545
MT	337	815	231	557
NL	41 750	2 519	879	53
AT	15 914	1 905	1 201	144
PL	67 523	1 769	17 933	470
PT	25 657	2 427	8 049	761
RO	41 515	2 046	18 827	928
SI	2 991	1 461	861	421
SK	6 633	1 230	2 883	535
FI	24 228	4 527	3 370	630
SE	18 469	1 977	1 277	137
UK	129 049	2 064	29 783	476
IS	1 128	3 551	132	416
NO	8 252	1 699	1 946	401
MK	1 466	714	910	444
RS	7 073	968	6 041	827
TR	783 404	10 796	579 441	7 986

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

Figure 4.3.4: Share of landfilled waste (excluding major mineral wastes), 2010
(%)



Source: Eurostat (online data codes: env_wasnmin)

In 2010, 930 million tonnes of waste excluding major mineral wastes were generated in the EU-28. Relatively to population, each inhabitant in the EU-28 generated on average 1 847 kg of waste excluding major mineral wastes. Across EU Member States, the generation of waste excluding major mineral waste ranged between 621 kg per inhabitant in Latvia and 8 600 kg per inhabitant in Estonia.

Out of the total generation of waste excluding major mineral wastes in the EU-28, a 23 % share was landfilled in 2010. The highest shares of landfilled waste excluding major minerals waste were recorded in Greece (73 %), Estonia (72 %), Malta (65 %), Cyprus (62 %) and Lithuania (62 %). On the contrary, the lowest shares were recorded in the Netherlands (2 %), Denmark (2 %), Luxembourg (3 %) and Belgium (5 %).The amount of landfilled waste excluding major mineral wastes per inhabitant reached 429 kg for the EU-28 in 2010. In EU Member States, the lowest values were reported by the Netherlands and Denmark (53 kg each), while the highest values were reported by Estonia (6 202 kg) and Greece (1 472 kg), 14 and 3 times above EU average respectively.

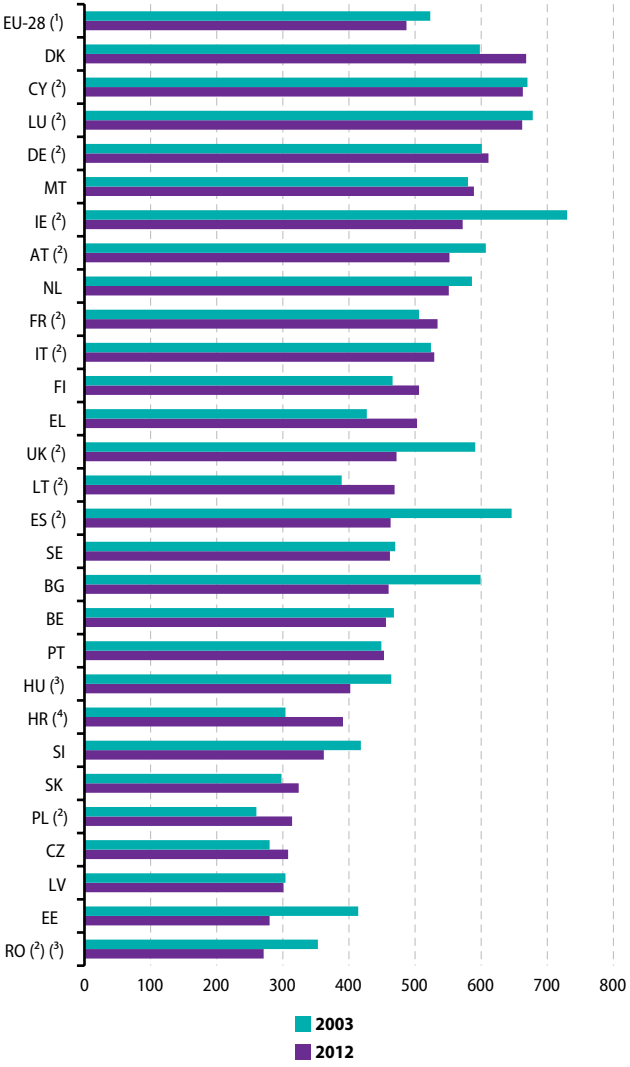
Table 4.3.5: Municipal waste generated by country in selected years
(kg per capita)

	1995	1999	2003	2006	2009	2012	change (%) 1995-2012
EU-28	:	:	:	:	510	492	:
EU-27	474	511	514	522	511	492	4
BE	451	465	468	485	467	456	1
BG	694	598	599	570	598	460	– 34
CZ	302	327	280	297	317	308	2
DK	521	577	598	666	693	668	28
DE	623	638	601	564	592	611	– 2
EE	371	412	416	398	338	279	– 25
IE	512	577	730	792	656	570	11
EL	301	392	427	443	461	503	67
ES	510	613	646	590	542	464	– 9
FR	475	507	506	536	535	534	12
HR	:	:	:	384	405	391	:
IT	454	498	521	552	533	529	17
CY	595	620	670	694	729	663	11
LV	264	256	304	425	352	301	14
LT	426	351	389	405	381	469	10
LU	587	646	678	683	679	662	13
HU	460	483	464	468	430	402	– 13
MT	395	476	580	624	649	589	49
NL	539	582	586	597	589	551	2
AT	437	563	607	640	588	552	26
PL	285	319	260	321	316	314	10
PT	384	433	449	465	520	453	18
RO	342	314	353	396	381	389	14
SI	596	550	418	516	524	362	– 39
SK	295	261	298	302	324	324	10
FI	413	484	466	494	480	506	23
SE	386	428	470	496	482	462	20
UK	498	569	591	583	522	472	– 5
IS	426	454	484	563	355	338	– 21
NO	624	594	402	459	470	477	– 24
CH	594	635	667	709	702	694	17
MK	:	:	:	:	354	381	:
RS	:	:	:	233	360	364	:
TR	441	459	443	412	419	390	– 12
BA	:	:	:	:	328	346	:

Source: Eurostat (online data code: env_wasmun)

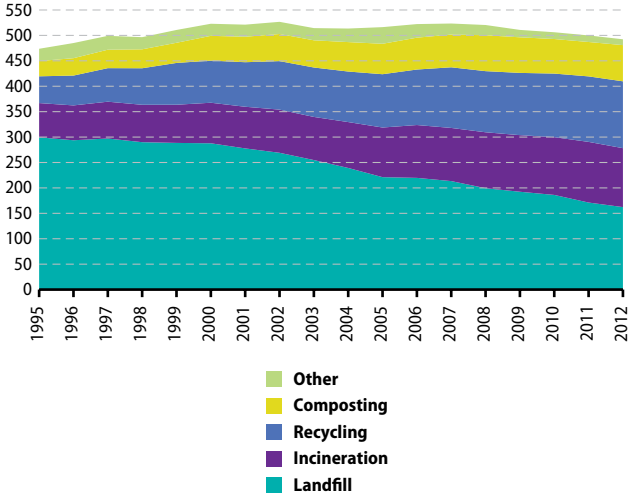
For 2012, municipal waste generation totals vary considerably, ranging from 668 kg per capita in Denmark to 279 kg per capita in Estonia. The variations reflect differences in consumption patterns and economic wealth, but also depend greatly on how municipal waste is collected and managed. Households generate between 60 % and 90 % of municipal waste while the remainder can be attributed to commercial sources and administration.

Figure 4.3.5: Municipal waste generated per inhabitant
(kg per capita)



(1) No data for 2003; 2007 data instead.
(2) 2012 data estimates.
(3) 2003 data estimates.
(4) No data for 2002; 2004 data instead.
Source: Eurostat (online data code: env_wasmun)

Figure 4.3.6: Municipal waste treatment, EU-27, 1995–2012 (kg per capita)



Source: Eurostat (online data code: env_wasmun)

Even though more waste is being generated in the EU-27, the total amount of municipal waste landfilled has gone down. In the reference period, the total municipal waste landfilled in the EU-27 fell by 61.7 million tonnes, or 43 %, from 143 million tonnes (300 kg per capita) in 1995 to 81.2 million tonnes (162 kg per capita) in 2012. The landfilling rate in the EU-27 dropped from 63 % in 1995 to 34 % in 2012.

The amount of waste recycled rose from 25.1 million tonnes (53 kg per capita) in 1995 to 65.9 million tonnes (132 kg per capita) in 2012. The share of municipal waste recycled overall rose from 11 % to 27 %. Recycling and composting together accounted for 42 % of organic material in 2012, and have exceeded the share sent to landfill since 2008.

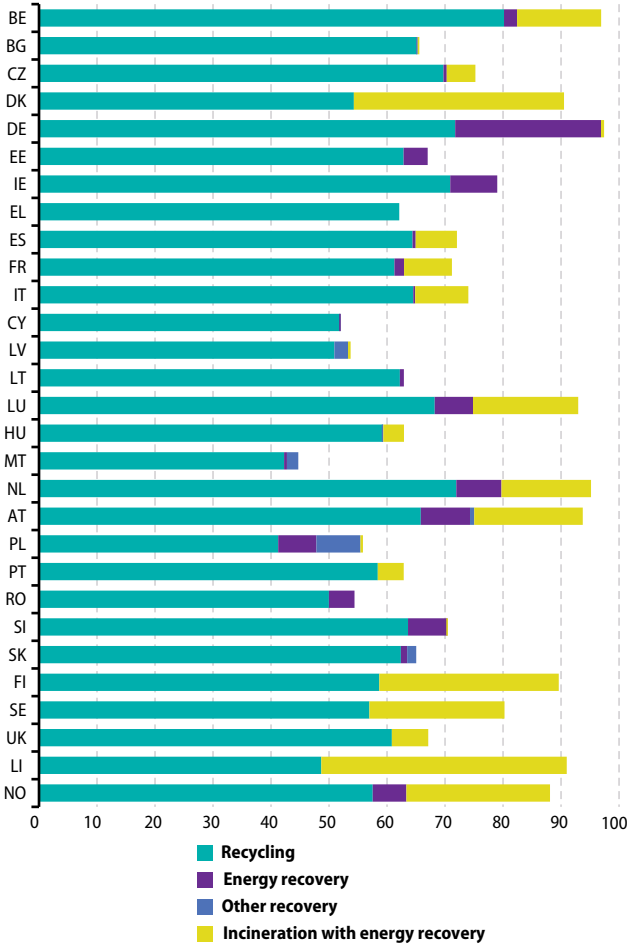
Waste incineration has also grown steadily in the reference period, though not as much as recycling and composting. Since 1995, the amount of municipal waste incinerated in the EU-27 has risen by 25.9 million tonnes or 81 % and accounted for 58.1 million tonnes or 24 % of the total amount treated in 2012. Municipal waste incinerated has thus risen from 67 kg per capita to 116 kg per capita.

Table 4.3.6: Recovery and recycling rate of packaging waste, 2011
(%)

	Recovery rate	Recycling rate
EU-27	77.3	63.6
BE	96.9	80.2
BG	65.6	65.1
CZ	75.2	69.7
DK	90.5	54.3
DE	97.4	71.8
EE	67.0	62.9
IE	79.0	70.9
EL	62.1	62.1
ES	72.1	64.4
FR	71.2	61.3
HR	:	:
IT	74.0	64.5
CY	52.0	52.0
LV	53.7	50.9
LT	62.9	62.2
LU	93.0	68.2
HU	62.9	59.3
MT	44.7	42.3
NL	95.2	71.9
AT	93.7	65.8
PL	55.9	41.2
PT	62.9	58.4
RO	54.4	50.0
SI	70.5	63.6
SK	65.0	62.4
FI	89.6	58.7
SE	80.3	57.0
UK	67.1	60.8
LI	91.0	48.7
NO	88.1	57.5

Source: Eurostat (online data code: env_waspac); Environmental Data Centre on Waste

Figure 4.3.7: Share of treatment for overall packaging waste, 2011
(%)



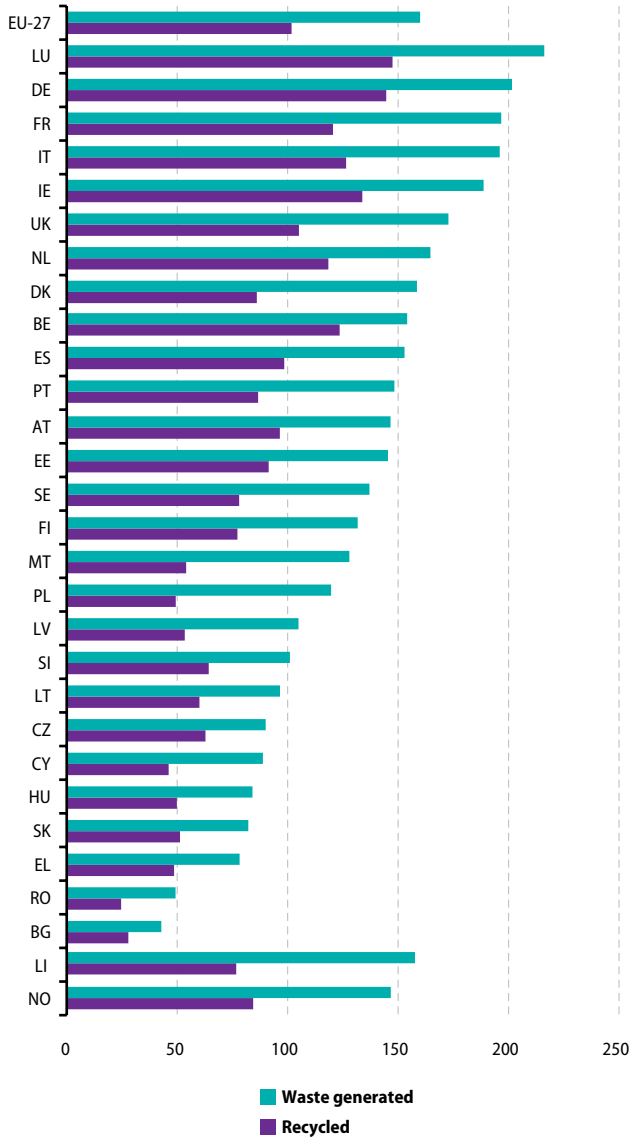
Source: Eurostat (online data code: env_waspac); Environmental Data Centre on Waste

In 2011, Germany recorded the highest recovery rate (97 %) while Belgium (80 %) presented the highest recycling rate. EU Member States have different deadlines for when they should meet the targets for recovery and recycling. For recovery of packaging waste, the first stage target (2001 target) was 50 % and the second stage target (2008 target) was 60 %. In 2011, all EU Member States but Malta exceeded the 50 % target, while all EU Member States that should meet the target, met the 2008 target. Regarding recycling, the first stage target (2001 target) was 25 % and the second stage target (2008 target) was 55 %. All EU Member States have met the first target and all EU Member States that should achieve the 55 % in 2011, have managed to do so, with the exception of Denmark.

Recycling is the major form of recovery in all countries, while other forms of recovery have a minor share in total treatment for overall packaging waste. Energy recovery and incineration with energy recovery contribute significantly to the overall recovery rate in some countries and especially in those which utilize these forms of recovery as standard methods of waste disposal. Among the EU Member States, during 2011, Belgium (80 %), Germany (72 %), the Netherlands (72 %) and Ireland (71 %) presented the largest shares of recycling in total treatment for overall packaging waste and recycled 123 kg, 145 kg, 118 kg and 134 kg packaging waste per inhabitant, respectively.

In absolute terms, the countries which joined the EU before 2004 presented generally the highest amount of packaging waste generated during 2011, except Greece. Of these countries Portugal, Austria, Sweden and Finland reported a significantly lower amount of packaging waste generated. Romania and Bulgaria exhibited the lowest amount of all EU Member States.

Figure 4.3.8: Volume of overall packaging waste generated and recycled per inhabitant, 2011
(kg)



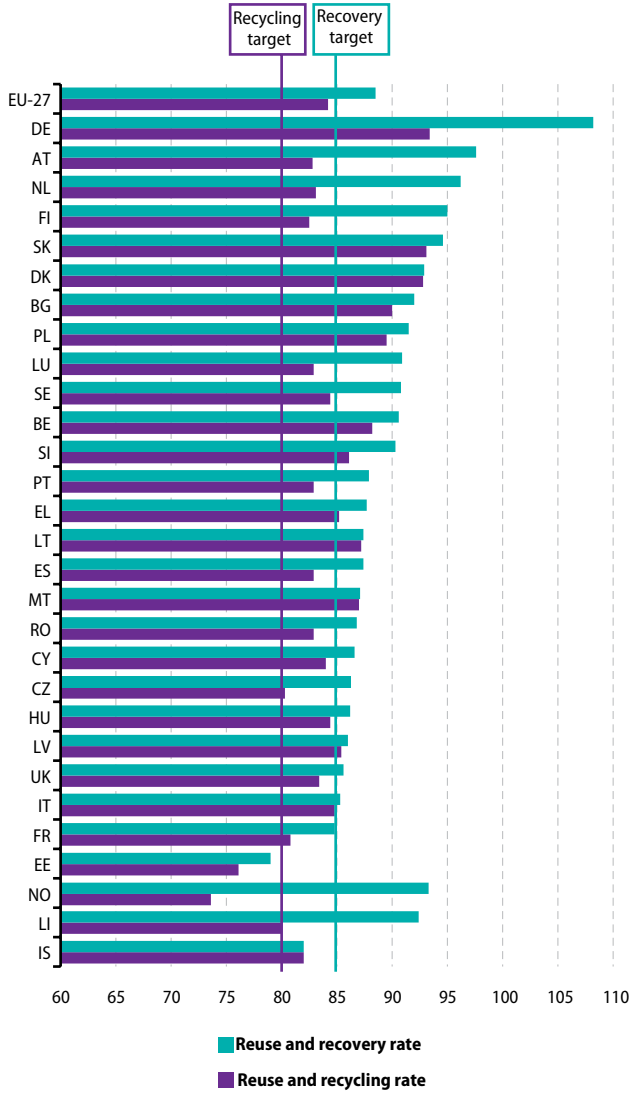
Source: Eurostat (online data code: env_waspac); Environmental Data Centre on Waste

Table 4.3.7: Total number of end-of-life vehicles, 2006–11

	2006	2007	2008	2009	2010	2011
EU-27	6 120 000	6 500 000	6 270 000	9 000 000	7 350 000	6 760 000
BE	131 043	127 949	141 521	140 993	170 562	165 016
BG	45 127	23 433	38 600	55 330	69 287	62 937
CZ	56 582	72 941	147 259	155 425	145 447	132 452
DK	102 202	99 391	101 042	96 830	100 480	93 487
DE	499 756	456 436	417 534	1 778 593	500 193	466 160
EE	11 035	12 664	13 843	7 528	7 268	11 413
IE	:	112 243	127 612	152 455	158 237	:
EL	29 689	47 414	55 201	115 670	95 162	112 454
ES	954 715	881 164	748 071	952 367	839 637	671 927
FR	930 000	946 497	1 109 876	1 570 593	1 583 283	1 515 432
HR	:	:	:	:	:	:
IT	1 379 000	1 692 136	1 203 184	1 610 137	1 246 546	952 461
CY	1 032	2 136	14 273	17 303	13 219	17 145
LV	6 288	11 882	10 968	10 590	10 640	9 387
LT	13 877	15 906	19 534	19 656	23 351	26 619
LU	4 864	3 536	2 865	6 908	6 303	2 341
HU	20 976	43 433	37 196	26 020	15 907	13 043
MT	:	:	:	:	330	2 526
NL	192 224	166 004	152 175	191 980	232 448	195 052
AT	87 277	62 042	63 975	87 364	82 144	80 004
PL	150 987	171 258	189 871	210 218	259 576	295 152
PT	25 641	90 509	107 746	107 946	107 419	77 929
RO	21 234	36 363	51 577	55 875	190 790	128 839
SI	9 418	8 409	6 780	7 043	6 807	6 598
SK	15 069	28 487	39 769	67 795	35 174	39 717
FI	14 945	15 792	103 000	96 270	119 000	136 000
SE	283 450	228 646	150 197	133 589	170 658	184 105
UK	995 569	1 138 496	1 210 294	1 327 517	1 157 438	1 220 873
IS	:	:	9 386	5 109	4 195	4 075
LI	:	82	91	72	107	94
NO	105 324	95 128	130 018	95 000	112 537	124 563

Source: Eurostat (online data code: env_waselvt); Environmental Data Centre on Waste

Figure 4.3.9: Recovery and recycling rate for end-of-life vehicles, 2011
(%)



Source: Eurostat (online data code: env_waselvt); Environmental Data Centre on Waste

The total number of end-of-life vehicles in the EU-27 grew from 6.1 million in 2006 to 6.8 million in 2011, an increase of 10 %. A sharp increase of 44 % is observed from 2008 to 2009, which can be mainly attributed to national scrapping schemes introduced at the time. Among EU Member States, between 2008 and 2009, Germany (with 1.4 million more end-of-life vehicles), France (0.46 million more), Italy (0.41 million more) and Spain 0.20 million more) contributed the most to this increase. The number of end-of-life vehicles was subsequently reduced by 2.2 million between 2009 and 2011.

The EU has set targets for the reuse, recycling and recovery of end-of-life vehicles. EU Member States should have ensured a minimum of 85 % of reuse and recovery and a minimum of 80 % of reuse and recycling by 1 January 2006. They will also have to reach targets of 95 % reuse and recovery and 85 % reuse and recycling by 1 January 2015. In 2011, four EU Member States already met the 2015 target for reuse and recovery: Germany (108.2 %), Austria (97.6 %), the Netherlands (96.2 %) and Finland (95.0 %), while 11 EU Member States met their 2015 target of 85 % for reuse and recycling: Germany (93.4 %), Slovakia (93.1 %), Denmark (92.8 %), Bulgaria (90.0 %), Poland (89.5 %), Belgium (88.2 %), Lithuania (87.2 %), Malta (87.0 %), Slovenia (86.1 %), Latvia (85.4 %) and Greece (85.2 %).

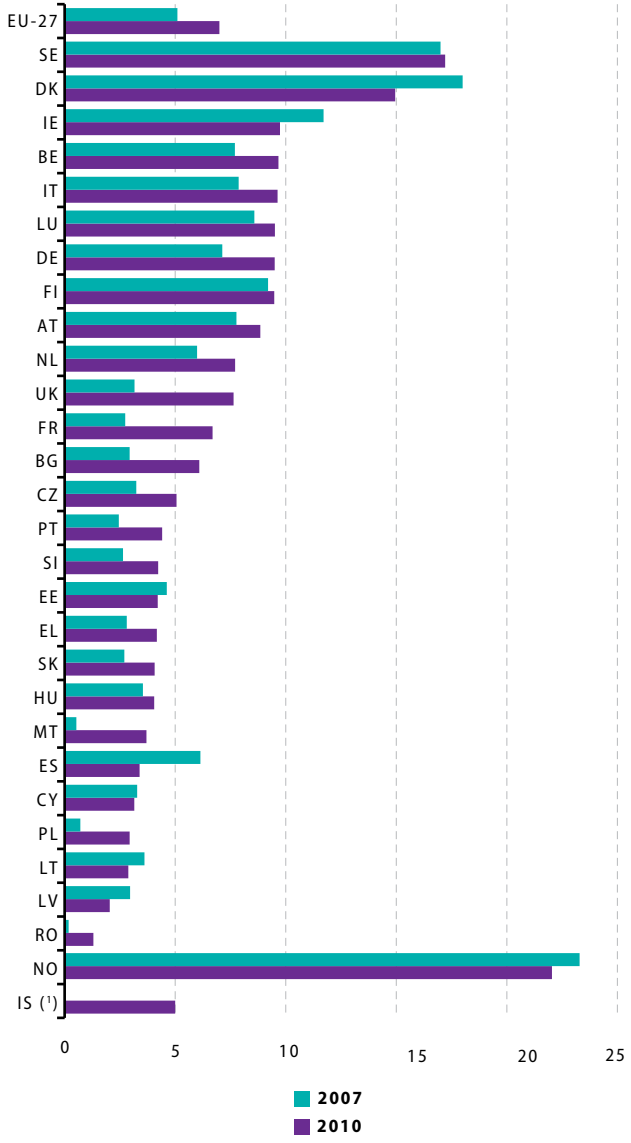
Table 4.3.8: Waste electrical and electronic equipment (WEEE) collected, by EEE category, 2010
(tonnes)

	Total waste	Large household appliances	Small household appliances	IT and telecommunications equipment	Consumer equipment	Other
EU-27	3 507 196	1 512 920	198 812	698 323	622 774	160 102
BE	105 556	47 441	9 749	18 626	22 725	7 016
BG	45 056	32 833	3 118	2 850	3 151	3 106
CZ	52 989	22 726	4 210	11 785	11 931	2 337
DK	82 931	35 404	3 561	18 325	23 182	2 459
DE	777 035	249 149	72 364	217 917	191 280	46 325
EE	5 630	2 380	416	1 132	1 448	254
IE	44 431	25 263	3 152	4 319	7 641	4 056
EL	46 527	29 102	1 592	7 242	7 518	1 074
ES	158 099	92 626	4 572	25 924	26 323	8 654
FR	433 959	241 137	22 499	63 407	93 794	13 122
HR	:	:	:	:	:	:
IT	582 482	144 554	6 408	38 237	73 805	5 212
CY	2 609	1 826	186	547	0	50
LV	4 287	2 025	299	562	552	849
LT	8 928	5 055	579	1 147	791	1 356
LU	4 823	2 052	451	910	1 049	361
HU	40 521	21 337	2 742	5 025	9 928	1 491
MT	1 535	810	323	104	275	23
NL	128 119	63 951	7 048	20 620	28 244	8 256
AT	74 256	32 225	6 170	16 332	15 303	4 226
PL	112 246	54 228	8 745	18 082	14 874	16 316
PT	46 673	28 772	4 057	7 272	4 444	2 128
RO	26 247	14 120	914	6 460	3 567	1 187
SI	8 674	3 895	499	2 839	1 066	376
SK	21 916	12 325	1 745	3 244	2 545	2 058
FI	50 867	27 698	1 320	8 034	12 117	1 697
SE	161 444	75 341	8 959	31 756	37 809	7 579
UK	479 356	244 646	23 134	165 626	27 412	18 538
IS	1 589	747	68	455	244	75
NO	107 767	44 031	7 592	16 496	18 479	21 169

Source: Eurostat (online data code: env_waselee)

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 ten product categories. In 2010, the tonnes of WEEE collected by EU Member States ranged between 1 535 in Malta and 777 035 in Germany. In all EU Member States, large household appliances made up the largest share of WEEE collected. The largest amount of WEEE collected per inhabitant in 2010 in the EU Member States was recorded in Sweden (17.2 kg), followed by Denmark (15.0). The lowest amounts were recorded in Romania (1.3) and Latvia (2.0). Between 2007 and 2010, the amount of WEEE collected per inhabitant increased in 20 EU Member States. The highest growths were reported by Malta and Romania (6-fold). On the other hand, decreases in Spain and Latvia reached – 45 % and – 31 % respectively.

Table 4.3.10: Waste electrical and electronic equipment (WEEE) collected, 2010
(kg per inhabitant)



(1) 2007 data not available..
Source: Eurostat (online data code: env_waselee)

Table 4.3.11: Shipment of hazardous waste from EU Member States
(1 000 tonnes)

	2003	2005	2006	2007	2008	2009	2010	2011
EU-27	4 445	6 488	6 750	8 047	7 967	7 428	6 308	6 248
BE	792	829	798	1 026	861	673	689	836
BG	:	:	:	0	1	0	9	5
CZ	1	2	1	4	6	7	15	11
DK	136	86	79	117	166	176	102	64
DE	186	229	263	249	249	164	309	317
EE	1	0	1	3	1	5	1	2
IE	389	257	138	323	576	191	201	211
EL	3	3	4	9	25	23	39	44
ES	49	44	41	60	52	54	52	104
FR	710	399	463	863	760	972	1 451	1 346
IT	243	672	857	1 243	1 237	1 405	1 459	1 354
CY	2	3	3	4	2	2	5	8
LV	16	1	6	7	2	11	17	14
LT	84	2	3	4	6	17	18	24
LU	86	46	44	73	44	114	89	81
HU	31	76	88	72	77	69	49	29
MT		1	1	2	2	2	18	17
NL	1 177	3 221	3 212	3 121	3 031	2 743	738	813
AT	150	191	170	285	199	173	279	285
PL	37	10	65	66	13	26	20	14
PT	92	108	118	8	6	61	54	63
RO	:	:	1	37	2	23	4	2
SI	15	22	24	70	103	58	35	45
SK	2	3	4	2	3	3	4	4
FI	60	68	83	74	114	107	120	92
SE	119	95	164	176	256	184	310	270
UK	60	120	118	149	172	164	222	192

Source: Eurostat, Environmental Data Centre on Waste

Map 4.3.1: Hazardous waste shipments between EU Member States (larger flows), 2011
(kg per inhabitant)

Source: Eurostat, Environmental Data Centre on Waste

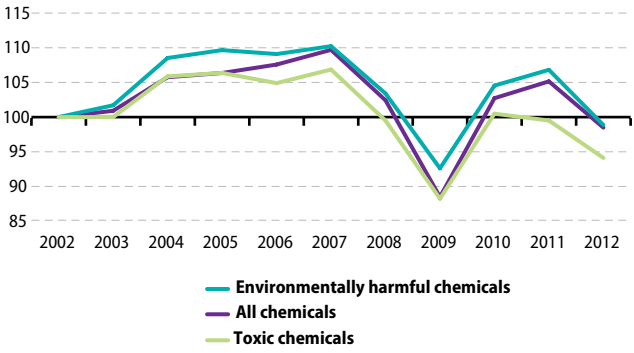
Map 4.3.2 : Hazardous waste shipments between EU Member States (smaller flows), 2011
(kg per inhabitant)

Source: Eurostat, Environmental Data Centre on Waste

The amount of hazardous waste shipments from EU Member States to other EU Member States or out of the EU has doubled from 3.2 million tonnes in 2001 to 6.2 million tonnes in 2011 though with a peak in 2007 of 8.0 million tonnes which have declined since. Almost all countries have increased their shipments from 2001 to 2011, but France and Italy. In 2011 both countries dispatched about 1.4 million tonnes of hazardous waste. This is a decrease of 100 000 tonnes from 2010 to 2011 for both countries. The Netherlands has had a very large decrease of dispatched hazardous waste from 2009 to 2011. However this decrease is partly explained by the fact that some of the Dutch waste was earlier reported as hazardous although it was, in fact, 'non-hazardous'. Almost all EU Member States ship hazardous waste to Germany and this is reflected by the large number of arrows into Germany on the maps. Belgium is also receiving waste from a number of countries.

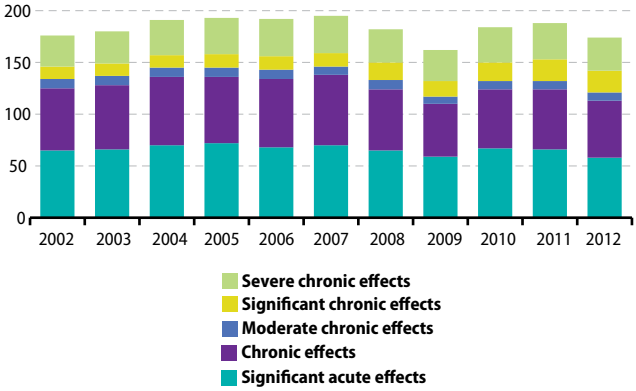
4.4 Chemicals

Figure 4.4.1: Production of chemicals, EU-27, 2002–12
(2002 = 100)



Source: Eurostat (online data code: tsdph320)

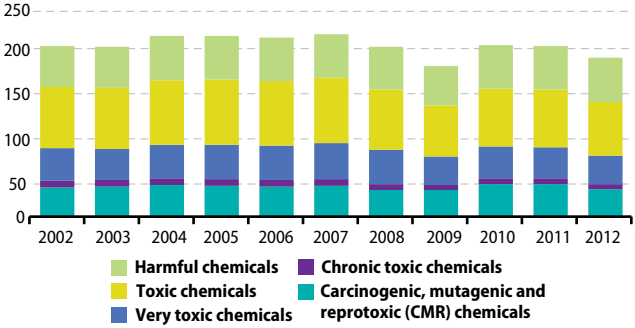
Figure 4.4.2: Production of environmentally harmful chemicals, EU-27, 2002–12 ([1])



([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)

EU-27 chemicals production increased continuously between 2002 and 2007, rising overall by 9.7 % to reach a peak of 362 million tonnes in 2007. During the financial and economic crisis, production fell by 6.6 % in 2008 and by a further 13.6 % in 2009.

Figure 4.4.3: Production of toxic chemicals, EU-27, 2002–12 (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 rebound in activity in 2010 more than made up for the losses reported in 2009 and the production of chemicals in the EU-27 continued to expand in 2011 (albeit at a relatively modest pace). In 2012, production fell again by 6.3 % compared with the year before; the level of output in 2012 was 325 million tonnes which was the second lowest level during the period, higher only than the level of production in 2009.

The share of environmentally harmful chemicals in total EU-27 chemical production has not changed significantly over the last 10 years: their share stood at 53.3 % in 2002 and rose modestly to 53.5 % in 2012. However, there was a wide degree of variation in the development of output for the different classes of chemicals. The largest increases in EU-27 output (in relative terms) between 2002 and 2012 were recorded for chemicals with significant chronic effects (production rising by 75.0 % over the period considered), while there was also growth in the output of chemicals with severe chronic effects (6.7 %). Chemicals with a lower environmental impact — those with chronic effects and significant acute effects — saw a fall in their levels of output during the period under consideration, as did the production of chemicals with moderate chronic effects.

The overall share of toxic chemicals (all five classes) in total EU-27 chemicals production followed a very gradual downward path over the 10 years. From a peak of 61.8 % of total chemicals production in 2002, the share of toxic chemicals fell (despite a temporary rise in 2009) to 60.5 % in 2010 before declining at a more substantial pace to 58.5 % in 2011 and creeping back up to 59.1 % in 2012.

4.5 Forestry and biodiversity

Table 4.5.1: Forest area and ownership, 2010

	Land area without inland water (1)	Forest and other wooded land	Forest	Forest ownership	
				Public	Private (2)
	(1 000 hectares)			(%)	
EU-28	*424 578*	*180 232*	*158 785*	*40.3*	*59.7*
BE	3 033	706	678	44.3	55.7
BG	10 893	3 927	3 927	86.8	13.2
CZ	7 723	2 657	2 657	76.8	23.2
DK	*4 243*	591	544	23.7	76.3
DE	*34 877*	11 076	11 076	51.5	48.5
EE	4 343	2 350	2 217	39.0	61.0
IE	6 839	789	739	54.3	45.7
EL	13 082	6 539	3 903	77.5	22.5
ES	50 176	27 748	18 173	29.4	70.6
FR	*55 010*	17 572	15 954	25.8	74.2
HR	5 659	2 474	1 920	72.7	27.3
IT	29 511	10 916	9 149	33.6	66.4
CY	921	387	173	68.7	31.3
LV	6 220	3 467	3 354	49.4	50.6
LT	6 268	2 240	2 160	63.5	36.5
LU	259	88	87	47.1	52.9
HU	*8 961*	2 029	2 029	57.8	42.2
MT	32	0	0	-	-
NL	3 372	365	365	50.4	49.6
AT	8 241	4 006	3 887	25.7	74.3
PL	*30 633*	9 337	9 337	82.2	17.8
PT	*9 068*	3 611	3 456	1.6	98.4
RO	23 016	6 733	6 573	67.7	32.3
SI	2 014	1 274	1 253	23.2	76.8
SK	4 810	1 933	1 933	50.6	49.4
FI	30 389	23 269	22 157	30.3	69.7
SE	40 734	31 247	28 203	26.8	73.2
UK	24 251	2 901	2 881	33.3	66.7
IS	10 024	116	30	27.8	72.2
LI	16	7	7	91.4	8.6
NO	30 425	12 384	10 250	14.1	85.9
CH	4 000	1 311	1 240	71.7	28.3
ME	*1 345*	744	467	72.2	27.8
MK	2 491	1 141	998	90.4	9.6
RS	*8 746*	3 123	2 713	50.6	49.4
TR	76 960	20 864	10 175	99.9	0.1

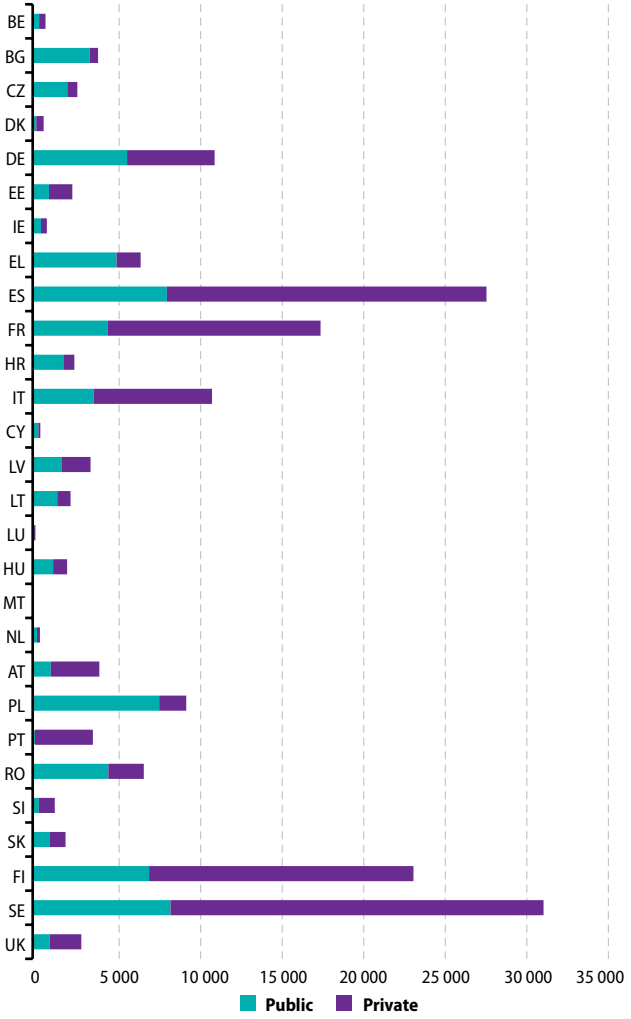
(1) Latest available year; France: only covers the mainland.
(2) Includes any other form of ownership.
Source: Eurostat (online data codes: demo_r_d3area and for_area); Food and Agriculture Organization of the United Nations — Global Forest Resources Assessment, 2010; Ministerial Conference for the Protection of Forests in Europe (Forest Europe) — State of Europe's Forests, 2011

The EU-28 has approximately 180 million hectares of forests and other wooded land, corresponding to 42.4 % of its land area. Across the EU Member States, there were six countries that reported that in excess of half of their land area was covered by forests and other wooded land in 2010. Just over three quarters (77 %) of the land area was covered by forests and other wooded land in Finland and Sweden, while the proportion stood at 63 % for Slovenia; the remaining three countries, each with shares in the range of 54–56 %, were Estonia, Spain and Latvia.

Sweden recorded the largest area covered by forest and other wooded land in 2010 (31.2 million hectares), followed by Spain (27.7 million hectares), Finland (23.3 million hectares), France (17.6 million hectares), Germany (11.1 million hectares) and Italy (10.9 million hectares). In relative terms, Sweden accounted for 17.3 % of the total area in the EU-28 that was covered by forest and other wooded land in 2010; Spain (15.4 %) and Finland (12.9 %) were the only other EU Member States to record double-digit shares.

Just under 60 % of the EU-28's forests were privately owned in 2010. There were 11 EU Member States where the share of privately owned forest was above the EU-28 average, peaking at 98.4 % in Portugal. By contrast, the share of privately owned forest was below 20 % in Poland and Bulgaria (where the lowest proportion was recorded, at 13.2 %).

Figure 4.5.1: Forest area and ownership, 2010
(1 000 hectares)



([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, 2010; Ministerial Conference for the Protection of Forests in Europe (Forest Europe) — State of Europe's Forests, 2011

Table 4.5.2: Sawnwood production, 2000–12
(1 000 m^3)

	2000	2005	2010	2011	2012
EU-28	*100 706*	*108 706*	*100 815*	*101 994*	*99 555*
EA (1)	*61 337*	*66 777*	*59 673*	*60 627*	*56 966*
BE	1 150	1 285	1 383	1 388	1 342
BG	312	569	554	728	695
CZ	4 106	4 003	4 744	4 454	:
DK	364	196	448	372	:
DE	16 340	21 931	22 059	22 628	21 031
EE	1 436	2 063	1 771	1 503	1 500
IE	888	1 015	772	761	782
EL	123	191	118	106	:
ES	3 760	3 660	2 038	2 162	1 971
FR	10 536	9 715	8 316	8 675	8 242
HR	642	624	*677*	*754*	*851*
IT	1 630	1 590	1 200	1 250	1 370
CY	9	4	4	3	3
LV	3 900	4 227	3 150	3 432	3 316
LT	1 300	1 445	1 272	1 260	1 150
LU	*133*	*133*	94	78	:
HU	291	215	133	:	:
MT	0	0	0	0	0
NL	389	279	231	238	190
AT	10 390	11 074	9 603	9 636	8 952
PL	4 262	3 360	4 220	4 422	4 267
PT	1 427	1 010	1 045	1 044	1 191
RO	3 396	4 321	4 323	4 442	5 500
SI	439	527	760	703	660
SK	1 265	2 621	2 576	2 204	1 560
FI	13 420	12 269	9 473	9 750	9 350
SE	16 176	17 600	16 750	16 500	15 900
UK	2 622	2 780	3 101	3 279	3 409
IS	0	0	:	:	0
LI	:	:	4	8	:
NO	2 280	2 326	2 118	2 271	:
CH	1 625	1 591	1 457	1 313	1 104
ME	:	:	50	50	:
MK	:	18	5	5	:
TR	5 528	6 445	6 243	6 461	:
BR	:	*23 557*	*25 080*	*25 210*	*25 210*
CA	50 465	60 187	38 667	38 880	40 715
CN	:	*18 348*	*37 231*	*44 638*	*55 738*
IN	:	*14 789*	*6 889*	*6 889*	*6 889*
ID	:	*4 330*	*4 169*	*4 169*	*4 169*
RU	20 000	22 033	28 870	31 215	32 230
US	91 076	97 020	*57 629*	*60 185*	*64 246*

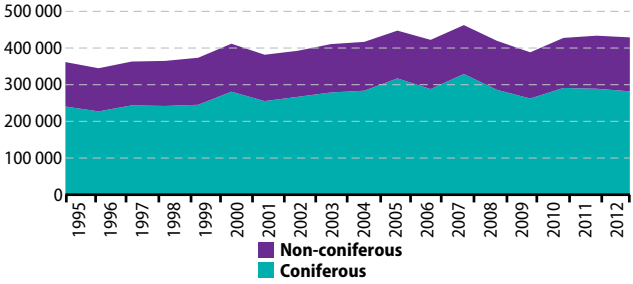
(1) EA-11 for 2000. EA-12 for 2005. EA-16 for 2010. EA-17 for 2011 and 2012.
Source: Eurostat (online data codes: for_swpan)

Table 4.5.3: Roundwood production, 2000–12
(1 000 m^3)

	2000	2005	2010	2011	2012
EU-28	*411 764*	*447 502*	*427 611*	*433 657*	*429 031*
EA (1)	*236 540*	*232 925*	*234 993*	*237 590*	*233 061*
BE	4 510	4 950	4 827	5 128	6 663
BG	4 784	5 862	5 668	6 205	:
CZ	14 441	15 510	16 736	15 381	:
DK	2 952	2 962	2 669	2 583	:
DE	53 710	56 946	54 418	56 142	52 338
EE	8 910	5 500	7 200	7 110	7 290
IE	2 673	2 648	2 618	2 635	2 580
EL	2 245	1 523	1 048	1 196	:
ES	14 321	15 531	16 089	15 428	15 527
FR	65 865	52 499	55 808	*55 041*	*56 097*
HR	3 669	4 018	*4 477*	*5 258*	*5 714*
IT	9 329	8 691	7 844	7 744	7 744
CY	21	10	9	8	11
LV	14 304	12 843	12 534	12 833	12 530
LT	5 500	6 045	7 097	7 004	6 921
LU	260	249	275	261	:
HU	5 902	5 940	5 740	6 232	5 946
MT	0	0	0	0	0
NL	1 039	1 110	1 081	982	955
AT	13 276	16 471	17 831	18 696	18 021
PL	26 025	31 945	35 467	37 180	37 045
PT	10 831	10 746	9 648	10 961	10 271
RO	13 148	14 501	13 112	14 359	15 921
SI	2 253	2 733	2 945	3 388	3 341
SK	6 163	9 302	9 599	9 213	8 202
FI	54 542	52 250	50 952	50 767	49 967
SE	63 300	98 200	72 200	71 900	68 900
UK	7 791	8 519	9 718	10 020	10 120
IS	0	0	:	:	4
LI	:	:	25	26	23
NO	8 156	9 667	10 443	10 291	10 572
CH	9 238	5 285	4 938	4 861	4 447
ME	:	:	364	364	:
MK	:	822	631	631	:
TR	15 939	16 185	20 554	21 039	:
BR	:	*255 743*	*271 501*	*284 019*	*284 985*
CA	201 845	203 121	142 013	148 178	152 594
CN	:	*302 037*	*291 251*	*288 466*	*285 135*
IN	:	*328 677*	*332 499*	*331 969*	*331 436*
ID	:	*123 791*	*113 849*	*117 994*	*115 623*
RU	158 100	185 000	175 000	220 224	216 379
US	466 549	467 347	*323 986*	*338 090*	*376 629*

(1) EA-11 for 2000. EA-12 for 2005. EA-16 for 2010. EA-17 for 2011 and 2012.
Source: Eurostat (online data codes: for_remov)

Figure 4.5.2: Annual production of roundwood, EU-28, 1995–2012 ([1])
(1 000 m³)

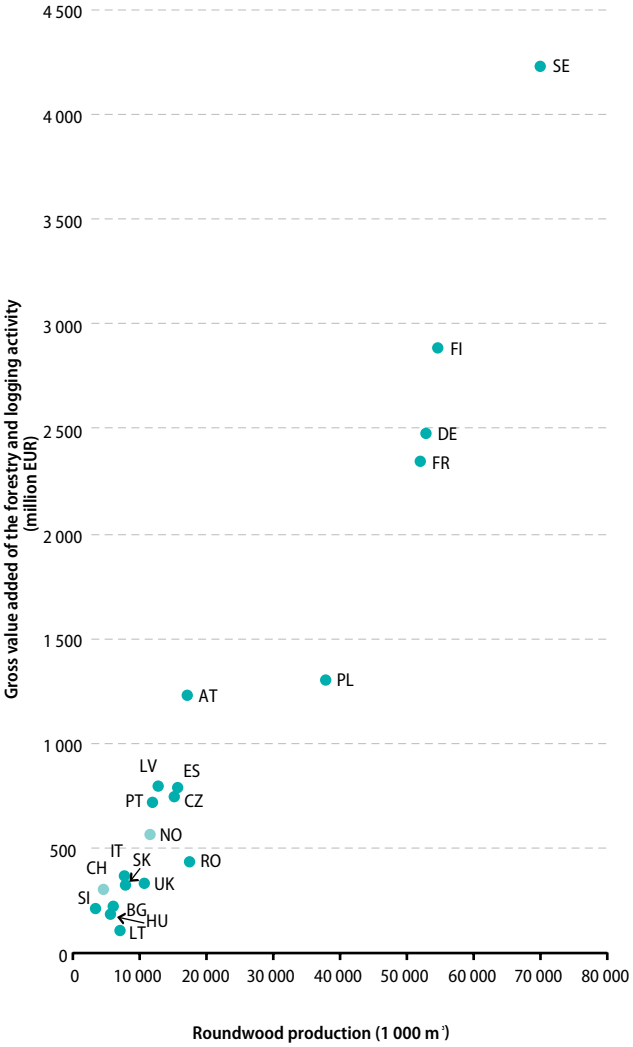


([1]) Estimates. 2011 and 2012: provisional.
Source: Eurostat (online data codes: for_remov)

From 1995 to 2007, there was a relatively steady rise in the level of roundwood production in the EU-28, both for coniferous (softwood) and non-coniferous (broadleaved or hardwood) species. However, the effects of the financial and economic crisis led to a drop in the level of coniferous production in 2008, a pattern which was further confirmed with a reduction in 2009, when non-coniferous production also fell. EU-28 roundwood production rebounded strongly in 2010 (10.1 %) and continued to rise in 2011, but at a much more modest pace (1.4 %), reflecting a slight reduction (– 0.7 %) in production for coniferous species outweighed by a larger expansion (6.0 %) for non-coniferous species. In 2012, this pattern of increasing output for non-coniferous species and decreasing output for coniferous species continued. However, the reduction in production from coniferous species (– 2.5 %) was somewhat stronger than the expansion recorded for non-coniferous species (1.7 %) leading to an overall decline in output of 1.1 %.

The overall level of roundwood production in the EU-28 in 2012 reached 429.0 million m³, around 33.5 million m³ (or 7.2 %) lower than its peak level in 2007. A comparison of production levels in 2012 with those before the crisis shows the differing impact of the crisis. Roundwood production from coniferous species remained 14.4 % lower in 2012 than it was in 2007. By contrast, by 2010 production from non-coniferous species had already surpassed its 2008 production level and by 2012 it was 10.0 % higher.

Figure 4.5.3: Roundwood production ([1]) and gross value added of forestry and logging, 2012 ([2])



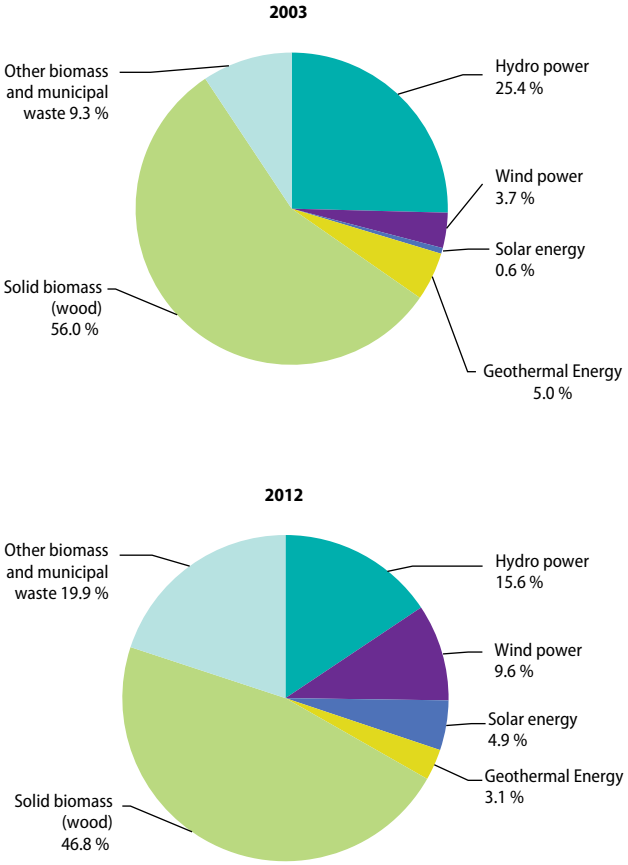
([1]) Roundwood production is for 2013. Greece: 2011. Italy: 2012.
([2]) Member States that are not shown: not available or values too low. Italy and Lithuania: 2006. Spain: 2007. Sweden: 2008. Hungary: 2009. Romania 2010. Poland, Portugal and Norway: 2011.
Source: Eurostat (online data codes: for_remov, for_ieeaf_cp and for_basic)

Some of the peaks (most recently 2000, 2005 and 2007) in roundwood production are due to forestry and logging having to cope with unplanned numbers of trees felled by severe storms. The latest peak in 2007 was due to exceptional windthrows by storms in many parts of Europe — notably in Germany and Sweden — after which many more trees had to be removed from forests than planned.

Among EU Member States, Sweden produced the most roundwood (68.9 million m^3) in 2012, followed by France, Germany and Finland (each producing between 50.0 million and 56.1 million m^3). Approximately one quarter of roundwood production is used as wood for fuel and three quarters is industrial roundwood used either for sawnwood and veneers, or for pulp and paper production. Harvests of wood for fuel are however known to be underreported, as shown by the data of countries that include estimates of informal harvesting in their numbers, such as France.

Some 99.6 million m^3 of sawnwood were produced in the EU-28 in 2012, close to two fifths (37.1 %) of which came from the two largest producing EU Member States, Germany (21.1 %) and Sweden (16.0 %). Finland and Austria each accounted for around 9 % of the EU-28 total. The level of sawnwood production in the EU-28 increased by 1.2 % in 2011 but decreased by 2.4 % in 2012.

Figure 4.5.4: Consumption of renewable energy, EU-28, 2003 and 2012
(%)



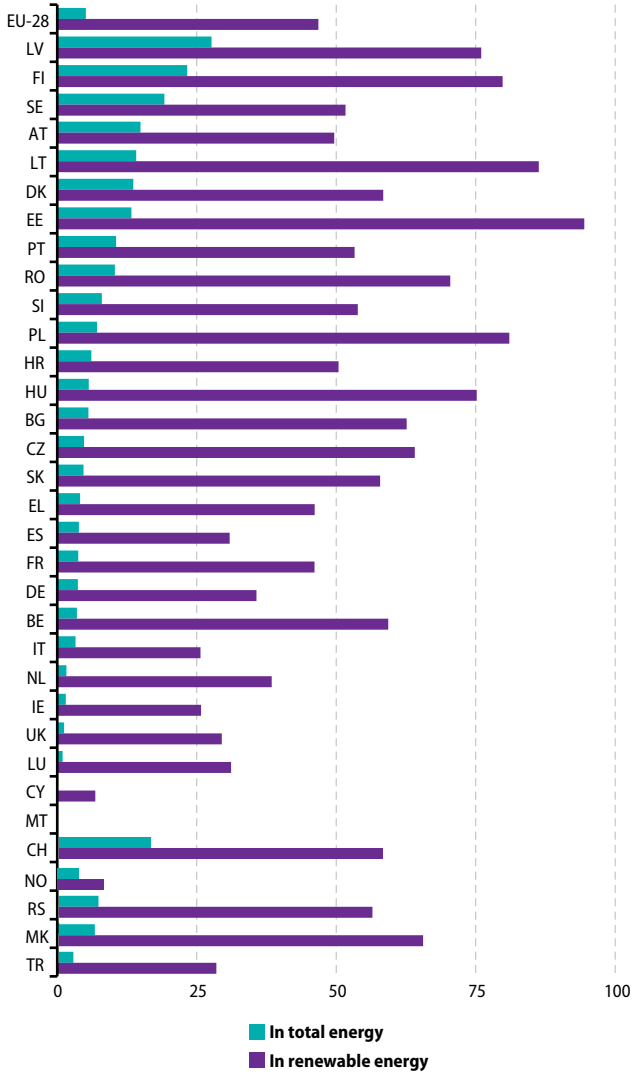
Source: Eurostat (online data codes: nrg_1071a and nrg_1072a)

The consumption of renewable energy in the EU-28 was 184 392 thousand TOE in 2012, a 77 % increase since 2003. Biomass including waste biomass (the sum of 'wood and wood waste' and 'other biomass and municipal waste') makes up over 66 % of all renewable energy consumed, followed by hydropower (15.6 %), wind power (9.6 %) and solar energy (4.9 %). Compared to 2003, the contribution of wind power, solar energy and 'other biomass and municipal waste' in total consumption of renewables is steadily increasing, while the share of hydropower decreased from 25 % to 16 %. The share of wood and wood waste decreases (from 56 % in 2003 to 47 % in 2012) as the other renewables increase in importance.

Wood and wood waste accounted for 5.1 % of the total energy consumed within the EU-28 in 2012. The share of wood and wood waste in total gross inland energy consumption ranged from over 20 % in Latvia and Finland, down to less than 1 % in Luxembourg, Cyprus and Malta.

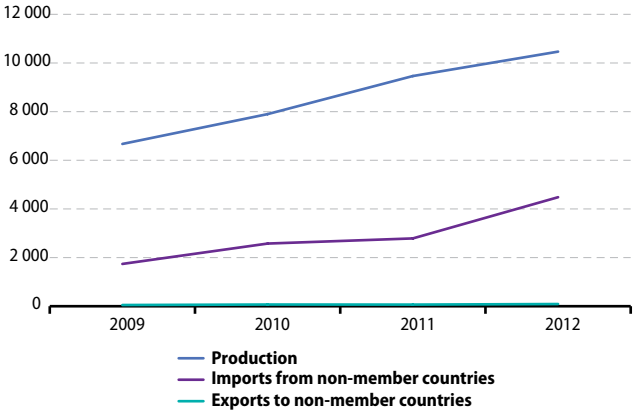
Wood was the source of energy for more than three quarters of the renewable energy consumed in Hungary, Poland, Finland, Estonia, Latvia and Lithuania. By contrast, the relative weight of wood in the mix of renewables was relatively low in the United Kingdom, Italy, Ireland, Malta and Cyprus (where the lowest share was reported, 6.8 %); this was also the case in oil- and gas-rich Norway (8.4 %).

Figure 4.5.5: Wood as a source of energy, 2012
(% share of wood and wood products in gross inland energy consumption, in TOE)



Source: Eurostat (online data codes: nrg_100a and nrg_1071a)

Figure 4.5.6: Development of production and trade in wood pellets, EU-27, 2009–12 ([1])
(1 000 tonnes)



([1]) Estimates.
Source: Eurostat (online data codes: for_basic)

The EU-27 is the largest global producer of wood pellets, its output reaching an estimated 10.5 million tonnes in 2012; production in the EU-27 rose by 56.9 % overall between 2009 and 2012. The EU-27 is also a net importer of wood pellets: imports from non-EU Member States were 4.5 million tonnes in 2012, an overall increase of 157.8 % in relation to 2009.

Germany produced an estimated 2.2 million tonnes of wood pellets in 2012, more than one fifth (21.5 %) of the EU-27's output. The information available for the EU Member States for 2012 is incomplete — however, Sweden was the second largest producer in 2010, with 1.4 million tonnes of wood pellets (17.5 % of the EU-27 total).

Denmark had the highest level of wood pellet imports in 2012 among the EU-27 Member States, some 2.0 million tonnes; note that this figure relates to total imports from non-EU Member States as well as other EU Member States. The Netherlands, the United Kingdom and Italy each imported in excess of one million tonnes of wood pellets in 2012. By contrast, Germany was the only EU Member State to export more than one million tonnes of wood pellets in the same year.

Table 4.5.4: Economic indicators for forestry and logging

	Gross output		Gross value added	
	2005	2011	2005	2011
	(million EUR)			
BE	:	:	:	:
BG	215.9	432.6	84.0	191.5
CZ	1 035.0	1 717.5	495.9	732.7
DK	:	:	:	:
DE	4 141.0	5 699.2	1 738.2	2 486.8
EE	:	:	:	:
IE	:	:	:	:
EL	59.8	56.6	54.1	49.9
ES	1 438.0	:	786.7	:
FR	4 446.2	4 943.6	2 967.7	2 348.8
HR	:	:	:	:
IT	442.8	:	365.0	:
CY	2.1	2.7	1.6	2.0
LV	:	1 179.5	:	756.7
LT	167.3	:	101.5	:
LU				
HU (1)	276.7	:	132.4	:
MT (1)	:	:	:	:
NL	22.3	:	46.1	:
AT	1 592.4	2 268.0	871.7	1 228.6
PL	1 991.1	2 021.0	1 109.6	1 313.0
PT	693.5	754.8	666.0	724.1
RO (2)	285.8	816.6	314.3	:
SI	177.8	298.2	115.2	207.0
SK	551.3	673.4	259.4	308.3
FI	1 890.0	2 314.0	2 422.0	2 891.0
SE	:	9 327.6	:	4 238.3
UK	483.9	732.6	294.6	340.4
NO (3)	833.7	1 095.9	486.6	573.7
CH	279.3	427.9	187.7	294.1

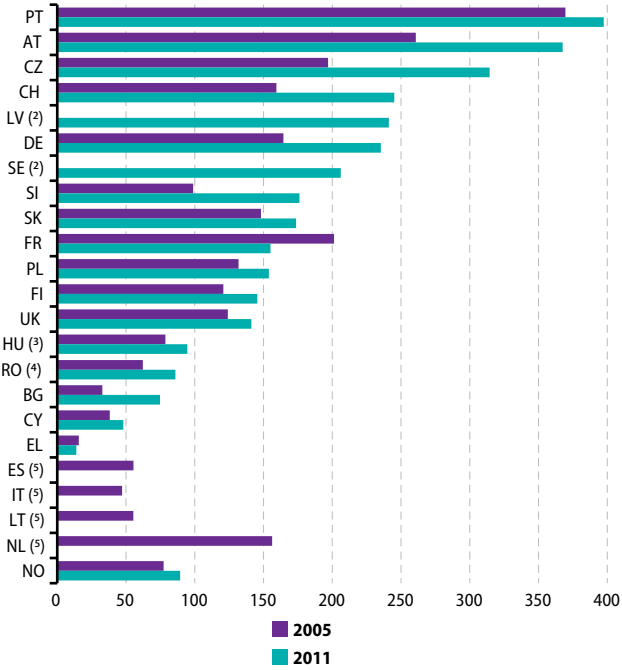
(1) Gross output, gross value added and gross fixed capital formation: 2009 instead of 2011.
(2) Gross output, gross value added and gross fixed capital formation: 2010 instead of 2011.
(3) Gross output, gross value added and gross fixed capital formation: 2006 instead of 2005.
Source: Eurostat (online data codes: for_ieeaf_cp and for_area)

Table 4.5.4: Economic indicators for forestry and logging (continued)

	Gross fixed capital formation		Gross value added/ forest area available for wood supply	
	2005	2011	2005	2011
	(million EUR)		(EUR/hectare)	
BE	:	:	:	:
BG	10.8	20.6	32.8	66.9
CZ	63.2	96.0	197.0	314.4
DK	:	:	:	:
DE	167.9	219.7	164.5	235.3
EE	:	:	:	:
IE	:	:	:	:
EL	4.3	13.9	15.7	13.9
ES	:	:	55.4	:
FR	472.0	196.0	201.3	155.1
HR	:	:	:	:
IT	83.4	:	47.2	:
CY	1.7	1.1	38.2	48.0
LV	:	:	:	:
LT	10.5	:	55.3	:
LU				
HU (1)	23.8	:	78.6	:
MT (1)	:	:	:	:
NL	10.0	:	156.3	:
AT	155.0	187.4	260.8	367.5
PL	137.2	245.8	131.8	153.9
PT	97.8	81.1	369.6	397.4
RO (2)	:	42.7	62.2	:
SI	:	:	98.8	176.1
SK	32.6	31.0	148.1	173.7
FI	388.0	444.0	120.8	145.5
SE	:	833.0	:	206.2
UK	17.5	80.7	124.0	141.2
NO (3)	68.0	81.6	77.4	89.4
CH	83.4	128.9	159.4	245.1

(1) Gross output, gross value added and gross fixed capital formation: 2009 instead of 2011.
(2) Gross output, gross value added and gross fixed capital formation: 2010 instead of 2011.
(3) Gross output, gross value added and gross fixed capital formation: 2006 instead of 2005.
Source: Eurostat (online data codes: for_ieeaf_cp and for_area)

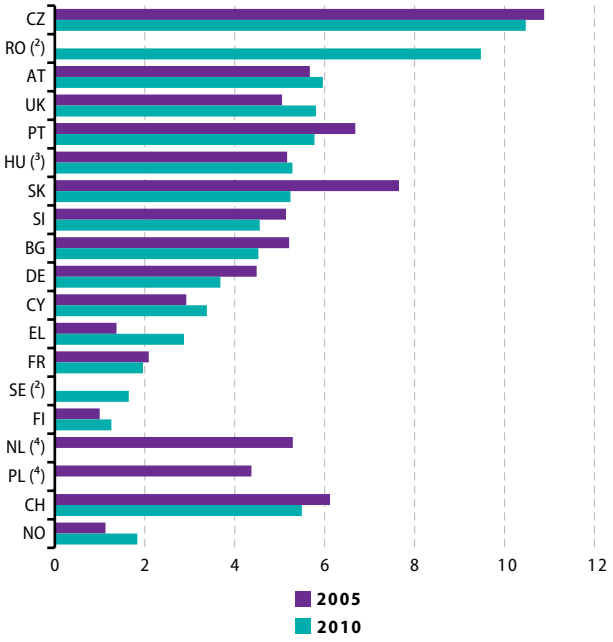
Figure 4.5.7: Forestry and logging value added per forest area available for wood supply, 2005 and 2011 (1)
(EUR/hectare)



(1) Ranked on 2011; Member States not shown: not available or not applicable.
(2) 2005: not available.
(3) Gross value added: 2009 instead of 2011.
(4) Gross value added: 2010 instead of 2011.
(5) 2011: not available.
Source: Ministerial Conference for the Protection of Forests in Europe (Forest Europe) — State of Europe's Forests, 2011, supplemented by Eurostat estimates (online data codes: for_area and for_ieeaf_cp)

In terms of gross value added per forest area available for wood supply, values range from EUR 13.9 per hectare (Greece) to EUR 397.4 per hectare (Portugal). In 2011 compared to 2005, 15 EU Member States recorded an increase in the gross value added per forest area, whereas two (France, Greece) recorded a decrease. The highest increase was reported for Bulgaria (128 %), followed by Slovenia (78 %). The percentage decrease for France and Greece equals 23 % and 11 % respectively. The highest shares of value added per forest area in 2011, in the EU were in Portugal, Austria, the Czech Republic, Latvia, Germany and Sweden; forests accounted for at least one third of the total land area in each of these EU Member States.

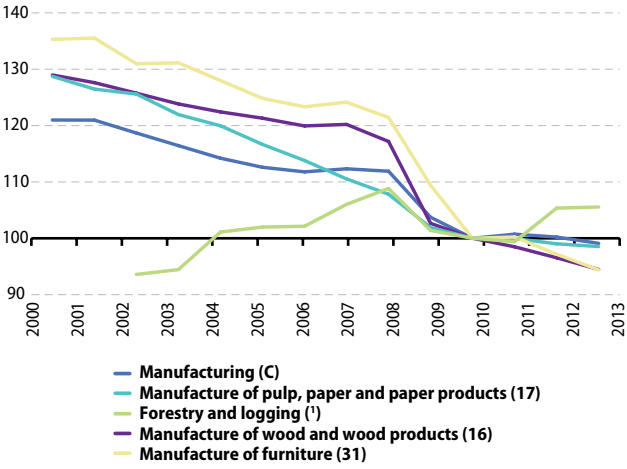
Figure 4.5.8: Employment per area of forest available for wood supply, 2005 and 2010 ([1])
(annual work units/1 000 hectares)



([1]) Ranked on 2010; Member States not shown: not available or not applicable.
([2]) 2005: not available.
([3]) Employment: 2009 instead of 2010.
([4]) 2010: not available.

Source: Ministerial Conference for the Protection of Forests in Europe (Forest Europe) — State of Europe's Forests, 2011, supplemented by Eurostat estimates (online data codes: for_ieeaf_cp, for_awu, for_remov and for_area)

Figure 4.5.9: Employment in wood-based industries compared with total manufacturing, EU-28, 2000–13
(2010 = 100)



(1) 2007 is the last year estimated according to NACE rev. 1.1. There is a break in the time series between 2007 and 2008.
Source: Eurostat (online data code: sts_inlb_a)

Across the EU-28, manufacturing employment fell by 18.0 % during the period 2000–13, while the largest losses among the three wood-based industries were recorded for furniture manufacturing (30.2 % fewer persons employed).

Wood-based industries, in keeping with most manufacturing sectors, experienced a reduction in their respective numbers of persons employed during the 2000–13 period. Pulp, paper and paper products manufacturing had a more uniform reduction in employment spread across the 2000–13 period and was relatively unaffected by the financial and economic crisis. Employment in forestry and logging remains fairly stable, contrary to the other wood-based industries. It followed an increasing trend during the 2000–08 period and a downward trend was recorded afterwards. Employment in 2013 is 3 % below the 2008 value.

Table 4.5.6: Total wood imports of the EU from Chapter 44 of the CN, focusing on countries with FLEGT voluntary partnership agreements, 2000–12
(million EUR)

	2000	2005	2010	2011	2012
Cameroon	467.3	427.1	269.1	298.5	277.6
Central African Republic	30.4	24.7	10.1	10.7	9.7
Congo	83.3	101.1	79.9	60.8	53.9
Ivory Coast	24.8	69.5	57.9	56.5	42.2
DR of the Congo	204.2	269.9	168.5	161.8	140.8
Gabon	261.9	244.4	120.7	102.1	100.2
Ghana	126.4	121.9	50.3	50.3	42.0
Guyana	70.3	:	2.3	16.2	11.0
Honduras	12.7	4.7	2.3	2.4	3.5
Indonesia	2.7	5.5	7.6	4.7	4.3
Liberia	588.0	703.2	494.0	470.4	428.6
Malaysia	557.6	439.0	441.4	408.1	376.4
Thailand	128.2	120.1	63.0	57.5	60.6
Vietnam	24.1	33.5	60.0	58.5	68.1
Sum of the 14 countries above	2 582.0	2 564.3	1 827.2	1 758.6	1 618.9
All countries of the world	8 926.0	10 427.5	9 532.4	9 766.4	9 421.3

Source: Eurostat (online data code: (online data code: for_trop)

The total value of wood imports from Chapter 44 of the Combined Nomenclature (CN) reached a peak of EUR 13.1 thousand million in 2007, before falling by 13.6 % in 2008 and by 30.5 % at the height of the financial and economic crisis in 2009. However, 2007 and the years leading up to it had exceedingly high imports, since the total value of wood imports from Chapter 44 was around EUR 9 thousand million in 2000 and EUR 9.7 thousand million in 2004.

Forest Law Enforcement, Governance and Trade — Voluntary Partnership Agreement (FLEGT-VPA) countries are producers of mainly tropical wood that have signed or are about to sign a VPA with the EU. The agreement requires licensing arrangements to ensure that the timber placed on the EU market is from legal sources. The peak of the economic downturn coincided with the implementation of several VPAs, making it difficult to interpret the figures. Before the crisis, the share of the FLEGT-VPA countries' total imports to the EU varied between 29 % and 21 % of the total imports from Chapter 44 of the CN. Since 2010, the FLEGT-VPA countries' share in EU imports fell below 20 %, dropping to 15.4 % in 2013. The numbers could indicate that these countries are finding markets elsewhere than in the EU.

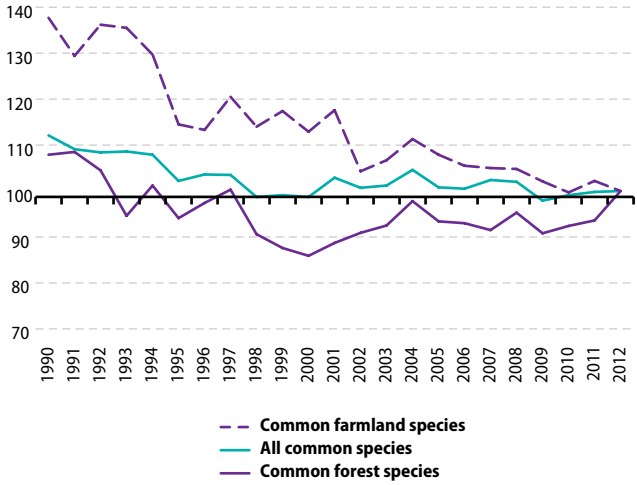
Table 4.5.7: EU common bird indices, 1990–2012

	Common bird index					
	all common species	common forest species	common farmland species	all common species	common forest species	common farmland species
	(1990 = 100)			(2012 = 100)		
1990	100.0	100.0	100.0	112.1	107.9	137.7
1991	97.3	100.6	93.9	109.1	108.5	129.4
1992	96.7	96.9	98.9	108.4	104.5	136.2
1993	96.9	87.7	98.4	108.6	94.6	135.5
1994	96.3	93.8	94.2	107.9	101.2	129.7
1995	91.2	87.2	83.2	102.2	94.1	114.5
1996	92.4	90.3	82.2	103.6	97.4	113.3
1997	92.3	93.0	87.5	103.5	100.3	120.5
1998	88.0	84.0	82.7	98.7	90.6	114.0
1999	88.4	81.2	85.2	99.1	87.6	117.4
2000	88.1	79.7	82.0	98.7	85.9	112.9
2001	91.8	82.2	85.4	102.9	88.7	117.6
2002	89.8	84.2	75.7	100.7	90.9	104.3
2003	90.2	85.7	77.5	101.2	92.5	106.7
2004	93.3	90.7	80.8	104.6	97.8	111.3
2005	89.9	86.6	78.4	100.8	93.4	107.9
2006	89.7	86.3	76.6	100.5	93.0	105.5
2007	91.3	84.8	76.2	102.4	91.5	105.0
2008	91.0	88.4	76.1	102.0	95.3	104.8
2009	87.3	84.2	74.1	97.9	90.8	102.1
2010	88.4	85.7	72.4	99.1	92.4	99.7
2011	89.0	86.8	74.2	99.8	93.6	102.2
2012	89.2	92.7	72.6	100.0	100.0	100.0

([1]) Estimates. 'All common species' covers information on 163 different bird species. 'Common farmland species' covers 39 bird species. 'Common forest species' covers 33 bird species.

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

Figure 4.5.10: Common bird indices, EU, 1990–2012 (1)
(aggregated index of population estimates of selected groups of breeding bird species, 2012 = 100)



(1) Estimates. 'All common species' covers information on 163 different bird species. 'Common farmland species' covers 39 bird species. 'Common forest species' covers 33 bird species.
Source: EBCC/RSPB/BirdLife/Statistics Netherlands; Eurostat (online data code: env_bio3)

Between 1990 and 2000 there was a general downward trend in the abundance of both common farmland and common forest species of birds. This downward path continued for farmland species, with a relatively steep decline (– 27 % between 1990 and 2012) in the number of common farmland birds. Much of this development may be attributed to changes in land use and agricultural practices. While the number of common forest birds declined by 20 % between 1990 and 2000 across the EU, a recovery in their numbers was seen in recent years, with the index rising from a relative low of 80 to 93 by 2012. The index of all common bird species stood at 89 in 2012, 11 % below its 1990 value.

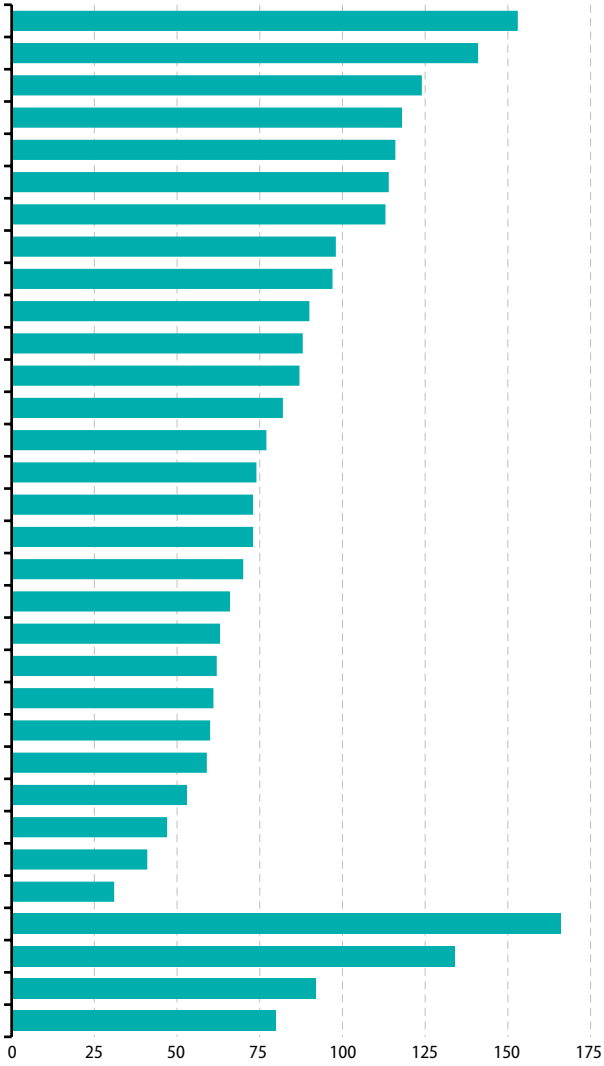
4.6 Water

Table 4.6.1: Groundwater and surface water abstraction, 2001–11
(million m^3)

	Groundwater abstraction			Surface water abstraction		
	2001	2006	2011	2001	2006	2011
BE (1)	679	645	618	6 316	5 800	5 558
BG	719	647	545	5 114	5 930	5 840
CZ	529	379	378	1 310	1 557	1 508
DK (2)	693	671	649	15	5	5
DE (3)	6 204	6 033	:	31 802	29 524	:
EE	272	237	299	1 199	1 324	1 575
IE (4)	:	:	213	:	:	517
EL (4)	3 390	3 679	3 651	6 384	5 768	5 820
ES (2)	5 759	6 398	6 595	30 349	27 701	26 949
FR (2)	6 284	6 184	6 143	27 261	26 368	26 968
HR	:	464	521	:	:	637
IT	:	:	:	:	:	:
CY	141	140	155	61	93	66
LV (2)	116	102	270	141	107	105
LT	157	180	175	2 611	1 901	457
LU	:	:	22	:	:	24
HU (5)	726	541	506	:	:	4 926
MT (2)	36	33	38	0	0	0
NL (2)	977	1 045	1 008	7 938	9 934	9 659
AT	:	:	:	:	:	:
PL	2 700	2 831	2 733	8 899	9 576	9 178
PT	:	366	:	:	550	:
RO	990	650	600	6 353	4 680	5 992
SI	:	190	185	:	718	666
SK	423	368	334	716	395	259
FI	285	264	:	:	6 298	:
SE (2)	628	346	348	2 048	2 285	2 342
UK (6)	2 366	2 266	2 159	7 872	7 005	5 523
IS	159	:	:	5	:	:
CH	:	1 255	:	:	961	:
MK(1)	62	134	162	606	766	885
RS	72	545	499	2 510	3 248	3 683
TR	10 670	11 882	13 560	33 780	31 836	:
BA	:	150	148	:	178	182

(1) Data for 2009 instead of 2011.
(2) Data for 2010 instead of 2011.
(3) Data for 2004 instead of 2006.
(4) Data for 2007 instead of 2011.
(5) Data for 2008 instead of 2011.
(6) England and Wales only.
Source: Eurostat (online data code: env_wat_abs)

Figure 4.6.1: Total freshwater abstraction by public water supply, 2011 ([1])
(m^3 per inhabitant)



([1]) Ireland, 2007; Italy, Austria and the United Kingdom, 2008; Portugal, Belgium and FYR of Macedonia, 2009; Spain, Sweden, France, Netherlands, Denmark, Germany, Turkey and Latvia, 2010.

Source: Eurostat (online data code: env_wat_abs)

There are considerable differences in the amounts of freshwater abstracted within each EU Member State, in part reflecting the resources available, but also abstraction practices depending on climate as well as on the industrial and agricultural structures of the country. Total abstraction of fresh water ranged from 33 million m^3 in Malta (2006 data) to 38 006 million m^3 in Germany (2001 data). From 2001 to 2011, the highest increases in total abstraction of fresh water were recorded in Latvia (45 %) and Estonia (27 %); while the highest decreases were recorded in Lithuania (– 77 %) and Slovakia (– 48 %).

Differences among countries are also apparent when looking at the breakdown of water abstraction between groundwater and surface water resources. In Belgium (2009), Bulgaria (2011), Hungary (2008), Romania (2011) and the Netherlands (2010), surface water abstraction accounted for around ten times the volume of water abstracted from groundwater resources. At the other end of the range, larger volumes of water were abstracted from groundwater resources in Latvia (2010), Slovakia (2011), Cyprus (2011), Denmark (2010) and Malta (2010).

In terms of freshwater abstractions per inhabitant, annual rates in individual EU Member States ranged from 30 m^3 to 150 m^3. Abstraction rates were rather high in Italy, Ireland and Bulgaria and also in some non-EU Member States, notably Norway and the former Yugoslav Republic of Macedonia. At the other end of the scale, Lithuania and Malta reported low abstraction rates.

Table 4.6.2: Water use in the manufacturing industry by supply category, 2003–11
(m^3 per inhabitant)

	Public water supply						Self and other water supply					
	2003	2005	2007	2009	2010	2011	2003	2005	2007	2009	2010	2011
BE	9.4	9.8	9.6	8.8	:	:	117.5	122.2	122.0	104.2	:	:
BG	6.5	5.9	6.3	4.8	4.6	4.7	38.7	37.8	40.3	27.2	25.1	23.7
CZ	:	:	:	:	:	:	:	:	29.6	24.3	23.3	22.3
DE	:	:	4.0	:	3.9	:	:	:	55.2	:	53.0	:
EE	:	:	:	:	:	5.3	:	:	:	:	:	16.5
ES	10.1	10.0	8.8	7.3	7.2	:	32.0	24.2	19.9	15.6	15.9	:
HR	:	:	:	33.4	27.7	25.2	:	:	:	42.0	67.9	66.7
CY	4.2	4.1	4.0	3.8	3.7	:	22.4	4.1	5.3	3.8	3.7	:
LV	32.6	25.3	26.7	:	:	:	:	:	:	:	:	:
LT	2.6	3.0	3.1	2.5	2.5	2.6	:	:	:	:	8.3	10.2
HU	:	1.1	1.1	0.9	0.7	0.7	:	:	:	:	:	:
MT	5.0	2.5	2.5	2.4	:	:	:	:	:	:	:	:
NL	12.8	11.8	11.3	10.6	10.0	:	244.3	203.6	205.2	232.1	203.4	:
PL	0.5	0.5	0.5	0.3	0.3	0.3	16.1	17.1	18.0	15.0	16.1	16.9
PT	:	0.8	0.9	1.6	:	:	:	:	:	26.6	:	:
SI	6.5	6.0	6.0	4.9	4.4	4.4	:	:	:	:	24.4	21.9
FI	:	:	:	:	:	:	:	:	:	:	:	459.7
SE	10.1	11.3	11.2	:	11.5	:	:	:	:	:	209.6	:
UK	:	:	:	:	:	4.3	:	:	:	:	:	:
IS	17.3	:	:	:	:	:	:	:	:	:	:	:
NO	19.8	40.2	41.0	34.4	:	:	173.8	210.4	213.6	179.6	:	:
MK	19.8	95.3	35.8	25.9	:	:	:	:	:	:	:	:
RS	:	:	3.9	2.6	2.1	2.2	23.5	22.9	14.1	12.0	11.5	10.2
TR	:	:	:	:	1.0	:	:	:	:	:	22.3	:

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

Self and other supply is the main water source in the manufacturing industry. Total water use ranges from 4 m^3 per inhabitant (Cyprus, 2010 data) to almost 459.7 m^3 per inhabitant (Finland, 2011 data). Finland together with Norway, the Netherlands and Belgium are the countries with the highest water use values. A decrease in water use was noticed after 2007, which can be attributed both to the economic crisis (resulting in a reduction of production) and to the adoption of more water-efficient technologies in the industry.

Table 4.6.3: Water use in the manufacturing industry by activity
(m^3 per inhabitant)

	Food	Textiles	Paper and paper products	Petroleum and chemical products	Basic metals	Fabricated metal products	Other manufacturing
FI (2011) (1)	5.4	0.2	180.6	205.8	46.7		21.0
SE (2010)	7.4	0.3	101.3	62.6	40.7	1.1	7.7
NL (2010)	15.8	0.3	5.4	172.1	15.8	0.2	3.7
BE (2009)	11.1	0.6	4.2	82.7	10.9	0.0	3.5
DE (2010)	4.9	0.3	5.9	33.1	8.1	0.7	3.9
BG (2011)	4.4	0.7	3.8	11.7	2.8	0.3	4.8
LV (2007) (2)	6.0	5.4	0.9	2.4	9.7	0.3	2.5
SI (2011)	2.8	0.4	8.4	6.5	4.1	0.4	3.4
CZ (2010)	1.7	0.5	4.9	11.4	3.2	0.1	1.4
ES (2010)	4.9	0.5	3.1	9.1	3.9	0.3	1.3
PL (2011)	1.9	0.1	2.3	10.2	1.0	0.1	1.6
LT (2011)	2.9	0.5	0.6	7.7	0.0	0.0	0.9
CY (2010)	2.7	0.0	0.0	0.2	0.1	0.0	3.3
MT (2009) (2)	1.7	0.2	0.0	0.2	0.0	0.2	0.5
NO (2009)	7.4	0.3	38.9	106.4	33.1	0.5	27.4
MK (2009) (2)	25.8	0.1	1.0	1.3	0.2	0.1	0.0
TR (2010)	3.1	2.0	0.4	1.9	12.7	0.1	1.2
RS (2011)	2.9	0.2	0.5	1.9	5.2	0.3	1.4

(1) Only self and other water supply.
(2) Only public water supply.
Source: Eurostat (online data codes: env_wat_ind and tps00001)

In most countries, the main water-using manufacturing industry is the 'Manufacture of refined petroleum products, chemicals and chemical products'. Water use for the manufacture of basic metals is the most intensive water-using activity in Latvia, Serbia and Turkey. Water use for the manufacture of food products prevails in Malta and the former Yugoslav Republic of Macedonia, while the manufacture of paper and paper products is the main water-using activity in Slovenia and Sweden.

Table 4.6.4: Water use by the domestic sector (households and services)
(m^3 per inhabitant)

	2001	2003	2005	2007	2009	2011
BE	85	87	65	61	59	:
BG	47	44	43	47	45	39
CZ	48	46	45	47	47	44
DK	47	53	54	:	:	:
DE	46	:	45	45	:	45
EE	:	:	:	:	:	:
IE	:	:	:	:	:	:
EL	49	56	58	56	:	83
ES	84	82	80	82	76	71
FR	:	:	:	:	:	:
HR	49	53	50	57	43	43
IT	:	:	:	:	:	:
CY	83	92	100	98	88	96
LV	33	30	35	39	:	:
LT	:	:	:	26	27	35
LU	:	:	:	:	51	:
HU	37	39	47	43	41	39
MT	37	33	27	35	31	35
NL	:	50	48	48	48	:
AT	44	44	:	:	:	:
PL	37	38	36	35	36	35
PT	:	:	48	53	60	:
RO	44	33	26	38	32	31
SI	44	49	46	49	47	46
SK	:	:	:	:	37	37
FI	:	:	:	:	:	37
SE	69	69	65	64	:	:
UK	:	:	:	:	:	61
IS	106	104	102	:	:	:
NO	66	66	101	103	105	:
CH	102	109	100	93	84	79
MK	38	43	41	42	48	:
RS	:	48	57	56	52	53
TR	:	:	:	31	38	41
BA	:	:	35	34	34	35

Source: Eurostat (online data code: env_wat_cat)

Most EU Member States report a decrease in the water use by the domestic sector. The highest increases in the past decade were recorded by Greece (+69 %) and Cyprus (+16 %), while the highest decreases were observed in Romania (–29 %) and Belgium (–30 %, in 2001–09). Per capita water use by the domestic sector was particularly high among the Mediterranean countries (highest value in Cyprus, 96 m^3 in 2011), with the exception of Malta (35 m^3 in 2011). Sweden and the United Kingdom also reported high water-use values, 71 m^3 (2010 data) and 61 m^3 respectively.

Table 4.6.5: Self and other supply water use for energy production (cooling water only), 2001–11

	Water use for energy production (cooling purposes) — m³ per inhabitant					Water use for energy production (cooling purposes) — Share of total water use in the country (%)				
	2001	2005	2007	2009	2011	2001	2005	2007	2010	2011
BE	448	403	381	378	:	67	66	65	67	:
BG	475	537	462	476	513	78	78	71	72	73
CZ	:	:	59	65	65	:	:	35	38	39
DK	:	:	:	:	:	:	:	:	:	:
DE	:	:	:	:	:	:	:	:	:	:
EE	:	:	:	:	1 149	:	:	:	:	94
IE	:	:	:	:	:	:	:	:	:	:
EL	:	:	:	:	:	:	:	:	:	:
ES	142	146	124	125		19	22	20	21	:
FR	:	:	:	:	:	:	:	:	:	:
HR	:	:	:	136	128	:	:	:	56	49
IT	:	:	:	:	:	:	:	:	:	:
CY	1 031	1 353	1 582	1 518	:	:	:	:	:	:
LV	:	:	:	:	:	:	:	:	:	:
LT	:	:	:	:	88	:	:	:	:	47
LU	:	:	:	:	:	:	:	:	:	:
HU	:	:	:	:	:	:	:	:	:	:
MT	1 270	1 234	1 225	1 209	1 198	:	:	:	:	:
NL	662	601	574	587	:	72	66	65	64	:
AT	:	:	:	:	:	:	:	:	:	:
PL	167	173	186	168	175	63	64	65	62	63
PT	:	:	:	:	:	:	:	:	:	:
RO	:	:	:	:	:	:	:	:	:	:
SI	:	:	:	:	:	:	:	:	:	:
SK	:	:	:	:	:	:	:	:	:	:
FI	:	:	:	:	:	:	:	:	:	:
SE	:	:	:	:	:	:	:	:	:	:
UK	:	:	:	:	:	:	:	:	:	:
IS	:	:	:	:	:	:	:	:	:	:
NO	:	:	:	:	:	:	:	:	:	:
CH	:	:	:	:	:	:	:	:	:	:
MK	:	:	:	:	:	:	:	:	:	:
RS	291	367	524	439	459	:	80	86	85	86
TR	34	:	:	:	:	:	:	:	:	:
BA	:	:		:	:	:	:	:	:	:

Source: Eurostat (online data code: env_wat_cat)

Nine EU Member States reported per capita water use values below 40 m³: Bulgaria, Latvia (2007 data), Lithuania, Hungary, Malta, Poland, Romania, Slovakia and Finland.

Data availability on water use for energy production is limited. Significant differences can be observed among countries. In 2011, Cyprus presented a high level of self-supply water use for cooling in energy production with 1 420 m^3 per capita (2010 data), followed by Malta (1 198 m^3 per capita), Estonia (1 149 m^3 per capita), the Netherlands (584 m^3 per capita, 2010 data) and Bulgaria (513 m^3 per capita). The lowest per capita values were reported by the Czech Republic (65 m^3 per capita), Lithuania (88 m^3 per capita), Croatia (128 m^3 per capita) and Spain (129 m^3 per capita, 2010 data).

The share of water use for energy production over total water use also varied considerably. In 2011, the share in Estonia was 94 %, followed by Bulgaria (73 %), Belgium (67 %, 2009 data), the Netherlands (64 %, 2009 data) and Poland (63 %). By contrast, the lowest share was reported by Spain (21 %, 2009 data).

The proportion of the population connected to at least secondary wastewater treatment covers those households that are served by any type of sewage treatment plant. This proportion has been gradually increasing and is above 80 % in 11 EU Member States for which data are available (mixed reference years) and exceeds 90 % in some countries (i.e. Malta, the Netherlands, the United Kingdom, Germany, Spain and Luxembourg). At the other end of the range, less than one in two households were connected to urban wastewater treatment in Romania, Serbia, the former Yugoslav Republic of Macedonia and Bosnia and Herzegovina. Overall, there is an increasing trend in the population coverage with urban wastewater treatment. The increase reported by Malta is exceptional due to the construction of new treatment plants; total coverage reached 100 % in 2011, from 22 % in 2010. The coverage with urban wastewater collecting systems in the Netherlands and the United Kingdom in 2010 was very high, with 99 % and 97 % respectively.

Table 4.6.6: Population connected to at least secondary wastewater treatment, 2000–11
(% of total)

	2000	2005	2007	2009	2010	2011
BE	42	55	68	72	:	:
BG	36	38	40	43	45	53
CZ (1)	70	73	73	75	77	78
DK	87	:	:	89	88	:
DE (2)	88	97	92	:	95	:
EE	68	73	74	80	:	81
IE (2)	29	82	:	71	:	62
EL	:	:	85	88	88	88
ES (3)	:	:	88	88	93	:
FR (4)	78	80	:	:	:	:
HR	:	:	:	:	:	27
IT	:	94	:	:	:	:
CY	15	30	:	:	:	:
LV (1)	63	64	63	:	:	:
LT (1)	24	58	61	67	64	65
LU (5)	:	88	:	:	91	91
HU	30	41	50	52	69	71
MT	14	16	10	23	13	100
NL (3)	99	99	99	100	99	:
AT (6)	:	89	92	93	94	:
PL	50	58	62	65	65	65
PT (1)	27	42	51	55	:	:
RO (7)	17	17	:	:	22	31
SI	12	32	49	53	54	56
SK	:	:	:	:	:	:
FI	80	:	:	:	83	83
SE (8)	86	86	86	:	87	:
UK (9)	:	:	97	97	100	:
IS	0	2	:	:	:	:
NO	52	57	59	60	59	62
CH	96	97	:	:	98	:
MK	:	:	:	:	:	:
RS	:	6	7	9	9	9
TR	19	29	31	35	38	:
AL	:	:	:	:	5	5
BA	2	2	2	2	2	2

(1) No data for 2000; 2002 data instead.
(2) No data for 2000; 2001 data instead.
(3) No data for 2007 and 2009; 2006 and 2008 data instead.
(4) No data for 2000 and 2005; 2001 and 2004 data instead.
(5) No data for 2005; 2003 data instead.
(6) No data for 2005, 2007 and 2009; 2004, 2006 and 2008 data instead.
(7) No data for 2000; 2004 data instead.
(8) No data for 2007; 2006 data instead.
(9) No data for 2007; 2008 data instead.
Source: Eurostat (online data code: env_ww_con)

4.7 Environmental taxes

Table 4.7.1: Environmental tax revenue by type, 2012
(million EUR)

	Total environmental taxes	Energy taxes	Transport taxes	Taxes on pollution/ resources
EU-28	311 683	233 762	64 583	13 338
BE	8 122	4 812	2 798	513
BG	1 119	995	104	20
CZ	3 596	3 349	209	38
DK	9 503	5 388	3 527	588
DE	58 004	46 850	9 404	1 750
EE	484	427	11	47
IE	4 082	2 171	1 474	437
EL	5 523	4 206	1 317	:
ES	16 152	13 113	2 689	350
FR	37 241	29 802	4 853	2 586
HR	1 390	758	349	283
IT	47 257	36 598	10 162	497
CY	477	338	139	:
LV	538	425	94	18
LT	548	516	15	17
LU	1 039	968	62	8
HU	2 471	1 834	410	226
MT	204	108	87	9
NL	21 319	11 618	6 638	3 063
AT	7 484	5 012	2 408	63
PL	9 605	8 216	736	654
PT	3 596	2 802	780	14
RO	2 551	2 261	215	74
SI	1 348	1 095	144	109
SK	1 245	1 083	138	24
FI	5 909	4 007	1 780	122
SE	10 168	8 248	1 792	127
UK	50 709	36 762	12 246	1 701
IS	220	150	35	34
LI	:	:	:	:
NO	9 244	4 437	4 436	370

Source: Eurostat (online data code: env_ac_tax)

Table 4.7.2: Environmental tax revenue by type, 2012
(% of taxes and social contributions)

	Total environmental taxes	Energy taxes	Transport taxes	Taxes on pollution/ resources
EU-28	6.05	4.53	1.25	0.26
BE	4.76	2.82	1.64	0.3
BG	10.11	8.99	0.94	0.18
CZ	6.72	6.26	0.39	0.07
DK	8.05	4.56	2.99	0.5
DE	5.56	4.49	0.9	0.17
EE	8.56	7.54	0.19	0.83
IE	8.68	4.62	3.13	0.93
EL	8.45	6.44	2.02	:
ES	4.82	3.92	0.8	0.1
FR	4.08	3.26	0.53	0.28
HR	8.86	4.83	2.23	1.8
IT	6.86	5.31	1.47	0.07
CY	7.63	5.41	2.23	:
LV	8.65	6.84	1.52	0.3
LT	6.12	5.76	0.17	0.19
LU	6.16	5.75	0.37	0.05
HU	6.5	4.83	1.08	0.6
MT	8.86	4.7	3.78	0.38
NL	9.12	4.97	2.84	1.31
AT	5.66	3.79	1.82	0.05
PL	7.75	6.63	0.59	0.53
PT	6.73	5.24	1.46	0.03
RO	6.84	6.06	0.58	0.2
SI	10.15	8.25	1.08	0.82
SK	6.18	5.38	0.69	0.12
FI	6.96	4.72	2.1	0.14
SE	5.64	4.57	0.99	0.07
UK	7.42	5.38	1.79	0.25
IS	5.66	3.87	0.91	0.88
LI	:	:	:	:
NO	5.63	2.7	2.7	0.23

Source: Eurostat (online data code: env_ac_tax)

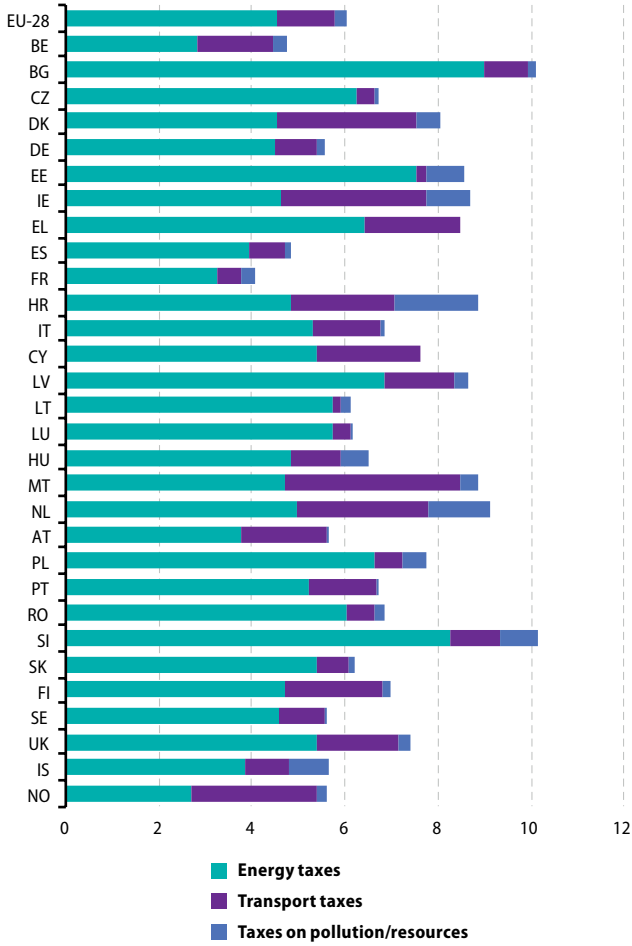
Environmental taxes are taxes on something that has a proven, specific negative impact on the environment. European statistics distinguish environmental taxes relating to energy, transport, pollution and resources.

Environmental tax revenue ranges from 4 % to 10 % of taxes and social contributions (TSC) in 2012. TSC from environmental taxes only exceeded 10 % in two countries: Bulgaria and Slovenia (10.1 % and 10.2 % respectively). In France, Belgium, Spain, Sweden, Austria and Germany less than 6 % of TSC was raised from environmental taxes. The EU-28 average was 6.1 % of TSC. Energy taxes have the highest share in TSC (4.5 %), ranging between 2.8 % (Belgium) and 9.0 % (Bulgaria). Pollution and resource taxes accounted for more than 1 % of taxes and social contributions in only two EU Member States: Croatia and the Netherlands. Transport taxes exceeded 2 % in eight EU Member States (Denmark, Estonia, Greece, Croatia, Cyprus, Malta, the Netherlands, and Finland) and Iceland.

Many eastern European countries and Luxembourg raise 85 % or more of their environmental tax revenue from energy taxes. This is due to the higher energy intensity of eastern European economies compared with the western EU Member States, which gives them a larger tax base. In Luxembourg the high share for energy taxes is due to the high amount of road fuels sold to non-residents, which increases the tax base for energy taxes compared to other European countries.

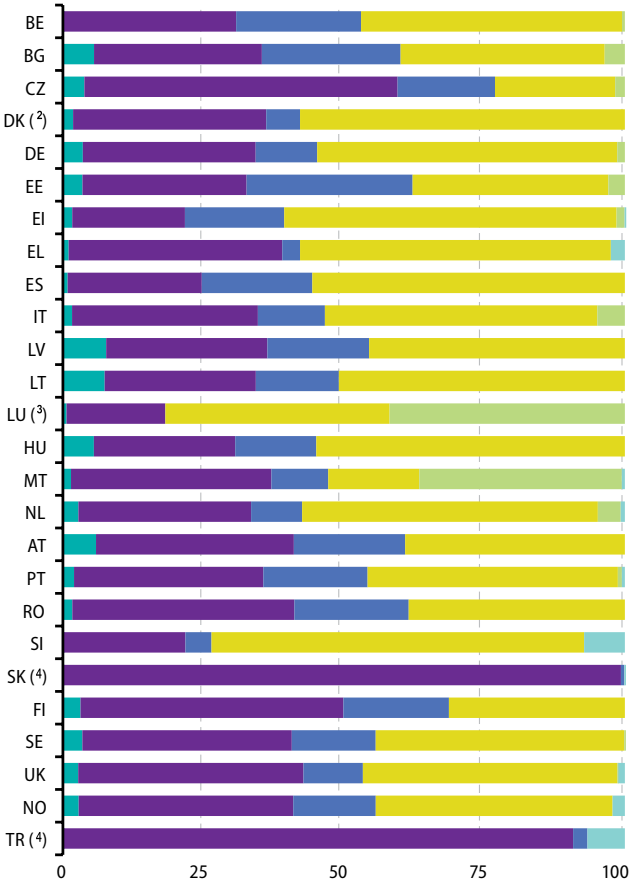
At the other end of the scale, in Malta, transportation taxes were almost as significant as energy taxes in 2012. Lithuania reports the lowest share of transportation taxes (2 %) in environmental taxes and Malta the highest (42 %). The Netherlands, Iceland, Estonia, Ireland, Poland, Denmark, Belgium, Croatia, Hungary, Slovenia and France were the only countries in which pollution and resource taxes accounted for more than 5 % of total environmental tax revenue in 2012.

Figure 4.7.1: Environmental tax revenue by type, 2012
(% of taxes and social contributions)



Source: Eurostat (online data code: env_ac_tax)

Figure 4.7.2: Energy taxes by economic activity, 2011([1])
(% of energy tax revenue)



([1]) France, Croatia, Cyprus and Poland: not available.
([2]) Non-residents: not available.
([3]) Transport and storage: not available.
([4]) Households and non-residents: not available.

Source: Eurostat (online data code: env_ac_taxind2)

Across those EU Member States for which 2011 data are available, households paid an average of just under half (49 %) of all energy taxes that were collected by governments, while 49 % of the total was paid by businesses (in agriculture, forestry, fishing, industry, construction and services, including transportation and storage) and some 2 % by non-residents. Luxembourg stood out, insofar as 36 % of its energy tax revenues were paid by non-residents (largely due to non-residents purchasing petrol and diesel).

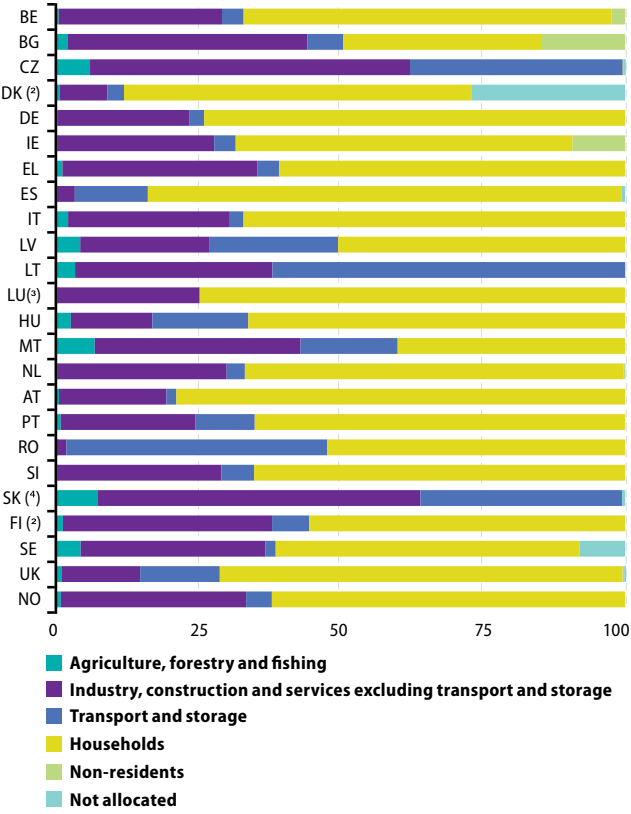
The contribution of agriculture, forestry and fishing to total energy taxes was at most 6 % of the total in all of the EU Member States (and Norway), aside from Lithuania (7 %) and Latvia (8 %). For most European countries industry, construction and services (excluding transportation activities) contributed between 20 % and 56 % of total energy taxes; with only Luxembourg below this range. Generally the highest share of energy tax revenues from businesses came from the largest activity group, namely that covering industry, construction and services other than those related to transportation and storage. This was particularly true in Denmark, Slovenia, Greece, Luxembourg and Slovakia where these activities accounted for more than 80 % of all energy tax revenues from businesses, as was also the case in Turkey. In all EU Member States except for Slovakia, Greece, Denmark and Slovenia, more than 20 % of energy tax revenues from businesses came from transportation and storage activities.

Table 4.7.3: Energy taxes by economic activity, 2011 ([1])
(million EUR)

	Agriculture, forestry and fishing	Industry, construction and services excluding transport and storage	Transport and storage	Households	Non-residents	Not allocated
BE	1.7	1 522.7	1 099.3	2 296.6	25.0	0.0
BG	54.4	293.5	242.6	356.9	35.3	0.0
CZ	130.0	1 897.4	590.2	728.0	58.7	0.0
DK ([2])	108.0	2 047.8	358.4	3 444.4	:	0.0
DE	1 734.6	15 063.2	5 358.6	26 144.5	665.2	0.0
EE	13.6	114.2	115.5	136.2	11.5	0.0
EI	42.5	512.8	451.9	1 512.6	36.5	1.4
EL	44.1	1 642.1	136.7	2 389.1	0.0	108.0
ES	114.4	3 255.7	2 682.4	7 585.5	0.0	0.0
IT	530.7	10 777.3	3 886.8	15 803.5	1 595.8	0.0
LV	30.1	112.1	70.8	177.9	0.0	0.0
LT	36.9	133.7	73.4	253.0	0.0	0.0
LU ([3])	5.2	142.6	:	323.6	339.6	0.0
HU	107.4	490.3	281.2	1 070.5	0.0	0.0
MT	1.5	38.3	10.9	17.4	38.7	0.6
NL	331.0	3 692.0	1 091.0	6 322.0	489.0	89.0
AT	294.9	1 761.6	991.2	1 956.6	0.0	0.0
PT	59.8	1 016.9	560.1	1 344.7	21.7	16.1
RO	37.6	888.2	457.2	864.7	0.0	0.0
SI	0.0	222.1	47.3	675.5	0.0	73.8
SK ([4])	0.4	1 138.0	6.9	:	:	1.2
FI	121.4	1 813.6	728.1	1 214.1	0.0	0.0
SE	271.6	2 927.0	1 172.6	3 473.3	9.1	0.0
UK	921.1	13 559.1	3 577.9	15 316.8	64.0	392.9
NO	125.0	1 701.1	654.1	1 877.6	0.0	97.5
TR ([4])	0.1	14 377.0	404.3	:	:	1 054.6

([1]) France, Croatia, Cyprus and Poland: not available.
([2]) Non-residents: not available.
([3]) Transport and storage: not available.
([4]) Households and non-residents: not available.
Source: Eurostat (online data code: env_ac_taxind2)

Figure 4.7.3: Transport taxes by economic activity, 2011 ([1])
(% of transport tax revenue)



([1]) Estonia, France, Croatia, Cyprus and Poland: not available.
([2]) Non-residents: not available.
([3]) Transport and storage: not available.
([4]) Households and non-residents: not available.
Source: Eurostat (online data code: env_ac_taxind2)

On average, 68 % of the transport tax revenues collected by governments in those EU Member States for which data are available were paid by households, 23 % by businesses (agriculture, forestry, fishing, industry, construction and services) other than those related to transportation and storage. The share paid by transport and storage was 6 %, while that paid by non-residents was negligible (0.5 %). The relative importance of households as contributors to transport tax revenues was the lowest in the Czech Republic and Lithuania.

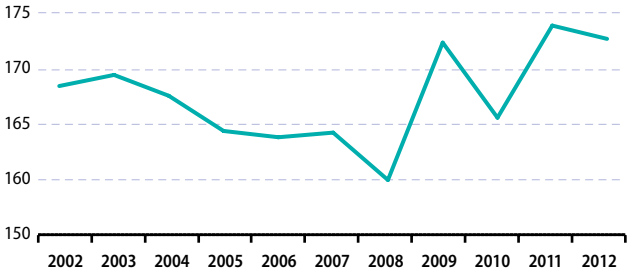
Table 4.7.4: Transport taxes by economic activity, 2011 ([1])
(million EUR)

	Agriculture, forestry and fishing	Industry, construction and services excluding transport and storage	Transport and storage	Households	Non-residents	Not allocated
BE	10.2	827.4	109.6	1 864.1	70.4	0.0
BG	1.7	38.0	5.6	31.4	13.2	0.0
CZ	12.6	120.8	80.4	0.5	0.0	0.4
DK ([2])	19.4	288.9	102.5	2 121.3	:	940.1
DE	19.7	2 164.6	248.2	6 948.8	0.0	0.0
IE	2.0	398.6	54.8	857.3	134.0	0.0
EL	13.7	472.5	53.4	839.4	0.0	0.0
ES	2.7	87.0	362.3	2 352.0	0.0	17.0
IT	189.1	2 697.3	228.9	6 366.8	0.0	0.0
LV	3.8	20.7	20.6	46.0	0.0	0.0
LT	0.5	5.0	8.9	0.0	0.0	0.0
LU ([3])	0.1	12.6	:	37.6	0.0	0.0
HU	11.7	67.7	79.6	312.9	0.0	0.0
MT	6.2	33.7	15.9	37.2	0.0	0.0
NL	10.8	2 127.4	228.8	4 766.0	20.0	0.0
AT	9.6	461.9	42.2	1 927.3	0.0	0.0
PT	6.9	239.4	104.9	657.1	0.0	0.0
RO	0.0	3.8	104.7	119.5	0.0	0.0
SI	0.2	41.5	8.3	94.0	0.0	0.0
SK ([4])	9.9	77.3	48.3	:	:	0.8
FI ([2])	19.7	672.3	118.9	1 016.1	:	0.0
SE	73.1	565.7	31.9	931.3	0.0	139.4
UK	88.8	1 505.7	1 522.9	7 703.1	31.3	18.4
NO	29.1	1 337.8	186.2	2 551.3	0.0	0.0

([1]) Estonia, France, Croatia, Cyprus and Poland: not available.
([2]) Non-residents: not available.
([3]) Transport and storage: not available.
([4]) Households and non-residents: not available.

Source: Eurostat (online data code: env_ac_taxind2)

Figure 4.7.4: Implicit tax rate on energy (deflated), EU-28, 2002–12 ([1])
(EUR per tonne of oil equivalent)



([1]) Note that the y-axis does not start from 0.
Source: Eurostat (online data code: tsdcc360)

The implicit tax rate on energy is defined as the ratio between energy tax revenues and final energy consumption calculated for a calendar year. Energy tax revenues are measured in euros (deflated with the final demand deflator) and the final energy consumption is measured in tonnes of oil equivalent; as such the implicit tax rate on energy is expressed in terms of 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. Data show that in real terms (having deflated the energy tax revenue) taxation on energy followed a downward path in the period from 2003 to 2008 and that the fall was sharpest towards the end of that period. However, during the financial and economic crisis, the indicator showed considerable variation: after a sharp increase in 2009 the implicit tax rate on energy for the EU-28 decreased quite sharply in 2010, dropping to a level similar to that shown between 2005 and 2007; in 2011, the rate bounced up to the highest level recorded for the 2002–12 period and then decreased somewhat in 2012 to a level slightly above that observed in 2009.

Table 4.7.5: Implicit tax rate on energy
(EUR per tonne of oil equivalent)

	2000	2003	2006	2009	2012
EU-28	:	169.5	163.8	172.4	172.8
BE	96.0	96.8	106.9	104.6	102.4
BG	38.3	43.8	50.7	73.3	65.5
CZ	53.3	61.0	73.6	80.1	79.1
DK	298.9	306.4	280.6	288.7	303.6
DE	191.1	213.7	192.5	203.6	185.3
EE	31.3	43.6	66.4	87.3	91.1
IE	138.5	132.5	136.7	162.2	172.1
EL	116.6	102.5	96.3	105.7	186.1
ES	137.4	129.2	121.0	124.7	114.2
FR	165.7	157.5	156.5	153.9	161.6
HR	48.1	55.4	71.3	67.5	87.4
IT	:	119.5	107.7	95.7	233.4
CY	245.3	223.2	207.7	211.3	141.3
LV	43.0	116.7	123.3	112.8	70.4
LT	57.6	72.6	70.2	79.3	69.7
LU	166.8	166.5	171.2	173.9	181.3
HU	76.9	72.7	78.3	77.1	75.4
MT	132.1	143.1	166.4	170.3	200.4
NL	153.1	151.6	185.3	194.4	180.2
AT	138.9	144.8	136.1	143.7	145.0
PL	58.6	73.5	85.9	92.1	96.4
PT	110.0	151.0	142.0	142.8	134.1
RO	57.6	43.7	50.0	64.2	68.1
SI	110.2	124.3	125.5	174.9	172.2
SK	39.7	47.6	50.9	49.7	47.5
FI	106.6	106.3	104.9	113.0	127.6
SE	179.3	206.9	219.5	228.8	216.9
UK	247.8	249.4	244.8	280.8	276.3

Source: Eurostat (online data code: tsdcc360)

At the EU Member State level, the implicit tax rate on energy ranges between EUR 47.5 (Slovakia) and EUR 303.6 per tonne of oil equivalent (Denmark). The implicit tax rate on energy is below EUR 100 per tonne of oil equivalent in 10 EU Member States (Bulgaria, the Czech Republic, Estonia, Croatia, Latvia, Lithuania, Hungary, Poland, Romania and Slovakia). Compared to 2002 values, an increase is reported by 21 EU Member States, the highest being 125 % (Estonia). An increase in implicit tax rate over 90 % is reported by Italy (91 %) and Romania (94 %). Denmark, Germany, Spain, France, Cyprus, Austria and Portugal report a decrease in implicit tax rate on energy, with the highest decrease reported by Cyprus (– 37 %).

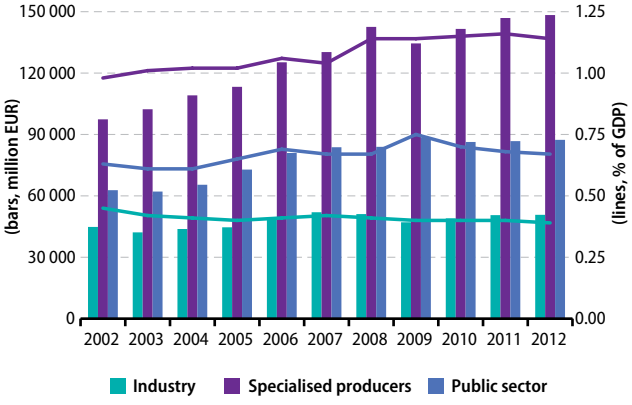
4.8 Environmental protection expenditure

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.

Environmental protection expenditure can be analysed by studying three principal actors: the public sector, industry (mining and quarrying; manufacturing; and electricity, gas and water supply), and specialised producers of environmental services (public and private enterprises specialised in environmental services such as waste collection).

Specialised producers accounted for the highest level of environmental protection expenditure in the EU-28 in 2012, some EUR 148 400 million, which equated to just over half (51.8 %) of the total level of expenditure. The remainder was split between expenditure by the public sector (EUR 87 400 million) and that by industry (EUR 50 700 million).

Figure 4.8.1 : Total environmental protection expenditure, EU-28, 2002–12 (1)

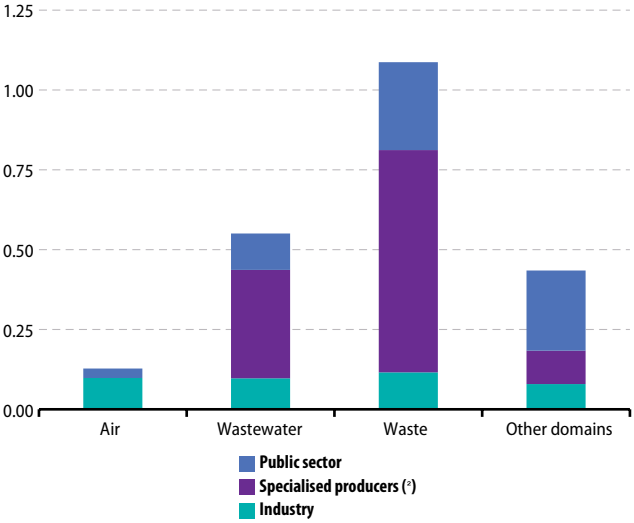


(1) Estimates.
Source: Eurostat (online data codes: env_ac_exp1r2 and env_ac_exp2)

Between 2002 and 2012, the expenditure of specialised producers in the EU-28 grew in current price value terms by more than half (52.3 %). Over the same period there was an increase of 39.2 % in environmental protection expenditure by the public sector. Expenditure from industry dipped during the early part of the first decade of this century and again in 2009 — in both cases these reductions could be linked to relatively weak levels of industrial activity; by 2012, environmental protection expenditure by industry was 13.1 % above its 2002 level.

The ratio between environmental protection expenditure and gross domestic product (GDP) provides an indication of the importance of environmental protection relative to the overall economic activity. For specialised producers in the EU-28 this ratio stood at 1.14 % of GDP in 2012, compared with 0.67 % for the public sector and 0.39 % for industry. The weight of environmental protection expenditure (in relation to GDP) of specialised producers rose by 0.16 percentage points between 2002 and 2012. By contrast, the relative importance of public sector environmental protection expenditure was more or less stable over the same period (up 0.04 percentage points), while the level of expenditure made by the industrial sector fell slightly in relation to GDP between 2002 and 2012 (– 0.06 percentage points).

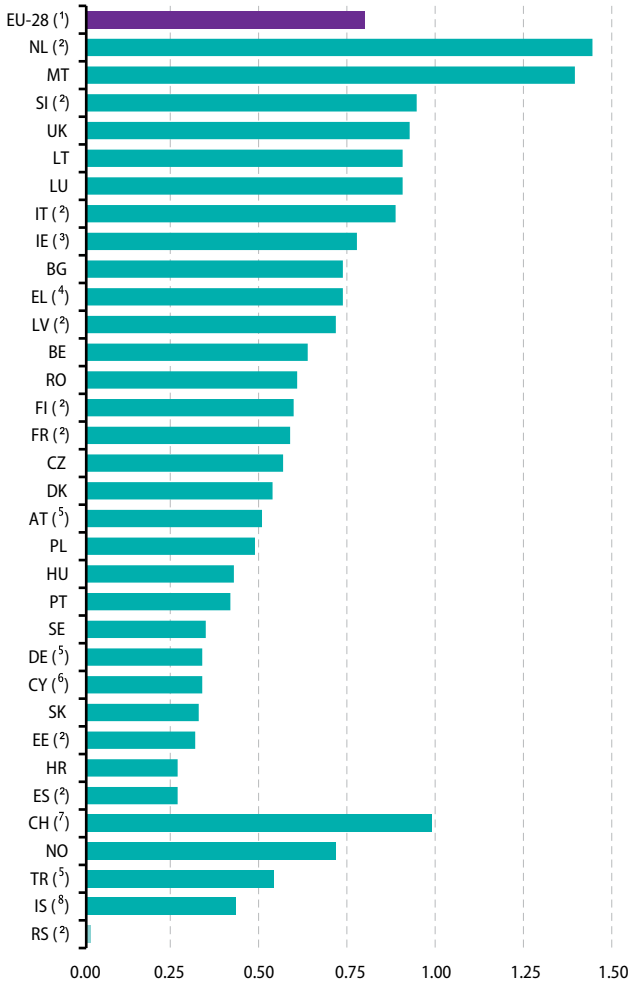
Figure 4.8.2: Total environmental protection expenditure by domain, EU-28, 2012 (1)
(% of GDP)



(1) Estimates.
(2) Air: not available.
Source: Eurostat (online data codes: env_ac_exp1r2 and env_ac_exp2)

The largest domain in 2012 concerned waste management, followed by wastewater treatment, with almost two thirds of the expenditure within these two domains accounted for by specialised producers. By contrast, there was a relatively low level of environmental protection expenditure related to air pollution, with a large proportion coming from industry (note that no data are available for this domain for the expenditure of specialised producers); the air pollution domain accounted for a quarter of the total environmental protection expenditure made within industry.

Figure 4.8.3: Public sector environmental protection expenditure, 2012
(% of GDP)



(1) Estimates.
(2) No data for 2012; 2011 data instead.
(3) No data for 2012; 1998 data instead.
(4) No data for 2012; 1999 data instead.
(5) No data for 2012; 2010 data instead.
(6) No data for 2012; 2004 data instead.
(7) No data for 2012; 2003 data instead.
(8) No data for 2012; 2002 data instead.

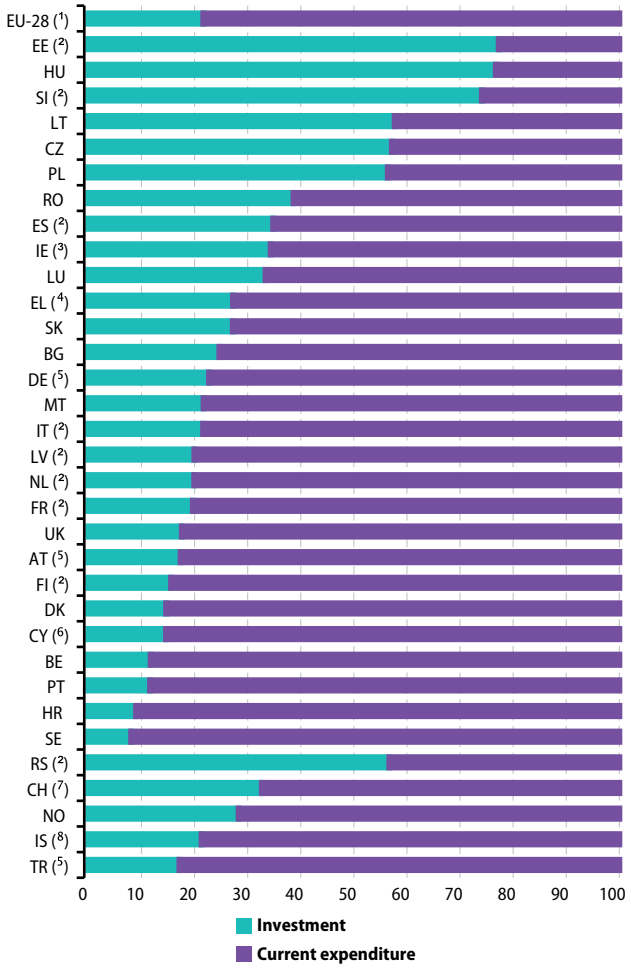
Source: Eurostat (online data code: env_ac_exp2)

In most European countries, public sector environmental protection expenditure relative to GDP was between 0.3 % and 1.0 % in 2012. Only Croatia (0.26 %) and Spain (also 0.26 %, 2011) were below this range, while relatively high levels of public sector environmental protection expenditure were recorded in the Netherlands (1.44 %, 2011) and Malta (1.39 %).

In the EU-28, investment accounted for just over one fifth (21.6 %) of total expenditure in 2012. The relative weight of investment was higher than this for most of the Member States that joined the EU in 2004, 2007 or 2013 (Latvia, Cyprus and Croatia were the exceptions); this may reflect expenditure on fixed assets required to meet EU environmental legislation.

Waste management and wastewater treatment were the two main domains for public sector expenditure in most EU Member States. Exceptions to this included Spain (where the public sector directed its expenditure towards other domains, like biodiversity and landscape protection, protection against radiation, research and development (R&D) and other environmental protection activities) and Cyprus, Denmark and France (where more than 60 % of expenditure (in Denmark more than 90 %) was in the miscellaneous category, covering protection and remediation of soil, groundwater and surface water, noise and vibration abatement, protection of biodiversity and landscapes, protection against radiation, R&D, 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).

Figure 4.8.4: Public sector environmental protection investments and current expenditure, 2012
(% of total)



(1) Estimates.
(2) No data for 2012; 2011 data instead.
(3) No data for 2012; 1998 data instead.
(4) No data for 2012; 1999 data instead.
(5) No data for 2012; 2010 data instead.
(6) No data for 2012; 2004 data instead.
(7) No data for 2012; 2003 data instead.
(8) No data for 2012; 2002 data instead.
Source: Eurostat (online data code: env_ac_exp1r2)

Table 4.8.1: Public sector environmental protection expenditure by environmental domain, 2012
(million EUR)

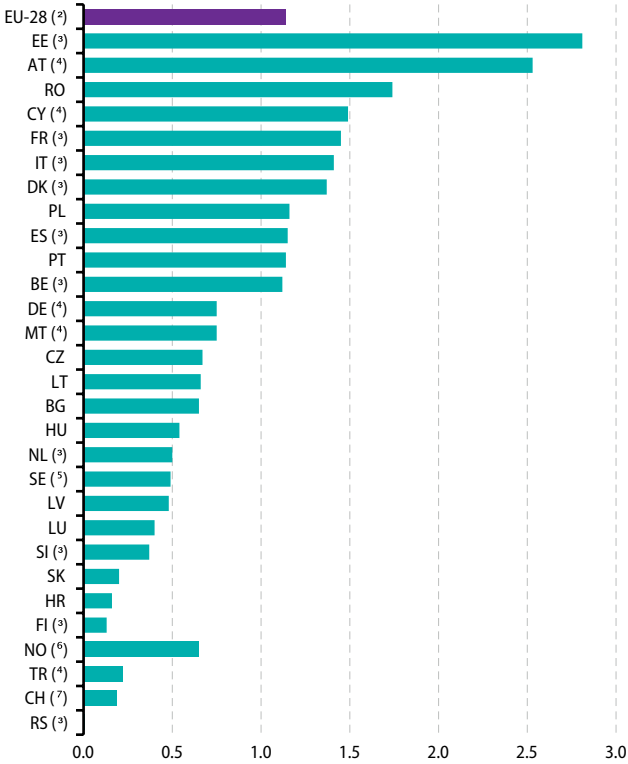
	Air	Wastewater	Waste	Other domains
EU-28 (1)	3 870.7	14 864.6	35 891.2	32 750.2
BE	116.0	326.3	1 026.7	888.3
BG	0.1	39.5	227.4	26.4
CZ	8.8	409.7	338.7	100.6
DK	109.9	0.0	0.0	1 181.8
DE (2)	:	3 280.0	3 040.0	1 950.0
EE (3)	0.2	37.9	8.5	4.2
IE (4)	0.0	192.5	129.4	287.0
EL (5)	0.7	215.8	429.5	214.7
ES (3)	:	:	:	2 750.0
FR (3)	725.5	1 718.5	1 878.7	7 332.5
HR	0.6	0.3	101.1	11.7
IT (3)	:	732.4	7 312.3	5 815.4
CY (6)	2.7	7.2	3.6	28.1
LV (3)	15.6	11.9	82.4	33.8
LT	21.3	140.7	77.6	58.5
LU	-43.1	319.7	76.7	33.2
HU	1.1	227.3	47.1	41.5
MT	0.0	27.4	51.1	16.9
NL (3)	791.2	2 945.8	2 323.2	2 566.0
AT (2)	217.9	261.6	441.6	498.5
PL	23.2	985.1	154.5	677.5
PT	3.2	0.4	394.4	285.9
RO	38.0	330.0	398.0	21.9
SI (3)	0.0	209.0	53.4	79.2
SK	13.9	31.3	176.7	c
FI (3)	:	496.0	141.1	479.1
SE	3.5	0.6	793.7	580.3
UK	203.5	17.3	14 362.4	3 052.3
IS (7)	:	5.6	28.0	0.3
NO	102.8	1 216.6	706.3	727.3
CH (8)	49.6	1 179.1	716.2	500.2
RS (3)	0.1	1.3	1.4	0.5
TR (2)	0.5	291.6	1 476.3	722.3

(1) Estimates.
(2) No data for 2012; 2010 data instead.
(3) No data for 2012; 2011 data instead.
(4) No data for 2012; 1998 data instead.
(5) No data for 2012; 1999 data instead.
(6) No data for 2012; 2004 data instead.
(7) No data for 2012; 2002 data instead.
(8) No data for 2012; 2003 data instead.
Source: Eurostat (online data code: env_ac_exp1r2)

Among EU Member States, the expenditure of specialised producers on environmental protection generally ranged from 0.4 % to 1.5 % of GDP, with an EU-28 average of 1.14 % in 2012. Only Slovenia (2011), Slovakia, Croatia and Finland (also 2011) had lower ratios, while at the other end of the range, Estonia (2011) and Austria (2010) recorded by far the highest ratios (2.81 % and 2.53 % of GDP, respectively). Romania was the only other EU Member State whose expenditures exceeded 1.5 % of GDP. These differences between countries may, at least to some degree, reflect whether the public sector provides services itself, or whether these activities have been contracted out to specialised producers; they may also be related to the specialisation and concentration of particular industrial activities within each country — for example, wastewater treatment or waste management may be internalised within industrial plants in order to recycle or re-use some of the materials that are discarded as part of the production process.

With the exception of Malta, the vast majority of the environmental protection expenditure made by specialised producers in the EU Member States was allocated to waste management and wastewater treatment.

Figure 4.8.5: Environmental protection expenditure by specialised producers, 2012 ([1])
(% of GDP)



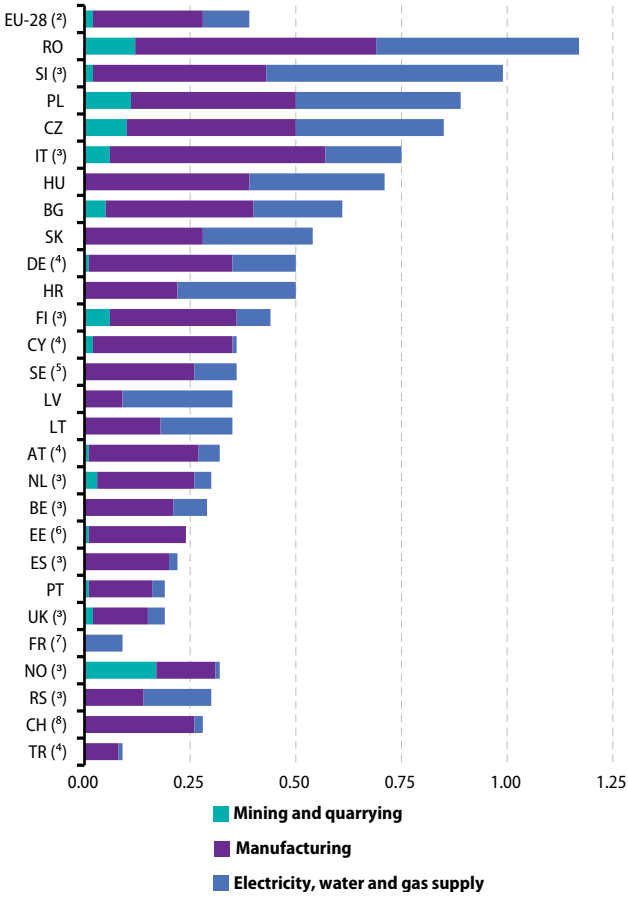
([1]) Ireland, Greece and the United Kingdom: not available.
([2]) Estimate.
([3]) No data for 2012; 2011 data instead.
([4]) No data for 2012; 2010 data instead.
([5]) No data for 2012; 2006 data instead.
([6]) No data for 2012; 2005 data instead.
([7]) No data for 2012; 2003 data instead.
Source: Eurostat (online data code: env_ac_exp2)

Table 4.8.2: Specialised producers' environmental protection expenditure by environmental domain, 2012
(million EUR)

	Wastewater	Waste	Other domains
EU-28 (1)	44 173.8	90 584.1	13 596.3
BE (2)	783.3	3 338.0	:
BG	31.5	219.5	8.1
CZ	37.6	932.3	49.5
DK (2)	1 328.8	1 974.2	:
DE (3)	8 140.0	10 600.0	:
EE (2)	89.4	c	c
IE	:	:	:
EL	:	:	:
ES (2)	2 133.2	9 547.6	356.0
FR (2)	10 767.3	17 126.5	1 201.5
HR	19.6	47.9	4.1
IT (4)	1 643.8	13 353.2	:
CY (3)	141.1	118.2	0.1
LV	23.2	81.5	1.9
LT	100.4	95.9	19.7
LU	4.1	164.5	3.4
HU	113.8	335.7	69.9
MT (3)	7.7	21.2	19.4
NL (2)	512.3	2 478.2	2.4
AT (3)	1 345.6	3 008.6	2 868.7
PL	1 268.2	2 832.0	319.1
PT	148.6	1 704.2	28.8
RO	26.9	2 178.2	84.3
SI (2)	11.8	119.6	2.6
SK	3.8	120.4	c
FI (2)	224.0	12.8	0.0
SE	:	:	:
UK	:	:	:
NO (5)	129.0	1 433.4	29.3
CH (6)	:	565.8	:
RS (2)	0.0	3.6	0.2
TR (3)	701.6	244.9	243.1

(1) Estimates.
(2) No data for 2012; 2011 data instead.
(3) No data for 2012; 2010 data instead.
(4) No data for 2012; 2007 data instead.
(5) No data for 2012; 2005 data instead.
(6) No data for 2012; 2003 data instead.
Source: Eurostat (online data code: env_ac_exp1r2)

Figure 4.8.6: Industrial environmental protection expenditure by subsector, 2012 ([1])
(% of GDP)



([1]) Denmark, Ireland, Greece, Luxembourg and Malta: not available.
([2]) Estimates.
([3]) No data for 2012; 2011 data instead.
([4]) No data for 2012; 2010 data instead.
([5]) Mining and quarrying: confidential.
([6]) 2011. Electricity, gas and water supply: confidential.
([7]) 2010. Manufacturing: confidential.
([8]) No data for 2012; 2003 data instead.
Source: Eurostat (online data code: env_ac_exp2)

Table 4.8.3: Industrial environmental protection expenditure by environmental domain, 2012
(million EUR)

	Air	Wastewater	Waste	Other domains
EU-28 (1)	12 754.1	12 639.2	15 059.9	10 287.8
BE (2)	189.4	518.6	169.0	190.7
BG	108.0	48.7	54.4	34.1
CZ	260.5	443.5	c	c
DK	:	:	:	:
DE (3)	5 190.0	3 580.0	3 160.0	610.0
EE (2)	45.4	c	c	3.3
IE	:	:	:	:
EL	:	:	:	:
ES (2)	524.1	616.3	912.5	336.8
FR (3)	c	797.6	c	:
HR	30.5	85.2	51.6	52.0
IT	:	:	:	:
CY (3)	6.6	8.8	13.5	33.2
LV	30.0	25.6	8.1	14.4
LT	55.4	32.6	19.0	9.5
LU	:	:	:	:
HU	34.5	395.7	175.2	81.4
MT	:	:	:	:
NL (2)	605.6	370.0	407.8	363.8
AT (3)	254.1	230.0	228.7	182.7
PL	819.5	1 567.1	640.8	400.9
PT	64.8	76.0	118.7	57.2
RO	248.8	454.5	143.8	684.2
SI (2)	145.2	87.8	98.2	26.4
SK	c	c	c	72.5
FI (2)	281.1	223.5	197.2	117.8
SE	466.4	439.0	308.6	339.3
UK (2)	546.5	764.0	1 020.2	1 134.9
NO (2)	129.4	341.5	486.9	159.0
CH (4)	159.1	277.5	272.7	94.8
RS (2)	23.8	21.6	32.2	18.4
TR (3)	c	97.6	c	c

(1) Estimates.
(2) No data for 2012; 2011 data instead.
(3) No data for 2012; 2010 data instead.
(4) No data for 2012; 2003 data instead.
Source: Eurostat (online data code: env_ac_exp1r2)

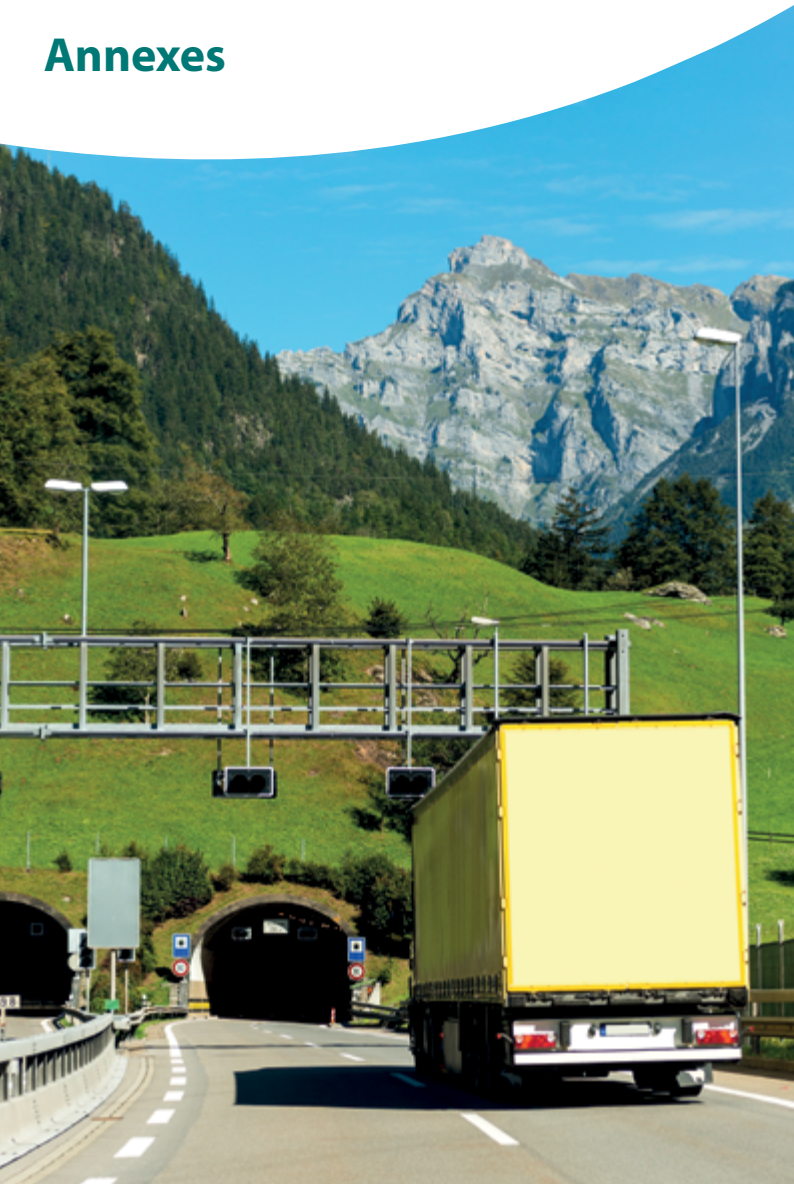
Across the EU-28 in 2012, an average of 0.39 % of GDP was spent on environmental protection by the industry. Among EU Member States this ratio was generally within the range of 0.2 % to 0.8 % of GDP, falling below this range in Portugal, the United Kingdom (2011) and France (2010).

In 2012, about two thirds (67.0 %) of the EU-28's environmental protection expenditure made by industry could be attributed to manufacturing. This relatively high share is not surprising given that this activity is far larger — according to most economic measures — than the mining and quarrying subsector or the electricity, gas and water supply subsector.

Across the EU Member States, the relative weight of each of these three subsectors could be explained, at least to some degree, by natural resource endowments, as well as industrial specialisation. For example, a higher reliance on the burning of fossil fuels to generate electricity in many of the Member States that joined the EU in 2004, 2007 or 2013 may explain the relatively high degree of environmental protection expenditure within the electricity, gas and water supply subsector in these countries (for example Latvia, Slovenia and Croatia), while significant coal mining may explain the higher than average levels of expenditure for the mining and quarrying activity in Romania, the Czech Republic, Poland and the United Kingdom.

In most EU Member States environmental protection expenditure made by the industrial sector was generally concentrated on air protection measures, wastewater treatment and waste management activities.

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 current publication presents the simplified energy balance sheets for 2012 and time series of key elements of energy balances for the years 1990, 1995, 2000, 2005, 2010, 2011 and 2012. Energy data are available for all Member States of the European Union as well as Iceland, Norway, Montenegro, the Former Yugoslav Republic of Macedonia, Serbia and Turkey. The energy balances have been constructed according to Eurostat's methodology, where all the operations are harmonised on the basis of the energy content of each source and form of energy. The energy balances are expressed in thousands of tonnes of oil equivalent (ktoe).

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 imports/(gross inland consumption + 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 Consumption of energy 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 to 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 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: Transport-related methodology

The main terms used in the field of transport statistics are defined in the 'Eurostat concepts and definitions database' (CODED) accessible under the Eurostat website at 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/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL_GLOSSARY&StrNom=CODED2&StrLanguageCode=EN&IntCurrentPage=1 and in the glossary of Statistics Explained http://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Transport_glossary.

The indicators presented in the transport section of this pocketbook 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) N° 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) N° 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) N° 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) N° 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.

CO_2 equivalent

CO_2 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).

For the purpose of this publication the domains CEPA 4-9 are published under 'Other domains (protection of soil, groundwater; noise abatement; protection of biodiversity, landscape and other)'.

Environmental protection expenditure

Environmental protection expenditure (EPE) is the money spent on activities directly aimed at the prevention, reduction and elimination of pollution or any other degradation of the environment.

Total EPE is made up of current expenditure and investment. For the public sector the total EPE also includes subsidies and other transfers given to other sectors.

Main environmental protection sectors are:

- **Public sector** includes central, regional and local governments, authorities, communities and government agencies, meaning mainly NACE Rev. 2 division 84. Data reported are net of any transfers between these government bodies.
- **Specialised producers of environmental services** — These are mainly activities within NACE Rev. 2 divisions and groups 37, 38.1, 38.2 and 39. These enterprises (both privately and publicly owned) and/or separately identified departments of large municipalities have as their main activity the production of environmental protection services.
- **Industry** includes all activities in NACE Rev. 2 sections B, C, D and division E36. Expenditures of the water supply industry (NACE Rev. 2 division 36) only relate to production of drinking water and do not include expenditures for the treatment of wastewater generated by other companies.

Environmental protection investments

Investment for environmental protection includes all outlays in a given year (purchases and own-account production) for machinery, equipment, plant, buildings and land used for environmental protection purposes. It is the sum of two categories:

- **End-of-pipe (pollution treatment) investments.** These are investments to collect and remove pollutants (e.g. air emissions, effluents or solid waste) after their creation, prevent the spread of and measure the level of the pollution, and treat and dispose of pollutants generated by the operating activity of the company.
- **Investments in integrated technologies (pollution prevention investments).** These are investments which lead to a modified or adapted production process.

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. 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 activities 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 95),
- households,
- non-residents.

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 23900 (sulphur hexafluoride). Hydrofuorocarbons and perfluorocarbons comprise a large number of different gases that have different GWPs (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 (CO_2), methane (CH_4) and nitrous oxide (N_2O) and hydrofuorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF_6).

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 derivable from Eurostat's economy-wide Material Flow Accounts. RMC is the amount of raw materials (without water and air) which is virtually 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 derivable from Eurostat's economy-wide Material Flow Accounts. RMI is the amount of raw materials (without water and air) which is virtually being made available in an 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.

Current expenditure for environmental protection

Current expenditure includes the use of energy, material, maintenance and personnel for producing environmental services in-house. Current expenditure also comprises the money spent to buy environmental services from specialised producers.

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
Others 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.

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}

Conversion factors

Energy 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}	3.968	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}	3 412	1

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