Energy, transport and environment statistics

2020 edition

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Foreword

The European Green Deal is the European Union's blueprint to guide its transformation towards the world of tomorrow. At the heart of Green Deal is the EU's mission to become the first climate-neutral continent by 2050. In her State of the Union address on 16 September 2020, Ursula von der Leyen, President of the European Commission, presented the European Commission's ambitious proposal to increase the 2030 target for emission reduction to at least 55 %. Meeting this target would put the EU firmly on track for climate neutrality by 2050 and for meeting the EU's Paris Agreement obligations. The EU is already working towards a circular economy with carbon neutral production.

As a consequence of the European Green Deal's ambition to reach climate neutrality by 2050, the 2030 energy goals currently aiming at a 32 % share of energy from renewable sources and improving energy efficiency by 32.5 % will be revised upwards. The objective is to make them "fit for 55", i.e. an increase from 40 to at least 55 % of the 2030 target for emissions reduction. On 14 October 2020, the Commission adopted a comprehensive energy package comprising of the renovation wave for buildings, the EU Methane Strategy as well as the 2020 State of the Energy Union Report.

Transport currently accounts for a quarter of the EU's greenhouse gas emissions. The European Green Deal seeks a 90 % reduction in these emissions by 2050. Moving to more sustainable transport means putting users first and providing them with more affordable, accessible, healthier and cleaner alternatives. A key objective is to boost the uptake of clean vehicles and alternative fuels. Achieving the ambitious climate goals also requires a shift to more sustainable transport modes such as rail and inland waterways.

The Commission's 7th Environment Action Programme 'Living well, within the limits of our planet' guided European environment policy towards 2020. In order to give more long-term direction it set out a vision of where it wants the Union to be by 2050. It aims to protect, conserve and enhance the EU's natural capital, transform the EU into a resource-efficient, green and competitive low-carbon economy, and safeguard the EU's citizens from environment-related pressures and risks to health and wellbeing. The new 8th Environmental Action Programme is being prepared and will cover the period 2021-2030.

In order to design, implement and monitor these EU policies and strategies, there is a need for high quality statistics on energy, transport and the environment; trusted statistics are essential for providing reliable information to the public and to policy makers.

This year's edition of the Statistical Book on energy, transport and environment statistics includes features to help the reader understand the main messages provided by the data. As far as possible, data are presented through charts, maps or infographics, rather than tables. In addition, the main messages are highlighted in overview infographics throughout the publication.

The contents of this book, complemented with additional information, can be found online in Eurostat's Statistics explained articles. The most recent data can be downloaded from Eurostat's dissemination database.

Please enjoy reading this year's publication.

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DATA EXTRACTION PERIOD

The statistical data presented in this book are the ones analysed in the continuously updated Statistics Explained articles on energy, transport and the environment at the time of drafting this publication (August and September 2020).

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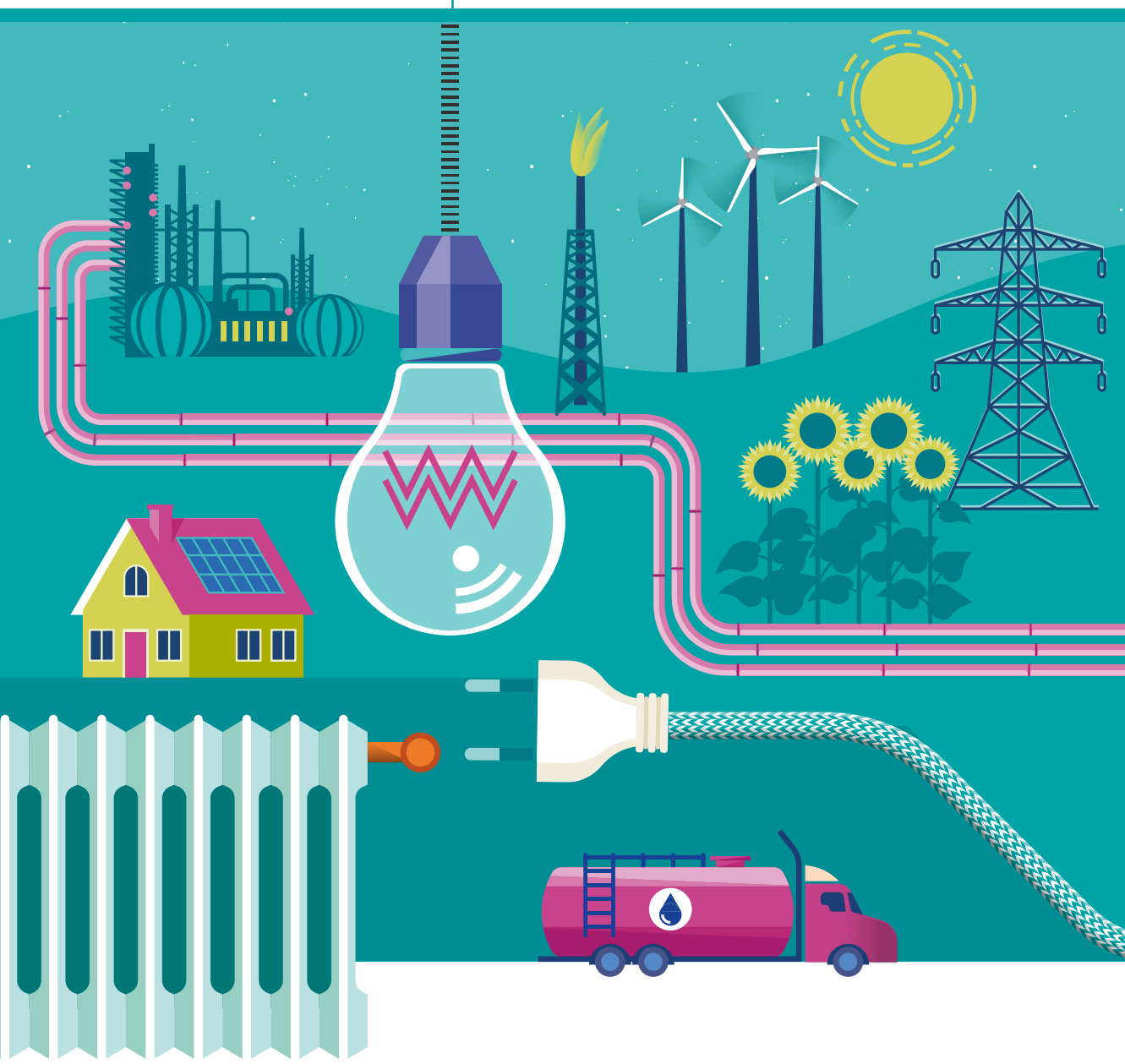


Introduction

The European Union's energy policy stresses the need for secure energy supplies, sustainable energy consumption, lower fossil fuel dependence and improvements in energy efficiency. Statistical evidence is necessary to support the European Energy Strategy and Energy Union decision-making. To this end, energy statistics is one of the key inputs for monitoring progress towards the existing targets and goals (Europe 2020 and Europe 2030) and developing new energy policies.

As energy is vital to many sectors of the economy, energy data contribute also to explaining developments in other areas such as transport and climate change. Major incidents, such as the current pandemic, having major implications for global economy, leave their footprint on energy use and production, as well as CO2 emissions. The analysis of energy statics can help countries understand their constraints and dependencies and be better prepared in facing a current or future crisis or emergency.

Eurostat collects detailed data for all Member States of the EU, the European Economic Area countries, the candidate countries and potential candidates, and the Energy Community Contracting Parties. Annual energy statistics provide an overview of the energy balance in each country, covering - on the supply side - production, trade and stock changes, as well as transformation of energies and - on the demand side - analytical data on the consumption in industry, transport, households and services. In addition, complementing indicators are collected, such as calorific values and capacities of production. Statistics are compiled for crude oil, various oil products, natural gas, electricity, derived heat, different types of solid fossil fuels, renewables (including biofuels) and wastes. In parallel, monthly data are collected. Even though they provide more limited information, they are more up to date compared to the detailed annual statistics and thus can be valuable in assessing the new trends and developing needs.

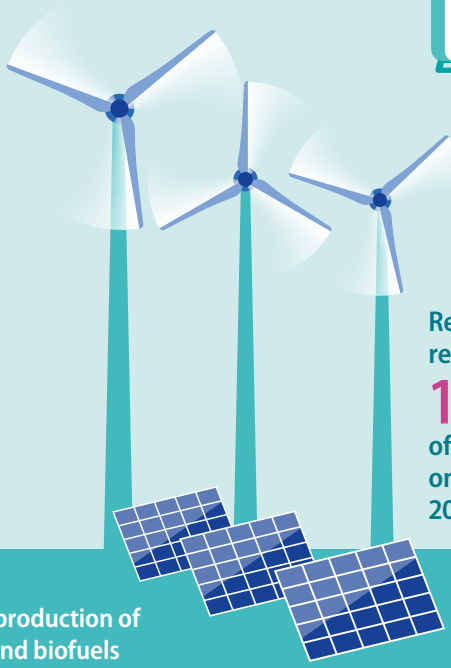
The legal basis for monthly and annual energy data collections is Regulation (EC) No 1099/2008 on energy statistics. Furthermore, Eurostat collects and publishes electricity and natural gas prices based on Regulation (EU) No 2016/1952 on European statistics on natural gas and electricity prices and cooperates with DG Energy on the reports on energy prices and costs in Europe. To complement the market overview, Eurostat collects on a voluntary basis 'competition indicators' for natural gas and electricity markets. The Europe 2020 strategy emphasises smart, sustainable and inclusive growth in order to improve Europe's competitiveness and productivity. For energy, the goals for 2020 are reaching 20 % share of energy from renewable sources and improving energy efficiency by 20 % (compared to the projected business-as-usual primary energy consumption (PEC) in 2020). Eurostat provides main indicators monitoring progress towards these targets as well as complementary data that can provide additional insights into the developments. Especially for the share of energy from renewable sources, Eurostat has developed the SHARES tool that implements Directive 2009/28/EC on the use of energy from renewable energy.

The growing demand for energy data is a continuous challenge for statisticians. Eurostat is always trying to adapt to the rapidly changing policy request and offer high quality energy statistics to experts and the general public.

Energy in the EU: 2018 facts and figures

Russia was the main supplier of natural gas, crude oil, and solid fuels

Natural gas imports decreased by **3.6 %** in the last decade, while compared to 1990 they doubled



Renewable energy represented **18.9 %** of energy consumed, on a path to the 2020 target of 20 %

The primary production of renewables and biofuels increased compared to 2017 by almost **2.8 %**

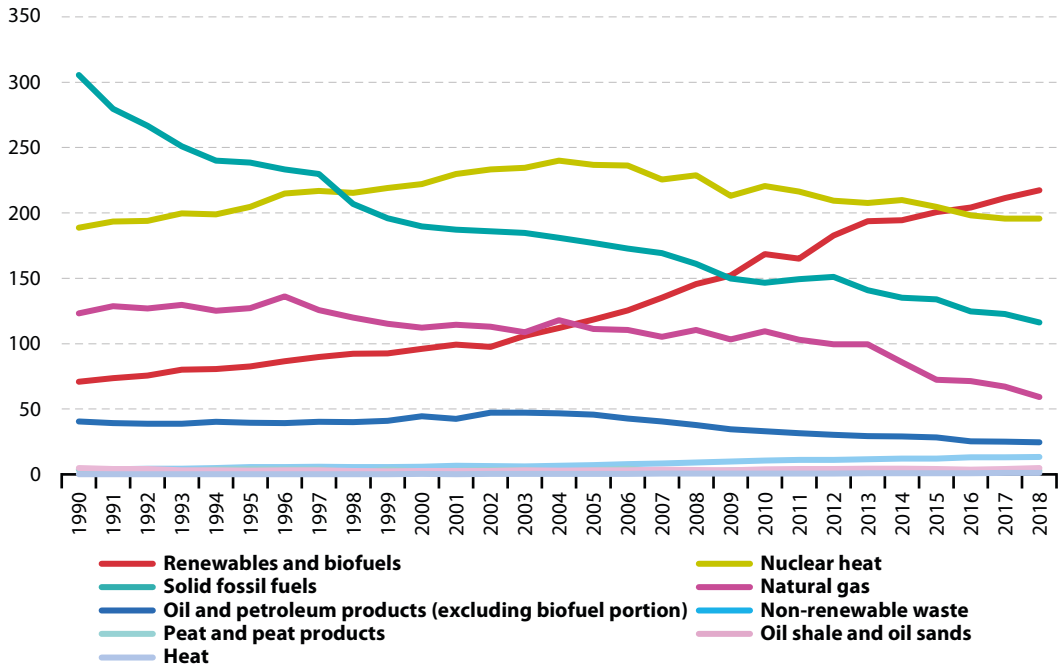
1.1 Primary energy production

Primary production of energy within the EU in 2018 was 635 million tonnes of oil equivalent (Mtoe), 1.1 % lower than in 2017. The biggest decrease was in natural gas (11.8 %), followed by solid fossil fuels with the same downward trend (5.3 % decrease) and oil and petroleum products (2.1 % decrease). An increase was registered for renewable energies with 2.8 % and non-renewable waste with 1.5 %, while nuclear heat remained almost constant (0.1 % increase) (Figure 1.1.1). Renewable energies accounted for the highest share in primary energy production in EU in 2018 (34.2 %), followed by nuclear heat (30.8 %), solid fossil fuels (18.3 %), natural gas (9.3 %), oil and petroleum products (3.9 %) and non-renewable wastes (2.1 %).

Over the past decade (2008-2018), the trend in primary energy production was generally negative for solid fossil fuels, oil, natural gas and nuclear energy. The production of natural gas and oil and petroleum products accounted for the biggest decreases (with 46.4 % and 35.3 % respectively) while solid fossil fuels production fell by 27.9 %. However, there was a positive trend in the production of renewable energies over the same period (with an exception in 2011), with a 49.2 % increase, as well as for waste (non-renewable) with a 46.0 % increase.

Production of primary energy in the European Union (EU) totalled 635 million tonnes of oil equivalent (Mtoe) in 2018 (Table 1.1.1). This was only 1 % lower than a year before and continued the general downward development observed in recent years, with a few exceptions in 2010 when production rebounded following a relatively strong fall in energy production in 2009 that coincided with the global financial and economic crisis, and then in 2012-2013 when a slight increase occurred again.

Figure 1.1.1: Primary energy production by fuel, EU-27, 1990-2018
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_bal_c)

Table 1.1.1: Energy production, 2008 and 2018

	Total production of primary energy		Share of total production, 2018					
	2008	2018	Nuclear energy	Solid fossil fuels	Natural gas	Crude oil	Renewable energy	Other
	(million tonnes of oil equivalent)		(%)					
EU-27	**698.8**	**634.8**	**30.8**	**18.3**	**9.3**	**3.4**	**34.2**	**3.9**
Belgium	13.9	11.8	63.1	0.0	0.0	0.0	28.4	8.4
Bulgaria	10.2	12.0	34.9	42.3	0.2	0.2	21.4	1.0
Czechia	33.2	27.3	27.2	53.3	0.7	0.4	16.7	1.7
Denmark	26.7	14.0	0.0	0.0	26.4	41.5	29.5	2.6
Germany	136.3	112.9	17.3	33.5	4.2	1.9	38.1	5.0
Estonia	4.2	6.6	0.0	0.0	0.0	0.0	26.4	73.6
Ireland	1.6	5.0	0.0	0.0	54.6	0.0	26.3	19.1
Greece	9.9	7.5	0.0	56.7	0.2	2.7	40.0	0.4
Spain	30.2	34.6	41.8	2.5	0.2	0.3	54.2	0.9
France	135.9	137.9	78.0	0.0	0.0	0.6	20.0	1.4
Croatia	4.8	4.2	0.0	0.0	24.3	16.7	57.0	2.0
Italy	32.9	37.3	0.0	0.0	11.9	12.5	71.4	4.1
Cyprus	0.1	0.2	0.0	0.0	0.0	0.0	97.8	2.2
Latvia	1.8	2.9	0.0	0.0	0.0	0.0	99.7	0.3
Lithuania	4.1	2.0	0.0	0.0	0.0	2.3	80.3	17.4
Luxembourg	0.1	0.2	0.0	0.0	0.0	0.0	82.2	17.8
Hungary	10.9	10.9	36.9	10.5	13.5	7.4	27.6	4.1
Malta	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0
Netherlands	67.7	36.6	2.2	0.0	75.9	2.5	15.5	3.9
Austria	11.2	12.0	0.0	0.0	7.2	5.7	81.6	5.6
Poland	70.7	61.4	0.0	76.5	5.6	1.7	14.5	1.7
Portugal	4.5	6.5	0.0	0.0	0.0	0.0	97.5	2.5
Romania	28.9	25.1	11.5	16.0	34.2	13.5	23.6	1.2
Slovenia	3.7	3.4	40.1	26.5	0.4	0.0	31.2	1.8
Slovakia	6.3	6.0	62.7	6.1	1.3	0.1	26.9	2.9
Finland	16.5	19.7	27.6	0.0	0.0	0.0	60.7	11.7
Sweden	32.6	36.6	45.7	0.0	0.0	0.0	52.0	2.3
United Kingdom	166.7	121.3	11.6	1.3	28.7	40.6	13.7	4.0
Iceland	4.5	5.4	0.0	0.0	0.0	0.0	100.0	0.0
Norway	221.5	206.2	0.0	0.0	51.6	36.1	6.9	5.3
Montenegro	0.7	0.7	0.0	49.9	0.0	0.0	50.1	0.0
North Macedonia	1.6	1.1	0.0	70.6	0.0	0.0	29.4	0.0
Albania	1.1	2.0	0.0	7.2	1.7	45.5	45.5	0.0
Serbia	10.7	10.0	0.0	65.9	3.6	9.2	20.8	0.5
Turkey	28.7	39.9	0.0	41.5	0.9	7.5	48.0	2.1
Bosnia and Herzegovina	:	5.7	0.0	64.5	0.0	0.0	35.5	0.0
Kosovo*	1.7	1.8	0.0	78.3	0.0	0.0	21.7	0.0
Moldova	:	0.8	0.0	0.0	0.0	0.6	99.3	0.0
Ukraine	81.7	60.9	36.5	23.5	27.1	2.7	7.9	2.3
Georgia	:	1.3	0.0	4.5	0.7	2.4	92.4	0.0

Note: Category 'other' includes natural gas liquids, additives and oxygenates (excluding biofuel portion), other hydrocarbons, peat, oil shale and oil sands, industrial waste (non-renewable), non-renewable municipal waste and heat.

(*) This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: nrg_bal_c)

When viewed over a longer period, the production of primary energy in the EU was 9.2 % lower in 2018 than it had been a decade earlier. The general downward development of EU primary energy production may, at least in part, be attributed to supplies of raw materials becoming exhausted and/or producers considering the exploitation of limited resources uneconomical.

In 2018, the highest level of primary energy production among the EU Member States was in France, with a 21.7 % share of the EU total, followed by Germany (17.8 %), Poland (9.7 %) and Italy (5.9 %). Compared with a decade earlier, some of the main changes were increases of 19.2, 14.7, 13.6 and 12.4 percentage points in the shares of Finland, Spain, Italy and Sweden and falls of 47.5, 46.0, 17.2 and 13.1 percentage points in the

shares of Denmark, the Netherlands, Germany and Poland.

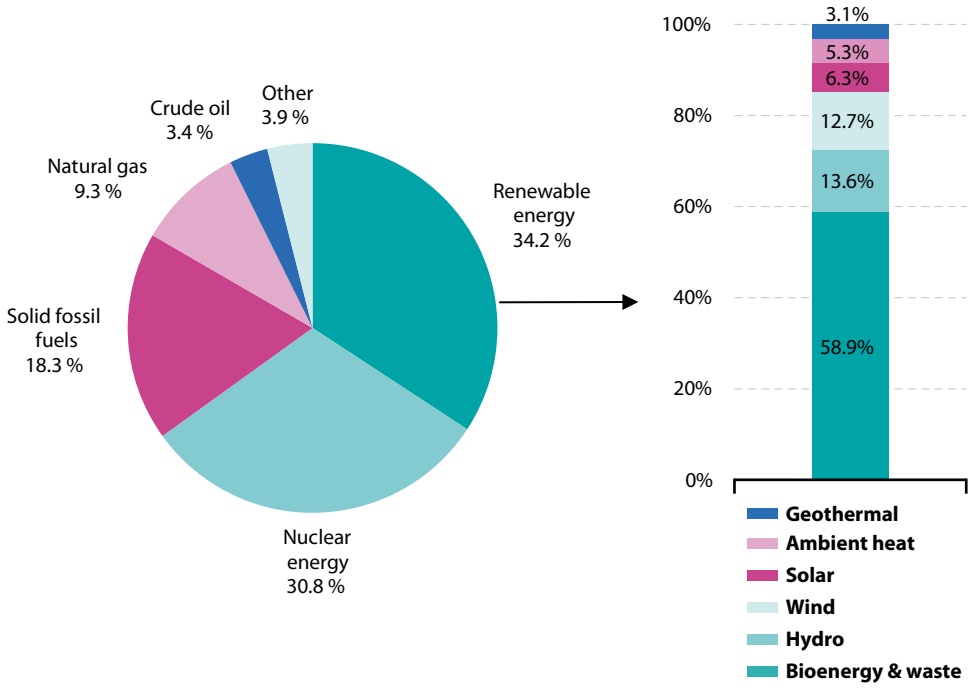
In absolute terms, 14 of the 27 EU Member States recorded an expansion in their level of primary energy production in the period 2008 to 2018. The largest expansion in the production was registered in Italy (an increase of 4.5 mtoe), followed by Spain (4.4 mtoe), Sweden (4.0 mtoe), Ireland (3.4 mtoe), and Finland (3.2 mtoe). By contrast, the production of primary energy in the Netherlands fell by as much as 31.2 mtoe, while Germany (-23.4 mtoe) and Denmark (-12.7 Mtoe) also reported contractions in excess of 10 mtoe.

Primary energy production in the EU in 2018 was spread across a range of different energy sources, the most important of which in terms of the size of its contribution were the renewable energy sources, with more than one third (34.2 %) of the EU's total production.

Nuclear energy was second, with 30.8 % of the total primary energy production. The significance of nuclear energy was particularly high in France where it accounted for 78.0 % of the national production of primary energy, while in Belgium and Slovakia it was over three fifths (63.1 % and 62.7 % respectively). In 10 other Member States the share of nuclear energy in primary production was less than half of the total. There was no nuclear energy production in 14 EU Member States.

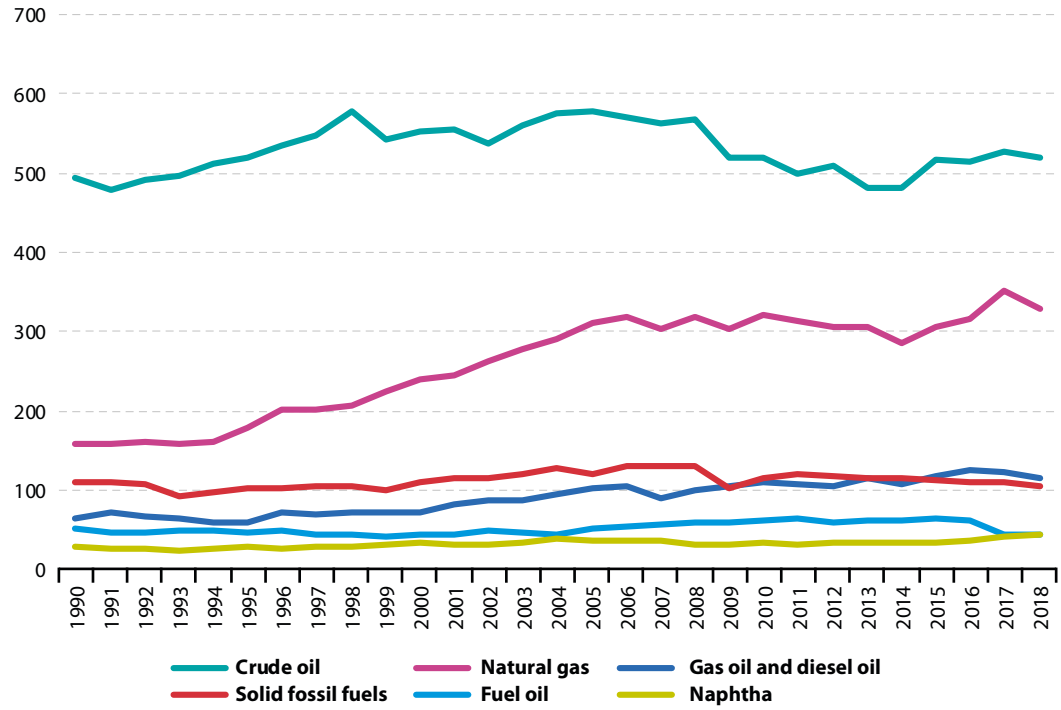
The share for solid fossil fuels (18.3 %, largely coal) was just below one fifth and the share for natural gas was close to one tenth (9.3 %). Crude oil (3.4 %) was the only other major source of primary energy production (Figure 1.1.2).

Figure 1.1.2: Production of primary energy, EU-27, 2018
(% of total, based on tonnes of oil equivalent)



Source: Eurostat (online data codes: nrg_bal_c)

Figure 1.2.1: Imports of selected energy products, EU-27, 1990-2018
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_bal_c)

1.2 Energy trade & dependency

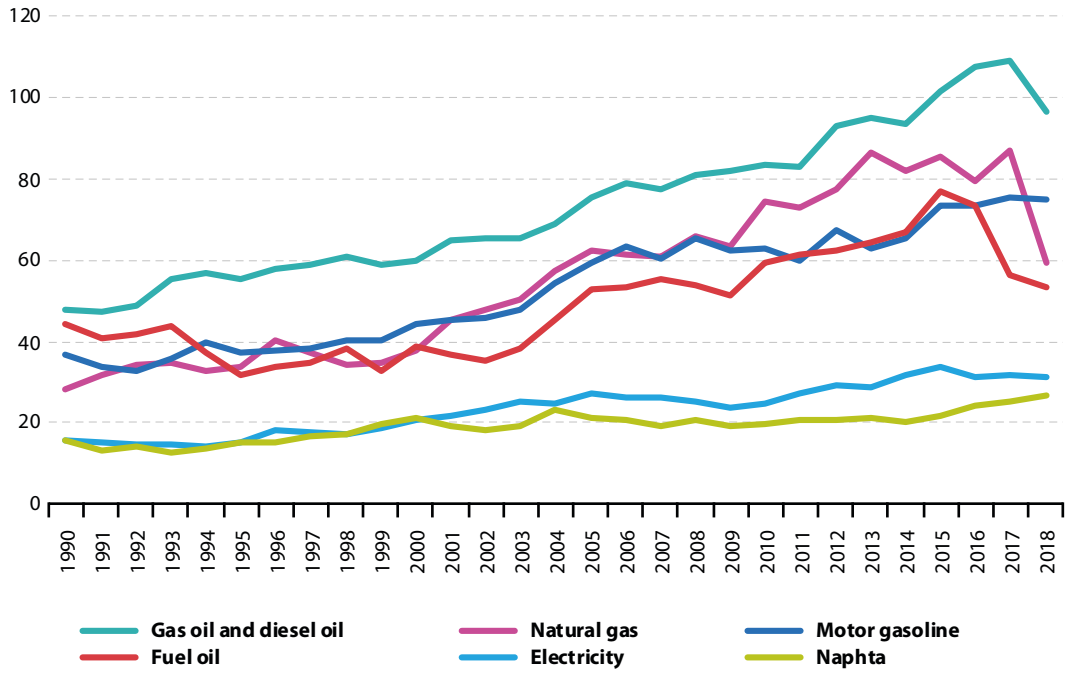
The decrease of primary energy production in the EU over the past decades resulted in increased imports of primary energy and energy products.

The quantity of imported natural gas more than doubled over the period 1990–2018 to 330 mtoe (Figure 1.2.1), making it the second highest imported energy product. In 2017, imports from natural gas reached the highest value, while in 2018 a decrease of 3.6 % was recorded compared to 2008. Crude oil ranked first in terms of quantities imported, though for 2018, the figure was 519 mtoe, 8.5 % lower than 10 years previously.

Exports are much lower than imports (Figure 1.2.2). In 2018, gas oil and diesel oil (around 97 mtoe) ranked highest, followed by motor gasoline (75 mtoe) and natural gas (59 mtoe).

It should be noted that data for imports and exports include intra-EU trade.

Figure 1.2.2: Exports of selected energy products, EU-27, 1990-2018
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_bal_c)

The main origins of EU energy imports have changed somewhat in recent years. Russia has maintained though throughout the whole period 2008-2018 its position as the leading supplier of the main primary energy commodities to the EU – including hard coal, crude oil and natural gas (Table 1.2.1).

In 2018, 42.4 % of the EU's imports of hard coal were from Russia. Russia is constantly the largest hard coal supplier to the EU in the last decade except for 2012. The United States had been the second main supplier of hard coal imports to the EU in 2018 with 18.6 % of the total. Between 2008 and 2015 the share of EU-27 hard coal imports originating from Colombia almost doubled, rising from 11.7 % to 21.1 % of the total, with its share falling to 13.4 % in 2018.

Russia was also the principal supplier of EU crude oil imports. Its share stood at 32.1 % in 2008 and fluctuated between 35.6 % (which was also the peak recorded in 2011) and 30.0 % (the lowest share, recorded in 2015). In 2018, its share stood at 29.8 %. The relative share of EU crude oil supplies from Iraq increased at a rapid pace between 2008 and 2018 reaching 8.7 %, thus becoming the second largest crude oil suppliers, before Saudi Arabia (7.4 %), which had a relatively stable share between 2008 and 2018.

Russia's share of EU imports of natural gas between 2008 and 2018 increased slightly (40.4 %); nevertheless, the lowest level was recorded in 2010 (35.2 %) and the peak of 45.3 % was recorded in 2013. During the period shown in Table 1.2.1, Norway remained the second largest supplier of EU imports of natural gas, its share slowly falling from 22.0 % in 2008 to 18.1 % in 2018. The share of EU natural gas supplies that originated from Algeria, the third largest supplier, declined between 2008 and 2018, whereas the share from Qatar almost doubled.

The security of the EU's primary energy supplies may be threatened if a high proportion of imports

are concentrated among relatively few partners. Almost three quarters (70.3 %) of the EU's imports of natural gas in 2018 came from Russia, Norway and Algeria. A similar analysis shows that close to three quarters (74.3 %) of EU hard coal imports originated from Russia, the United States and Colombia, while imports of crude oil were slightly less concentrated among the principal suppliers, as Russia, Iraq and Saudi Arabia accounted for roughly half (45.9 %) of the EU's imports.

Gross available energy represents the quantity of energy necessary to satisfy the energy needs of a country or a region. The ratio between net imports and gross available energy indicates

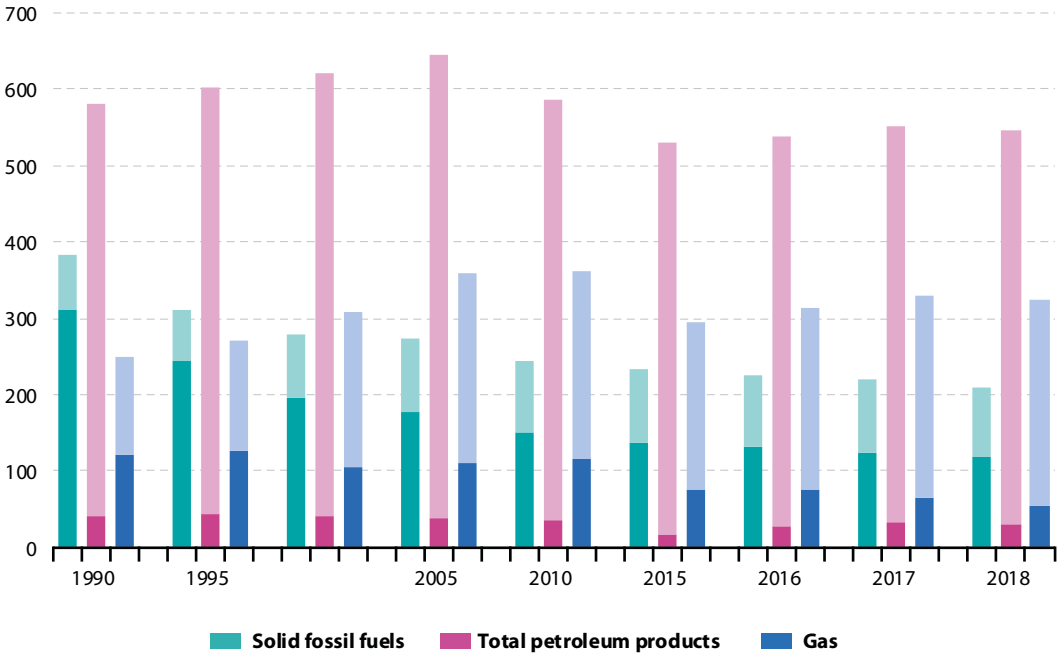
Table 1.2.1: Main origin of primary energy imports, EU-27, 2008-2018

(% of extra EU-27 imports)

	Hard coal (based on tonnes)										
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Russia	19.9	25.8	25.5	24.2	22.1	26.6	27.7	28.5	30.8	38.1	42.4
United States	15.9	14.7	17.5	18.3	22.5	20.6	18.7	13.5	13.0	16.0	18.6
Colombia	11.7	17.0	17.7	20.5	20.9	18.2	18.8	21.1	20.4	17.2	13.4
Australia	13.3	7.9	10.9	9.1	8.7	9.8	8.3	12.1	16.7	11.8	11.8
Indonesia	7.8	8.0	6.3	6.1	5.9	4.4	4.7	4.6	3.5	3.5	3.8
South Africa	18.5	17.5	10.9	9.5	8.1	7.8	10.0	8.3	5.5	5.1	2.8
Canada	2.7	1.8	2.2	2.6	2.1	2.3	3.5	1.8	2.5	2.6	2.6
Mozambique	0.0	0.0	0.0	0.1	0.0	0.2	0.3	0.5	0.7	1.3	1.8
Kazakhstan	0.4	0.2	0.2	0.4	0.4	0.4	0.7	0.6	0.6	0.7	1.0
Others	9.8	7.2	8.7	9.3	9.4	9.8	7.2	8.9	6.3	3.7	2.0
	Crude oil (based on tonnes)										
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Russia	32.1	34.2	35.2	35.6	34.3	35.0	31.7	30.0	32.7	31.0	29.8
Iraq	3.4	3.9	3.4	3.7	4.3	3.9	4.8	7.9	8.6	8.5	8.7
Saudi Arabia	7.1	5.9	6.1	8.4	9.2	8.8	9.0	8.0	7.8	6.6	7.4
Norway	9.6	9.6	7.8	7.3	6.9	8.2	9.3	8.4	8.0	7.8	7.2
Kazakhstan	5.0	5.5	5.7	6.0	5.4	6.1	6.7	6.8	7.0	7.7	7.2
Nigeria	3.7	4.2	3.9	5.7	7.3	7.3	8.4	7.8	5.2	5.8	7.1
Libya	9.9	9.0	9.9	2.8	8.0	5.5	3.4	2.5	2.2	4.9	6.1
Azerbaijan	3.3	4.2	4.5	5.1	4.0	5.0	4.7	5.4	4.7	4.7	4.6
Iran	5.5	4.8	5.9	6.1	1.3	0.0	0.1	0.0	3.0	5.5	3.9
United Kingdom	5.2	5.0	5.6	4.6	4.5	4.2	4.3	4.0	4.1	4.1	3.9
Others	15.1	13.7	12.0	14.7	14.7	15.9	17.6	19.1	16.7	13.5	14.1
	Natural gas (based on terajoule (gross calorific value - GCV))										
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**
Russia	39.4	35.6	35.2	38.3	38.6	45.3	41.2	41.6	43.7	41.8	40.4
Norway	22.0	23.9	22.2	23.0	25.5	23.5	26.0	25.7	18.0	17.9	18.1
Algeria	15.5	14.8	15.0	14.4	14.7	13.7	13.0	11.8	13.5	11.4	11.8
Qatar	2.5	4.1	6.2	6.0	4.7	4.2	3.7	4.1	3.3	4.1	4.6
Nigeria	4.2	2.6	4.4	4.5	3.5	1.9	1.6	2.2	2.2	2.7	3.0
United Kingdom	2.8	3.4	3.8	4.3	3.6	3.1	3.3	4.2	2.8	3.0	2.4
Libya	3.1	3.1	3.0	0.8	2.1	1.9	2.3	2.3	1.4	1.2	1.2
Trinidad and Tobago	1.6	1.8	1.1	1.2	1.0	0.8	0.9	0.5	0.2	0.2	0.8
United States	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.5
Peru	0.0	0.0	0.0	0.0	0.8	0.5	0.5	0.4	0.6	1.0	0.5
Others	8.9	10.6	9.1	7.5	5.5	5.2	7.4	7.3	14.2	16.2	16.6

Source: Eurostat (online data codes: nrg_ti_sff, nrg_ti_oil and nrg_ti_gas)

Figure 1.2.3: Energy dependency by fuel, EU-27, in selected years, 1990-2018
(million tonnes of oil equivalent)



Note: The light coloured proportion of the column shows net imports with respect to gross inland energy consumption (including international maritime bunkers), which is represented by total column height.

Source: Eurostat (online data code: nrg_bal_s)

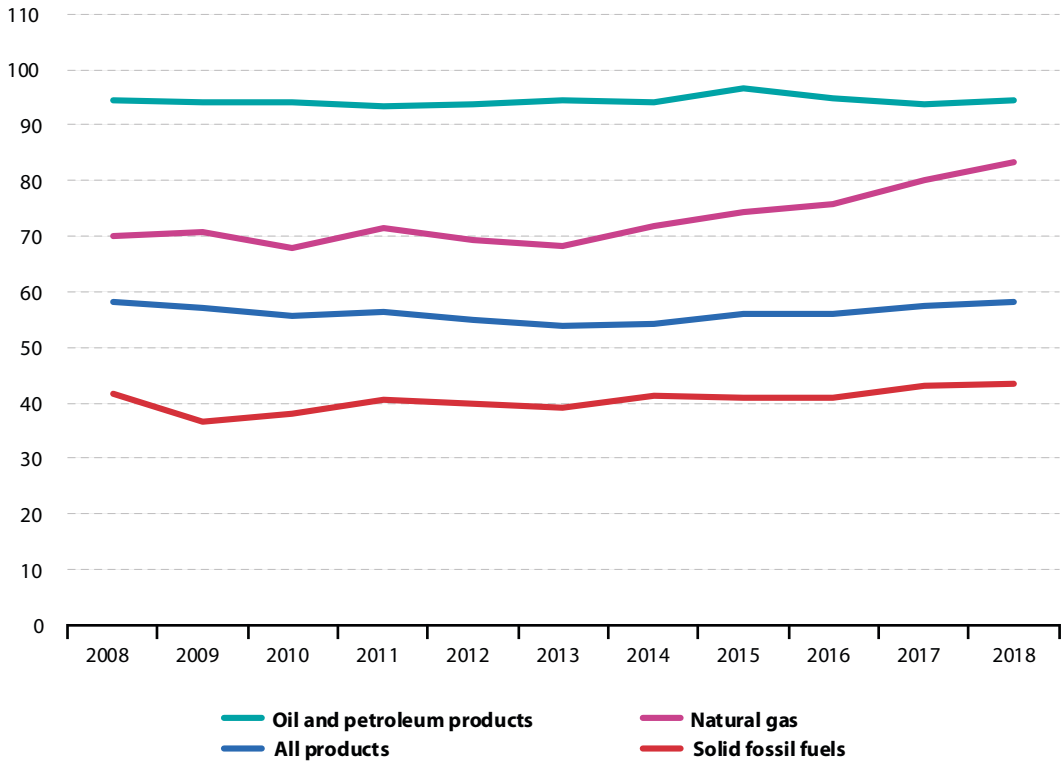
the ability of a country or region to meet all its energy needs. In other words, it shows the extent to which a country or a region is dependent on energy imports. This is illustrated in Figure 1.2.3, where the light coloured proportion of the column shows net imports with respect to gross available energy (the sum of gross inland consumption and international maritime bunkers), which is represented by total column height.

In 2018 in the EU, the highest need (gross inland consumption + international maritime bunkers) was for oil and petroleum products, 547.3 mtoe, of which 94.6 % were imported. For natural gas the need in 2018 was 324.6 mtoe, 83.2 % of it covered by imports. The production of solid fossil fuels in the EU has been in decline over the last two decades as was its gross inland consumption. At EU level in 2018, 43.6 % of solid fuels consumed were imported.

The long trend since 1990, when import dependency was 50.1 %, shows increased import dependency. On the aggregated level, this is increasing for all fuels, however in recent years some stabilisation of this increase was evident (since 2000 until 2017 the import dependency ranged from 55.7 % to 57.8 %), while in 2018 it further increased to 58.2 %.

EU dependency on energy imports did not change much over the last decade, from 58.4 % of gross available energy in 2008 to 58.2 % in 2018 (Figure 1.2.4). During the presented period, the EU's net imports of energy have been greater

Figure 1.2.4: Energy dependency rate, EU-27, 2008-2018
(% of net imports in gross available energy, based on tonnes of oil equivalent)



Source: Eurostat (online data codes: nrg_ind_id)

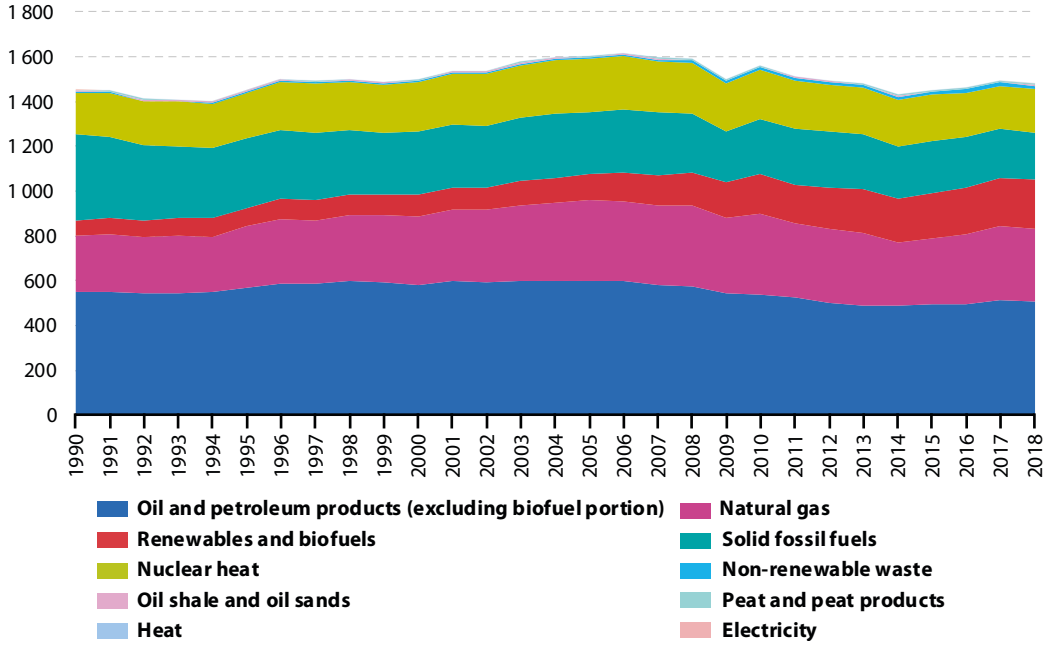
than its primary production; in other words, more than half of the EU's gross available energy was supplied by net imports and the dependency rate exceeded 50.0 %.

Between 2008 and 2018, some few variations were noticed on the energy dependency rate: a maximum of 58.4 % was registered in 2008, while 53.9 % was the lowest dependency registered in 2013. Looking in more detail, the highest rates in 2018 were recorded for crude oil (94.6 %) and for natural gas (83.2 %), while the latest rate available for solid fossil fuels was 43.6 %.

Between 2008 and 2018, the EU's dependency on non-member countries for supplies of natural gas grew by 13.1 percentage points, much faster than the growth in dependency for solid fossil fuels (up 2.1 percentage points). The dependency for crude oil during the same period remained constant.

1.3 Energy consumption, energy savings, efficiency & intensity

Figure 1.3.1: Gross inland energy consumption by fuel, EU-27, 1990-2018
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_bal_c)

Gross inland energy consumption in the EU in 2018 was 1 479 mtoe, 0.8 % lower than in 2017 (Figure 1.3.1). It was relatively stable during the period 1990-2010, with a strong decrease in 2009, mostly as a result of the financial and economic crisis.

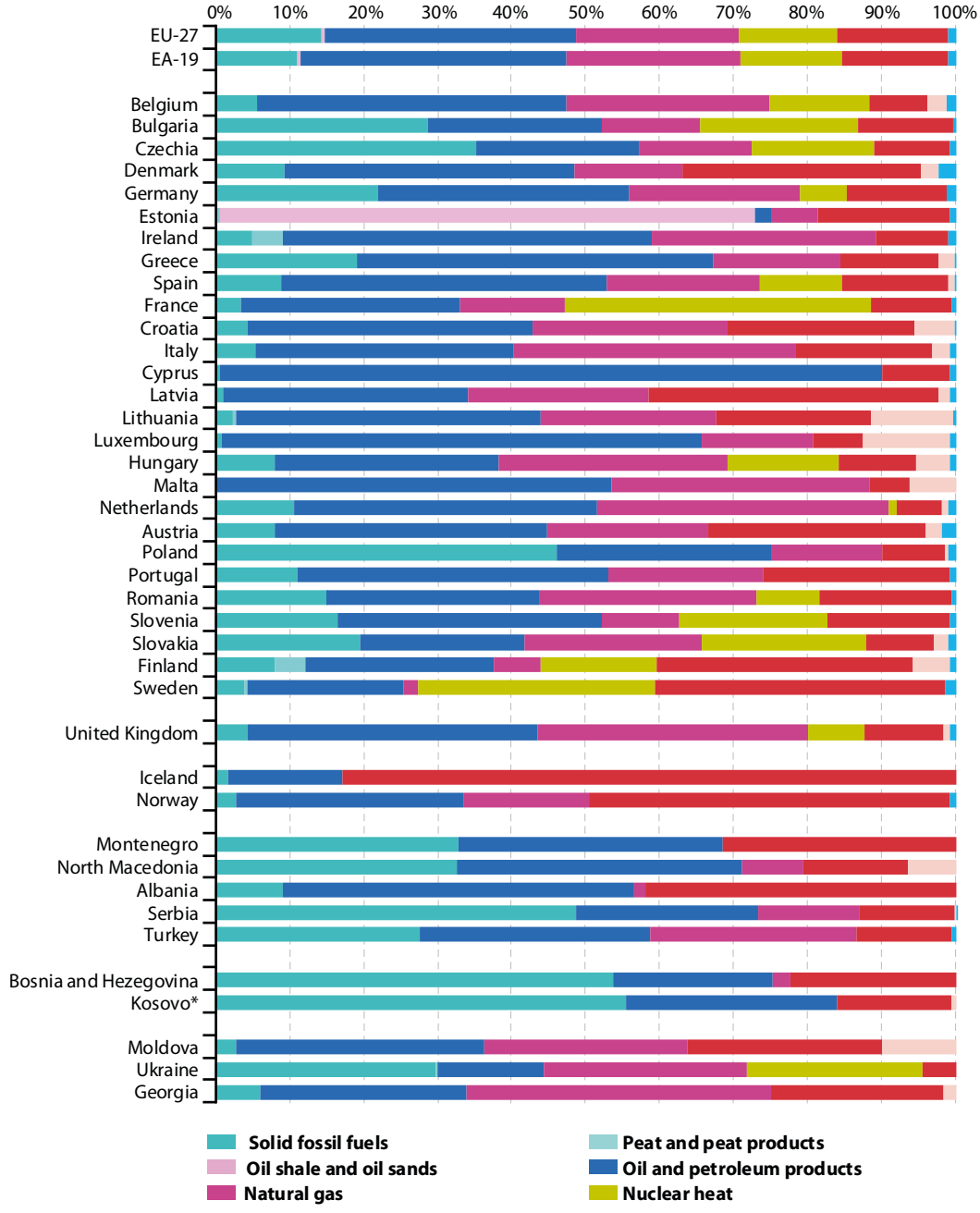
In 2009, gross inland energy consumption decreased by 5.9 % compared with 2008, with the sharpest decrease in solid fossil fuels (11.4 %), followed by natural gas (6.0 %) and oil and petroleum products with 5.9 %. There was a recovery in 2010, when gross inland energy consumption increased by 4.0 %, afterwards followed by consecutive decreases until 2015 when it started increasing again. The gross inland consumption in 2014 was just below the level recorded in 1990 and in 2018 it was 1.6 % above the 1990 levels.

A rise of over 200 % in renewable energies, a 29.9 % rise in natural gas and nuclear heat with 3.8 % contributed the most to the 2018 increase compared with 1990. In fact, the gross inland energy consumption in the EU in 1994 was the lowest since the historic time series allows for comparison (since 1990).

The mixture of fuels and their shares in gross inland energy consumption in different countries depends on the natural resources available, the structure of their economies and also national choices in energy systems.

Only in four EU countries is the cumulated share of solid fossil fuels, crude oil and petroleum products and natural gas (main fossil fuels), in gross inland energy consumption below 50 %: Estonia 8.9 %, Sweden 27.8 %, Finland 39.4 % and France 48.2 % (Figure 1.3.2). It should be noted that France and Sweden are the countries with the highest contribution of nuclear heat to the gross inland energy consumption (42.3 % and 32.9 % respectively).

Figure 1.3.2: Gross inland energy consumption by fuel, 2018
(%)



* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: nrg_bal_c)

In 2018, the share of solid fossil fuels in gross inland consumption was the highest in Poland (46.1 %) and Czechia (36.1 %). The EU average was 14.2 %. The smallest shares of solid fossil fuels in gross inland energy consumption (under 2 %) in 2018 were observed in Luxembourg, Latvia, Cyprus, Estonia and Malta.

For Estonia, oil shale and oil sands cover 74.1 % of the gross inland consumption while for Finland and Ireland the share of peat and peat products in the gross inland consumption was 4.2 % and 4.1 % respectively.

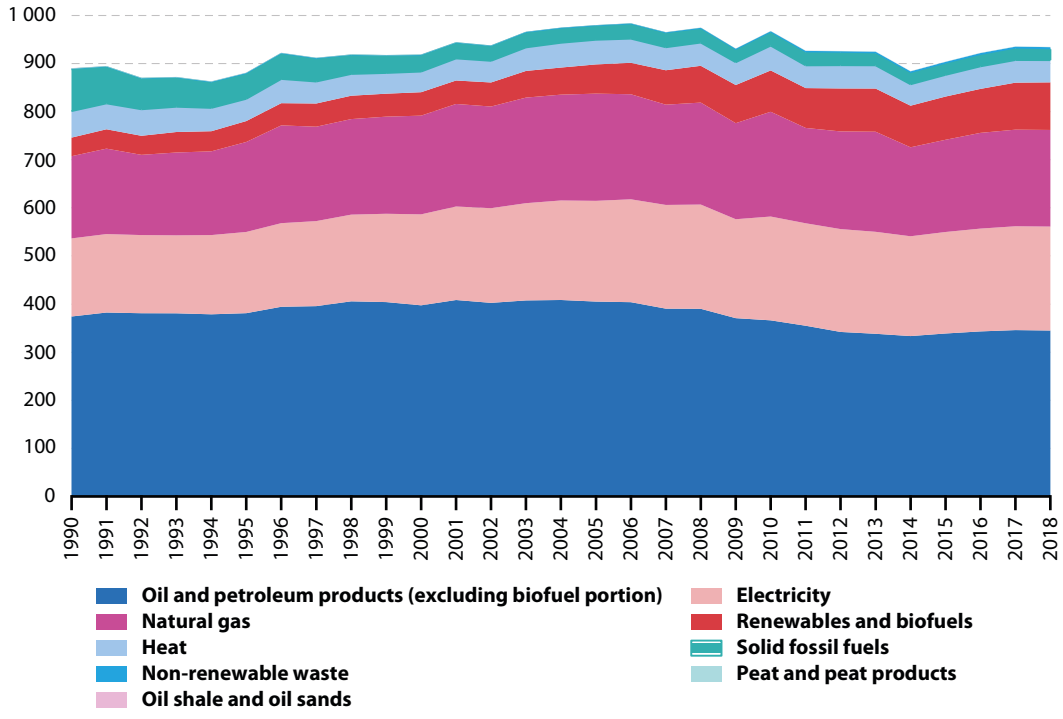
The largest shares of oil and petroleum products in gross inland energy consumption were observed in Cyprus (89.6 %), Luxembourg (64.7 %) and Malta (53.6 %). This is due to specific national characteristics: Malta and Cyprus are small islands while consumption in Luxembourg is affected by "fuel tourism" due to lower prices of fuels used in the transport sector.

Natural gas accounted for shares varying from 39.4 % in the Netherlands to under 2 % in Sweden and Cyprus. Natural gas was also a significant energy source in Italy, Hungary and Ireland with shares of over 30 %, and Romania nearly reaching the 30 % mark.

In two countries, Sweden and Latvia, renewable energies accounted for around 40 % of their gross inland energy consumption in 2018 (40.3 % and 39.1 % respectively). The lowest share of renewable energy in gross inland consumption was in Malta (5.4 %), the Netherlands (5.9 %) and Luxembourg (6.6 %).

In 2018, there were 13 Member States with nuclear power plants. The highest nuclear share was in France (a 42.3 % share of nuclear heat in gross inland energy consumption), followed by Sweden (32.9 %), Slovakia (22.1 %), Bulgaria (22.0 %) and Slovenia (20.0 %).

Figure 1.3.3: Final energy consumption by fuel, EU-27, 1990-2018
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_bal_c)

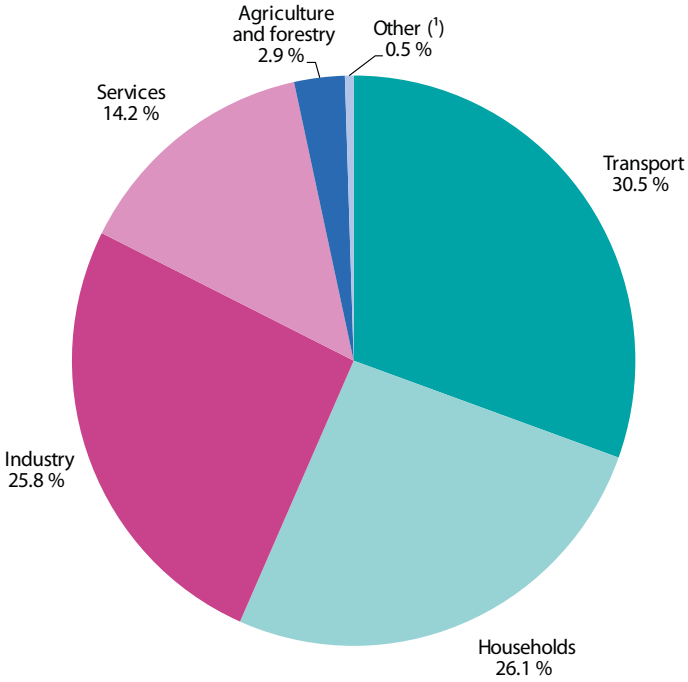
Figure 1.3.3 illustrates the evolution of final energy consumption since 1990. Final energy consumption in EU in 2018 was 939 mtoe, 0.1 % lower than in 2017. Final energy consumption has increased slowly since 1994, reaching its highest value, 991 mtoe, in 2006. By 2018, the final energy consumption decreased from its peak level by 5.1 %.

Since 1990, the amount and share of solid fossil fuels has fallen significantly (from 6.9 % in 1990, to 3.6 % in 2000, to 2.8 % in 2010, to 2.4 % in 2018). On the other hand, renewable energy sources have increased their share of the total, from 4.3 % in 1990, to 5.3 % in 2000, to 8.8 % in 2010, to 10.5 % in 2018, while natural gas has remained quite stable over the same period, with small variations between 18.8 % (in 1990) and 22.6 % (in 2005), reaching 21.4 % in 2018.

The biggest share in the structure of final energy consumption in 2018 was for oil and petroleum products (36.7 %), followed by electricity (23.0 %) and natural gas (21.4 %). Solid fossil fuels contributed only 2.4 % to the final energy consumption at the end-use level.

An analysis of the final end use of energy in the EU in 2018 shows three dominant categories: transport (30.5 %), households (26.1 %) and industry (25.8 %) (Figure 1.3.4).

Figure 1.3.4: Final energy consumption by sector, EU-27, 2018
(% of total, based on tonnes of oil equivalent)



(1) Data on "international aviation" are not included in category Transport and hence are included in the category "Other".

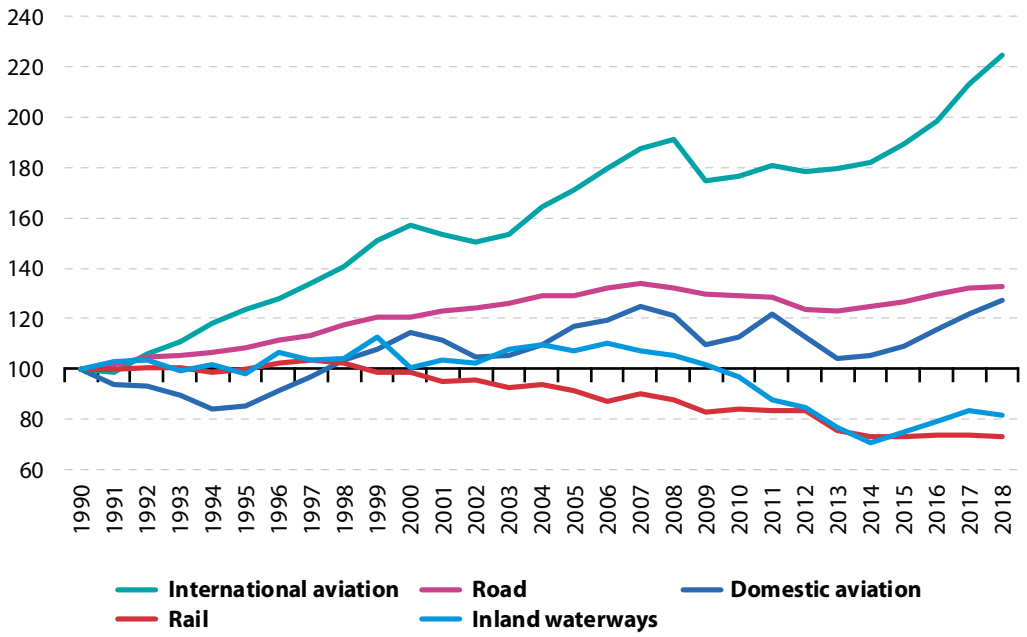
Source: Eurostat (online data codes: nrg_ind_id)

The total energy consumption of all transport modes in the EU amounted to 287 mtoe in 2018. There was a marked change in the development of energy consumption for transport after 2007. Until that year consumption had consistently increased, rising each year from the start of the time series in 1990. However, in 2008, as the global financial and economic crisis started, the consumption of energy for transport purposes fell by 1.4 %. This fall intensified in 2009 (-2.5 %), continued at a more subdued pace in 2010 (-0.2 %) and 2011 (-0.4 %), and decreased again more strongly in 2012 (-3.5 %) and 2013 (-1.3 %), before increases (of 1.3 %), were registered in 2014 and 2015, which continued also in 2016, 2017 and 2018 (2.4 %, 2.1 % and 0.6 % respectively). Overall, between the relative peak of 2007 and the low of 2013, final energy consumption for transport in the EU fell by 9.0 %.

There were considerable differences in the development of energy consumption across various transport modes, with rapid growth for international aviation (91.0 % between 1990 and 2008). However, there followed a considerable reduction in energy consumption for international aviation in 2009, down 8.4 %. For the next few years there was no clear pattern in terms of energy consumption developments for international aviation. However, there were six consecutive years of growth since 2013, such that the level of consumption in 2018 stood by 17.6 %, well above its previous relative peak of 2008.

As shown in Figure 1.3.5, international aviation had the highest growth in EU energy consumption among the principal modes of transport between 1990 and 2018 - rising 124.6 % overall. Road transport — by far the largest transport mode - and domestic aviation were the only other transport modes to report increases over this period, as their consumption rose by 32.8 % and 27.2 %, respectively. By contrast, in 2018 compared to 1990, energy consumption was 27.0 % lower for rail transport and 18.3 % lower for transport via inland waterways.

Figure 1.3.5: Energy consumption by transport mode, EU-27, 1990-2018
(1990 = 100, based on tonnes of oil equivalent)



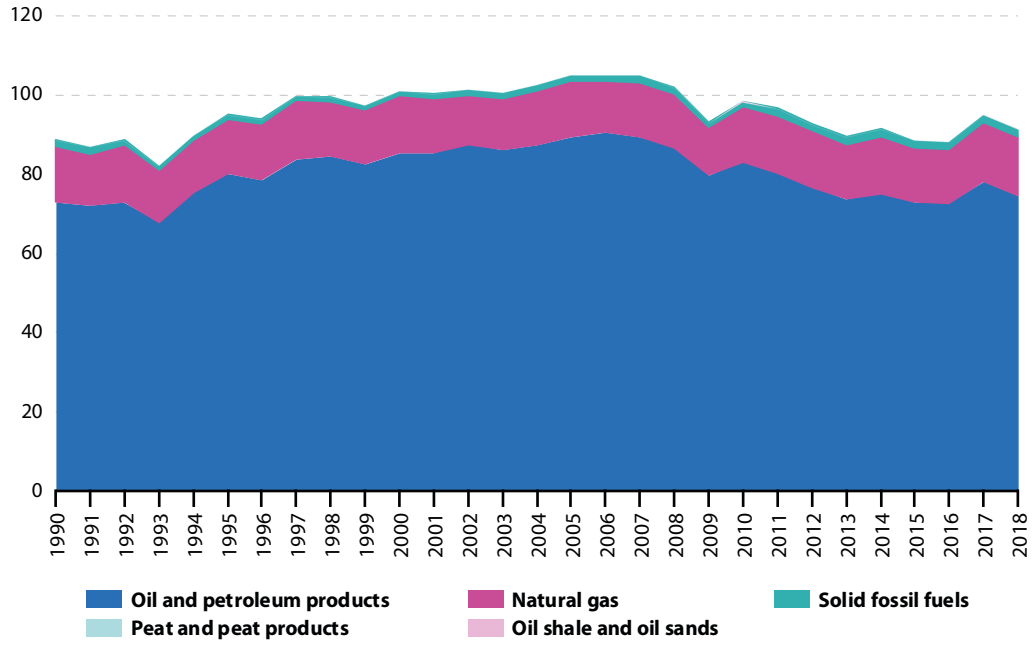
Source: Eurostat (online data code: nrg_bal_s)

In absolute terms, the largest decreases in energy consumption among the different transport modes were recorded for transport via inland waterways and for rail transport, where EU consumption was between 0.9 and 2.0 mtoe lower in 2018 than in 1990 (for both these modes). There was a small increase in the energy consumed by domestic aviation (1.3 mtoe), while the consumption of energy for international aviation rose by 22.7 mtoe between 1990 and 2018; for comparison the 66.1 mtoe increase recorded for road transport was nearly 3 times higher. These changes in energy consumption reflect the use of each transport mode, but can also be influenced by technological changes, especially when they relate to fuel-efficiency gains or losses.

Final non-energy consumption includes fuels that are used as raw materials and are not consumed as fuel or transformed into another fuel (for example, chemical reactions or bitumen for road construction). Non-energy consumption in 2018 amounted to 91.1 mtoe (Figure 1.3.6). Oil and petroleum products accounted for 74.6 %, natural gas 14.9 %, and 1.6 % of all non-energy consumption was from solid fossil fuels.

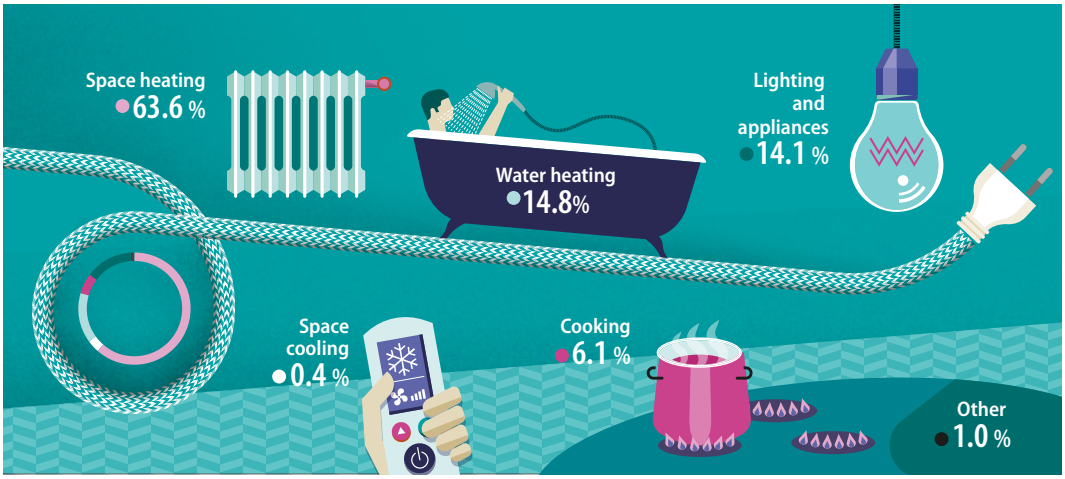
In the EU, the main use of energy by households is for heating their homes (63.6 % of final energy consumption in the residential sector) (Figure 1.3.7). Electricity used for lighting and most electrical appliances represents 14.1 % (this excludes the use of electricity for powering the

Figure 1.3.6: Non-energy consumption by fuel, EU-27, 1990-2018
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_bal_c)

Figure 1.3.7: Energy consumption in households, EU-27, 2018
(million tonnes of oil equivalent)

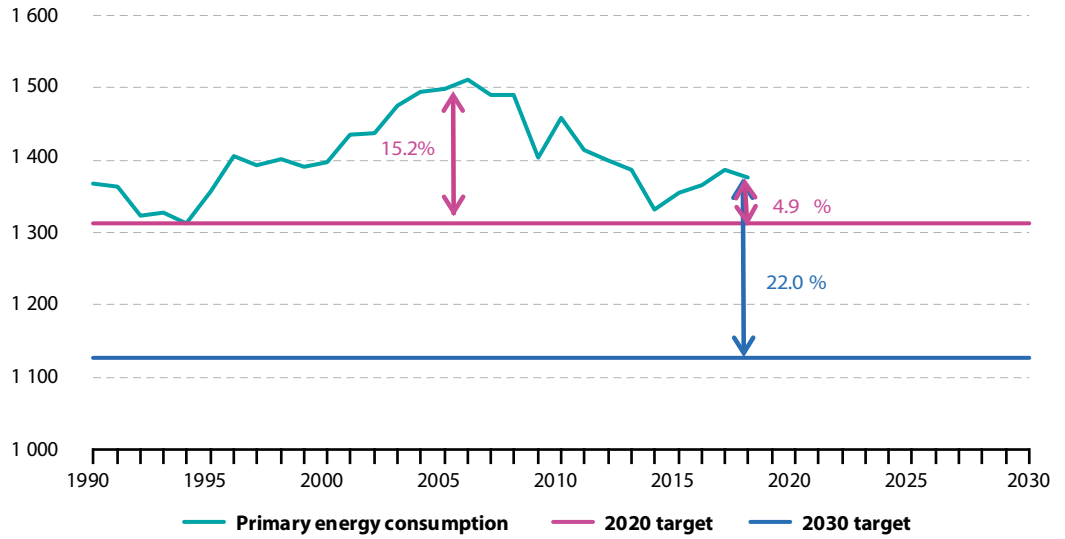


Source: Eurostat (online data code: nrg_bal_c)

main heating, cooling or cooking systems), while the proportion used for water heating is slightly higher, representing 14.8 %. Main cooking devices require 6.1 % of the energy used by households, while space cooling and other end-uses cover 0.4 % and 1.0 % respectively. Heating of space and water consequently represents 78.4 % of the final energy consumed by households.

Over the years, the primary energy consumption (Figure 1.3.8) has fluctuated as energy needs are influenced by economic developments, the structural changes in industry, the implementation of energy efficiency measures and also the specific

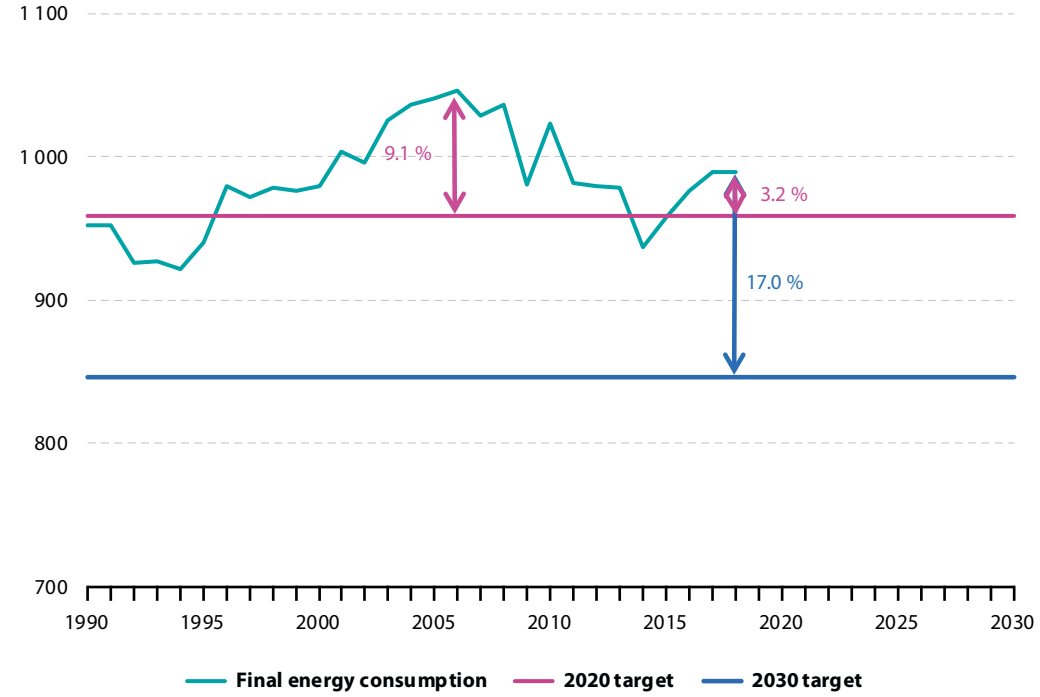
Figure 1.3.8: Distance to 2020 and 2030 targets for primary energy consumption, EU-27
(million tonnes of oil equivalent)



Note: The y-axis is cut.

Source: Eurostat (online data code: nrg_ind_eff)

Figure 1.3.9: Distance to 2020 and 2030 targets for final energy consumption, EU-27
(million tonnes of oil equivalent)



Note: The y-axis is cut.

Source: Eurostat (online data code: nrg_ind_eff)

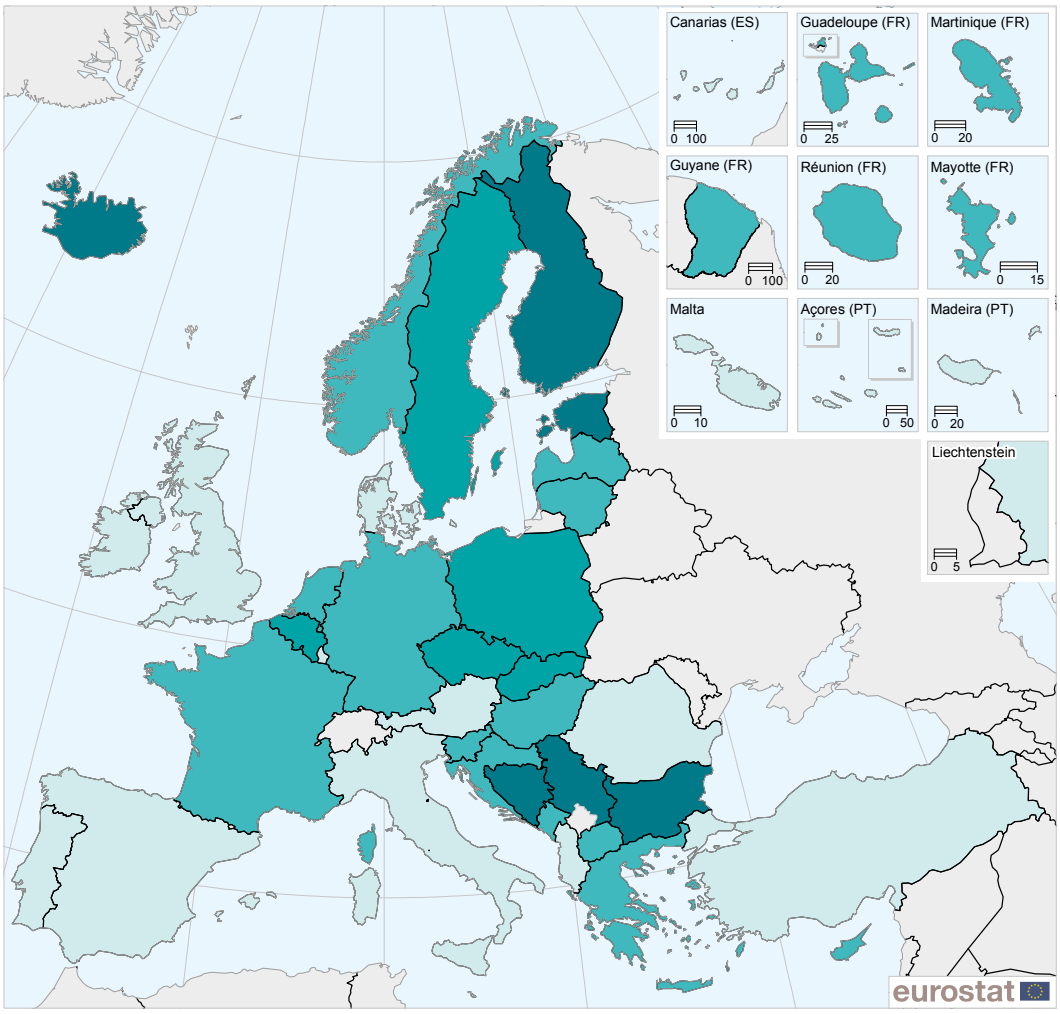
weather situation (such as cold vs. warm winters). After having increased by 4.0 % between 2014 and 2017 (three consecutive years of increases), the primary energy consumption decreased in 2018 by 0.7%. Since its peak in 2006, it decreased by 9.0 %. The gap between the actual level of primary energy consumption and the target level in 2020 was 15.2% in 2006, 1.5 % in 2014 and in 2018 it was 4.9 %. The distance to the 2030 target was 22.0 % in 2018.

Final energy consumption (Figure 1.3.9) has increased for the fourth consecutive year (increasing since 2014). In 2018 it was 5.5 % higher than in 2014. While in 2014 the final energy consumption was 2.2 % below the 2020 target level, in 2018 it was 3.2% above the 2020 target level. The distance to the 2030 target was 17.0 % in 2018. The final energy consumption peaked in 2006 and its level in 2018 was 5.4% below this peak.

Energy intensity can be considered as an approximation of the energy efficiency of a country's economy and shows how much energy is needed to produce a unit of GDP. There are various reasons for observing improvements in energy intensity: the general shift from industry towards a service based economy in Europe, a shift within industry to less energy-intensive activities and production methods, the closure of inefficient units, or more energy-efficient appliances. In Map 1.3.1, the energy intensity is presented using GDP purchasing power standards (PPS) values that are more suited for comparison across countries in a specific year.

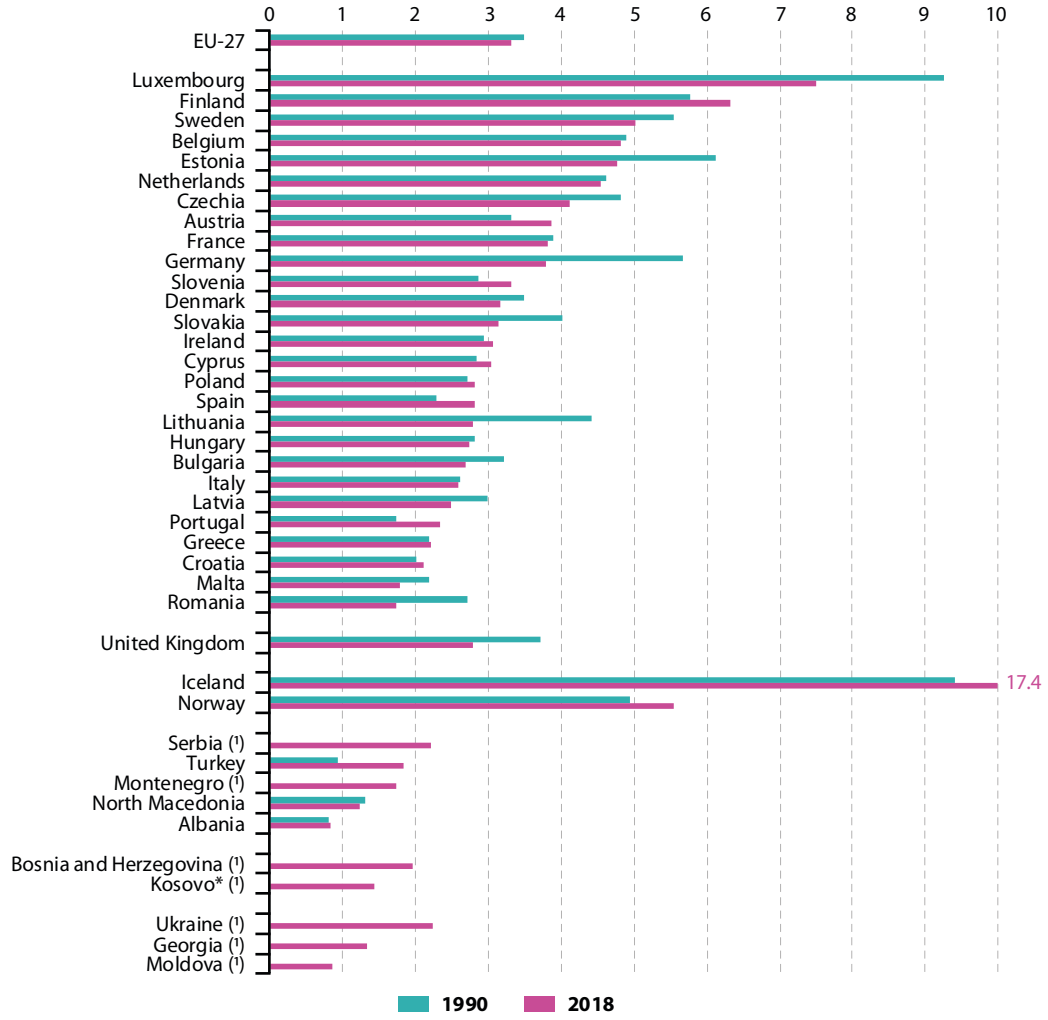
In 2018, gross inland consumption in Luxembourg and Finland was over 6 toe per capita. In Romania

Map 1.3.1: Energy intensity of the economy, 2018
(kilogram of oil equivalent per thousand euro PPS)



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

Figure 1.3.10: Gross inland energy consumption, 1990 and 2018
(tonnes of oil equivalent per capita)



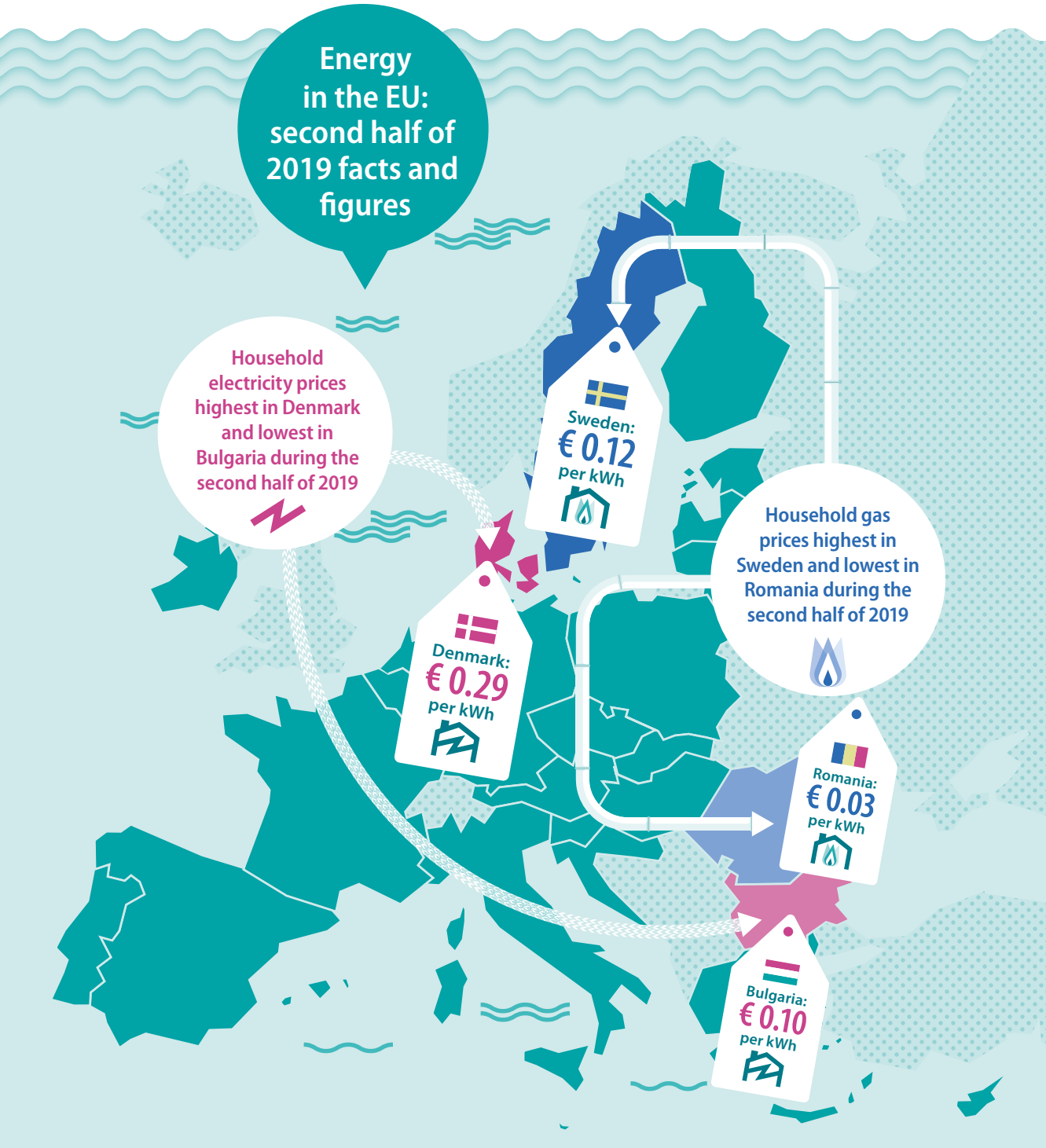
(1) No data for 1990.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

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

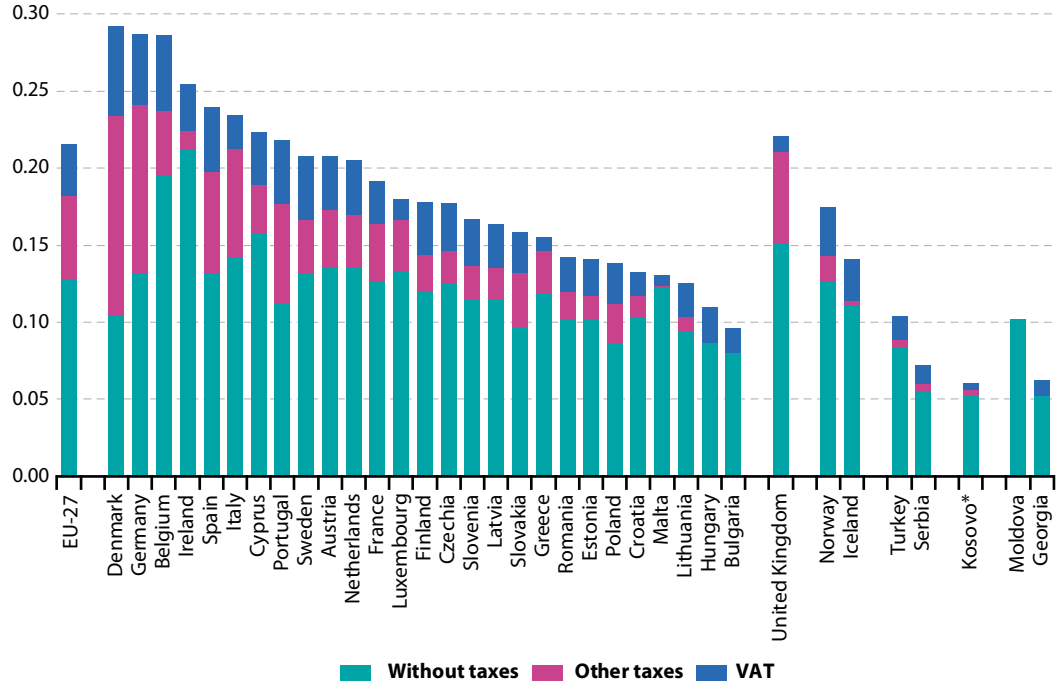
and Malta, consumption was under 2 toe per capita (Figure 1.3.10). This indicator is influenced by the structure of industry in each country, the severity of the winter weather, as well as by other factors, such as fuel tourism in the case of Luxembourg. The EU average in 2018 is 3.3 toe per capita.

Between 1990 and 2018, the EU average decreased by 4.8 %. However, at national level, the evolution varies. The biggest increase in gross inland consumption per capita between 1990 and 2018 was observed in Portugal (35.4 %), followed by Spain (22.9 %) and Austria (16.3 %), while the biggest decrease was observed in Lithuania (37.1 %), Romania (36.8 %) and Germany (33.1 %).


Energy in the EU: second half of 2019 facts and figures
Household electricity prices highest in Denmark and lowest in Bulgaria during the second half of 2019
Household gas prices highest in Sweden and lowest in Romania during the second half of 2019
Sweden: € 0.12 per kWh
Denmark: € 0.29 per kWh
Romania: € 0.03 per kWh
Bulgaria: € 0.10 per kWh

1.4 Energy prices

Figure 1.4.1: Electricity prices for household consumers, second half of 2019
(EUR per kWh)



* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

Source: Eurostat (online data code: nrg_pc_204)

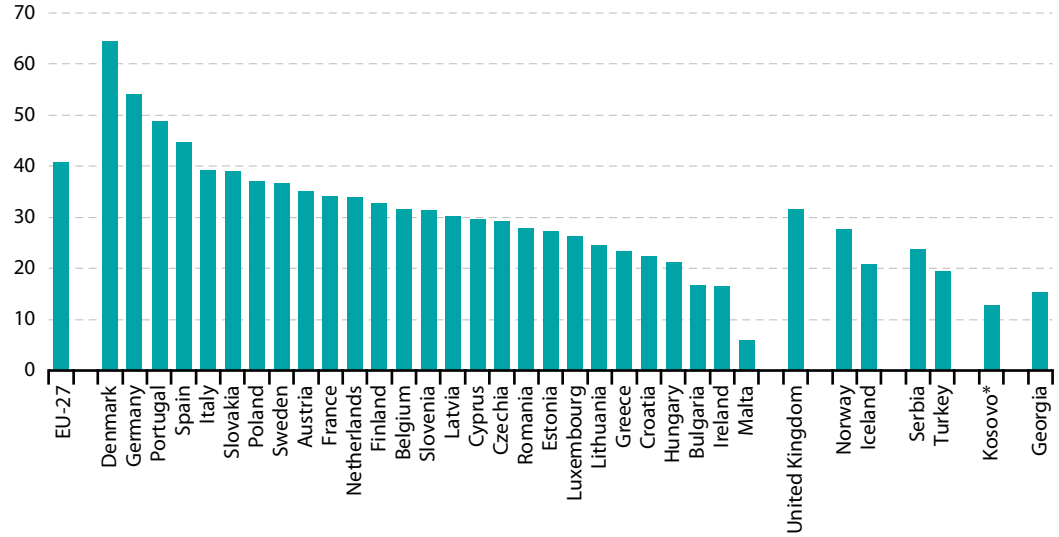
The price of energy in the EU depends on a range of different supply and demand conditions, including the geopolitical situation, the national energy mix, import diversification, network costs, environmental protection costs, weather conditions, or levels of excise and taxation. Note that prices presented here include taxes, levies and VAT for household consumers, but exclude refundable taxes and levies for non-household consumers.

For household consumers, (defined here as medium-sized consumers with an annual consumption between 2 500 kWh and 5 000 kWh), electricity prices in the second half of 2019 were highest among the EU Member States in Denmark (EUR 0.2924 per kWh), Germany (EUR 0.2873 per kWh) and Belgium (EUR 0.2860 per kWh) (Figure 1.4.1). The lowest electricity prices were in Bulgaria (EUR 0.0958 per kWh), Hungary (EUR 0.1097 per kWh) and Lithuania (EUR 0.1254 per kWh). The price of electricity for household consumers in Denmark was more than three times as high as the price in Bulgaria.

The EU average price in the second semester of 2019 — a weighted average using the most recent (2018) data for electricity consumption by household consumers — was EUR 0.2160 per kWh.

The proportion of taxes and levies in the overall electricity retail price for household consumers

Figure 1.4.2: Taxes and levies paid by household consumers for electricity, second half of 2019
(% of the retail electricity price)



Note: Value for Moldova is equal to zero.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

Source: Eurostat (online data code: nrg_pc_204)

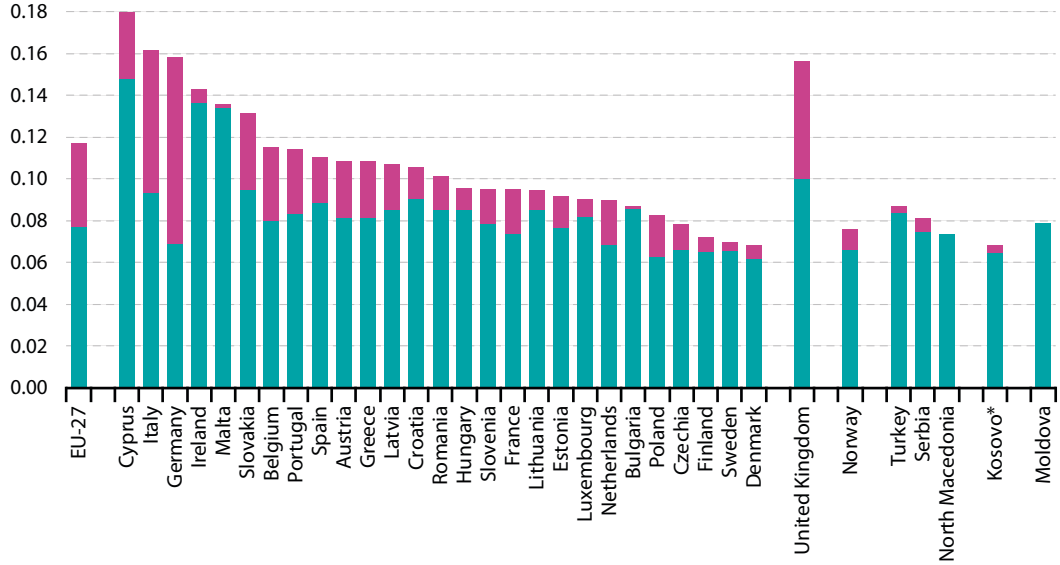
is shown in Figure 1.4.2. In the EU, the relative tax contribution in the second half of 2019 was smallest in Malta (5.9 %) where a low VAT rate is applied to the basic price. The relative share of taxes was highest in Denmark, making up 64.4 % of the total price. The VAT in the EU-27 represents 15.6 % of the total price. It ranges from 4.8 % in Malta to 21.2 % in Hungary.

For non-household consumers (defined here as medium-sized consumers with an annual consumption between 500 MWh and 2 000 MWh), electricity prices in the second half of 2019 were highest among the EU Member States in Cyprus and Italy (Figure 1.4.3). The EU average price in the second semester of 2019 — a weighted average using the most recent (2018) data for electricity consumption by non-household consumers — was EUR 0.1173 per kWh.

The proportion of non-recoverable taxes and levies in the overall electricity price for non-household consumers is presented in Figure 1.4.4. In the second half of 2019, the share of taxes was by far highest in Germany, where non-recoverable taxes and levies made up 56.3 % of the total price, outranking Italy's second highest share by 13.8 percentage points. The share of taxes for the EU is 34.2 % but Germany's share has a very high impact here as it is also, by far, the country with the highest electricity consumption for the non-households sector.

For household consumers (here as medium-sized consumers with an annual consumption between 20 Gigajoules (GJ) and 200 GJ), natural gas prices

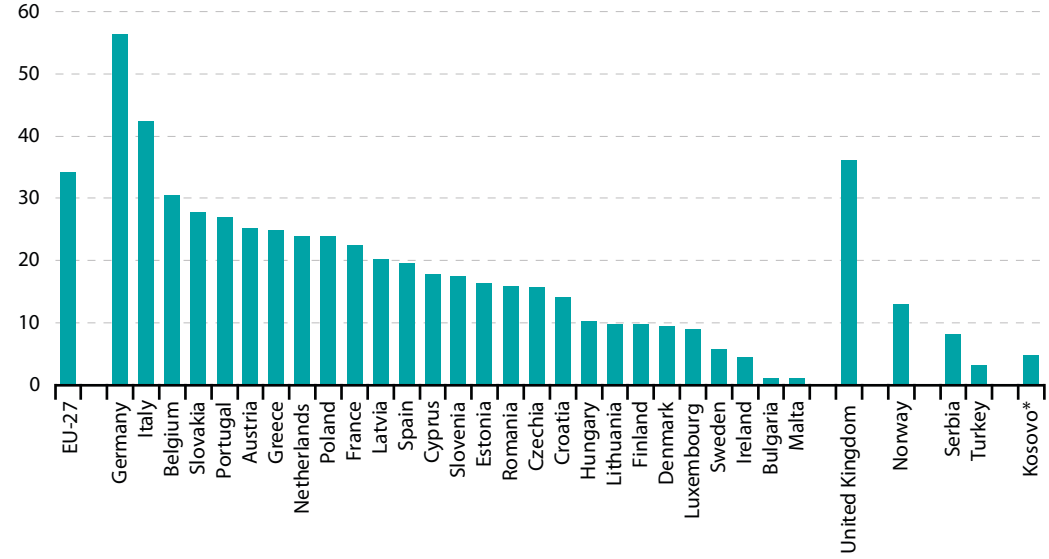
Figure 1.4.3: Electricity prices for non-household consumers, second half of 2019
(EUR per kWh)



* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

Source: Eurostat (online data code: nrg_pc_205)

Figure 1.4.4: Taxes and levies paid by non-household consumers for electricity, second half of 2019
(% of electricity price)

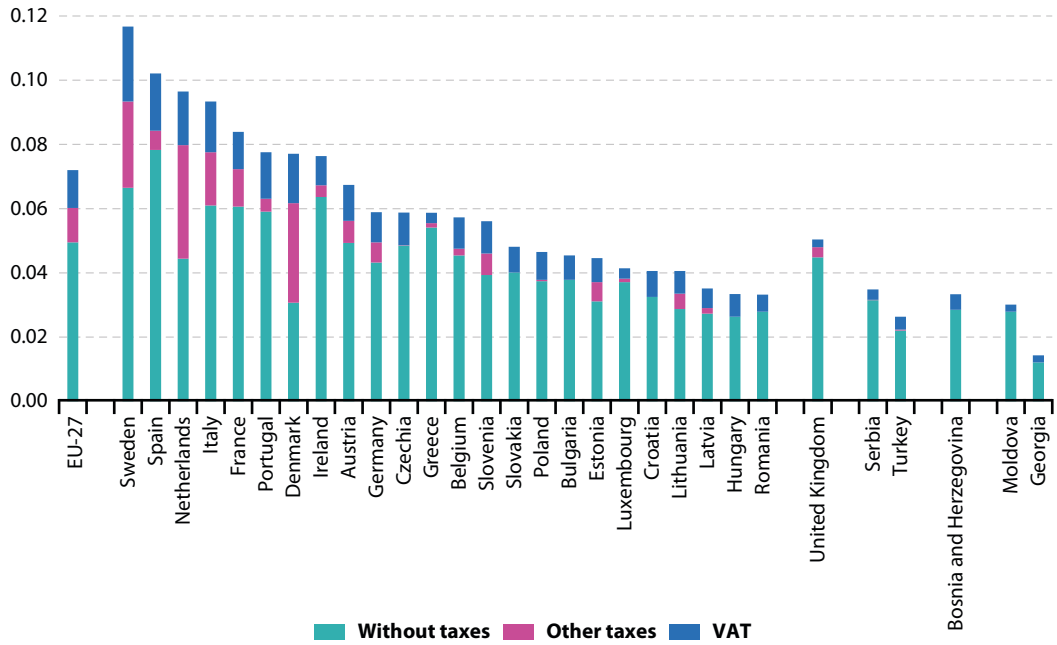


Note: Value for North Macedonia and Moldova is equal to zero.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

Source: Eurostat (online data code: nrg_pc_205)

Figure 1.4.5: Natural gas prices for household consumers, second half of 2019
(EUR per kWh)



Note: Cyprus, Malta and Finland do not consume natural gas in the household sector.

Source: Eurostat (online data code: nrg_pc_202)

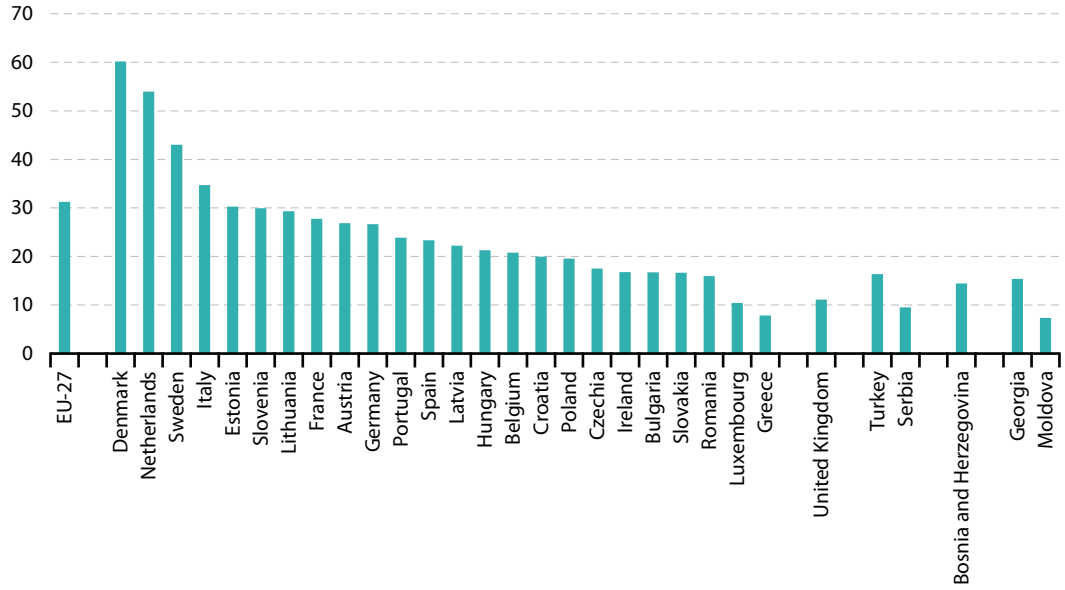
in the second half of 2019 were highest among the EU Member States in Sweden, Spain and the Netherlands (Figure 1.4.5), and lowest in Romania, Hungary and Latvia. The price of natural gas for households in Sweden (EUR 0.1167 per kWh) was more than three and a half times the price charged in Romania (EUR 0.0332 per kWh).

The average price in the EU — a weighted average using the most recent (2018) data for natural gas consumption by household consumers — was EUR 0.0720 per kWh.

The proportion of taxes and levies in the overall natural gas retail price for household consumers is shown in Figure 1.4.6. The relative tax contribution in the second half of 2019 was smallest in Greece (7.8 %) where a low VAT rate is applied to the basic price. The highest taxes were charged in Denmark where 60.2 % of the final price was made up of taxes and levies, with this share also exceeding half of the price in the Netherlands (54.0 %). The VAT in the EU represents 16.4 % of the total price. It ranges from 5.5 % in Greece to 21.3 % in Hungary.

For non-household consumers (defined here as medium-sized consumers with an annual consumption between 10 000 GJ and 100 000 GJ), natural gas prices in the second half of 2019 were

Figure 1.4.6: Taxes and levies paid by household consumers for natural gas, second half of 2019
(% of retail price of natural gas)



Note: Cyprus, Malta and Finland do not consume natural gas in the household sector.

Source: Eurostat (online data code: nrg_pc_202)

Figure 1.4.7: Natural gas prices for non-household consumers, second half of 2019
(EUR per kWh)

Note: Cyprus and Malta do not consume natural gas in the non-household sector.

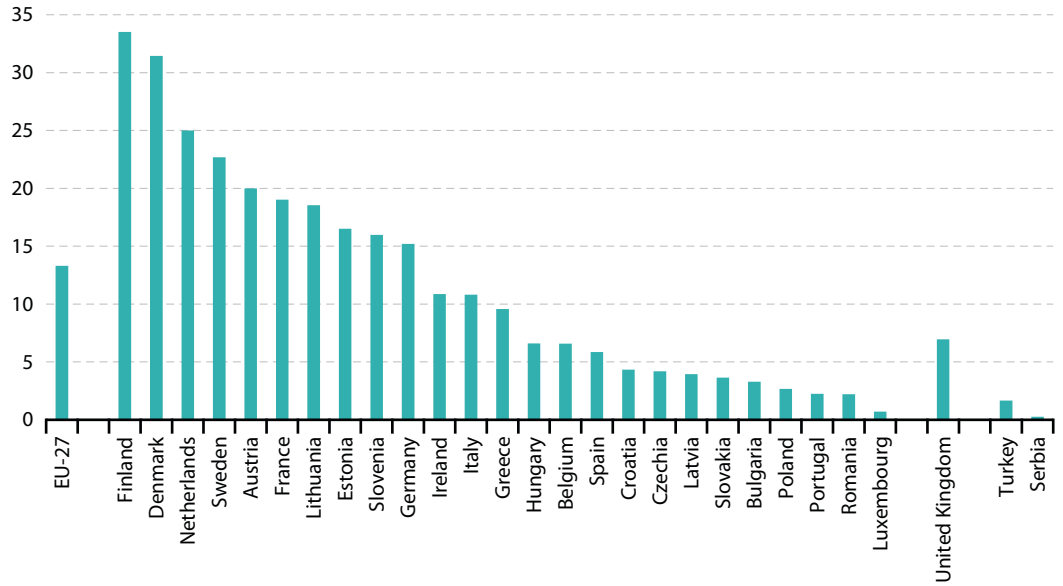
Source: Eurostat (online data code: nrg_pc_203)

highest among the EU Member States in Finland (EUR 0.0555 per kWh), France (EUR 0.0368 per kWh) and Sweden (EUR 0.0357 per kWh), and lowest in Belgium (EUR 0.0228 per kWh) (Figure 1.4.7). Finland was 51 % more expensive than France, the Member State having the second highest price.

The EU average price — a weighted average using the most recent (2018) data for natural gas consumption by non-household consumers — was EUR 0.0308 per kWh.

The proportion of taxes and levies that cannot be recovered by non-household consumers in the overall natural gas price is presented in Figure 1.4.8. For non-household consumers, the share of taxes in the first half of 2019 was lowest in Luxembourg (0.7 %), Romania and Portugal (both at 2.2 %). The highest shares of taxes were registered in Finland (33.5 %), Denmark (31.5 %) and the Netherlands (25.0 %).

Figure 1.4.8: Taxes and levies paid by non-household consumers for natural gas, second half of 2019
(% of price of natural gas)

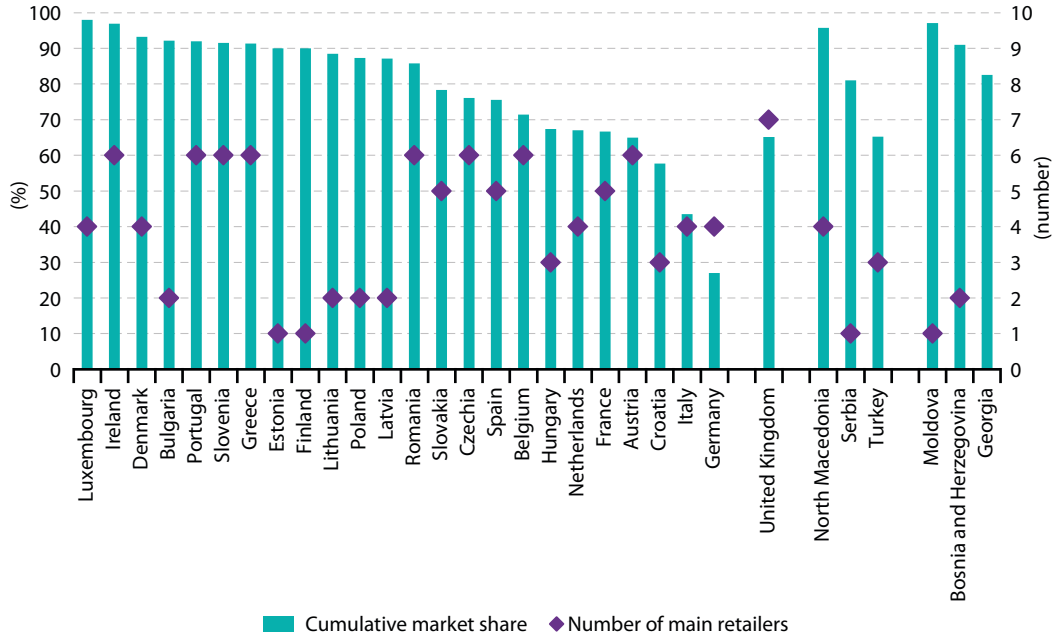


Note: Cyprus and Malta do not consume natural gas in the non-household sector.

Source: Eurostat (online data code: nrg_pc_203)

1.5 Electricity and natural gas markets

Figure 1.5.1: Main natural gas retailers to final customers and their cumulative market share, 2018



Note: Retailers are considered as "main" if they sell at least 5% of the total natural gas consumed by final customers. Data for Sweden are not available.

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

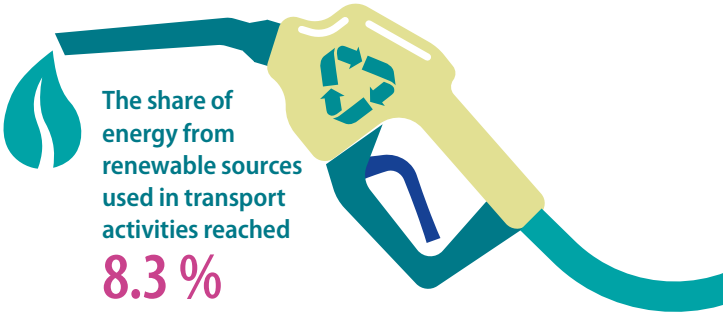
Analysing the structure of the electricity and gas markets permits us to explore how concentrated these markets are and understand their dynamics.

In 2018, the number of electricity generating companies representing at least 95 % of national net electricity generation remained limited to five or fewer in five EU Member States (Greece, France, Cyprus, Malta and Slovenia). Germany did not report a number for this indicator.

Between 2017 and 2018, the number of electricity generating companies representing at least 95 % of national net electricity generation remained stable in eleven EU Member States. Increases could be observed in eight Member States (mostly in those where the number of companies was already high in 2017), while the number of companies went down most significantly in Latvia and Belgium - in both of these countries the market is shared among more than 70 companies.

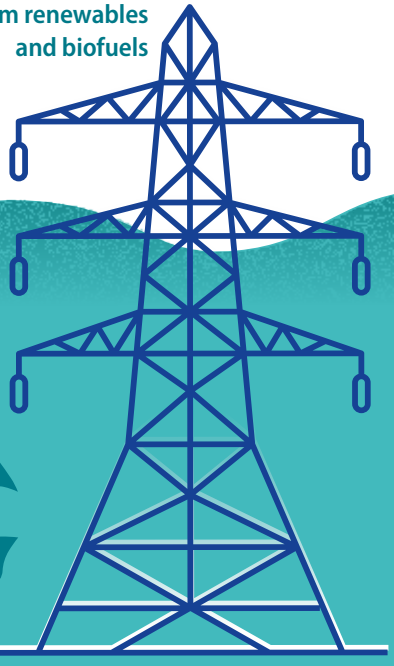
Figure 1.5.1 illustrates the cumulative market shares of main natural gas retailers for the EU Member States available as well as the United Kingdom, North Macedonia, Turkey, Serbia, Bosnia and Herzegovina, Georgia and Moldova. If one looks to the remaining retail-market, which is the market that is covered by non-main retail companies that have a market coverage of less than 5 %, this market for "minor" retail companies is the largest in Germany (56 %). The market for "minor" retail companies is equal to or below 10 % in nine out of 24 EU Member States that reported this information.

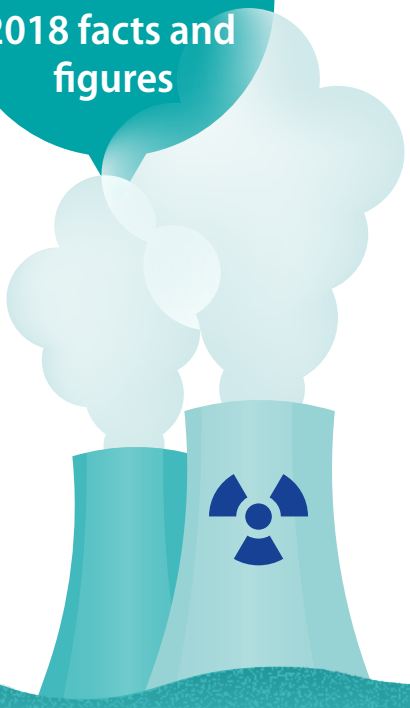
Energy in the EU: 2018 facts and figures



The share of energy from renewable sources used in transport activities reached **8.3 %**

1/3 Almost of the gross electricity generation came from renewables and biofuels



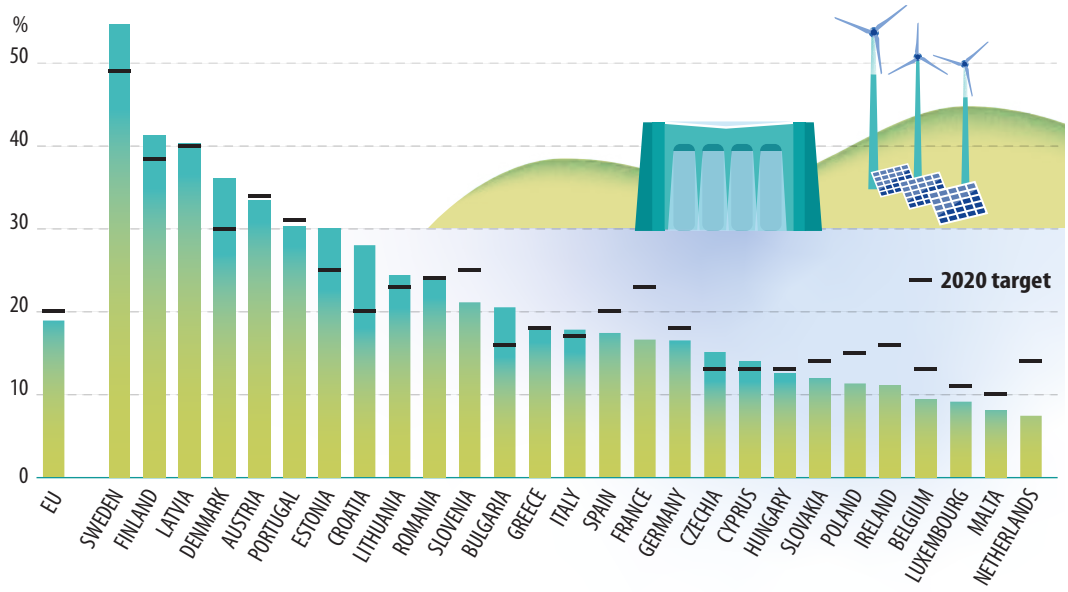


Nuclear plants generated around **25.8 %** of the electricity produced

Oil remains the **most important** energy source for the European economy

1.6 Renewable energy sources

Figure 1.6.1: Energy from renewable sources, 2018
(% share of gross final energy consumption)



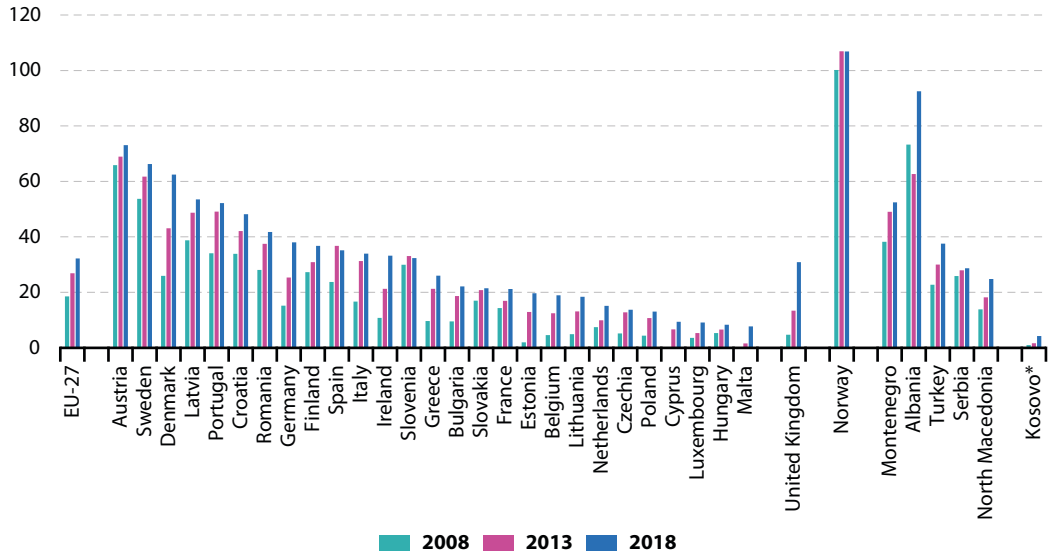
Source: Eurostat (online data code: nrg_ind_ren)

The EU seeks to have a 20 % share of its gross final energy consumption from renewable sources by 2020; this target is distributed between the EU Member States with national action plans designed to plot a pathway for the development of renewable energies in each of the Member States.

Figure 1.6.1 shows the latest data available for the share of renewable energies in gross final energy consumption and the targets that have been set for 2020. The share of renewables in gross final energy consumption stood at 18.9 % in the EU in 2018, compared with 9.6 % in 2004.

With more than half (54.6 %) of energy from renewable sources in its gross final consumption of energy, Sweden had by far the highest share among the EU Member States in 2018, ahead of Finland (41.2 %), Latvia (40.3 %), Denmark (36.1 %) and Austria (33.4 %). At the opposite end of the scale, the lowest proportions of renewables were registered in the Netherlands (7.4 %), Malta (8.0 %), Luxembourg (9.1 %) and Belgium (9.4 %). Compared with the most recent data available for 2018, the targets for France and the Netherlands require them to increase their share of renewable energy in final energy consumption by at least 6.4 and 6.6 percentage points, respectively. By contrast, twelve of the Member States had already surpassed their target for 2020; the extent to which the targets have been exceeded was particularly large — in the range of 5.0 to 8.0 percentage points — in Croatia, Sweden, Denmark and Estonia.

Figure 1.6.2: Electricity from renewable sources, 2008, 2013 and 2018
(% share of gross electricity consumption)



Note: Countries are ranked based on 2018 data. The value for Malta in 2008 is equal to 0.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

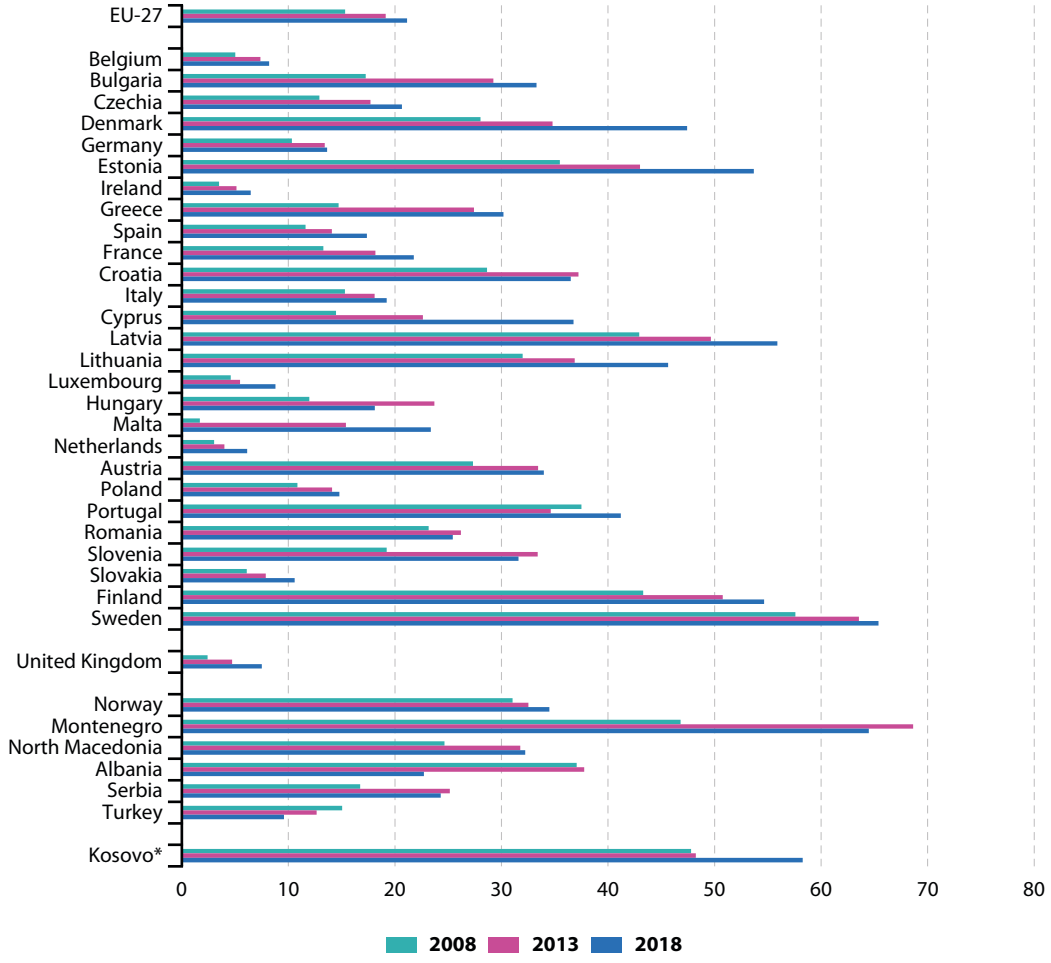
Source: Eurostat (online data code: nrg_ind_ren)

The accounting rules in Directive 2009/28/EC prescribe that electricity generated by hydro power and wind power have to be normalised to account for annual weather variations (hydro is normalised over the last 15 years and wind over the last 5 years). These rules were applied in the calculation of the results presented here.

The growth in electricity generated from renewable energy sources during the period 2008 to 2018 largely reflects an expansion in three renewable energy sources across the EU, principally wind power, but also solar power and solid biofuels (including renewable wastes). In 2018 wind power is the single largest source for renewable electricity generation in the EU. Indeed, the amount of electricity generated from hydro was relatively similar to the level recorded a decade earlier. By contrast, the amount of electricity generated in the EU from solar and from wind turbines was 15.5 times and 2.9 times as high in 2018 as it had been in 2008. The growth in electricity from solar power has been dramatic, rising from just 7.4 TWh in 2008 to 115.0 TWh in 2018.

There is a significant variation between EU Member States. In Austria (73.1 %), Sweden (66.2 %) and Denmark (62.4 %) at least three fifths of all the electricity consumed was generated from renewable energy sources — largely from hydro and wind power — while more than half the electricity used in Latvia (53.5 %) and Portugal (52.2 %) came from renewable energy sources. On the other hand, in Cyprus (9.4 %), Luxembourg (9.1 %), Hungary (8.3 %) and Malta (7.1 %) the share of electricity generated from renewable sources was less than 10 % (Figure 1.6.2).

Figure 1.6.3: Energy from renewable sources for heating and cooling, 2008, 2013 and 2018
(%)



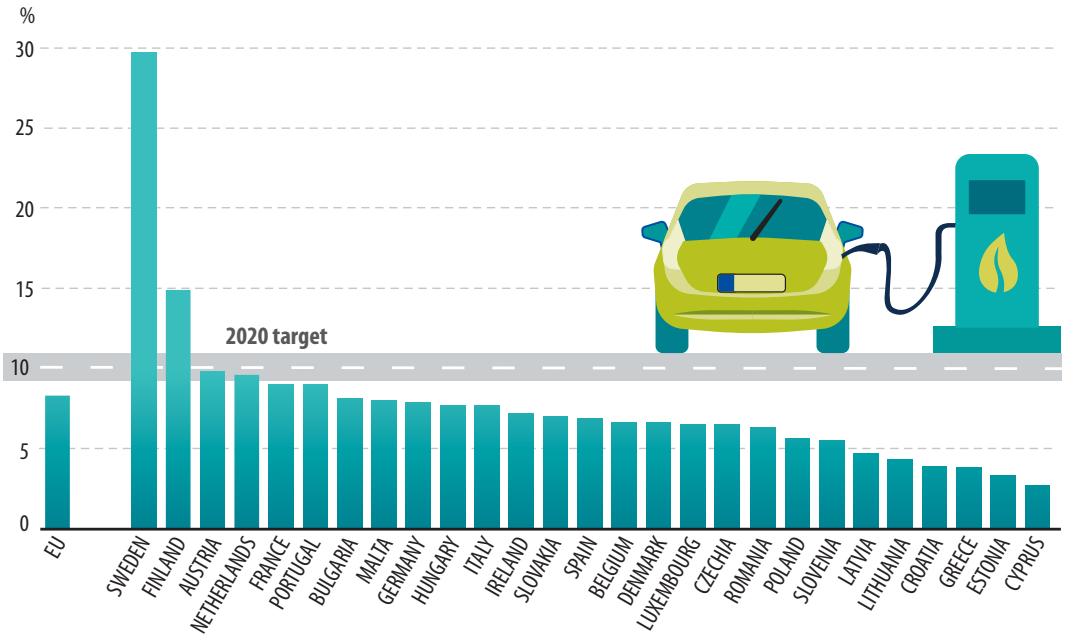
Note: Countries are ranked based on 2018 data.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

Source: Eurostat (online data code: nrg_ind_ren)

In 2018, renewable energy accounted for 21.1 % of total energy use for heating and cooling in the EU. This is a significant increase from 11.7 % in 2004. Increases in industrial sectors, services and households (building sector) contributed to this growth. Aerothermal, geothermal and hydrothermal heat energy captured by heat pumps is taken into account, to the extent reported by countries. The share of energy from renewable sources in heating and cooling is presented in Figure 1.6.3.

Figure 1.6.4: Energy from renewable sources in transport, 2018
(% share of gross final energy consumption)



Source: Eurostat (online data code: nrg_ind_ren)

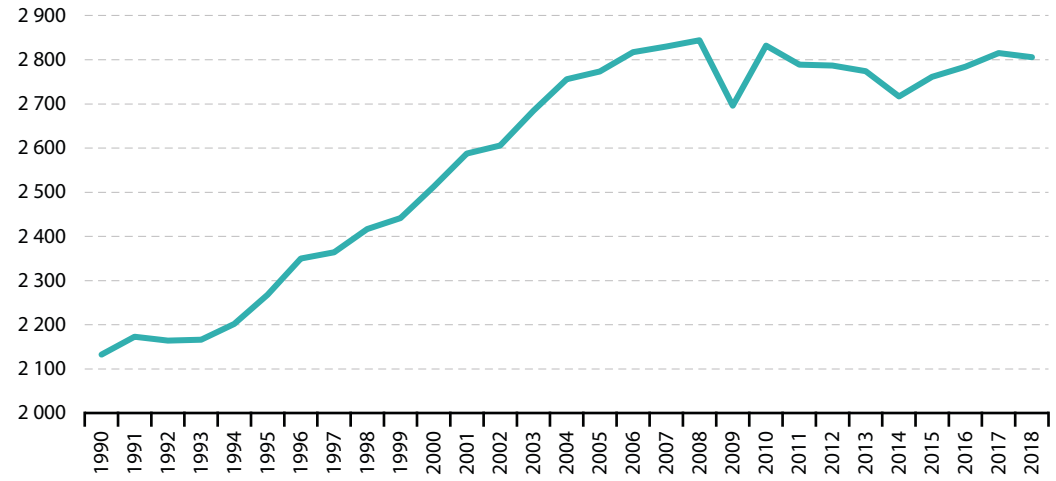
The EU agreed to set a common target of 10 % for the share of renewable energy (including liquid biofuels, hydrogen, biomethane, 'green' electricity, etc.) used in transport by 2020.

The average share of energy from renewable sources in transport increased from 1.5 % in 2004 to 8.3 % in 2018 (Figure 1.6.4). Among the EU Member States the share of renewable energy in transport fuel consumption ranged from highs of 29.7 % in Sweden, 14.9 % in Finland and 9.8 % in Austria down to less than 4.0 % in Croatia (3.9 %), Greece (3.8 %), Estonia (3.3 %) and Cyprus (2.7 %).

In some of the EU Member States there was a rapid take-up in the use of renewable energy as a transport fuel. This was particularly true in Ireland, Luxembourg, Malta, the Netherlands, Finland and Sweden.

1.7 Electricity

Figure 1.7.1: Net electricity generation, EU-27, 1990-2018
(TWh)



Source: Eurostat (online data code: nrg_ind_peh)

Total net electricity generation in the EU was 2 806 Terawatt hours (TWh) in 2018 — which was similar to the year before, following an increasing trend (see Figure 1.7.1). The level of net electricity generation in the EU in 2018 was 1.3 % lower than its relative peak of 2008, when total output stood at 2 844 TWh.

Close to half (45.5 %) of the net electricity generated in the EU in 2018 came from combustible fuels (such as natural gas, coal and oil), while a quarter (25.8 %) came from nuclear power stations.

Among the renewable energy sources shown in Figure 1.7.2, the highest share of net electricity generation in 2018 was from hydropower plants (13.0 %), followed by wind turbines (11.3 %) and solar power (4.1 %).

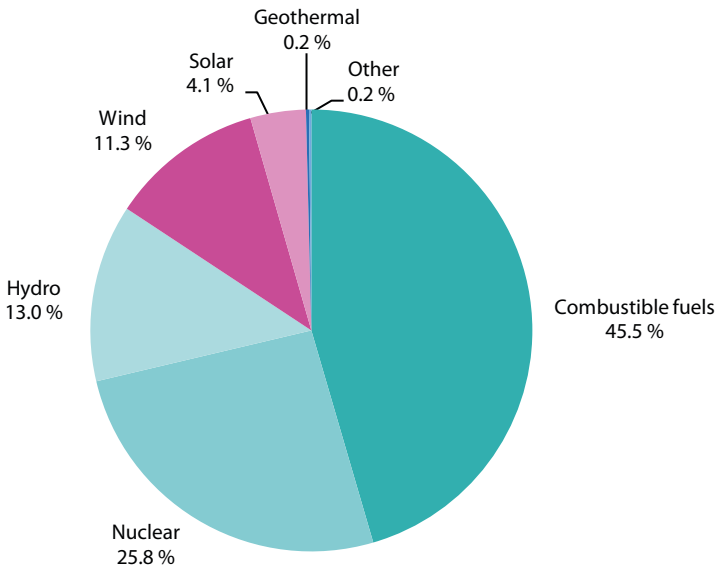
The relative significance of renewable energy sources in relation to EU net electricity generation grew between 2008 and 2018 from 16.6 % to 28.5 %, while there was a relatively large decrease in the significance of combustible fuels from 53.6 % to 45.5 % and also a reduction in the share of electricity generated from nuclear power plants from 29.6 % to 25.8 %.

Among the renewable energy sources, the proportion of net electricity generated from solar and wind increased greatly: from 0.3 % in 2008 to 4.1 % in 2018 for solar power and from 3.9 % in 2008 to 11.3 % in 2018 for wind turbines.

A more detailed breakdown of the contribution of renewable energies, nuclear energy and other fuels to the generation of electricity in member's states and other reporting countries is shown in Figure 1.7.3.

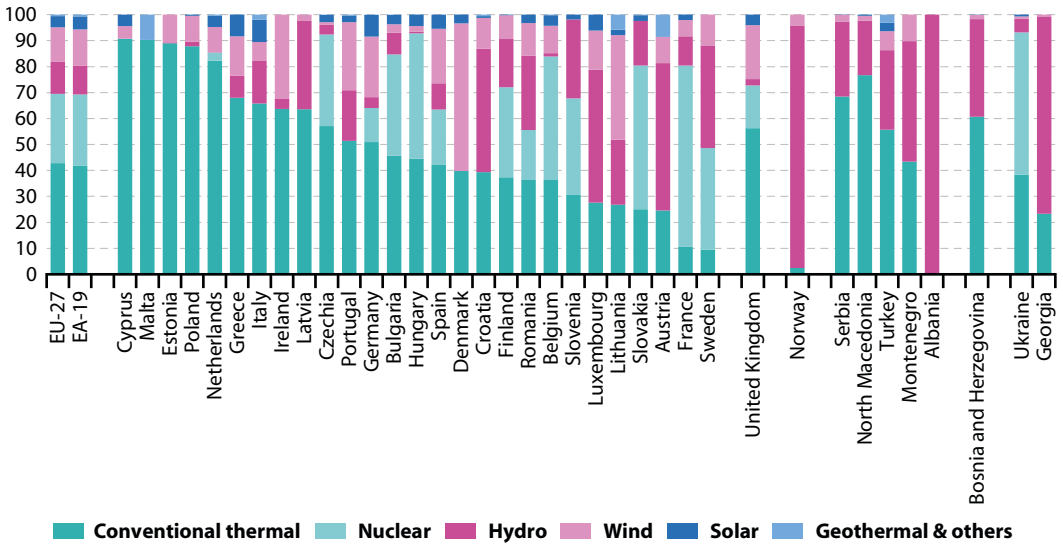
Electricity consumption per capita in the households sector in the EU in 2018 was 1.6 MWh

Figure 1.7.2: Net electricity generation, EU-27, 2018
(%, based on GWh)



Source: Eurostat (online data code: nrg_ind_peh)

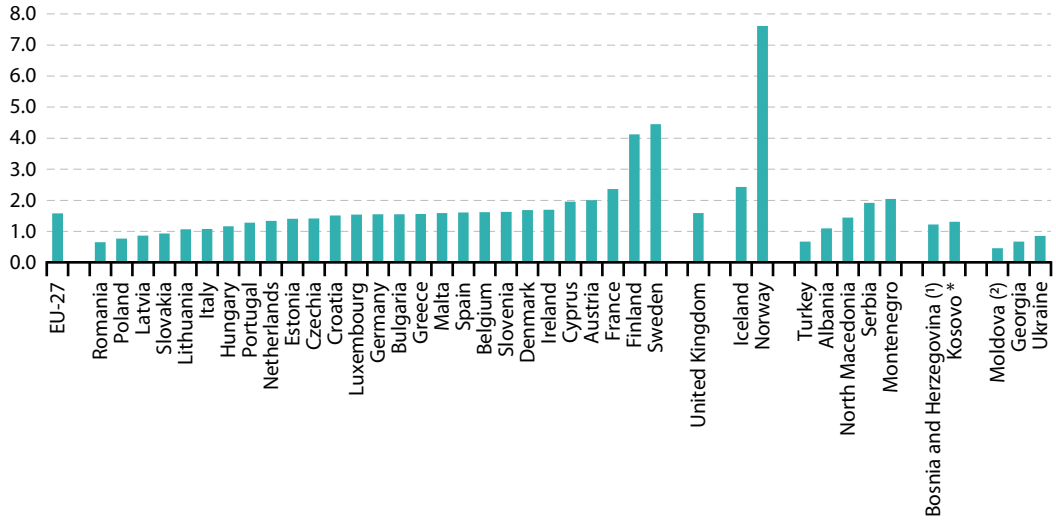
Figure 1.7.3: Electricity production by source, 2019
(%)



Note: Countries are ranked in decreasing order by conventional thermal

Source: Eurostat (online data code: nrg_cb_em and nrg_cb_pem)

Figure 1.7.4: Households consumption of electricity per capita, 2018
(MWh per capita)



(1) 2012 data instead of 2018 for population.
(2) 2014 data instead of 2018 for population.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

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

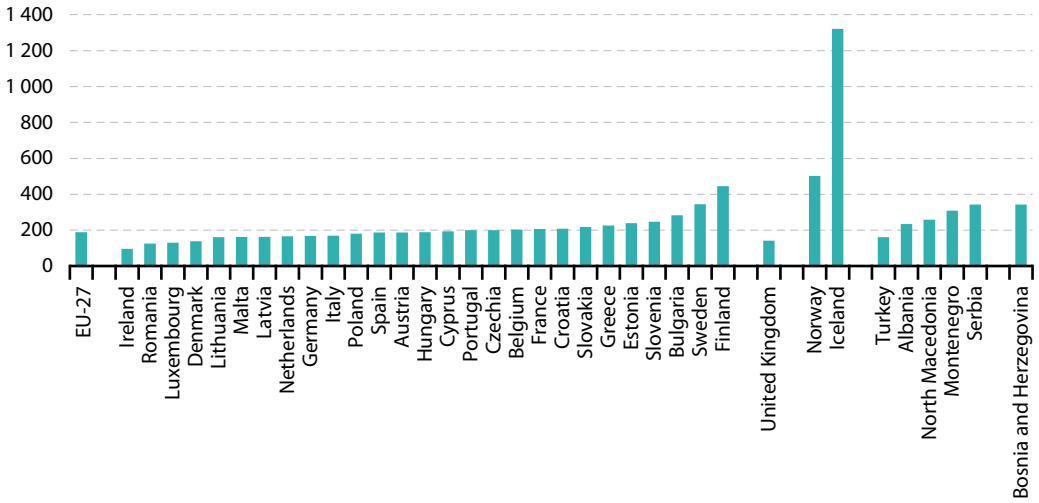
per capita (1 582 kWh). The range of electricity consumption per capita in the households sector in the EU Member States in 2018 varied widely, from consumption below 1 MWh per capita in Romania, Poland, Latvia and Slovakia, to consumption of over 4 MWh per capita in Sweden and Finland (Figure 1.7.4).

Looking on electricity consumption per capita in the households sector in non-EU countries, an even wider range is observed: from 0.5 MWh in Moldova to 7.6 MWh in Norway. The range is affected by the choice of energy used for space heating, the climate conditions as well as the level of economic development of each country.

Electricity consumption per unit of GDP (using purchasing power standards) in the EU in 2018 was 188.3 kWh per 1000 EUR (Figure 1.7.5). The amount of electricity consumed per unit of GDP depends on many factors, such as the general standard of living, the economy and weather conditions as well as the energy efficiency of buildings and appliances. Using GDP in purchasing power standards allows for better comparison across countries in one year.

The EU Member States with the lowest electricity consumption per unit of GDP in 2018 were Ireland, Romania, Luxembourg and Denmark. The highest rates of electricity consumption per unit of GDP were registered in Finland, Sweden and Bulgaria. Figure 1.7.5 shows also data for non-EU countries, with lowest consumption rates in the United Kingdom and highest in Iceland (limited to countries where GDP in purchasing power standards is available).

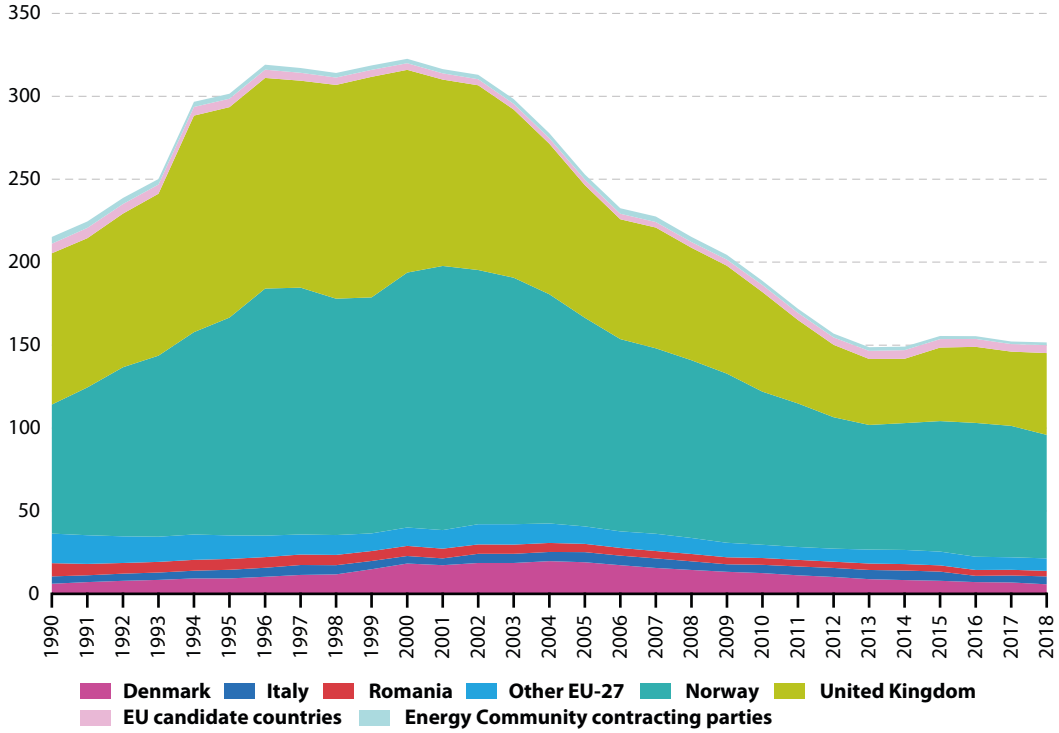
Figure 1.7.5: Final consumption of electricity per GDP (PPS), 2018
(kWh per thousand EUR (PPS))



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

1.8 Oil and petroleum products

Figure 1.8.1: Primary production of crude oil, 1990-2018
(million tonnes of oil equivalent)



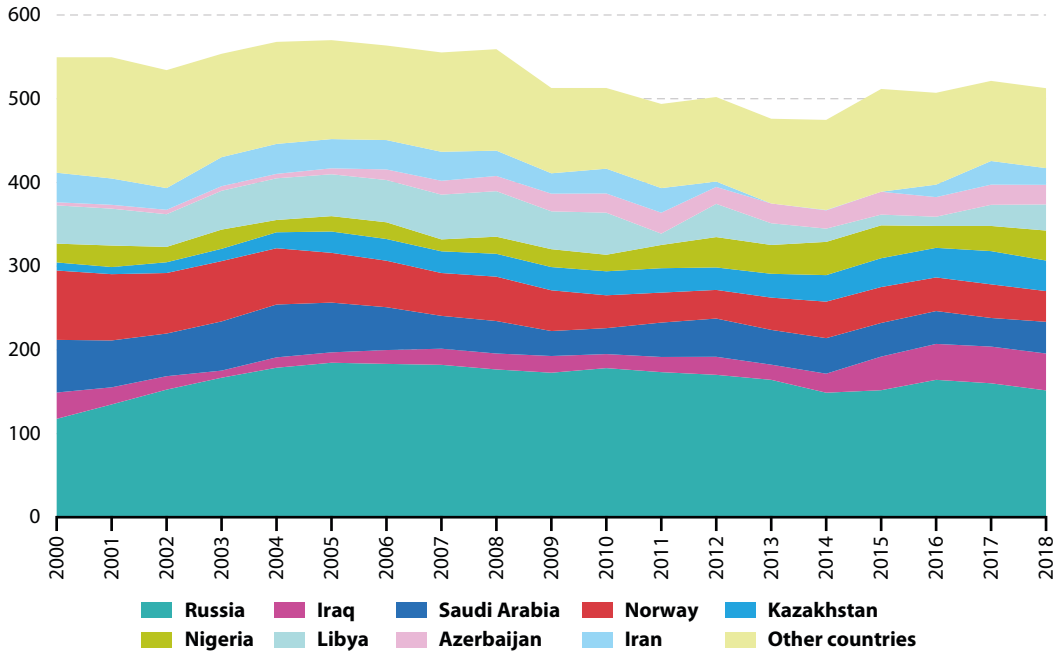
Source: Eurostat (online data code: nrg_bal_c)

For decades, crude oil and petroleum products have had the largest share in gross inland energy consumption in the EU. Despite decreasing production and fluctuating consumption through the years, crude oil and its derived products remain the largest contributors to energy consumption.

The primary production of crude oil in 2018 in the EU reached its lowest point at 21.4 million tonnes of oil equivalent (Mtoe). This production peaked in 2004 at 42.5 mtoe. The top oil producer in the EU in 2018 was Denmark (5.8 mtoe) followed by Italy (4.7 mtoe) and Romania (3.4 mtoe each).

In Norway, one of the key European non-EU crude oil producers, production peaked in 2001 (159.2 mtoe) and by 2013 it had decreased to less than half (75.1 mtoe). Since then, Norwegian production increased, reaching 80.7 mtoe in 2016, but fell in 2017 and 2018 (79.2 mtoe and 74.5 mtoe respectively). The United Kingdom is also a key European non-EU crude oil producer. After a peak in 1999 (133.3 mtoe), the production in the United Kingdom decreased regularly, with the exception of a slight rebound in the period 2014-2016, to reach its lowest point in 2018 (49.3 mtoe). The EU candidate countries Albania, Serbia and Turkey produce crude oil on a rather small scale (in total nearly 4.8 mtoe in 2018). The Energy Community contracting parties Ukraine and Georgia, produced 1.7 mtoe of crude oil in 2018. These data are presented in Figure 1.8.1.

Figure 1.8.2: Crude oil imports by country of origin, EU-27, 2000-2018
(million tonnes)



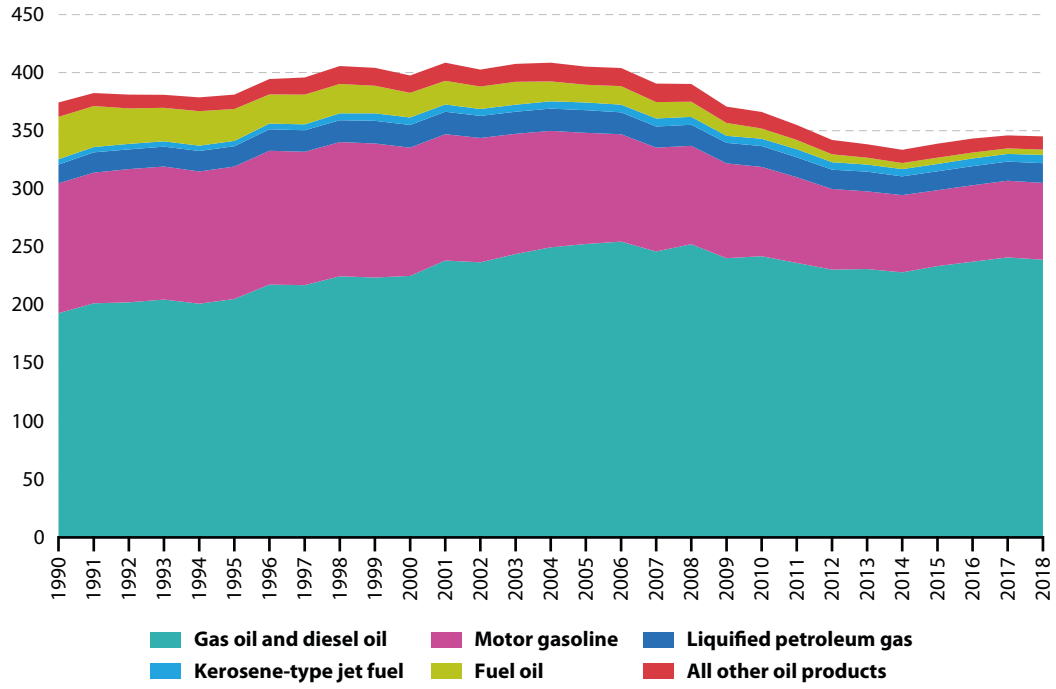
Source: Eurostat (online data code: nrg_ti_oil)

In 2018, total imports of crude oil to the EU amounted to 512.5 million tonnes. The major imports in 2018 came from Russia (151.6 million tonnes), Iraq (44.0 million tonnes), Saudi Arabia (37.8 million tonnes), Norway (36.7 million tonnes) and Kazakhstan (36.5 million tonnes).

The Russian imports have remained relatively stable over the past decade. The crude oil imports from Norway have been more than halved over the period 2000-2018, from 82.7 million tonnes to 36.7 million tonnes. On the other hand, Iraq saw a substantial increase from 31.3 million tonnes to 44.0 million tonnes over the same period; the EU imports from Kazakhstan were almost four times higher in 2018 (36.5 million tonnes) as compared to 2000 (9.7 million tonnes). See Figure 1.8.2 for the historic evolution since 2000.

The production of electricity from fossil fuels, especially from oil products, is slowly diminishing, even though a slight rebound has been observed in 2016 and 2017. Many of the existing oil-fired

Figure 1.8.3: Final energy consumption of petroleum products, EU-27, 1990-2018
(million tonnes of oil equivalent)



Source: Eurostat (online data code: nrg_bal_c)

plants are kept only as a part of the power reserve margin, using mainly fuel oil and gas/diesel oil.

In the last ten years the final energy consumption of petroleum products (excluding international shipping and aviation) has globally dropped below the 1990's level. The final energy consumption of individual petroleum products is shown in Figure 1.8.3. Gas/diesel oil and gasoline (listed in order of significance) are by far the two most important products throughout the whole 27-year-period, although demonstrating different evolution patterns.

For international aviation, the leading petroleum product is kerosene-type jet fuel, which more than doubled since 1990, reaching 41 mtoe in 2018. For international shipping (maritime bunkers), the most consumed product is the fuel oil, which reached 43 mtoe in 2018, demonstrating an increase of 30 % as compared to 1990.

2 Transport

Introduction

Transport is an important sector of the European Union (EU) economy and plays a vital role in today's mobile society. Transportation and mobility are also central to sustainable development. Sustainable transportation can enhance economic growth and improve accessibility while respecting the environment and improving resilience of cities, urban-rural linkages and productivity of rural areas. The transport policy of the EU aims to foster clean, safe and efficient, underpinning the internal market for goods and the right of citizens to travel freely throughout the EU.

The main aspects of the EU transport policy are laid down in the White Paper 'Roadmap to a Single European Transport Area'. Its objective is to establish a sustainable transport sector that continues to serve the needs of the economy and the citizens while meeting future constraints: oil scarcity, growing congestion and the need to cut CO^2 and pollutant emissions in order to improve air quality particularly in cities. By 2050, transport will have to cut greenhouse gas emissions by 60 % compared to 1990 and to reduce dependence on imported oil.

Moreover, the Commission adopted the European Green Deal setting a strategic framework for a climate-neutral EU economy by 2050. To this end, it calls for a 90 % reduction in transport emissions by 2050. Priority actions of the Green Deal for a shift to sustainable and smart mobility include boosting multimodal transport, support the deployment of automated and connected mobility solutions across modes, better addressing external costs of transport activities through pricing, ramping up the production and deployment of sustainable alternative transport fuels and reducing pollution from transport, especially in cities.

In order to monitor the developments and policies and to plan future strategies, the European Commission analyses a range of transport statistics. Eurostat's statistics in this field describe the most important features of transport, thus the quantities of freight and numbers of passengers that are moved each year, the number of vehicles and infrastructure that are used, but also the contribution of transport services to the economy as a whole. Data collection is supported by several legal acts obliging the EU Member States to report statistical data, as well as voluntary agreements to supply additional data. Eurostat transport statistics are used for policy making, to support legislative proposals and for modelling exercises.

Transport in the EU: 2018 facts and figures

3.6 billion tonnes of freight were handled at sea ports

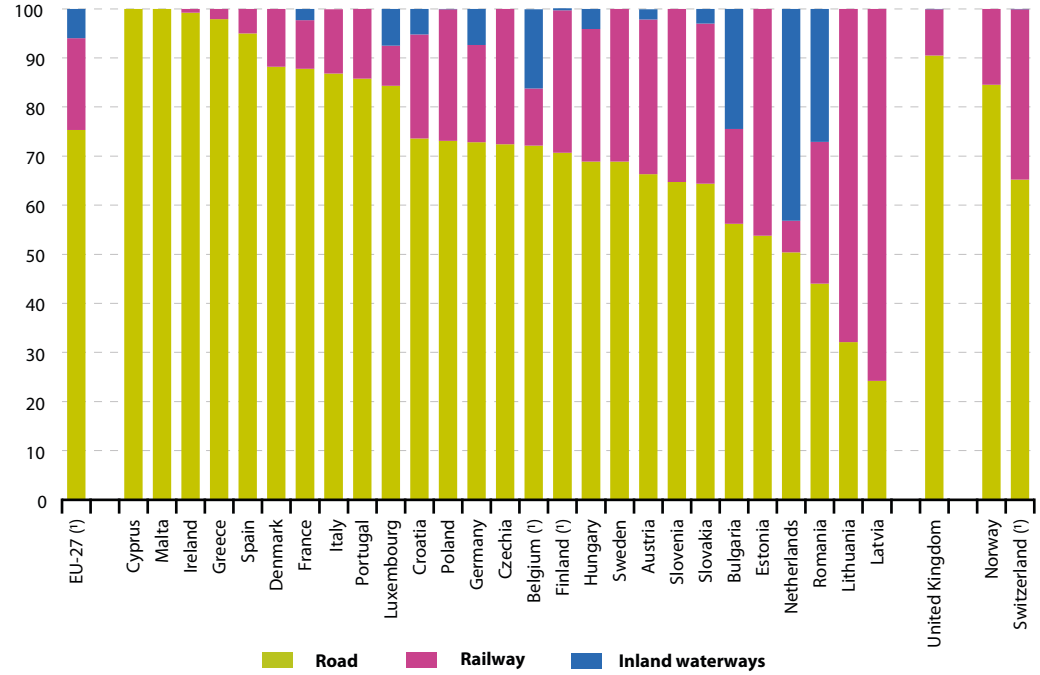
Metal ores were the most transported goods via inland waterways: **26 %**

1/5 of road freight journeys were performed by empty vehicles

Road transport accounted for **75.3 %** of the total inland freight transport

2.1 Freight transport

Figure 2.1.1: Modal split of inland freight transport, 2018
(% share in tonne-kilometres)



Note: Countries are ranked based on the share of road transport.
(1) Estimated values.

Source: Eurostat (online data code: tran_hv_frmod)

Road transport continues to have the largest share of EU freight transport performance among the three inland transport modes. Figure 2.1.1 shows that in 2018, road transport accounted for three-quarters (75.3 %) of the total inland freight transport (based on tonne-kilometres performed). This share increased by 0.1 percentage points (pp) compared with the previous year. Rail transport accounted for 18.7 % of the EU total, slightly higher than the previous year (+0.4 pp), while the share of inland waterways was 6.0 % of the total inland transport performance.

Even though the modal split between the different modes of transport does not tend to change radically from year to year at EU level, changes are sometimes more noticeable at country level. The modal split at country level varies considerably. In particular, the modal split obviously depends on the availability of a given mode. Only 17 of the Member States report freight data on inland waterways. In particular, Cyprus and Malta do not have either railways or navigable inland waterways; thus, for these two Member States the share of road freight transport is 100 % by default.

In 2018, road transport was the main inland transport mode used in all EU Member States with the exception of Lithuania and Latvia, where it represented 32.1 % and 24.2 % of total inland freight transport, respectively. In those two countries, rail transport was the main inland transport mode used in 2018 with shares of 75.8 % in Latvia and 67.9 % in Lithuania. Rail also played a major role in the other Baltic Member State, Estonia, with a share of 46.2 % in 2018. In 2018, road transport accounted for more than 70 % of inland freight transport in 16 Member States and more than 90 % in Ireland, Greece and Spain. The share of inland waterways was the highest in the Netherlands (43.2 %). High shares were also recorded in Romania (27.1 %), Bulgaria (24.5 %) and Belgium (16.1 %).

It should be noted that this analysis refers only to inland freight transport; considerable amounts of freight may be transported by maritime freight services and, for some product groups, by air transport or by pipelines.

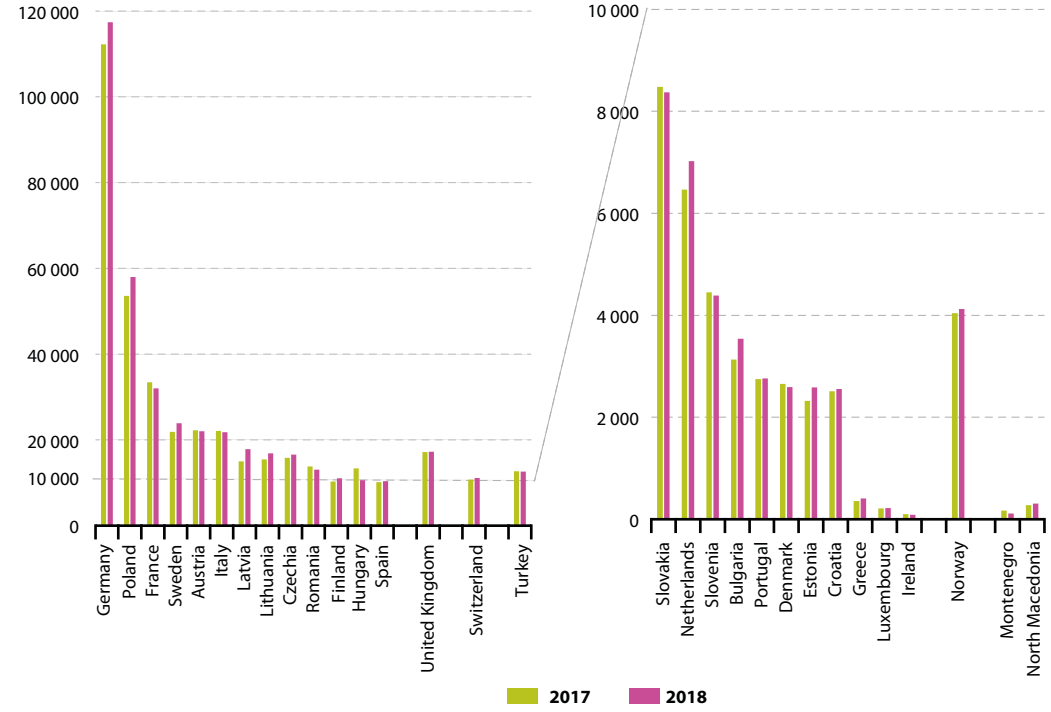
Concerning freight transport by rail, in 2018, the total EU performance can be estimated at around 430 billion tonne-kilometres. The main contributor among the Member states was Germany, with 117 billion tonne-kilometres, representing almost one-third of the total EU performance (Figure 2.1.2).

Compared with 2017, the largest increases in total transport performance among the EU Member States were observed for Latvia (+18.9 %), Greece (+14.1 %), Bulgaria (+13.1 %) and Estonia (+11.3 %). Substantial growth was also registered in North Macedonia (+11.0 %). By contrast, substantial decreases were registered in Hungary (-20.8 %) and Ireland (-11.8 %).

Rail freight transport performance by type of transport (national, international loadings/unloadings and transit) in total tonne-kilometres performed is shown in Figure 2.1.3. The share of international transport in the various countries is strongly linked to their geographical position within Europe. For the EU as a whole, the share of national could be estimated at 48.8 % in 2018, international unloadings at 23.8 %, international loadings at 16.7 % and transit at 10.7 % (Figure 2.1.3). In this context, transit transport performance for the EU has been calculated as the sum of the transit transport performance reported by each Member State.

The Member States registering the highest share of international transport are located in key corridors within the European market. In the Baltic States of Latvia and Estonia, situated at the border between the EU and Russia, international unloadings accounted for 84.5 % and 68.0 % of the total transport performance in 2018, respectively. The Netherlands, strategically situated in the heart of the European market, registered a share of international loadings of 57.5 % in total tonne-kilometres performed. The key import port of Rotterdam, with large sea/rail transfers of goods dispatched within the European Union, strongly influences these figures. Greece registered the highest share of international transport on total transport performance in 2018, with 97.0 %.

Figure 2.1.2: Rail freight transport for main undertakings, 2017 and 2018
(million tonne-kilometres)



Note: Countries are ranked based on 2018 data. Cyprus and Malta have no railways. Data for Belgium are not available.

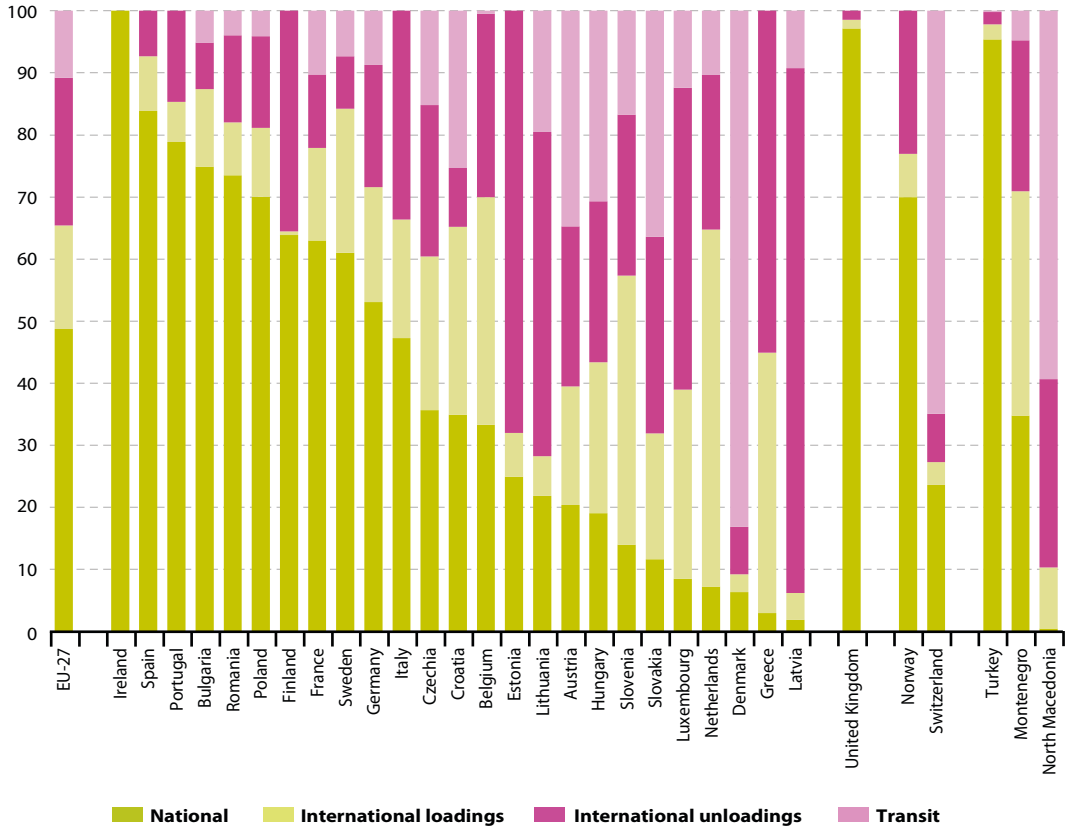
Source: Eurostat (online data codes: rail_go_typepas)

By contrast, countries with specific geographical characteristics (at the periphery of the EU or islands) recorded a low share of international transport by rail. No international transport has been recorded for Ireland in 2018. Small shares are observed for Denmark (10.5 %). For such countries, the preferred mode for international freight transport remains maritime transport, goods being delivered at the nearest port to the point of their destination and then being forwarded in the country mainly by road, but also by rail (accounted as national transport). Turkey also recorded a low percentage (4.4 %) which may also be linked to its peripheral position.

Regarding transit transport, Denmark registered the highest share in 2018, with 83.1 %. The EFTA country Switzerland and the candidate country North Macedonia also record substantial shares (64.9 % and 59.3 %, respectively). By contrast, seven EU Member States, the United Kingdom and the EFTA county Norway did not report any transit transport.

When looking at national transport, the highest shares in 2018 were observed in Ireland (100 %), Spain (83.8 %), Portugal (78.9 %), Bulgaria (74.9 %), Romania (73.5 %) and Poland (70.0 %). National transport represented 97.1 % in the United Kingdom and 95.4 % in the candidate country Turkey in 2018. By contrast, national transport represented only 1.9 % in Latvia, 3.0 % in Greece, 6.4 % in Denmark, 7.2 % in the Netherlands and 8.5 % in Luxembourg. In the candidate country North Macedonia, national transport was less than 1 % in 2018.

Figure 2.1.3: Rail freight transport by type of transport for main undertakings, 2018
(% share in tonne-kilometres)



Note: Countries are ranked based on the share of national transport. Cyprus and Malta have no railways.

Source: Eurostat (online data code: rail_go_typepas)

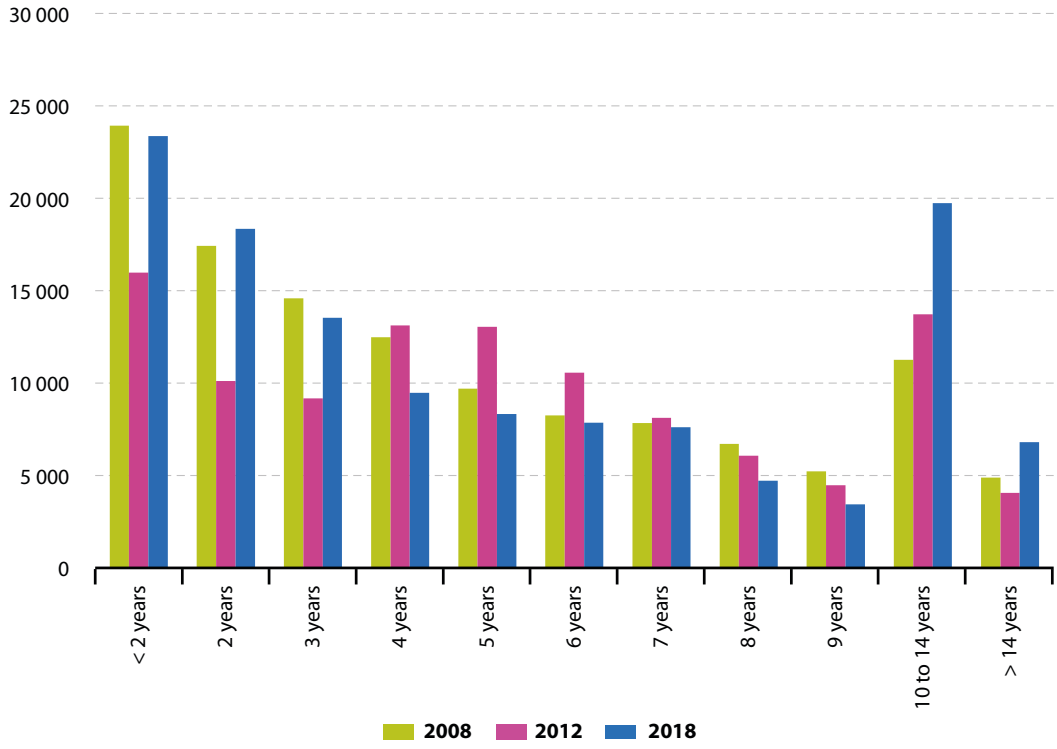
After a long domination as one of the most significant countries for road transport in Europe, Germany (317 billion tonne-kilometres) overtook Poland (316 billion tonne-kilometres) in 2018 (Table 2.1.1). Cyprus (+8.0 %), Romania (+7.4 %), Slovenia and Croatia (+6.8 % each) were the Member States recording the highest rises in tonne-kilometres performed from 2017 to 2018. At the other end of the scale, Bulgaria (-23.3 %) and Luxembourg (-16.0 %) registered the highest falls in 2018 compared with the previous year. They were followed by Czechia (-7.2 %), Estonia (-6.7 %) and Poland (-5.8 %). Croatia and Cyprus registered increases in all transport types, while Luxembourg and Poland registered decreases in all transport types. Lithuania, Italy, Croatia and Austria recorded very strong growth for cabotage (more than 14 %), while on the other hand, Finland, Sweden, Belgium, Czechia, Ireland, Portugal, Luxembourg and Hungary recorded substantial decreases (ranging from -39 % to -13 %). In cross-trade transport, Lithuania and Slovenia experienced considerable increases (more than 10 %), while Czechia, Denmark, Italy, Hungary, Portugal, Belgium, Austria and the Netherlands recorded substantial decreases (ranging from -41 % to -11 %).

Table 2.1.1: Road freight transport by type of transport, 2018
(million tonne-kilometres)

	2018					Change 2018/2017 (%)				
	National	International	Cross-trade	Cabotage	Total	National	International	Cross-trade	Cabotage	Total
EU-27	**:**	**454 048**	**178 175**	**42 184**	**:**	**:**	**-2.0**	**-4.3**	**-6.1**	**:**
Belgium	:	10 073	1 057	962	:	:	-8.7	-13.8	-27.5	:
Bulgaria	7 734	8 572	9 626	1 018	26 950	-7.1	-15.8	:	:	-23.3
Czechia	23 543	14 972	2 094	464	41 073	7.5	-17.8	-40.8	-24.4	-7.2
Denmark	12 075	:	241	:	14 998	-4.0	:	-23.2	:	-3.3
Germany	276 151	35 802	3 287	1 532	316 772	1.7	-2.1	0.7	-7.7	1.2
Estonia	1 686	:	:	:	5 775	3.4	:	:	:	-6.7
Ireland	9 401	1 456	500	243	11 600	0.8	-14.5	-0.8	-20.1	-2.0
Greece	15 392	:	:	:	29 279	-0.5	:	:	:	3.2
Spain	158 476	73 531	4 268	2 719	238 994	2.5	5.8	2.6	-2.3	3.4
France	161 941	10 791	236	379	173 347	3.9	-4.2	:	:	3.4
Croatia	4 235	5 692	2 522	186	12 635	0.9	14.3	1.0	15.5	6.8
Italy	111 741	12 070	507	597	124 915	4.7	1.4	-17.2	28.4	4.4
Cyprus	865	26	-	-	892	7.9	8.3	-	-	8.0
Latvia	3 459	6 339	4 278	921	14 997	6.8	1.7	:	:	0.2
Lithuania	3 642	11 016	25 047	3 885	43 590	14.4	-11.3	19.7	51.3	11.5
Luxembourg	647	1 941	3 007	1 206	6 800	-36.4	-23.7	-4.1	-13.7	-16.0
Hungary	12 979	15 265	8 634	1 069	37 948	8.7	-6.6	-15.2	-12.9	-4.4
Malta	:	:	:	:	:	:	:	:	:	:
Netherlands	34 295	28 783	3 848	1 951	68 876	3.4	2.5	-11.3	-0.4	2.0
Austria	16 914	7 105	1 195	549	25 763	0.7	-2.9	-13.6	14.6	-0.8
Poland	114 692	125 633	58 911	16 637	315 874	-4.5	-7.3	-4.6	-7.0	-5.8
Portugal	10 530	15 802	5 518	1 112	32 963	-3.0	1.4	-13.9	-17.1	-3.6
Romania	14 358	20 048	20 631	3 725	58 762	6.0	14.1	4.9	-5.0	7.4
Slovenia	2 256	9 685	9 294	991	22 225	-2.3	7.2	10.5	-6.4	6.8
Slovakia	6 477	16 095	11 750	1 263	35 586	2.4	7.3	-7.5	-8.9	0.5
Finland	25 970	:	:	122	28 345	-1.4	:	:	-39.3	1.4
Sweden	40 662	2 521	211	84	43 478	5.5	-15.0	6.6	-35.4	3.9
United Kingdom	151 973	6 510	431	223	159 137	3.1	7.5	91.6	-27.8	3.4
Norway	18 924	2 400	:	:	21 338	1.0	-9.1	:	:	-0.2
Switzerland	10 716	1 381	204	199	12 500	4.7	-3.0	53.4	30.9	4.6

Source: Eurostat (online data code: road_go_ta_tott)

Figure 2.1.4: Road freight transport by age of vehicle, EU-27, 2008, 2012 and 2018
(million vehicle-kilometres)



Source: Eurostat (online data code: road_go_ta_agev)

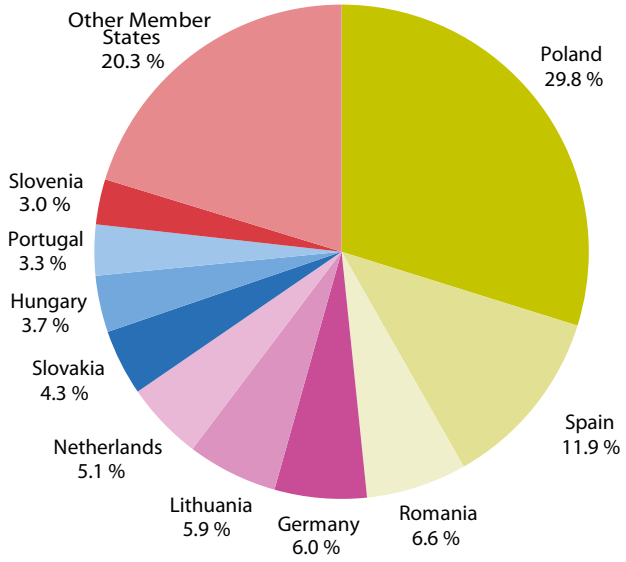
Road freight vehicles of less than 2 years old dominated the EU market in the last years, and 2018 was not an exception with more than 23 billion vehicle-kilometres (19 % of the total vehicle-kilometres). In 2018, vehicles 5 years old or less accounted for 59 % of the total vehicle-kilometres, while those over 10 years old accounted for 22 % of vehicle-kilometres (Figure 2.1.4).

Between 2012 and 2018, there was a strong decline in vehicles between 4 and 9 years old (-25.2 % in terms of vehicle-kilometres), despite the increase observed between 2008 and 2012 (+10.3 %). By contrast, transport performed by vehicles of less than 4 years old and vehicles aged 10 years or more, increased substantially from 2012 to 2018 (+57% and +49.3 % respectively). The growth between 2008 and 2012 was even stronger (+ 64.2 %). Transport performed by very old road freight vehicles (15 years old or more) has regularly increased in recent years (+67.8 % from 2012 to 2018). However, it represented only 5.5 % of the total vehicle-kilometres.

In 2018, Poland continued to have the highest share in EU international transport (29.8 %) and saw its share decrease by 1.2 pp from 2017 to 2018 (Figure 2.1.5). It was followed by Spain (11.9 %), Romania (6.6 %) and Germany (6.0 %).

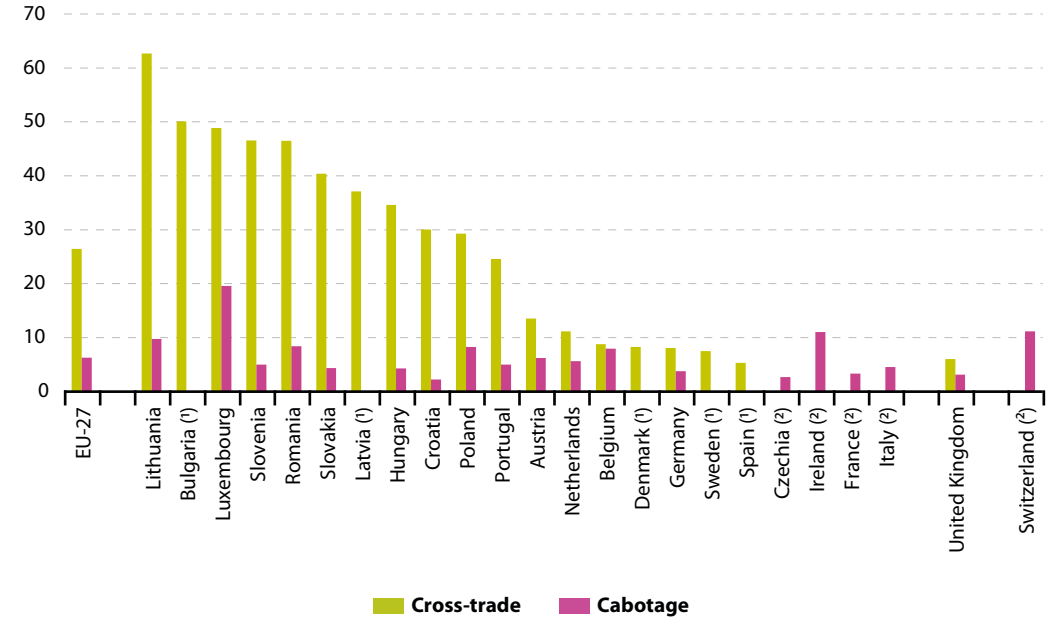
The EU share of cross-trade transport was 26.4 % while cabotage transport represented 6.3 % (Figure 2.1.6). For six Member States (Lithuania, Bulgaria, Luxembourg, Slovenia, Romania and Slovakia), the share of cross-trade in international transport represented more than 40 % of international transport. For Luxembourg and Ireland, the share of cabotage is also substantial (19.6 % and 11.1 %, respectively); this can be explained by the location of the country. The EFTA country Switzerland also reported a significant share of cabotage (11.2 %).

Figure 2.1.5: International road freight transport, 2018
(% share in tonne-kilometres)



Source: Eurostat (online data code: road_go_ta_tott)

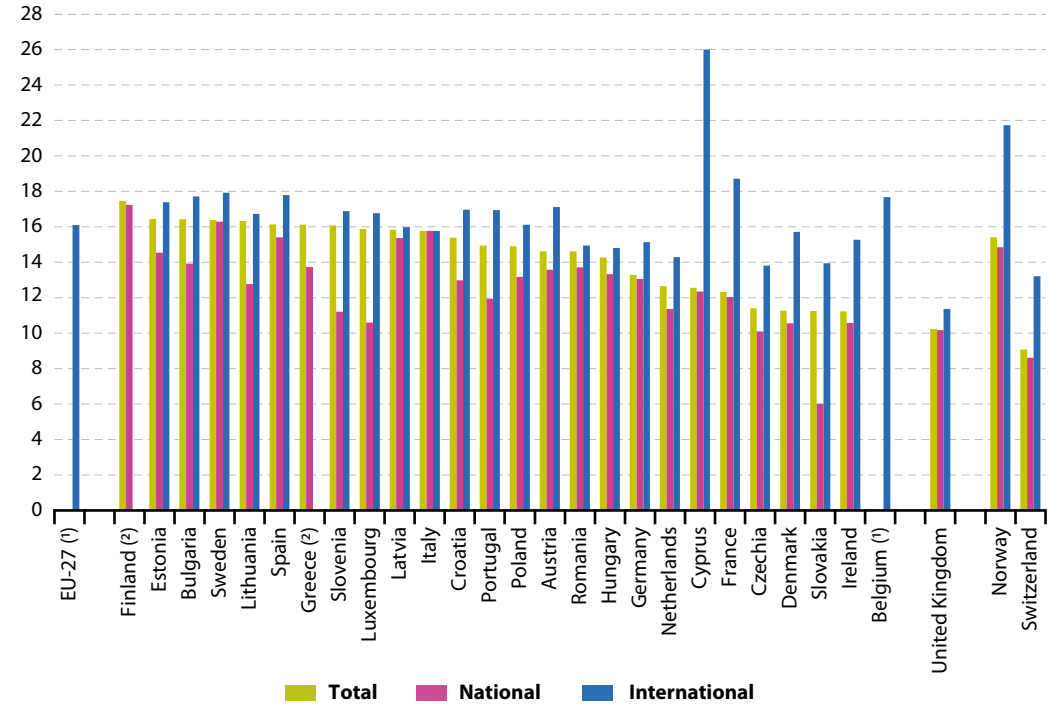
Figure 2.1.6: Cross-trade and cabotage in international road freight transport, 2018
(% share in tonne-kilometres)



Note: Countries are ranked based on the share of cross-trade transport. Data for Estonia, Greece, Cyprus, Finland and Norway are not available.
(1) Cabotage data are not available.
(2) Cross-trade data are not available.

Source: Eurostat (online data code: road_go_ta_tott)

Figure 2.1.7: Average loads of road freight transport by type of operation, 2018
(tonnes per vehicle)



Note: Countries are ranked based on total transport.
(1) Total and national transport are not available.
(2) International transport is not available.

Source: Eurostat (online data code: road_go_ta_tott)

The 'average load' was calculated by dividing annual freight transport performance (tonne-kilometres) by the corresponding laden distance travelled (vehicle-kilometres, equivalent to kilometres). This indicator provides information on the average weight in tonnes carried per road vehicle in each country and at EU level.

EU average vehicle loads for international transport were 16.1 tonnes in 2018. Cyprus had the highest international load at 26.0 tonnes, while Finland had the highest national load at 17.2 tonnes (Figure 2.1.7). Slovakia recorded the lowest average load in national transport (6.0 tonnes).

In 2018, 'metal ores and other mining and quarrying products' was the largest product group in terms of tonnage, accounting for 3 472 million tonnes (Table 2.1.2), followed by 'other non-metallic mineral products' (1 635 million tonnes). The highest rises between 2017 and 2018 were recorded for 'Coal and lignite; crude petroleum and natural gas' (+9.6 %) and 'basic metals and fabricated metal products' (+5.5 %). 'Textiles and textile products' saw the biggest decrease over the same period (-13.6 %), after several consecutive increases in the previous years.

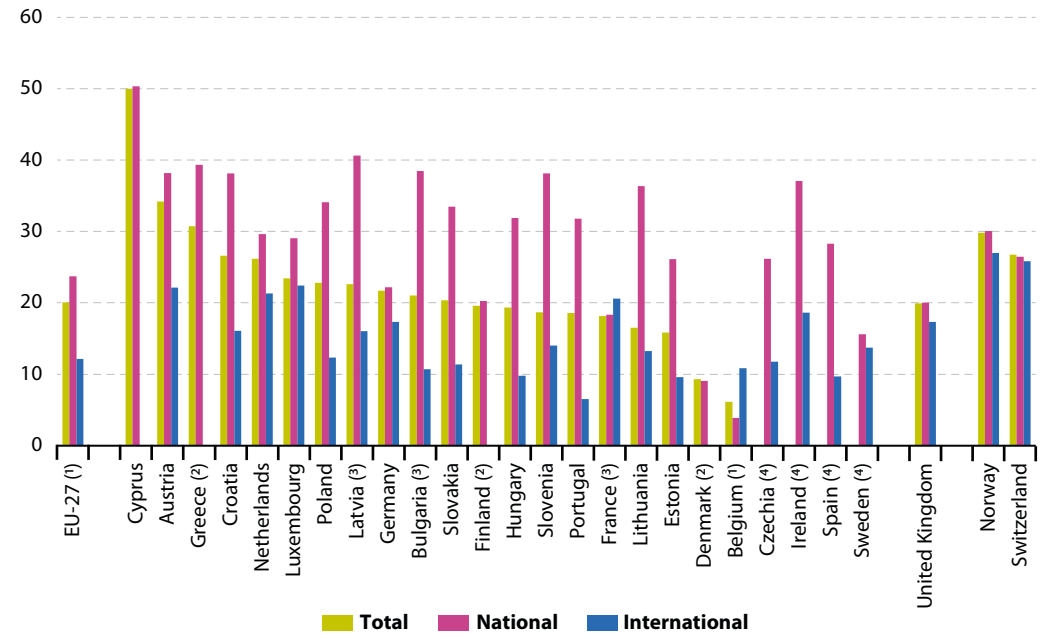
In 2018, 'mixture of different types of goods which are transported together' dominated transport when measured in tonne-kilometres, accounting for 188 billion tonne-kilometres. This group of goods was followed by 'other non-metallic mineral products' (140 million tonne-kilometres), 'metal ores and other mining and quarrying products' (137 tonne-kilometres) and ' basic metals and fabricated metal products' (124 million tonne-kilometres). The highest rises between 2017 and 2018 were for 'metal ores and other mining and quarrying products' (+3.7 %), and 'equipment and material for transport of goods' (+2.9 %), while significant decreases were registered for 'textiles and textile products' (-11.7 %), 'coal and lignite; crude petroleum and natural gas' (-10.2 %) and 'coke and refined petroleum products' (-6.6 %).

Table 2.1.2: Road freight transport by group of goods (NST 2007), EU-27, 2016-2018

	Million tonnes				Billion tonne-kilometres			
	2016	2017	2018	Change 2018/2017 (%)	2016	2017	2018	Change 2018/2017 (%)
Agriculture, forestry and fishery products	1 184	1 219	:	:	186	195	:	:
Coal and lignite; crude petroleum and natural gas	103	114	125	9.6	10	11	10	-10.2
Metal ores and other mining and quarrying products	3 291	3 441	3 472	0.9	122	132	137	3.7
Food products, beverages and tobacco	1 504	1 535	:	:	278	288	:	:
Textiles and textile products; leather and leather products	56	61	53	-13.6	16	16	14	-11.7
Wood and wood products (except furniture); pulp, paper and paper products; printed and recorded media	:	557	532	-4.4	:	114	110	-3.8
Coke and refined petroleum products	:	443	418	-5.6	:	47	44	-6.6
Chemicals and chemical products; rubber and plastic products; nuclear fuel	539	:	:	:	120	:	:	:
Other non metallic mineral products	1 571	1 597	1 635	2.4	126	136	140	2.5
Basic metals and fabricated metal products (except machinery and equipment)	508	531	561	5.5	119	124	124	-0.2
Machinery and equipment	251	249	:	:	50	50	:	:
Transport equipment	:	289	297	2.8	:	74	75	0.3
Furniture and other manufactured goods	103	111	112	0.6	34	36	35	-2.4
Secondary raw materials, wastes	911	:	895	:	61	:	66	:
Mail, parcels	:	183	:	:	:	42	:	:
Equipment and material for transport of goods	:	284	297	4.6	:	40	41	2.9
Goods moved in removals; baggage accompanying travellers	123	125	118	-5.5	11	12	11	-4.2
Mixture of different types of goods which are transported together	:	:	779	:	:	:	188	:
Unidentifiable goods	132	:	154	:	23	:	21	:
Other goods	218	217	219	1.1	44	49	48	-2.7

Source: Eurostat (online data code: road_go_ta_tg)

Figure 2.1.8: Empty road journeys by type of operation, 2018
(% share in vehicle-kilometres)



Note: Countries are ranked based on total transport. Data for Ireland, Italy and Romania are not available.
(1) 2017 data used instead of 2018 for national transport.
(2) International transport data are not available.
(3) 2017 data used instead of 2018 for total transport.
(4) Total transport data are not available.

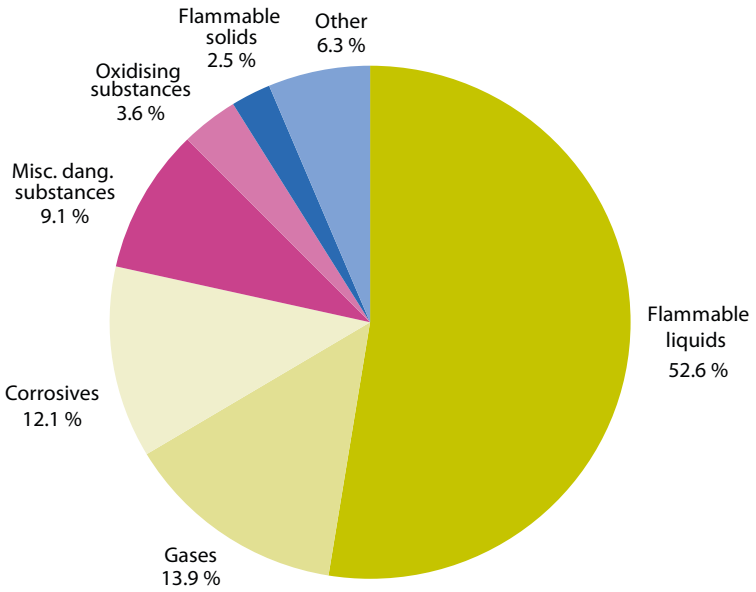
Source: Eurostat (online data code: road_go_ta_tott)

Figure 2.1.8 shows that one fifth of road freight journeys were performed by empty vehicles at EU level in 2018. The share of empty journeys was 12.1 % for international transport in 2018.

At total transport level, most Member States recorded a percentage of empty vehicle-kilometres between 15 % and 30 %. However, the Figure for Cyprus was 50.0 %, probably a reflection of the journeys carrying goods imported through ports and construction traffic, which is largely one way. Empty journeys for Austria were slightly higher than the average, recording 34.2 % empty vehicle-kilometres. At the other extreme were Belgium with 6.1 % of empty vehicle-kilometres and Denmark (9.3 %).

The total figures largely reflect performance in national transport. By contrast, for international transport, all Member States reported substantially lower levels of empty runnings, only four countries being over 20 % (Luxembourg with 22.4 %, Austria with 22.1 %, the Netherlands with 21.3 % and France with 20.6 %). This shows the economic importance of finding loads for international return journeys, while empty journeys can be more present in domestic transport.

Figure 2.1.9: Road freight transport of dangerous goods by type of goods, EU-27, 2018
(% share in tonne-kilometres)



Source: Eurostat (online data code: road_go_ta_dg)

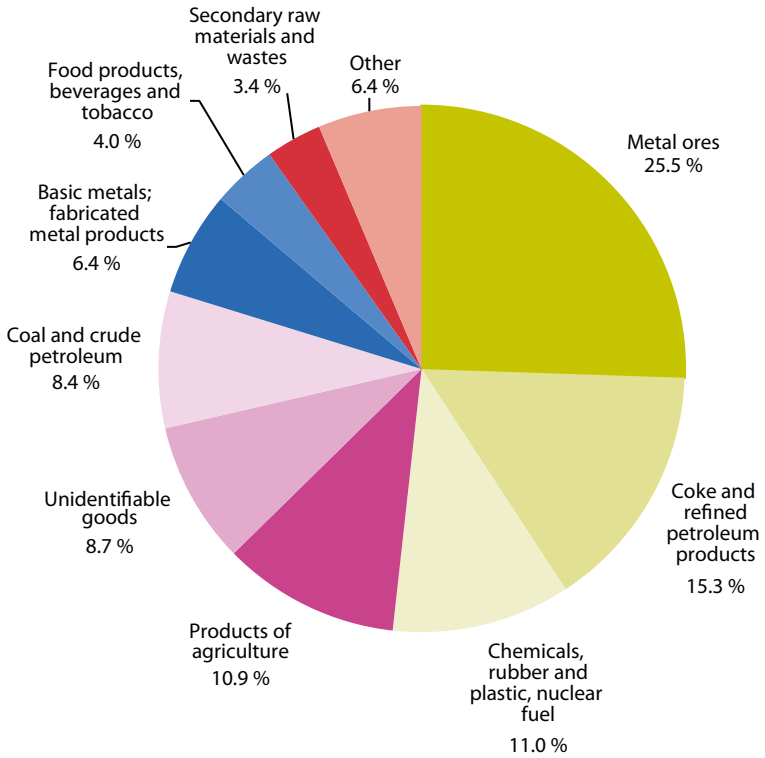
Figure 2.1.9 shows the types of dangerous goods in EU road freight transport in 2018. The largest specific product group was 'flammable liquids', taking over more than half of the total (52.6 %). Two other groups, 'gases (compressed, liquefied or dissolved under pressure)' and 'corrosives', accounted for 13.9 % and 12.1 % respectively. There were very small changes compared with previous years, the distribution between product groups remained quite similar over time.

As dangerous goods represent a small share of all the goods transported by road, there are considerable uncertainties in the surveys' results on this type of goods.

When it comes to freight transport by inland waterways, the main types of goods (according to NST 2007 classification) transported at EU level in 2018 were 'metal ores', 'coke and refined petroleum products' and 'chemicals, rubber and plastic, nuclear fuel'. 'Products of agriculture' lost the third place compared with 2017. These top three categories accounted for more than half of all goods transport on EU inland waterways (Figure 2.1.10).

All types of goods recorded a decrease in 2018 compared with 2017. The largest fall was observed for 'coal and crude petroleum' (-14.5 %), followed by 'products of agriculture' (-12.7 %). Compared with 2017, the shares of 'metal ores' and 'chemicals, rubber and plastic, nuclear fuel' in total transport performance increased (by 1.2 pp for 'metal ores' and 0.1 pp for 'chemicals, rubber and plastic, nuclear fuel'), while the share of 'coke and refined petroleum products' fell by -0.2 pp.

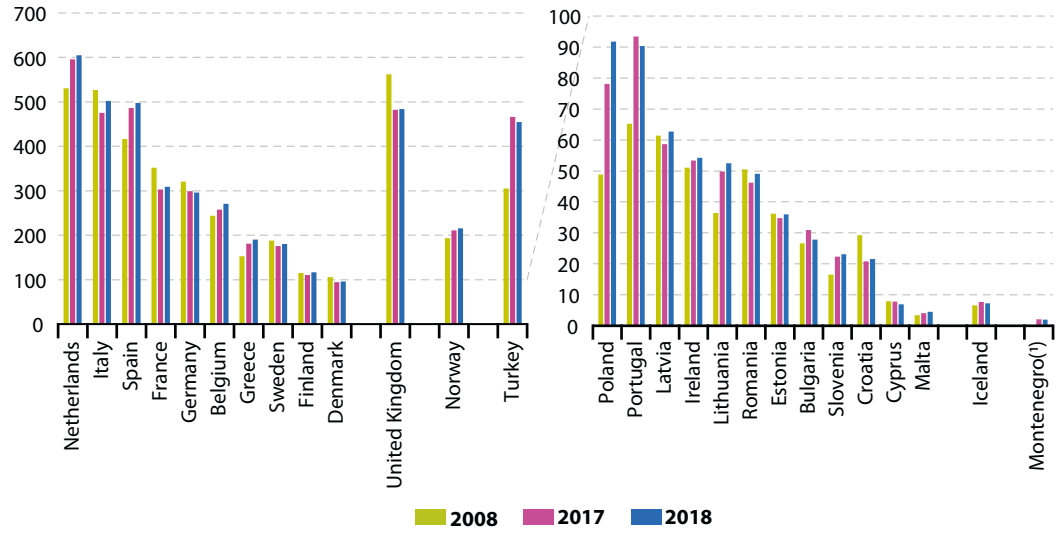
Figure 2.1.10: Inland waterways freight transport by type of goods, EU-27, 2018
(% share in tonne-kilometres)



Note: Data for Finland are not available.

Source: Eurostat (online data code: iww_go_atygo)

Figure 2.1.11: Gross weight of seaborne freight handled in all ports, 2008, 2017 and 2018
(million tonnes)



Note: Countries are ranked based on 2018 data.
(1) 2008 data not available.

Source: Eurostat (online data code: mar_mg_aa_cwh)

As regards seaborne freight transport, the total gross weight of goods handled in EU ports is estimated at 3.6 billion tonnes in 2018, an increase of 3.0 % from 2017.

The Netherlands reported the largest volume of seaborne freight handling in Europe in this period (Figure 2.1.11). At 605 million tonnes, the volume of seaborne goods handled in Dutch ports represented 16.9 % of the EU total in 2018. The Netherlands was followed by Italy and Spain. Their respective shares were 14.0 % and 13.9 % of the EU total.

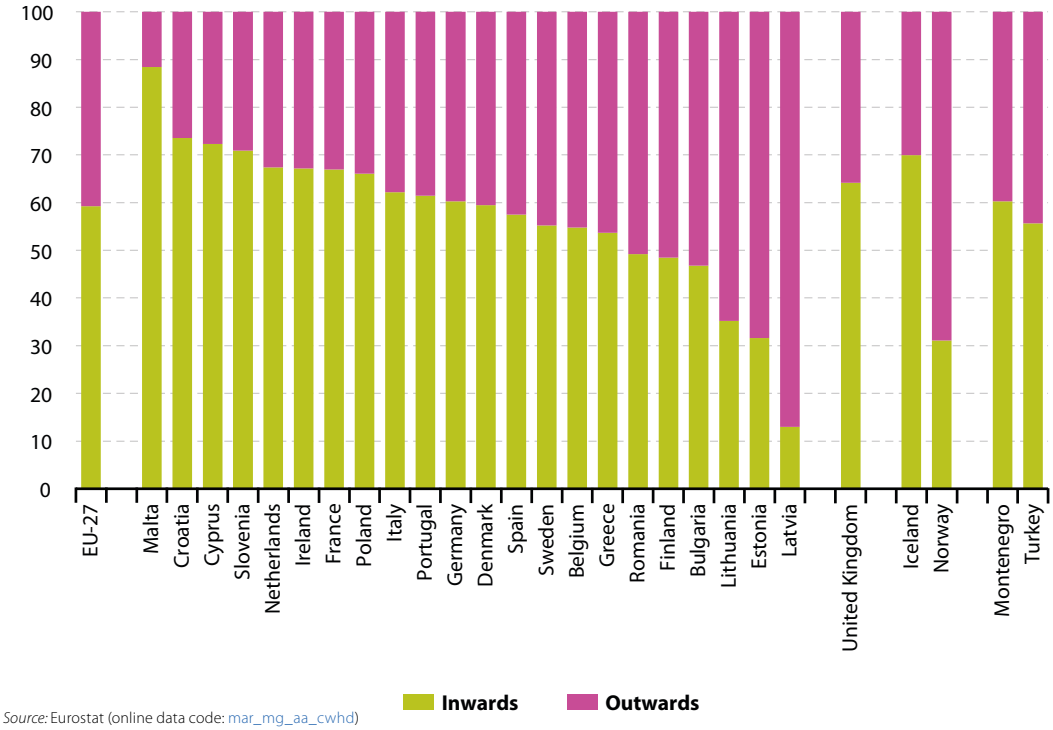
Among other countries reporting maritime freight data to Eurostat, the United Kingdom and the candidate country Turkey handled 483 million tonnes and 454 million tonnes of goods in 2018, placing these two countries between Spain and France in terms of total tonnage of seaborne goods handled.

Compared with 2017, the largest relative increases in port freight activity among the EU Member States were recorded by Poland (+17.6 %), Malta (+10.8 %), Latvia (+6.8 %) and Romania (+6.3 %). Only four countries registered a decrease in port freight activity: Cyprus (-11.6 %), Bulgaria (-10.0 %), Portugal (-3.2 %) and Germany (-1.0 %).

All in all, nine EU Member States recorded decreases in port freight activity in the ten-year period between 2008 and 2018. The highest relative falls were observed for Croatia (-26.2 %), Cyprus (-12.7 %), and France (-12.3 %). The United Kingdom also registered a fall of -14.0 % within the same period. In contrast, Poland registered the largest relative increase (+88.0 %), followed by Lithuania (+44.2 %), Slovenia (+39.7 %), Portugal (+38.4 %), Malta (+35.2 %), Greece (+24.9 %) and Spain (+19.6 %). Turkey also reported a noticeable increase of +48.8 %.

Inward movements of goods to the EU countries increased by 2.8 % to more than 2.1 billion tonnes in

Figure 2.1.12: Gross weight of seaborne freight handled in all ports by direction, 2018
(% share in tonnes)



Source: Eurostat (online data code: mar_mg_aa_cwhd)

2018 compared with 2017, while outwards movements increased by 3.2 % to almost 1.5 billion tonnes. Nonetheless, inward movements still accounted for 59.2 % of the total tonnes of goods handled in the EU ports (Figure 2.1.12). Liquid bulk goods, such as crude oil and oil products, made up a substantial proportion of the inward tonnage.

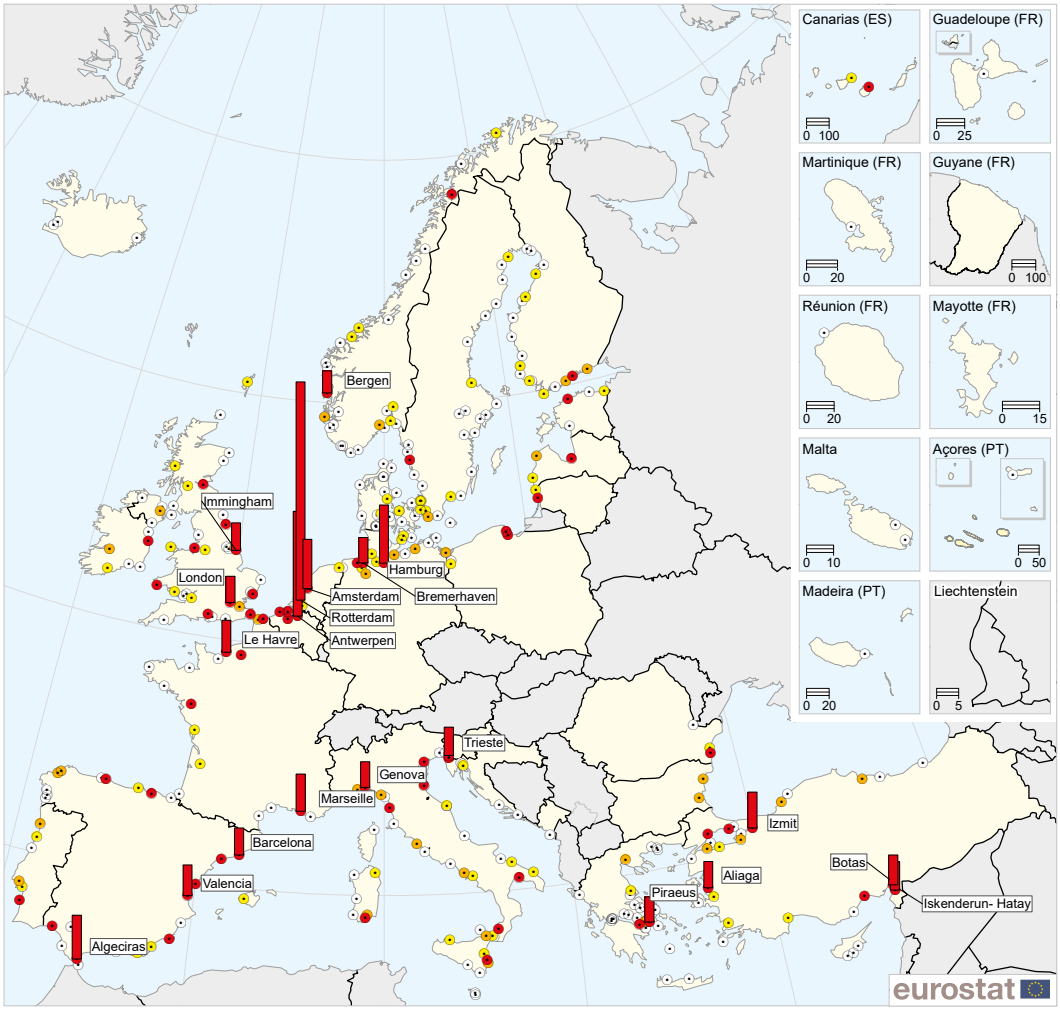
More seaborne goods are unloaded from than loaded onto vessels in the majority of EU countries. Malta had the highest shares of unloaded goods in 2018, with 88 % of the total tonnes of seaborne goods recorded as inward movements to their ports. By contrast, the three Baltic countries, Bulgaria, Finland, Romania and the EEA country Norway all had high shares of outward movements of goods in the total movements of tonnes to their ports.

Rotterdam, Antwerpen and Hamburg, all located on the North Sea coast, maintained their positions as Europe's top three ports in 2018, both in terms of the gross weight of goods handled and in terms of the volume of containers handled in the ports. The 20 largest cargo ports accounted for 38 % of the total tonnage of goods handled in the reporting countries in 2018, a slight decrease compared with 2017. The largest port in Europe, Rotterdam in the Netherlands, on its own accounted for just above 9 % of the total tonnage handled in the countries reporting maritime freight data to Eurostat.

All in all, 11 of the top 20 cargo ports of the reporting countries, in 2018 were located on the Mediterranean, 8 on the North Sea coast of Europe and the remaining ports on the Atlantic coast (Map 2.1.1). The composition of the national port infrastructure will sometimes determine whether a country is represented on the top 20 list of cargo ports or not. Denmark and Finland, for instance, are countries with a large number of medium-sized ports, all handling volumes of goods lower than the 44 million annual tonnes required to make the top 20 list.

In terms of tonnage, maritime transport is the most significant mode for long distance transport of goods to

Map 2.1.1: Main cargo ports by gross weight of freight handled, 2018



Top 20 ports are named and their handling activity shown as bars.

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: Eurostat — GISCO, 01/2020
Map project: GISCO-2240

100 million tonnes

0 200 400 600 800 km

- 1 - 5 Mio
- 5 - 10 Mio
- 10 - 20 Mio
- > 20 Mio

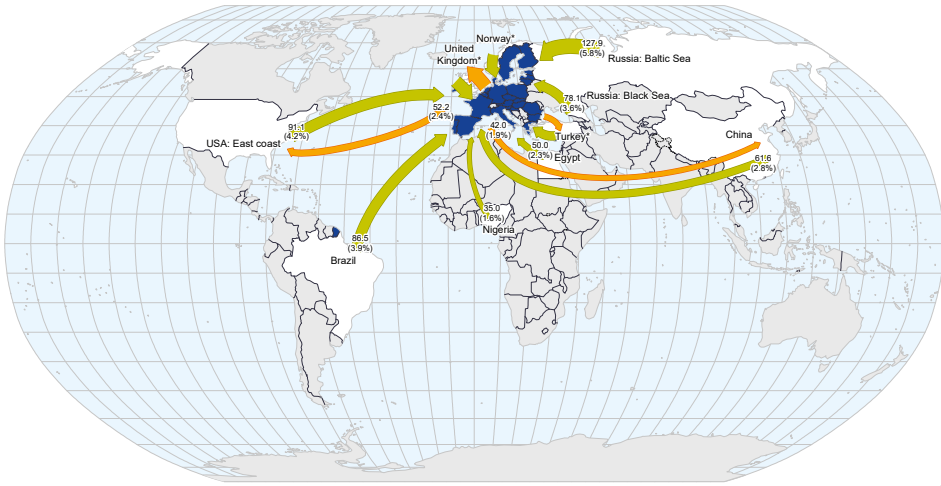
Source: Eurostat (mar_mg_aa_pwhd)

or from the EU, with almost two thirds going to or from ports outside the EU (international extra-EU transport).

Map 2.1.2 illustrates the largest maritime transport flows between the EU and the main international partners (flows over 35 million tonnes). As shown in the map, almost all of the EU's top ten maritime flows of goods in 2018 were inward flows. The exceptions were the outward flows from the United Kingdom and the East Coast of the USA. In descending order, these were the inward flows of goods from the Baltic Sea area of Russia (5.8 % of the total extra-EU seaborne transport), the outward and inward flows to/from the United Kingdom (5.2 % and 4.8 %, respectively), inward flows from the East Coast of the USA (4.2 %), Brazil, Norway (3.9 % each), the Black Sea area of Russia (3.6 %), Turkey (3.3%), China (2.8 %) and the outward flow to the East Coast of the USA (2.4 %).

The growing significance of the international transport segment is reflected in air freight and mail transport

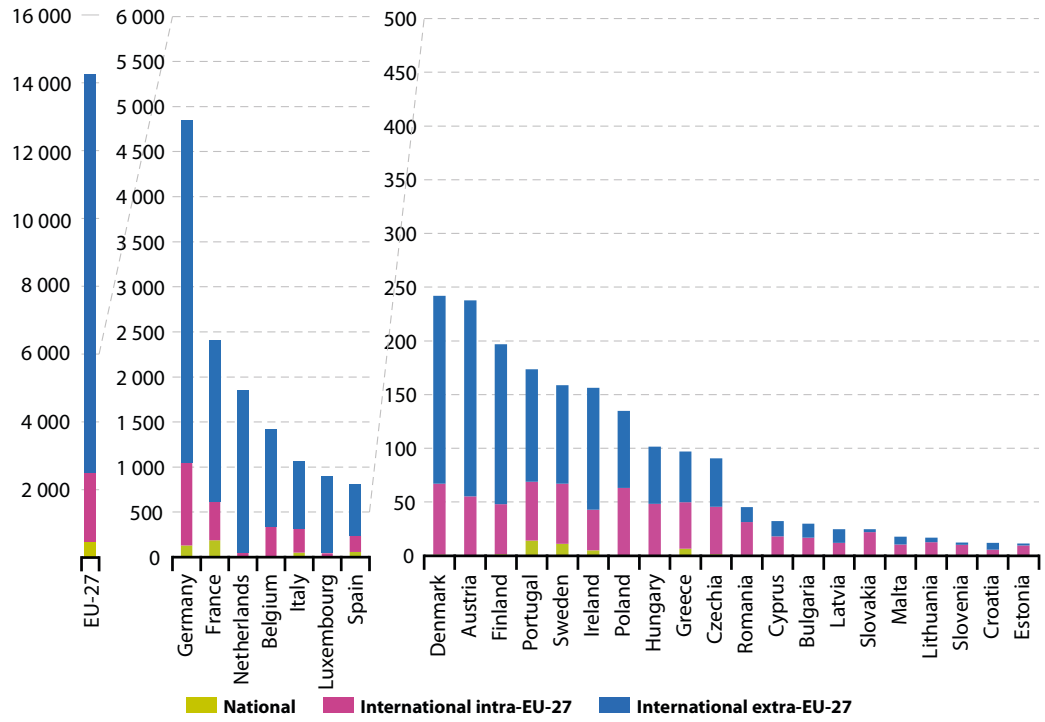
Map 2.1.2: Main extra-EU-27 maritime transport flows by gross weight of freight handled in main ports, EU-27, 2018
(million tonnes, % share in tonne-kilometres)



* United Kingdom, inward: 105.0 (4.8%), outward: 114.0 (5.2%); Norway, inward: 86.0 (3.9%); Turkey, inward: 73.2 (3.3%), outward 46.1 (2.1%)

Source: Eurostat - Maritime transport - Goods (mar_go)

Figure 2.1.13: Air freight and mail by type of transport, 2018
(thousand tonnes)

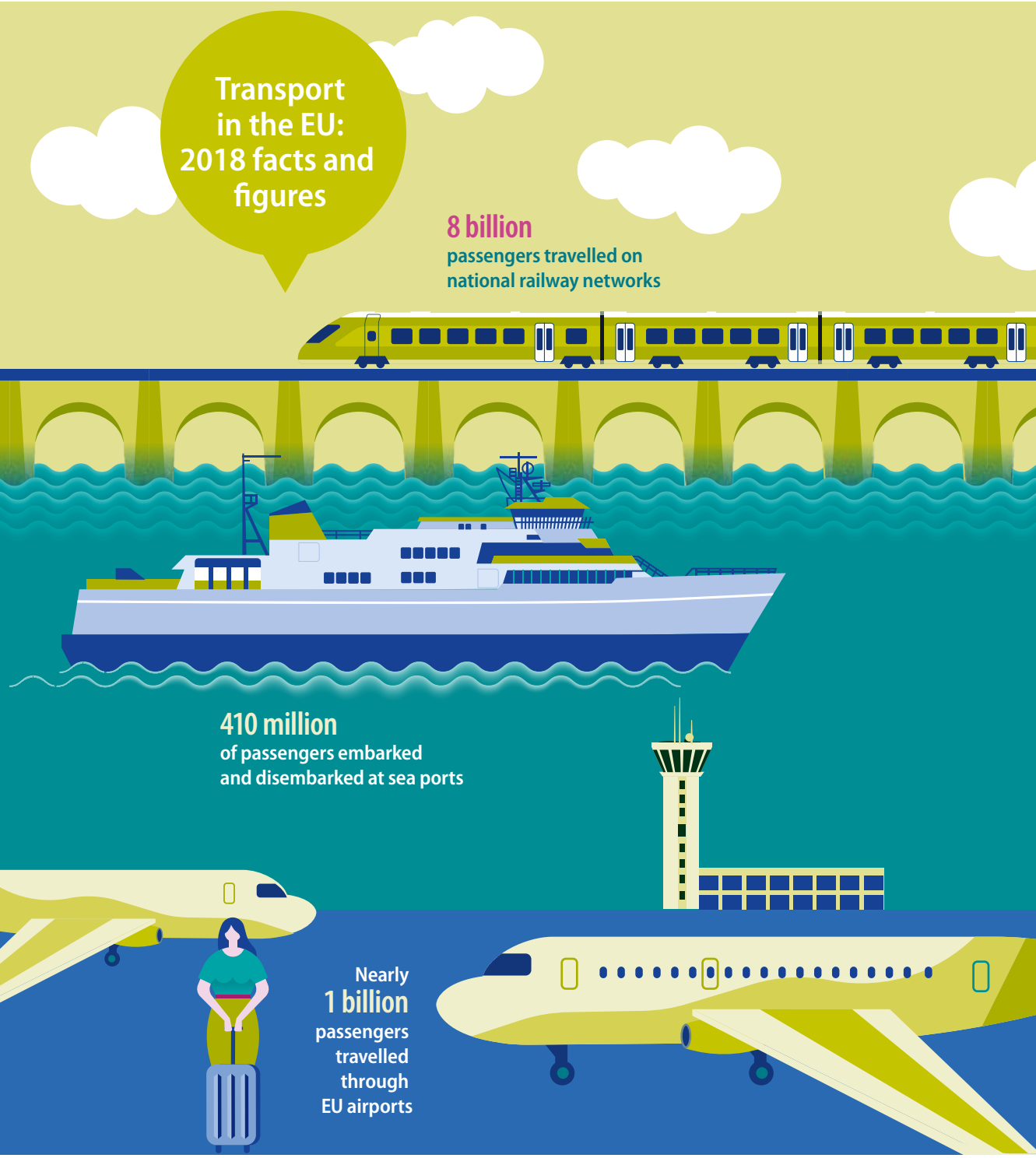


Note: The national aggregates and total intra-EU-27 aggregates for EU-27 exclude double counting (it includes only departures declarations).
Source: Eurostat (online data code: avia_gooc)

figures. In 2018, more than 14 million tonnes of freight and mail were transported by air in the EU (Figure 2.1.13), increasing by 2.2 % compared with 2017. This increase is mainly due to international extra-EU transport, which rose by 2.9 % from 2017 to 2018. By contrast, international intra-EU fell by 1.3 % in the same period. Compared with the previous year, domestic transport remained stable. Extra-EU transport dominates, accounting for 82 % of the total EU freight and mail transport in 2018.

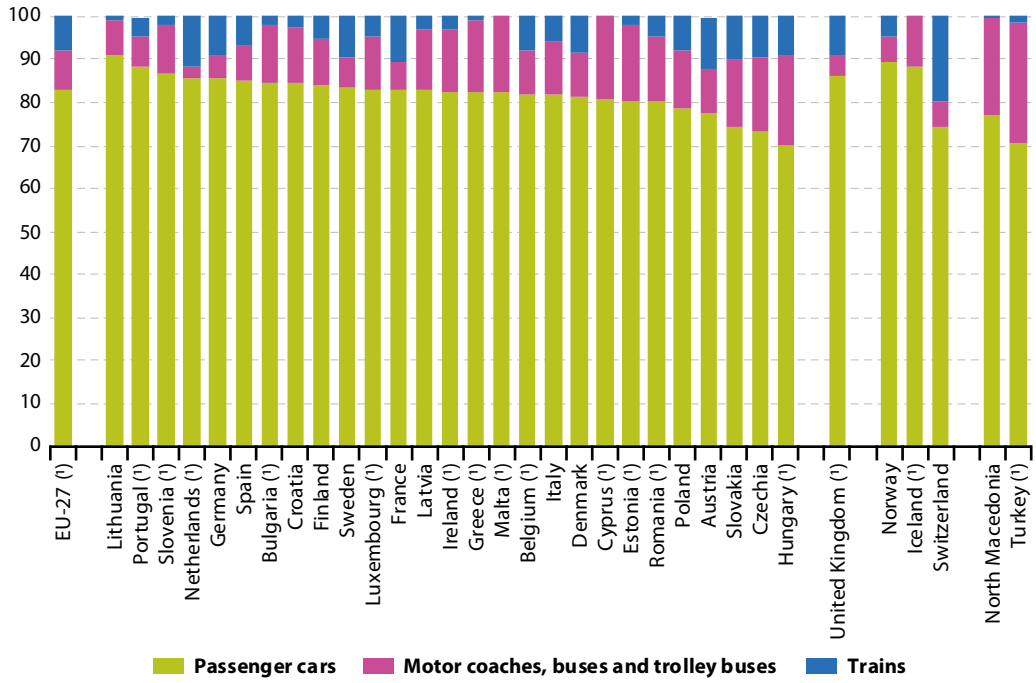
In 2018, airports in Germany dealt with 4.8 million tonnes of air freight and mail, representing 34 % of the total EU freight and mail transport. France and the Netherlands had the second and third highest amounts of air freight and mail transported, with 2.4 and 1.8 million tonnes, respectively. Some of the smaller EU Member States are relatively specialised in air freight and mail, notably all of the Benelux countries, in particular Luxembourg, which ranked as the sixth largest air freight and mail transporter among the EU Member States.

Transport in the EU: 2018 facts and figures



2.2 Passenger transport

Figure 2.2.1: Modal split of inland passenger transport, 2017
(% share in passenger-kilometres)



Note: Countries are ranked based on passenger cars. Powered two-wheelers are excluded. Cyprus, Malta and Iceland: railways not applicable.
(1) Includes estimates.

Source: Eurostat (online data code: tran_hv_psmod)

Figure 2.2.1 shows that passenger cars accounted for 82.9 % of inland passenger transport in the EU in 2017, with motor coaches, buses and trolley buses (9.4 %) and passenger trains (7.8 %) both accounting for less than a tenth of all traffic (measured in passenger-kilometres).

The passenger car was by far the most predominant mode for passenger transport in all EU Member States. In Lithuania, passenger cars accounted for 91 % of all passenger transport in 2017. Slovakia, Czechia and Hungary were the only EU Member States where the shares of passenger cars were below three quarters. For Hungary, this was reflected in the highest share of motor coaches and buses (21.1 %) among the EU Member States. An even higher share was reported for the candidate country Turkey (28.2 %). The lowest share for motor coaches, buses and trolley buses was in the Netherlands (2.9 %). The EU Member States with the highest share of passenger transport by train were Austria (11.9 %) and the Netherlands (11.4 %). However, this was well below the EFTA country Switzerland, where trains carried out 19.7 % of all passenger transport in 2017. At the same time, their share was less than 2.0 % in Slovenia, Lithuania and Greece, as well as in the candidate countries North Macedonia and Turkey.

Table 2.2.1: Rail passenger transport by type of transport, 2017-2018
(thousand passengers)

	National			International			Total		
	2017	2018	Change 2018/2017 (%)	2017	2018	Change 2018/2017 (%)	2017	2018	Change 2018/2017 (%)
EU-27	**7 898 033**	**8 003 672**	**1.3**	**:**	**:**	**:**	**:**	**:**	**:**
Belgium	:	:	:	:	:	:	:	:	:
Bulgaria	20 411	20 534	0.6	784	795	1.4	21 195	21 329	0.6
Czechia	176 932	182 513	3.2	5 791	6 775	17.0	182 724	189 288	3.6
Denmark	193 928	192 211	-0.9	12 638	13 096	3.6	206 566	205 307	-0.6
Germany	2 815 592	2 865 171	1.8	15 851	15 387	-2.9	2 831 443	2 880 558	1.7
Estonia	7 326	7 652	4.4	107	107	-0.3	7 433	7 759	4.4
Ireland	45 130	47 546	5.4	375	414	10.5	45 505	47 960	5.4
Greece	15 337	16 778	9.4	22	17	-21.0	15 359	16 795	9.4
Spain	592 284	595 114	0.5	1 070	1 029	-3.8	593 354	596 143	0.5
France	1 237 353	1 206 606	-2.5	40 126	40 198	0.2	1 277 479	1 246 804	-2.4
Croatia	19 513	19 942	2.2	290	301	3.8	19 803	20 244	2.2
Italy	846 081	863 992	2.1	2 676	2 596	-3.0	848 757	866 588	2.1
Cyprus	-	-	-	-	-	-	-	-	-
Latvia	17 327	18 075	4.3	167	166	-0.4	17 494	18 242	4.3
Lithuania	3 855	4 300	11.5	322	366	13.6	4 176	4 665	11.7
Luxembourg	16 523	17 155	3.8	6 407	6 176	-3.6	22 930	23 331	1.7
Hungary	:	:	:	:	:	:	:	:	:
Malta	-	-	-	-	-	-	-	-	-
Netherlands	:	:	:	:	:	:	:	:	:
Austria	245 224	262 719	7.1	9 269	9 918	7.0	254 493	272 637	7.1
Poland	291 500	297 230	2.0	1 548	1 823	17.7	293 048	299 053	2.0
Portugal	141 876	147 408	3.9	251	173	-31.1	142 127	147 581	3.8
Romania	67 142	64 539	-3.9	188	176	-6.3	67 330	64 715	-3.9
Slovenia	12 592	12 677	0.7	410	428	4.2	13 002	13 105	0.8
Slovakia	71 474	73 380	2.7	3 442	3 885	12.9	74 916	77 265	3.1
Finland	85 155	86 951	2.1	548	552	0.7	85 703	87 502	2.1
Sweden	217 668	235 330	8.1	12 149	11 160	-8.1	229 817	246 490	7.3
United Kingdom	1 737 710	1 762 710	1.4	19 649	20 521	4.4	1 757 359	1 783 232	1.5
Norway	72 968	77 298	5.9	593	442	-25.5	73 561	77 740	5.7
Switzerland	490 259	482 376	-1.6	10 336	10 677	3.3	500 595	493 053	-1.5
Montenegro (1)	:	:	:	:	:	:	927	992	7.0
North Macedonia	495	534	7.9	5	6	13.8	500	540	7.9
Turkey	85 206	100 368	17.8	132	200	51.5	85 338	100 568	17.8

Note: Cyprus and Malta have no railways.
(1) Totals are the sum of quarterly data.
Source: Eurostat (online data codes: rail_pa_typepas and rail_pa_quartal)

Concerning rail transport, 8 billion passengers travelled on national railway networks in the EU in 2018 (Table 2.2.1). It has to be noted that international transport represented less than 8 % of the total transport for all countries except Luxembourg where it represented 26 %. All in all, 19 of the EU Member States reported increases in the total number of passengers transported between 2017 and 2018. The largest increases were recorded in Lithuania (+11.7 %), Greece (+9.4 %), Sweden (+7.3 %) and Austria (+7.1 %). The candidate country Turkey also rose substantially (+17.8 %).

By contrast, the transport of passengers decreased by 3.9 % in Romania and 2.4 % in France.

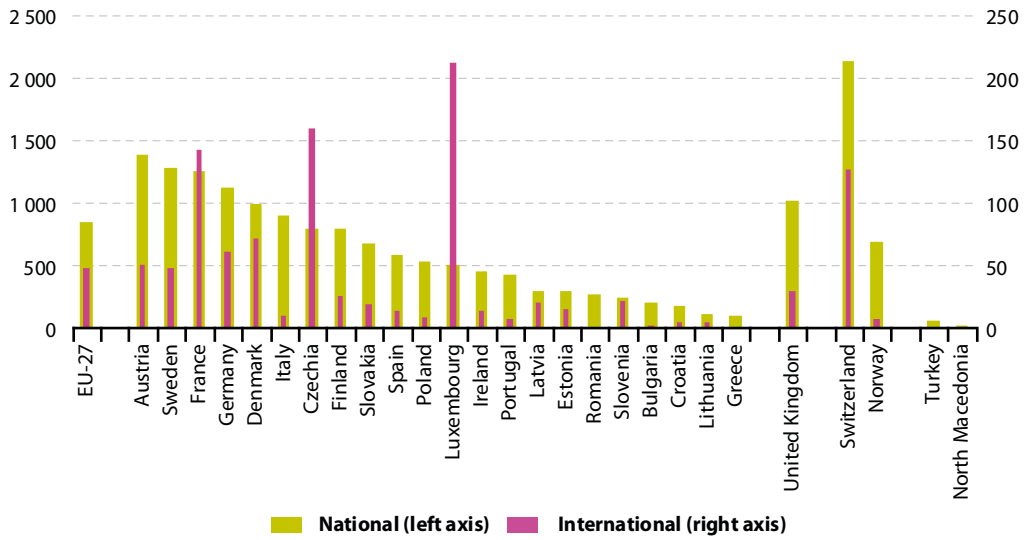
When looking at the evolution of national transport between 2017 and 2018, the largest increase was reported by Lithuania (+11.5 %), followed by Greece (+9.4 %), Sweden (+8.1 %) and Austria (+7.1 %), while Romania reported the largest decrease with -3.9 %.

In order to compare the relative significance of rail transport between countries, the data can be normalised by expressing passenger traffic in relation to population (Figure 2.2.2).

Travel on the national rail networks in Austria, Sweden, France and Germany averaged more than 1 000 passenger-kilometres per capita in 2018; this was well below the level recorded in Switzerland (2 133 passenger-kilometres per capita). By contrast, among the EU Member States the lowest average distances travelled on national railway networks in 2018 were recorded in Greece (103 passenger-kilometres per capita) and Lithuania (121 passenger-kilometres per capita), while the levels in the candidate countries Turkey (68 passenger-kilometres per capita) and North Macedonia (30 passenger-kilometres per capita) were even lower.

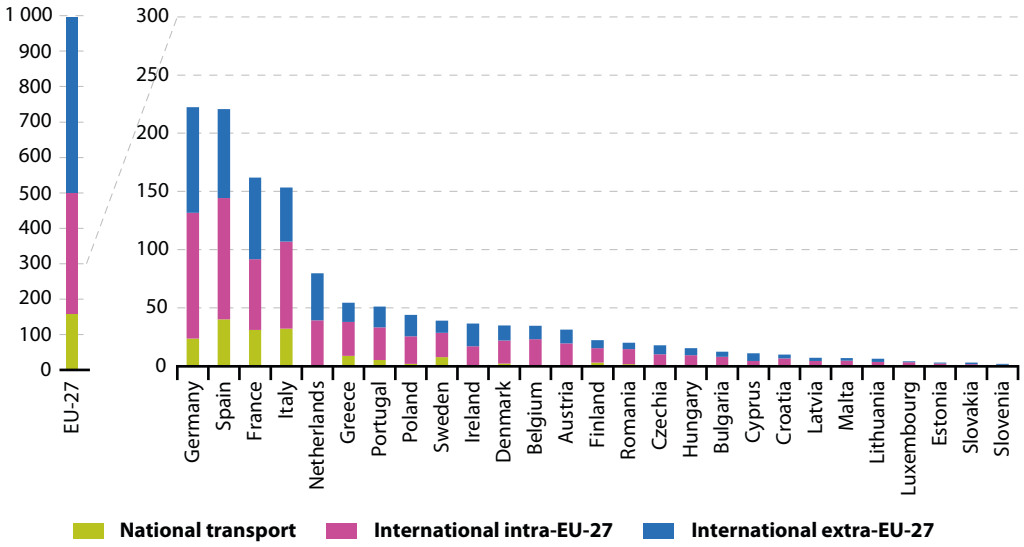
In terms of international rail travel, the only EU Member States to report levels of more than 100 passenger-kilometres per capita in 2018 were Luxembourg (213 passenger-kilometres per capita), Czechia (160 passenger-kilometres per capita) and France (143 passenger-kilometres per capita); this level was also surpassed in the EFTA country Switzerland (128 passenger-kilometres per capita). These figures may reflect, among others, the proximity of international borders, the significance of cross-border commuters within the workforce, access to high-speed rail links, and whether or not international transport corridors run through a particular country.

Figure 2.2.2: Rail passenger transport by type of transport, 2018
(passenger-kilometres per capita)



Note: Countries are ranked based on national transport. Cyprus and Malta have no railways. Data are not available for Belgium, Hungary and the Netherlands.
Source: Eurostat (online data code: rail_pa_typepas and demo_gind)

Figure 2.2.3: Air passenger transport by type of transport, 2018
(million passengers carried)



Note: The national aggregates and total intra-EU-27 aggregates for EU-27 exclude double counting (it includes only departures declarations).
Source: Eurostat (online data code: avia_paoc)

The total number of air passengers transported reached almost 1 billion in 2018 at EU level (Figure 2.2.3). Germany was the EU Member State carrying the highest number of passengers in 2018 (222 million passengers), followed by Spain (221 million passengers) and France (162 million passengers). On the other side of the spectrum, Slovenia recorded 1.8 million passengers.

Half of the air passenger transport concerned extra-EU flights (50 %) while national transport and intra-EU transport accounted for 16 % and 34 % of air passenger transport, respectively. For almost all EU Member States, intra-EU transport is dominant, with shares between 37 % for France and 76 % for Luxembourg. The exceptions are France, Ireland, Cyprus, the Netherlands, Slovakia and Slovenia which have higher shares of extra-EU transport than the shares of intra-EU transport. The highest extra-EU transport share was registered by Cyprus (60 %) and the lowest by Luxembourg (24 %). The share of national transport was lower than the share of intra-EU and extra-EU transport for all countries. The highest shares were observed in Italy (21 %), Sweden (20 %), France (19 %), Spain (18 %) and Greece (16 %).

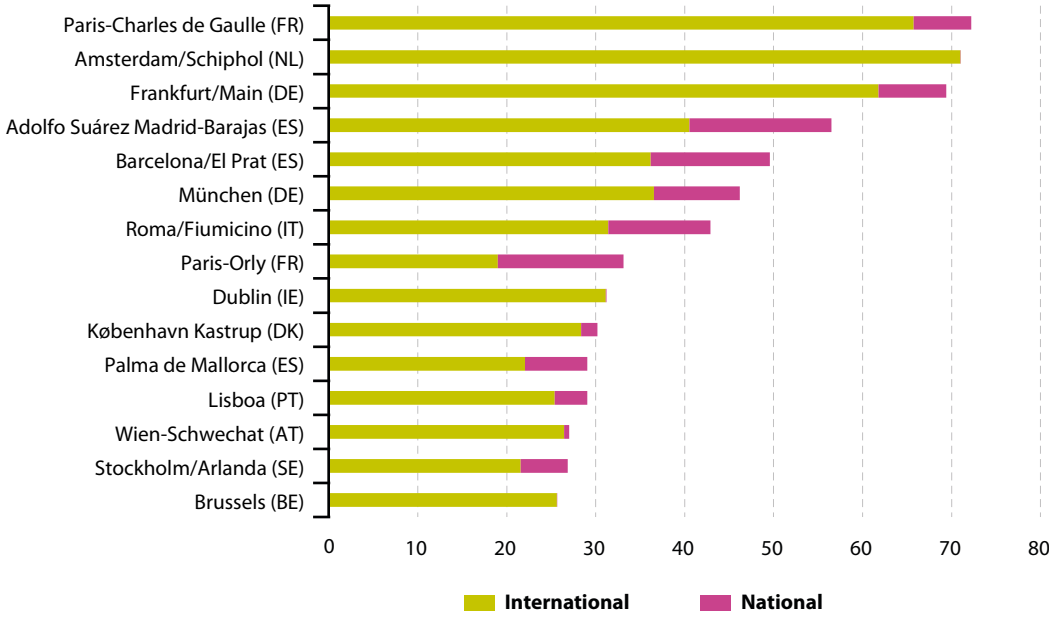
Paris-Charles de Gaulle was the busiest airport in the EU in terms of passenger carried in 2018, with 72 million passengers arriving or departing (Figure 2.2.4). Paris-Charles de Gaulle has remained the busiest airport in the

EU since 2002. It was followed by Amsterdam/Schiphol (71 million) and Frankfurt/Main (69 million).

The overwhelming majority of passengers travelling through these three busiest airports were travelling on international flights; the lowest share among them was recorded for Frankfurt/Main (89 %), rising to almost 100 % for Amsterdam/Schiphol.

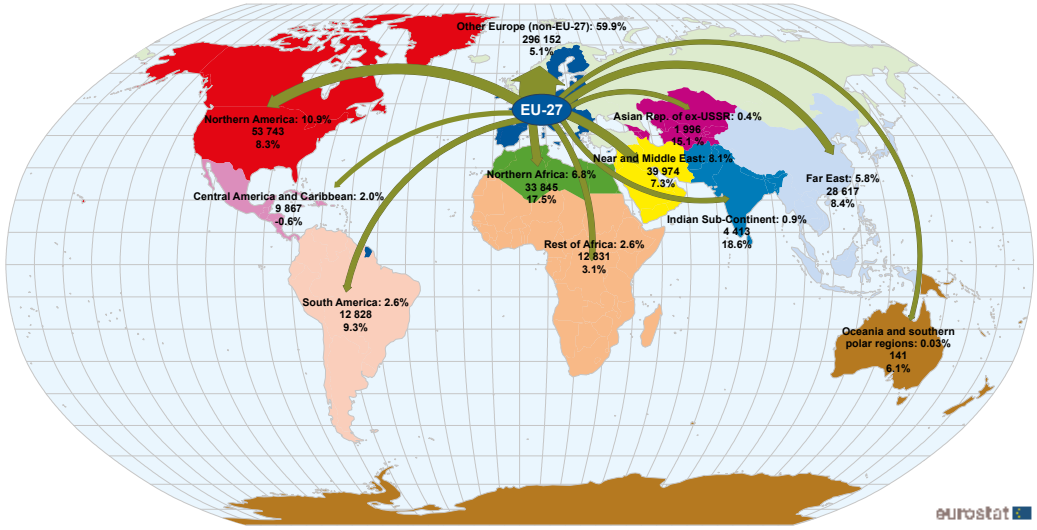
By contrast, national flights accounted for 28 % of the 56 million passengers carried through the EU's fourth busiest passenger airport in 2018, Adolfo Suárez Madrid-Barajas. There were also relatively high proportions of passengers on national flights to and from Paris-Orly (43 %), Barcelona/El Prat and Roma Fiumicino (both around 27 %).

Figure 2.2.4: Top 15 airports in the EU-27, 2018
(million passengers carried)



Source: Eurostat (online data codes: avia_paoa)

Map 2.2.1: Air transport of passengers, extra-EU-27, 2018
(thousand passengers)



Labels

World region and its share in extra-EU-27 air transport (%)
Number of passengers carried - arrivals and departures (thousand)
Annual growth 2017-2018 (%)

Administrative boundaries: © EuroGeographics © UN-FAO © Turkstat
Cartography: GISCO 09/2020
Projection: Robinson

Source: Eurostat (online data codes: avia_paexcc)

Map 2.2.1 presents some elements of the extra-EU air transport of passengers. The main partner region was by far 'Other Europe (non-EU)' which represented 60 % of extra-EU air transport of passengers. With a 18.6 % increase between 2017 and 2018, 'Indian sub-continent' is the partner world region with the highest increase for EU passenger transport, followed by 'Northern Africa' (+17.5 %) and 'Asian Republics of the Ex-USSR' (+15.1 %). Extra-EU air transport of passengers increased for all regions of the world with the exception of 'Central America and Caribbean' (-0.6 %).

When it comes to maritime transport, the total number of passengers embarking and disembarking in EU ports was estimated at around 410 million in 2018, a rise of 5.6 % from the previous year (Table 2.2.2). Unlike goods movements, where broadly 60 % of goods are unloaded and 40 % loaded in the EU ports, the difference between the number of passengers disembarking ('inwards') and embarking ('outwards') in EU ports is generally small. This reflects the fact that seaborne passenger transport in Europe is mainly carried by national or intra-EU ferry services, with the same passengers being counted twice in the port throughput statistics (once when they embark the ferry in one EU port and once when they disembark the same ferry in another EU port).

At 85.4 million and 72.5 million seaborne passengers, respectively, Italian and Greek ports accounted for a combined share of 38.5 % of the total number of passengers embarking and disembarking in EU ports in 2018. As a consequence, Italy and Greece remained the main countries in terms of EU seaborne passenger transport. Italy recorded a substantial increase in passengers embarking and disembarking compared with 2017 (+15.6 %). The two leading countries were followed by Denmark with 43.8 million passengers embarking and disembarking in 2018, an increase of 2.2 % from 2017.

In 2018, compared with the previous year, the largest relative increases in seaborne passengers transport were recorded by Bulgaria (+20.9 % from a low base),

Spain (+16.8 %) and Italy (+15.6 %). By contrast, the largest relative decreases were recorded in Romania (no passenger transported in 2018), Cyprus (-60.9 %, from a low base), Slovenia (-21.1 %, from low base) and Belgium (-11.3 %).

Although cruise passengers made up only 3.3 % of the total number of passengers embarking and disembarking in EU ports in 2018, these passengers play an important role in the ports and countries where the cruise traffic is concentrated. Close to 78 % of the total number of cruise passengers embarking and disembarking in EU ports in 2018 did so in the ports of one of the 3 countries Italy, Spain and Germany. Cruise passengers on day excursions in EU ports are not included in these figures.

Table 2.2.2: Seaborne passengers embarked and disembarked in all ports, 2015-2018
(thousand passengers)

	2015	2016	2017	2018					Change 2018/2017 (%)
	Total	Total	Total	Inwards	Outwards	Cruise	Non cruise	Total	
EU-27	**367 627**	**369 636**	**388 427**	**205 822**	**204 390**	**13 723**	**396 490**	**410 213**	**5.6**
Belgium	844	1 118	1 270	562	565	792	335	1 127	-11.3
Bulgaria	2	3	2	0	3	0	3	3	20.9
Denmark	41 647	41 583	42 851	21 947	21 827	410	43 364	43 774	2.2
Germany	30 087	30 849	30 774	15 304	15 383	2 340	28 347	30 687	-0.3
Estonia	14 164	14 333	14 850	7 390	7 447	13	14 824	14 837	-0.1
Ireland	2 751	2 717	2 774	1 386	1 365	41	2 711	2 751	-0.8
Greece	65 680	65 248	70 023	36 277	36 243	476	72 044	72 520	3.6
Spain	24 522	26 323	27 899	16 345	16 249	3 527	29 068	32 594	16.8
France	26 133	24 514	25 093	12 947	12 785	849	24 883	25 732	2.5
Croatia	27 271	29 661	31 327	16 557	16 101	66	32 591	32 658	4.2
Italy	70 268	67 273	73 876	42 773	42 609	4 826	80 556	85 382	15.6
Cyprus	68	59	72	14	15	2	26	28	-60.9
Latvia	661	723	994	521	542	0	1 063	1 063	6.9
Lithuania	286	303	297	154	169	0	323	323	8.6
Malta	9 910	10 690	11 286	5 992	5 986	156	11 822	11 978	6.1
Netherlands (1)	1 910	1 906	1 928	996	984	0	1 980	1 980	2.7
Poland	2 421	2 602	2 585	1 360	1 360	0	2 720	2 720	5.2
Portugal	583	679	740	379	378	60	698	757	2.3
Romania	1	0	0	0	0	0	0	0	-100.0
Slovenia	34	28	31	12	12	0	24	24	-21.1
Finland	18 884	19 222	19 489	9 668	9 551	9	19 210	19 218	-1.4
Sweden	29 500	29 800	30 265	15 236	14 819	157	29 897	30 055	-0.7
United Kingdom	27 805	26 887	26 336	13 246	13 429	2 208	24 467	26 676	1.3
Iceland	737	544	917	403	403	0	806	806	-12.1
Norway (2)	6 714	6 266	6 352	3 091	3 257	181	6 167	6 348	-0.1
Montenegro	99	110	119	45	54		98	98	-16.9
Turkey	2 233	1 250	1 377	688	695	141	1 242	1 383	0.4

(1) Data exclude cruise passengers.

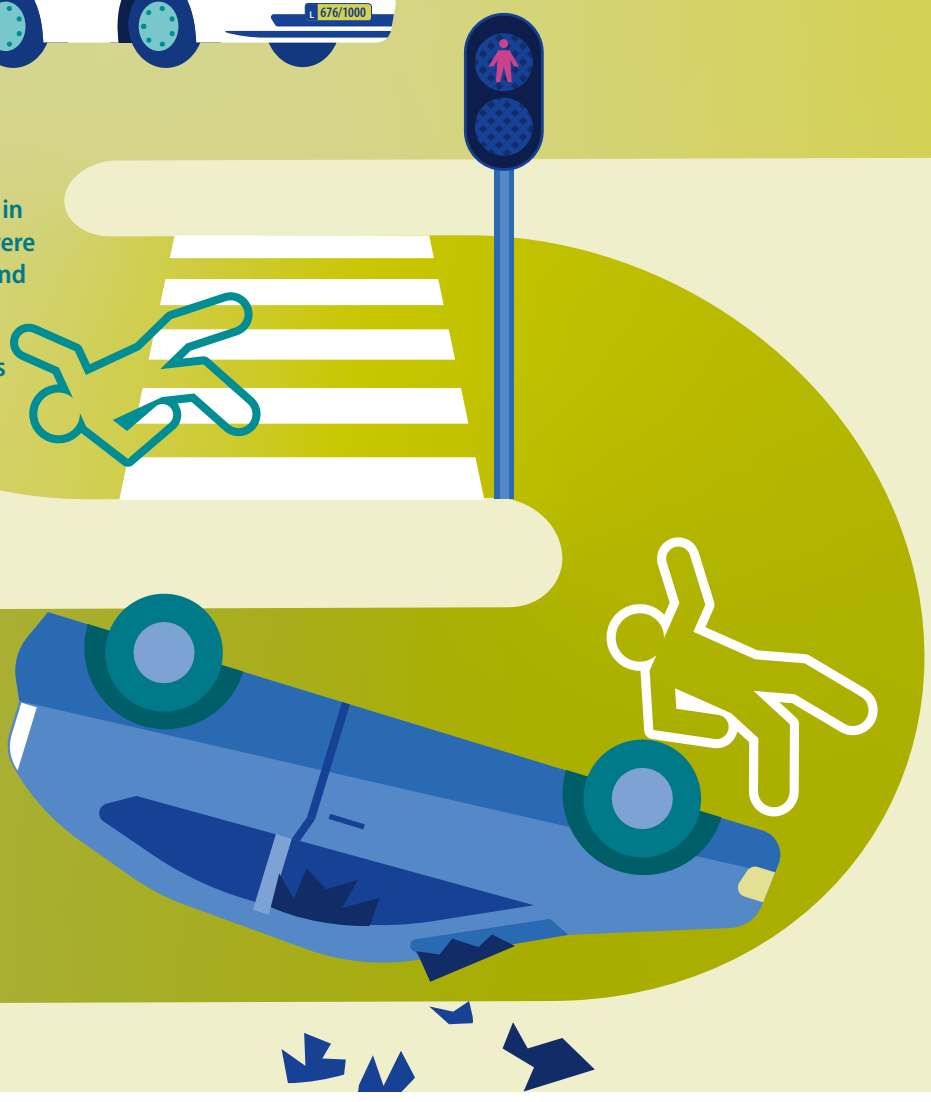
(2) Data on international maritime passenger transport only.

Source: Eurostat (online data code: mar_mp_aa and mar_mp_aa_cphd)

Transport in the EU: 2018 facts and figures

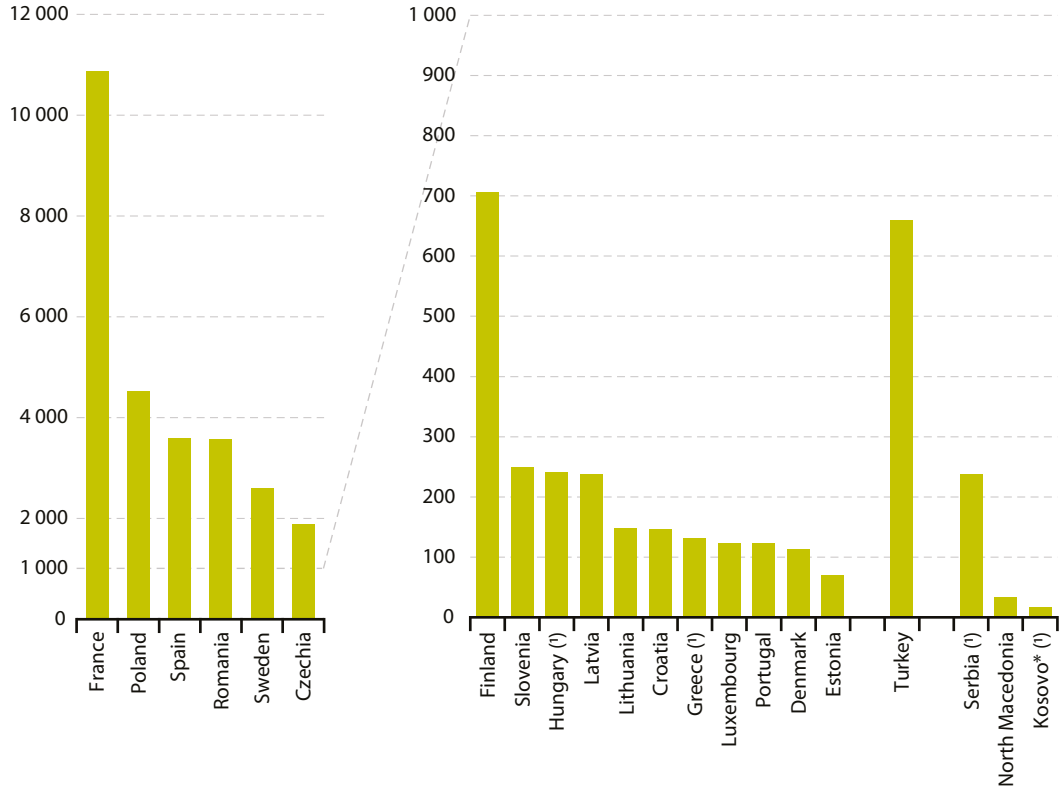
Luxembourg ranked first with **676** passenger cars per 1000 inhabitants

44.8 % of persons killed in road accidents were car passengers and **20.7 %** were pedestrians



2.3 Transport equipment

Figure 2.3.1: Passenger railway vehicles, 2018
(number)



Note: Cyprus and Malta have no railways. Data for Belgium, Bulgaria, Germany, Italy, the Netherlands and Slovakia are not available.
(1) 2017 data instead of 2018

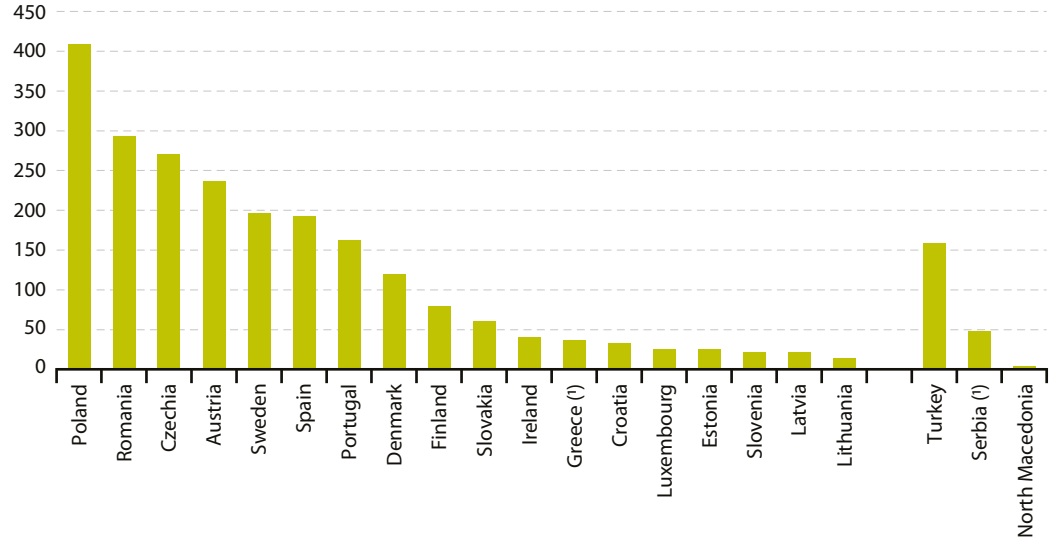
*This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: rail_eq_pa_nty)

Among the countries for which data are available, France has by far the highest number of railway vehicles for passengers with close to 11 thousand passenger railway vehicles, in 2018 (Figure 2.3.1). In second position, Poland counted less than half of the railway vehicles registered in France. Among the EU Member States, only six of them have registered more than a thousand passenger railway vehicles (left part of the graph).

Since 2009, only a few EU Member States have reported increases in the national capacity (number of seats) of passenger railway vehicles: Estonia, Croatia and Luxembourg (up to 2017), Finland and Sweden (Figure 2.3.2). For most EU Member States for which data were available, however, decreases ranging from –1.4 % to –40.4 % were recorded.

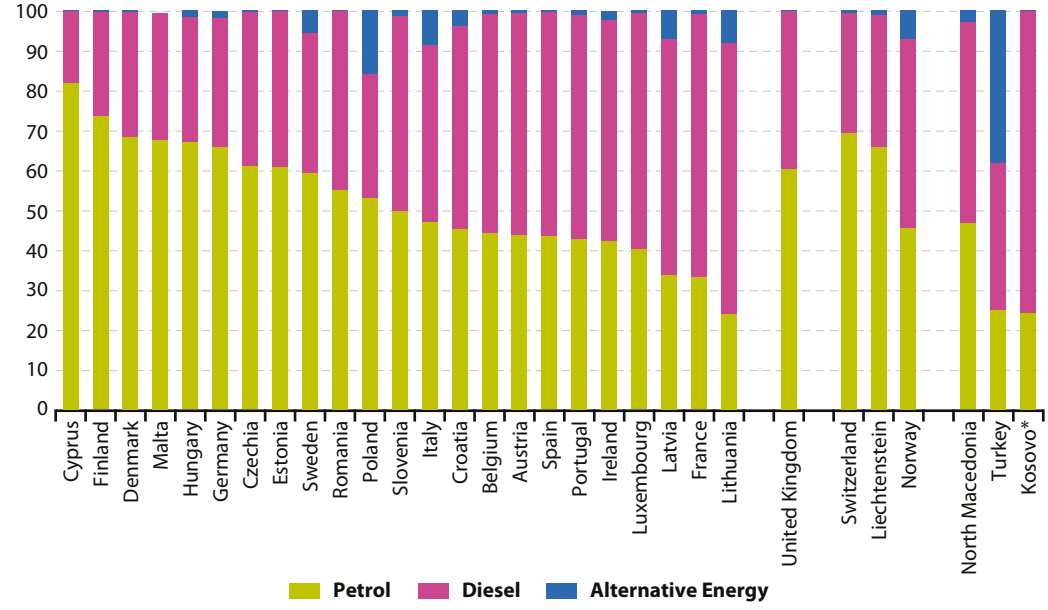
Figure 2.3.2: Capacity of passenger railway vehicles, 2018
(thousand seats)



Note: Cyprus and Malta have no railways. Data for Belgium, Bulgaria, Germany, France, Italy, Hungary and the Netherlands are not available.
(1) 2017 data instead of 2018

Source: Eurostat (online data code: rail_eq_pa_csb)

Figure 2.3.3: Passenger cars by fuel type, 2018
(%)



Note: Countries are ranked based on the share of petrol. Data for Bulgaria, Greece, the Netherlands and Slovakia are not available.
*This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

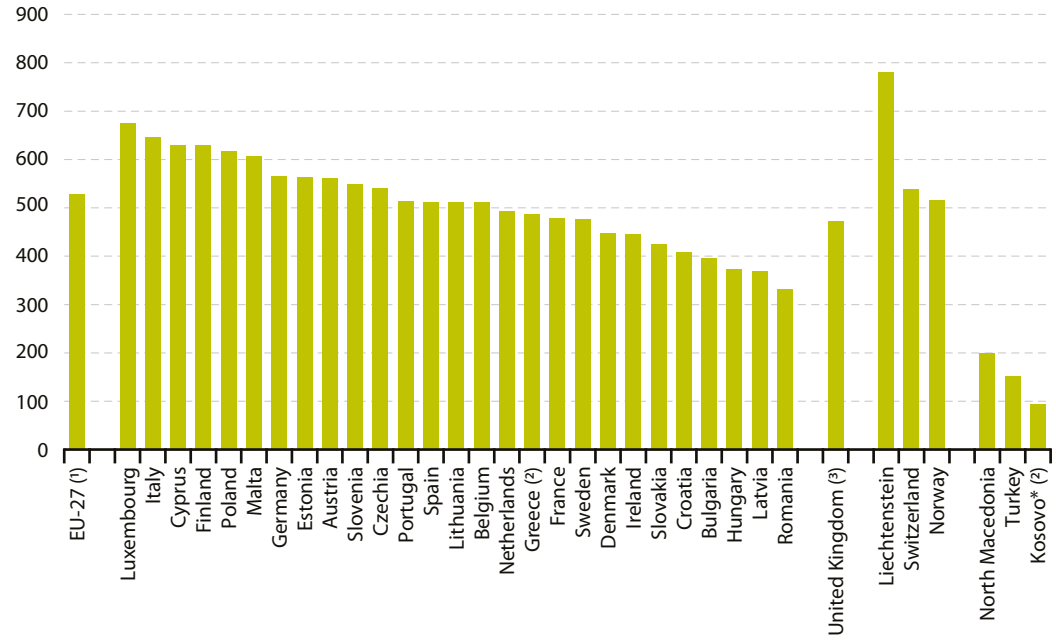
Source: Eurostat (online data code: road_eqs_carpda)

Regarding passenger cars, 11 out of 23 EU Member States for which 2018 data are available, more than 50 % of cars were petrol (Figure 2.3.3). Cyprus reported the highest percentage of petrol cars (81.7 %), followed by Finland (73.7 %) and Denmark (68.3 %). Diesel-driven cars exceeded the 50 % threshold in Lithuania (67.7 %), France (65.8 %), Latvia (59.1 %), Luxembourg (58.9 %), Spain and Portugal (both 56.1 %), Austria (55.8 %), Ireland (55.5 %), Belgium (54.7 %) and Croatia (50.7 %).

Alternative fuels made a significant contribution in Poland (15.9 %), Italy (8.6 %), Lithuania (8.2 %) and Latvia (7.3 %). However, the category 'alternative energy' might be overestimated in some countries due to the lack of accurate data sources. The large share of alternative energy cars in Turkey can be explained by new liquefied petroleum gases (LPG) car registrations together with cars converted from gasoline/diesel to LPG cars.

Several smaller countries are amongst the EU Member States with the highest 'motorisation rates', i.e. passenger cars per thousand inhabitants (Figure 2.3.4). Luxembourg (676 passenger cars per thousand inhabitants) heads the list; however, this Figure may be influenced by cross-border workers (i.e. not inhabitants) using company cars registered in the country. In second place follows Italy with 646 cars per thousand inhabitants. Other countries with a high motorisation rate include Cyprus and Finland (both with 629 cars), Poland (617 cars) and Malta (608 cars).

Figure 2.3.4: Passenger cars per thousand inhabitants, 2018
(number)



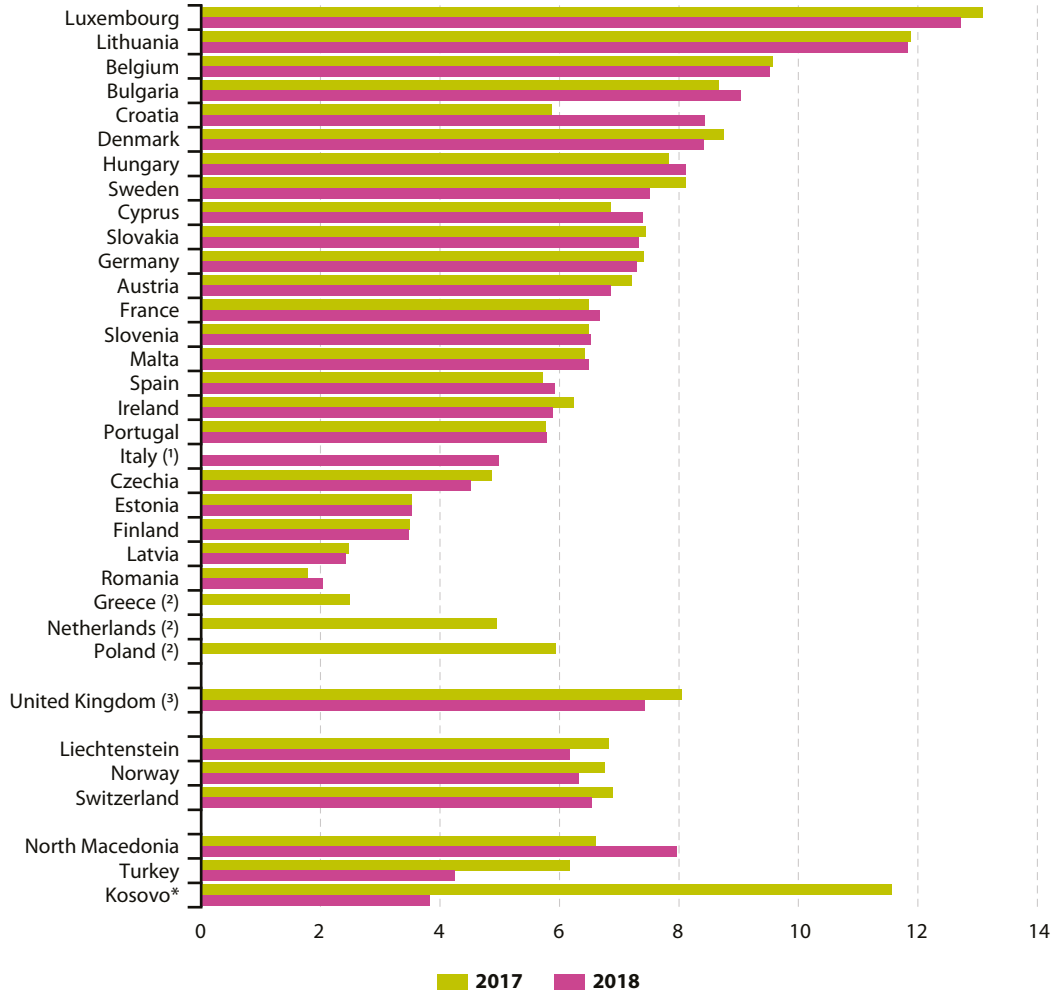
(1) Estimated data.
(2) 2017 data instead of 2018.
(3) Great Britain only.

*This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: road_eqs_carhab)

At the other end of the scale, a particularly low motorisation rate is recorded in Romania (332 cars), despite a growth in the number of registered cars of 31 % over the period 2014-2018. The motorisation rate in the two EU candidate countries for which data are available is substantially lower than in the Member States. The smallest value, 94 cars per thousand inhabitants, was recorded in Kosovo*.

Figure 2.3.5: Renewal rate of passenger cars, 2017 and 2018
(% share of first registrations in total number of registrations)



Note: Countries are ranked based on 2018 data.
(1) 2017 data not available.
(2) 2018 data not available.
(3) Great Britain only.

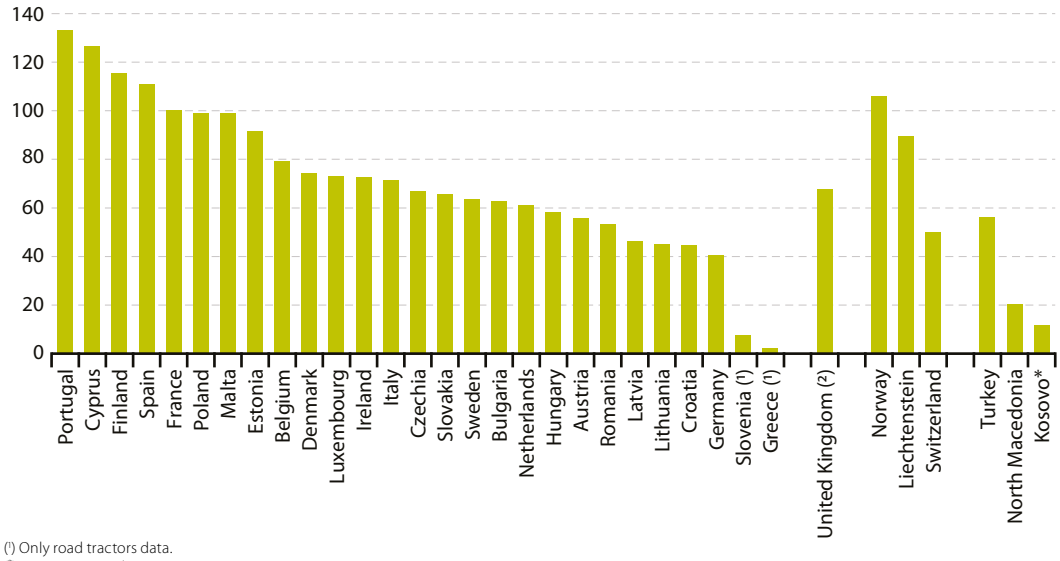
*This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

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

In 2018, the renewal rate of passenger cars (ratio of first registered to total passenger cars) in the EU ranged from 2.0 % in Romania to 12.7 % in Luxembourg (Figure 2.3.5).

Renewal rates have had a tendency to decrease in most of the EU Member States since 2009, but from 2017 an increase can be noted in some countries.

Figure 2.3.6: Lorries and road tractors per thousand inhabitants, 2018
(number)

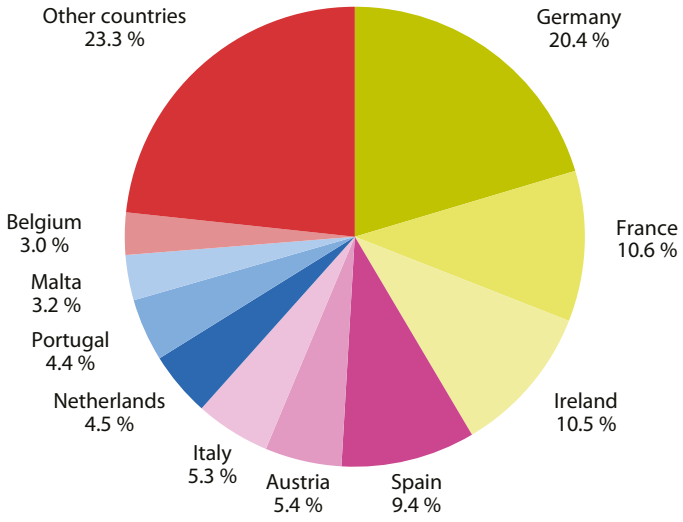


(1) Only road tractors data.
(2) Great Britain only.

*This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

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

Figure 2.3.7: Top 10 operator countries in the EU-27 commercial air fleet, 2017
(%)



Source: Eurostat (online data code: avia_eq_arc_typ)

When it comes to lorries and road tractors, in 2018, their number per thousand inhabitants varied from 41 lorries and road tractors per thousand inhabitants in Germany to 133 in Portugal (Figure 2.3.6). These variations are probably partly due to the fact that EU Member States register very light lorries and vans differently. Besides Portugal, Cyprus (127), Finland (115) and Spain (111) also recorded rates above 100. By contrast, besides Germany, low rates were also recorded in Croatia and Lithuania (both 45) and in Latvia (46).

As regards commercial air fleet (Figure 2.3.7), in 2017, the largest numbers of commercial aircraft were reported by Germany (1 100 aircraft accounting for a 20.4 % share of the EU total), followed by France (571; 10.6 % share), Ireland (569; 10.5 % share) and Spain (509; 9.4 % share). In terms of the number of aircraft per million inhabitants, Malta (362) and Luxembourg (203) held the highest values, while Poland (4) and Romania (3) had the lowest.

As for inland waterways vessels, Table 2.3.1 shows that over the last 15 years (2004–2018), significant increases were recorded in the number of self-propelled barges in Croatia (280 %), Bulgaria (240 %) and Finland (40 %), while in Slovakia the number of vessels decreased by 67 %. However, these numbers must be put into perspective, as the EU Member States they relate to have only recently developed their previously small fleet. Croatia's self-propelled barge fleet only includes 19 vessels, Bulgaria's 34 and Finland's 189.

Table 2.3.1: Inland waterways vessels by type of vessel, 2018

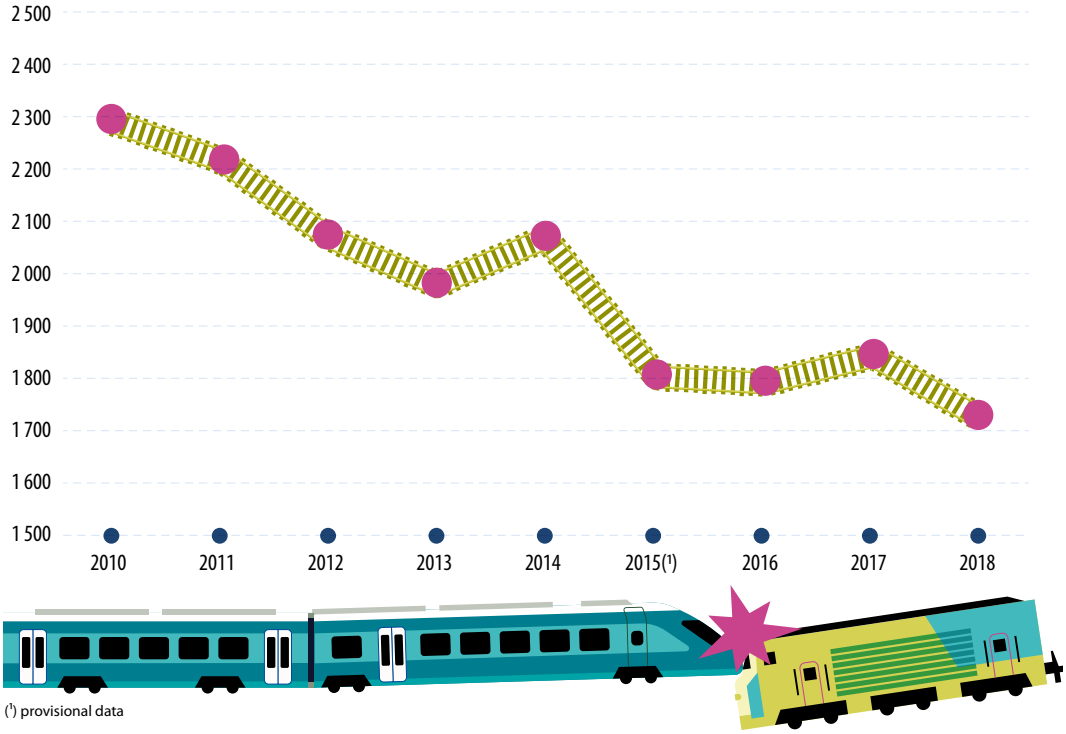
	Self-propelled barge		Tug and pusher		Dumb and pushed vessel	
	Number	Change 2018/2004 (%)	Number	Change 2018/2004 (%)	Number	Change 2018/2004 (%)
Belgium	:	:	:	:	:	:
Bulgaria	34	240.0	30	-14.3	111	-31.1
Czechia	39	-48.0	73	-52.0	115	-49.3
Germany	1 187	-8.7	418	:	818	-29.2
France	704	-27.4	:	:	337	-36.8
Croatia	19	280.0	35	-40.7	108	-10.7
Italy	:	:	:	:	:	:
Lithuania	27	-10.0	26	36.8	21	-22.2
Luxembourg	:	:	:	:	:	:
Hungary	70	-48.1	56	51.4	243	115.0
Netherlands	5 010	:	806	:	1 412	:
Austria	:	:	:	:	:	:
Poland	89	-4.3	201	-21.8	462	-6.5
Romania	161	:	296	-67.7	1 123	-32.4
Slovakia	9	-66.7	33	-28.3	100	-51.0
Finland	189	40.0	30	-3.2	54	68.8
Sweden	:	:	:	:	:	:
United Kingdom	158	4.6	:	:	287	-15.3
Switzerland	10	:	10	:	2	:

Note: Member States without significant inland waterways transport are not listed.

Source: Eurostat (online data code: iww_eq_age & iww_eq_loadcap)

2.4 Transport safety

Figure 2.4.1: Railway accidents, EU-27, 2010-2018
(number)



(1) provisional data

Source: Eurostat (online data code: tran_sf_railac)

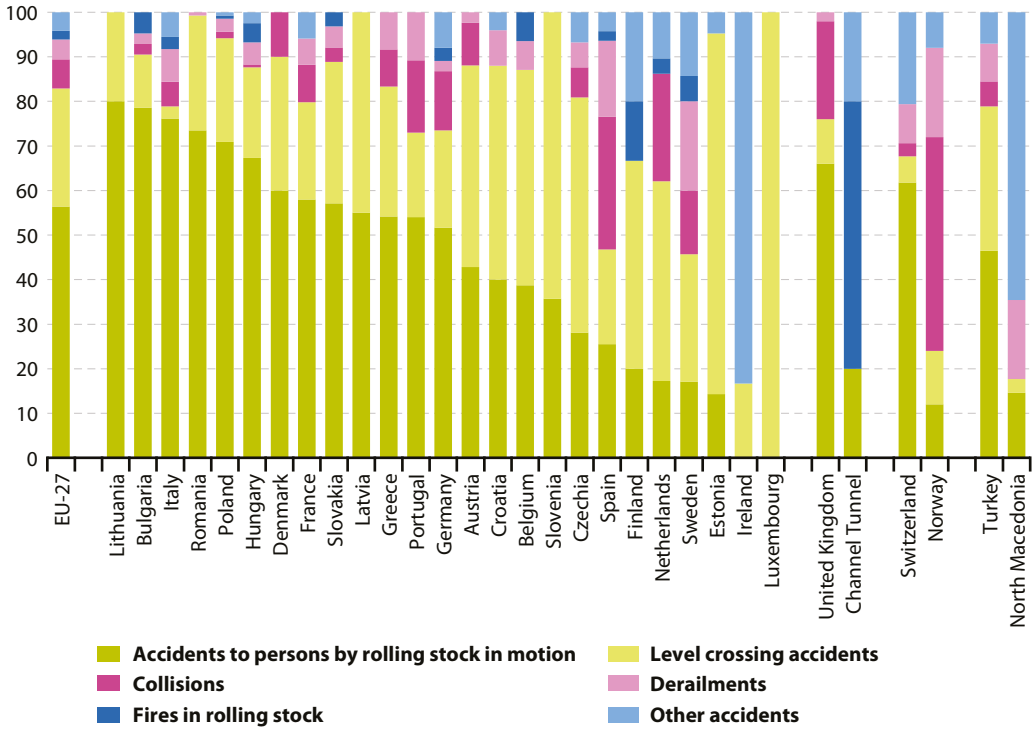
Railway safety data are collected by the European Union Agency for Railways (ERA) through the Common Safety Indicators (CSIs).

The number of significant railway accidents fell between 2010 and 2018, with the exception of two increases in 2014 and 2017. In 2018, the number of accidents decreased by 111 accidents compared with 2017, to a total of 1 666 accidents (-6.2 %) (Figure 2.4.1). Railway safety has generally improved in the EU, with 563 fewer accidents in 2018 compared with 2010, a reduction of 25.3 %. In 2015, the decrease compared with the previous year was particularly marked (-12.8 %). In 2017, however, the number of significant accidents was slightly above the level of 2015. The decrease in accidents from 2017 to 2018 did not concern all accident categories: while the number of level crossing accidents (-14 accidents), derailments (-14 accidents), accidents to persons by rolling stock in motion (excl. suicides) (-95 accidents) and other significant railway accidents (-7 accidents) all decreased in 2018 compared with 2017, the number of collisions (+7 accidents) and fires in rolling stock (+12 accidents) increased.

Looking at the detailed 2018 figures on significant railway accidents (Figure 2.4.2), the largest category at EU level was accidents to persons caused by rolling stock in motion, with 939 accidents representing 56 % of the total. Typically, these accidents involve persons on railway tracks (unauthorised persons or trespassers) that are hit by a running train. Accidents at level crossings, including pedestrians, is the other main category, with a total number of 442 accidents in 2018 (27 % of the total). Together, these two categories represented 83 % of the total number of railway accidents in the EU.

Germany registered 302 accidents, the highest number of railway accidents among the Member States in 2018, followed by Poland, 275 accidents; together these two countries recorded one third of all significant railway accidents in the EU. With 162 accidents, Hungary accounted for 10 % of the railway accidents in the EU. By contrast, Luxembourg reported only two significant railway accidents in 2018 (two accidents to persons caused by level crossing accidents) and Ireland six accidents (one accident to persons caused by level crossing accidents and five other type of accidents).

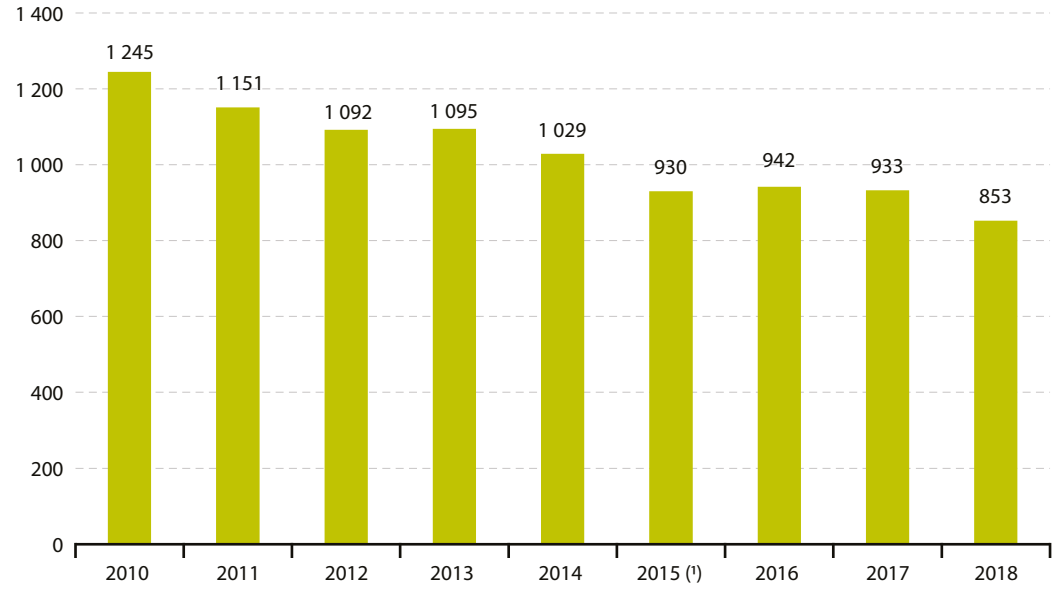
Figure 2.4.2: Railway accidents by type of accident, 2018
(%)



Note: Countries are ranked based on the share of accidents to persons by rolling stock in motion. Accidents to persons by rolling stock in motion excludes suicides. Level crossing accidents includes pedestrians. The Channel Tunnel is listed as a separate entity as a distribution between France and the United Kingdom cannot be made.

Source: Eurostat (online data code: tran_sf_railac)

Figure 2.4.3: Persons killed in railway accidents, EU-27, 2010-2018
(number)



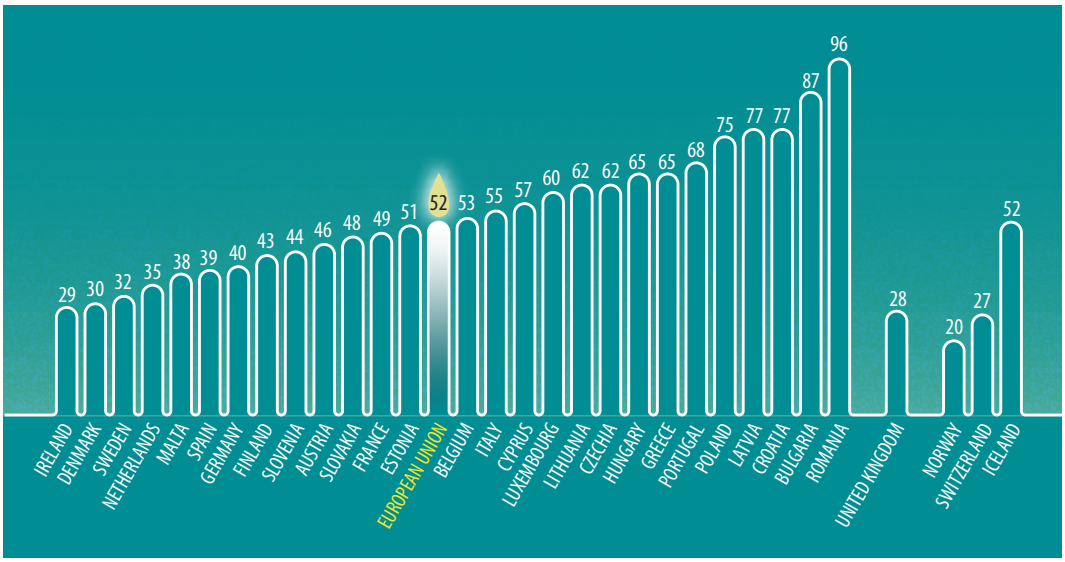
(1) Provisional data.

Source: Eurostat (online data code: tran_sf_railvi)

Figure 2.4.3 shows the number of persons killed in railway accidents in the EU for each reference year from 2010 to 2018. The total number of fatalities gradually declined from 1 245 persons killed in railway accidents in 2010 to 930 persons in 2015. In the years 2016 and 2017, the fatalities remained roughly at the same level as in 2015, increasing slightly to 942 persons killed in 2016 and falling to 933 persons killed in 2017. In 2018, a decrease of 8.6 % was recorded with 853 persons killed, 80 persons fewer than the previous year. Over the period from 2010 to 2018, this corresponds to a reduction in the number of persons killed in railway accidents by almost one third (-31.5 %).

Focusing on 2018, fatalities in the category "Unauthorised persons" remained the largest category of victims, with 548 cases in 2018 (64.2 % of the total number of persons killed in railway accidents). The second largest category was "Level crossing users" with 253 deaths (29.7 %). Only a fraction of the registered fatalities were railway passengers. In most of the years for which harmonised data are available (2010 onwards), railway passenger fatalities represented only a marginal share (1-5 %) of the persons killed. In 2018, the share of railway passengers in the total number of fatalities was 1.5 % (13 railway passengers killed).

Figure 2.4.4: Persons killed in road accidents, 2018
(number per million inhabitants)



Source: Eurostat (online data codes: tran_sf_roadve and tran_r_acci)

The road accidents data come from the CARE database (the Community database on road accidents resulting in death or injury). CARE has detailed data on individual accidents collected by the Member States from police and hospital sources.

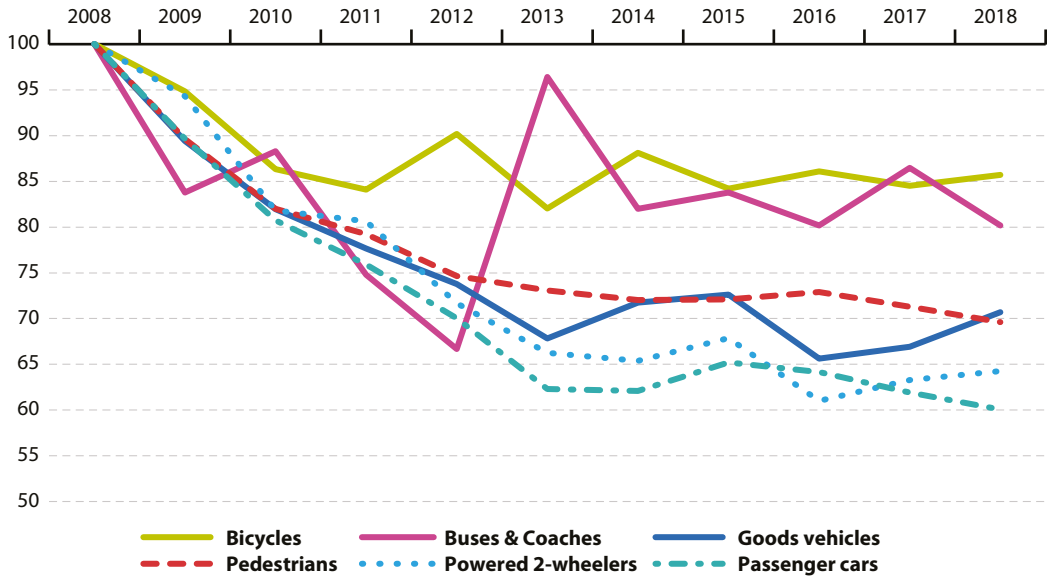
In 2003, the European Commission adopted its third European action programme for road safety, which aimed to halve the number of road deaths by 2010. While the initial target was not quite met by the end of 2010, it was decided to continue with a target of halving the overall number of road deaths in the EU by 2020, starting from 2010.

In 2018, 23 339 persons were killed in road traffic accidents in the EU. This number has fallen considerably over the last 20 years: the number of persons killed in the EU Member States fell by 37 % between 2008 and 2018.

However, the Figure in 2018 was close to unchanged from 2017, down only -0.2 %. Given the slow decrease in persons killed in road accidents between 2013 and 2018, further efforts will be needed to meet the target of halving the number of fatalities compared to 2010.

Overall, the rate of persons killed in road accidents in the EU has been estimated at 52 per million inhabitants in 2018 (Figure 2.4.4). There are considerable differences between Member States: the values range from 29 deaths per million inhabitants in Ireland to 96 per million inhabitants in Romania. These differences in mortality rates may reflect a combination of reasons, such as differences in the safety level and age of the vehicle stock, road design and the enforcement of traffic rules in different countries.

Figure 2.4.5: Persons killed in road accidents by category of vehicles, EU-27, 2008-2018
(index 2008=100)



Note: Data for Ireland, Lithuania, Poland, Portugal and Slovakia are not incuded because they are not available for all years and/or vehicle categories. Goods vehicles category includes road tractors.

Source: Eurostat (online data code: tran_sf_roadve)

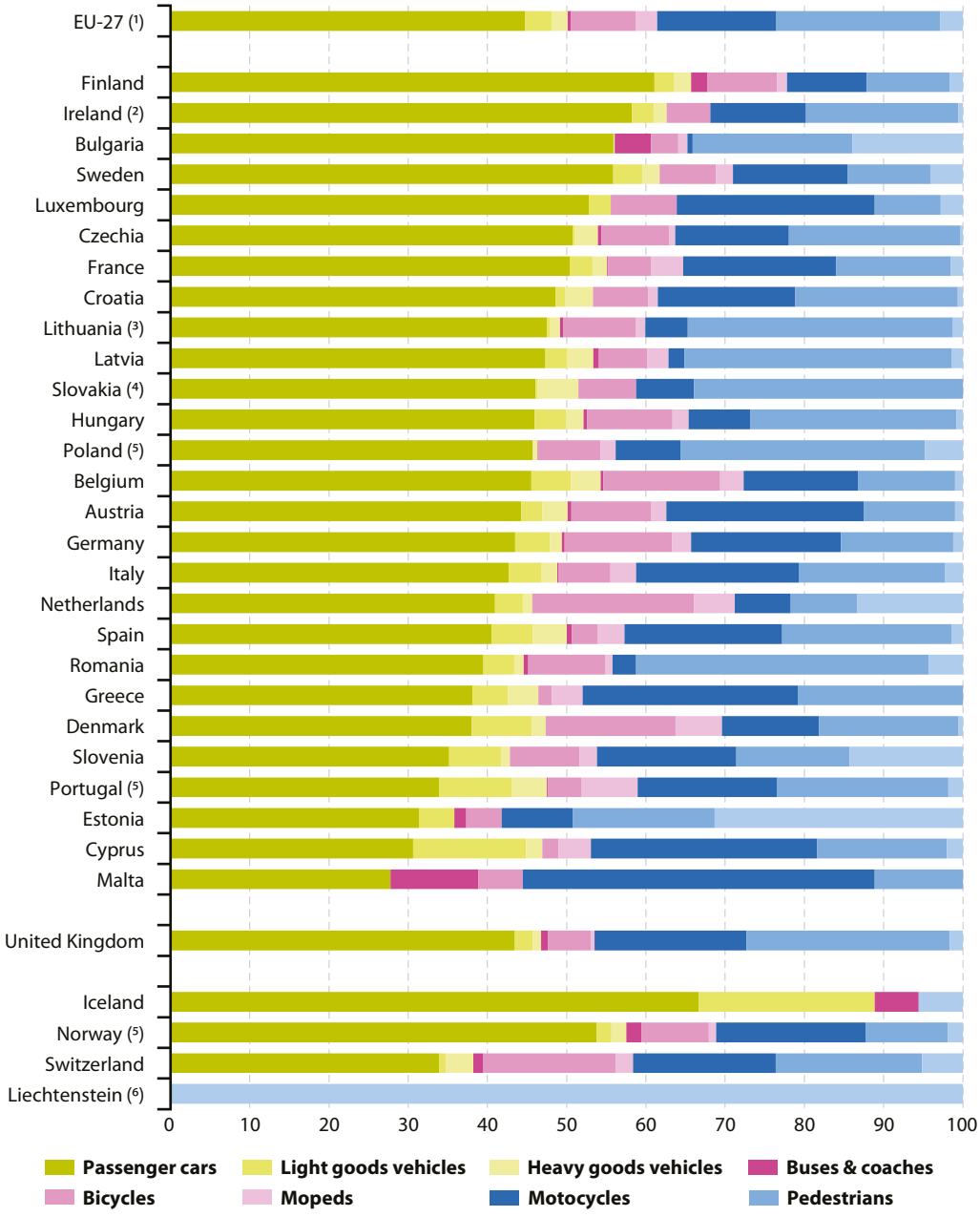
Over the last decade, the largest reduction in the number of persons killed in road accidents in the EU was observed among car drivers and their passengers (-39.9 %), followed by motorcyclists and moped drivers (and their passengers) (-35.7 %), pedestrians (-30.4 %) and occupants of goods vehicles (-29.3 %). This shows that the many measures taken to improve road safety are paying off. The falls in the number of fatalities among buses and coaches (-19.8 %) and cyclists (-14.3 %) were smaller.

The pattern for buses and coaches in Figure 2.4.5 stands out from the rest as a single severe accident can significantly change the trend. This was the case in 2013 when 39 people lost their lives in a tragic accident in the Campania province in Italy. In 2016, 13 students were killed in an accident in the north of Spain. There were 108 deaths in the EU in this category in 2011, 107 in 2012, but the number increased to 149 in 2013 before falling to 119 deaths in 2014 and to 112 in 2017.

In countries where cycling is widespread, such as the Netherlands or Denmark, it comes as no surprise that cyclists account for a larger share of fatalities than in countries where cycling is less common. Figure 2.4.6 shows that cyclists accounted for 20.4 % of all road accident deaths in the Netherlands in 2018, followed by Denmark with 16.4 %. At the other end of the scale, cyclists accounted for just 1.7 % of the road accident deaths in Greece.

However, Greece had the third highest share of motorcycle fatalities among the EU Member States: in 2018, 27.1 % of all road accident fatalities in Greece occurred among motorcyclists. Malta had the highest share (44.4 %) of motorcyclists among the road fatalities, far ahead of Cyprus in second place (28.6 %). In the remaining 'two-wheeled' category —mopeds — accounted for 7.1 % of all road accident fatalities in Portugal (2017 data), a much larger share than the next highest countries (Denmark with 5.8 %, the Netherlands with 5.2 %).

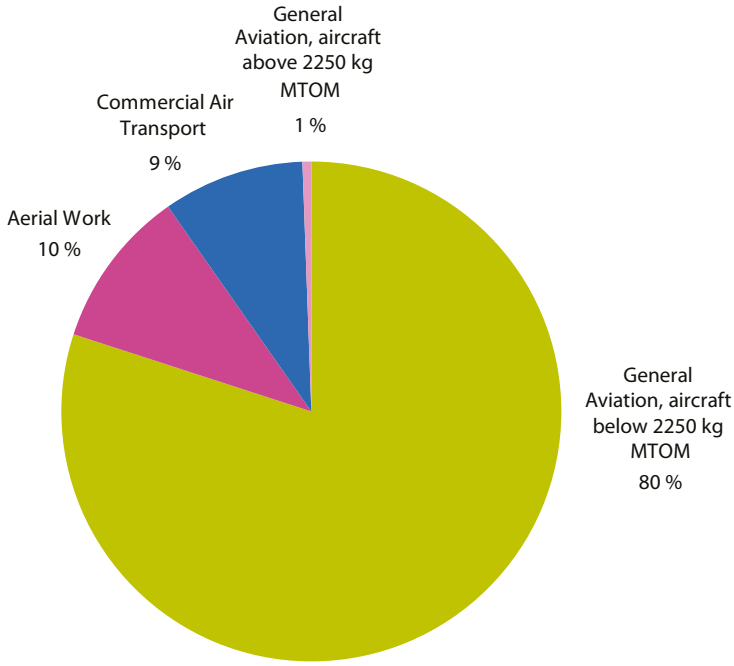
Figure 2.4.6: Persons killed in road accidents by category of vehicles, 2018
(%)



Note: Countries are ranked based on the share of the category 'passenger cars'. Heavy goods vehicles category includes road tractors.
(1) Estimated.
(2) 2016 data instead of 2018.
(3) 2015 data instead of 2018.
(4) 2010 data instead of 2018.
(5) 2017 data instead of 2018.
(6) 2013 data instead of 2018.

Source: Eurostat (online data code: tran_sf_roadve)

Figure 2.4.7: Persons killed in air accidents in the EU-27, involving aircraft registered in EU-27 Member States, by aviation category, 2019
(%)



Note: Provisional data.

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

Air accidents data are collected by the European Union Aviation Safety Agency (EASA). In 2019, a total of 175 persons died in accidents occurring on EU territory involving aircraft registered in the countries of the European Union.

Most of the air accident fatalities (80 %) were registered in the category 'General aviation' (Figure 2.4.7), under the sub-category of aircraft with a maximum take-off mass (MTOM) of less than 2250 kg. This sub-category comprises small aeroplanes, gliders, 'microlights', as well as hot air balloons. 10 % of the fatalities fell into the category 'Aerial work' (18 fatalities) in 2019.

A further 9 % (corresponding to 16 fatalities) were registered in the category 'Commercial air transport', while only 1 person (1 %) was killed in 'General aviation' accidents involving large aircrafts over 2250 kg MTOM.

3 Environment

Introduction

The European Union's environment and climate policies aim to protect the environment and minimise risks to climate, human health and biodiversity. This is achieved both by mainstreaming sustainability considerations into broader economic and social initiatives and with specific policies for the environment and climate change.

As regards the former, the European Green Deal and the 2030 agenda for sustainable development are two notable cases. The Green Deal aims to make Europe the world's first climate-neutral continent with a transformative agenda across the economy as regards clean energy, sustainable industry, the circular economy, building and renovating, sustainable mobility, the whole food chain 'from Farm to Fork', etc. Besides, the UN 2030 agenda for sustainable development, structured around Sustainable Development Goals, provides an opportunity for the EU's own strategic orientation to build a sustainable future.

As regards specific environmental policies, the 7th Environmental Action Programme 'Living well, within the limits of our planet' draws on a number of strategic initiatives, including the resource efficiency roadmap, the biodiversity strategy and the low carbon economy roadmap.

Eurostat provides environmental statistics, accounts and indicators supporting the development, implementation, monitoring and evaluation of the European Union's environmental policies, strategies and initiatives. Eurostat statistical products inform about the state of the environment and the drivers, pressures and measures to avoid or mitigate impacts of our societies on the environment.

This publication includes indicators about emissions of greenhouse gases and air pollutants, circular economy, material flows and resource productivity, generation and treatment of waste, production and consumption of chemicals hazardous to the environment and human health, biodiversity, water, the economic activity of the environmental sector, environmental taxes and expenditure in environmental protection. Eurostat also produces other data. More information can be found in the following Eurostat dedicated websites:

- environnent (https://ec.europa.eu/eurostat/web/environment/overview);
- sustainable development (https://ec.europa.eu/eurostat/web/sdi/overview);
- climate change related statistics (https://ec.europa.eu/eurostat/web/climate-change/overview);
- waste (https://ec.europa.eu/eurostat/web/waste/overview);
- circular economy (https://ec.europa.eu/eurostat/web/circular-economy).

Environment in the EU: facts and figures

Resource productivity in the EU economy increased by about **36 %** since 2000

€ 2.2 per kg in 2019

Greenhouse gas emissions in the EU down by **21 %** between 1990 and 2018

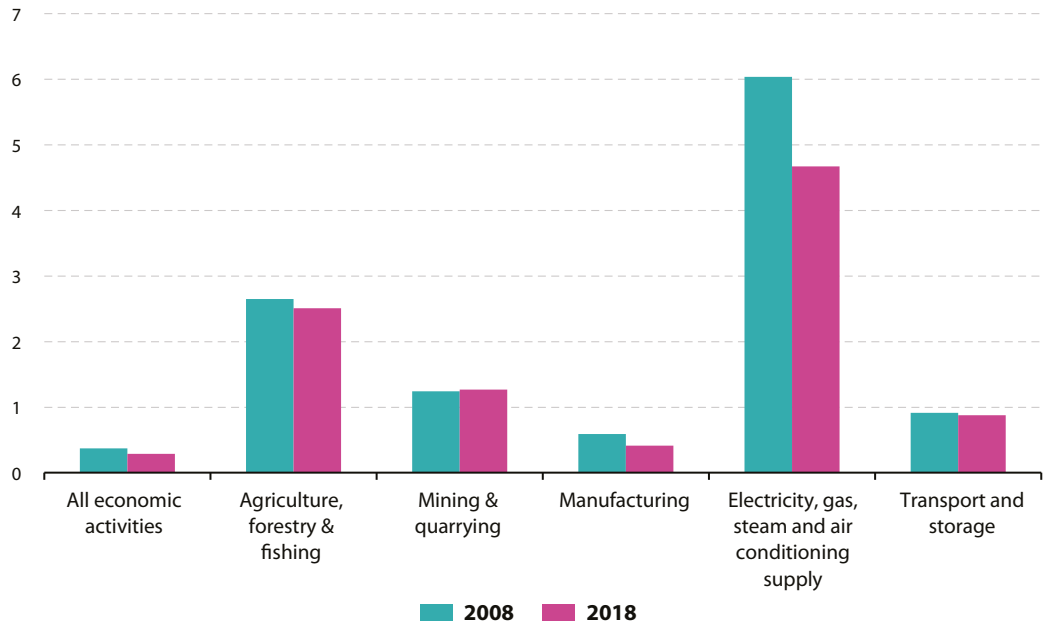
All EU Member States met in 2017 the plastic packaging recycling target of 22.5%, and EU-wide recycling rate is at **41.7 %**

492 kg of municipal waste per capita generated in the EU in 2018, of which **47.4 %** were recycled

3.1 Emissions of greenhouse gases and air pollutants

Figure 3.1.1: Greenhouse gas intensity by economic activity, EU-27, 2008 and 2018

(kilogram of CO_2 equivalents per EUR)



Source: Eurostat (online data code: env_ac_aeint_r2)

In 2018, greenhouse gas emissions (GHG) in the EU were down by 21 % compared with 1990 levels, representing an absolute reduction of 1 018 million tonnes of CO_2-equivalents, putting the EU on track to surpass its 2020 target, which is to reduce GHG emissions by 20 % by 2020 and by 40 % by 2030 compared with 1990.

The ratio of greenhouse gas emissions (in tonnes of CO_2 equivalents) to gross value added (in EUR million) measures the greenhouse gas intensity in economic activities (Figure 3.1.1). Gross value added is valued at basic prices, and the time series are compiled using chain-linked volumes to eliminate the effects of inflation: the gross value added data are presented with 2008 as the reference year. With 4.7 kg of CO_2 equivalents per EUR, the supply of electricity, gas, steam and air conditioning had by far the highest greenhouse gas intensity in the EU-27 in 2018. Agriculture, forestry and fishing had the second highest greenhouse gas intensity, 2.5 kg of CO_2 equivalents per EUR. Between 2008 and 2018, the largest fall in greenhouse gas intensity in relative terms was observed in manufacturing (29.4 %), while the biggest reduction in absolute terms was observed for the supply of electricity, gas, steam and air conditioning (1.4 kg of CO_2 equivalents per EUR). There were also reductions in intensity for the other activities shown in Figure 3.1.1, except for mining and quarrying where the greenhouse gas intensity increased by 2.1 %.

Table 3.1.1: Emissions accounts versus emission inventories

Air emissions accounts – greenhouse gases (residence principle)	Greenhouse gas emission inventories (territory principle)
Emissions are assigned to the country where the economic operator causing the emission is resident.	Emissions are assigned to the country where the emission takes place.
Emissions are classified by economic activity, following the NACE classification of the system of national accounts.	Emissions are assigned to processes classified according to their technical nature (e.g. combustion in power plants, solvent use).
Emissions from international navigation and aviation are assigned to the countries where the operator of the ship/aircraft is resident, regardless of where the emission takes place.	Emissions from international navigation and aviation are assigned to the countries where the associated fuel is bunkered, irrespective of the operator's place of residence.

Source: Eurostat

Note that in the reporting of GHG emissions, two approaches are internationally established; air emissions accounts (AEA) and GHG inventories (Table 3.1.1).

National and EU totals differ between the two approaches, as different boundaries apply. GHG inventories include international aviation and maritime transport (international bunker fuels) as memorandum items, which mean that they are excluded from national totals reported. However, they are included in air emissions accounts totals. Therefore total emissions reported in GHG inventory databases can differ significantly from the total reported in air emissions accounts for countries with a large international aircraft and/or shipping fleet. AEA reconciles totals with emission inventories through so-called 'bridging items'.

Table 3.1.2: Greenhouse gas emissions by economic activity, 2018

(thousand tonnes of CO_2 equivalents)

	Agri-culture, forestry and fishing	Mining and quarrying	Manu-facturing	Electricity, gas, steam and air conditioning supply	Trans-portation and storage	Other services, water supply and construction	Total production activities	House-holds	Production activities plus households
EU-27	**480 773**	**58 860**	**794 972**	**948 902**	**467 496**	**456 959**	**3 207 963**	**775 525**	**3 983 487**
Belgium	12 620	494	36 126	15 724	10 706	14 361	90 030	27 322	117 352
Bulgaria	4 269	358	7 458	27 702	6 321	1 461	47 568	10 202	57 771
Czechia	8 734	6 882	19 752	48 675	9 294	11 483	104 821	13 579	118 400
Denmark	12 505	1 579	5 956	7 450	45 145	7 480	80 115	8 282	88 398
Germany	70 953	6 342	179 565	306 545	92 505	86 336	742 246	183 345	925 590
Estonia	1 501	93	1 691	12 931	1 634	1 217	19 068	1 688	20 756
Ireland	20 707	189	7 687	10 110	14 401	6 256	59 350	13 373	72 723
Greece	8 262	373	18 470	33 820	8 461	9 702	79 088	13 803	92 891
Spain	51 933	1 756	81 672	59 549	51 464	28 529	274 903	71 529	346 431
France	87 840	1 042	91 311	28 792	44 422	78 933	332 341	121 949	454 290
Croatia	3 735	603	4 144	3 393	1 198	5 312	18 385	6 286	24 671
Italy	39 180	4 533	88 663	92 669	41 623	59 660	326 327	111 797	438 125
Cyprus	583	17	1 570	3 270	394	1 138	6 972	1 970	8 942
Latvia	3 297	40	1 456	2 097	2 892	1 613	11 395	2 322	13 717
Lithuania	4 647	15	5 426	1 468	11 952	1 695	25 202	5 613	30 815
Luxembourg	761	8	1 415	293	4 775	1 071	8 323	1 831	10 154
Hungary	9 234	810	11 886	12 129	4 541	11 028	49 629	16 560	66 189
Malta	85	3	71	385	2 370	419	3 334	338	3 671
Netherlands	28 929	2 458	48 210	45 276	25 725	22 666	173 265	35 400	208 664
Austria	8 718	1 043	25 966	7 890	6 628	7 736	57 980	15 157	73 138
Poland	50 702	21 531	67 885	154 876	35 116	47 431	377 540	57 573	435 114
Portugal	9 161	267	15 257	15 557	5 680	12 245	58 167	10 646	68 813
Romania	21 020	6 012	24 752	24 080	10 620	15 544	102 027	18 359	120 386
Slovenia	2 017	314	3 185	5 058	825	3 824	15 223	3 862	19 085
Slovakia	2 141	529	17 985	5 972	4 473	6 404	37 503	6 486	43 989
Finland	8 026	438	12 349	16 057	10 601	5 926	53 398	6 887	60 285
Sweden	9 213	1 131	15 065	7 136	13 729	7 488	53 763	9 364	63 127
United Kingdom	46 548	22 396	74 490	74 153	82 502	79 059	379 148	135 408	514 556

Source: Eurostat (online data code: env_ac_ainah_r2)

Among the EU Member States, the GHGs emitted by the various producers and households varied considerably (Table 3.1.2). These differences are, in part, due to different economic structures and different mixes of renewable and non-renewable energy sources.

In ten EU Member States businesses supplying electricity, gas, steam and air conditioning were the main producers of GHGs in 2018, while in seven more Member States manufacturing was the main producer. In Ireland and Latvia the activities of agriculture, forestry and fishing were the main emitters while in Denmark, Lithuania, Luxembourg and Malta transportation and storage activities were the main source of greenhouse gas emissions. Households were the main source of GHGs in France, Croatia, Italy and Hungary.

The EU total carbon footprint was equal to 7.0 tonnes CO_2 per person in 2018. It consists of about 1.6 tonnes of CO_2 per person (tonnes/person) directly emitted by private households

Table 3.1.3: CO_2 emissions due to final use of products ('carbon footprints'), by type of final use and origin, EU-27, 2018

CPA product	Final consumption expenditure		Gross capital formation		Domestic final use, total	
	Domestic emissions	Imported emissions(1)	Domestic emissions	Imported emissions(1)	Global emissions	
	kg of CO_2 per capita					%
Electricity, gas, steam and air conditioning	777	33	-45	-2	764	11.0
Constructions and construction works	31	5	573	89	699	10.0
Food, beverages and tobacco products	309	74	-2	-0	381	5.5
Retail trade services, except of motor vehicles and motorcycles	175	22	7	1	205	2.9
Accommodation and food services	178	26	0	0	204	2.9
Public administration and defence services; compulsory social security services	179	23	1	0	203	2.9
Coke and refined petroleum products	109	85	-1	3	196	2.8
Land transport services and transport services via pipelines	172	15	0	0	187	2.7
Human health services	143	26	0	0	169	2.4
Wholesale trade services, except of motor vehicles and motorcycles	99	16	42	9	165	2.4
Motor vehicles, trailers and semi-trailers	64	26	47	19	156	2.2
Air transport services	124	31	0	0	155	2.2
Products of agriculture, hunting and related services	74	21	11	3	108	1.6
Education services	94	9	0	0	103	1.5
Scientific research and development services	10	2	66	25	103	1.5
Machinery and equipment n.e.c.	2	1	63	33	99	1.4
Real estate services	84	13	2	0	98	1.4
Wholesale and retail trade and repair services of motor vehicles and motorcycles	55	11	11	2	78	1.1
Residential care services; social work services without accommodation	65	7	-0	-0	73	1.0
Other products	639	217	199	129	1 185	17
Total	3 383	665	974	311	5 333	76.6
Direct emissions by private households	1 629	0	0	0	1 629	23.4
All CPA products (CPA = Statistical Classification of Products by Activity) plus direct emissions by private households	5 012	665	974	311	6 961	100.0

Note: Estimates.

(1) Imported emissions are estimated as 'avoided emissions due to imports'; the amount of CO2 that would have been emitted in case the imported product would have been produced in the EU-27.

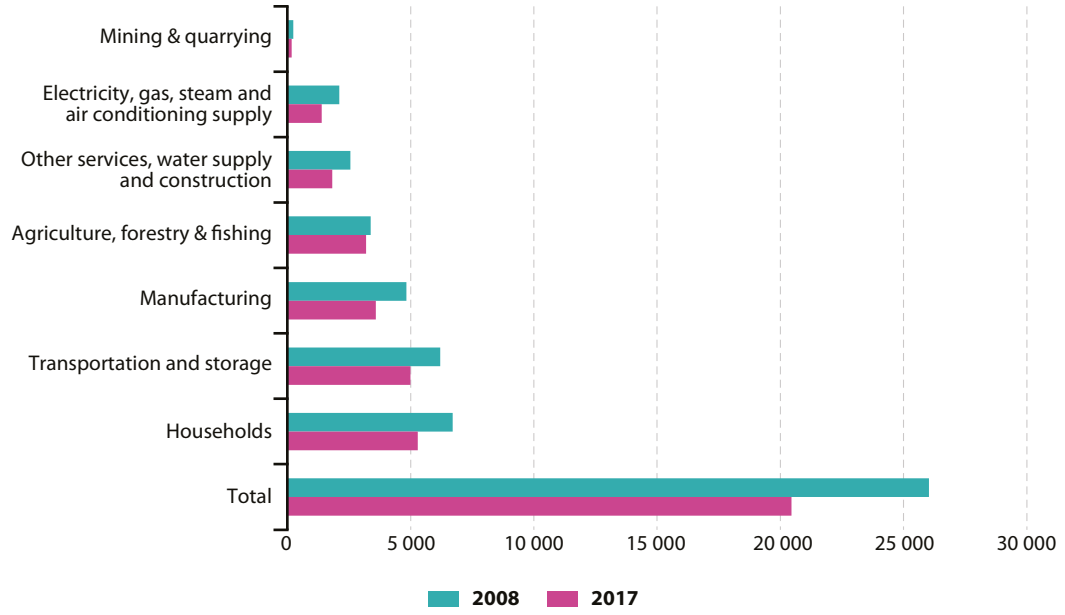
Source: Eurostat (online data code: env_ac_io10)

from burning fossil fuels (for example for heating dwellings and fuelling private vehicles) and 5.3 tonnes/person emitted indirectly along the production chains of final products which were either consumed or invested in within the EU. A majority of the latter — 4.4 tonnes/person — stemmed from domestic production activities actually located in the EU. A smaller part, equal to 1.0 tonnes/person, is estimated to have been avoided by importing intermediate and final products into the EU, eventually for EU final use.

Table 3.1.3 shows which products have the largest carbon footprints (CO_2 emissions due to EU demand for final products). With 0.76 tonnes/person or 764 kilogrammes per person (kg/person) the final use of the product group electricity, gas, steam and air-conditioning has the biggest carbon footprint. Next ranks the final use of constructions and construction works with 699 kg/person while the final use of food products, beverages and tobacco products ranks third with a carbon footprint of 381 kg/person.

3.2 Emissions of air pollutants

Figure 3.2.1: Emissions of ozone precursors by economic activity, EU-27, 2008 and 2017
(% of total emissions in NMVOC equivalents)



Note: Economic activities are ranked based on 2017 data.

Source: Eurostat (online data code: env_ac_ainah_r2)

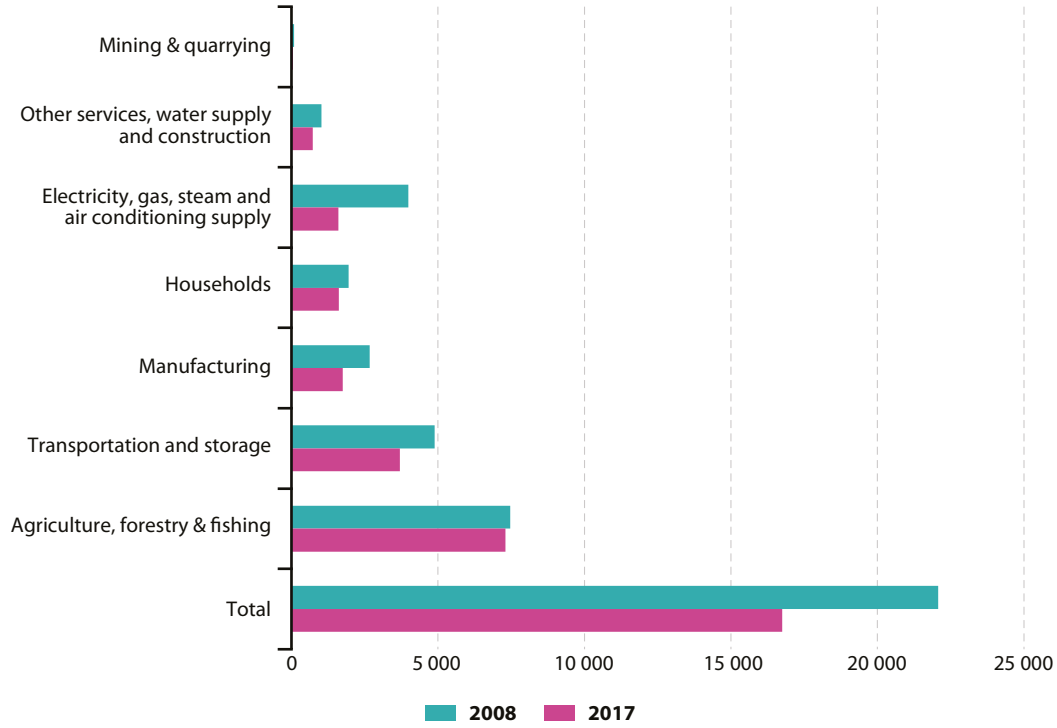
Tropospheric ozone occurs when so-called ozone precursor substances (i.e. non-methane volatile organic compounds (NMVOC), nitrogen oxides (NOx), carbon monoxide (CO) and methane (CH_4)) react in the lower atmosphere in the presence of sunlight. High ozone levels occur during the warmer summer months as the sun makes, for example, exhaust fumes from vehicles react in the lower atmosphere. High ozone levels are known to damage human tissue and are a health risk, especially for people with respiratory problems.

With 25.9 %, private households were the biggest contributor to total emissions of ozone precursors in 2017; closely followed by the transport industry with 24.4 %. The manufacturing industry was the third largest emitter with 17.6 % (Figure 3.2.1).

Between 2008 and 2017, the biggest absolute drop occurred in households (1.4 million tonnes of NMVOC-eq. or 21.2 %). For the same period the biggest relative drop was observed in electricity, gas, steam and air conditioning supply with 34 %.

Several air pollutants contribute to the acidification of the environment. The most important ones are discussed in this chapter and comprise sulphur dioxide (SO_2), nitrogen oxides (NOx) and ammonia (NH3). The impact of SO_2, NOx and NH_3 can be observed in the progressive degradation of soils, water and forests. They also contribute to the formation of fine particles in the air that cause respiratory diseases. The acidifying potential of SO_2, NOx and NH_3 is commonly measured in SO_2 equivalents (SO_2-eq.).

Figure 3.2.2: Emissions of acidifying gases by economic activity, EU-27, 2008 and 2017
(% of total emissions in SO_2 equivalents)



Note: Economic activities are ranked based on 2017 data.

Source: Eurostat (online data code: env_ac_ainah_r2)

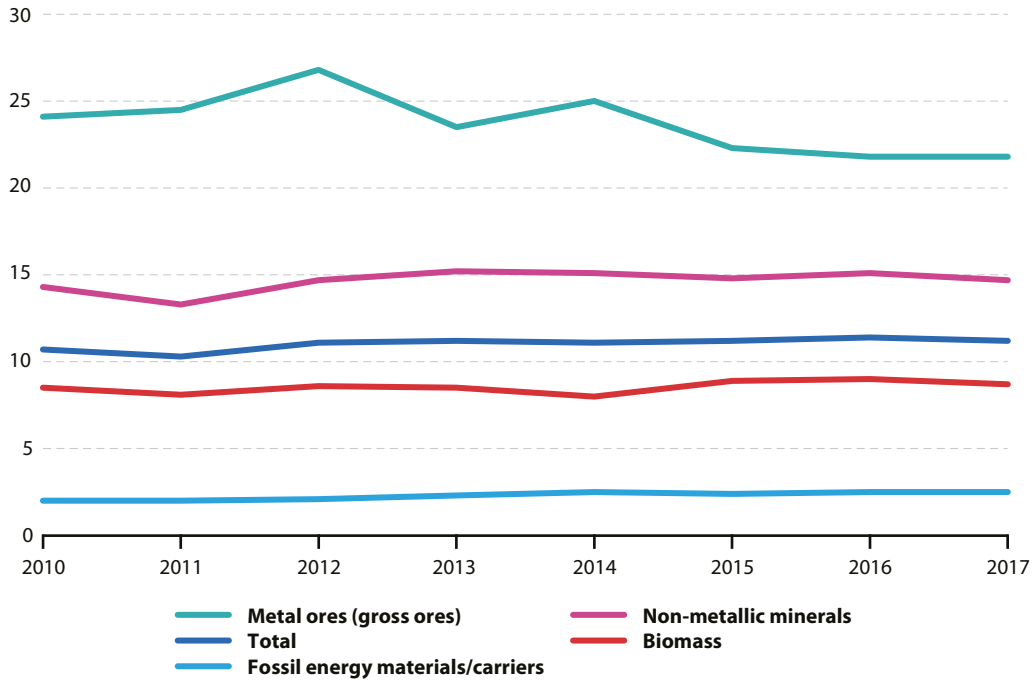
Agriculture, forestry and fishing account for the largest share of all industries: in 2017, these activities contributed 43.6 % of total acidifying gases emitted by industries and households (Figure 3.2.2). Ammonia was the largest contributor to the acidifying emissions from agriculture, forestry and fishing with 6.4 million tonnes of SO_2-eq. (Figure 3.2.2).

The second largest production activity in 2017 was transportation and storage with a share of 22.1 % or 3.7 million tonnes of SO_2-eq., followed by manufacturing (10.5 % or 1.7 million tonnes of SO_2-eq.). While the largest share of emissions in transport came from NOx, in manufacturing SO_2 emissions were predominant.

The biggest decrease was observed in electricity, gas, steam and air conditioning supply industry, which dropped from 4 to 1.6 million tonnes of SO_2-eq. (60 %) between 2008 and 2017.

3.3 Circular economy

Figure 3.3.1: Circular material use rate by material categories, EU-27, 2010-2017
(%)



Source: Eurostat (online data code: env_ac_curm)

The circular economy aims to maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use, while minimising the generation of waste. Materials such as biomass, metals, minerals and fossil fuels, are extracted from the environment and fed into our societies to make products or produce energy. At the end of their life cycle, products may be recycled, transformed into energy or discharged as residual waste. The fewer products we discard, the less materials we extract, the better for our environment.

The circularity rate is the share of material resources used in the EU which came from recycled products and recovered materials, thus saving primary raw materials from being extracted. A higher circularity rate means that more secondary materials replace primary raw materials, thus reducing the environmental impacts of extracting primary material.

In 2017, the EU's circularity rate was 11.2%, slightly down compared to the previous year and 3 percentage points (pp) up from 2004, the first year for which data are available (Figure 3.3.1).

The circularity rate is lower than other indicators of circularity, such as recycling rates, which are around 56 % in the EU. This is because some types of materials cannot be recycled, e.g. fossil fuels burned to produce energy or biomass consumed as food or fodder. Examples of materials which are counted within the circularity rate are food and fodder, and fossil fuels for energy production or for material use - e.g. plastics, buildings, infrastructure, and vehicles. Only some of these materials, at the end of their life cycle, end up as waste and thus count in recycling rates.

A higher circularity rate can be achieved in more ways than higher recycling rates and requires deeper transformation within our societies, e.g. replacing fossil fuel carriers by renewable energy — hydro power; tide, wave and ocean; wind power; solar photovoltaic; solar thermal and geothermal, by using more efficient production technologies or extending the lifespan of products.

The circularity rate shows big differences by material category. In 2017, the circularity rate in the EU was 21.8 % for metal ores, 14.7 % for non-metallic minerals (including glass), 8.7 % for biomass (including paper, wood, tissue, etc.), and 2.5 % for fossil energy materials (including plastics and fossil fuels). Fossil fuel materials are less suitable for recycling because they are mainly used for energy purposes, implying that they are transformed into air emissions. However, a lot of progress is possible in the recycling of plastics. Biomass is also partly unsuitable for recycling — e.g. food and fodder or wood for energy — but progress is possible by means of reducing food waste, recycling natural fabrics, etc.

Table 3.3.1 shows the circularity rate for the EU and Member States between 2010 and 2017.

Table 3.1.1: Circular material use rate, 2010-2017
(%)

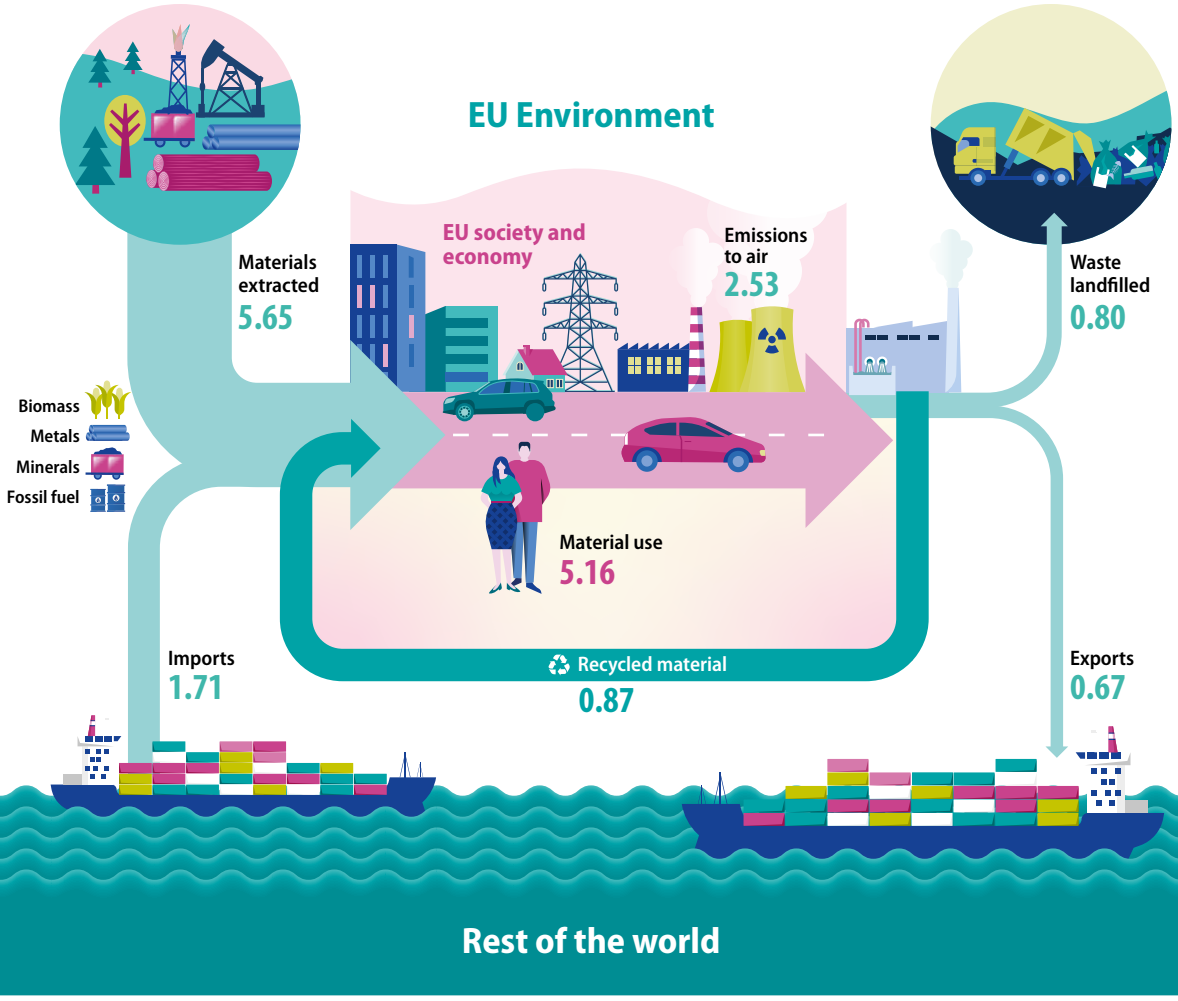
	2010	2011	2012	2013	2014	2015	2016	2017
EU-27	**10.7**	**10.3**	**11.1**	**11.2**	**11.1**	**11.2**	**11.4**	**11.2**
Belgium	12.6	13.5	16.7	17.2	18.2	18.3	18.4	17.8
Bulgaria	2.1	1.8	1.9	2.5	2.7	3.1	4.4	5.1
Czechia	5.3	5.4	6.3	6.7	6.9	6.9	7.6	8.1
Denmark	8.0	7.1	6.5	7.8	9.1	8.4	7.9	8.0
Germany	11.0	10.3	10.7	10.9	10.7	11.4	11.5	11.6
Estonia	8.8	14.2	19.1	14.6	11.0	11.4	11.6	8.7
Ireland	1.7	1.9	1.7	1.6	1.9	1.9	1.7	1.6
Greece	2.7	2.2	1.9	1.9	1.4	2.0	2.3	2.4
Spain	10.4	9.8	9.8	8.9	7.7	7.5	8.2	7.4
France	17.5	16.8	16.9	17.3	17.8	18.7	19.4	18.6
Croatia	1.6	2.4	3.6	3.7	4.6	4.3	4.4	5.1
Italy	11.6	12.1	14.5	16.2	16.8	16.6	17.5	17.7
Cyprus	2.0	1.9	2.0	2.4	2.2	2.4	2.4	2.2
Latvia	1.2	2.9	1.3	3.8	5.3	5.4	6.6	6.6
Lithuania	3.9	3.6	3.8	3.2	3.8	4.1	4.5	4.8
Luxembourg	24.1	20.7	18.5	15.3	11.2	9.6	7.0	8.9
Hungary	5.3	5.4	6.1	6.2	5.4	5.8	6.5	6.6
Malta	5.4	4.7	4.0	9.0	10.3	7.0	5.3	6.7
Netherlands	25.3	25.0	26.5	27.1	26.6	25.8	28.6	29.9
Austria	6.6	6.7	7.7	9.0	10.0	10.9	11.3	11.6
Poland	10.8	9.2	10.6	11.8	12.5	11.6	10.2	9.5
Portugal	1.8	1.7	2.0	2.5	2.5	2.1	2.1	1.8
Romania	3.5	2.5	2.6	2.5	2.1	1.7	1.7	1.8
Slovenia	5.9	7.6	9.3	9.2	8.4	8.4	8.5	8.5
Slovakia	5.1	4.8	4.1	4.6	4.8	5.0	4.9	5.1
Finland	13.5	14.0	15.3	10.1	7.3	6.5	5.3	2.2
Sweden	7.2	7.5	8.2	7.3	6.5	6.8	6.9	6.5
United Kingdom	15.6	15.4	15.7	15.7	15.6	16.2	17.1	17.8

Source: Eurostat (online data code: env_ac_cur)

In 2017, the circularity rate was highest in the Netherlands (29.9 %), followed by France (18.6 %) and Belgium (17.8 %). The lowest rate was recorded in Ireland (1.6 %), followed by Portugal and Romania (both 1.8 %) and Cyprus and Finland (both 2.2 %).

Differences in the circularity rate across Member States are due not only to the amount of recycling in each country, but also to structural factors in national economies. The circularity rate is high if the amount of waste recycled is high. However, the circularity rate could also be high if domestic material consumption is low, i.e. the materials that the country consumes (biomass, metals, minerals, fossil fuels, etc.). In turn, this happens if domestic extractions of materials for use in the country are low, imports of materials for use in the country are low, or exports of domestically extracted materials are high.

Figure 3.3.2: Material flows, EU-27, 2017
(billion tonnes)

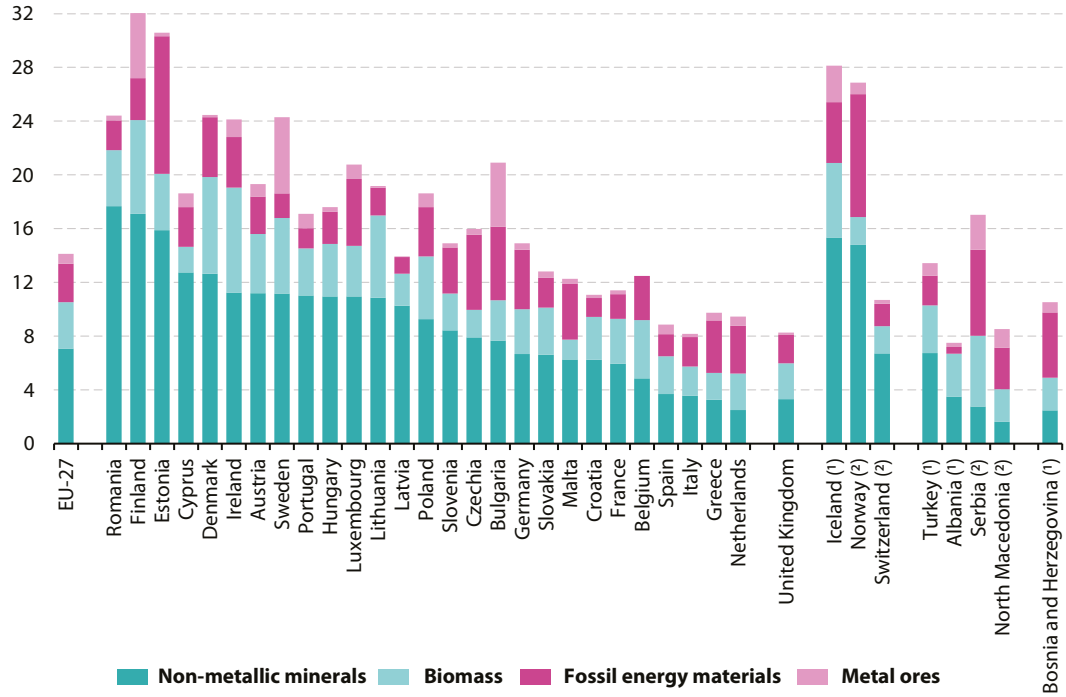


Note: Gt/year: billion tonne per year

Source: Eurostat (online data codes: env_wassd, env_ac_mfa and env_ac_sd)

3.4 Material flow accounts

Figure 3.4.1: Domestic material consumption by main material category, 2019
(tonnes per capita)



Note: Countries are ranked based on non-metallic minerals.

(1) 2017 data instead of 2019.
(2) 2018 data instead of 2019.

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

Domestic material consumption (DMC) measures the total amount, in tonnes, of material directly used in an economy, either by businesses, government and other institutions for economic production or by households.

The total DMC of the EU economy is estimated at 14 tonnes per capita in 2019.

The level of DMC differs significantly across the EU (Figure 3.4.1), ranging from around 8-9 tonnes per capita (Spain, Italy) to around 30 tonnes per capita (Finland and Estonia).

Besides the structure of the economy and climatic conditions, population density may explain - at least in part - differences between European countries in relation to consumption patterns. More densely populated Member States such as the Netherlands and Belgium tend to consume somewhat lower amounts per capita than the EU average whereas higher per capita consumption may be observed for low population density Member States like Finland, Estonia and Sweden.

Furthermore, the structure of DMC - by main material category - varies across countries. The composition of DMC in each country is influenced by natural endowments with material resources, and the latter may form an important structural element of each economy.

The consumption of non-metallic minerals varies most across countries from around 3 tonnes per capita to more than 17 tonnes per capita. The differences between countries are influenced amongst others by levels of construction activities (investments), population densities, and size of infrastructures, such as road networks. Biomass consumption also varies greatly across countries ranging between 2 and more than 8 tonnes per capita. Economies with high biomass consumption are specialised in timber production (Finland) or certain livestock production (Ireland and Denmark).

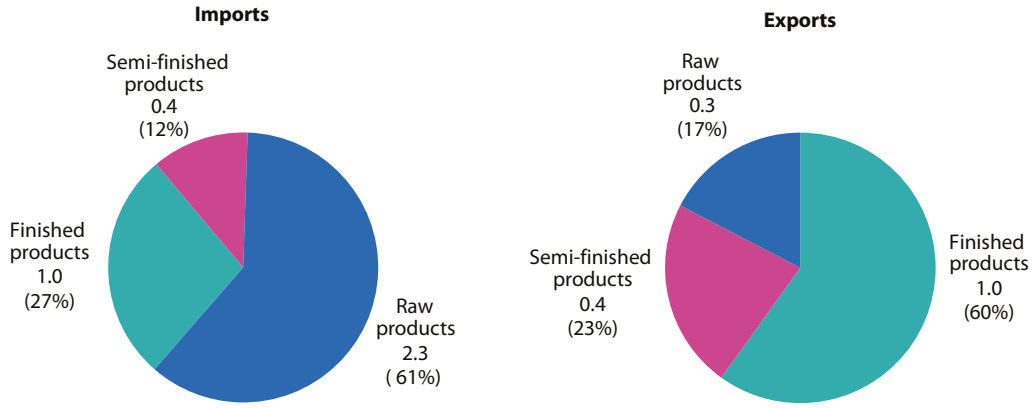
Consumption of fossil energy material is around 3 tonnes per capita for the EU and more even across countries.

Eurostat also provides data on physical imports and exports of goods in a breakdown by stage of manufacturing (Figure 3.4.2). A distinction is made between three stages: finished products, semi-finished products and raw products.

The EU's physical exports are dominated by finished products whereas the physical imports are dominated by raw products. The EU economy is specialised in the transformation of low-value raw products into high-value finished and semi-finished products.

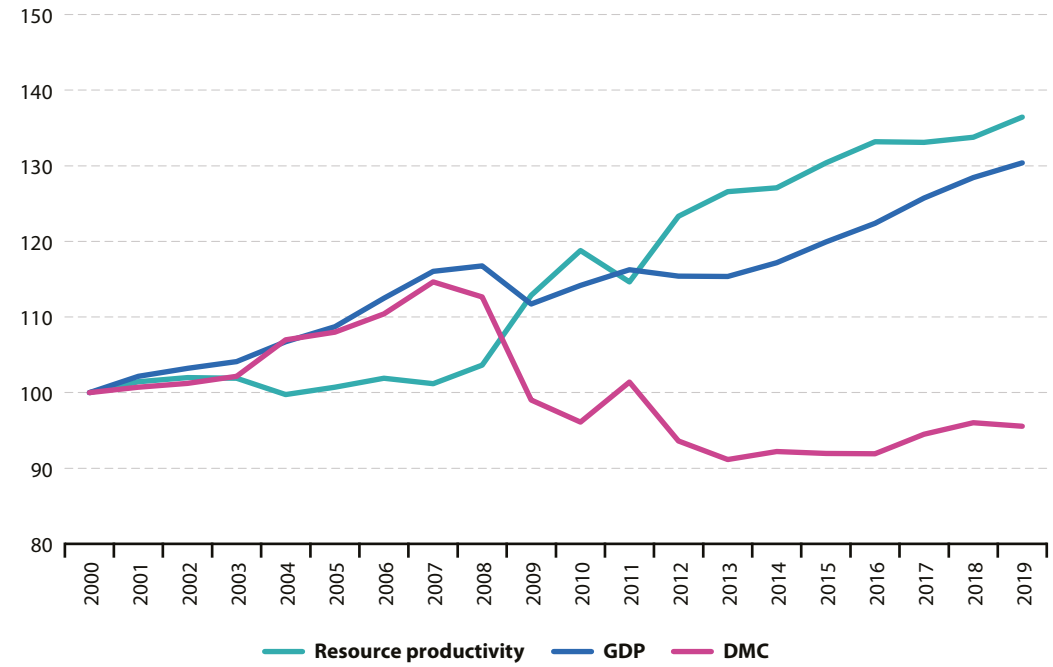
More than 61 % of the EU's total physical imports are raw products. On the other hand, about 60 % of the EU's total physical exports are finished products.

Figure 3.4.2: Physical imports and exports by stage of manufacturing, EU-27, 2019
(tonnes per capita)



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

Figure 3.4.3: Resource productivity in comparison to GDP and DMC, EU-27, 2000-2019
(Index 2000=100)



Note: GDP in chain-linked volumes, reference year 2010.

Source: Eurostat (online data codes: nama_10_gdp, env_ac_mfa and env_ac_rp)

Resource productivity is the ratio of GDP over DMC. Since 2000, the resource productivity in the EU economy increased by around 36 % (Figure 3.4.3). The financial and economic crises (2008-2009) had a clear influence on the development path of the EU's resource productivity. After a moderate growth in the pre-crisis era, resource productivity had a marked increase during the crisis due to a very sharp decrease of DMC. The DMC fall was more pronounced than the decrease of GDP: the crisis affected the material-intensive industries of manufacturing and construction more than the rest of the economy, such as services industries.

At Member State level, resource productivity developed quite differently (Table 3.4.1). It increased in nearly all countries between the year 2000 and today. Resource productivity more than doubled in Ireland and Spain.

Table 3.4.1: Resource productivity, GDP and DMC, 2019

	GDPPPS per capita	DMC per capita	Resource productivity (GDPPPS/DMC)	
	(PPS per capita)	(tonnes per capita)	(PPS per kilogram)	(Index EU-27 = 100)
EU-27	**31 105**	**14.2**	**2.2**	**100.0**
Belgium	36 534	10.9	3.4	153.1
Bulgaria	16 414	20.7	0.8	36.0
Czechia	28 518	16.1	1.8	80.7
Denmark	39 950	24.3	1.7	74.9
Germany	37 565	14.8	2.5	115.4
Estonia	26 030	30.4	0.9	38.9
Ireland	59 274	24.3	2.4	111.1
Greece	21 040	9.7	2.2	97.9
Spain	28 260	8.8	3.2	146.1
France	32 917	11.5	2.9	131.0
Croatia	20 183	11.2	1.8	80.9
Italy	29 564	8.1	3.6	165.2
Cyprus	27 675	19.1	1.5	66.2
Latvia	21 563	13.7	1.6	71.3
Lithuania	25 543	18.8	1.4	61.7
Luxembourg	81 031	21.8	3.8	170.9
Hungary	22 756	17.6	1.3	58.7
Malta	30 824	13.0	2.4	109.7
Netherlands	39 861	9.5	4.2	191.1
Austria	39 598	19.4	2.0	92.7
Poland	22 669	18.5	1.2	56.3
Portugal	24 388	17.3	1.4	63.9
Romania	21 568	24.5	0.9	40.0
Slovenia	27 220	14.8	1.8	83.8
Slovakia	22 896	13.0	1.8	79.9
Finland	34 437	32.5	1.1	48.2
Sweden	37 408	24.7	1.5	69.0
United Kingdom	32 649	8.4	3.9	176.5
Iceland (1)	37 971	29.5	1.3	58.5
Norway (2)	46 010	26.4	1.7	79.1
Switzerland (2)	47 178	11.1	4.3	193.8
North Macedonia (2)	11 306	8.6	1.3	60.0
Albania (1)	8 944	7.6	1.2	53.7
Serbia (2)	11 983	17.0	0.7	32.0
Turkey (1)	19 277	13.4	1.4	65.4
Bosnia and Herzegovina (1)	9 046	10.3	0.9	39.7

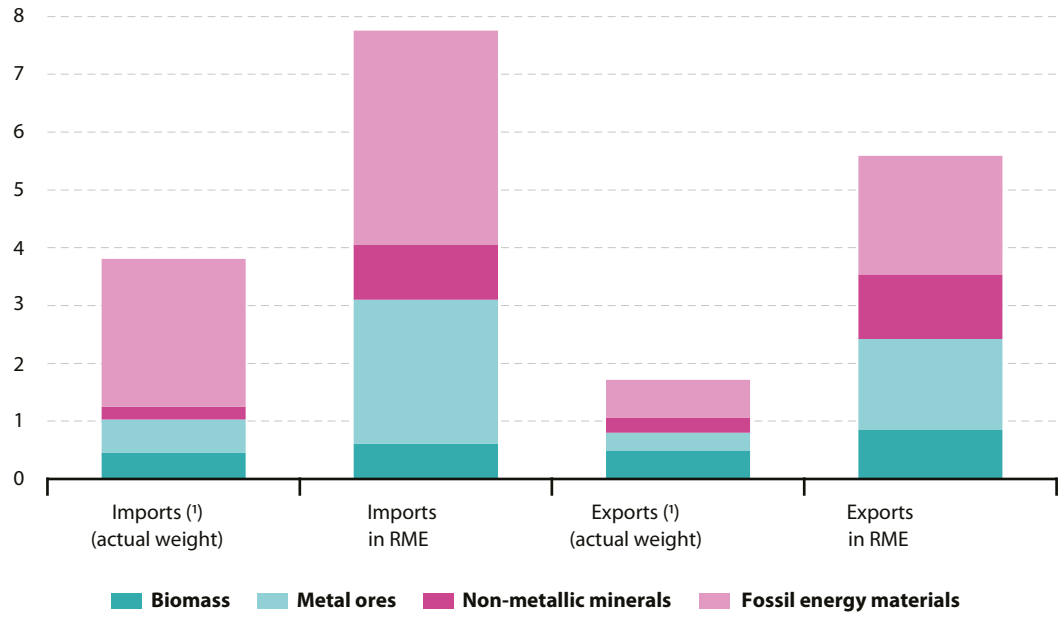
Note: GDP in current prices, Purchasing Power Standards (PPS)

(1) 2017 data instead of 2019.

(2) 2018 data instead of 2019.

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

Figure 3.4.4: Comparison of the actual weight of traded goods with trade in raw material equivalents (RME), EU-27, 2017
(tonnes per capita)



(1) The material categories 'other products' and 'waste' from EW-MFA are proporially assigned to the four main material categories represented.

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

Physical imports and exports can be complemented with supplementary estimates of the amounts of raw materials needed to produce traded goods. This can be done by converting the traded goods into their raw material equivalents (RME), i.e. the amount of raw materials that need to be extracted to produce the traded goods.

Eurostat has developed a model to estimate the raw material equivalents of imports and exports for the aggregated EU economy.

Figure 3.4.4 shows that imports in RME and exports in RME are both substantially higher than the same flows measured in the actual weight of the traded goods as they cross the border. Imports in RME for the EU are estimated at 7.8 tonnes per capita, 2.0 times higher than actual physical imports. At 5.6 tonnes per capita, exports in RME are 3.3 times higher than actual physical exports.

It is important to realise that, in general, trade flows expressed in RME are larger than the actual weight of the products traded. Almost all products go through different stages of manufacturing, starting from the extraction of raw materials, then the transformation into raw products, followed by further processing and assembly into semi-manufactured products and finally into finished products. The mass weight of the extracted raw materials, e.g. gross ore, is generally much higher than the weight of the traded products that contain the processed material only.

For example, while the concentration of metals in extracted metal ores is often less than 1 %, the metal content of concentrates and basic metals is much higher or even close to 100 %. This means that extracting concentrates and basic metals from virgin metal ores, often done in non-EU countries and reflected in EU imports, results in a much higher RME than the actual weight of the traded goods. Hence, it is not surprising that the largest difference between the actual weight of imports and imports in RME is found for metal ores: 1.9 tonnes per capita in 2017. The basic metals are usually further treated in the EU and integrated into final goods. These goods are then consumed in the EU or exported.

Non-metallic minerals also show a significant difference; 0.2 tonnes per capita in actual physical imports compared to 1.0 tonnes per capita in RME imports in 2017. The category is only a small part of both indicators however. This is because most non-metallic materials are usually extracted in the country in question, rather than traded.

For exports, the largest difference is found for the same material: metal ores. However, the different material categories contribute more evenly to the difference than for imports.

The physical trade balance (imports minus exports) in RME is 2.2 tonnes per capita whereas the actual physical trade balance itself is 2.1 tonnes per capita in 2017. As for imports and exports, the difference is mostly due to the material category of metal ores.

There are several other causes for the differences, although these cannot be directly identified in Figure 3.4.4. An important source of difference is that not all extracted materials required for producing a product necessarily become part of the product. For example, some products may require energy-intensive processing for which fossil energy carriers need to be extracted, but these are not represented in the mass weight of the product itself. This is also known as indirect material use. Generally, high-end consumer durables that require much processing and consist of many different parts will require more indirect use of materials than basic products. Another source of difference is due to the fact that in EW-MFA each traded product is assigned to one material category only, whereas traded products in RME are recorded with the whole range of materials that have contributed directly or indirectly to the production of the traded product.

3.5 Waste

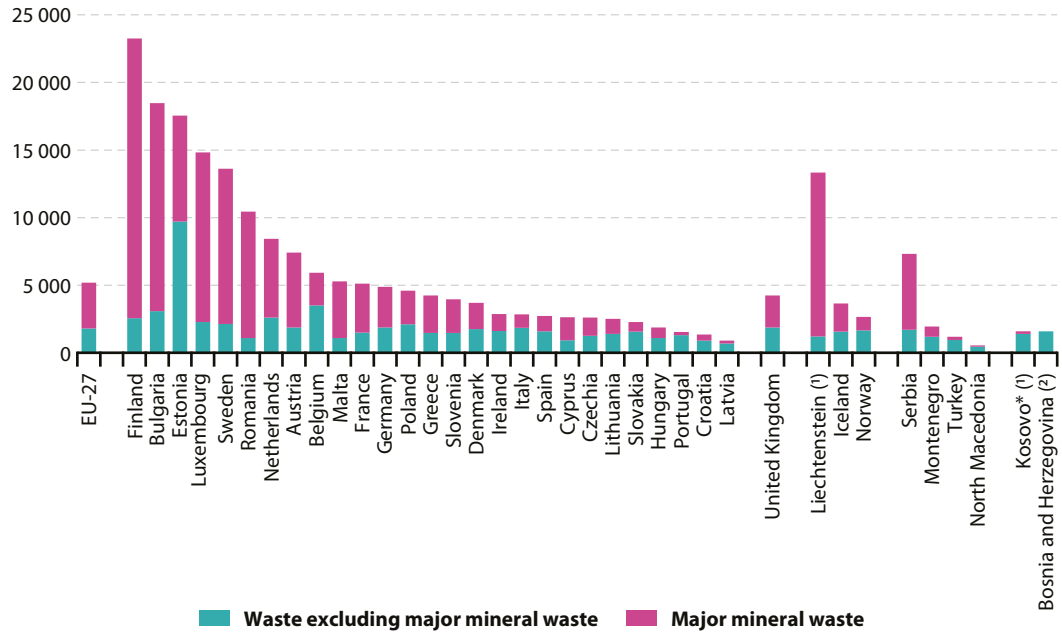
Waste, defined by Directive 2008/98/EC Article 3(1) as 'any substance or object which the holder discards or intends or is required to discard', potentially represents an enormous loss of resources in the form of both materials and energy. In addition, the management and disposal of waste can have serious environmental impacts. Landfill, for example, takes up land space and may cause air, water and soil pollution, while incineration may result in emissions of air pollutants.

EU waste management policies therefore aim to reduce the environmental and health impacts of waste and to improve the EU's resource efficiency. The long-term aim of these policies is to reduce the amount of waste generated and when waste generation is unavoidable to promote it as a resource and achieve higher levels of recycling and the safe disposal of waste.

In 2018, the total waste generated in the EU by all economic activities and households amounted to 2 277 million tonnes.

In the EU, construction contributed 35.7 % of the total in 2018 and was followed by mining and quarrying (26.3 %), manufacturing (10.7 %), waste and water services (10.2 %) and households (8.2 %); the remaining 9.4 % was waste generated

Figure 3.5.1: Waste generation, 2018
(kilogram per capita)



Note: Countries are ranked based on total waste generated.

(1) 2016 data instead of 2018.
(2) No data available for major mineral waste.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: env_wasgen)

from other economic activities, mainly services (4.4 %) and energy (3.5 %).

Figure 3.5.1 shows an analysis of the amount of waste generated in a standardised form, in relation to population size. The high levels of total waste generated in some of the smaller EU Member States can be clearly seen, with a particularly high value recorded for Finland where on average 23.3 tonnes of waste were generated per capita in 2018, more than four times the 5.1 tonnes per capita average across the EU. Several of the Member States with particularly high levels of waste generated per capita reported very high shares of waste from mining and quarrying, while elsewhere construction and demolition often contributed to the high shares.

A lot of the waste from mining and quarrying and from construction and demolition is classified as major mineral waste: the analysis presented in Figure 3.5.1 distinguishes major mineral waste

Table 3.5.1: Waste generation by economic activities and households, 2018
(%)

	Mining and quarrying	Manu-facturing	Energy	Construction and demolition	Other economic activities	Households
EU-27	**26.3**	**10.7**	**3.5**	**35.7**	**15.7**	**8.2**
Belgium	0.1	24.9	1.2	33.5	33.1	7.2
Bulgaria	82.4	2.0	10.0	0.1	3.1	2.4
Czechia	0.3	18.2	1.8	41.6	24.8	13.3
Denmark	0.0	4.7	5.1	56.0	17.8	16.3
Germany	2.2	14.1	2.4	53.7	18.4	9.2
Estonia	29.5	18.8	32.3	9.5	7.6	2.4
Ireland	14.2	24.7	1.1	13.6	35.1	11.4
Greece	56.4	11.8	7.6	5.0	9.2	10.1
Spain	8.6	10.8	4.6	29.8	28.5	17.7
France	0.4	6.6	0.4	70.2	13.7	8.7
Croatia	12.0	8.9	1.3	22.7	31.7	23.3
Italy	0.8	16.5	1.3	35.3	28.7	17.5
Cyprus	6.6	16.3	0.1	45.8	14.5	16.8
Latvia	0.1	21.7	2.5	17.5	25.7	32.6
Lithuania	1.6	37.2	2.1	8.8	30.3	20.0
Luxembourg	0.0	6.9	0.1	81.2	9.7	2.1
Hungary	1.0	14.6	11.2	33.2	25.1	14.9
Malta	1.6	1.1	0.0	79.3	10.9	7.2
Netherlands	0.0	9.6	1.1	70.0	13.3	6.0
Austria	0.1	8.7	0.8	74.4	9.3	6.7
Poland	36.7	17.0	10.7	9.7	20.6	5.3
Portugal	0.2	19.0	1.1	8.8	38.1	32.8
Romania	87.9	4.0	3.4	0.3	2.4	2.1
Slovenia	0.2	20.2	11.8	8.1	51.9	7.8
Slovakia	2.2	27.5	7.9	4.4	39.8	18.2
Finland	74.9	6.7	1.0	12.3	3.5	1.6
Sweden	74.7	3.7	1.4	8.9	8.0	3.2
United Kingdom	5.2	4.0	0.2	48.8	32.4	9.4
Iceland	0.0	24.4	0.0	3.9	31.5	40.2
Liechtenstein (1)	3.0	2.3	0.0	87.9	1.5	5.4
Norway	1.2	12.8	1.5	40.0	27.4	17.1
Montenegro	27.4	3.7	27.6	11.3	8.6	21.4
North Macedonia	14.2	46.6	0.5	3.1	35.6	0.0
Serbia	75.6	3.0	14.7	1.1	2.1	3.6
Turkey	22.3	:	32.6	0.0	8.9	36.1
Bosnia and Herzegovina (1)	93.5	2.0	3.4	0.1	0.0	1.0
Kosovo* (1)	93.5	2.0	3.4	0.1	0.0	1.0

(1) 2016 data instead of 2018.
* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: env_wasgen)

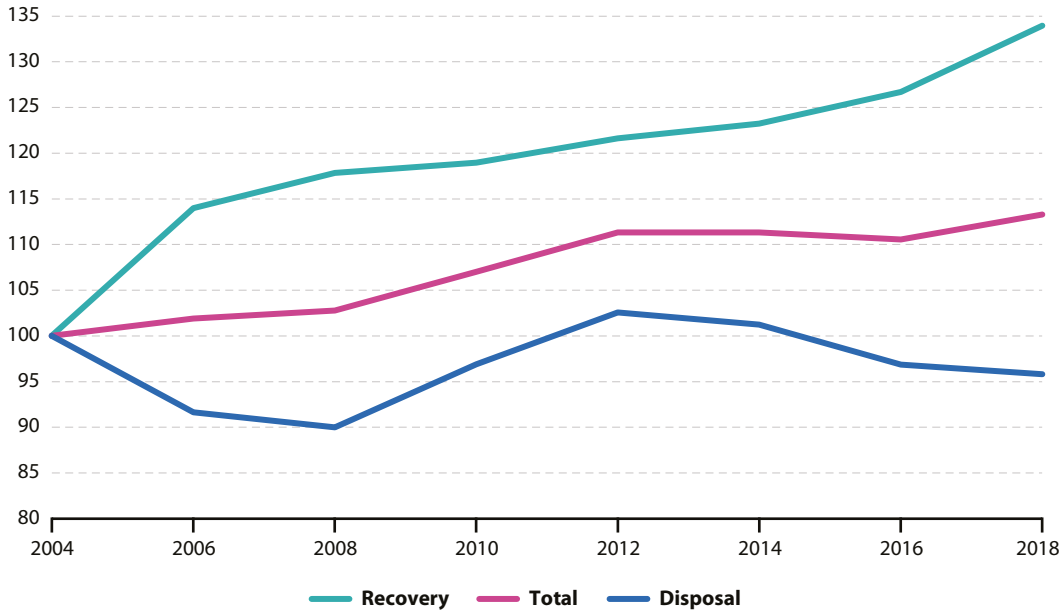
from all other wastes. Almost two thirds (66 % or 3.4 tonnes per capita) of the total waste generated in the EU in 2018 was major mineral waste. The relative share of major mineral waste in the total waste generated varied considerably between EU Member States, which may reflect, at least to some degree, different economic structures. In general, those EU Member States that had higher shares of major mineral waste were those that were characterised as having relatively sizeable mining and quarrying activities, such as Finland, Bulgaria, Sweden and Romania, and/or construction and demolition activities, such as Luxembourg; in these Member States, major mineral waste accounted 80 % or more of all waste generated, as was also the case in Liechtenstein (91 %).

In 2018, some 2 149 million tonnes of waste were treated in the EU. This does not include exported waste but includes the treatment of waste imported into the EU. The reported amounts are therefore not directly comparable with those on waste generation.

Figure 3.5.2 shows the development of waste treatment in the EU for the total and the two main treatment categories – recovery and disposal – during the period 2004-2018. The quantity of waste recovered, in other words recycled, used for backfilling (the use of waste in excavated areas for the purpose of slope reclamation or safety or for engineering purposes in landscaping) or incinerated with energy recovery grew by 34.0 % from 870 million tonnes in 2004 to 1 166 million tonnes in 2018; as a result, the share of such recovery in total waste treatment rose from 45.9 % in 2004 to 54.2 % in 2018. The quantity of waste subject to disposal decreased from 1 027 million tonnes in 2004 to 984 million tonnes in 2018, which was a decrease of 4.4 %. The share of disposal in total waste treatment decreased from 54.1 % in 2004 to 45.8% in 2018.

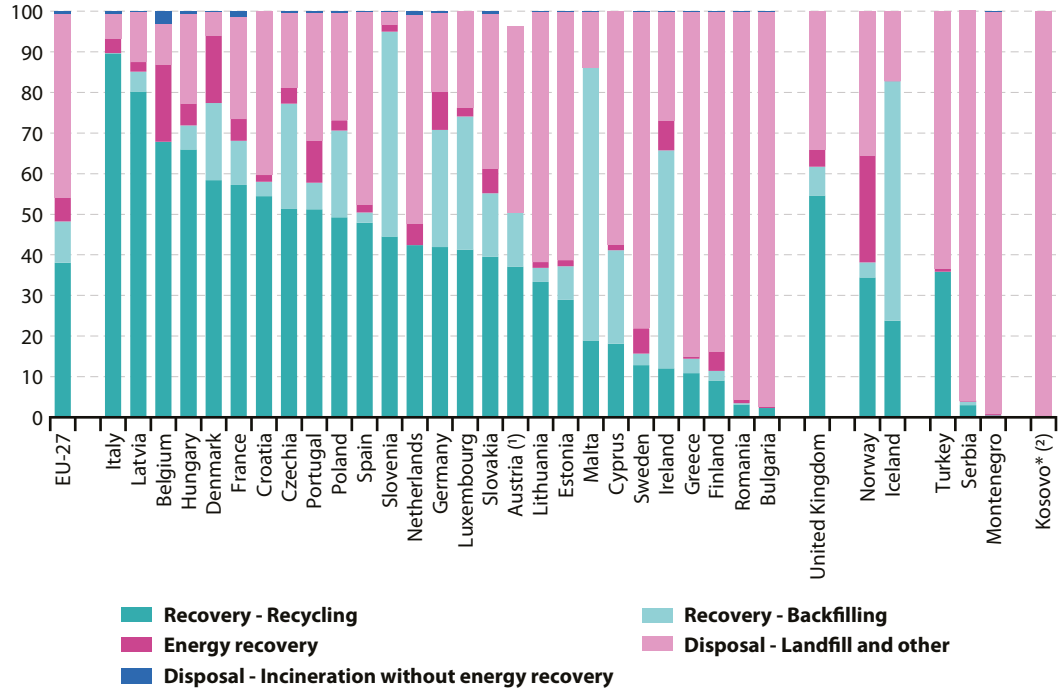
As already stated, in the EU in 2018, slightly more than half (54.2 %) of the waste was treated in recovery operations: recycling (38.1 % of the

Figure 3.5.2: Waste treatment, EU-27, 2004-2018
(Index 2004 = 100)



Source: Eurostat (online data code: env_wastrt)

Figure 3.5.3: Waste treatment by type of recovery and disposal, 2018
(%)



(1) No data available for energy recovery and incineration without energy recovery.
(2) 2016 data instead of 2018. No data available for incineration without energy recovery.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: env_wastrt)

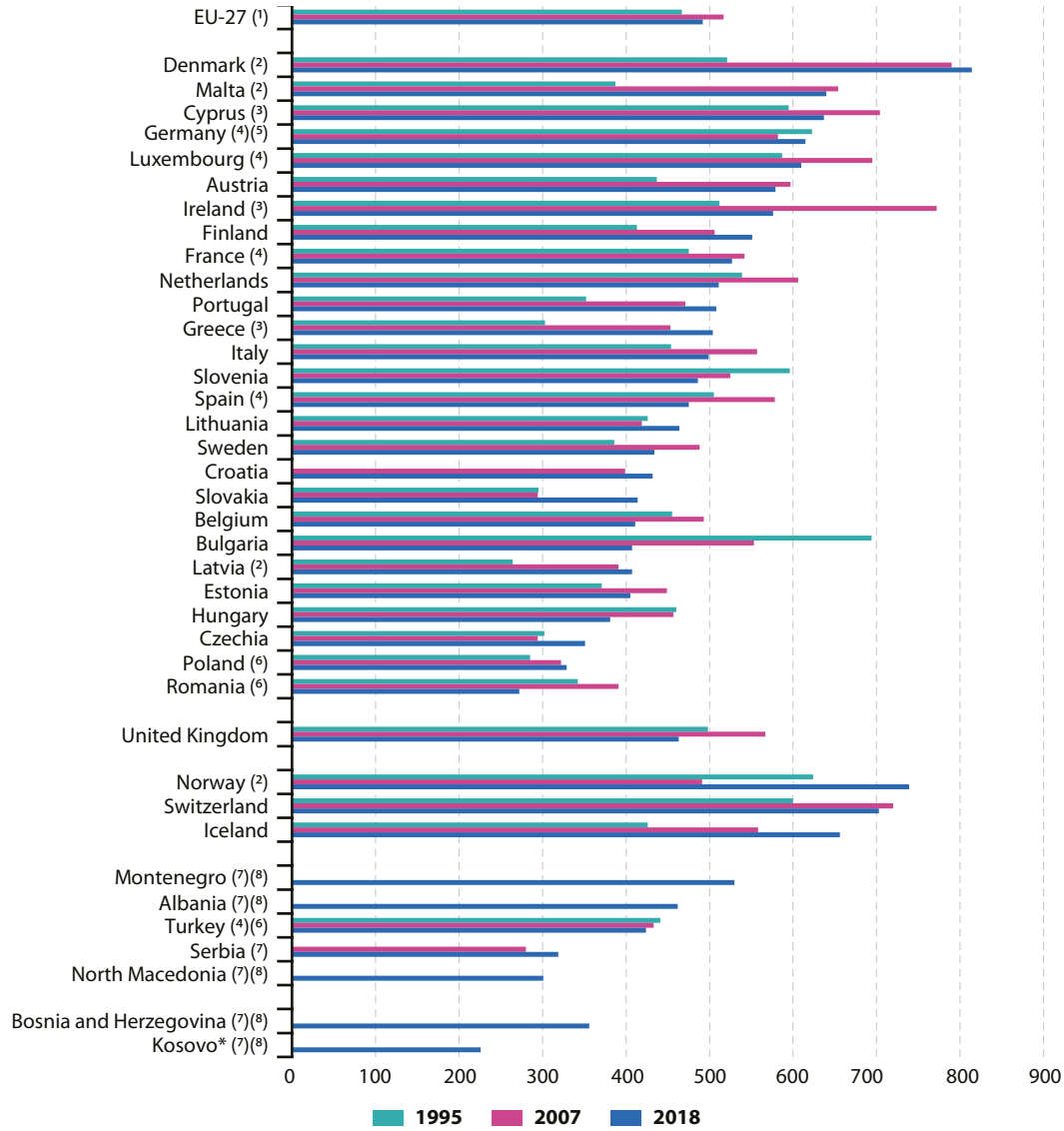
total treated waste), backfilling (10.1 %) or energy recovery (6.0 %). The remaining 45.8 % was either landfilled (38.8 %), incinerated without energy recovery (0.7 %) or disposed of otherwise (6.3 %). Significant differences could be observed among the EU Member States concerning the use they made of these various treatment methods. For instance, some Member States had very high recycling rates (Italy and Latvia), while others favoured landfill or other (Greece, Bulgaria, Romania, Finland and Sweden) (Figure 3.5.3).

Municipal waste accounts for only about 10 % of total waste generated when compared with the data reported according to the Waste Statistics Regulation. However, it has a very high political profile because of its complex character, due to its composition, its distribution among many sources of waste, and its link to consumption patterns.

Figure 3.5.4 show municipal waste generation by country expressed in kilograms per capita. For 2018, municipal waste generation totals vary considerably, ranging from 272 kg per capita in Romania to 814 kg per capita in Denmark. The variations reflect differences in consumption patterns and economic wealth, but also depend on how municipal waste is collected and managed. There are differences between countries regarding the degree to which waste from commerce, trade and administration is collected and managed together with waste from households.

Figure 3.5.5 shows the amount of municipal waste generated at EU level and the amount of waste by treatment category (landfill, incineration, material recycling, composting and other).

Figure 3.5.4: Municipal waste generated, 1995, 2007 and 2018
(kilogram per capita)



Note: Countries are ranked based on 2018 data.

(1) Estimated by Eurostat.
(2) Estimated for 1995.
(3) 2017 data instead of 2018.
(4) Estimated for 2018.
(5) Estimated by Eurostat for 1995.
(6) Estimated for 2007.
(7) No data available for 1995.
(8) No data available for 2007.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence

Source: Eurostat (online data code: env_wasmun)

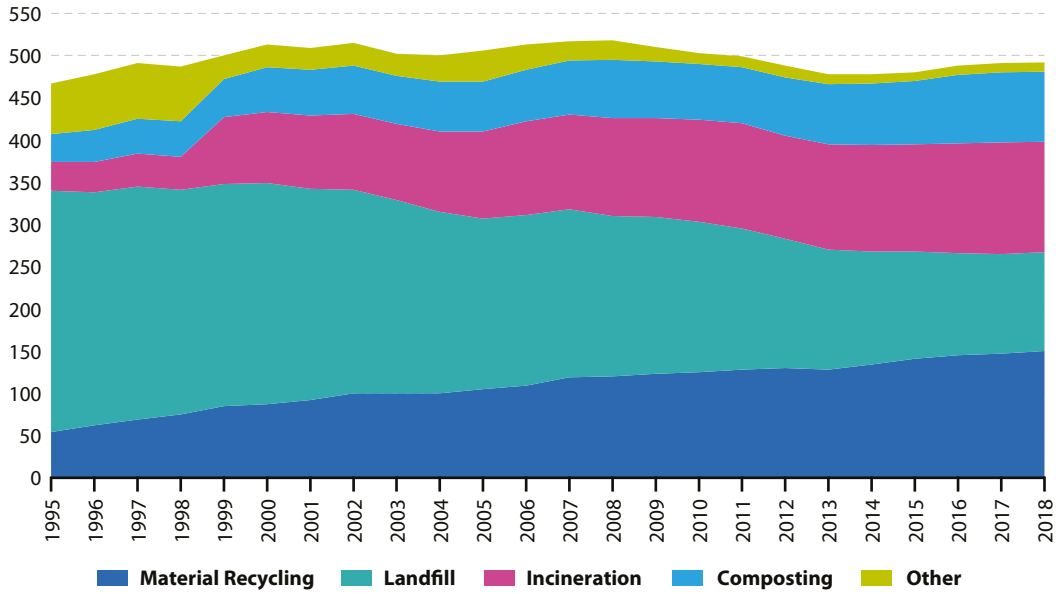
Even though more waste is being generated in the EU, the total amount of municipal waste landfilled has diminished. Total municipal waste landfilled in the EU fell by 69 million tonnes, or 57 % - from 121 million tonnes (286 kg per capita) in 1995 to 52 million tonnes (117 kg per capita) in 2018. This corresponds to an average annual decline of 3.5 %.

As a result, the landfilling rate (landfilled waste as share of generated waste) in the EU dropped from 61 % in 1995 to 24 % in 2018.

The amount of waste recycled (material recycling and composting) rose from 37 million tonnes (87 kg per capita) in 1995 to 104 million tonnes (233 kg per capita) in 2018 at an average annual rate of 4.2 %. The share of municipal waste recycled overall rose from 19 % to 47 %.

Figure 3.5.6 shows the recycling rate for all packaging waste for the EU Member States, the United Kingdom and EEA/EFTA countries in 2017. The recycling covers material recycling and other forms of recycling (e.g. organic recycling). The

Figure 3.5.5: Municipal waste treatment, EU-27, 1995-2018
(kilogram per capita)



Note: estimated by Eurostat.

Source: Eurostat (online data code: env_wasmun)

target of 55 % recycled packaging waste was met by all Member States, except Estonia (54.0 %), Croatia (53.3 %), Hungary (49.7 %) and Malta (35.6 %).

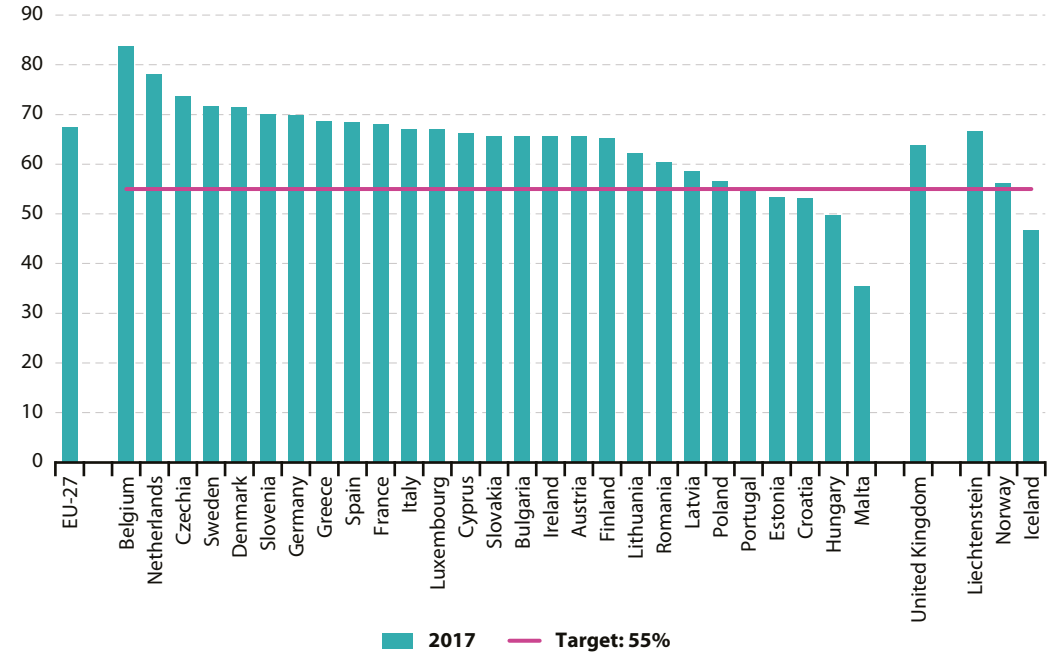
Figure 3.5.7 shows the recycling rate for plastic packaging waste for the EU Member States, the United Kingdom and EEA/EFTA countries in 2017. The recycling rate covers only material recycling and no other forms of recycling, i.e. exclusively material that is recycled back into plastics.

The target of 22.5 % recycled plastic packaging waste was met by all Member States, except Malta (19.2 %).

In 2017, 173.8 kg of packaging waste per inhabitant was generated in the EU. This quantity varied between 63.9 kg per inhabitant in Croatia and 230.9 kg per inhabitant in Luxembourg. Figure 3.5.8 shows that in 2017 'paper and cardboard (41 %)', 'plastic (19 %)', 'glass (18 %)', 'wood (17 %)' and 'metal (5 %)' are the most common types of packaging waste in the EU. Other materials represent less than 0.3 % of the total volume of packaging waste generated in 2017.

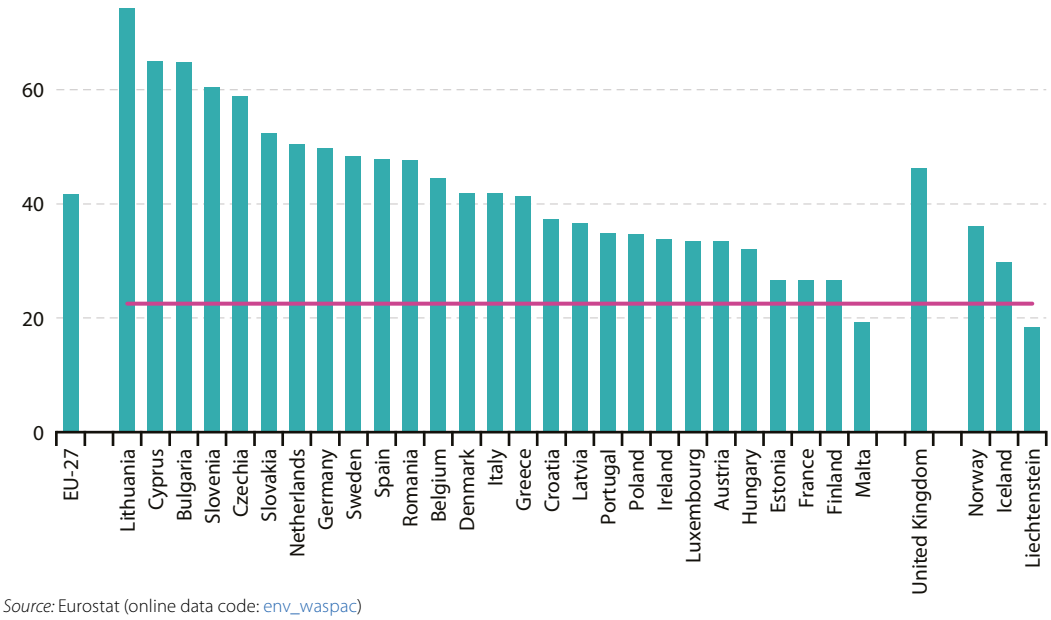
Figure 3.5.9 shows the evolution of the sales of portable batteries and accumulators compared with separate waste collection of portable batteries and accumulators in the EU. Sales have increased from 162 000 tonnes in 2009 up to 191 000 tonnes in 2018. The separate waste collection

Figure 3.5.6: Recycling rate for packaging waste, 2017
(%)



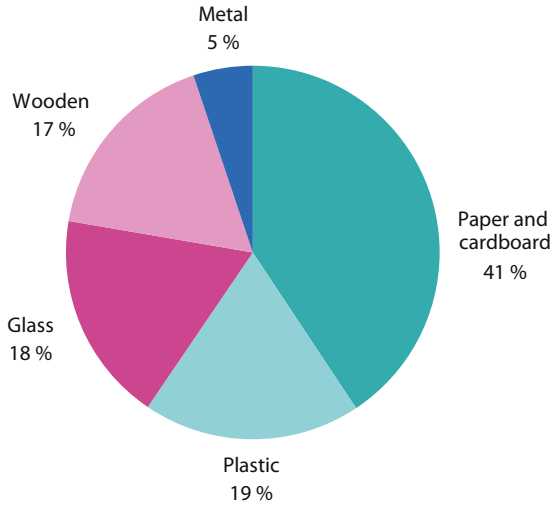
Source: Eurostat (online data code: env_waspac)

Figure 3.5.7: Recycling rate for plastic packaging waste, 2017
(%)



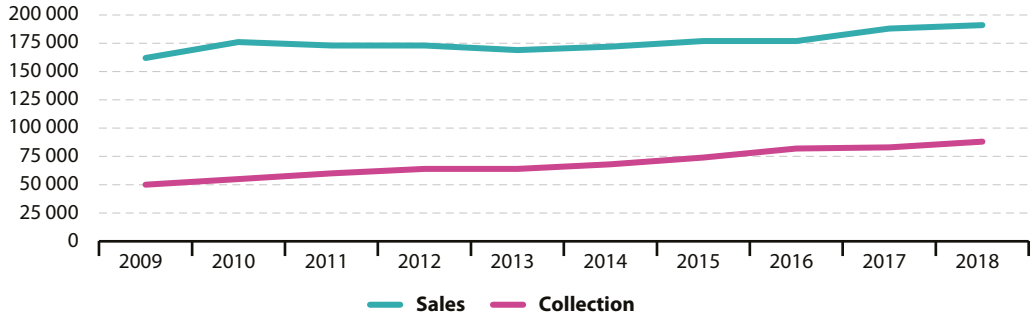
Source: Eurostat (online data code: env_waspac)

Figure 3.5.8: Packaging waste generated by packaging material, EU-27, 2017
(%)



Source: Eurostat (env_waspac)

Figure 3.5.9: Portable batteries and accumulators: separate waste collection compared with levels of sales, EU-27, 2009–2018
(tonnes)



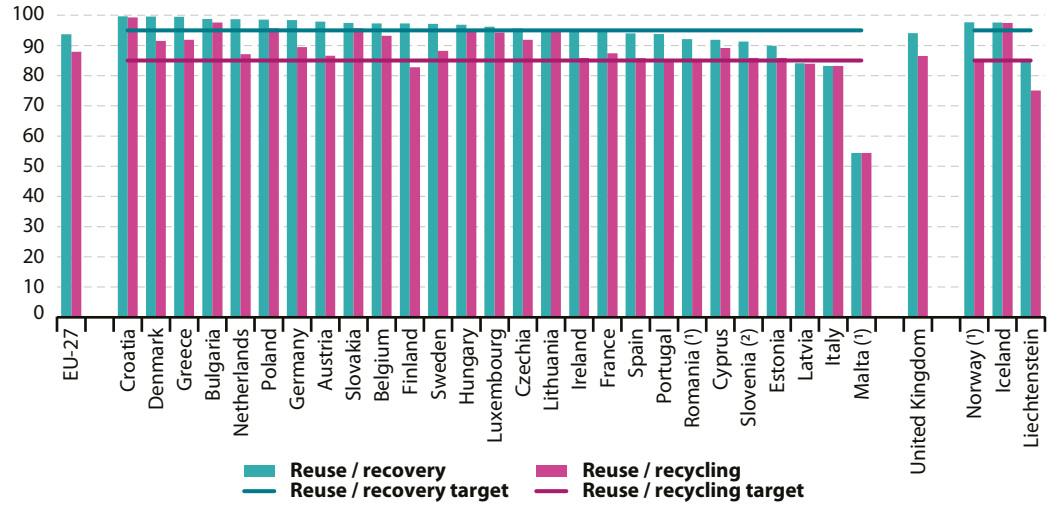
Note: Rounded estimates.

Source: Eurostat (online data code: env_waspb)

of portable batteries and accumulators has increased steadily in the EU from 50 000 tonnes in 2009 to 88 000 tonnes in 2018. The growth is in line with the requirements of the Batteries Directive 2006/66/EC, with collection rate targets set to 25 % from year 2012 and risen up to 45 % by year 2016; collection rates are calculated as a ratio of the weight of the collected batteries in a reference year divided by the average of the weight of the batteries sold during the reference year and the previous two years.

Regarding end-of-life vehicle statistics, from year 2015 EU Member States are required to meet rates for reuse and recycling of ≥ 85 % and for reuse and recovery of ≥ 95 % by an average weight per vehicle and year. In 2017, the reuse and recycling rate for end-of-life vehicles in the EU reached

Figure 3.5.10: Reuse/recovery and reuse/recycling rate for end-of-life vehicles, 2017
(%)



Note: Countries are ranked in decreasing order by reuse/recovery.

(1) 2016 data instead of 2017.
(2) 2014 data instead of 2017.

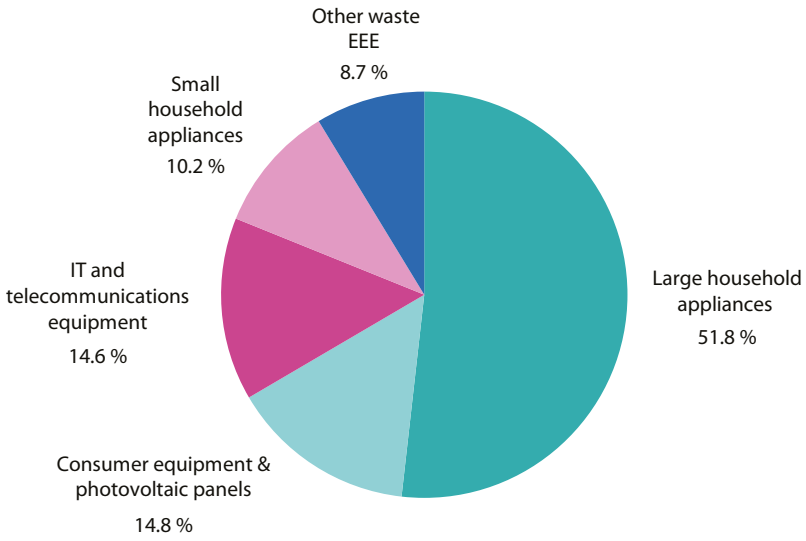
Source: Eurostat (online data code: env_waselvt)

87.9 % (Figure 3.5.10), confirming the growth trend since 2009, when the rate was 82%; twenty three EU Member States reported reuse and recycling rates higher than 85.0 % in 2017, three Member States nearly reached the targets reporting rates falling in the range of 83.0-84.9 %. The rate for reuse and recovery in the EU has risen from 85.3 % in 2009 to 93.7 % in 2017; sixteen Member States reported rates above 95.0 % and seven Member States reported rates falling in the range of 90.0 % to 94.9 %. For both of the rates calculations, estimates from the last available year apply for missing reporting countries.

Malta is usually an exception due to strongly fluctuating stocks of dismantled materials at the site of authorised treatment facilities, in order to export for further treatment at favourable market prices and to limit shipments expenses.

Figure 3.5.11 shows the amount of WEEE collected by the main EEE categories. Large household appliances accounted for 1.9 million tonnes, corresponding to 51.8 % of the total WEEE collected in the EU in 2017. Consumer equipment and photovoltaic panels (14.8 %) and IT and telecommunications equipment (14.6 %) are the second and third largest categories for WEEE collection in the EU, accounting for around 555 thousand tonnes and 547 thousand tonnes respectively. Small household appliances contributed with almost 383 thousand tonnes, corresponding to 10.2 % of total WEEE collection in the EU in 2017. The remaining seven categories together ('Other waste EEE') totalled almost 327 thousand tonnes, or 8.7 % of WEEE collected.

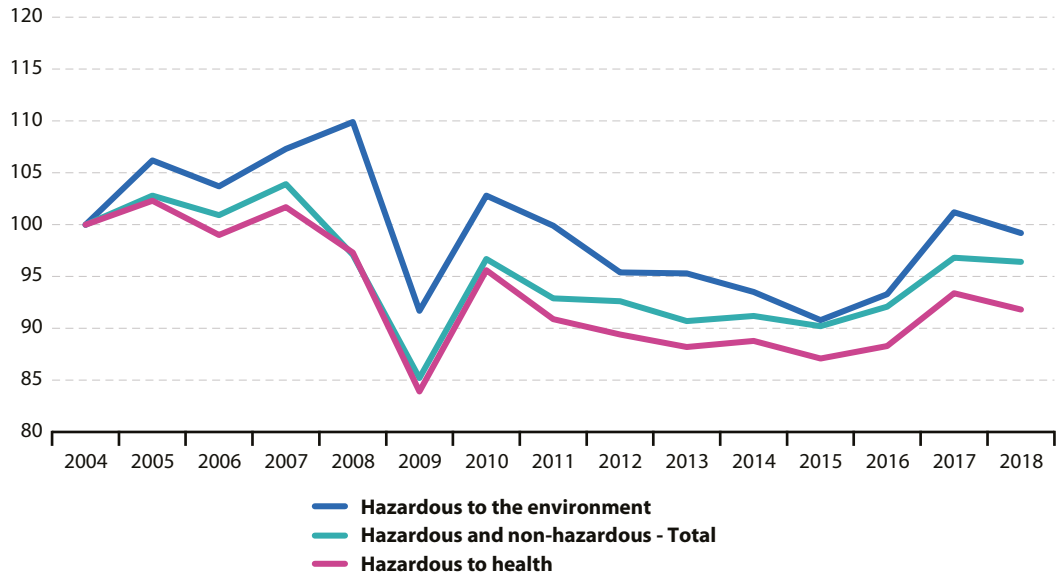
Figure 3.5.11: Waste electrical and electronic equipment, total collected, by EEE category, 2017 (%)



Source: Eurostat (online data code: env_waselee)

3.6 Chemicals

Figure 3.6.1: Production of chemicals, EU-27, 2004-2018
(index 2004 = 100)



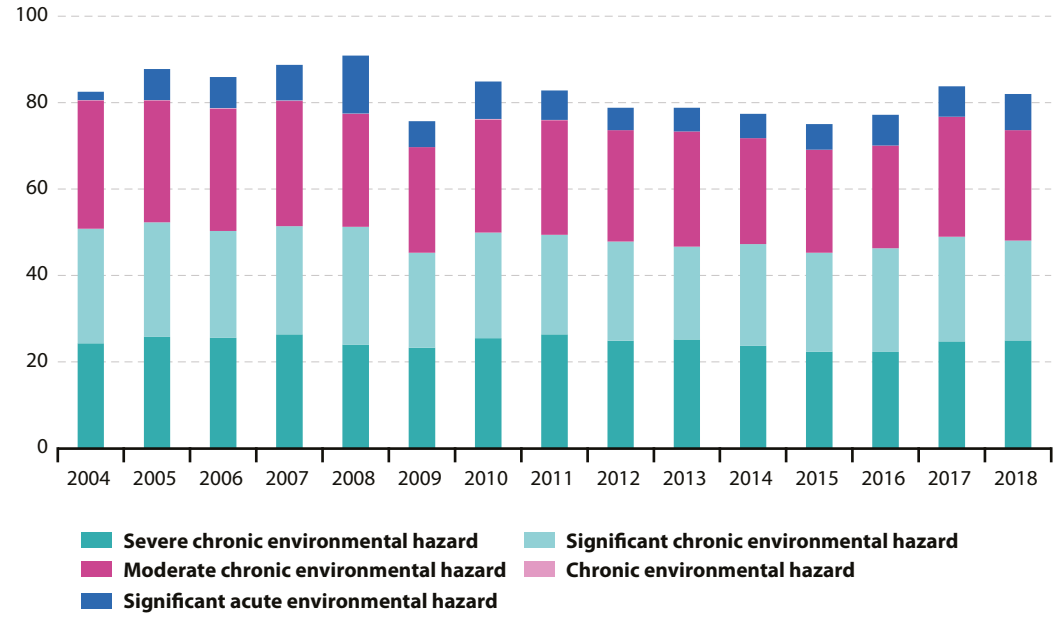
Source: Eurostat (online data code: env_chmhaz)

The total production of industrial chemicals in the EU increased from the year 2004 to 2007, rising overall by about 4 % to peak at 314 million tonnes in 2007 (Figure 3.6.1). During the financial and economic crisis, production fell by 20 million tonnes in 2008 and by a further 36 million tonnes in 2009 (or about 22 % in total). The rebound in activity in 2010 made up for the losses reported in 2009. In 2011, the production of chemicals in the EU decreased again and then decreased only slightly during the period 2011–2015 , which was still about 30-40 million tonnes below the pre-crisis peak in 2007. In 2017, for the first time since 2010, there was a noticeable increase of more than 10 million tonnes. The production of industrial chemicals was largely concentrated in Western Europe.

Figure 3.6.2 presents the development of the production of chemicals that are hazardous to the environment, analysed in more detail according to five classes of environmental hazard. The aggregated production of these five classes in the EU slightly grew between 2004 and 2008 to reach a peak of 91 million tonnes. The production of chemicals hazardous to the environment fell by 15 million tonnes during the next year to a low of 76 million tonnes in 2009. As it was the case for the overall production of chemicals, there was a strong re-bound in the production of chemicals hazardous to the environment in 2010. During the period 2010–2015 the production of these five classes fell from 85 to 75 million tonnes which is an absolute minimum for the entire reporting period. Starting in 2016, production began to rise again, reached a new peak of 84 million tonnes in 2017 and remained at about the same level in 2018.

In the EU, the share of chemicals hazardous to the environment in the total chemicals production

Figure 3.6.2: Production of chemicals hazardous to the environment, EU-27, 2004-2018
(million tonnes)



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

Source: Eurostat (online data code: env_chmhaz)

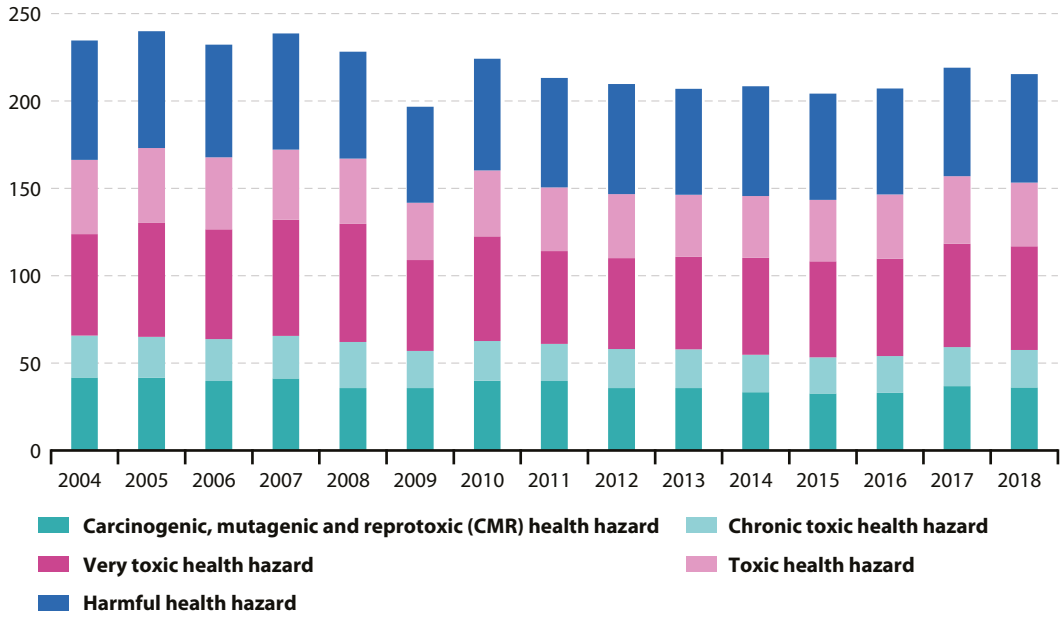
was relatively unchanged over the period 2004–2018, fluctuating between 27 % and 31 %.

Overall, the production of the five different classes of chemicals that are hazardous to the environment declined only marginally (0.7 million tonnes) from 2004 to 2018. However, there was a wide degree of variation in the development of production for the five different hazard classes. The largest overall de-crease in EU production between 2004 and 2018 was recorded for chemicals with moderate chronic environmental hazard (as the production volume was reduced by about 14 %). In contrast, an increase was recorded for chemical with significant acute environmental hazard (about 342 % over the period under consideration). Chemicals with chronic environmental hazard have a maximum share of only 0.1 % of all chemicals hazardous to the environment.

Figure 3.6.3 presents the development of EU production of chemicals hazardous to human health, analysed according to five hazard classes. The pattern of production for chemicals hazardous to health followed a trend similar to the one observed for chemicals hazardous to the environment. Production reached a peak in 2007, after which there was a significant decline in production (that coincided with the financial and economic crisis), followed by a strong rebound in 2010. In 2011, the production of chemicals hazardous to health decreased again, and continued to decrease to a low in 2015. This was followed by a new increase with a peak in 2017.

The EU production of chemicals hazardous to health (all five hazard classes together) reached a peak of 239 million tonnes in 2007. Production fell in 2008 and further in 2009 to a level of

Figure 3.6.3: Production of chemicals hazardous to health, EU-27, 2004-2018
(million tonnes)



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

Source: Eurostat (online data code: env_chmhaz)

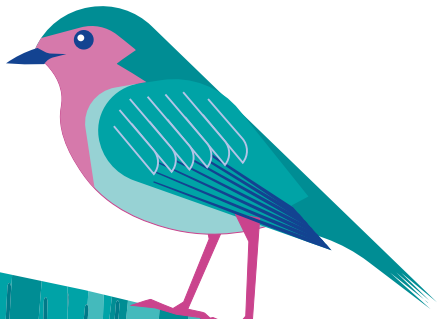
197 million tonnes. The rebound in activity in 2010 made up for most of the losses recorded in 2009 but was followed by further reductions in 2011. Since then production of chemicals hazardous to health slightly decreased until 2015. As a result, the EU level of production of chemicals hazardous to health in 2015 was about 204 million tonnes. The subsequent increase resulted in a level of 219 million tonnes in 2017 and 215 million tonnes in 2018, about 19 million tonnes less than in 2004.

The share of all chemicals hazardous to health in total EU chemicals production remained on a roughly constant level over the period under consideration. From about 78 % in 2004, the share of all chemicals hazardous to health fell to the lowest value of 74 % in 2018. In between, there was the highest share of chemicals hazardous to health in 2008 (78 %).

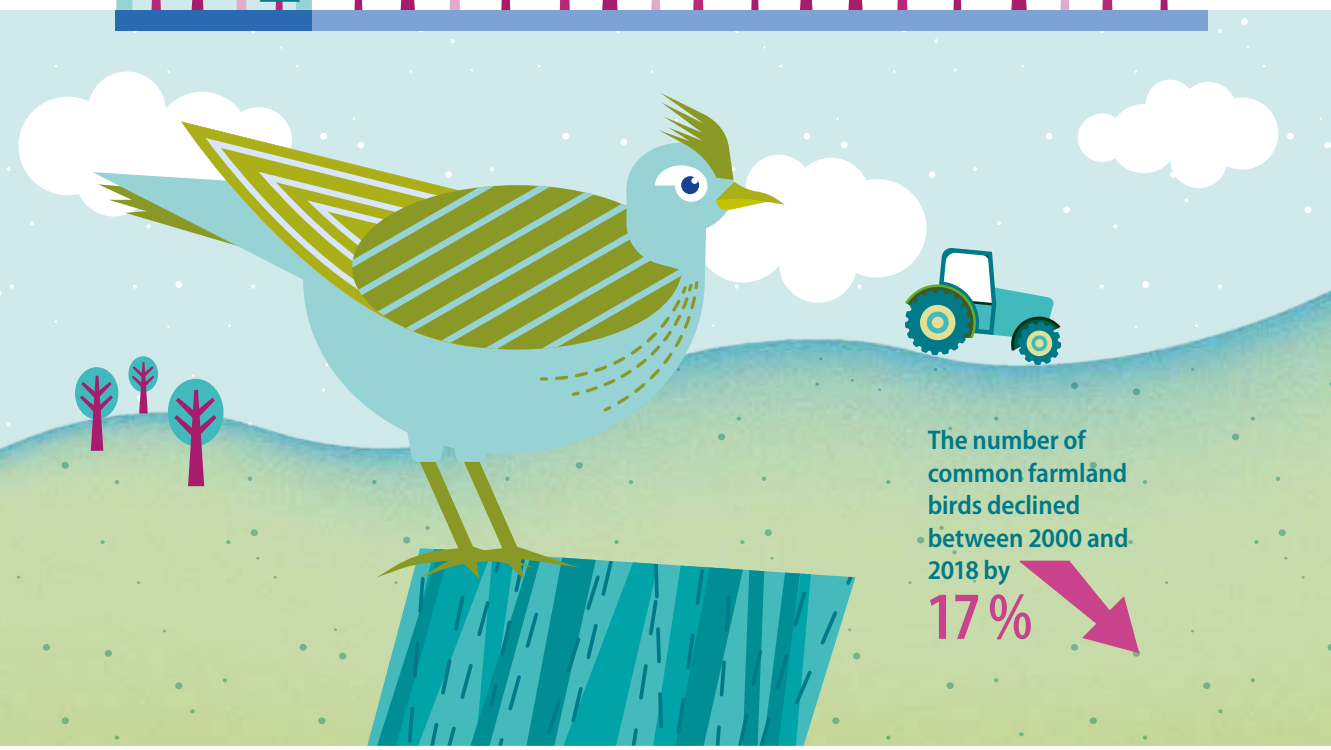
EU production of the most hazardous chemicals - carcinogenic, mutagenic and reprotoxic (CMR) hazard— hardly changed over the period from 2004 to 2007 and remained at a level between 40 million tonnes and 42 million tonnes. Production fell between 2007 and 2008 to stand at 36 million tonnes. There was a recovery in the level of production of CMRs in 2010 back to a level that was slightly lower to that recorded prior to the financial and economic crisis. From 2010, the level of production of CMR chemicals declined once more to reach about 33 million tonnes by 2015, the lowest level over the whole period from 2004 to 2018. Starting in 2016, production increased again. The relative share of CMR chemicals in total EU chemical production fluctuated between 12 % and 14 % over the period under consideration.

Environment in the EU: facts and figures

The number of common forest birds increased between 2000 and 2018 by **7 %** ↗



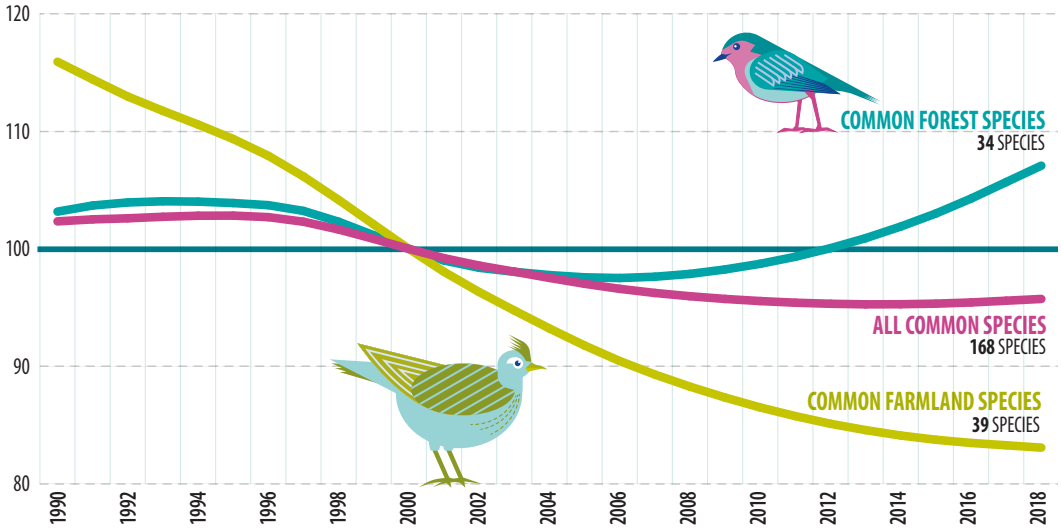
18 %
of the total terrestrial area of the EU was protected under Natura 2000 in 2019



The number of common farmland birds declined between 2000 and 2018 by **17 %** ↘

3.7 Biodiversity

Figure 3.7.1: Common bird indices, EU, 1990–2018
(aggregated index of populations of selected groups of breeding bird species, 2000=100)



Sources: European Bird Census Council (EBCC); National BirdLife organisations; Royal Society for the Protection of Birds (RSPB); Czech Society for Ornithology (CSO)

Biodiversity encompasses the number, variety and variability of plants, animals and other organisms, including humans. We depend on the natural richness of our planet for the food, energy, raw materials, clean air and water that make life possible and underpin our economies; therefore, it is essential to prevent a loss of biodiversity – any loss may not only undermine the natural environment, but also our economic and social goals. Biodiversity is one of the key policy areas of the European Green Deal. In May 2020, the European Commission adopted the EU Biodiversity Strategy for 2030 to halt the decline in biodiversity and bring nature back into our lives.

Birds have been used as an important indicator of biodiversity because they are sensitive to changes in the environment (including pollution and habitat modification), their populations reflect changes in the populations of species they feed on (such as insects) and they are relatively easy to monitor. Bird monitoring in the EU is conducted under the umbrella of the PanEuropean Common Bird Monitoring Scheme. The scheme helps standardise data collection and analyses across countries and produces three indices for the populations of common birds – index for all common birds (including 168 species), index for common farmland birds (39 species) and index for common forest birds (34 species).

Populations of birds in the EU have been declining for several decades. While the decline appears to have slowed down in recent decades,

nonetheless, between 2000 and 2018, the EU's population of all common bird species declined by 4.3 % and common farmland birds by 16.9 %.

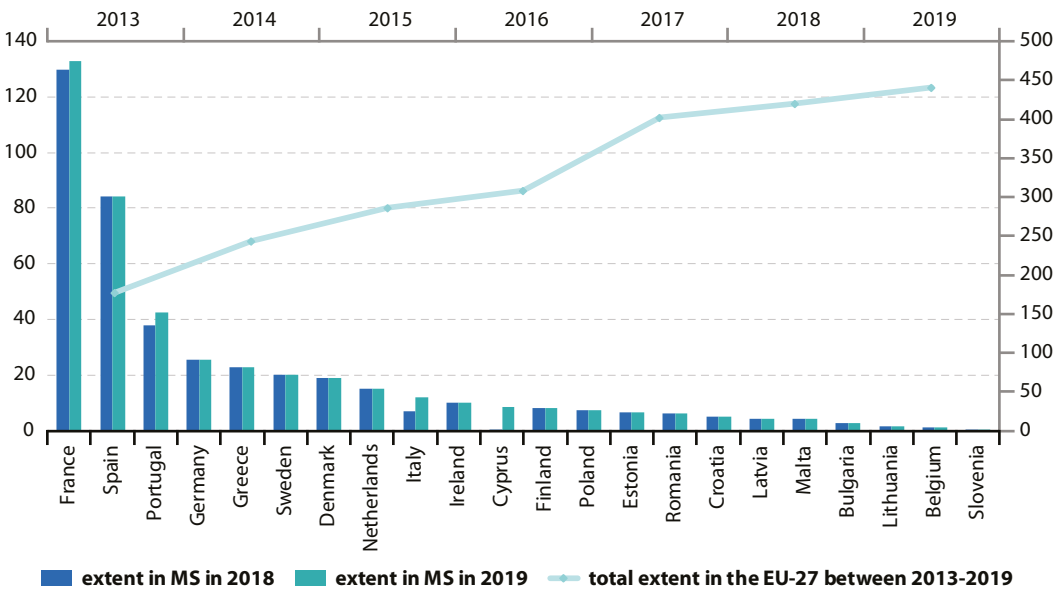
A reversed trend was observed for common forest birds – an increase of 7.1 % (Figure 3.7.1).

Large losses in populations of common farmland bird species are, in general, thought to be attributed to changes in land use and agricultural practices, and in particular the disappearance of small, non-productive landscape elements, such as hedges and windbreaks, and the use of pesticides.

Protected areas are the cornerstone of biodiversity conservation and the EU has the largest coordinated network of protected areas in the world. It is known as 'Natura 2000' and consists of approximately 27 000 marine and terrestrial sites. More than 440 thousand km^2 of EU's marine waters were protected as marine Natura 2000 areas in 2019 (Figure 3.7.2). This, for the EU as a whole, represents a 5 % increase compared with 2018 and almost a 150 % increase since 2013 (i.e. since the latest Member State joined the EU). In absolute terms, the largest national network of marine Natura 2000 areas is located in coastal waters around France (132 689 km^2). Together with the second largest national network – in Spain (84 405 km^2) – these account for almost half (49 %) of the total marine Natura 2000 area of the EU.

Unlike the terrestrial Natura 2000 sites, where the designation process is much more advanced and the coverage in Member States has remained largely unchanged for the past years, for marine areas some Member States achieved a large progress in their designation between 2018 and 2019. These were, in particular, Cyprus (more than 6300 % or ca 8 300 km^2), Italy (76 % or ca 5 200 km^2), Portugal (12 % or ca 4 400 km^2), Croatia (5 % or ca 300 km^2) and France (2 % or ca 3 100 km^2).

Figure 3.7.2: Natura 2000 protected marine area, 2013-2019
(thousand km^2)



Note: Not relevant for Czechia, Luxembourg, Hungary, Austria and Slovakia. Countries are ranked based on 2019 data. Member States' figures shown on the left axis; EU figures shown on the right axis.

Source: EEA / European topic centre on biodiversity; Eurostat (online data code: env_bio1)

3.8 Water

Water is essential for life, it is an indispensable resource for the economy, and also plays a fundamental role in the climate regulation cycle. The management and protection of water resources, of fresh and salt water ecosystems, and of the water we drink and bathe in is therefore one of the cornerstones of environmental protection.

Water resources refer to the freshwater available for use in a territory and include surface waters (lakes, rivers and streams) and groundwater. Freshwater availability in a country is primarily determined by climate conditions and transboundary water flows (in other words, external flows), while for total amounts, the size of the country matters.There are considerable

Table 3.8.1: Total water abstraction, 2008 - 2018

(million m^3)

	Fresh surface water		Fresh groundwater		Non-fresh water	
	2008	2018	2008	2018	2008	2018
Belgium	5 516.9	:	612.3	:	0.0	0.0
Bulgaria	5 809.6	4 858.8	615.8	566.5	0.6	10.4
Czechia	1 608.2	1 220.7	380.1	370.4	:	:
Denmark	7.8	202.5	688.3	872.1	:	:
Germany (1)(2)(3)	26 476.4	18 362.0	5 824.7	5 963.0	:	:
Estonia (4)	1 275.7	1 541.4	329.6	247.2	4.5	3.8
Ireland (5)	561.0	:	213.0	:	:	:
Greece (1)	5 820.5	3 897.6	3 651.1	6 225.2	:	:
Spain (6)	29 199.0	24 866.0	6 174.0	6 393.9	244.2	154.9
France (4)	23 379.4	21 379.0	5 824.0	5 692.3	4 934.7	5 211.7
Croatia	278.5	248.9	*440.5*	423.7	*324.9*	295.9
Italy	:	:	:	:	:	:
Cyprus	30.5	51.6	130.0	155.0	:	:
Latvia	96.6	96.7	131.2	108.8	0.2	0.1
Lithuania	2 104.3	123.1	170.6	162.9	2.3	56.3
Luxembourg (7)	20.0	22.0	27.0	23.0	0.0	:
Hungary (11)	4 925.8	3 718.0	536.6	514.3	:	:
Malta	2.6	*2.6*	*35.8*	*38.7*	*497.0*	225.1
Netherlands	9 718.7	6 905.6	989.0	1 187.8	3 657.4	6 164.7
Austria	:	:	:	:	:	:
Poland	8 726.7	7 825.1	2 638.2	2 508.6	296.1	237.0
Portugal (1)(4)(10)	:	2 771.7	*4 794.0*	2 065.1	:	1 418.8
Romania	6 561.0	5 673.0	659.0	676.0	:	:
Slovenia	853.9	767.8	186.1	189.6	*0.0*	0.0
Slovakia	313.0	234.2	350.7	338.9	:	:
Finland (8)	6 298.0	:	264.0	:	:	:
Sweden (9)	:	:	346.0	:	11 832.0	:
United Kingdom	6 207.7	:	2 139.2	:	7 408.0	:
North Macedonia	560.8	:	155.0	:	0.0	:
Albania	:	858.7	:	99.2	:	:
Serbia	4 168.4	5 061.2	522.3	496.2	:	:
Turkey	*29 589.3*	*44 913.6*	12 419.0	*16 180.0*	:	:
Kosovo*	:	243.1	:	16.4	:	:

(1) 2007 data instead of 2008.
(2) Surface water: 2017 data instead of 2018.
(3) Groundwater: 2016 data instead of 2018.
(4) 2017 data instead of 2018.
(5) Surface water: 2009 data instead of 2008.
(6) 2016 data instead of 2018.
(7) 2009 data instead of 2008.
(8) 2006 data instead of 2008.
(9) Non-fresh water: 2007 data instead of 2008.
(10) Ground- and surface water: 2017 break in series.
(11) Surface water: 2018 break in series.

* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.

Source: Eurostat (online data code: env_wat_abs)

differences in the amounts of freshwater abstracted within each of the EU Member States, in part reflecting the size of each country and the resources available, but also abstraction practices, climate and the industrial and agricultural structure of each country. Among EU Member States, total abstraction of fresh water ranged between 41 million m^3 in Malta (2018 data) and 31 260 million m^3 in Spain (2016 data). Between 2008 and 2018, the total volume of freshwater abstracted rose at its fastest pace in Denmark (+54 %) and Turkey (+45 %). The largest decreases were recorded in Lithuania (-87 %, due to a reduction of cooling water needs in electricity production), Germany (-25 % from 2007 to 2017) and The Netherlands (-24 %).

Table 3.8.1 also shows the considerable differences between EU Member States as regards the ratio between abstractions from groundwater and surface water resources. In Finland (2006 data), surface water abstrac-tion accounted for around 24 times the volume of water abstracted from groundwater resources, while the ratio of surface to groundwater resources was between 8 and 9 to 1 in Bulgaria and Romania and (2018 data). Beyond the EU, Kosovo recorded a ratio of 15:1. At the other end of the range, the volume of water abstracted from groundwater resources was around 15 times as high as the volume of surface water abstraction in Malta (2018 data, estimated) and 4.3 times in Denmark (2018 data).

Non-freshwater (sea water and transitional waters, such as brackish swamps, lagoons and estuarine areas etc.) is also abstracted in some countries. Sweden (11 832 million m^3; 2007 data), the Nether¬lands (6 165 million m^3; 2018 data) and France (5 212 million m^3; 2017 data) recorded the highest volumes of water abstracted from non-freshwater sources. In Malta, the volume of non-fresh water abstracted even dominates and reaches 5.4 times the volume of fresh water abstracted (2018 data, estimated).

The overall use of water resources can be considered sustainable in the long-term in most of Europe. However, specific regions may face problems associated with water scarcity; this is the case particularly in parts of southern Europe, where it is likely that efficiency gains in agricultural water use (as well as other uses) will need to be achieved in order to prevent seasonal water shortages. Regions associated with low rainfall, high population density, or intensive agricultural or industrial activity may also face sustainability issues in the coming years, which could be exacerbated by climate change impacts on water availability and water management practices.

Water is provided either by public water supply (public or private systems with public access) or is self-supplied (for example, private drills). While the share of the public water supply sector in total water abstraction depends on the economic structure of a given country and can be relatively small, it is nevertheless often the focus of public interest, as it comprises the water volumes that are directly used by the population.

At the European scale, the households and the manufacturing industry are both important users of water. However, their relative shares vary a lot among European countries: While in the Netherlands, Sweden and Belgium there is a clear (2-5 fold) dominance of water use by the manufactu-ring industry compared to the use by households (reflecting in part the relative importance of manufacturing industry in the economy of these countries), it is almost equal in Bulgaria, Germany, and Croatia. In countries with a dominance of the service sector and less industry, the water use by households can outweigh the use by manufacturing.

Variation is likewise visible as regards the level of water use per inhabitant, where for households Greece and Cyprus lead the field among EU Member States with 107 m^3 per year. On the other hand, Lithua¬nia and Romania manage to get along with just less than a fourth of this top amount.

Most EU Member States for which data are available (see Table 3.8.2) reported per inhabitant values for household water use from public water supply to be more or less stable over time over the last decade (2008-2018). Among the EU Member States, a marked increase could however be observed in Belgium, Greece and Cyprus. While there is no EU Member State with a clear decrease, this was recorded in Switzerland and Albania.

Table 3.8.2: Household water use from public water supply
(m^3 per inhabitant)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Belgium	13.7	13.6	:	:	31.7	32.4	33.6	31.8	:	:	:
Bulgaria	36.1	36.3	35.6	36.1	37.0	35.8	34.6	35.9	36.0	36.2	35.9
Czechia	32.4	31.9	30.9	31.0	30.8	30.2	30.1	30.2	30.5	30.7	30.9
Denmark (1)	*42.6*	*42.6*	42.3	42.4	42.5	43.1	40.5	37.4	37.2	39.5	40.6
Germany (2)	:	:	43.7	*44.4*	44.2	44.0	44.4	44.7	44.7	*44.3*	:
Estonia	:	:	:	:	:	:	:	:	:	:	:
Ireland	:	:	:	:	:	:	:	:	:	:	:
Greece (3)	35.7	:	:	91.8	92.1	92.8	93.4	94.0	106.5	106.7	107.0
Spain	61.8	61.7	58.9	54.7	53.6	51.8	52.2	52.8	53.5	:	:
France	:	:	:	:	:	:	:	:	:	:	:
Croatia	42.6	42.6	44.0	42.6	43.1	45.5	40.6	42.5	41.6	41.0	41.6
Italy	:	:	:	:	:	:	:	:	:	:	:
Cyprus	76.8	85.0	96.8	93.1	88.7	90.3	90.5	94.3	103.8	107.4	:
Latvia	42.2	38.4	37.0	39.1	37.5	37.3	36.1	35.8	40.1	47.3	49.9
Lithuania	20.3	20.4	18.7	19.0	19.3	21.9	23.1	23.5	24.3	24.7	26.2
Luxembourg	:	:	:	:	:	:	:	74.9	:	:	:
Hungary	36.0	35.9	34.1	34.0	34.4	33.4	33.0	34.0	34.1	34.8	35.0
Malta	*44.5*	*39.8*	*41.3*	*42.0*	*44.1*	*44.0*	*43.6*	*42.7*	*43.3*	*42.7*	*41.1*
Netherlands	48.1	47.8	47.4	46.9	46.8	46.8	46.5	47.0	47.4	45.8	48.7
Austria (4)	*45.7*	:	45.6	:	:	:	*44.9*	:	43.6	:	:
Poland	31.8	31.3	31.5	31.6	31.5	31.3	31.5	32.5	32.6	32.2	33.7
Portugal	55.7	58.6	:	:	:	:	:	:	:	:	:
Romania	:	:	:	:	30.0	29.3	24.8	25.1	25.4	26.3	26.4
Slovenia (5)	*40.3*	*39.9*	*39.6*	*39.5*	41.3	38.2	38.1	38.1	38.0	38.2	38.4
Slovakia	:	:	:	:	:	:	:	:	:	:	:
Finland	:	:	:	:	:	:	:	:	:	:	:
Sweden	:	:	52.5	:	:	:	:	50.1	:	:	:
United Kingdom	:	:	:	46.0	:	:	:	:	:	:	:
Norway	*77.7*	*77.6*	:	:	:	:	:	66.1	64.5	64.5	67.3
Switzerland	79.3	74.4	71.9	70.3	68.4	65.9	63.4	63.9	62.1	61.3	61.3
Albania	:	:	:	:	:	:	:	:	:	98.4	71.6
Serbia	47.2	46.4	45.2	44.1	44.8	45.1	43.2	44.6	43.4	45.0	45.2
Turkey	30.5	:	32.8	:	34.9	:	32.6	:	39.1	:	39.5
Bosnia and Herzegovina	29.8	30.3	30.6	29.9	30.2	28.5	28.1	28.8	29.6	30.3	28.1
Kosovo*	:	:	19.0	23.7	24.4	24.3	26.0	28.1	29.5	27.6	26.9

(1) 2008 and 2009: Estimated by Eurostat; 2010: break in series.
(2) 2017: Estimated by Eurostat.
(3) 2007 data instead of 2008.
(4) 2008 and 2014: Estimated by Eurostat.
(5) 2008 - 2011: Estimated by Eurostat.
* This designation is without prejudice to positions on status, and is in line with UNSCR 1244/1999 and the ICJ Opinion on the Kosovo Declaration of Independence.
Source: Eurostat (online data codes: env_wat_cat and demo_pjan)

Environment in the EU: facts and figures

The environmental economy grew **two times faster** than the whole economy between 2000 and 2017

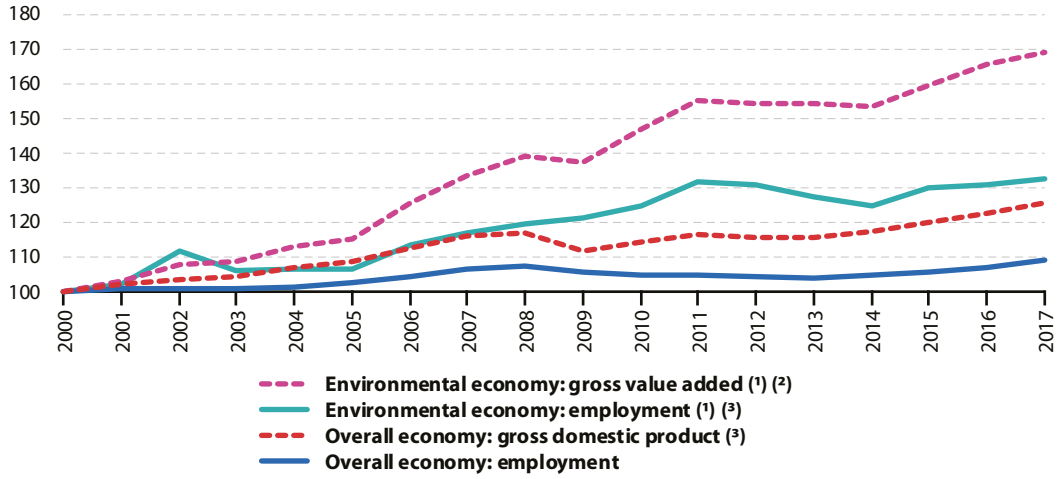
In 2019, national environmental protection expenditure remains stable at **1.9 % of GDP**, with the largest contribution from corporation sector (1.1 % of GDP).

Decline in the share of environmental tax revenue to **6.0 %** of total government tax revenue in 2018

Employment in environmental economy grew **three times faster** than for the whole economy between 2000 and 2017

3.9 Environmental goods and services

Figure 3.9.1: Key indicators for the environmental economy and the overall economy, EU-27, 2000–2017
(index 2000 = 100)



(1) Eurostat estimates.
(2) Index compiled for chain-linked volumes data in EUR million (reference year 2010; at 2010 exchange rates)
(3) In full-time equivalents.

Source: Eurostat (online data codes: nama_10_a10_e, nama_10_gdp, env_ac_egss1 and env_ac_egss2)

Environmental goods and services encompass products that serve either of two purposes: 'environmental protection' - that is, preventing, reducing and eliminating pollution or any other degradation of the environment or 'resource management' - that is, preserving the stock of natural resources, hence safeguarding it against depletion.

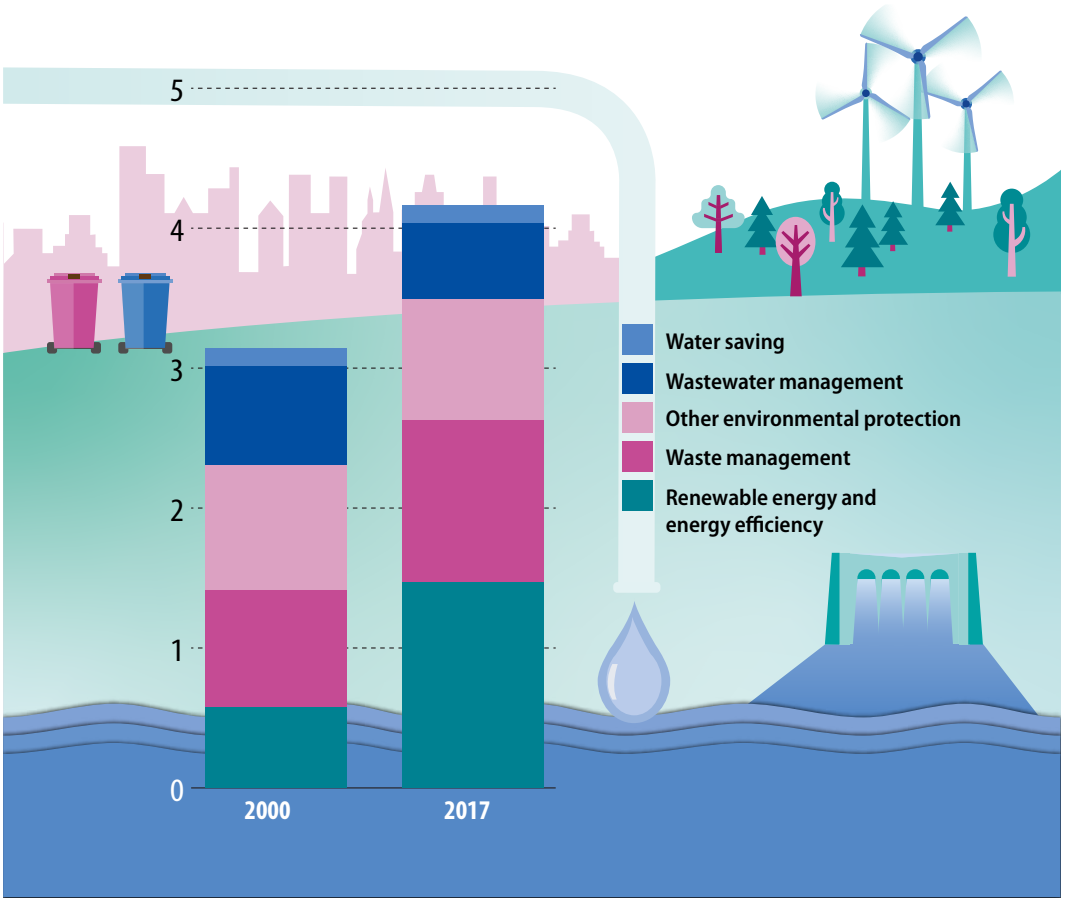
The Environmental goods and services sector (EGSS) accounts provide information on production (output) and exports of environmental products and the employment and gross value added linked to their production.

According to Eurostat estimates, employment in the EU environmental economy increased from 3.1 million full-time equivalents in 2000 to 4.2 million full-time equivalents in 2017. The environmental economy generated EUR 698 billion output and EUR 287 billion gross value added in 2017. Between 2000 and 2017, employment and gross value added grew faster in the environmental economy than in the overall economy (Figure 3.9.1).

The first decade of the millennium was a period of almost steady job creation in the environmental economy. Employment increased on average by 2 % on an annual basis. Employment in the environmental sector in 2000 – 2017 was growing with the exception of short periods of decline in 2002 – 2003 and 2011 – 2014.

Between 2000 and 2017, the environmental economy outperformed the overall economy in terms of the growth of its employment and value added. Even in 2009, when the financial crisis led to a 4 % contraction in GDP, gross value added from the production of environmental goods and services remained relatively stable. In the aftermath of the crisis, the environmental economy showed a strong growth until 2011 and remained stable in the three following years. Since 2014, gross value added of the environmental sector has been growing on average 4 % annually,

Figure 3.9.2: Employment in the environmental economy, by domain, EU-27, 2000–2017
(thousand full-time equivalents)



Note: Data for EU-27 are estimated by Eurostat. 'Other environmental protection' covers all remaining CEPA categories, i.e. all except waste and wastewater management, including protection of ambient air and climate and of biodiversity and landscape as well as research and development and administration and education activities relating to environmental protection.

Source: Eurostat (online data code: env_ac_egss1)

thereby showing a higher growth rate than GDP in that period.

The environmental economy can be broken down by environmental protection and resource management activities, following the classification of environmental protection activities (CEPA) and the classification of resource management activities (CReMA); for more information see Annex 3: Legislation, methodology and glossary of terms used in the environment section. Figure 3.9.2 presents a breakdown of EGSS employment into three environmental protection activities (wastewater management; waste management; other environmental protection activities) and two resource management activities (water saving; renewable energy and energy efficiency). Employment related to renewables and energy efficiency grew by a factor of 2.6 since 2000. Employment in waste management also increased

while the number of full-time jobs in the other domains decreased.

Job creation related to renewable energy and energy efficiency stems from the production of renewable energy itself as well as from the manufacturing of renewable energy and energy-efficient equipment, and the provision of pertinent installation, engineering and research services. Employment in this domain increased from 0.6 million full-time equivalents in 2000 to 1.5 million full-time equivalents in 2017. In other words: almost one million new full-time equivalent jobs have been created in the EU between 2000 and 2017 through renewables and energy-efficiency measures. The second largest contribution to environmental employment came from waste management, with the number of jobs increasing from 0.8 million full-time equivalents in 2000 to 1.2 million full-time equivalents in 2017 (overall increase of 38 %). By contrast, employment related to wastewater management decreased in the same period by 23 % from 0.7 million to 0.5 million full-time equivalents. Whereas environmental protection accounted for more than three quarters (78 %) of the employment in the environmental economy in 2000, the share decreased to 62 % in 2017 following the creation of new jobs related to renewables and energy efficiency, two important resource management activities.

The environmental economy can also be analysed from the perspective of production units, using the statistical classification of economic activities (NACE). Because units producing environmental goods and services can engage in a range of activities, an analysis by economic activity provides a complementary picture to the analysis by environmental domain. Table 3.9.1 follows this alternative approach. It shows that most employment within the EU environmental economy in 2017 was related to energy and water supply, sewerage, waste management and remediation activities (NACE Sections D and E) with 1.4 million full-time equivalents followed by construction (NACE Section F) with 1.1 million full-time equivalents. The environmental economy also provides 0.8 million full-time equivalent jobs related to other services activities and 0.4 million full-time equivalent jobs each in mining, quarrying and manufacturing and in agriculture, forestry and fishing.

In 2017, energy and water supply, sewerage, waste management and remediation activities generated some EUR 116 billion, or 41 % of the

Table 3.9.1: Employment, production and value added in the environmental economy, by activity, EU-27, 2017

	Employment (thousand full-time equivalents)	Output (EUR billion)	Gross value added (EUR billion)
Total	***4 152***	***698***	***287***
Agriculture, forestry and fishing	*439*	*40*	*21*
Mining, quarrying and manufacturing	*427*	*104*	*34*
Energy and water supply, sewerage and waste services	*1 407*	*305*	*116*
Construction	*1 066*	*155*	*60*
Services	*813*	*93*	*56*

Note: Data for EU-27 are estimated by Eurostat.

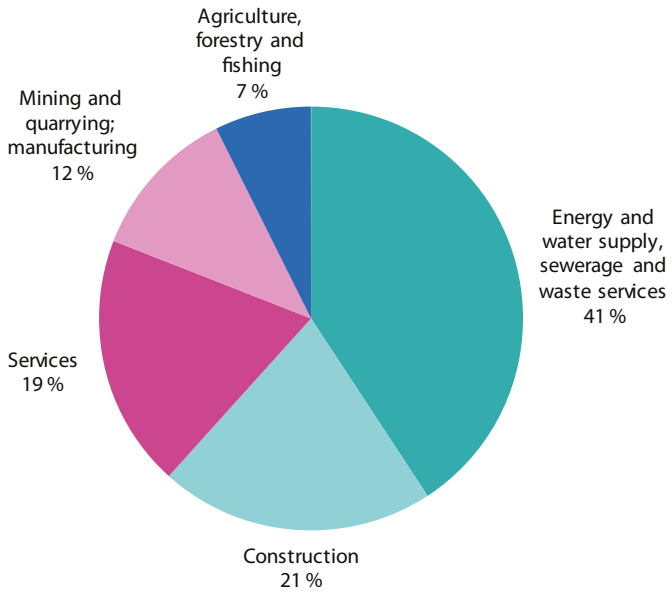
Source: Eurostat (online data code: env_ac_egss3)

value added of the environmental economy (Figure 3.9.3). Construction contributed EUR 60 billion of value added or 21 % to the total gross value added of the environmental economy. This activity includes energetic refurbishment of existing buildings and the construction of new energy-efficient buildings as well as noise insulation work, maintenance and repair of water networks, construction work for wastewater and waste treatment plants and sewerage systems. Miscellaneous services generated together EUR 56 billion of value added (19 % of the total) for the environmental economy. The remaining activities contributed 12 % (mining, quarrying and manufacturing) and 7 % (agriculture, forestry and fishing) to the gross value added of the environmental economy.

Labour productivity expressed as value added per full-time equivalent is highest for energy and water supply, sewerage, waste management and remediation activities, generating on average EUR 82 400 per full-time equivalent job (generating 41 % of the value added of the environmental economy with 34 % of the labour input). Labour productivity is lowest in agriculture and forestry, with (on average) EUR 48 400 per full-time equivalent (generating 7 % of the value added of the environmental economy with 11 % of the labour input). For more information on productivity, please refer to chapter 3.4 - Material flow accounts.

Gross value added of the environmental economy increased from EUR 130 billion in 2000 to EUR 287 billion in 2017 (Figure 3.9.4; note that the

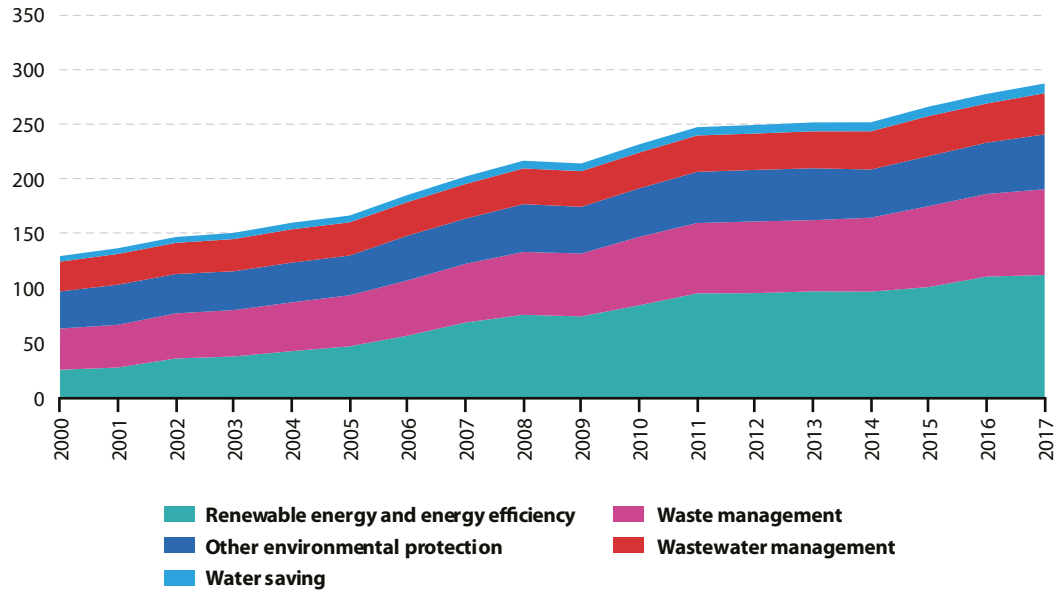
Figure 3.9.3: Gross value added of the environmental economy, by economic activity, EU-27, 2017 (%)



Note: Data for EU-27 are estimated by Eurostat.

Source: Eurostat (online data code: env_ac_egss3)

Figure 3.9.4: Gross value added of the environmental economy, by domain, EU-27, 2000-2017
(EUR billion)



Note: Data for EU-27 are estimated by Eurostat. 'Other environmental protection' covers all remaining CEPA categories, i.e. all except waste and wastewater management, including protection of ambient air and climate and of biodiversity and landscape as well as research and development and administration and education activities relating to environmental protection.

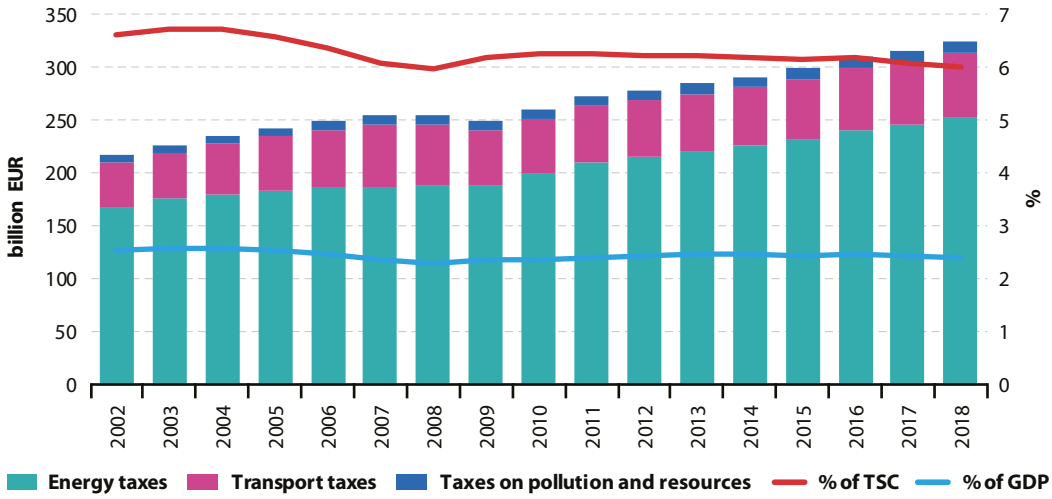
Source: Eurostat (online data code: env_ac_egss2)

trend is based on current prices as chain-linked volumes for all environmental and resource management activities are not yet available). Also the contribution of the environmental economy to GDP increased, namely from 1.6 % in 2000 to 2.2 % in 2017. Gross value added of the environmental economy rose steadily between 2000 and 2008, reaching EUR 217 billion. It declined in 2009 as a result of the financial crisis but showed robust growth in 2010 and 2011, and in all years after 2014.

Gross value added of environmental protection activities increased from EUR 99 billion in 2000 to EUR 166 billion in 2017. The contribution of environmental protection to GDP remained stable over this period at 1.2-1.3 %. Gross value added of resource management activities had a lower baseline value in 2000, namely EUR 31 billion (or 0.4 % of GDP) but grew faster to reach EUR 121 billion (or 0.9 % of GDP) in 2017, largely due to growth in the renewable energy sector.

3.10 Environmental taxes

Figure 3.10.1: Environmental tax revenue by category, EU-27, 2002-2018
(billion EUR and % of taxes and social contributions and % of GDP)



Source: Eurostat (online data codes: env_ac_tax and gov_10a_taxag)

In 2018, the governments in the EU collected environmental tax revenue of EUR 324.6 billion. The value represents 2.4 % of the EU gross domestic product (GDP) and 6.0 % of the EU total government revenue from taxes and social contributions (excluding imputed social contributions).

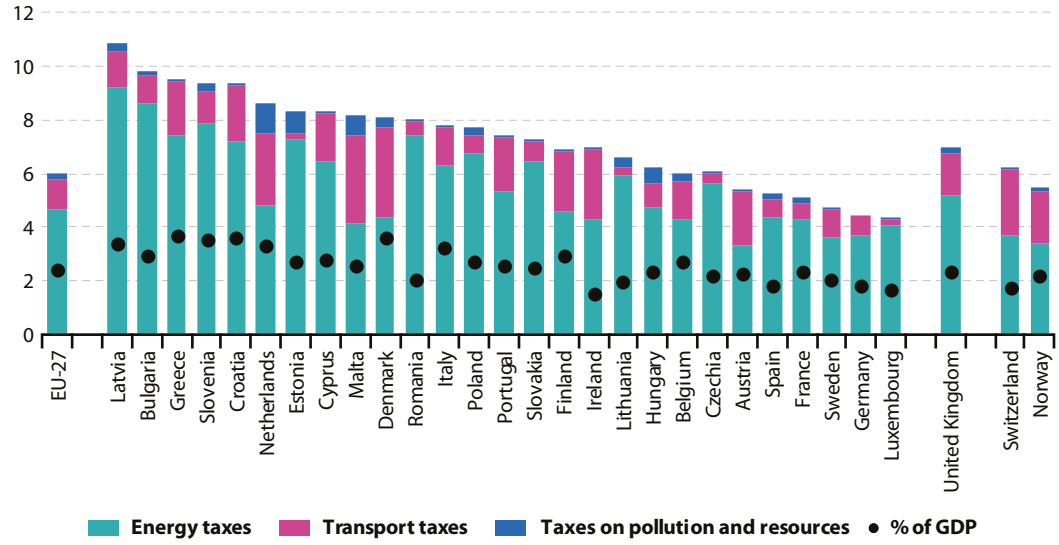
A very large portion of the 2018 EU environmental tax revenue – 77.7 % - comes from energy taxes. The share of transport taxes is 19.1 %, and the share of taxes on pollution and resources is still very small in the EU (3.3 %).The 2018 value of the EU environmental taxes was around EUR 107 billion higher than in 2002 (Figure 3.10.1). Relative to GDP, its level has, however, slightly decreased (from 2.5 to 2.4 % of GDP). Over the same period, the share of the environmental taxes in taxes and social contributions dropped by 0.6 percentage points, from 6.6 % in 2002 to 6.0 % in 2018.

Still, the evolution of the environmental tax revenue relative to GDP and taxes and social contributions seems to have changed its pattern in 2008, and again in 2016. After five years of consecutive decrease, it started to increase in 2009 (presumably due to the economic recession and drop in both nominal GDP and government revenue, as a result of the financial crisis) and it remained relatively stable thereafter. Starting from 2016, the ratios have been slowly falling again.

Taxes on energy accounted for over half of the environmental tax revenue in all EU Member States in 2018, being by far the largest source of environmental taxes in Czechia, Romania, Luxembourg and Lithuania (with more than 90 %-share of the total environmental tax revenue) (Figure 3.10.2).

Transport taxes were the second-largest component of the environmental tax revenue for all EU Member States but Estonia and Lithuania. The contribution of transport taxes to the total was particularly high in Denmark and Malta.

Figure 3.10.2: Environmental tax revenue by category as share of taxes and social contributions and GDP, 2018
(%)



Source: Eurostat (online data codes: env_ac_tax)

Pollution and resource taxes account for a very small portion of the environmental tax revenue. They group a variety of taxes, levied e.g. on waste, water pollution and abstraction. In many European countries, such taxes were introduced later than energy or transport taxes and only marginal values of this category of taxes are reported up to now. As yet, no taxes of this category have been levied in Germany. The Netherlands, Hungary and Estonia stand out, recording shares of pollution and resource taxes that, albeit small, are larger than in other EU Member States.

EU households paid almost half (49 %) of all energy tax revenue collected in 2017 (data by tax payer becomes available later than data on the total tax revenue). The contribution of corporations, mainly from the services and manufacturing industries, was nearly identical (48 %). The remainder (3 %) relates to the amounts payable by non-residents or that could not be allocated to a specific group of payers (Figure 3.10.3).

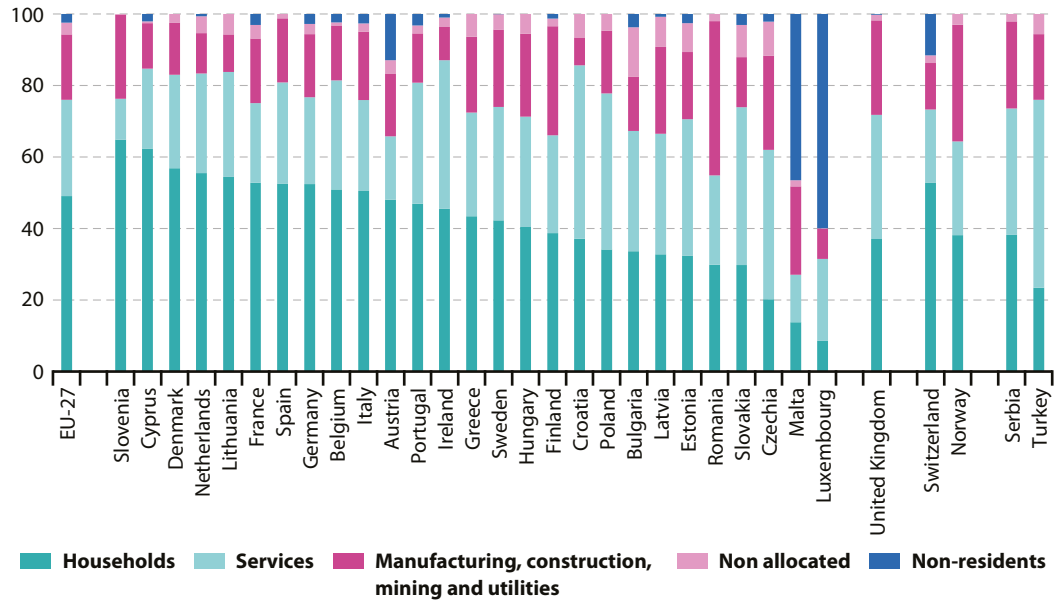
Among the EU Member States, Luxembourg stands out with the largest share of the energy tax revenue (60 %) collected from non-residents, largely due to non-resident purchases of petrol and diesel. In Malta, this share is also substantial (47 %).

Households paid over 60 % of total energy taxes in Slovenia (65 %) and Cyprus.

On average, transport taxes paid by households in the EU accounted in 2017 for a larger share (67 %) than those paid by corporations (33 %) (Figure 3.10.4). This is because households are the main payer of motor vehicle taxes (an important component of transport tax revenue in the EU).

However, in some Member States the structure of transport tax revenue by payer differs considerably from the EU average, e.g. households contribute only marginally to transport tax revenue in Slovakia and in Czechia (both below 1 %).

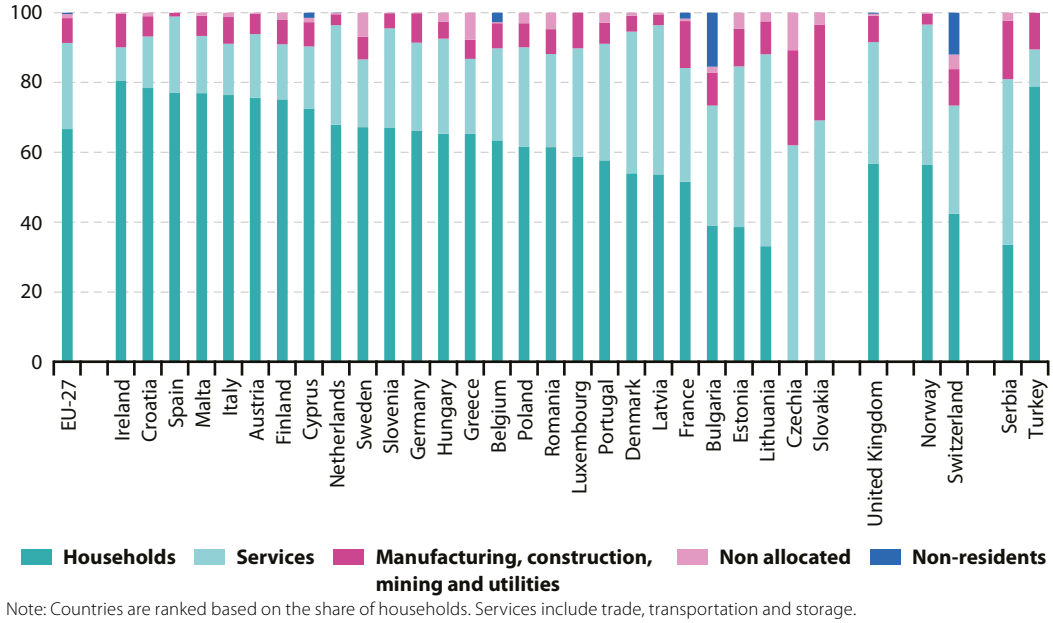
Figure 3.10.3: Energy taxes by economic activity, 2017
(% of energy tax revenue)



Note: Countries are ranked based on the share of households. Services include trade, transportation and storage.

Source: Eurostat (online data code: env_ac_taxind2)

Figure 3.10.4: Transport taxes by economic activity, 2017
(% of transport tax revenue)

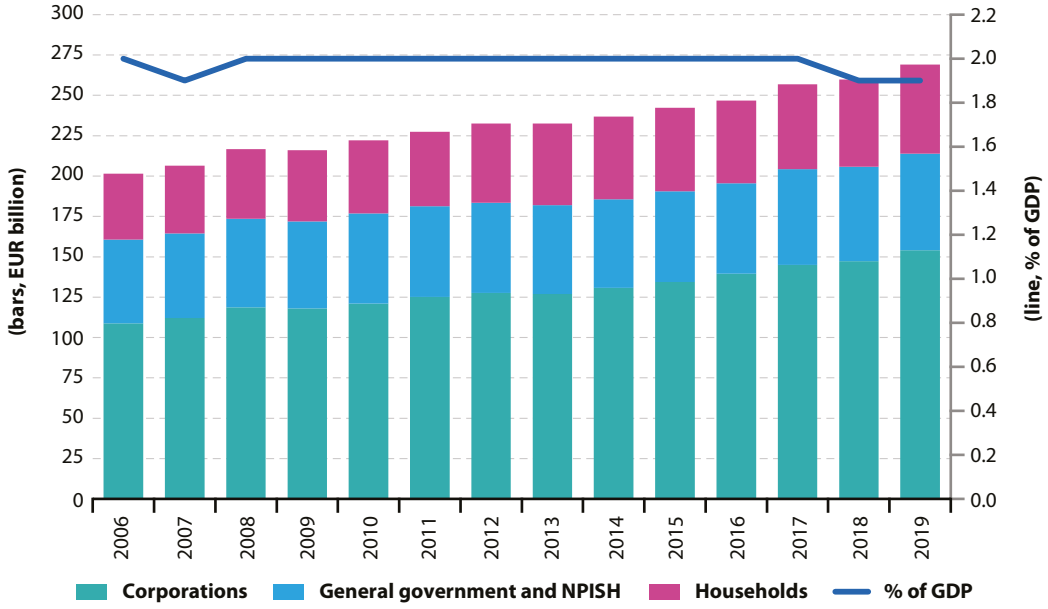


Note: Countries are ranked based on the share of households. Services include trade, transportation and storage.

Source: Eurostat (online data code: env_ac_taxind2)

3.11 Environmental protection expenditure

Figure 3.11.1: National expenditure on environmental protection by institutional sector, EU-27, 2006–2019
(EUR billion and % of GDP)



Note: Data are estimated by Eurostat. NPISH: non-profit institutions serving households.

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

Environmental protection expenditure accounts (EPEA) trace and measure society's response to environmental pollution and degradation, and how it is financed.

EPEA's key aggregate is National expenditure on environmental protection ('NEEP'). NEEP([1]) measures the resources devoted by resident units to protect the natural environment.

All activities undertaken for the purpose of resource management, such as production of energy from renewable sources, energy efficiency, forest management, fall outside the scope of EPEA, and related expenditure is not included in NEEP. For information on GVA and employment in the whole of the environmental goods and services sector, see chapter 3.9 - Environmental goods and services.

In 2019, the EU national expenditure on environmental protection amounted to EUR 269 billion. It was by one third (34 %) larger than in 2006, the first year for which Eurostat's NEEP estimates are available for the EU (see Figure 3.11.1, left-hand scale).

NEEP's evolution closely follows a trend of GDP. Therefore, the EU NEEP-to-GDP ratio has remained relatively stable for the recent fourteen years (see Figure 3.11.1, right-hand scale). Only in 2007, as well as more recently, in 2018 and 2019, the ratio slightly (by up to one percentage point) fell below 2 %.

([1]) Apart from the current spending on environmental protection (EP) services (e.g., waste and wastewater management, biodiversity protection, supporting activities such as education, administration and consulting), NEEP covers investments of producers of EP services, and net cross-border transfers (to finance EP activities abroad).

NEEP measures expenditure of households, corporations and of government and non-profit institutions on waste (water) collection and treatment as well as on other environmental protection services, such as protection of biodiversity, air and climate and protection of soil and water. It also covers investments undertaken by private corporations and public bodies to construct waste (water) treatment plants or other installations or infrastructure, and to purchase the equipment essential to provide the environmental protection services. Apart from that, NEEP includes investments and costs incurred by corporations to make their production process less environmentally harmful (e.g. spending of a refinery or a water supply company undertaken to treat its own exhaust gases or effluents).

The corporations sector accounts for over a half (57% in 2019) of the EU environmental protection expenditure. Contributions of the government and non-profit sector and of households to NEEP are more than two times smaller, at 22 and 21 % of the 2019 total, respectively. The share of the corporations sector has slightly grown (by three percentage points) since 2006, further increasing its importance relative to the government and NPISH sector.

The European Green Deal points to investment as one of key levers for implementation of the EU's climate and natural environment-related policies. EPEA provides information on a portion of the investments essential to maintain and expand society's capacity to prevent, contain and clean-up pollution, irrespective of the environmental pressures involved (waste, GHG, radiation) and environmental assets under risk (air, water, land). The environmental protection investments are part of NEEP. They cover investment expenditure of government and NPISH, as well as of specialised NACE industries (mainly the ones in charge of waste (water) collection and treatment), and of all other private corporations that make efforts to reduce the environmental harm caused by their economic activities. In this context, the investments support the transition process towards a more environmentally sustainable EU economy.

Between 2006 and 2019, investments for environmental protection decreased in the EU by 13 %. The trend observed for environmental protection investments is quite different from the one observed for total investments in the economy, notably for some specific years (e.g., in 2006, 2009 and 2016).

In 2009, the financial crisis appears to have hit the total investments in the economy much stronger than the environmental protection investments. The latter, however, continued to decrease in most of the subsequent years, once the non-environmental protection investments had already recovered and, consequently, the total investments remained stable or started to rise.

In 2019, the EU invested EUR 51 billion into assets essential to provide environmental protection services, e.g. wastewater treatment plants, vehicles to transport waste, acquisitions of land to create a natural reserve, or cleaner equipment for producing with less polluting emissions.

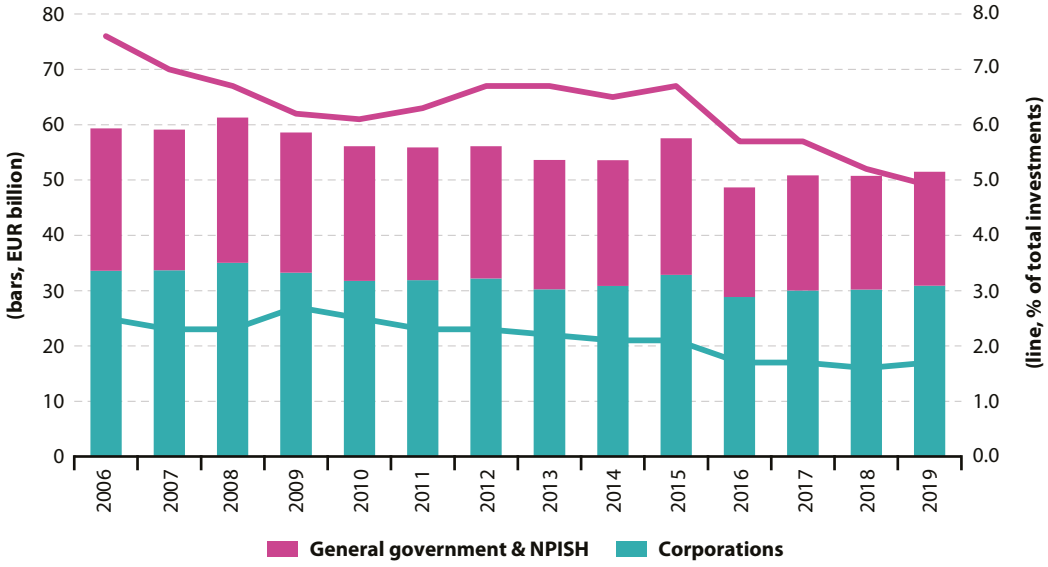
About EUR 31 billion (60 % of total environmental protection investments) was spent by corporations, both the specialist providers of environmental protection services (i.e., private companies dealing with waste collection and processing and with sewerage) and corporations other than specialist producers, which purchase technologies and equipment reducing the environmental pressures arising from their production process (e.g. equipment reducing their air emissions). General government and NPISH accounted (with EUR 21 billion spent in 2019) for the remaining share (40 %) of environmental protection investments (Figure 3.11.2, left-hand scale).

The share of environmental protection investments in total investments of corporations is relatively low. In 2019, it amounted to 1.7 %, having decreased by 1.0 percentage point since 2006. The equivalent share for general government amounted to 4.9 % in 2019, having decreased by 2.7 percentage points since 2006 (Figure 3.11.2, right-hand scale).

The manufacturing sector's investments accounted for the largest share (41 % in 2019) of the total EPEA investments to prevent and/or limit the environmental harm arising from existing production technologies.

Investments of utility companies accounted for ca 26 % of the total, with the contribution of the electricity, gas, steam and air conditioning supply sector at 18 % and the contribution of water collection, treatment and supply sector at 8 % (see Figure 3.11.3).

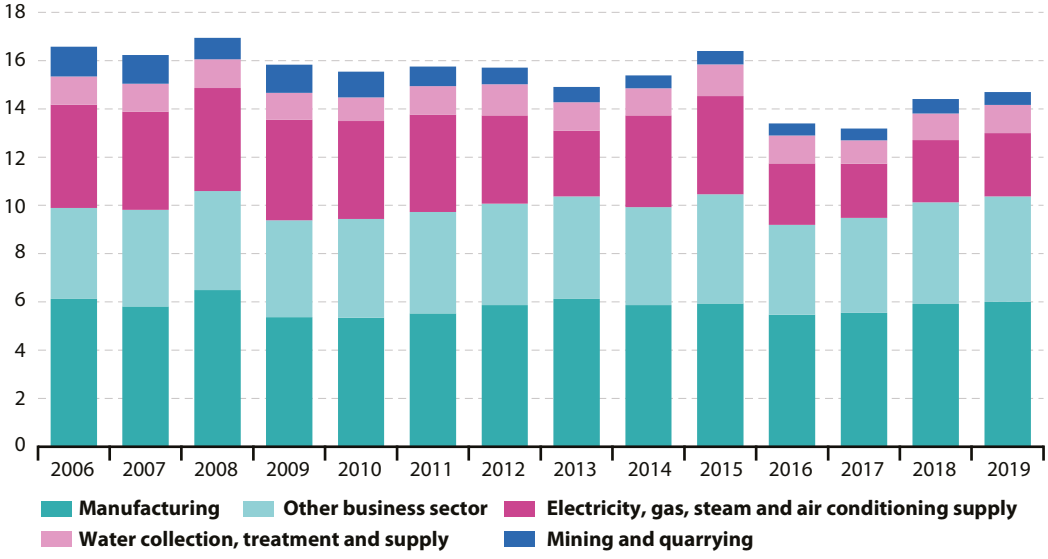
Figure 3.11.2: Investments for environmental protection by institutional sector, EU-27, 2006-2019
(EUR billion and % of a sector's total investments)



Note: Data are estimated by Eurostat. Total investments include, for each sector, gross fixed capital formation and acquisitions less disposals of non-financial non-produced assets. NPISH: non-profit institutions serving households.

Source: Eurostat (online data codes: env_ac_epigg, env_ac_epissp, env_ac_epiap and nasa_10_nf_tr)

Figure 3.11.3: Environmental protection investments by corporations other than specialist producers by economic activity, EU-27, 2006–2019
(EUR billion)



Note: Data are estimated by Eurostat.

Source: Eurostat (online data code: env_ac_epiap)

4 Indicators for EU-27 countries

EU-27

Key information

Gross Domestic Product	**2018**	13 498.3	EUR billion
Population	**2018**	446.1	million

Main indicators

Energy			
Share of energy from renewable sources in gross final consumption of energy	**2018**	*1.1*	difference to 2020 target (%)
Electricity generation from nuclear plants	**2018**	65.5	million tonnes of oil equivalent
Electricity prices for household consumers (1)	**2019S2**	0.22	EUR/kWh
Natural gas prices for household consumers (2)	**2019S2**	0.07	EUR/kWh
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	94.6	net imports/gross available energy (%)
Gross electricity generation from renewable sources	**2018**	32.2	share of gross electricity consumption (%)
Energy dependency on natural gas	**2018**	83.2	net imports/gross available energy (%)
Energy from renewable sources used in transport	**2018**	8.3	share of gross final energy consumption (%)
Primary production of renewables and biofuels	**2018**	217.3	million tonnes of oil equivalent

Transport			
Passenger cars	**2018**	*529*	number per thousand inhabitants
National railway passengers transport	**2018**	8 004	million
Air passenger transport	**2018**	996	million
Road freight transport	**2018**	*75.3*	share of total inland freight transport in tonne-kilometres (%)
Gross weight of seaborne freight handled in all ports	**2018**	3 579	million tonnes
Persons killed in railway accidents	**2018**	853	number
Persons killed in passenger cars accidents	**2018**	*10 485*	number

Environment			
Greenhouse gas emissions (3)	**2018**	*8.7p*	tonnes of CO_2 equivalent per capita
Resource productivity (4)	**2019**	*136.5p*	index 2000 = 100
Plastic packaging waste generated	**2017**	32.6	kilograms per capita
Plastic packaging waste recycled	**2017**	41.7	recycling rate (%)
Environmental tax revenue	**2018**	6.0	share of total revenue from taxes and social contributions (%)
Municipal waste generated	**2018**	*492*	kilograms per capita
Municipal waste recycled	**2018**	*47.4*	recycling rate (%)
National expenditure on environmental protection	**2017**	*2.0p*	share of gross domestic product (%)
Terrestrial protected area under Natura 2000	**2019**	18.5	share of total area (%)

(1) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

(2) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

(3) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

(4) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Belgium

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	459.5	EUR billion	3.4
Population	**2018**	11.4	million	2.6

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	3.6	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	2.5	million tonnes of oil equivalent	65.5
Electricity prices for household consumers (1)	**2019S2**	0.29	EUR/kWh	0.22
Natural gas prices for household consumers (2)	**2019S2**	0.06	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	100.7	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	18.9	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	100.6	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	6.6	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	3.4	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	511	number per thousand inhabitants	-
National railway passengers transport	**2018**	:c	million	:c
Air passenger transport	**2018**	35	million	2.7
Road freight transport	**2018**	*72.1*	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	270	million tonnes	7.5
Persons killed in railway accidents	**2018**	13	number	1.5
Persons killed in passenger cars accidents	**2018**	275	number	2.6

Environment				EU-27
Greenhouse gas emissions (3)	**2018**	10.8	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity (4)	**2019**	*165.5p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	30.4	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	44.5	recycling rate (%)	41.7
Environmental tax revenue	**2018**	6.0	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	411	kilograms per capita	*492*
Municipal waste recycled	**2018**	54.6	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	3.2	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	12.7	share of total area (%)	18.5

(1) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

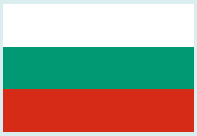
(2) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

(3) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

(4) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Bulgaria



Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	56.1	EUR billion	0.4
Population	**2018**	7.1	million	1.6

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-4.5	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	1.4	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.10	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.05	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	96.2	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	22.1	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	98.7	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	8.1	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	2.6	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	396	number per thousand inhabitants	-
National railway passengers transport	**2018**	21	million	0.3
Air passenger transport	**2018**	12	million	0.9
Road freight transport	**2018**	56.2	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	28	million tonnes	0.8
Persons killed in railway accidents	**2018**	18	number	2.1
Persons killed in passenger cars accidents	**2018**	341	number	3.3

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	8.3	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*134.9p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	17.0	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	64.8	recycling rate (%)	41.7
Environmental tax revenue	**2018**	9.8	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	407	kilograms per capita	*492*
Municipal waste recycled	**2018**	31.5	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.5	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	34.9	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Czechia

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	210.9	EUR billion	1.6
Population	**2018**	10.6	million	2.4

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-2.1	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	2.6	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.18	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.06	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	99.5	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	13.7	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	96.8	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	6.5	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	4.6	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	540	number per thousand inhabitants	-
National railway passengers transport	**2018**	183	million	2.3
Air passenger transport	**2018**	18	million	1.4
Road freight transport	**2018**	72.4	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	-	million tonnes	-
Persons killed in railway accidents	**2018**	28	number	3.3
Persons killed in passenger cars accidents	**2018**	333	number	3.2

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	12.2	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*176.0p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	23.5	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	58.9	recycling rate (%)	41.7
Environmental tax revenue	**2018**	6.0	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	351	kilograms per capita	*492*
Municipal waste recycled	**2018**	34.5	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	2.7	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	14.1	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Denmark

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	301.3	EUR billion	2.2
Population	**2018**	5.8	million	1.3

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-5.7	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.29	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.08	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	19.2	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	62.4	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	-38.5	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	6.6	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	4.1	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	447	number per thousand inhabitants	-
National railway passengers transport	**2018**	192	million	2.4
Air passenger transport	**2018**	35	million	2.7
Road freight transport	**2018**	88.2	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	96	million tonnes	2.7
Persons killed in railway accidents	**2018**	6	number	0.7
Persons killed in passenger cars accidents	**2018**	65	number	0.6

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	8.9	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*123.3p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	34.8	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	41.8	recycling rate (%)	41.7
Environmental tax revenue	**2018**	8.1	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	814	kilograms per capita	*492*
Municipal waste recycled	**2018**	49.9	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	2.1	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	8.3	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Germany

Key information				Share of EU-27 total (%)
Gross Domestic Product	2018	3 356.4	EUR billion	24.9
Population	2018	82.8	million	18.6

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	2018	1.5	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	2018	6.5	million tonnes of oil equivalent	65.5
Electricity prices for household consumers (1)	2019S2	0.29	EUR/kWh	0.22
Natural gas prices for household consumers (2)	2019S2	0.06	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	2018	95.5	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	2018	38.0	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	2018	95.9	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	2018	7.9	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	2018	43.0	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	2018	567	number per thousand inhabitants	-
National railway passengers transport	2018	2 865	million	35.8
Air passenger transport	2018	222	million	17.0
Road freight transport	2018	72.8	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	2018	296	million tonnes	8.3
Persons killed in railway accidents	2018	128	number	15.0
Persons killed in passenger cars accidents	2018	1 424	number	13.6

Environment				EU-27
Greenhouse gas emissions (3)	2018	10.7	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity (4)	2019	*150.4p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	2017	38.5	kilograms per capita	32.6
Plastic packaging waste recycled	2017	49.7	recycling rate (%)	41.7
Environmental tax revenue	2018	4.5	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	2018	*615*	kilograms per capita	*492*
Municipal waste recycled	2018	*67.3*	recycling rate (%)	*47.4*
National expenditure on environmental protection	2017	*2.2p*	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	2019	15.4	share of total area (%)	18.5

(1) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

(2) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

(3) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

(4) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Estonia

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	26.0	EUR billion	0.2
Population	**2018**	1.3	million	0.3

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-5.0	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.14	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.04	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	84.3	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	19.7	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	100.0	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	3.3	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	1.7	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	563	number per thousand inhabitants	-
National railway passengers transport	**2018**	8	million	0.1
Air passenger transport	**2018**	3	million	0.2
Road freight transport	**2018**	53.8	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	36	million tonnes	1.0
Persons killed in railway accidents	**2018**	5	number	0.6
Persons killed in passenger cars accidents	**2018**	21	number	0.2

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	15.3	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*105.0p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	50.0	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	26.5	recycling rate (%)	41.7
Environmental tax revenue	**2018**	8.3	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	405	kilograms per capita	*492*
Municipal waste recycled	**2018**	28.0	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	2.3	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	17.9	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Ireland

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	327.0	EUR billion	2.4
Population	**2018**	4.8	million	1.1

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	4.9	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.25	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.08	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	98.0	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	33.2	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	38.8	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	7.2	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	1.3	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	445	number per thousand inhabitants	-
National railway passengers transport	**2018**	48	million	0.6
Air passenger transport	**2018**	36	million	2.8
Road freight transport	**2018**	99.2	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	54	million tonnes	1.5
Persons killed in railway accidents	**2018**	0	number	0.0
Persons killed in passenger cars accidents	**2016**	106	number	1.0

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	*13.2*	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*250.4p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	58.4	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	33.8	recycling rate (%)	41.7
Environmental tax revenue	**2018**	6.9	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2017**	576	kilograms per capita	*492*
Municipal waste recycled	**2017**	40.4	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2016**	0.6	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	13.2	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Greece

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	184.7	EUR billion	1.4
Population	**2018**	10.7	million	2.4

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	*0.0*	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.16	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.06	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	97.9	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	26.0	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	100.7	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	3.8	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	3.0	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2017**	487	number per thousand inhabitants	-
National railway passengers transport	**2018**	17	million	0.2
Air passenger transport	**2018**	54	million	4.1
Road freight transport	**2018**	97.9	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	191	million tonnes	5.3
Persons killed in railway accidents	**2018**	17	number	2.0
Persons killed in passenger cars accidents	**2018**	267	number	2.5

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	9.0	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*150.1p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	17.5	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	41.4	recycling rate (%)	41.7
Environmental tax revenue	**2018**	9.5	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2017**	504	kilograms per capita	*492*
Municipal waste recycled	**2017**	18.9	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	*1.3p*	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	27.3	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Spain

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	1 202.2	EUR billion	8.9
Population	**2018**	46.7	million	10.5

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	2.5	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	4.8	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.24	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.10	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	99.0	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	35.2	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	101.4	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	6.9	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	18.8	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	513	number per thousand inhabitants	-
National railway passengers transport	**2018**	595	million	7.4
Air passenger transport	**2018**	221	million	17.0
Road freight transport	**2018**	95.0	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	498	million tonnes	13.9
Persons killed in railway accidents	**2018**	16	number	1.9
Persons killed in passenger cars accidents	**2018**	732	number	7.0

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	7.5	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*227.1p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	34.5	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	47.9	recycling rate (%)	41.7
Environmental tax revenue	**2018**	5.3	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	*475*	kilograms per capita	*492*
Municipal waste recycled	**2018**	*36.0*	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.5	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	27.3	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

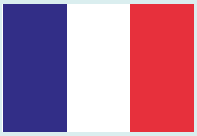
([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

France



Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	2 360.7	EUR billion	17.5
Population	**2018**	66.9	million	15.0

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	6.4	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	35.5	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.19	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.08	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	97.7	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	21.2	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	104.7	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	9.0	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	27.6	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	478	number per thousand inhabitants	-
National railway passengers transport	**2018**	1 207	million	15.1
Air passenger transport	**2018**	162	million	12.4
Road freight transport	**2018**	87.8	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	309	million tonnes	8.6
Persons killed in railway accidents	**2018**	58	number	6.8
Persons killed in passenger cars accidents	**2018**	1 637	number	15.6

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	6.9p	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*146.3p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	34.8	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	26.5	recycling rate (%)	41.7
Environmental tax revenue	**2018**	5.1	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	*527*	kilograms per capita	*492*
Municipal waste recycled	**2018**	*44.0*	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.9	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	12.9	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Croatia

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	51.6	EUR billion	0.4
Population	**2018**	4.1	million	0.9

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-8.0	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.13	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.04	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	82.1	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	48.1	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	53.3	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	3.9	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	2.4	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	409	number per thousand inhabitants	-
National railway passengers transport	**2018**	20	million	0.2
Air passenger transport	**2018**	10	million	0.8
Road freight transport	**2018**	73.6	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	22	million tonnes	0.6
Persons killed in railway accidents	**2018**	18	number	2.1
Persons killed in passenger cars accidents	**2018**	154	number	1.5

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	6.0	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*104.6p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	14.7	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	37.3	recycling rate (%)	41.7
Environmental tax revenue	**2018**	9.3	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	432	kilograms per capita	*492*
Municipal waste recycled	**2018**	25.3	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	2.4	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	36.7	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Italy

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	1 766.2	EUR billion	13.1
Population	**2018**	60.5	million	13.6

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-0.8	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.23	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.09	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	89.8	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	33.9	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	92.9	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	7.7	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	26.7	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	649	number per thousand inhabitants	-
National railway passengers transport	**2018**	864	million	10.8
Air passenger transport	**2018**	153	million	11.7
Road freight transport	**2018**	86.8	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	502	million tonnes	14.0
Persons killed in railway accidents	**2018**	73	number	8.6
Persons killed in passenger cars accidents	**2018**	1 423	number	13.6

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	7.3	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*159.5p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	37.5	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	41.8	recycling rate (%)	41.7
Environmental tax revenue	**2018**	7.8	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	499	kilograms per capita	*492*
Municipal waste recycled	**2018**	49.8	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.7	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	19.0	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Cyprus

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	21.1	EUR billion	0.2
Population	**2018**	0.9	million	0.2

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-0.9	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.22	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	-	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	99.2	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	9.4	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	-	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	2.7	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	0.2	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	629	number per thousand inhabitants	-
National railway passengers transport	**2018**	-	million	-
Air passenger transport	**2018**	11	million	0.8
Road freight transport	**2018**	100.0	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	7	million tonnes	0.2
Persons killed in railway accidents	**2018**	-	number	-
Persons killed in passenger cars accidents	**2018**	15	number	0.1

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	11.3	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*154.3p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	20.5	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	65.0	recycling rate (%)	41.7
Environmental tax revenue	**2018**	8.3	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2017**	637	kilograms per capita	*492*
Municipal waste recycled	**2017**	*16.1*	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.5	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	29.1	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Latvia

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	29.1	EUR billion	0.2
Population	**2018**	1.9	million	0.4

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-0.3	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.16	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.04	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	98.1	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	53.5	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	98.8	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	4.7	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	2.9	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	369	number per thousand inhabitants	-
National railway passengers transport	**2018**	18	million	0.2
Air passenger transport	**2018**	7	million	0.5
Road freight transport	**2018**	24.2	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	63	million tonnes	1.8
Persons killed in railway accidents	**2018**	12	number	1.4
Persons killed in passenger cars accidents	**2018**	70	number	0.7

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	6.3	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*112.7p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	20.3	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	36.6	recycling rate (%)	41.7
Environmental tax revenue	**2018**	10.9	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	407	kilograms per capita	*492*
Municipal waste recycled	**2018**	25.2	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.6	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	11.5	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Lithuania

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	45.3	EUR billion	0.3
Population	**2018**	2.8	million	0.6

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-1.4	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.13	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.04	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	98.4	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	18.4	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	98.9	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	4.3	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	1.6	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	512	number per thousand inhabitants	-
National railway passengers transport	**2018**	4	million	0.0
Air passenger transport	**2018**	6	million	0.5
Road freight transport	**2018**	32.1	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	52	million tonnes	1.5
Persons killed in railway accidents	**2018**	12	number	1.4
Persons killed in passenger cars accidents	**2015**	115	number	1.1

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	7.4	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*117.7p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	24.3	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	74.2	recycling rate (%)	41.7
Environmental tax revenue	**2018**	6.6	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	464	kilograms per capita	*492*
Municipal waste recycled	**2018**	52.5	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.3	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	12.5	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Luxembourg

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	60.1	EUR billion	0.4
Population	**2018**	0.6	million	0.1

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	1.9	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.18	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.04	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	99.7	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	9.1	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	100.0	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	6.5	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	0.2	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	676	number per thousand inhabitants	-
National railway passengers transport	**2018**	17	million	0.2
Air passenger transport	**2018**	4	million	0.3
Road freight transport	**2018**	84.3	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	-	million tonnes	-
Persons killed in railway accidents	**2018**	2	number	0.2
Persons killed in passenger cars accidents	**2018**	19	number	0.2

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	20.3	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*140.8p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	48.4	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	33.4	recycling rate (%)	41.7
Environmental tax revenue	**2018**	4.4	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	*610*	kilograms per capita	*492*
Municipal waste recycled	**2018**	*50.1*	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.0	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	27.1	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Hungary

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	133.8	EUR billion	1.0
Population	**2018**	9.8	million	2.2

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	0.5	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	1.4	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.11	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.03	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	85.9	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	8.3	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	77.9	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	7.7	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	3.0	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	373	number per thousand inhabitants	-
National railway passengers transport	**2018**	:c	million	:c
Air passenger transport	**2018**	15	million	1.2
Road freight transport	**2018**	68.9	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	-	million tonnes	-
Persons killed in railway accidents	**2018**	93	number	10.9
Persons killed in passenger cars accidents	**2018**	291	number	2.8

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	6.6	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*111.0p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	32.2	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	32.0	recycling rate (%)	41.7
Environmental tax revenue	**2018**	6.3	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	381	kilograms per capita	*492*
Municipal waste recycled	**2018**	37.4	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.9	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	21.4	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

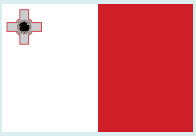
([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Malta



Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	12.4	EUR billion	0.1
Population	**2018**	0.5	million	0.1

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	2.0	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.13	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	-	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	97.4	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	7.7	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	109.5	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	8.0	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	0.0	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	608	number per thousand inhabitants	-
National railway passengers transport	**2018**	-	million	-
Air passenger transport	**2018**	7	million	0.5
Road freight transport	**2018**	100.0	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	5	million tonnes	0.1
Persons killed in railway accidents	**2018**	-	number	-
Persons killed in passenger cars accidents	**2018**	5	number	0.0

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	5.5	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*116.9p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	28.4	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	19.2	recycling rate (%)	41.7
Environmental tax revenue	**2018**	8.2	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	640	kilograms per capita	*492*
Municipal waste recycled	**2018**	6.5	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.5	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	13.3	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Netherlands

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	774.0	EUR billion	5.7
Population	**2018**	17.2	million	3.9

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	6.6	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.3	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.21	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.10	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	93.9	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	15.1	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	15.0	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	9.6	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	5.7	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	494	number per thousand inhabitants	-
National railway passengers transport	**2018**	:c	million	:c
Air passenger transport	**2018**	80	million	6.1
Road freight transport	**2018**	50.4	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	605	million tonnes	16.9
Persons killed in railway accidents	**2018**	16	number	1.9
Persons killed in passenger cars accidents	**2018**	245	number	2.3

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	11.6	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*157.9p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	29.9	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	50.4	recycling rate (%)	41.7
Environmental tax revenue	**2018**	8.6	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	511	kilograms per capita	*492*
Municipal waste recycled	**2018**	55.9	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	2.5	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	14.8	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Austria

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	385.7	EUR billion	2.9
Population	**2018**	8.8	million	2.0

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	0.6	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.21	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.07	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	94.0	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	73.1	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	87.8	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	9.8	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	9.8	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	562	number per thousand inhabitants	-
National railway passengers transport	**2018**	263	million	3.3
Air passenger transport	**2018**	31	million	2.4
Road freight transport	**2018**	66.3	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	-	million tonnes	-
Persons killed in railway accidents	**2018**	16	number	1.9
Persons killed in passenger cars accidents	**2018**	181	number	1.7

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	9.2	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*125.8p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	34.4	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	33.4	recycling rate (%)	41.7
Environmental tax revenue	**2018**	5.4	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	579	kilograms per capita	*492*
Municipal waste recycled	**2018**	57.7	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	3.2	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	15.4	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Poland

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	497.6	EUR billion	3.7
Population	**2018**	38.0	million	8.5

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	3.7	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.14	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.05	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	98.7	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	13.0	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	77.6	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	5.6	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	8.9	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	617	number per thousand inhabitants	-
National railway passengers transport	**2018**	297	million	3.7
Air passenger transport	**2018**	44	million	3.4
Road freight transport	**2018**	73.1	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	92	million tonnes	2.6
Persons killed in railway accidents	**2018**	195	number	22.9
Persons killed in passenger cars accidents	**2017**	1 295	number	12.4

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	11.0	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*155.5p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	27.4	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	34.7	recycling rate (%)	41.7
Environmental tax revenue	**2018**	7.7	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	329	kilograms per capita	*492*
Municipal waste recycled	**2018**	34.3	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.9p	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	19.6	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Portugal

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	204.3	EUR billion	1.5
Population	**2018**	10.3	million	2.3

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	0.7	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.22	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.08	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	104.2	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	52.2	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	101.1	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	9.0	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	6.4	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	514	number per thousand inhabitants	-
National railway passengers transport	**2018**	147	million	1.8
Air passenger transport	**2018**	51	million	3.9
Road freight transport	**2018**	85.8	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	90	million tonnes	2.5
Persons killed in railway accidents	**2018**	18	number	2.1
Persons killed in passenger cars accidents	**2017**	204	number	1.9

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	7.0	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*128.5p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	38.9	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	34.9	recycling rate (%)	41.7
Environmental tax revenue	**2018**	7.4	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	508	kilograms per capita	*492*
Municipal waste recycled	**2018**	28.9	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.4	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	20.6	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Romania

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	204.6	EUR billion	1.5
Population	**2018**	19.5	million	4.4

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	0.1	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	1.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.14	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.03	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	63.1	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	41.8	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	12.0	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	6.3	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	5.9	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	332	number per thousand inhabitants	-
National railway passengers transport	**2018**	65	million	0.8
Air passenger transport	**2018**	20	million	1.5
Road freight transport	**2018**	44.0	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	49	million tonnes	1.4
Persons killed in railway accidents	**2018**	60	number	7.0
Persons killed in passenger cars accidents	**2018**	737	number	7.0

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	6.0	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*77.7p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	18.4	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	47.6	recycling rate (%)	41.7
Environmental tax revenue	**2018**	8.0	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	272	kilograms per capita	*492*
Municipal waste recycled	**2018**	11.1	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2016**	1.2p	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	22.7	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

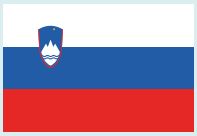
([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Slovenia



Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	45.8	EUR billion	0.3
Population	**2018**	2.1	million	0.5

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	3.9	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	0.5	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.17	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.06	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	99.2	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	32.3	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	98.1	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	5.5	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	1.1	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	549	number per thousand inhabitants	-
National railway passengers transport	**2018**	13	million	0.2
Air passenger transport	**2018**	2	million	0.2
Road freight transport	**2018**	64.7	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	23	million tonnes	0.6
Persons killed in railway accidents	**2018**	5	number	0.6
Persons killed in passenger cars accidents	**2018**	32	number	0.3

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	8.5	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*170.7p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	24.3	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	60.4	recycling rate (%)	41.7
Environmental tax revenue	**2018**	9.4	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	486	kilograms per capita	*492*
Municipal waste recycled	**2018**	58.9	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	2.0	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	37.9	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Slovakia

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	89.6	EUR billion	0.7
Population	**2018**	5.4	million	1.2

Main indicators

Energy				**EU-27**
Share of energy from renewable sources in gross final consumption of energy	**2018**	2.1	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	1.3	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.16	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.05	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	101.3	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	21.5	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	89.6	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	7.0	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	1.6	million tonnes of oil equivalent	217.3

Transport				**Share of EU-27 total (%)**
Passenger cars	**2018**	426	number per thousand inhabitants	-
National railway passengers transport	**2018**	74	million	0.9
Air passenger transport	**2018**	3	million	0.2
Road freight transport	**2018**	64.4	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	-	million tonnes	-
Persons killed in railway accidents	**2018**	30	number	3.5
Persons killed in passenger cars accidents	**2010**	171	number	1.6

Environment				**EU-27**
Greenhouse gas emissions ([3])	**2018**	8.0	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*157.7p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	22.8	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	52.4	recycling rate (%)	41.7
Environmental tax revenue	**2018**	7.3	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	414	kilograms per capita	*492*
Municipal waste recycled	**2018**	36.3	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.9p	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	29.8	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Finland

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	233.7	EUR billion	1.7
Population	**2018**	5.5	million	1.2

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-3.2	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	2.0	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.18	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	-	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	98.6	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	36.8	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	100.3	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	14.9	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	12.0	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	629	number per thousand inhabitants	-
National railway passengers transport	**2018**	87	million	1.1
Air passenger transport	**2018**	22	million	1.7
Road freight transport	**2018**	*70.7*	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	117	million tonnes	3.3
Persons killed in railway accidents	**2018**	5	number	0.6
Persons killed in passenger cars accidents	**2018**	146	number	1.4

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	10.7	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*127.0p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	23.7	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	26.5	recycling rate (%)	41.7
Environmental tax revenue	**2018**	6.9	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	551	kilograms per capita	*492*
Municipal waste recycled	**2018**	42.3	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.7	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	12.6	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Sweden

Key information

				Share of EU-27 total (%)
Gross Domestic Product	**2018**	470.7	EUR billion	3.5
Population	**2018**	10.1	million	2.3

Main indicators

Energy				EU-27
Share of energy from renewable sources in gross final consumption of energy	**2018**	-5.6	difference to 2020 target (%)	*1.1*
Electricity generation from nuclear plants	**2018**	5.9	million tonnes of oil equivalent	65.5
Electricity prices for household consumers ([1])	**2019S2**	0.21	EUR/kWh	0.22
Natural gas prices for household consumers ([2])	**2019S2**	0.12	EUR/kWh	0.07
Energy dependency on oil and petroleum products (excluding biofuels)	**2018**	94.1	net imports/gross available energy (%)	94.6
Gross electricity generation from renewable sources	**2018**	66.2	share of gross electricity consumption (%)	32.2
Energy dependency on natural gas	**2018**	100.0	net imports/gross available energy (%)	83.2
Energy from renewable sources used in transport	**2018**	29.7	share of gross final energy consumption (%)	8.3
Primary production of renewables and biofuels	**2018**	19.0	million tonnes of oil equivalent	217.3

Transport				Share of EU-27 total (%)
Passenger cars	**2018**	476	number per thousand inhabitants	-
National railway passengers transport	**2018**	235	million	2.9
Air passenger transport	**2018**	39	million	3.0
Road freight transport	**2018**	68.9	share of total inland freight transport in tonne-kilometres (%)	-
Gross weight of seaborne freight handled in all ports	**2018**	180	million tonnes	5.0
Persons killed in railway accidents	**2018**	9	number	1.1
Persons killed in passenger cars accidents	**2018**	181	number	1.7

Environment				EU-27
Greenhouse gas emissions ([3])	**2018**	5.4	tonnes of CO_2 equivalent per capita	*8.7p*
Resource productivity ([4])	**2019**	*106.2p*	index 2000 = 100	*136.5p*
Plastic packaging waste generated	**2017**	23.9	kilograms per capita	32.6
Plastic packaging waste recycled	**2017**	48.4	recycling rate (%)	41.7
Environmental tax revenue	**2018**	4.8	share of total revenue from taxes and social contributions (%)	6.0
Municipal waste generated	**2018**	434	kilograms per capita	*492*
Municipal waste recycled	**2018**	45.8	recycling rate (%)	*47.4*
National expenditure on environmental protection	**2017**	1.8	share of gross domestic product (%)	*2.0p*
Terrestrial area protected under Natura 2000	**2019**	12.4	share of total area (%)	18.5

([1]) For households with annual consumption between 2 500 kWh and 5 000 kWh; prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([2]) For households with annual consumption between 5 555 kWh and 55 555 kWh (20 - 200 GJ); prices include VAT and other taxes and levies; data for the 2nd semester of 2019.

([3]) The indicator does not include emissions and removals related to land use, land-use change and forestry (LULUCF) but does include emissions from international aviation.

([4]) Gross Domestic Product (GDP)/ Domestic Material Consumption (DMC), indexed to reference year 2000. Note: GDP in chain-linked volumes.

Source: Eurostat

Annexes

Annex 1A: Legislation and methodology used in the energy section

Eurostat collects data on energy quantities on an annual and monthly basis. The main legislation covering these data collections is Regulation (EC) No 1099/2008 of the European Parliament and of the Council of 22 October 2008 on energy statistics. Since its adoption, this Regulation was amended five times:

Commission Regulation (EU) No 844/2010 of 20 September 2010 amending Regulation (EC) No 1099/2008 of the European Parliament and of the Council on energy statistics, as regards the establishment of a set of annual nuclear statistics and the adaptation of the methodological references according to NACE Rev. 2

- Commission Regulation (EU) No 147/2013 of 13 February 2013 amending Regulation (EC) No 1099/2008 of the European Parliament and of the Council on energy statistics, as regards the implementation of updates for the monthly and annual energy statistics
- Commission Regulation (EU) No 431/2014 of 24 April 2014 amending Regulation (EC) No 1099/2008 of the European Parliament and of the Council on energy statistics, as regards the implementation of annual statistics on energy consumption in households
- Commission Regulation (EU) 2017/2010 of 9 November 2017 amending Regulation (EC) No 1099/2008 of the European Parliament and of the Council on energy statistics, as regards the updates for the annual and monthly energy statistics
- Commission Regulation (EU) 2019/2146 of 26 November 2019 amending Regulation (EC) No 1099/2008 of the European Parliament and of the Council on energy statistics, as regards the implementation of updates for the annual, monthly and short-term monthly energy statistics

Given the special focus on renewables, the data collection on renewable energies is also regulated by the Directive 2009/28/EC on the promotion of the use of energy from renewable sources as amended by Council Directive 2013/18/EU and Directive (EU) 2015/1513.

Eurostat also collects annual data on district cooling and district heating, as well as on combined heat and power generation, according to Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC.

In parallel, Eurostat collects data on prices of both electricity and natural gas, as described in the Regulation (EU) 2016/1952.

Eurostat collects also data on emergency oil stocks according to the Council Directive 2009/119/EC of 14 September 2009, imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products.

The energy sector is constantly evolving and its importance for Europe is increasing, a fact that is reflected in the Commission policies. Eurostat is in constant collaboration with the other directorates, in order to be able to understand the developing policy needs and provide additional data to support the definition, implementation and evaluation of Community decisions and projects.

The 'Clean energy for all Europeans' package, put into force in May 2019, is expected to increase the need for additional statistical evidence for policy making. This package includes the governance of the energy union and climate action (Regulation (EU) 2018/1999), which entered into force on 24 December 2018; one of the main goals of the new regulation is to implement strategies and measures which ensure that the objectives of the energy union, in particular the EU's 2030 energy and climate targets, and the long-term EU greenhouse gas emissions commitments are consistent with the Paris agreement. In parallel, the 'Clean energy for all Europeans' package

also includes the new amending Directive on energy efficiency (2018/2002) updating the policy framework in view of 2030 and beyond; the key element of the amended Directive is a headline energy efficiency target for 2030 of at least 32.5%.

Eurostat has developed a coherent and harmonised system of energy statistics, meeting the requirements of policymakers for Energy Union and energy efficiency monitoring; nevertheless it keeps collaborating with its counterparts in order to be able to amend the existing reporting according to the current and future needs.

Annex 1B: 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.

AMBIENT HEAT

Heat energy at a useful temperature level, extracted (captured) by means of heat pumps that need electricity or other auxiliary energy to function. This heat energy can be stored in the ambient air, beneath the surface of solid earth or in surface water.

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.

BROWN COAL AND DERIVED PRODUCTS

Brown coal and derived products include brown coal (sub-bituminous coal and lignite) and brown coal/lignite briquettes.

CHP

See 'Combined heat and power'.

COGENERATION

See 'Combined heat and power'.

COMBINED HEAT AND POWER

A combined heat and power (also referred to as a cogeneration or a CHP) unit is an installation in which heat energy released from fuel is transmitted to electrical generator sets which are designed and operated in such a way that energy is partly used for generating electrical energy and partly for supplying heat for various purposes.

The thermal efficiency of a combined heat and power unit is significantly higher than that of a unit producing electricity only.

ENERGY BALANCE SHEETS

The energy balance sheets expressed in specific units and in tonnes of oil equivalent, for the European Union as a whole, as well as for each EU Member State, Iceland, Norway, and all candidate countries can be found on the Eurostat website

http://ec.europa.eu/eurostat/web/energy/data/energy-balances.

ENERGY DEPENDENCY

Energy dependency shows the extent to which a country relies upon imports in order to meet its energy needs. It is calculated using the following formula: net energy imports/ (gross inland energy consumption + international maritime bunkers).

ENERGY INTENSITY

Energy intensity gives an indication of the effectiveness with which energy is being used to produce added value. It is defined as the ratio of Gross Inland Energy Consumption to Gross Domestic Product.

FINAL ENERGY CONSUMPTION

Final energy consumption is the energy consumed in the following sectors: industry, transport, commercial and public services, agriculture/forestry, fishing, residential and other. It excludes the non-energy consumption, deliveries to the energy transformation sector and for the own use of the energy sector.

GCV

See 'Gross calorific value'.

GROSS CALORIFIC VALUE

The gross calorific value (GCV) is the total amount of heat released by a unit quantity of fuel, when it is burned completely with oxygen, and when the products of combustion are returned to ambient temperature. This quantity includes the heat of condensation of any water vapour contained in the fuel and of the water vapour formed by the combustion of any hydrogen contained in the fuel.

GROSS INLAND CONSUMPTION

Gross inland consumption (also referred to as Gross Inland Energy Consumption) is the quantity of energy consumed within the borders of a country. It is calculated using the following formula: primary production + recovered products + imports + stock changes - exports - bunkers (i.e. quantities supplied to seagoing ships).

HARD COAL AND DERIVED PRODUCTS

Hard coal and derived products include hard coal (anthracite, coking coal, other 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.

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 IMPORTS

Net imports 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, brown coal: 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.
- Peat, oil shale and oil sands: Quantities of fuels extracted or produced within national boundaries.

- 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.
- Ambient heat – See 'Ambient heat'.
- 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 sources include wind power, solar power (thermal, photovoltaic and concentrated), hydro power, tidal power, geothermal energy, biofuels, ambient heat, and the renewable part of waste.

TOE

See 'Tonne of oil equivalent'

TONNE OF OIL EQUIVALENT

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/kilogramme.

Annex 2A: Legislation and methodology used in the transport section

The main terms used in the field of transport statistics are defined in the 'Eurostat concepts and definitions database' (RAMON) accessible on the Eurostat website under https://ec.europa.eu/eurostat/ramon/

Further clarification of the terms used in transport statistics can be found in the Eurostat/ITF/UNECE 'Glossary for Transport Statistics' publication, available at https://ec.europa.eu/eurostat/web/transport/publications and in the glossary of Statistics Explained under https://ec.europa.eu/eurostat/statistics-explained/index.php/Category:Transport_glossary

All online publications on transport can be found on the Eurostat website: http://europa.eu/!uK78nB.

The indicators presented in the transport section of this statistical book represent a small part of the very detailed data collected by Eurostat in the framework of legal acts and voluntary data agreements. According to a commonly agreed breakdown, the indicators are presented on the one hand by domains of interest (equipment, vehicle-kilometres, quantity and performance for the transport of freight and passengers, safety) and on the other hand, by modes of transport (rail, road, inland waterways, 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.

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 (EU) No 2018/643 of the European Parliament and of the Council of 18 April 2018 on rail transport statistics (OJ L 112 of 2.5.2018)
- Road: Regulation (EU) No 70/2012 of the European Parliament and of the Council on statistical returns in respect of the carriage of goods by road (recast) (O.J. L 32 of 3.2.2012)
- Inland waterways: Regulation (EU) 2018/974 of the European Parliament and of the Council on statistics of goods transport by inland waterways (codification) (O.J. L 179 of 16.7.2018)
- 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 (recast) (O.J. L 141 of 6.6.2009)
- Aviation: Regulation (EC) No 437/2003 of the European Parliament and of the Council of 27 February 2003 on statistical returns in respect of the carriage of passengers, freight and mail by air (O.J. L 66 of 11.3.2003) and the subsequent implementing Commission Regulation 1358/2003 (O.J. L 194/9 of 1.8.2003).
- 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 data collection for regional transport, passenger mobility and road traffic.

Annex 2B: Glossary of terms used in the transport section

RAILWAY VEHICLE

Mobile equipment running exclusively on rails, moving either under its own power (tractive vehicles) or hauled by another vehicle (coaches, railcar trailers, vans and wagons).

PASSENGER RAILWAY VEHICLE

Railway vehicle for the conveyance of passengers, even if it comprises one or more compartments with spaces specially reserved for luggage, parcels, mail, etc.

These vehicles include special vehicles such as sleeping cars, saloon cars, dining cars, ambulance cars and vans carrying accompanied road passenger vehicles. Each separate vehicle of an indivisible set for the conveyance of passengers is counted as a passenger railway vehicle. Included are railcars if they are designed for passenger transport.

PASSENGER CAR

Road motor vehicle, other than a moped or a motor cycle intended for the carriage of passengers and designed to seat no more than nine persons (including the driver). Refers to category M1 of the UN Consolidated Resolution on the Construction of Vehicles (R.E.3).

LORRY/TRUCK

Rigid road motor vehicle designed, exclusively or primarily, to carry goods.

ROAD TRACTOR (SEMI-TRAILER TRACTOR)

Road motor vehicle designed, exclusively or primarily, to haul other road vehicles which are not power-driven (mainly semi-trailers).

TRAILER

Goods road vehicle designed to be hauled by a road motor vehicle. With semi-trailers, refers to category O of the UN Consolidated Resolution on the Construction of Vehicles (R.E.3).

This category excludes agricultural trailers and caravans.

SEMI-TRAILER

Goods road vehicle with no front axle designed in such way that part of the vehicle and a substantial part of its loaded weight rests on a road tractor. With trailers, refers to category O of the UN Consolidated Resolution on the Construction of Vehicles (R.E.3).

ALTERNATIVE FUELS

A type of motor energy other than the conventional fuels, petrol and diesel.

Alternative fuels include electricity, LPG, natural gas (LNG or CNG), alcohols, mixtures of alcohols with other fuels, hydrogen, biofuels (such as biodiesel), etc. (This list is not exhaustive.) Alternative fuels do not include unleaded petrol, reformulated petrol or city (low-sulphur) diesel.

INLAND WATERWAYS VESSEL

A floating craft designed for the carriage of goods, public transport of passengers or specially fitted out for a specific commercial duty which navigates predominantly in navigable inland waterways or in waters within, or closely adjacent to sheltered waters or areas where port regulations apply.

Vessels under repair are included.

RAILWAY TRANSPORT OPERATOR/RAILWAY UNDERTAKING

A licensed public or private transport operator which provides services for the transport of goods and/or passengers by rail.

NATIONAL ROAD TRANSPORT

Road transport between two places (a place of loading/embarkation and a place of unloading/disembarkation) located in the same country irrespective of the country in which the road motor vehicle is registered. It may involve transit through a second country.

ROAD CABOTAGE TRANSPORT

Road transport within a country other than the registration country, performed by a road motor vehicle registered in the reporting country.

INTERNATIONAL ROAD TRANSPORT

Road transport between a place of loading/ embarkation or unloading/disembarkation in the declaring country and a place of loading/ embarkation or unloading/disembarkation in another country.

Such transport may involve transit through one or more additional countries.

CROSS-TRADE ROAD TRANSPORT

Road transport performed by a road motor vehicle registered in one country between a place of loading/ embarkation in a second country and a place of unloading/disembarkation in a third country.

Such transport may involve transit through one or more additional countries.

TONNE-KILOMETRE

Unit of measurement of goods transport which represents the transport of one tonne of goods over a distance of one kilometre.

PASSENGER-KILOMETRE

Unit of measurement representing the transport of one passenger over a distance of one kilometre.

VEHICLE-KILOMETRE

Unit of measurement representing the movement of a road vehicle over one kilometre.

NAVIGABLE INLAND WATERWAY

A stretch of water, not part of the sea, which by natural or man-made features is suitable for navigation, primarily by inland waterway vessels. This term covers navigable rivers, lakes, canals and estuaries.

GROSS WEIGHT OF GOODS

The total weight of goods carried, including packaging but excluding the tare weight of transport units (e.g. containers, swap bodies and pallets for containing goods).

(This concept is used for maritime transport; the definition of 'weight of goods' for each mode is provided in the related legal act.)

SIGNIFICANT RAILWAY ACCIDENT

Any accident involving at least one rail vehicle in motion, resulting in at least one killed or seriously injured person, or in significant damage to stock, track, other installations or environment, or extensive disruptions to traffic. Accidents in workshops, warehouses and depots are excluded. This definition is used by the UIC (Union Internationale des Chemins de Fer).

PERSON KILLED

Any person dying immediately or within 30 days as a result of an injury accident, excluding suicides.

Annex 3: Legislation, methodology and glossary of terms used in the environment section

The Environment chapter includes indicators on greenhouse gas emissions, material flow accounts (MFA), circular economy, waste generation and treatment, waste resources, abstraction and use, wastewater treatment, biodiversity, chemicals, and economic indicators on environmental protection expenditure (EPEA), the environmental goods and services sector (EGSS) and environmental taxes. Greenhouse gas inventories data are taken from the European Environment Agency (EEA). Data on waste are reported under Regulation (EC) No 2150/2002 of the European Parliament and of the Council on waste statistics. Data on European environmental economic accounts, including MFA, EPEA, EGSS and environmental taxes, are reported under Regulation (EU) No 691/2011. Data on water are collected in cooperation with the Organisation for Economic Co-operation and Development (OECD) by means of a Joint Questionnaire. Data on chemicals are compiled from other data collections within Eurostat (COMEXT and PRODCOM). Data on bird indicators are provided by the European Bird Census Council /The Royal Society for Protection of Birds/Bird Life International /Czech Society for Ornithology.

For more detailed data and the most recent updates, please consult Eurostat's website at https://ec.europa.eu/eurostat

MAIN DEFINITIONS:

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 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 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 extractions plus the simple mass weight of imported goods.

DOMESTIC MATERIAL CONSUMPTION (DMC)

Domestic material consumption (DMC) is one indicator 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 System of Environmental-Economic Accounts (SEEA CF). Environment protection is classified according to the Classification of Environmental Protection Activities (CEPA 2000), and resource management is classified according to Classification of Resource Management Activities (CReMA). For details, see annexes 4 and 5 of Environmental Goods and Services Handbook.

ENVIRONMENTAL GOODS AND SERVICES SECTOR

The environmental goods and services sector (EGSS) is also referred to as 'environmental economy', 'environment industry' or 'eco-industries'. It encompasses diverse activities and provides a range of products such as organic vegetables, renewable energy, or waste treatment services that help protecting the environment and preserving the stock of natural resources. For further information, see Environmental Goods and Services Handbook.

ENVIRONMENTAL TAXES BY ECONOMIC ACTIVITIES

Environmental taxes are taxes whose tax base is a physical unit (or a proxy of it) of something that has a proven, specific negative impact on the environment, and which is identified in ESA as a tax. Environmental taxes comprise four types: energy, transport, pollution and resource taxes. Carbon dioxide taxes are included under energy as they are often an integral part of general energy taxes. General value added tax (VAT) is excluded.

For further information, see Environmental taxes - a statistical guide.

NATIONAL EXPENDITURE ON ENVIRONMENTAL PROTECTION (NEEP)

NEEP measures the resources devoted by resident units to protecting the natural environment.

It is calculated in environmental protection expenditure accounts (EPEA) as a sum of uses of environmental protection (EP) services by resident units, gross fixed capital formation (GFCF) for EP activities, and net transfers to the rest of the world for EP.

For further information, see Environmental protection expenditure accounts handbook.

EPEA SECTORS

EPEA are compiled by institutional sector (based on National Accounts' definitions): general government and NPISH (S.13 and S.15), corporations (S.11 and S.12), households (S.14) and the rest of the world (S.2).

The corporations sector covers specialist and secondary market producers of EP services as well as entities incurring costs to make their production process less environmentally damaging (ancillary producers).

Specialist producers provide EP services as their main activity and are classified to NACE divisions 37, 38.1, 38.2 and 39 (within NACE section E).

For further information, see Environmental protection expenditure accounts handbook.

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), 25 (methane),

298 (nitrous oxide) to 22 800 (sulphur hexafluoride). Hydrofluorocarbons and perfluorocarbons comprise a large number of different gases that have different GWPs (Intergovernmental Panel on Climate Change — IPCC, 1996).

GREENHOUSE GASES (GHG)

These emissions are reported under the 1992 United Nations Framework Convention on Climate Change and, for the EU Member States, under the Regulation (EU) 525/2013. According to the Kyoto Protocol anthropogenic emissions of the seven greenhouse gases (the 'Kyoto basket') are aggregated using the global warming potential: carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O), nitrogen trifluoride (NF_3) and hydrofluorocarbons (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 activities economiques 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 manage¬ment 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; com¬pulsory 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 based on Eurostat's economy-wide Material Flow Accounts in combination with economic data and modelling. RMC is the amount of raw materials (without water and air) which is extracted domestically and abroad to produce the goods and services used by the categories of domestic final demand (consumption by households and government, and gross fixed capital formation). RMC is defined and calculated as raw material input minus the exported goods expressed in tonnes raw material equivalents.

RAW MATERIAL EQUIVALENTS (RME)

Raw material equivalents are a measurement concept in Eurostat's economy-wide Material Flow Accounts related to traded goods. Traded goods (imports and exports) are usually reported in simple mass weight as they pass the border. Raw material equivalents is 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 based on Eurostat's economy-wide Material Flow Accounts in combination with economic data and modelling. RMI is the amount of raw materials (without water and air) which is extracted domestically and abroad, to be used in the economy to produce goods and services (output). It is composed of the raw materials domestically extracted and the imported goods expressed in tonnes raw material equivalents.

STAGE OF MANUFACTURING

Goods trade internationally are classified according to their stage of manufacturing. The following three stages of manufacturing are defined:

- ***raw products***: raw materials like products produced by primary industries such as agriculture, forestry, fishing, and mining;
- ***semi-manufactured products***: products which are further processed raw products but do not yet constitute finished products; they obviously need to be further processed;
- ***finished products***: products which are finalised, i.e. are not processed or transformed anymore; note that finished products are potentially used for final consumption by households, governments etc. but also as intermediate input to industries.

In operational terms the stage of manufacturing is defined by a correspondence list between CN (combined nomenclature) and the three groupings above — developed by Eurostat and the European Statistical System.

WASTE

Waste means any substance or object which the holder discards or intends or is required to discard. Municipal waste generated consists of waste collected by or on behalf of municipal authorities and disposed of through the waste management system. The bulk of this waste stream is from households, though similar wastes from sources such as commerce, offices and public institutions are included.

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 NET ABSTRACTION (= WATER WITHDRAWAL)

Water gross abstraction minus returned water.

COOLING WATER

This is water which is used to absorb and remove heat. Data on cooling water used in the generation of electricity in power stations, and cooling water used in the manufacturing industry are collected separately. Cooling water used in other economic sectors is not addressed.

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 36 (NACE Rev.2) 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 4: Calorific values and conversion factors

CALORIFIC VALUES

Eurostat collects and uses the net calorific values of the various energy products from the reporting countries.

If no calorific values are provided by a reporting country, Eurostat uses the net calorific values enacted in Commission Regulation (EU) No 601/2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council.

For products not covered by the Commission Regulation (EU) No 601/2012, Eurostat uses estimates. These estimates take into account the Commission Decision 2007/589/EC establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council

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/kilogramme. 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.

Conversion between units

From / To	TJ	Mtoe	GWh GWh
TJ	1	/ 41 868	/ 3.6
Mtoe	× 41 868	1	× 11 630
GWh	× 3.6	/ 11 630	1

Prefixes

The following prefixes are used for multiples of tonnes of oil equivalent (toe), joules (J), watts (W) and watt hours (Wh):

kilo (k) = 1 000 or 10^3

mega (M) = 1 000 000 or 106

giga (G) = 1 000 000 000 or 109

tera (T) = 1 000 000 000 000 or 1012

Default calorific values

Values with light shading are estimates

Product	Net calorific value (TJ/kt)
Anthracite	26.7
Coking coal	28.2
Other bituminous coal	25.8
Sub-bituminous coal	18.9
Lignite	11.9
Patent fuels	20.7
Coke oven coke	28.2
Gas coke	28.2
Coal tar	28
Brown coal briquettes	19
Peat	9.8
Peat products	16
Oil shale and oil sands	8.9
Crude oil	42.3
Natural gas liquids	44.2
Refinery feedstocks	43
Additives and oxygenates	42.5
Other hydrocarbons (w/o bio)	42.5
Refinery gas	49.5
Ethane	46.4
Liquefied petroleum gases	47.3
Motor gasoline (w/o bio)	44.3

Product	Net calorific value (TJ/kt)
Aviation gasoline	44.3
Gasoline-type jet fuel	44.3
Kerosene-type jet fuel	44.1
Other kerosene	43.8
Naphtha	44.5
Gas oil and diesel oil (w/o bio)	43
(Residual) Fuel oil	40.4
White spirit and SPB	40.2
Lubricants	40.2
Bitumen	40.2
Petroleum coke	32.5
Paraffin waxes	40.2
Other oil products	40.2
Charcoal	29.5
Pure biogasoline	27
Blended biogasoline	27
Pure biodiesels	27
Blended biodiesels	27
Pure bio jet kerosene	44
Blended bio jet kerosene	44
Other liquid biofuels	27.4

Annex 5: A practical guide to accessing European statistics

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

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

Eurostat online data codes, such as tps00001 and nama_gdp_c([1]), allow the reader to easily access the most recent data on Eurostat's website. In this publication 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, https://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.

Navigating Eurostat's database (https://ec.europa.eu/eurostat/daa/database) is another way to view tables and datasets. There, tables and datasets are arranged in a tree structure and grouped according to their theme or the EU policy they serve.

Datasets can be found under the heading Database by themes and Tables on EU policy.

Online data codes can also be inserted into the Search function on Eurostat's website, which is found in the upper-right corner of the Eurostat homepage, at https://ec.europa.eu/eurostat. Such a search retrieves links to the relevant table or dataset, their metadata and related publications.

Data on the Eurostat's website is constantly updated.

Note also that the description above presents the situation as of the end of September 2020.

STATISTICS EXPLAINED

Statistics Explained provide easy access to Eurostat's statistical information. The service can be accessed from the Eurostat homepage, or directly at https://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 2020, Statistics Explained contained just over 900 statistical and background articles and some 1 900 glossary pages in English. Out of the 900 articles, 23 have been translated and are available in 22 EU languages.

([1]) 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

Symbols and abbreviations

SYMBOLS

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

:	Data not available or confidential
0	Real zero or figure less than half of the unit used
-	Not applicable
%	Percentage
1234	*Estimates are printed in italic*
p	Provisional value

Breaks in series are indicated in the footnotes provided under each table

UNITS OF MEASUREMENT

CO_2-eq	carbon dioxide equivalent
EUR	Euro, data from 1.1.1999 on
FTEs	full-time equivalents
GJ	giga joule
GW	gigawatt
GWh	gigawatt hour
ha	hectare
kg	kilogram
kgoe	kilograms of oil equivalent
kJ	kilojoule
km	kilometre
km²	square kilometre
kt	kilotonne
ktoe	thousand tonnes of oil equivalent
kWh	kilowatt hour
m³	cubic metre
mio	million (106)
Mt	million tonnes
Mtoe	million tonnes of oil equivalent
MW	megawatt
MWh	megawatt hour
NMVOC-eq	non-methane volatile organic compounds equivalent
PJ	petajoule
pkm	passenger-kilometre
tkm	tonne-kilometre
t	tonne
toe	tonne of oil equivalent
TWh	terawatt hour
USD	United States dollar
vkm	vehicle-kilometre

ABBREVIATIONS

AWU	annual work units
CARE	Community Road Accident Database
CEPA	Classification of Environmental Protection Activities
CH_4	methane
CHP	combined heat and power
CMR	carcinogenic, mutagenic and reprotoxic
CO	carbon monoxide
CO_2	carbon dioxide
DEU	domestic extraction used
DMC	domestic material consumption
DMI	direct material input
EASA	European Union Aviation Safety Agency
EBCC	European Bird Census Council
ECE	United Nations Economic Commission for Europe
EEA	European Environment Agency
EGSS	Environmental goods and services
ELV	end-of-life vehicles
EPE	environmental protection expenditure

EPEA	environmental protection expenditure activities
ERA	European Union Agency for Railways
FEC	final energy consumption
GDP	gross domestic product
GHG	greenhouse gases
GIC	gross inland consumption
GNI	gross national income
GVA	gross value added
GWP	global warming potential
HFCs	hydrofluorocarbons
IPCC	Intergovernmental Panel on Climate Change
IT	information technology
ITF	International Transport Forum
LULUCF	land use, land use change and forestry
MS	Member State
NACE	statistical classification of economic activities in the European Community
NEEP	national expenditure on environmental protection
NF_3	nitrogen trifluoride
NH_3	ammonia
NMVOC	non-methane volatile organic compounds
NOx	nitrogen oxides
N_2O	nitrous oxide
NPISH	non-profit institutions serving households
OECD	Organisation for Economic Co-operation and Development
OJ	Official Journal of the European Union
OPEC	Organisation of the Petroleum Exporting Countries
PFCs	perfluorocarbons
PPP	purchasing power parity
PPS	purchasing power standard
RES	renewable energy sources
RMC	raw material consumption
RME	raw material equivalents
RMI	raw material input
RSPB	The Royal Society for the Protection of Birds (UK)
SO_2	sulphur dioxide
UIC	Union Internationale des Chemins de fer / International union of railways
UN	United Nations
UNECE	United Nations Economic Commission for Europe
UNFCCC	United Nations Framework Convention on Climate Change
VPA	voluntary partnership agreements
WEEE	waste electrical and electronic equipment

COUNTRIES

EU-27	The 27 Member States of the European Union from 1 February 2020 (Belgium, Bulgaria, Czechia, Denmark, Germany, Estonia, Ireland, Greece, Spain, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Hungary, Malta, Netherlands, Austria, Poland, Portugal, Romania, Slovenia, Slovakia, Finland and Sweden)
EA-19	The 19 Member States of the European Union which have adopted the euro as their common currency. Currently, the euro area consists of Belgium, Germany, Estonia, Ireland, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland

EUROPEAN FREE TRADE ASSOCIATION (EFTA) COUNTRIES

Iceland

Liechtenstein

Norway

Switzerland

EUROPEAN ECONOMIC AREA

Iceland

Liechtenstein

Norway

EU CANDIDATE COUNTRIES

Albania

North Macedonia

Montenegro

Serbia

Turkey

EU POTENTIAL CANDIDATES

Bosnia and Herzegovina

Kosovo[1]

ENERGY COMMUNITY CONTRACTING AGENCIES

Albania

Bosnia and Herzegovina

Kosovo[1]

North Macedonia

Georgia

Moldova

Montenegro

Serbia

Ukraine

[1] This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence.

GETTING IN TOUCH WITH THE EU

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FINDING INFORMATION ABOUT THE EU

Online

Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU Publications

You can download or order free and priced EU publications at: https://op.europa.eu/en/publications. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).

EU law and related documents

For access to legal information from the EU, including all EU law since 1952 in all the official language versions, go to EUR-Lex at: http://eur-lex.europa.eu

Open data from the EU

he EU Open Data Portal (http://data.europa.eu/euodp/en) provides access to datasets from the EU. Data can be downloaded and reused for free, for both commercial and non-commercial purposes.

ENERGY, TRANSPORT AND ENVIRONMENT STATISTICS

This publication presents a selection of topical data. Most data cover the European Union and its Member States, while some indicators are provided for other countries, such as members of EFTA, and candidate countries and potential candidates to the European Union.

This publication may be viewed as an introduction to European statistics and provides a starting point for those who wish to explore the wide range of data that is freely available on Eurostat's website.

For more information

https://ec.europa.eu/eurostat/

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