

# Energy saving statistics

Statistics Explained

Data from January 2018. Most recent data: Further Eurostat information, Main tables and Database . Planned article update: February 2019

## 20 % energy efficiency targets by 2020

The [European Union \(EU\)](#) has committed itself to a 20 % reduction of energy consumption by the year 2020 compared to baseline projections. This objective is also known as the 20 % energy efficiency target. In other words, the EU has committed itself to have a primary energy consumption of no more than 1 483 Mtoe and a final energy consumption of no more than 1 086 Mtoe in 2020<sup>1</sup>.

This article provides statistical evaluation of the progress made towards this 2020 objective and describes the statistical method for its measurement.

	1990	1995	2000	2005	2010	2015	2016	2020 target
<b>Primary Energy</b>	1 570.0	1 567.2	1 617.6	1 713.3	1 657.5	1 531.9	1 542.7	1 483
Solid Fossil Fuels	452.7	363.7	320.1	316.5	281.5	261.1	238.9	
Oil & Petroleum Products	549.8	562.8	566.5	577.8	518.8	478.9	484.7	
Gas (Natural & Derived)	282.4	321.4	380.7	430.5	433.5	344.2	369.4	
Nuclear Heat	205.2	227.3	243.8	257.5	236.6	221.2	216.7	
Renewables	72.1	84.6	98.5	121.8	175.2	211.7	216.6	
Other	7.7	7.4	8.0	9.2	11.9	14.8	16.5	
<b>Final Energy</b>	1 084.6	1 082.6	1 132.7	1 192.7	1 163.2	1 086.2	1 107.7	1 086
Solid Fossil Fuels	124.1	83.0	61.9	53.9	50.1	45.9	45.2	
Oil & Petroleum Products	448.8	465.9	490.3	503.7	458.1	429.9	437.1	
Gas (Natural & Derived)	230.9	247.5	267.6	282.0	272.0	237.0	245.3	
Electricity	185.8	194.1	217.4	239.4	244.0	236.6	239.4	
Derived Heat	55.1	46.3	45.3	52.7	53.5	46.5	47.9	
Renewables	38.9	44.3	49.1	59.4	82.8	86.9	88.9	
Non-renewable wastes	0.9	1.6	1.0	1.5	2.7	3.5	3.8	

Table 1: Energy consumption, EU-28, Mtoe Source: Eurostat (nrgind334a)

	1990	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016
<b>Primary Energy</b>											
Mtoe	87.0	84.2	134.6	230.3	174.5	112.4	103.1	88.2	25.6	48.9	59.7
Percentage	5.9	5.7	9.1	15.5	11.8	7.6	7.0	5.9	1.7	3.3	4.0
<b>Final Energy</b>											
Mtoe	-1.4	-3.4	46.7	106.7	77.2	23.2	22.5	22.2	-22.9	0.2	21.7
Percentage	-0.1	-0.3	4.3	9.8	7.1	2.1	2.1	2.0	-2.1	0.0	2.0

Table 2: Distance to 2020 targets, EU-28 Source: Eurostat (nrgind334a)

<sup>1</sup>see Article 3 of Directive 2012/27/EU on energy efficiency

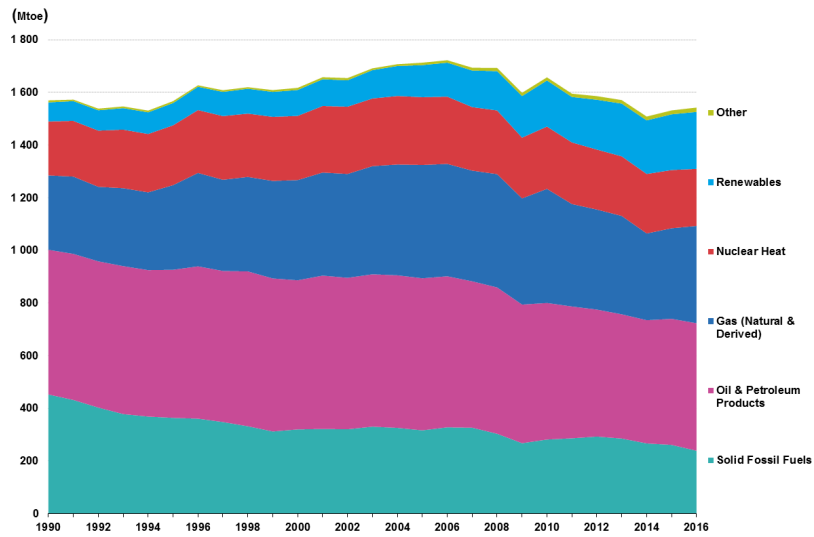


Figure 1: Primary energy consumption, EU-28 Source: Eurostat (nrgind334a)

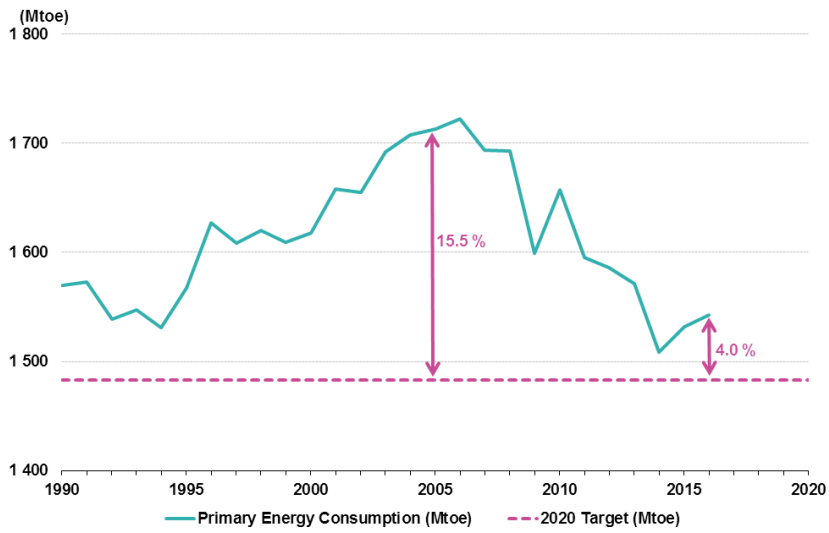


Figure 2: Distance to Europe 2020 target for primary energy consumption, EU-28 Source: Eurostat (nrgind334a)

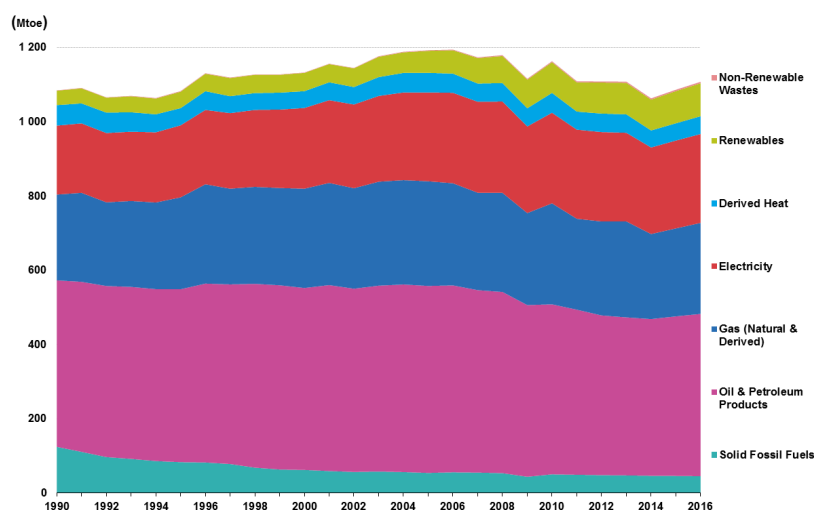


Figure 3: Final energy consumption, EU-28 Source: Eurostat (nrgind334a)

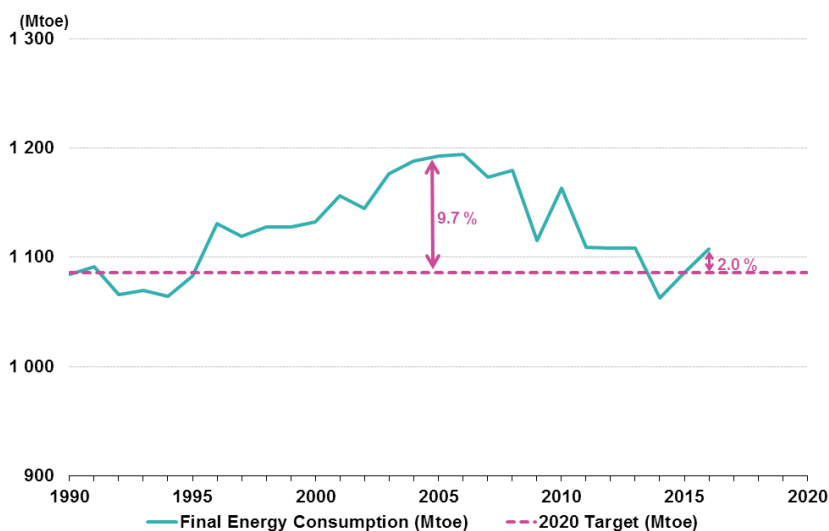


Figure 4: Distance to Europe 2020 target for final energy consumption, EU-28 Source: Eurostat (nrgind334a)

## Main statistical findings

### Primary energy consumption and distance to 2020 target

Primary energy consumption (shown in Figure 1) decreased between 1990 and 2016 by 1.7 %. While consumption of solid fossil fuels (coal and coal products) decreased by 47 % and oil (including petroleum products) decreased by 12 %, consumption of renewables increased by 200 %, consumption of gaseous fuels (natural gas and manufactured gases) increased by 31 % and nuclear energy increased by 6 %. Primary energy consumption peaked in 2006 and then decreased by 10 % by 2016.

The energy mix is gradually changing. The share of coal (solid fossil fuels) in primary energy consumption decreased from 29 % in 1990 to 15 % in 2016. The oil and petroleum products are still the most important source of primary energy consumption with a 31 % share in 2016, slightly down from 35 % in 1990. The share of fossil fuels together (solid, gaseous and liquid) decreased from 82 % in 1990 to 71 % in 2016. Renewables reached record high levels in 2016. The share of nuclear energy remains relatively stable and contributes 13-15 % during the 1990-2016 period.

The distance to the 20 % target for the primary energy consumption reached record low in 2014 (25.6 Mtoe

or 1.7 %). In 2016, due to increase in primary energy consumption, the consumption was 59.7 Mtoe or 4.0 % higher than the 2020 primary energy efficiency target of 1 483 Mtoe (Figure 2).

## Final energy consumption and distance to 2020 target

In 2014, **Final energy consumption** (Figure 3) reached a record low since 1990, however, it increased afterwards. Final energy consumption in 2015 was approximately at the same level as in 1990, however in 2016 it was 2.1 % above the 1990 level. While consumption of solid fossil fuels (coal and coal products) decreased by 64 % and consumption of derived heat (heat sold) decreased by 13 %, final energy consumption of renewables increased by 128 % and final consumption of electricity increased by 29 %. Final energy consumption peaked in 2006 and then decreased by 7 % by 2016.

Oil and petroleum products are the most important source of final energy consumption with a 39 % share. Solid fossil fuels are undergoing a long term decreasing trend and contribute only 4 % to final energy consumption. Fossil fuels together (solid, gaseous and liquid) account for 66 % of total final energy consumption in 2016, down from 74 % in 1990. Electricity and natural gas have 22 % share each.

The actual final energy consumption in year 2014 was lower than the 2020 energy efficiency target level of 1 086 Mtoe. Final energy consumption in 2014 was 22.9 Mtoe or 2.1 % below the 2020 target. In 2015, while final energy consumption remained near the 2020 target, due to an increase compared to 2014, final energy consumption was only 0.2 Mtoe above the target (Figure 4). As the final energy consumption further increased in 2016, it was 21.7 Mtoe or 2.0 % above the 2020 target.

## Data sources and availability

Data from **energy balances** have been used for all calculations. Data are available for all 28 EU Member States and for all time periods from 1990. The most recent data available are for 2016. In general, data are complete, recent and highly comparable across countries. This results in high accuracy and accountability of EU aggregate figures.

### Methodology

The target values for 2020 are fixed in Article 3 of Directive 2012/27/EU: the Union's 2020 energy consumption has to be no more than 1 474 Mtoe of primary energy or no more than 1 078 Mtoe of final energy. These values refer to EU-27. For EU-28, the equivalent values are 1 483 Mtoe for primary energy consumption and 1 086 Mtoe for final energy consumption as laid down in Directive 2013/12/EU.

The primary energy consumption is calculated as *Gross inland consumption* [B100900] minus *Final non-energy consumption* [B101600]. The energy consumption has to be measured in Mtoe.

The Final energy consumption is equal to *Final energy consumption* [B101700]. The energy consumption has to be measured in Mtoe.

The distance to 2020 target in absolute terms (Mtoe) is calculated as a difference between the observed energy consumption in a given year to the absolute primary and final energy consumption targets in 2020 according to Directives 2012/27/EU and 2013/12/EU.

The distance to the 2020 target in relative terms (as percentage) is calculated as a ratio of the distance in a given year to primary and final energy consumption target in 2020 according to Directive 2012/27/EU and Directive 2013/12/EU.

## Context

Europe cannot afford to waste energy. Energy efficiency is the most cost effective way to reduce emissions, improve energy security, enhance competitiveness and make energy consumption more affordable for all con-

sumers. Energy efficiency is also one of the key factors in achieving our long-term energy and climate goals.

The [European Council](#) adopted in 2007 energy and climate change objectives for 2020:

- to reduce [greenhouse gas](#) emissions by 20 %
- to increase the share of renewable energy to 20 %
- to make a 20 % improvement in energy efficiency.

The [European Parliament](#) has continuously supported more ambitious goals.

On 25 October 2012, the EU adopted Directive 2012/27/EU on energy efficiency. This Directive establishes a common framework of measures for the promotion of energy efficiency within the Union in order to ensure the achievement of the 20 % headline target on energy efficiency. At an EU summit in October 2014, EU countries agreed on a [new energy efficiency target](#) of at least 27 % or greater by 2030. On 30 November 2016, the European Commission proposed for 2030 a [binding energy efficiency target](#) of 30 % for the European Union.

## See also

- [Energy trends](#)
- [Europe 2020 indicators - climate change and energy](#)

## Further Eurostat information

### Publications

- [Smarter, greener, more inclusive? - Indicators to support the Europe 2020 strategy \(2017 edition\)](#)
- [Shedding light on energy in the EU - A guided tour of energy statistics \(2017 edition\)](#)
- [Sustainable Development in the European Union — Monitoring report on progress towards the SDGs in an EU context \(2017 edition\)](#)
- [Energy balance sheets - 2015 data \(2017 edition\)](#)
- [Energy, transport and environment indicators \(2017 edition\)](#)

### Main tables

- [Energy \(tnrg\)](#) , see:

[Energy statistics - main indicators \(tnrgindic\)](#)

[Energy statistics - quantities \(tnrgquant\)](#)

### Database

- [Energy \(nrg\)](#) , see:

[Energy statistics - quantities, annual data \(nrgquant\)](#)

[Energy statistics - indicators and other data \(nrgindic\)](#)

[Energy saving - annual data \(nrgind334a\)](#)

## Dedicated section

- [Energy](#)
- [Europe 2020 indicators](#)

## Methodology / Metadata

- [Energy saving - annual data](#) (ESMS metadata file: nrgind334aesms )
- [Energy statistics - supply, transformation and consumption](#) (ESMS metadata file: nrg10esms)

## Source data for tables and figures (MS Excel)

- [Download Excel file](#)

## Other information

- [Directive 2012/27/EU](#) on energy efficiency
- [Directive 2013/12/EU](#) on energy efficiency (by reason of the accession of the Republic of Croatia)
- [Regulation \(EC\) No 1099/2008](#) on energy statistics

## External links

- [European Commission - DG Energy - Energy strategy](#)
- [European Commission - DG Energy - Energy efficiency](#)
- [ODYSSEE indicators on energy efficiency](#)
- [MURE database on energy efficiency policies and measures](#)
- [International Partnership for Energy Efficiency Cooperation](#)

## Notes