

# Energy efficiency in the years 2012–2022

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**0.9%**

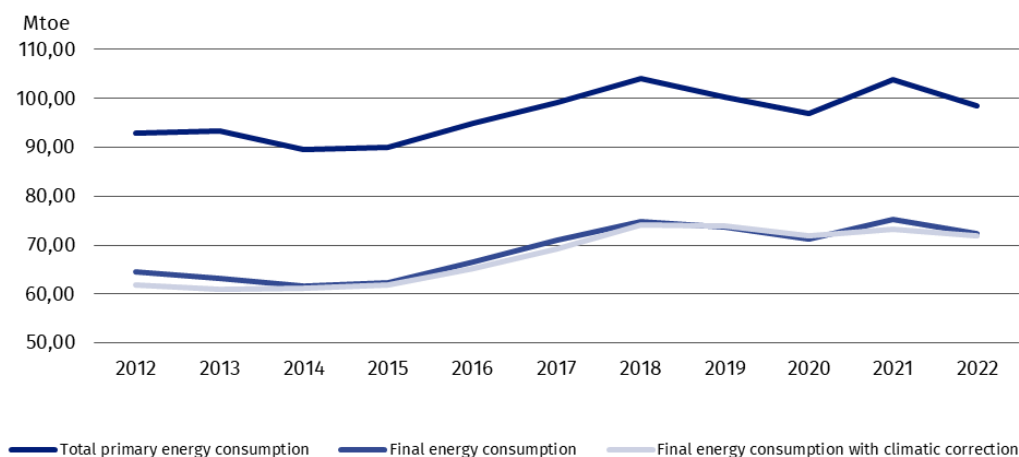
An increase of energy efficiency in Poland in 2022 compared to 2021.

Poland's energy efficiency increased by 0.9% in 2022 compared to 2021. Between 2012 and 2022, the annual cumulative growth rate of energy efficiency amounted to 0.9%. Primary energy intensity of GDP decreased by an average of 2.6% per year during this period, while final energy intensity of GDP decreased by 2.4%. The fastest rate of energy efficiency improvement was observed in industry (by 1.9%).

**Total primary energy consumption** increased between 2012 and 2022 from 92.8 Mtoe to 98.6 Mtoe (cumulative annual growth rate - 0.6%). In contrast, **final energy consumption** increased from 64.4 to 72.4 Mtoe during the analysed period (a cumulative annual growth rate of - 1.2%). Total consumption reached its peak in 2018 (104.1 Mtoe), final energy consumption in 2021 (75.2 Mtoe).

In 2022 total primary energy consumption amounted to 98.6 Mtoe, while final energy consumption to 72.4 Mtoe

**Chart 1. Total primary energy consumption and final energy consumption**



**Primary energy intensity of GDP** in 2022 decreased by 5.0% compared to the previous year, while **final energy intensity of GDP** decreased by 8.7%.

Compared to 2012, the primary energy intensity of GDP in 2022 decreased by 23.5% and final energy intensity of GDP by 21.9%. With climatic corrections, the rate of improvement for primary intensity was slightly higher (22.1%) and for final energy intensity of GDP was slightly lower (19.6%).

**Table 1. The annual cumulative growth rate of energy efficiency of GDP (%/year)**

Rate of improvement	2013–2017	2018–2022	2013–2022
Primary energy intensity of GDP	-2.10	-3.18	-2.64
Primary energy intensity of GDP with climatic corrections	-1.82	-3.10	-2.46
Final energy intensity of GDP	-1.54	-3.32	-2.44
Final energy intensity of GDP with climatic corrections	-1.11	-3.19	-2.16

### Households

In 2022 household energy consumption accounted for 28.8% of final energy consumption. The most commonly consumed energy carrier was natural gas with a share of 20.9% in 2022. This was followed by solid fossil fuels (19.8%), heat (17.5%) electricity (12.4%) liquid fuels (2.9%). The consumption of other energy carriers, which included solid biofuels and ambient heat, was 26.5%.

The most important direction of energy use was space heating, with a 62.8% share in 2022. Water heating consumed 18.0% of energy, lighting and electrical appliances 10.1% and preparing meals 9.1%.

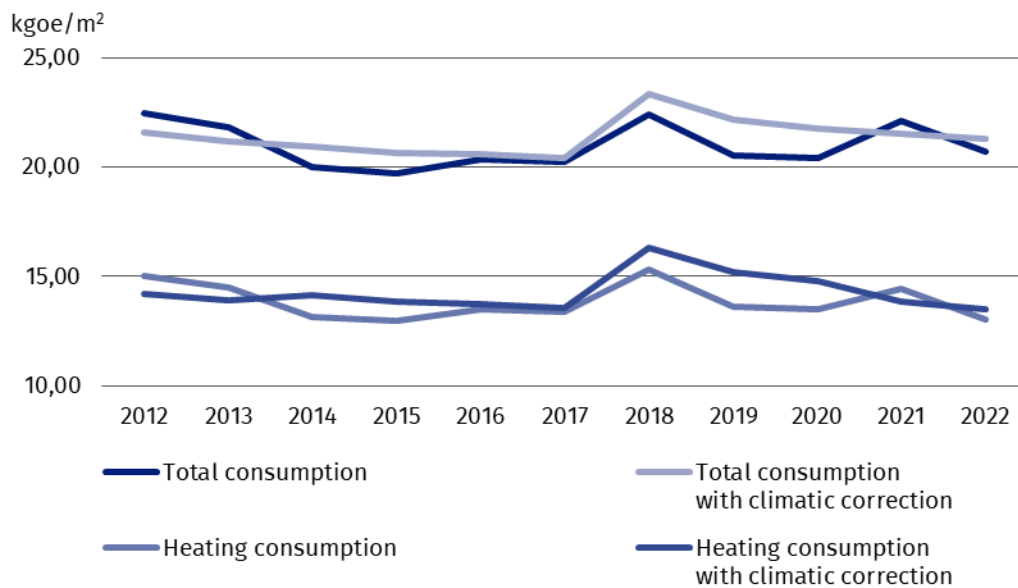
**Table 2. Structure of energy consumption in households by directions of use in 2017-2022 (%)**

Specification	2017	2018	2019	2020	2021	2022
Total	100.0	100.0	100.0	100.0	100.0	100.0
Space heating	66.1	68.5	66.4	66.1	65.4	62.8
Water heating	16.2	15.5	16.1	16.3	17.1	18.0
Cooking	8.0	7.4	8.1	8.1	8.3	9.1
Lighting and electrical appliances	9.7	8.7	9.3	9.5	9.2	10.1

In 2022 space heating accounted for 62.8% of energy consumed by households

The household energy consumption rate per m<sup>2</sup> showed a decreasing trend. The volume of consumption in 2022 amounted to 20.7 kgoe/m<sup>2</sup>, compared with 22.5 kgoe/m<sup>2</sup> in 2012 (cumulative annual decrease of 0.8%/year). Adjusted for climatic corrections, consumption per m<sup>2</sup> decreased by 0.2%/year.

**Chart 2. Energy consumption in households per m<sup>2</sup>**



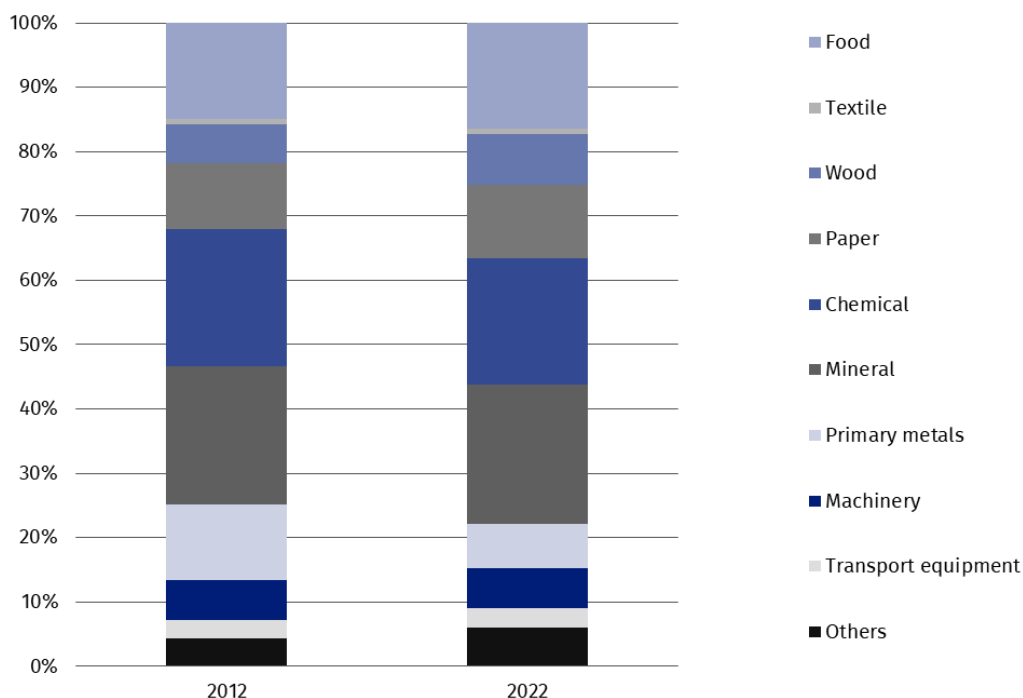
### Industry

Final energy consumption in industry reached its lowest value in 2012 (14.8 Mtoe). In the following years slight fluctuations in consumption were observed, with a significant increase from 2016 onwards, up to 17.9 Mtoe in 2019. In 2022, energy consumption in industry decreased by 7.3% in comparison to the previous year and amounted to 16.1 Mtoe.

In 2022, compared to 2012, consumption of electricity increased by 18.9%. Increases were also recorded in the consumption of natural gas (by 16.1%), heat (by 35.4%) and other energy carriers (by 37.5%). A decrease in consumption of liquid fuels (down 6.4%) and coal (down 23.1%) was also observed.

The structure of final energy consumption in the manufacturing industry is dominated by four energy-intensive branches: food, paper, chemical and mineral, whose total share in energy consumption in 2022 amounted to 69.2% (in 2012 it was 67.9%).

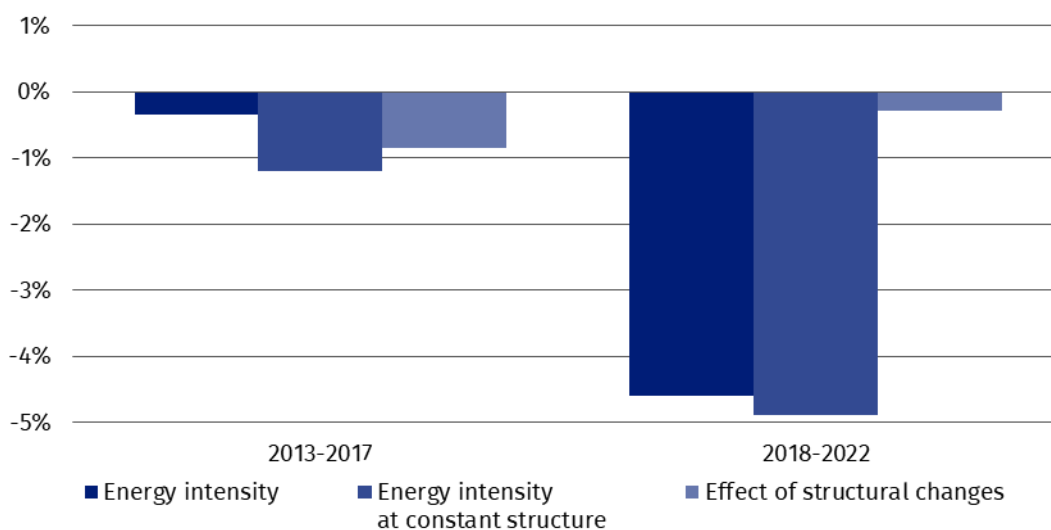
**Chart 3. Structure of final energy consumption in manufacturing by branch**



Between 2018 and 2022, the cumulative decline rate of energy intensity of manufacturing industry amounted to 4.6%/year. Structural changes contributed to its decrease by 0.3%/year, while energy intensity in a fixed structure, i.e. after eliminating the impact of changing shares of individual industries in the total volume of manufacturing industry, decreased by 4.9%/year.

Between 2018 and 2022, structural changes resulted in a reduction in the energy intensity of the manufacturing industry by 0.3%/year

**Chart 4. Energy intensity of manufacturing – role of structural changes (%/year)**

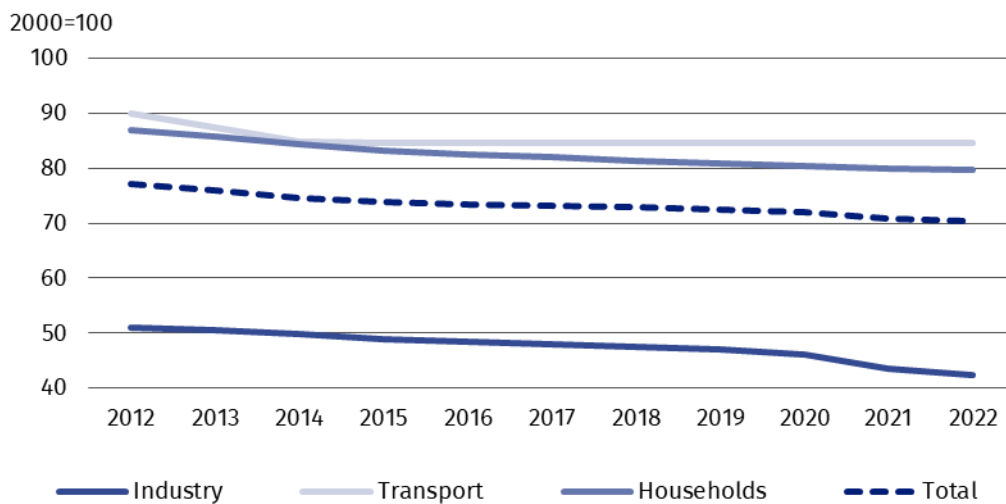


**ODEX indicator**

The ODEX indicator (base year 2000=100) decreased from 77.1 to 70.3 percentage points between 2012 and 2022. The cumulative rate of improvement amounted to 0.9%/year. The fastest rate of improvement (by 1.9%/year) was in industry, for which the value of indicator was 42.2 percentage points in 2022. The slowest rate of improvement was observed in the transport sector, where the annual improvement between 2013 and 2022 amounted to 0.6%. In the household sector, the average rate of improvement was 0.9%, with the value of indicator of 79.6 percentage points.

The fastest rate of improvement (1.9%/year) was recorded in industry, the slowest - in transport (0.6%/year)

**Chart 5. ODEX indicator**



**Decomposition of energy consumption**

The largest impact on the change in consumption came from economic activity contributing to an increase in energy demand by 14.9 Mtoe in 2022 compared to 2012. For households, the factors contributing to the increase in energy demand were an increase in the number of dwellings and a change in lifestyle (larger dwellings) as well as weather conditions. Structural changes in industry reduced energy consumption by 1.0 Mtoe, while transport increased by 1.0 Mtoe. Energy savings amounted to 7.4 Mtoe, the largest was achieved in industry (3.9 Mtoe). Weather conditions decreased energy consumption by 0.5 Mtoe and other factors increased energy consumption by 0.8 Mtoe.

Economic activity had the greatest impact on the increase in energy demand

**Table 3. Influence of factors on the change in final energy consumption from 2012 to 2022 (Mtoe)**







Specification	Industry	Households	Transport	Services	Agriculture	Total
Consumption change	1.4	1.3	7.3	-0.2	-0.3	9.5
<b>FACTORS</b>						
Activity	7.0	-	4.6	3.4	-0.1	14.9
Stock of dwellings	-	1.1	-	-	-	1.1
Lifestyle	-	0.6	-	-	-	0.6
Structural changes	-1.0	-	1.0	-	-	0.0
Energy savings	-3.9	-2.0	-1.4	-0.1	-	-7.4
Weather conditions	-	0.0	-	-0.5	-	-0.5
Others	-0.7	1.6	3.1	-2.9	-0.2	0.8

When quoting Statistics Poland data, please provide the information: "Source of data: Statistics Poland", and when publishing calculations made on data published by Statistics Poland, please include the following disclaimer: "Own study based on figures from Statistics Poland".

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#### **Related information**

[Energy statistics](#)

[Energy efficiency in Poland](#)

#### **Data available in databases**

[Knowledge databases - Energy statistics](#)

[Poland macroeconomic indicators](#)

[Macroeconomic Data Bank](#)

#### **Terms used in official statistics**

[Primary energy](#)

[Derived energy](#)

[Energy consumption](#)