AGEB
AG Energiebilanzen e.V.

ENERGY CONSUMPTION

in Germany in

2025

Germany's Primary Energy Consumption Drops in 2025 to Its Lowest Level since 1990

Contents

Last Update: May 28, 2026
Edited by: Hans Georg Buttermann (h.g.buttermann@ag-energiebilanzen.de)
(The article on renewable energy is based on the work of AGEE-Stat; last update: May 15, 2026)

Arbeitsgemeinschaft Energiebilanzen (AG Energiebilanzen) – Working Group on Energy Balances (Energy Balances Group)
Reinhardtstraße 32, 10117 Berlin, Germany

h.g.buttermann@ag-energiebilanzen.de
f.schenke@ag-energiebilanzen.de
u.maassen@ag-energiebilanzen.de

www.ag-energiebilanzen.de

Total Primary Energy Consumption

Germany's primary energy consumption in 2025 (according to preliminary estimates) amounted to a total of 10,530 petajoules (PJ) or 359.3 million tons of coal equivalents (Mtce); compared to the previous year, this equals a decrease of 0.4 % (please see Table 1).[1]

In 2025, the level of energy consumption as well as its composition (energy mix) continued to be characterized by the consequences of the war in Ukraine and/or the associated noticeably higher energy prices. This was compounded by such additional trouble spots in 2025 as, for example, the conflict in the Middle East (Twelve-Day War between Israel and Iran, US air strikes against Iranian nuclear facilities) and the protectionist US trade tariffs which put a strain on the global economy and entailed additional declines in growth and sectoral changes within the German economy.

In 2025 as well, Germany's most important energy carrier continued to be mineral oil with a share of 36.0 %. It was followed by natural gas which increased its share to 26.6 % when compared to the previous year (2024: 25.8 %). Renewables ended up in third place with a share of 20.8 %; in 2024, their contribution had still been 20.1 %. Compared to 2024, the primary energy consumption of hard coal and lignite dropped by 6.8 % and 7.4 % respectively so that lignite covered approximately 7.1 % and hard coal 6.8 % of the demand for primary energy in 2025.

In 2025, 19.5 billion kWh (70 PJ) more electricity flowed from foreign countries into Germany than flowed from Germany into neighboring countries. For the third time in a row, this made Germany a net importer of electric power which it had not been since 2002. Consequently, the balance in the electricity exchange had a consumption-enhancing effect (by plus 2.0 percentage points, as in the previous year) on primary energy consumption in 2025. In 2022, the electricity exchange balance still had a consumption-reducing effect amounting to minus 0.8 percentage points.

Table 1

AGEB
AG Energiebilanzen e.V.

Primary Energy Consumption in Germany in 2024 and 2025 [1)]

Energy Carrier	2024	2025	2024	2025	Changes in 2025 Compared to 2024			Proportions in %	
	Petajoules (PJ)		Million Tons of Coal Equivalents (Mtce)		PJ	Mtce	%	2024	2025
Mineral Oil	3,830	3,789	130.7	129.3	-41	-1.4	-1.1	36.2	36.0
Natural Gas	2,727	2,804	93.1	95.7	77	2.6	2.8	25.8	26.6
Hard Coal	774	721	26.4	24.6	-52	-1.8	-6.8	7.3	6.8
Lignite	809	749	27.6	25.6	-60	-2.1	-7.4	7.7	7.1
Nuclear Energy	0	0	0.0	0.0	0	0.0	...	0.0	0.0
Renewable Energy	2,127	2,190	72.6	74.7	62	2.1	2.9	20.1	20.8
Electricity Exchange Balance	95	70	3.2	2.4	-24	-0.8	...	0.9	0.7
Other	209	208	7.1	7.1	-1	0.0	-0.5	2.0	2.0
Total	**10,571**	**10,530**	**360.7**	**359.3**	**-41**	**-1.4**	**-0.4**	**100.0**	**100.0**

1) All data are preliminary; discrepancies in the totals are due to rounding off

Sources: Working Group on Energy Balances (AGEB); Working Group on Renewable Energies-Statistics (AGEE-Stat)

1) Large sections of this report (information on energy consumption according to sectors and energy carriers, unless stated otherwise) are based on the data indicated in Germany's final Energy Balance for 2024 (data status: January 31, 2026) as well as Germany's estimated Energy Balance for 2025 (data status: May 15, 2026) which actually represents an update of the early estimate of Germany's Energy Balance for 2025 (data status: February 15, 2026). A detailed description of the formal methods and estimation approaches used for early estimates of Germany's Energy Balance can be found in the studies Pilotprojekt zur Frühschätzung der Energiebilanz 2020 und Vergleich zu späteren definierten Datenständen *(Federal Environmental Agency (UBA) Project No. 152983) and* Weiterentwicklung des Modells zur Frühschätzung der Energiebilanz *(Federal Environmental Agency (UBA) Project No. 177616). The studies were published as part of the UBA-Texte series and can be downloaded here: https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_18-2023_pilotprojekt_zur_fruehschaetzung_der_energiebilanz_2020.pdf (download date: 2025-03-11; currently only available in German); https://www.umweltbundesamt.de/sites/default/files/medien/11850/publikationen/167_2024_texte_0.pdf (download date: 2025-03-11; currently only available in German).*

General Conditions for the Development in Consumption in 2025

The development of primary energy consumption depends on numerous influencing factors. These factors include, in addition to changes in the general political and regulatory framework, primarily the macroeconomic and sectoral development (structural change), demographic factors, energy prices as well as temperature fluctuations.

Temperature and Weather Influence [2]

The temperature conditions play, to a large extent, a vital role in non-industrial energy consumption because most of the energy consumed in these sectors is designated for the heating of privately and commercially used rooms. The temperature influence is usually measured in degree day figures; this index reflects – in simple terms – the cumulative temperature differences of those days on which the average temperature falls below a certain level (heating threshold temperature; here: 15 degrees Celsius).[3]

In 2025, the degree day figure was once again below the level of the long-term average (arithmetic average between 1990 and 2024 taken from 16 measurement stations). The low number of days with heating threshold temperatures of less than 15° C generally points towards a higher average temperature level in the reporting year and an associated reduction of the observed demand for energy (in particular, for the heating of residential premises) as a result of milder weather.[4]

When compared to the previous year, however, the degree day figure increased by 273 to 3,255 because it was considerably colder in 2025 than it had been in 2024. In 2025, the degree day figures were about 9.1 % above those of the previous year (lower temperatures) so that the energy consumption observed in 2025, when compared to 2024, ought to have increased due to the influence of the weather and/or the milder temperatures.

When considering the development of the degree day figures during the individual months, it becomes apparent that the year 2025, particularly during the months of January, April, and December, was slightly milder than the previous year. In contrast, and as measured by the degree day figures, the temperatures during the months of October, February, March, and May were lower than those of 2024. Consequently, the months between January and May and between September and December which are relevant for the heating period were, taken as a whole, cooler in 2025 than had been the case during the respective months of the previous year (degree day figures plus 9.1 %).

When compared to the long-term average (between 1990 and 2024), the year 2025 (excluding the summer months between June and August) was consistently warmer (please see Figure 1).

The impact of short-term temperature effects on the development of primary energy consumption is typically eliminated in that temperatures are assumed as indicated in the long-term average[5]

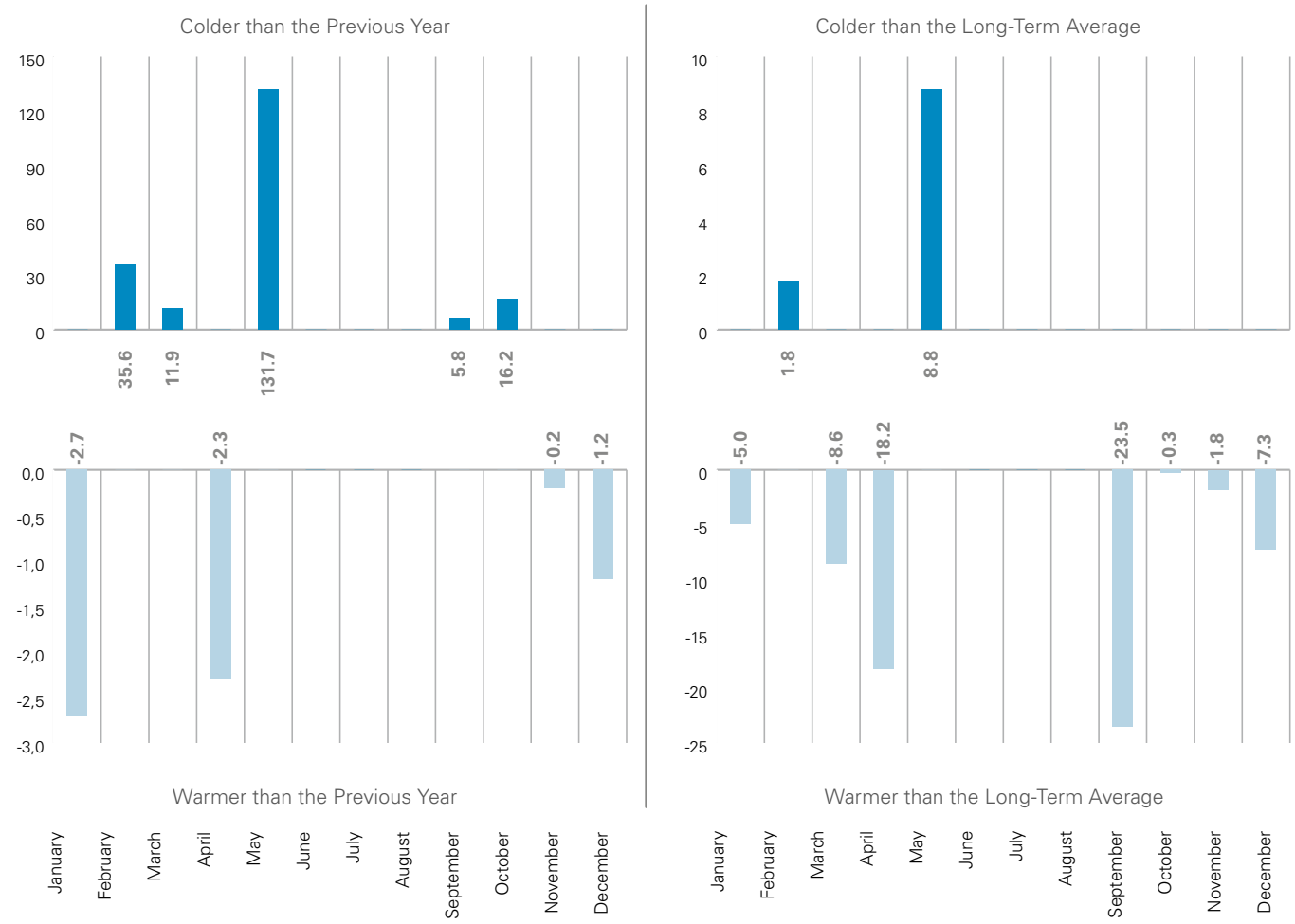
2) *The subsequent sections refer solely to the impact of temperature changes on the specific part of energy consumption that depends on space heating. Irrespective thereof, the growing share of renewables in energy consumption also causes the influence of the weather (i. e. the actual supply of wind, sunshine, and water and/or precipitation) on the amount and structure of (primary) energy consumption to increase as well. A reduced supply of wind or sunshine, without any storage option which could close the resultant production gap for wind power and photovoltaics, automatically induces an increased use of natural gas and coal for power generation and vice versa. Due to the different degrees of efficiency and/or valuation methods of the types of power generation referred to herein, "weather-related" structural shifts in the power generation mix also have an impact on primary energy consumption in addition to the temperature influence, whereby these influencing factors may mutually compensate or strengthen each other here as well.*
3) *Degree day figures (in accordance with DIN VDI 3807) are specifically defined as the sum of the differences between a fixed indoor temperature (here: 20° C) and the daily average temperature of those days on which the air temperature falls below the heating threshold temperature (here: 15° C).*
4) *When compared to the long-term average (average number of degree day figures between 1990 and 2024), the year 2025 was warmer. At an annual average (as measured by the degree days), the temperatures were 6.7 % higher than the values of the long-term average. If one were to shift one's considerations solely towards this long-term perspective, then primary energy consumption in 2025 would have been noticeably above the observed level provided that the weather conditions during this year had equaled those of the long-term average.*
5) *For assessing the long-term developments of energy consumption (as of 1990), the temperature adjustments in this report are generally conducted by taking the long-term average (in this report, between 1990 and 2024) into account (please see Table 15, Diagrams 15 and 16). For short-term comparisons, the weather conditions prevailing during any other comparative period (for example, the previous year) could also be considered as an alternative. It is obvious that both the level of the temperature-adjusted absolute energy consumption and the rate of change compared to the previous year depend on the reference period chosen for the respective adjustment procedure.*

Figure 1

AGEB
AG Energiebilanzen e.V.

Monthly Degree Day Figures in Germany (16 Measurement Stations)

Changes in 2025 compared to the previous year and to the long-term average (1990-2024) in %
Due to their limited informative value, the months of June and August are not included.



Source: Germany's National Meteorological Service (DWD)

and that inventory-adjusted data are taken into account for mineral oil consumption.[6] When taking these assumptions as a basis, then primary energy consumption would not have decreased by 0.4 % as was observed in 2025; instead, it would have dropped even more sharply during that time (rate of change in the weather and inventory adjusted primary energy consumption in 2024/2025: -2 %).

Depending on their specific use for space heating purposes, the adjustment effect has a different impact on the individual energy carriers (please see Figure 2).

When it comes to the influence of the weather, it is generally accepted that temperature-adjusted changes in energy consumption in comparably warmer years are stronger than changes in the original

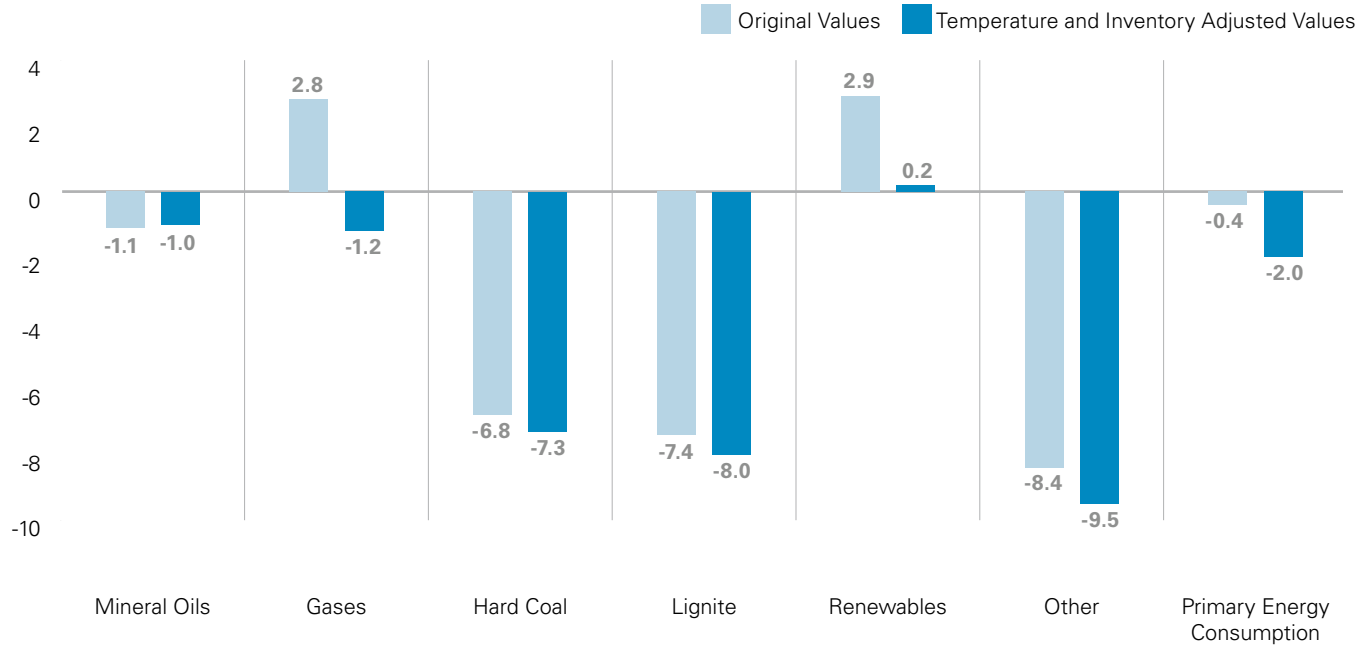
6) *The information on mineral oil consumption provided in the Energy Balance (particularly on light fuel oil) includes, in part, only sales figures. Hence, the actual consumption of this energy carrier may deviate from the indicated sales volumes by the respective changes in stockpiling. Yet official statistics actually record these inventory changes only for the energy sector and the manufacturing industry which means that the requisite figures can only be incorporated into the consumption calculations of these two sectors. No original statistical data are available on the changes in fuel oil stocks for private households and for the trade, commerce, and service sector. In order to close the described gap, the Arbeitsgemeinschaft Energiebilanzen (AG Energiebilanzen) – Working Group on Energy Balances (Energy Balances Group) has been using for quite some time now an econometrically based method which is designed to empirically determine the inventory changes for these sectors, and which permits complete and comprehensive consumption calculations also for mineral oils. For more details on this procedure, please see* Umsetzung eines Verfahrens zur regelmäßigen und aktuellen Ermittlung des Energieverbrauchs in nicht von der amtlichen Statistik erfassten Bereichen *(2016), a survey conducted by the AG Energiebilanzen on behalf of the German Federal Ministry for Economic Affairs and Energy (BMWi), pp. 82ff. (Internet: https://www.bmwi.de/Redaktion/DE/Downloads/Studien/umsetzung-verfahren-ermittlung-energieverbrauch-nicht-amtliche-statistik-langfassung.pdf?__blob=publicationFile&v=7 (download date: 2023-02-21; currently only available in German)).*

Figure 2

AGEB
AG Energiebilanzen e.V.

Primary Energy Consumption in Germany According to Energy Sources

Changes between 2025 and 2024 in %



Sources: Working Group on Energy Balances (AGEB); Germany's National Meteorological Service (DWD)

values; accordingly, in colder years the increases in temperature-adjusted values are generally lower than those in the original values. This becomes also apparent from the different spreads of the energy carriers depicted in Figure 2. When it comes to mineral oil, the (stock level adjusted) trend was additionally influenced by the fact that in light of the energy prices which experienced a decline when compared to 2024, primarily private (but also commercial) consumers stocked up on fuel oil and continued to refill their tanks in 2025 (stockpiling plus 60 PJ which translates into approximately 1.7 million liters).

When interpreting these effects, it needs to be considered that according to our estimates, consumers tended to replenish their fuel oil stocks during both years under review (2024 and 2025). Within the scope of the inventory adjustment, the influence of these stockpiling effects generally reduced the actual fuel oil consumption in both years at the current end point (albeit to a different extent).

To this must be added the influence of the temperature adjustment when compared to the long-term average. Since 2024 had been distinctly warmer than 2025 in comparison to the long-term average, the temperature adjustment had caused (fuel oil) consumption to increase more substantially in 2024 than this was the case in 2025.

Considering mineral oils as a whole, both partially opposing effects (stockpiling reduces the actual consumption of fuel oils whereas excluding the influence of the weather increases it) result in the fact that the primary energy consumption adjusted by inventory and temperature effects (as well as the observed mineral oil consumption) declined by about 1 % (and/or 1.1 %) in 2025 when compared to the previous year. Consequently, the inventory effects compensated and/or balanced almost completely the impact of the weather adjustment, which increases consumption when taken in isolation, on the observed development of consumption in 2025 if and when the weather adjustment, as done here, is carried out on the basis of the long-term average of the degree day figures between 1990 and 2024.

When it comes to gases, however, it is solely the weather effect which plays a role within the scope of the adjustment. Against this backdrop and after having excluded the temperature influence, gas consumption decreased by 1.2 % in contrast to the observed trend which actually recorded an increase in the consumption of natural gas (2.8 %). When it comes to coals and renewables, temperature effects only play a marginal role because these energy carriers are primarily used for the generation of electric power and/or the production of iron and steel.

Macroeconomic and Sectoral Factors

An export-oriented economy which also imports a substantial share of its demand for energy carriers and raw materials, as is characteristic for Germany, depends to a large extent on global economic trends. According to estimates of the International Monetary Fund (IMF), the global economy ought to have increased by 3.4 % in 2025.[7] For the eurozone, the IMF projections anticipate a moderate increase in growth to 1.4 % in 2025 (in 2024, it had still been 0.9 %).

The German economy was hardly able to benefit from the outlined moderate development of the global growth perspectives.

After two years of recession, the price-adjusted gross domestic product (GDP) in Germany increased slightly again in 2025 when compared to the previous year; in fact, it went up by about 0.2 % (2023: -0.7 %, 2024: -0.5 %).[8] Price-adjusted gross value creation declined by 0.1 % when compared to the previous year. It was, in particular, the manufacturing and construction industries where the price-adjusted gross value creation dropped by 1.3 % and 3.4 % respectively, whereas the service sectors exhibited a heterogeneous picture.

A negative growth contribution to the price-adjusted gross domestic product (-1.5 %) also came from the foreign trade balance in 2025. Exports of goods and services dwindled by 0.3 % in 2025[9] after they had shrunk already in the previous year (2024: -2.1 %). At the same time, the value of price-adjusted imports went up by 3.6 % in 2025 (previous year: -0.6 %).

Against this backdrop, the economic growth in 2025 was, first and foremost, due to the increased consumption expenditure of private households as well as higher public expenditure. Compared to the previous year, the price-adjusted consumption expenditure of private households increased significantly in 2025; namely, by 1.4 % (2024: 0.5 %). Public consumption expenditure also went up again by (a price-adjusted) 1.5 %; albeit to a lesser extent than in the previous year (+2.6 %). Compared to the previous year, gross fixed capital formation[10] went down by 0.5 % in 2025 (after it had already decreased by 3.3 % in the previous year). The negative development of gross fixed capital formation was primarily due to continuously dwindling equipment investments (machinery, equipment, and vehicles) which shrank by 2.3 % when compared to the previous year. And building investments (residential construction and non-residential construction and/or building construction and civil engineering projects), adjusted by price effects, decreased as well in 2025 when compared to the previous year; namely, by 0.9 %.

All told, the total domestic utilization increased by 1.7 % in 2025. For comparison: In the previous year (2023/2024), the total domestic utilization had only contributed a mere 0.2 % towards the economic growth.

Despite the moderate growth of the price-adjusted gross domestic product, the manufacturing industry (except for the sector "processing of rocks and stones") exhibited a negative economic trend in 2025 due to the development in the individual macroeconomic aggregates outlined herein.

The production trend of those economic branches which either directly sell a significant proportion of their production abroad or act as prepaid suppliers for export-dependent sectors was decelerated by the

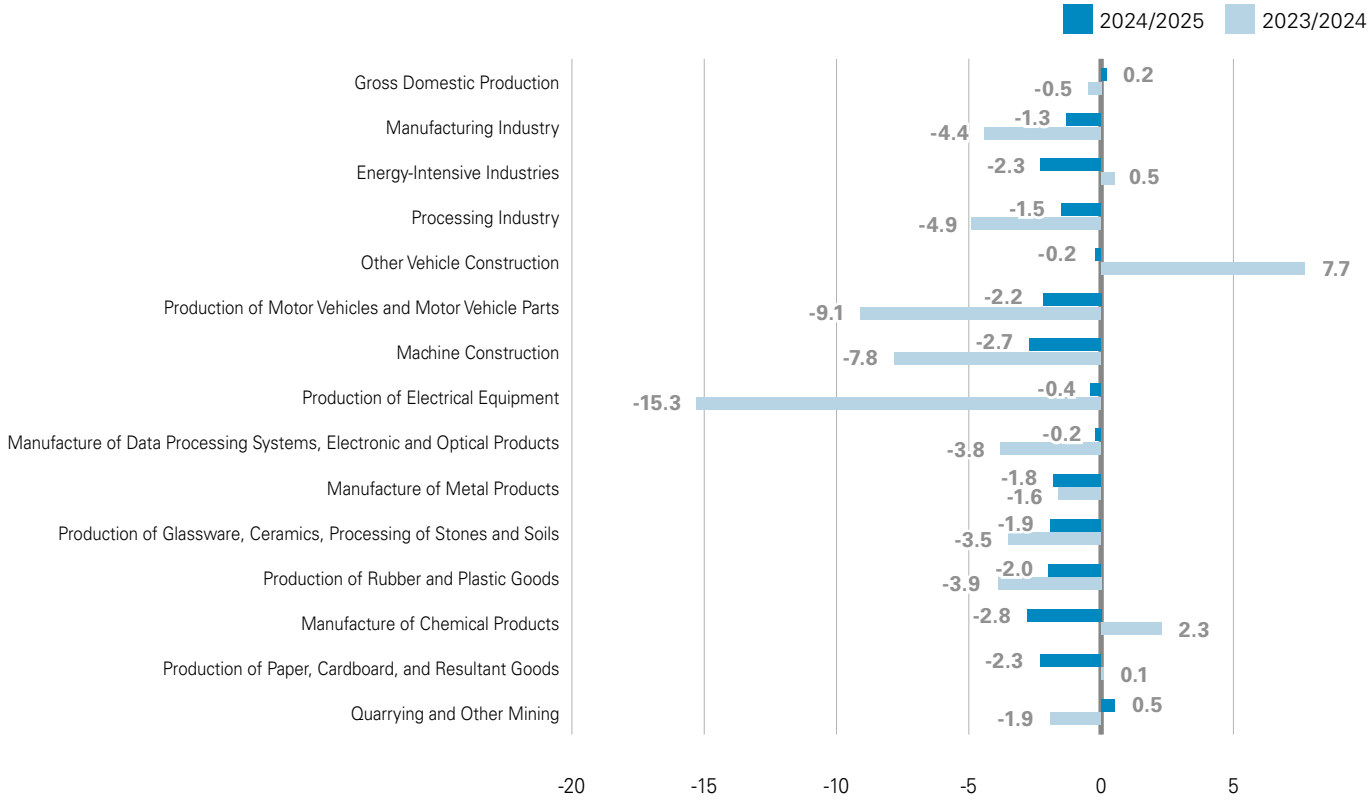
7) *Please see International Monetary Fund (2026), World Economic Outlook, April 2026.*
8) *For more details, please see Press Release No. 017, published by the Federal Statistical Office on January 15, 2026.* Gross domestic product up 0.2 % in 2025.
9) *Stronger economic growth was, thus, obstructed and impeded primarily by the weak development of exports resulting from the US customs policy, the appreciation of the Euro as well as increasing competition from China.*
10) *Investments into equipment, mechanical plants, and buildings (residential and non-residential buildings, including building construction and civil engineering) as well as changes in stocks.*

Figure 3

AGEB
AG Energiebilanzen e.V.

Production Index in Germany's Manufacturing Industry between 2024 and 2025

Changes compared to the previous year in %



Source: Federal Statistical Office (Destatis)

slump in exports. Economic branches which depend on the overall situation in the construction sector recorded setbacks in growth and/or reduced their production because price-adjusted construction investments (residential and non-residential buildings) continued to decrease in 2025 when compared to the previous year 2024. Those sectors which are active in the market as suppliers or producers of capital goods had to deal with production cutbacks because investments into equipment (i. e. machinery, technical equipment and facilities, etc.), adjusted by price effects, turned out to be 2.3 % lower in 2025 than in the year before. Energy-intensive sectors saw themselves confronted with a reduction of their international competitiveness due to the still relatively high energy price level in Germany and the resultant production cutbacks.

All told, the output in the producing industry decreased by about 1.3 % in the year 2025 (2023/2024: -4.4 %). In the manufacturing industry, production (also measured by the production index) shrank by 1.5 % in 2025 (after it had already decreased by 4.9 % in the year before). Energy-intensive economic branches were particularly affected by adverse economic processes; when compared to the year 2024, their production declined by approximately 2.3 % in 2025 (2023/2024 had still recorded a minimal growth rate of 0.5 % in these branches).

Against this backdrop, Figure 3 provides an overview of the annual rates of change in the production indices for eleven key economic branches of the manufacturing industry (aggregated at the two-digit level of the economic branch classification WZ) between 2024 and 2025:

- Of the eleven economic branches, only the sector "quarrying and other mining" was able to achieve increases in production in 2025 when compared to the previous year; with +0.5 %, however, the growth rate turned out to be extremely low. In the preceding year, this sector still had been forced to accept production cutbacks amounting to 1.5 %.

- Such particularly export-oriented sectors as "machine construction" and "manufacture of chemical products" exhibited the sharpest drops in production when compared to the average rates in the manufacturing industry (-2.7 % and -2.8 % respectively). When compared to 2024, the sector "production of motor vehicles and motor vehicle parts" also decreased by 2.2 % in 2025 after this branch had already recorded major production slumps in the previous year.[11]

- Energy-intensive and/or electricity-intensive economic branches did not emanate any positive growth impulses as well in 2025. Production in the sector "production of glassware, ceramics, processing of stones and soils" shrank by 1.9 %, "manufacture of metal products" by 1.6 %, and "production of paper, cardboard, and resultant goods" hovered more or less at last year's level with a plus of 0.1 % after these three economic branches had already recorded major production slumps in the previous year.

As a result of the described decline in production in the manufacturing industry as a whole, a consumption-reducing impulse can generally be expected once again for the use of energy in the reporting year 2025. The described effect tends to be strengthened by the disproportionally high production decrease in all energy-intensive sectors of the manufacturing industry.

It should be remembered at this point that the persistently high energy prices in all economic branches create additional incentives for the utilization of efficiency potentials that have not been used so far. High energy costs in combination with the expectation that a rapid and/or complete return to the former (low) price level is virtually impossible ought to further enhance the attractiveness and/or profitability of investments into energy-saving technologies (and methods designed to substitute energy, for example, with secondary raw materials). That is why despite the partly tense economic situation, improvements in energy productivity can be expected which go above and beyond the structural change in industry.

Demographic Factors

According to initial estimates of Germany's Federal Statistical Office (Destatis), an average of about 83.5 million inhabitants lived in Germany in 2025.[12] When compared to 2024 (end-of-year level), the total population, thus, decreased by approximately 100,000 people. For the first time ever since 2020, the net immigration, i. e. the difference between inward and outward migration, did not suffice to offset the negative balance between births and deaths in 2025.[13]

Under these premises, the number of households decreased slightly for the first time ever since 2020. According to the Federal Statistical Office, about 41.1 million private households existed in Germany in 2025, of which about 42.1 % were single-person households (which translates into approximately 17.3 million). Currently, an average of about 2.03 persons lives in one household in Germany.

That is why taken in isolation, the demographic development as well as changes in the household sizes are likely to have had only a slight consumption-reducing effect on the development of energy consumption in 2025.

Energy Prices

Energy prices play an important role when it comes to consumption behavior, efficiency improvements, and substitutions (between energy and capital as well as materials and/or resources). Generally speaking, the higher the prices for individual energy carriers are, the sooner efficiency improvements and substitutions occur.

As a direct consequence of the Russian invasion of Ukraine (February 2022), volatile energy prices with partially drastic price peaks and the associated effects on the economic development and the global demand for energy had exerted a substantial impact on the condition of the global energy markets in 2021/2022. With regard to the partially drastic increases in energy prices, a countermovement had started in 2023. At an

11) *All told, about 2.85 million passenger cars were newly registered in Germany in 2025, which was 1.4 % more than in the previous year. However, the number of all newly registered motor vehicles decreased by 2.4 % to a total of 3.4 million vehicles in 2025.*
12) *For more details, please see Destatis: Domestic Product Computation – Quarterly Results – Subject-Matter Series 18, Series 1.2 – 1st Quarter of 2026.* Gross domestic product: detailed results on economic performance in the 1st quarter of 2026. *Internet: https://www.destatis.de/EN/Themes/Economy/National-Accounts-Domestic-Product/_node.html (download date: 2026-05-27).*
13) *For more details, please see Destatis, Press Release No. 032 dated January 29, 2026:* Bevölkerung nimmt im Jahr 2025 um rund 100.000 Personen ab. *Internet: https://www.destatis.de/DE/Presse/Pressemitteilungen/2026/01/PD26_032_124.html (download date: 2026-05-27; currently only available in German).*

Table 2

AGE
AG Energiebilanzen e.V.

Prices of Selected Energy Sources

2024 and 2025; changes compared to the same period of the previous year in %

	2024	2025				
		1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Average
	Import Prices					
Mineral Oil	-2.4	-6.6	-24.2	-19.5	-22.0	-18.0
Natural Gas	-17.3	30.6	2.6	-9.3	-17.7	0.4
Hard Coal	-16.6	-16.8	-20.9	-19.1	-21.3	-19.5
	Consumer Prices					
Fuel Oil, Light	-3.8	-5.5	-9.4	-3.4	-2.4	-5.2
Natural Gas	-3.5	2.0	-0.1	0.6	0.3	0.7
Electricity	-6.4	-2.9	-2.4	-1.8	-1.6	-2.2
District Heating	27.1	9.7	-0.1	-1.9	-0.8	1.5

Source: Federal Statistical Office (Destatis)

annual average, the import prices for crude oil, natural gas, and hard coal decreased significantly again. At the level of the import prices, this trend continued slightly in 2024 and noticeably again in 2025. At an annual average and compared to the previous year, the import price for crude oil declined by 18.0 % in 2025. Equally pronounced were the price reductions on the import market for hard coal (-19.4 %). In contrast, the price for natural gas remained more or less at the previous year's level (+0.4 %) (please see Table 2).

Yet in 2025 as well, the import prices for all three energy carriers still continued to be slightly (ranging between 1 % for hard coal and about 3 % for natural gas and petroleum) above the import price level that had been observed in the year 2021, i. e. prior to the crisis.

In addition, the development of the exchange rate slightly reinforced the decline in energy prices on the global market for consumers in Germany. At an annual average, the exchange rate of the Euro against the US Dollar (by using the indirect quotation) increased by 4.4 % in 2025. This appreciation of the Euro against the US Dollar made imports of goods and services from the dollar zone even cheaper than before for domestic consumers.

Notwithstanding the above, the prices for domestic consumers deviate to some extent noticeably from the development of import prices because consumer prices, in addition to governmental taxes as well as statutory charges and levies,[14] also include such components as transport and distribution costs as well as other distribution expenses. In addition, due to the contractual ties that exist and depending on the specific energy carrier and customer group considered, import prices and/or procurement costs usually have no direct impact on the final consumer prices.

In 2025, consumer prices for natural gas increased slightly (+0.7 %) whereas the prices for electric power (across all customer groups) as well as fuel oil dropped by 2.2 % and 5.2 % respectively when compared to the previous year.

The consumer price trend for specific customer groups and/or end users will be highlighted in more detail in the respective sections of this report which refer to the individual energy carriers.

General Energy-Political and Regulatory Framework

Energy consumption is additionally influenced by political guidelines and regulatory requirements at a

14) *For example, the increase in the national CO_2 price by € 5/t, which had initially been scheduled for January 1, 2023, in compliance with the German Fuel Emissions Trading Act (BEHG – Act on National Certificates Trading for Fuel Emissions), was postponed by one year so that the fixed price for CO_2 remained unchanged at € 30/t in 2023. It was only in January 2024 when the price was increased to € 45/t, with the result that, for example, the price for natural gas on the heating market for private consumers went up from 0.54 ct/kWh (2022 and 2023) to 0.82 ct/kWh (2024). As per January 1, 2025, the CO_2 price for gasoline, fuel oil, and gas increased to € 55 per ton (which equals 15.7 ct/l for gasoline, 17.6 ct/l for diesel/fuel oil, and 1 ct/kWh for natural gas).*

national or a European level. In 2025, important new statutory regulations in the German energy sector revolved, for example, around the continued efforts to promote the expansion of renewables as well as around reforms undertaken to improve the system and/or grid integration of renewables with a particular focus on safeguarding a secure and reliable energy supply and keeping energy prices affordable.

The comprehensive amendment to the Energy Industry Act (EnWG Amendment 2025/Act on Amending the Energy Industry Law) was announced in Germany's Federal Law Gazette on December 22, 2025, and entered into force in the late autumn of 2025 as well as, in part, at the beginning of 2026. The EnWG Amendment 2025 transfers central requirements of the EU's Internal Electricity Market Directive (Directive (EU) 2024/1711) into German law and encompasses a host of new regulations. These include, for example:

- The discontinuation of remunerations for new plants and systems supported by the Renewable Energy Sources Act (EEG) in times of negative electricity exchange prices (Solar Peak Act designed to strengthen grid-friendly behavior)

- Improved rules and regulations for storage and grid integration (grid-friendly control methods for generation plants, bidirectional charging, regulatory relief in conjunction with the installation of battery storage systems in outdoor areas)

- Energy sharing (private households and commercial enterprises may join forces in renewable energy communities to share and/or use jointly produced solar or wind power at a local level)

With the national implementation of the EU's Renewable Energy Directive RED III (Implementation Act), which was approved by the German Bundesrat (Federal Council) on July 11, 2025, Germany's Federal Government has been working on the identification and designation of so-called acceleration areas where approval procedures for renewables are to be shortened significantly in the future.

On October 1, 2025, the draft of the Hydrogen Acceleration Act was adopted in the German Cabinet.[15] This act pursues the objective of simplifying and digitalizing the requisite approval procedures within the scope of the hydrogen ramp-up while also removing bureaucratic hurdles to reduce unnecessary red tape. The proposed regulations are to improve the availability of hydrogen in the long run.

With the amendment to the Greenhouse Gas Emissions Trading Act (TEHG), the requirements of the EU's revised and reviewed Emissions Trading System Directive were transferred completely into German law. This encompasses, on the one hand, the further implementation of the existing EU-ETS 1 – which includes the reduction of the volume of emissions and/or certificates (CAP) by 2030 as well as efforts to strengthen the market stability reserve.

The reduction of the emission ceiling (by 2030, emissions will be reduced by 62 % when compared to 2005) implies that the linear reduction factor of currently 2.2 % p. a. (2024) will be increased to 4.3 % (2025 to 2027) and to 4.4 % as of 2028.

Other core elements of the EU-ETS 1 reform include the integration of such additional sectors as maritime transport, a reform of the regulations for air traffic as well as the preparation of the legal framework for the implementation of the EU-ETS 2 for buildings, transportation, and other sectors. With the decision reached by the EU's environmental ministers in November 2025, though, the start of the EU-ETS 2 was postponed by one year to 2028. Due to the transition mechanisms stipulated in the German Fuel Emissions Trading Act (BEHG), the national emissions trading system (nETS) will, thus, remain fully applicable also in 2028.[16]

15) *The Hydrogen Acceleration Act (WasserstoffBG) became effective on April 2, 2026.*
16) *CO_2 pricing was introduced in Germany's heating and transportation sectors as of January 2021 within the scope of the Climate Action Program 2030 (German Fuel Emissions Trading Act (BEHG – Act on National Certificates Trading for Fuel Emissions). Since then, both private and commercial consumers (non-ETS) have had to pay a CO_2 surcharge amounting to 25 euros per ton of carbon dioxide content for such energy carriers as fuels, fuel oil, or natural gas. The CO_2 price within this national emissions trading system was gradually increased by 2025. On January 1, 2025, the CO_2 price was increased to 55 euros per ton. In 2026, the BEHG has undergone a fundamental change. As of this year, emissions certificates will be sold by auction within a price corridor of 55 euros to 65 euros per ton of CO_2. As of 2027, the price for CO_2 emissions in the transportation and building sectors is to be linked to the market mechanisms of a European emissions trading system.*

The Carbon Border Adjustment Mechanism (CBAM), a tool designed to protect against "carbon leakage," had already been introduced in October 2023. Since then, importers of CBAM products[17] have been required to report about the CO_2 emissions that are embedded in their imported products ("grey energy and/or emissions"). As of 2026, CO_2 certificates need to be purchased and surrendered at the price of EU allowances also for these reported emissions. When it comes to the Carbon Border Adjustment Mechanism, the regulations dating back to 2025 brought important improvements and preparatory arrangements for the final implementation phase. In particular, the EU reached a decision on alleviations for smaller importers. Since the Regulation (EU) 2025/2083 entered into force in October 2025, substantial relief has been in place for commercial enterprises importing less than 50 tons of CBAM goods per year; these companies are exempted from the CBAM reporting obligation (de minimis limit).[18]

17) Energy-intensive basic materials and products derived therefrom.
18) The de minimis limit does not apply to the import of electricity and hydrogen.

Dependence on Energy Imports

When it comes to an economy's resilience to energy crises, the availability, production, and utilization of domestic energy resources play a role that should not be underestimated. Stable domestic production volumes generally reduce the dependence on imports and lower the risk of disturbances or disruptions in the overall supply as well as the commodity price risk for businesses and consumers.

On a global scale, Germany is considered to be a country with rather poor resources, renouncing the use as well as also increasingly abandoning the production of indigenous coal reserves while at the same time systematically expanding the use of renewable energy sources which are considered part of the domestic energy production. Against this backdrop, a glance at Germany's foreign trade balance, differentiated according to the individual types of energy carriers, is of particular interest. Germany is a major net importer of virtually all fossil fuels (i. e. hard coal, mineral oil, and natural gas). Nor did this situation fundamentally change in 2025; Germany's dependence on imports remained at a level that was about as high as it had been in the previous year even though the procurement and/or supply structures of energy imports (natural gas, hard coal, petroleum) changed dramatically because Germany turned away from Russia as the hitherto most important energy supplier.

In 2025, domestic primary energy consumption was covered by imports amounting to more than 96 % for mineral oils and about 89 % for natural gas. 100 % of the hard coals came from foreign sources. In contrast, 100 % of the lignite continued to be available from indigenous sources, and renewables also came almost entirely from domestic production. Thus, a total of 65.6 % of Germany's entire energy supply was dependent upon energy imports in 2025.

What changed fundamentally were the import prices for energy carriers. All told, the further reduction of import prices when compared to 2024, together with the dwindling domestic primary energy consumption and the associated decline in energy imports, caused the import calculation for coal, oil, and gas to decrease by 0.7 billion euros from about 67.5 billion euros in 2024 to 66.8 billion euros in 2025, which equals a total reduction of 1 %. The value of (net) oil imports decreased by more than 18.9 %, the value of coal imports even by 26.1 %. The value-based import balance for natural gas, however, increased by more than 48 % as a consequence of growing transit volumes.

Table 3

AGEB
AG Energiebilanzen e.V.

Balance of Foreign Trade with Energy Carriers in Germany between 2021 and 2025

	2021	2022	2023	2024	2025	Changes in 2025 Compared to 2024	
						Billion Euros	%
Coal, Coke, and Briquettes	4.7	12.8	6.9	4.7	3.5	-1.2	-26.1
Petroleum, Petroleum Products, and Related Goods	36.6	62.2	48.8	44.2	35.8	-8.4	-18.9
Gas [1]	27.8	60.5	25.7	18.5	27.5	8.9	48.1
Total Fossil Fuels	**69.0**	**135.4**	**81.4**	**67.5**	**66.8**	**-0.7**	**-1.0**
Electric Power	-2.3	-5.3	0.7	2.0	2.5	0.5	27.3
Total	**66.8**	**130.1**	**82.1**	**69.5**	**69.3**	**-0.1**	**-0.2**

1) Including transit volumes, gas (SITC 34): Natural gas in gaseous or liquefied state, propane and butane liquefied

Source: Federal Statistical Office (Destatis)

In 2025, as already in the previous year, more electricity flowed from neighboring countries into Germany than conversely from Germany into countries abroad. This made Germany a net importer of electric power once again. Against this backdrop, this resulted in a (value-based) import surplus amounting to 0.5 billion euros for electric power in 2025. For comparison: In 2022, Germany had still exported electricity into neighboring countries which (on balance) amounted to 5.3 billion euros (please see Table 3).

Primary Energy Production in Germany

Except for renewables, domestic energy production decreased for all other energy carriers in 2025 which resulted in an overall decline of approximately 0.6 % to 3,368 PJ or 115 Mtce (please see Table 4).

The domestic production of fossil fuels attained a level of 1,169 PJ in 2025; compared to the year 2024 (1,237 PJ), this equals a decline of 68 PJ which translates into 5.5 %. The decline in domestic energy production was primarily due to the dwindling contribution of lignite whose production dropped by 59 PJ in 2025 when compared to 2024 (which equals a minus of 7.1 %).

Compared to 2024, the production of natural gas in 2025 declined by about 5 PJ and, thus, by nearly 3.9 %;[19] the production of petroleum is likely to have decreased by 4.4 % (3 PJ) over the same period of time.

A positive contribution towards domestic energy production in 2025 came once again from renewable energy sources; even though there was a reduced supply of wind when compared to the previous year, they managed to expand their production due to the construction of new plants and increased global radiation (and, thus, PV power generation) by 47 PJ which translates into 2.2 %.

The overall result shows that renewables represented the most important indigenous energy source with an approximate proportion of 65.3 % in 2025. As much as about 22.8 % of the domestic energy production was still provided by lignite in 2025. However, both energy carriers (renewables and lignite) continued to rank far ahead of the domestic production of natural gas and petroleum.

When taking primary energy consumption into account, the proportion of domestic production amounted to 32 % in 2025; it, thus, remained unchanged when compared to the previous year (please see Table 4). The constancy in this share can be attributed to the fact that primary energy consumption (according to the available estimates) decreased to virtually the same extent as domestic energy production (-0.6 %); namely, by 0.4 %.

Table 4

AGEB
AG Energiebilanzen e.V.

Primary Energy Production in Germany in 2024 and 2025

	Production				Changes in 2025 Compared to 2024		Proportions	
	2024	2025	2024	2025			2024	2025
	Petajoules (PJ)		Million Tons of Coal Equivalents (Mtce)		PJ	%	%	
Mineral Oil	69	66	2.4	2.3	-3	-4.4	2.0	2.0
Natural Gas	133	128	4.5	4.4	-5	-3.9	3.9	3.8
Hard Coal	0	0	0.0	0.0	0	0.0	0.0	0.0
Lignite	826	767	28.2	26.2	-59	-7.1	24.4	22.8
Renewable Energy	2,152	2,199	73.4	75.0	47	2.2	63.5	65.3
Other Energy Carriers	209	208	7.1	7.1	-1	-0.5	6.2	6.2
Total	**3,389**	**3,368**	**115.6**	**115.0**	**-21**	**-0.6**	**100.0**	**100.0**
For Information Purposes: Proportion of Primary Energy Consumption							32.1	32.0

Some figures are estimates; discrepancies in the totals are due to rounding off

Sources: Working Group on Energy Balances (AGEB); German Association of Energy and Water Industries (BDEW); The German Coal Industry's Statistical Office; Federal Office for Economic Affairs and Export Control (BAFA); en2x-Fuels & Energy Business Association; Working Group on Renewable Energy Statistics (AGEE-Stat)

19) Over the past few years, the domestic production of petroleum and natural gas dropped because of the increasing depletion of old fields and deposits. To that extent, this trend continued during the reporting year 2025. However, it also needs to be pointed out in this context that the production of natural gas and petroleum not only depends on geophysical-technical factors, but also on economic constraints. Increasing oil and gas prices usually generate a particular impulse to reinforce the exploration efforts. Also worth mentioning here is that in times of high energy prices, the recommissioning of old fields and the use of new production technologies can perhaps be economically viable as well.

Mineral Oil

According to preliminary calculations made by the AG Energiebilanzen, the primary energy consumption of mineral oil in Germany amounted to 3,789 PJ (129.3 Mtce) in 2025, which was 1.1 % below the previous year's level.

The development of domestic sales of mineral oil products recorded a decline of 2.1 % in 2025. Taken together, consumption of the most important mineral oil products developed very differently from one another (please see Table 5): Compared to

Table 5

AGEB
AG Energiebilanzen e.V.

Consumption and Volume of Mineral Oil in Germany in 2024 and 2025

	2024		2025 [1]		Change [2]
	PJ	in Million Tons	PJ	in Million Tons	in %
Total Consumption	**3,830**	**89.4**	**3,789**	**88.4**	**-1.1**
Self-Consumption and Losses [3]	183	4.1	195	4.3	6.1
Statistical Differences	52	1.2	26	0.6	
Domestic Consumption	3,699	86.5	3,621	84.6	-2.1
Proportion of: Gasoline	810	18.6	777	17.8	-4.1
Diesel Fuel	1,301	30.3	1,335	31.1	2.6
Aviation Fuels	386	9.0	394	9.2	2.0
Fuel Oil, Light	507	11.9	468	11.0	-7.7
Fuel Oil, Heavy	45	1.1	28	0.7	-37.8
Naphtha	264	6.5	256	6.3	-3.3
Liquid Gas	146	3.2	126	2.7	-14.3
Refinery Gas	54	1.2	58	1.3	8.0
Petroleum Coke	19	0.6	20	0.6	8.5
Other Products	166	4.1	159	3.9	-4.1
Total Volume					
Domestic Production	69	1.6	66	1.6	-4.4
Refinery Production	4,098	96.4	3,914	92.2	-4.5
Generated from: Input of Crude Oil	3,682	86.2	3,516	82.2	-4.5
Input of Products	408	10.2	400	9.9	-1.8
Foreign Trade Products (Balance)	220	4.9	277	6.3	
Imports	1,439	33.9	1,402	33.0	-2.6
Exports	1,220	29.0	1,125	26.7	-7.7
Compensation [Balance (Bunker, Differences)]	-487	-11.9	-402	-10.1	
Refining Capacity		105.7		105.7	0.0
Utilization of Refining Capacity in %		81.6		77.8	
Primary Energy Consumption of Mineral Oil	**3,830**	**89.4**	**3,789**	**88.4**	**-1.1**

1) Preliminary data for 2025; some figures are estimates
2) Change in % based on the data in petajoules (PJ)
3) Energy consumption in the petroleum processing conversion sector, crude oil flare and pipeline losses, and the balance of petroleum product conversion inputs and outputs in the petroleum processing and other energy producing sectors

Sources: Working Group on Energy Balances (AGEB); Federal Office for Economic Affairs and Export Control (BAFA)

the previous year, the consumption of diesel fuels increased by 2.6 % to 1,335 PJ (31.1 million tons). Gasoline fuels exhibited an opposing trend; their demand diminished by 4.1 % in 2025 when compared to the previous year. The consumption of aviation fuels increased by 2.0 % during the reporting year 2025. Thus, sales in this segment amounted to about 394 PJ, which translates into 9.2 million tons, in 2025. All told, the demand for fuels (2025: About 2,506 PJ which equals 58 million tons), which accounted for an approximate share of 69 % in Germany's total domestic sales, was about 0.3 percentage points or 8 PJ higher in 2025 than it had been in 2024.

With a decrease of 7.7 %, which equals 39 PJ (0.9 million tons), sales of light fuel oil experienced a downward trend. Despite the cooler weather (for more details, please see Section *Temperature and Weather Influence* hereinabove), continued savings in fuel oil were due to the substitution of oil-fired heating systems, ongoing efficiency improvements as well as attitude and behavior related savings on part of the consumers.

Refinery production dropped by almost 4.5 % to a level of 92.2 million tons in 2025. Towards this end, refinery production from crude oil, which accounted for a share of 89.8 % (2025), went down by more than 4.5 % when compared to 2024 while the processing of products declined by 1.8 %. In light of the decreased production, the refining capacity of 105.7 million tons, which compared to the previous year remained unchanged once again, was actually utilized at 77.8 % in 2025; in 2024, the degree of utilization had amounted to 81.6 %.

Foreign trade in mineral oil products (without crude oil) changed significantly in 2025. On balance, imports predominated in 2025; with 1,402 PJ (33.0 million tons), they topped the exports which amounted to 1,125 PJ (26.7 million tons). When compared to 2024, quantitative exports of mineral oil products decreased by 7.7 % and quantitative imports by 2.6 % (please see Table 5).

In 2025, the final energy sectors consumed about 2,988 PJ of mineral oil products which was approximately 0.5 % more than in the year 2024.

Fuel consumption (gasoline and diesel fuels, aviation fuels as well as small amounts of liquid gas) accounts for the largest final energy sector by far. In 2025, a total of 2,336 PJ of fuels were used, for example, for the propulsion of vehicles, ships, and airplanes which was 1.7 % (38 PJ) more than in 2024. When interpreting the overall development in the fuel market outlined herein, it needs to be kept in mind that fuels are not used solely in the transportation sector, but also in industry, private households, and the trade, commerce, and service sector. In the transportation sector, i. e. for meeting mobility needs, about 2,336 PJ of fuels were consumed in 2025 which was 1.7 % more than in the year before. Private households consumed about 402 PJ of mineral oil products (primarily fuel oil, light, as well as small amounts of liquid gas and gasoline fuels)[20] for the heating of residential premises and the preparation of hot water in 2025. Consumption/sales in this consumption segment decreased by 5.0 % when compared to the previous year. The final energy consumption of mineral oil products in the sectors trade, commerce, and services as well as industry is rather of subordinate relevance. In 2025, the trade, commerce, and service sector used about 169 PJ in the form of diesel fuel (for example, for the operation of machinery and farm tractors in the agricultural and construction sectors) as well as fuel oil and liquid gas primarily for the heating of business premises and commercial sites. Industry consumed about 81 PJ of mineral oil products (fuel oil, light and heavy, diesel fuel, refinery gas as well as other mineral oil products) in 2025. Within industry, basic chemistry is an area of high demand (please see Table 6). In the chemical industry, mineral oil products are not only used for the production of process heat, but to a considerable extent also as a raw material. If one were to attribute these quantities (2025: 796 PJ), which are recorded in Germany's Energy Balance as "non-energetic consumption," to the chemical industry, then industry's mineral oil consumption as a whole would amount to 877 PJ which would make it rank second behind consumption in the transportation sector.

Due to its limited domestic petroleum resources, Germany is primarily dependent on crude oil imports; according to data released by the Federal Statistical Office, the total import volume amounted to

20) The volumes of gasoline fuels recorded in the private household sector of the Energy Balance for Germany are not used for the propulsion of passenger cars, but primarily for the operation of such engine-powered garden tools as, for example, gas-driven lawn mowers or the like.

Table 6

AGEB
AG Energiebilanzen e.V.

Mineral Oil Balance[1] for Germany in 2024 and 2025

in PJ

		2024	2025 [2]	Change
		Petajoules (PJ)		in %
Domestic Production		69	66	-4.4
+	Imports	5,029	4,836	-3.8
=	**Volume**	**5,098**	**4,903**	**-3.8**
+/–	Change in Stocks (Reduction: +, Replenishment: -)	-5	-63	1,193.9
–	Exports	1,273	1,177	-7.5
=	**Primary Energy Consumption**	**3,830**	**3,789**	**-1.1**
–	Use in Power Plants [3]	35	34	-3.0
–	Use in Combined Heat and Power Plants (Heat)	7	8	6.5
–	Other Conversion Input [4]	4,354	4,177	-4.1
+	Conversion Output	4,394	4,202	-4.4
–	Consumption during Production and Conversion as well as Non-Energetic Consumption	901	796	-11.7
+	Statistical Differences / Flare Losses (Balance)	-47	-11	-
=	**Final Energy Consumption**	**2,973**	**2,988**	**0.5**
	Industry [5]	80	81	0.9
	Including			
	Basic Chemistry	45	46	1.6
	Transportation	2,298	2,336	1.7
	Households	423	402	-5.0
	Trade, Commerce, and Services	172	169	-1.6

1) Mineral oil = crude oil, fuels, heating oil, petroleum coke, liquefied petroleum gas, refinery gas, and other petroleum products
2) Preliminary data for 2025; some figures are estimates
3) Used for electricity generation in general utility power plants, industrial and combined heat and power plants, and grid feeders
4) Mineral oil processing, other energy producers and coking plants
5) Including the use of mineral oil products for heat generation in industrial cogeneration plants

Sources: Working Group on Energy Balances (AGEB); Official Mineral Oil Statistics

75.7 million tons in 2025; this exceeded the previous year's level by 3.6 % which translates into 2.8 million tons.[21] Compared to previous years, the procurement regions for deliveries of crude oil to Germany had already shifted significantly in 2023. The main cause of these structural shifts had been the resolutions adopted by the EU on the imposition of an embargo on oil from Russia.[22]

21) According to the Official Mineral Oil Statistics, whose data also form the basis of Germany's Energy Balance, crude oil imports attained a level of 80.3 million tons in 2025. However, the data indicated in the Official Mineral Oil Statistics do not provide any breakdown of crude oil imports according to individual procurement regions and/or countries so that at this point (please see also Table 7), reference was made to the pertinent data published by the Federal Statistical Office.
22) The first step of the EU sanctions, which became effective on December 5, 2022, stipulated a stop of crude oil imports via maritime transport (oil tankers). The second step of the embargo put a ban on imports of crude oil via the Druzhba pipeline as of January 1, 2023, and the third step finally prohibited imports of diesel and other mineral products (as of February 5, 2023). At the same time, a price cap for crude oil amounting to 60 US dollars per barrel was agreed upon; this price cap is designed to force Russia into selling crude oil to clients in non-EU countries at prices that do not exceed this cap.

Table 7

AGEB
AG Energiebilanzen e.V.

Germany's Crude Oil Imports in 2024 and 2025 According to Countries of Origin

Important Supplier Countries/Production Regions	2024	2025	Changes 2024/2025	2024	2025
	in Million Tons		in %	Proportions in %	
Russia	0.0	0.0	-100.0	0.0	0.0
United Kingdom	8.2	8.7	5.6	10.4	11.4
Norway	15.3	12.5	-17.8	19.4	16.6
Kazakhstan	10.6	10.3	-2.3	13.5	13.7
USA	14.3	12.4	-12.9	18.2	16.4
Nigeria	2.5	2.9	19.3	3.1	3.9
Other Countries	27.7	28.8	3.8	35.3	38.0
Total	**78.5**	**75.7**	**-3.6**	**100.0**	**100.0**
OPEC	17.6	20.0	13.6	22.4	26.4
North Sea [1] (Excld. FRG)	23.8	21.6	-9.5	30.4	28.5
Former CIS	12.4	12.0	-3.0	15.8	15.9
Other	24.8	22.2	-10.4	31.5	29.3
Total	**78.5**	**75.7**	**-3.6**	**100.0**	**100.0**

1) Including other EU countries

Discrepancies in the totals are due to rounding off.

Source: Federal Statistical Office (Destatis)

Against this backdrop, imports of crude oil from the states of the Russian Federation dwindled fundamentally in the expanded German import market. Already in 2023, crude oil imports from Russia had gone down by almost 100 % when compared to the previous year (which, however, still equaled a supply share of 0.1 % in the crude oil import market). Then in 2024, Russian crude oil deliveries to Germany had virtually come to a complete standstill; in 2025, no crude oil was procured from Russia anymore. For comparison: In 2021, Germany had still imported 27.7 million tons, which translates into a share of 34.4 %, of its total import volume from Russian deposits. The decline in Russian oil supplies was compensated by increased procurement volumes from other supplier countries; above all, the USA, Norway, and other countries.[23]

In 2025, the most important supplier countries for crude oil were (with regard to their market shares) Norway and the USA whose supply shares in total imports amounted to 16.6 % and 16.4 % respectively. Kazakhstan and the United Kingdom followed in third and fourth place with supply shares of 13.7 % and 11.4 % respectively (please see Table 7).

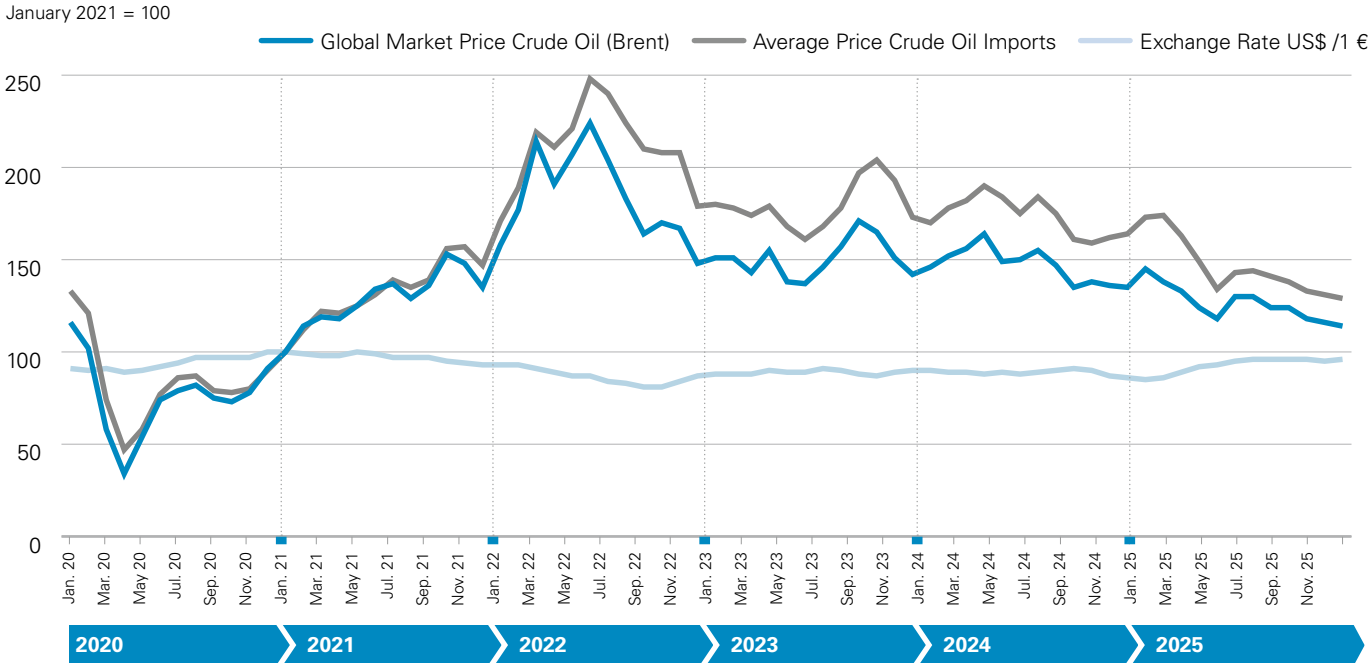
Split into individual oil producing regions, the proportion of crude oil imports from the countries of the former Soviet Union (CIS states) increased marginally from 15.8 % (2024) to 15.9 % in 2025 even though there were, in absolute terms, slight declines in the shrinking market. Significant increases in their shares from 22.4 % in 2024 to 26.4 % in 2025 were recorded by the OPEC states; in fact, they were the only region to also exhibit absolute growth (+13.6 %). Noticeable declines in their shares were recorded by the countries bordering the North Sea; their deliveries of crude oil decreased by 9.5 % and, thus, attained a market share of 28.5 % in 2025 (2024: 30.4 %).

International oil prices and the Euro/US Dollar exchange rate, which determine the price for German

23) For more details on this topic, please see infoplus 02/2024: Mineralölversorgung klappt auch ohne Russland. *Internet: https://ag-energiebilanzen.de/wp-content/uploads/2024/07/AGEB_InfoAusgabe-2-2024.pdf (download date: 2025-04-07; currently only available in German).*

Figure 4

Global Market Prices for Crude Oil (Brent),[1] Border-Crossing Prices for German Crude Oil Imports,[2] and Exchange Rates between 2020 and 2025



1) *Original values in US dollars per barrel*
2) *Original values in euros per ton*

Sources: Federal Ministry for Economic Affairs and Energy (BMWi); Deutsche Bundesbank (German Central Bank); en2x-Fuels & Energy Business Association

crude oil imports, exhibited a downward trend in 2025, with smaller short-term fluctuations (please see Figure 4).

While the prices for crude oil grade Brent UK, which is important for Europe, with an annual average of about 80 US dollars per barrel (US $/bbl; 1 barrel = 159 liters) in 2024 had once again fallen approximately 2 US dollars below the previous year's values, they decreased significantly to a level of 69 US dollars in 2025. Thus, the price for Brent in 2025 fell for the first time again below the price level that had been attained in 2021.

Over the course of the year 2025, the decline in prices outlined above showed a much more pronounced development in individual months. Based on its highest value in January (with about US-$ 79/bbl), the crude oil price (Brent UK) dropped relatively steadily to US-$ 64/bbl in May 2025. An increase to US-$ 71/bbl was attained in June; thereafter, a continuous decline (with fluctuations) in the crude oil price could be observed so that the price level finally reached an annual low of just under US-$ 63/bbl in December 2025.

Compared to the pandemic-related low in May 2020 (about US-$ 18/bbl), the oil price based on dollars was three to four times higher during all months of the current reporting year.

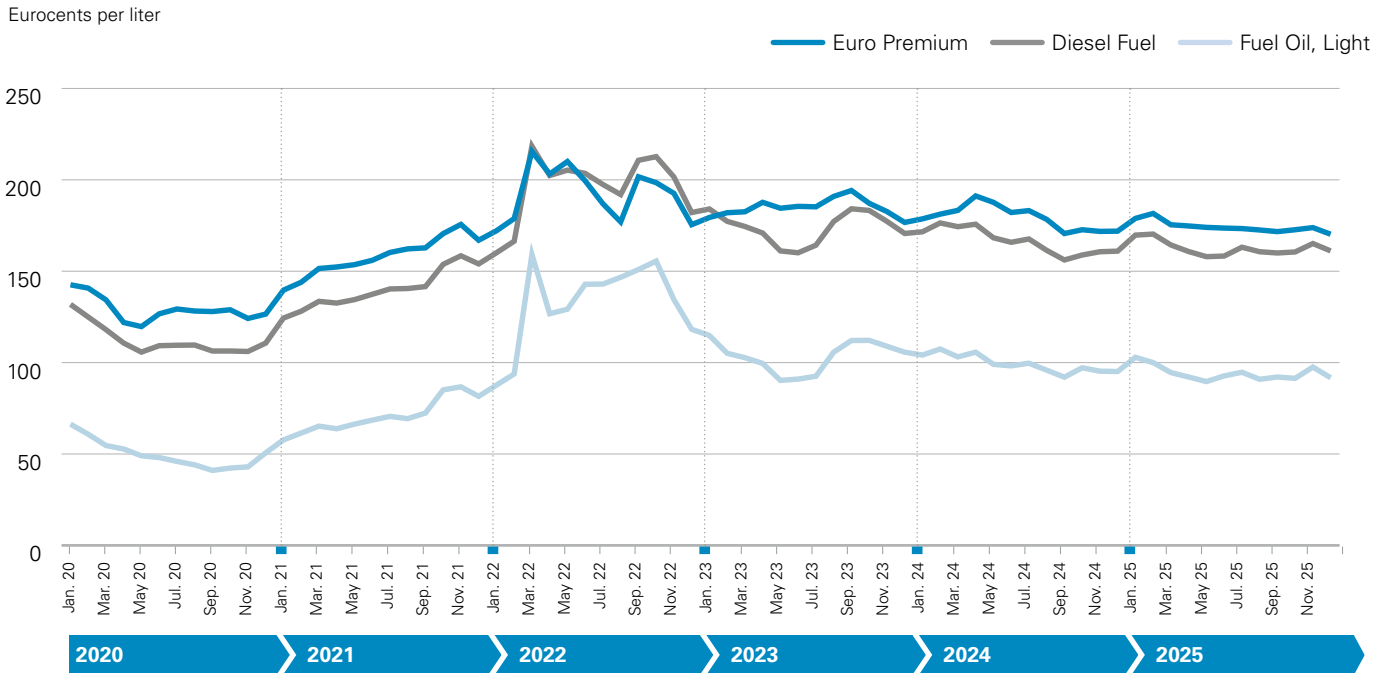
German crude oil import prices (average price of crude oil imports, in €/t) developed in line with the trend parallel to the global market prices. Differences are essentially influenced by fluctuations in the exchange rate of the Euro (to the US Dollar). Since January 2025, the exchange rate increased (with fluctuations) from US-$ 1.04/€ (indirect quotation) to about US-$ 1.17/€ until the end of the year 2025. At an annual average and when compared to the year 2024, the exchange rate in 2025 increased by almost 4.4 % to US-$ 1.13/€ (appreciation of the Euro against the US Dollar).

Consequently, the (moderate) appreciation of the Euro at an annual average as described above proved to

Figure 5

AGEB
AG Energiebilanzen e.V.

Prices for Fuels and Light Fuel Oil in Germany between 2020 and 2025



Sources: en2x-Fuels & Energy Business Association; Federal Statistical Office (Destatis)

have additionally supported the decline in crude oil prices on the global market for German consumers and resulted in more considerable price drops for these domestic consumers. All told, German crude oil import prices (on an annual basis and calculated in Euro/bbl) decreased to a somewhat greater extent (-15.9 %) than the global market prices (in US-$/bbl) for crude oil (-14.1 %) between 2024 and 2025.

Converted into euros and tons, German crude oil import prices went down from an annual average of € 569/t in 2024 to about € 478/t in 2025. For comparison: In 2021, the import price for crude oil had amounted to € 432/t (and in the crisis year 2022 to € 690/t).

Prices for oil products in Germany followed primarily the changes in crude oil costs and in international product quotations; albeit at different rates (please see Figure 5).

Compared to the previous year, prices for fuels decreased. On an annual average in 2025, diesel fuel was approximately 2.3 cents cheaper than in the year before (-3.8 %) whereas prices for gasoline fuels at gas stations decreased by 2.8 ct/liter (-5 %) over the same period of time. At the fuel pumps, car drivers (as well as commercial freight transport) had to pay about € 1.74/liter for gasoline fuels (Euro-Super premium) and about € 1.63/liter for diesel fuels in 2025. From an overall perspective, fuel prices in the reporting year 2025 were once again significantly below the peak values that had been attained in 2022.

At an annual average, consumer prices for light fuel oil dropped by about 5.2 % in 2025. Thus, a liter of fuel oil cost in total and on average € 0.94/liter in the year 2025.

Considering the entire year under review, the prices for the mineral oil products mentioned above experienced a volatile trend; albeit the overall fluctuations in prices were less pronounced over the course of the reporting year 2025 than during the previous years.

In 2025, the price for premium gasoline at the fuel pumps fluctuated between a minimum of € 1.70/liter (December 2025) and a maximum of € 1.82/liter (February 2025); thus, ranging between -2.4 % and +4.1 % around the average value. When it comes to the price for diesel fuel, the spread around the average

value proved to be slightly more pronounced with fluctuations between -2.8 % and +4.7 %, whereby the low was reached at a price level of € 1.58/liter in May 2025.

Over the course of the year 2025, the consumer price for light fuel oil followed more or less the curve of the price trend that was observed for diesel fuel; albeit at a lower level. With about 90 ct/liter, one liter of fuel oil (light) was cheapest in May 2025, and with € 1.03/liter most expensive in January (2025); this means that the prices fluctuated between -4.8 % and +9.2 % (related to the average value). For customers buying fuel oil, this development produced, in the worst case, price differences amounting to about 13 ct/liter, depending on whether the order was placed during the heating period (January 2025) or in May.

Natural Gas

According to preliminary data, natural gas consumption in Germany increased by 2.8 % to about 779 billion kWh (H_i), which translates into 2,804 PJ (H_i), in 2025.[24] In light of the overall shrinking demand for energy, the increase in natural gas consumption caused the proportion of natural gas of the total primary energy consumption to increase as well. When compared to 2024, the latter increased by 0.8 percentage points to 26.6 % in 2025. In 2025, the development of natural gas consumption described herein was essentially characterized by a price level that was still comparatively high, continuous savings measures on part of the consumers and, finally, the economic slump.

Domestic production of natural gas continued to decline in 2025; with an estimated volume of approximately 35.5 billion kWh, it will, thus, fall 3.9 % below the previous year's level (2024: 37.0 billion kWh). In 2025, domestic production of natural gas covered about 4.6 % of Germany's natural gas consumption. About 95.4 % of the natural gas used or, on balance, stored in Germany were imported.

Since the reporting year 2018, the data reflecting the development of natural gas imports and exports have also included all transit volumes which pass through the Federal Republic of Germany's territory to its neighboring countries. That is why only the foreign trade balance (net imports) will be examined closer here. In 2025, the import volume of natural gas remaining in Germany (imports minus exports) increased slightly to 693.7 billion kWh (H_i) after (on balance) 692.5 billion kWh (H_i) of natural gas had still been imported in the previous year. Thus, the net import volume increased by about 0.2 % when compared to the previous year. Total imports (including transit volumes) went up by almost 21 % to 959 billion kWh in 2025. Exports (also including transit volumes) went up as well; namely, by 157.7 % to 265.7 billion kWh.[25]

With regard to the origin of the natural gas consumed in Germany, the following picture becomes apparent: With a market share of more than 42 %, Norway turned out to be by far the most important supplier of natural gas to Germany. Across the Dutch border as well, Germany continued to source considerable volumes of natural gas in 2025 (which, related to the total consumption, ranged between 3.5 % and 6.6 %); however, a substantial portion thereof consisted of transit volumes whose regional origin cannot be determined exactly. After the shutdown of the gas field in Groningen, the natural gas volumes which flowed directly from the Netherlands to Germany were reduced significantly. In 2025, more than 39 % of the natural gas consumed in Germany came from other non-identifiable countries, and almost 5 % (with a continuously declining tendency over the course of time) from domestic natural gas production (please see Figure 6).

Due to the expansion of the gas infrastructure in the form of terminals acting as entry points for liquefied natural gas (LNG), Germany is now better connected to additional gas procurement sources through stable gas imports from those countries which are not connected to the German long-distance pipeline grid; this helps strengthen the diversification of the volume structure. As per December 31, 2025, a total of four LNG terminals were available in regular operation at the facilities in Wilhelmshaven, Brunsbüttel, and Mukran. During the reporting year 2025, a total of 106 billion kWh of LNG were delivered to and unloaded at these facilities, from where they were fed into the German long-distance grid.

Since the second terminal was put into operation at the end of May 2025, the terminal with the highest utilization capacity has been the facility in Wilhelmshaven through which 54 % of all LNG deliveries were fed into the long-distance grid in 2025.

24) The AG Energiebilanzen calculates natural gas consumption both in the Energy Balance and in all other publications based thereon according to the heating value (previously referred to as lower calorific value, H_i, i = inferior, Latin for "below"). The calorific value (previously referred to as upper calorific value, H_s, s = superior, Latin for "higher") of natural gas is approximately 10 % above the heating value.

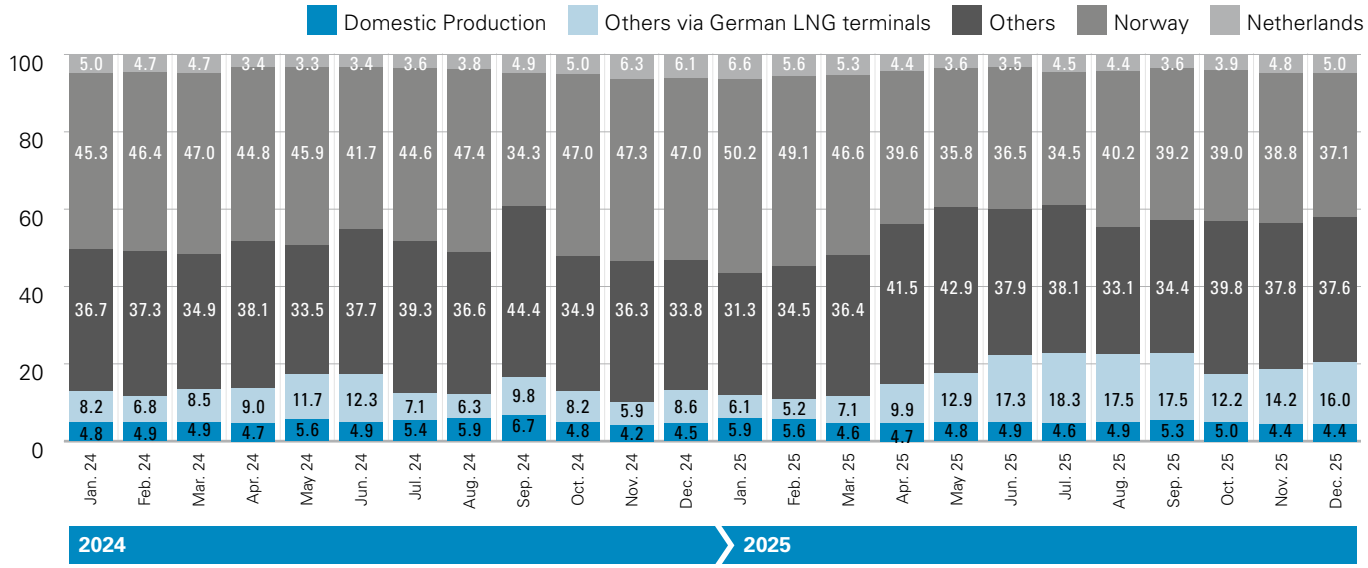
25) The main reason for the increase in and/or growing significance of gas transit volumes flowing through Germany is the discontinuation of deliveries from Russia which is why such countries as Austria and the Czech Republic are now supplied via German gas hubs.

Figure 6

AGEB
AG Energiebilanzen e.V.

Origin of the Gas Consumed in Germany

January 2024 to December 2025, shares in total consumption in %



Sources: German Association of Energy and Water Industries (BDEW); European Network of Transmission System Operators for Gas (ENTSOG); Association of Gas Transmission Operators in Germany (FNB Gas); Federal Association for Natural Gas, Petroleum and Geothermal Energy (BVEG)

The facilities in Mukran and Brunsbüttel attained shares of 25 % and 21 % respectively. Towards this end, the supply structure according to countries of origin was highly concentrated: 94 % of the imported LNG volumes came from the United States. The remaining 6 % were attributable to Norway, Equatorial Guinea as well as Trinidad and Tobago.

At the beginning of 2025, the underground storage facilities connected to Germany's natural gas grid started with an approximate filling level of 79.5 %. According to Gas Infrastructure Europe, the filling level of the natural gas storage facilities amounted to 56.6 % at the end of December 2025.[26] With the statutory requirement of filling levels for gas storage facilities, operators of such storage facilities in Germany are obligated to always safeguard and guarantee average minimum filling levels at specific points in time. With its Gas Storage Filling Target Ordinance (GasSpFüllstV) dated May 5, 2025, Germany's Federal Ministry for Economic Affairs and Energy (BMWi) set a total filling target of about 70 % which is to be met by November 1; namely, in such a way that a general filling target of 80 % shall apply to the individual German storage facilities and a filling target of 45 % shall apply to most of the pore storage facilities. On February 1, every gas storage facility has to have a filling level of 30 %. Excepted here are the gas storage facilities Bierwang, Breitbrunn, Inzenham-West, and Wolfersberg for which 40 % apply in each case.

On balance, about 60.8 billion kWh (H_i) of natural gas were withdrawn from storage facilities in 2025. For comparison: On balance, approximately 30.6 billion kWh (H_i) of natural gas had been withdrawn in 2024.

On the consumption side, the following trends become apparent for 2025 in the individual demand sectors (please see Table 8):

- The demand for natural gas attributable to the plants of mining facilities and the manufacturing industry (industrial enterprises, including the use of natural gas for electricity production in industrial power plants) decreased by an estimated total of 2.2 % to 227 billion kWh (H_i) in 2025. The outlined

26) Depending on the individual data source (Gas Storage Europe, ENSOG-G, or Destatis), the stock levels and/or the storage balances calculated therefrom deviate from one another. These differences have multiple reasons; they range from different data statuses and level indicators all the way to spatial/geographical delineations. In contrast to the data source used here, for the early estimate of Germany's Energy Balance 2025 and the natural gas balance derived therefrom (please see Table 8), reference was made to the respective data published by the Federal Statistical Office.

Table 8

AGEB
AG Energiebilanzen e.V.

Natural Gas Production and Use for Germany in 2024 and 2025

	2024		2025 [1]		Change
	PJ	Billion kWh$_i$	PJ	Billion kWh$_i$	in %
Domestic Production	133	37.0	128	35.5	-3.9
+ Imports	2,864	795.6	3,454	959.4	20.6
= Volume	**2,997**	**832.6**	**3,582**	**995.0**	**19.5**
– Exports	371	103.1	957	265.7	157.7
= Primary Energy Consumption	**2,727**	**757.6**	**2,804**	**778.9**	**2.8**
– Use in Power Plants [2]	520	178.7	550	189.0	5.8
Including					
Power Plants Supplying the General Public	322	89.5	360	99.9	11.7
Industrial Power Plants	155	43.1	151	42.1	-2.3
– Use in Combined Heat and Power Plants (Heat) [3]	208	57.7	224	62.3	8.0
– Consumption of the Conversion Areas [4]	85	23.6	95	26.4	11.9
– Non-Energetic Consumption	87	24.2	82	22.9	-5.6
+ Statistical Differences / Flare and Line Losses (Balance)	9	2.4	46	12.7	-
= Final Energy Consumption	**1,836**	**475.8**	**1,898**	**491.0**	**3.4**
Industry [5]	680	188.9	665	184.8	-2.2
Including					
Basic Chemistry	164	45.4	151	41.8	-7.9
Nutrition and Tobacco	116	32.4	116	32.3	-0.1
Transportation	2	0.6	1	0.2	-70.0
Households	813	225.7	861	239.2	6.0
Trade, Commerce, and Services	342	94.9	371	103.1	8.7
For Information Purposes					
Structure of Natural Gas Production by Origin					
Domestic Funding [6]	4.9		4.6		
Import Quota [7]	95.6		96.4		

1) Preliminary data for 2025; some figures are estimates
2) Natural gas use for electricity generation (total), including feed-in from small CHP plants under 1 MW
3) For combined and uncoupled heat generation
4) Natural gas consumption by coking plants, hard coal mines and briquette factories, crude oil and natural gas production, mineral oil processing, and other energy producers
5) Including natural gas use for heat generation in industrial CHP plants
6) Share of domestic natural gas production
7) Share of natural gas in primary energy consumption

Sources: Working Group on Energy Balances (AGEB); Federal Statistical Office (Destatis); Federal Association for Natural Gas, Petroleum and Geothermal Energy (BVEG)

decrease in industrial natural gas consumption was, above all, due to the production decline in a number of particularly natural gas intensive economic branches such as, for example, basic chemistry. When interpreting the differentiation of industry's use of natural gas which was selected here, it should be noted that this representation includes not only the consumption of process energy as well as the consumption in natural gas fired power plants that generate electricity and heat and are operated by the industrial enterprises themselves, but also the non-energetic consumption of natural gas which plays a decisive role primarily when it comes to the manufacture of basic chemicals. Within the delimitation of the German Energy Balance, industry's final energy consumption (without non-energetic consumption and the use of fuels for electricity production) decreased by 2.2 % to approximately 185 billion kWh (H_i) in 2025 (please see Table 8).

- Conversely, natural gas consumption of companies in the trade, commerce, and service sector recorded substantial growth. In contrast to industry, more than four fifths (2024: Approximately 88 % and/or almost 96 % if and when the natural gas that is used for the provision of hot water is included in the analysis)[27] of the natural gas in this consumption segment are used for space heating purposes. Hence, the cooler weather conditions prevailing in 2025 when compared to the previous year caused the demand for natural gas by the businesses and enterprises in the trade, commerce, and service sector to increase. The decrease in consumption in this sector was additionally reinforced by falling prices for natural gas (end customers of the trade, commerce, and service sector paid about 3 % less for their natural gas) and by economic trends (the price-adjusted gross value creation went up by 0.2 % in 2025 when compared to the previous year). All told, an increase in consumption of approximately 8.7 % to 103.1 billion kWh (H_i) can be anticipated in the trade, commerce, and service sector for the year 2025.

- And when it comes to private households (including the housing companies supplying them with space heating and hot water), increased consumption is to be anticipated as well due to the cooler outside temperatures in 2025. Current data indicate an increase in the natural gas consumption of about 6 % to 239.2 billion kWh (H_i) for 2025.

- All told, about 86.3 billion kWh of electricity, which is about 5.8 % more than during the previous year, were generated in the gas-fired power plants of electricity suppliers and industrial enterprises and in combined heat and power plants of other electricity producers in 2025. Furthermore, it is expected that the use of natural gas as a fuel in power plants and heating stations supplying electricity will also increase in 2025 due to the slightly improved competitiveness when compared to the previous year. When it comes to electricity supplied to the general public (including combined heat and power plants), an increase in the natural gas consumption to 189.0 billion kWh and, thus, of around 5.8 % is to be anticipated when compared to the previous year.

- The use of natural gas for the coupled and uncoupled provision of district heat went up by 8 % to 62.3 billion kWh (H_i) in 2025.

- Sales of natural gas (either in compressed form, CNG, or in liquefied form, LNG) to the transportation sector are likely to have attained a consumption level of 0.2 billion kWh (H_i) in 2025. The significant decline when compared to the previous year (-70.0 %) is, above all, due to substitution effects (of natural gas in favor of biogas).

According to preliminary data, about 12.8 billion kWh of biogas processed to natural gas quality (biomethane) were fed into the German natural gas grid in 2025 – this equals a significant increase of 16.4 % when compared to the previous year. The potential feed-in capacity increased by almost 4.4 % to 14.3 billion kWh. According to preliminary data released by AGEE-Stat, 3.9 billion kWh were used

27) *For more details, please see AGEB (2026):* Anwendungsbilanzen zur Energiebilanz Deutschland, Endenergieverbrauch nach Energieträgern und Anwendungszwecken. *Download: https://ag-energiebilanzen.de/wp-content/uploads/EBD24e_AnwBil.pdf (download date: 2026-06-15; currently only available in German).*

as a fuel in the transportation sector. The remaining quantities were used to produce electricity and heat. In accordance with the balancing scheme of the AG Energiebilanzen, these quantities are recorded both on the volume side and the consumption side under renewable energy and not under natural gas.

Since the energy markets were liberalized in 1998, spot and futures markets have evolved for natural gas. At these virtual trading points, essential supply and demand based price signals are created for the European and, thus, also the German market today. Meanwhile, the development of oil prices according to the principle of netback pricing based on oil indexation no longer plays any role in the development of the procurement costs for gas.

Compared to the peak levels that had been attained during the crisis year 2022, the import price for natural gas dwindled significantly once again in 2025. Between 2022 and 2024, the border-crossing price (on an annual basis) had decreased from € 22/GJ (which equals 7.9 ct/kWh) to about € 10.3/GJ (3.7 ct/kWh) which translates into a reduction of 53 % (please see Figure 7). In 2025, the price level remained more or less the same: The import price for natural gas increased only by 3 % so that on average € 10.6/GJ (3.7 ct/kWh) had to be paid for one gigajoule of imported natural gas in 2025. Regardless of the drop in prices described above, the average annual import prices for natural gas still remained at an elevated level in 2025; in fact, they were about 15 % above the value which had been observed prior to the energy crisis (2021: € 7.1/GJ).

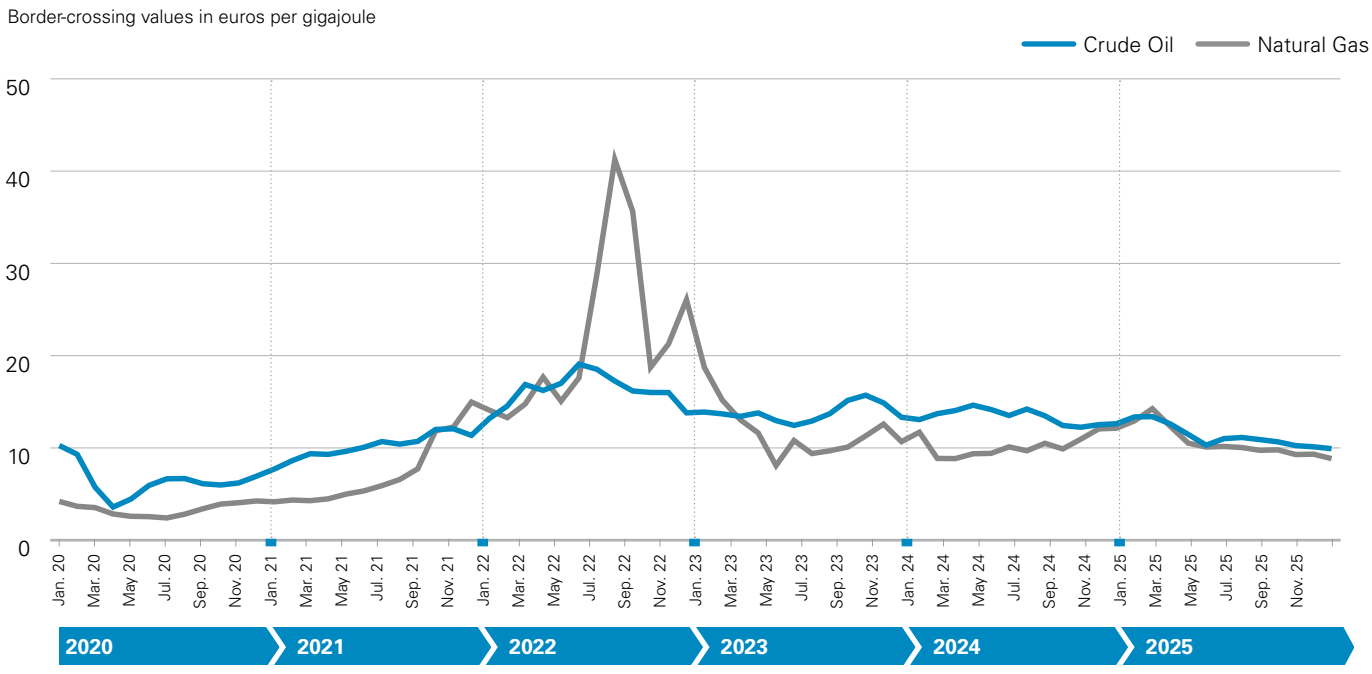
A glance at the monthly development reveals the following picture: After the import price for natural gas had reached its all-time high of € 41.26/GJ (14.85 ct/kWh) in August 2022 and peaked at € 26.1/GJ (9.38 ct/kWh) in December 2022, the border-crossing price for natural gas had once again been quoted below the level of the import price for crude oil from March 2023 until the end of 2024. In January 2025, the border-crossing price started at € 12.93/GJ (4.65 ct/kWh) and reached its peak value of € 14.25/GJ (5.13 ct/kWh) in February 2025. Until the end of 2025, the import price for natural gas declined constantly and was finally quoted at € 8.84/GJ (3.18 ct/kWh) in December 2025.

In addition, Figure 7 indicates that the import price for natural gas to some extent had decoupled itself significantly from the development of the

Figure 7

AGEB
AG Energiebilanzen e.V.

Monthly Border-Crossing Values for Crude Oil and Natural Gas between 2020 and 2025



Sources: Federal Office for Economic Affairs and Export Control

border-crossing price for crude oil imports over the course of the crisis year 2022; a phenomenon which had been observed to a less pronounced degree in the periods before the start of the war in Ukraine. Since March, April 2023, a normalization had been observed in the difference of the prices and the progress of the trend for crude oil and natural gas; albeit at an increased price level. For the periods of time as of April 2024, a steady decline in the difference between the prices for natural gas and crude oil became apparent, whereby the price levels aligned once again to a substantial degree during the year 2025.

The development of import and wholesale prices, i. e. costs for the procurement of natural gas, has different effects on domestic sales prices. Varying procurement periods for diverse customer groups typically result in diverging price trends on the end consumer market. In addition, the relative price changes for bulk consumers are higher because of the lower overall price level.

Against the backdrop of the relatively constant import and wholesale prices for natural gas over the course of the year 2025 when compared to the previous year, the end customer prices and/or sales prices to consumers did not essentially change as well over the course of the year. Furthermore, the slight increase in import prices did not result in any increase in the prices for end customers.

When compared to the previous year, for example, the price for power plant gas went down by more than 4 % in 2025. The trade and commerce sector and the private household sector also paid less for natural gas in 2025; their prices declined by about 3.3 % and 2 % respectively. The price for industrial clients remained stable; here, no change was recorded when compared to the previous year (please see Figure 8).

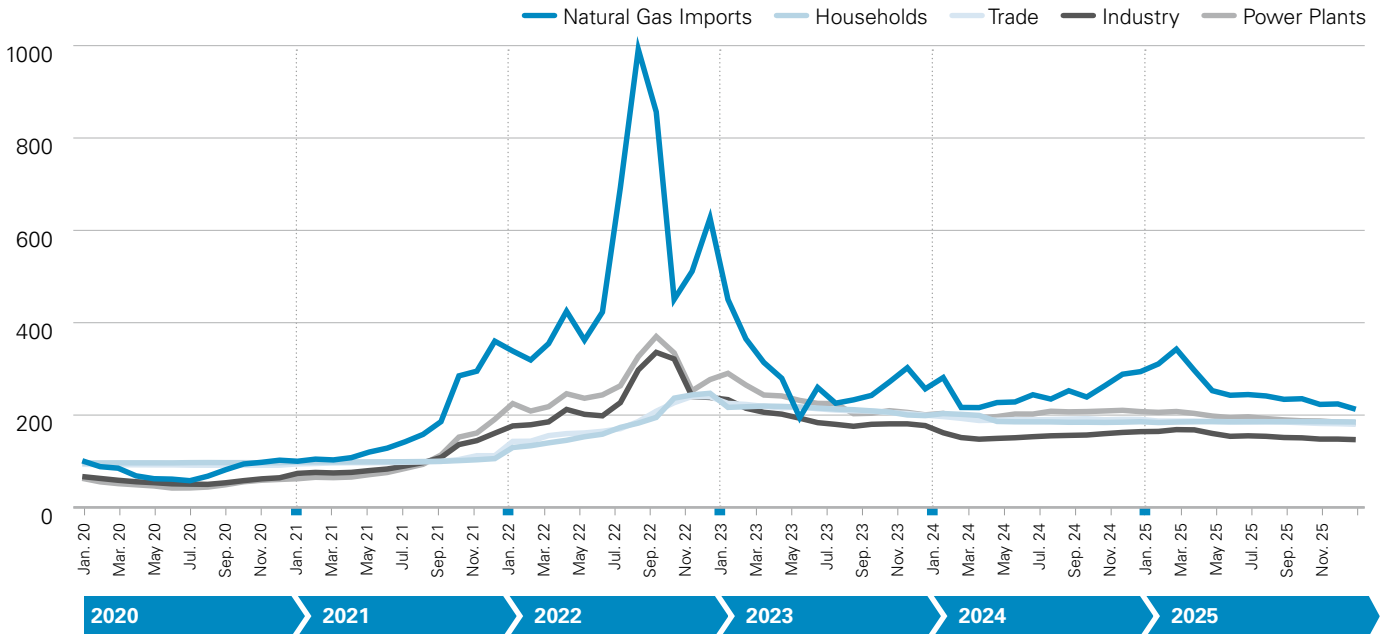
Considering the year under review, prices developed relatively stable as well for all customer groups in the natural gas market, i. e. no significant price peaks and/or price fluctuations occurred. Variations in natural gas prices around the mean value were more pronounced for industrial clients (minimum: -5.8 %, maximum: +8.2 %) as well as for the use in power plants (minimum: -5.7 %, maximum: +6.9 %) than for the other customer groups. The lowest price fluctuations over the course of the year 2025 were recorded by private households; here, the monthly consumer prices varied only between -0.8 % and a maximum of +0.3 % around the observed annual average value.

Figure 8

AGEB
AG Energiebilanzen e.V.

Prices for Natural Gas Imports and Natural Gas Sales in Germany between 2020 and 2025

2015 = 100 (basis of producer price indices 2021 = 100)



Sources: Federal Office for Economic Affairs and Export Control (BAFA); Federal Statistical Office (Destatis)

Hard Coal

According to preliminary estimates, Germany's primary energy consumption based on hard coal decreased by 6.8 % to 721 PJ (24.6 Mtce) in 2025 when compared to the previous year (please see Table 9). After a period of growth during 2021 and 2022, which for a short period of time interrupted the continuous downward trend that had previously persisted for many years and which was due to special effects and/or the direct consequences of the war in Ukraine, the long-term trend became effective again. The primary energy consumption of hard coal reached a new all-time low in 2025.

Table 9

AGEB
AG Energiebilanzen e.V.

Hard Coal Balance[1] for Germany in 2024 and 2025

		2024		2025 [2]		Change
		PJ	Mtce	PJ	Mtce	in %
	Domestic Production	0	0.0	0	0.0	-
+	Imports	786	26.8	775	26.4	-1.4
=	**Volume**	**786**	**26.8**	**775**	**26.4**	**-1.4**
+/–	Change in Stocks (Reduction: +, Replenishment: -)	-46	-1.6	9	0.3	-
–	Exports	58	2.0	45	1.5	-22.7
=	**Primary Energy Consumption**	**774**	**26.4**	**721**	**24.6**	**-6.8**
–	Use in Power Plants [3]	220	7.5	249	8.5	13.0
–	Use in Combined Heat and Power Plants (Heat)	42	1.4	36	1.2	-12.8
–	Use in Blast Furnaces	148	5.1	133	4.5	-10.3
–	Other Conversion Input [4]	311	10.6	296	10.1	-4.8
+	Conversion Output	237	8.1	226	7.7	-4.8
–	Consumption during Production and Conversion as well as Non-Energetic Consumption	2	0.1	2	0.1	-5.4
+	Statistical Differences	1	0.0	-40	-1.4	-
=	**Final Energy Consumption**	**287**	**9.8**	**271**	**9.2**	**-5.7**
	Industry [5]	285	9.7	270	9.2	-5.6
	Including					
	Metal Production [6]	259	8.9	241	8.2	-7.0
	Private Households	2	0.1	1	0.0	-25.5
	Trade, Commerce, and Services	0	0.0	0	0.0	-26.3

1) Hard coal = raw hard coal, hard coal briquettes, and hard coal coke
2) Preliminary data for 2025; some figures are estimates
3) Used for electricity generation in general utility power plants, industrial power plants, and combined heat and power plants
4) Coking plants
5) Including the use of hard coal and hard coal products for heat generation in industrial cogeneration plants
6) Metal production (Energy Balance Row 54) excluding conversion inputs from blast furnaces and coking plants

Sources: Working Group on Energy Balances (AGEB); Industry Association for Hard Coal and Post-Mining (bsn)

In addition to lignite, hard coal was most affected by the overall declining primary energy consumption.

In concrete terms, the use of hard coal in power plants supplying the general public and in industrial power plants increased by more than 13 % to 249 PJ (which translates into 8.5 Mtce) (please see Table 9). With 29.9 TWh, electricity production from hard coal only accounted for a mere 5.9 % share in Germany's total gross electricity production in 2025. Compared to 2024, electricity production from hard coal increased by almost 11 %.

The use of hard coal in the steel industry, however, decreased by 7.7 % to almost 445 PJ (which translates into 15.2 Mtce) in 2025.[28] This sector, thus, remained the largest economic branch and/or customer in the German hard coal market. During the reporting period 2024/2025, the final energy consumption in the metal production sector (within the classification of the German Energy Balance: Energy Balance Row 54) decreased by 7 % to 241 PJ (8.2 Mtce).

The overall development in this sector was primarily attributable to the decline in crude iron production which dropped by 2.5 million tons or more than 10 % when compared to the previous year. At the same time, crude steel production also decreased – when compared to the historic low that had been attained in 2023 – again by 3.2 million tons or 8.6 %. Since the German Reunification, a low crude steel production had only been observed during the global financial crisis in 2009. Compared to the previous year, the production of oxygen steel dropped by 10.7 %, the production of electric steel by 3.5 %.

In terms of volume, the use of hard coal only played a minor role in the other sectors (foundries, district heating plants, small businesses, and private households). It decreased by around 5 % to about 66 PJ (which equals 2.2 Mtce) in 2025 when compared to the previous year.

After the termination of domestic hard coal mining at the end of 2018, the volume side of Germany's hard coal market has been sourced merely from imports and existing stocks. According to preliminary data derived from the Federal Statistical Office's Foreign Trade Statistics and when compared to the previous year, Germany's hard coal imports dropped by 0.3 % to 31.2 million tons in 2025 (please see Table 10). By applying a generalized conversion method based on an average heating value of 7,000 kcal/kg (i. e. without considering the actual heating values), this resulted in hard coal imports amounting to almost 27 Mtce.

The hard coal embargo issued by the EU against Russian exports had scheduled a transitional period of 120 days as of April 2022. Accordingly, imports of Russian hard coal to the EU had initially been permitted if and to the extent that the underlying supply contracts for coal were concluded before April 9, 2022. As of August 11, 2022, the EU embargo against Russian hard coal entered into full force and effect. Additional hard coal imports from Russia to the EU were from now on strictly forbidden. But even thereafter, the Federal Statistical Office still recorded imports in its monthly reports that were declared with "country of origin: Russia." Last year, these volumes still amounted to nearly 140,000 tons, with a strong downward trend. These remaining Russian supply volumes were imported to Germany from neighboring EU countries (above all, the Netherlands and Belgium) and came, in particular, from storage sites of the Northwest European coal terminals (in Amsterdam, Rotterdam, and Antwerp = ARA ports). It was there, within the EU, where these Russian coals had already been placed in stock before August 11, 2022, which is why they did not fall under the embargo.

Apart from small individual quantities, particularly in the anthracite coal market, Russian coal disappeared almost entirely from German hard coal import statistics. When it comes to Germany's total hard coal imports last year, Australia (28.3 %), the United States (27.9 %), and Columbia (17.4 %) became the most important supplier countries. Broken down into the selected market segments, the following picture became apparent in 2025: When it comes to anthracite coal, Peru (17 %), China (15 %), and the United States (4 %) dominated the field. In the coking coal market, above all European neighboring states provided the largest share of the supply (more than 70 %).

28) Use of hard coal in the metal production sector (Energy Balance Row 54) plus conversion input of hard coal coke in blast furnaces (Energy Balance Row 17) as well as consumption (difference between conversion input minus conversion output) in coking plants.

Table 10

AGEB
AG Energiebilanzen e.V.

German Hard Coal Imports[1] According to Supplier Countries in 2024 and 2025 (January to December)

	2024	2025 [2]	Change	2024	2025
	in Million Tons		in %	Proportions in %	
Poland	1.5	1.2	-20.3	5.4	4.3
Czech Republic	0.2	0.2	-24.2	0.8	0.6
Russia	0.1	0.0	-93.4	0.5	0.0
South Africa	1.9	1.6	-14.6	6.9	5.9
USA	7.6	7.6	0.9	27.5	27.9
Canada	0.7	0.7	11.4	2.4	2.7
Columbia	3.5	4.8	36.6	12.7	17.4
Australia	8.9	7.8	-13.0	32.5	28.3
Other/Statistical Differences [3]	3.1	3.5	13.7	11.2	12.7
Total Imports	**27.5**	**27.4**	**-0.3**	**100.0**	**100.0**

1) Including coke imports; coke converted into coal
2) Preliminary data for 2025
3) Including unassignable delivery quantities

Source: Federal Statistical Office (Destatis)

Just Poland alone accounted for a share of 59 %; followed by Indonesia (11 %) and China (9 %). In the other coal market sections (steam and coking coals), almost 31 % of the coal imports came from Australia, 30 % from the United States, and 18 % from Columbia. With 6 %, South Africa assumed fourth place among the most significant supply regions in this market segment.

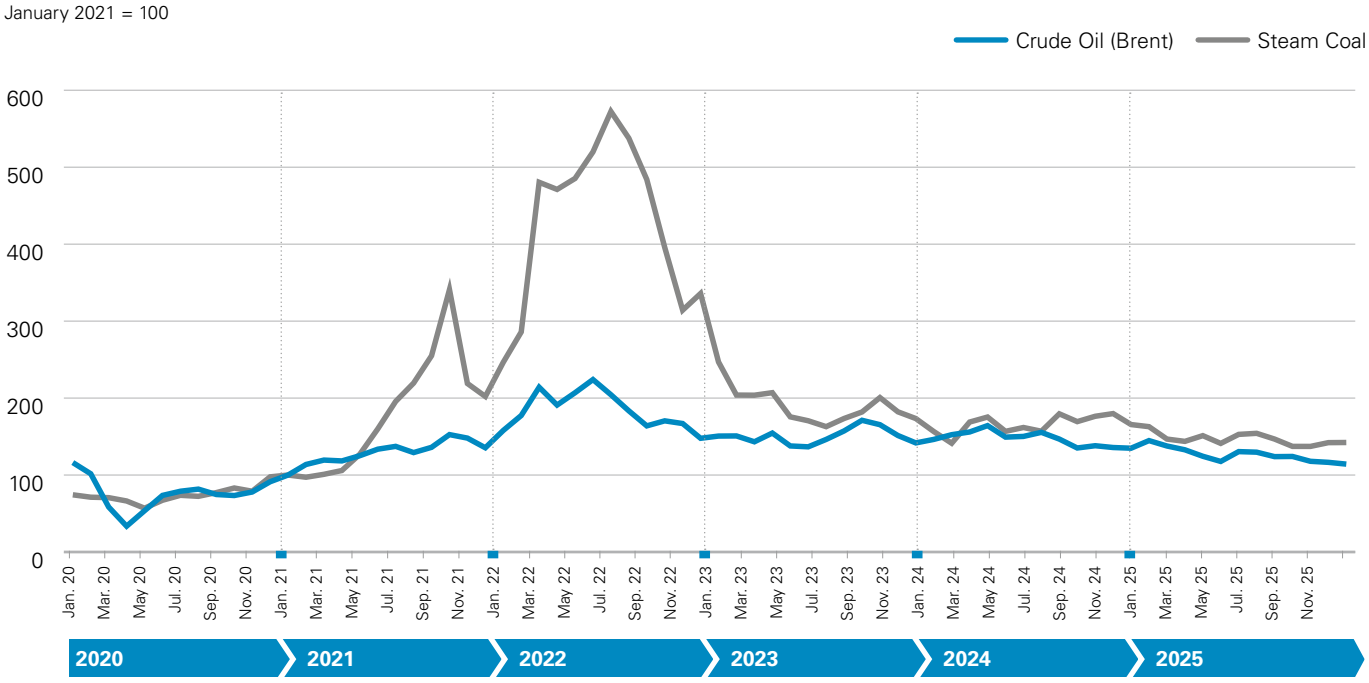
According to initial estimates of the German Coal Importers Association (VDKi), a new record volume in global hard coal production amounting to about 8.5 billion tons will most likely have been reached in 2025. When compared to the previous year's volume (around 8.4 billion tons), this would translate into a relatively moderate increase of nearly 1.4 %. As already seen in the previous years, this development in the extraction volume was primarily due to the increased extraction in Asian countries. By far the most important hard coal mining nation, the People's Republic of China, extracted alone already about 4.9 billion tons and, thus, 57 % of the total global production. In the global ranking of the largest hard coal producers, India followed with a share of 12 %, Indonesia with 8 %, the United States and Australia with each about 5 %, Russia with 4 %, and South Africa with 3 % - just to mention the most important nations. While South Africa (+3.5 %), the United States (+3.3 %), the People's Republic of China (+2.7 %), and India (+0.3 %) were able to more or less significantly increase their production, above all the production in Kazakhstan (-12.1 %), Columbia (-5.1 %) as well as Poland, Canada, and Indonesia (each -2.3 %) and Australia (-1.0 %) declined when compared to the previous year. With a production of 328 million tons, Russia stayed at the previous year's level. 15.5 % or 1.3 billion tons of the global hard coal production were traded on international markets of which almost 1.2 million tons accounted for maritime trade. There, Indonesia (391 million tons), Australia (356 million tons), and Russia (147 million tons) dominated the supply side. On the demand side, China (285 million tons), India (203 million tons), and Japan (162 million tons) were the most important hard coal import countries. It should also be mentioned in this context that the EU-27 imported 59 million tons of hard coal in 2025.

Figure 9 conveys an indication of the long-term price trend for power plant coals also in comparison to the changes experienced by crude oil. The import price

Figure 9

AGEB
AG Energiebilanzen e.V.

Global Market Prices for Crude Oil (Brent) and Steam Coal between January 2020 and December 2025



Sources: German Coal Importers Association (VDKi); en2x-Fuels & Energy Business Association

for steam coals,[29] which had reached a peak level of almost US-$ 338/tce (annual average) in 2022, dropped to approximately US-$ 150/tce in 2023 and in 2024 even further to US-$ 131/tce. In 2025, prices continued to normalize. The import price for steam coals decreased once again when compared to the previous year 2024; it went down by about US-$ 15/tce (-11.5 %). Just as in the previous year, with US-$ 116/tce, it fell once again below the pre-crisis level (2021: Approximately US-$ 140/tce); namely, by about US-$ 24/tce which translates into a decline of 17.2 %.

The price trend over the course of the year revealed the following picture: In January 2025, the price for steam coals started at US-$ 129/tce and sank until May to a level of US-$ 112/tce. After the price had increased to US-$ 121/tce in June, it dropped again until the end of the year 2025 to a value of about US-$ 113/tce in December 2025.

Figure 10 shows in addition the import prices for hard coal coke and coal from third countries (power plants and steel producers). The overall picture reveals that the import prices for hard coal coke as well as steam coals and power plant coals which, after the invasion of Ukraine by Russian troops on February 24, 2022, had initially skyrocketed and reached their individual peak levels in the case of hard coal during the third quarter of 2022 (about € 400/tce) and/or in the case of hard coal coke in May 2022 (almost € 600/tce), declined again by the end of the year. This trend continued until 2024. The import price for hard coal (steam coal) was around € 158/tce in December 2024 while the import price for hard coal coke reached an absolute level of € 326/tce by the end of the year.

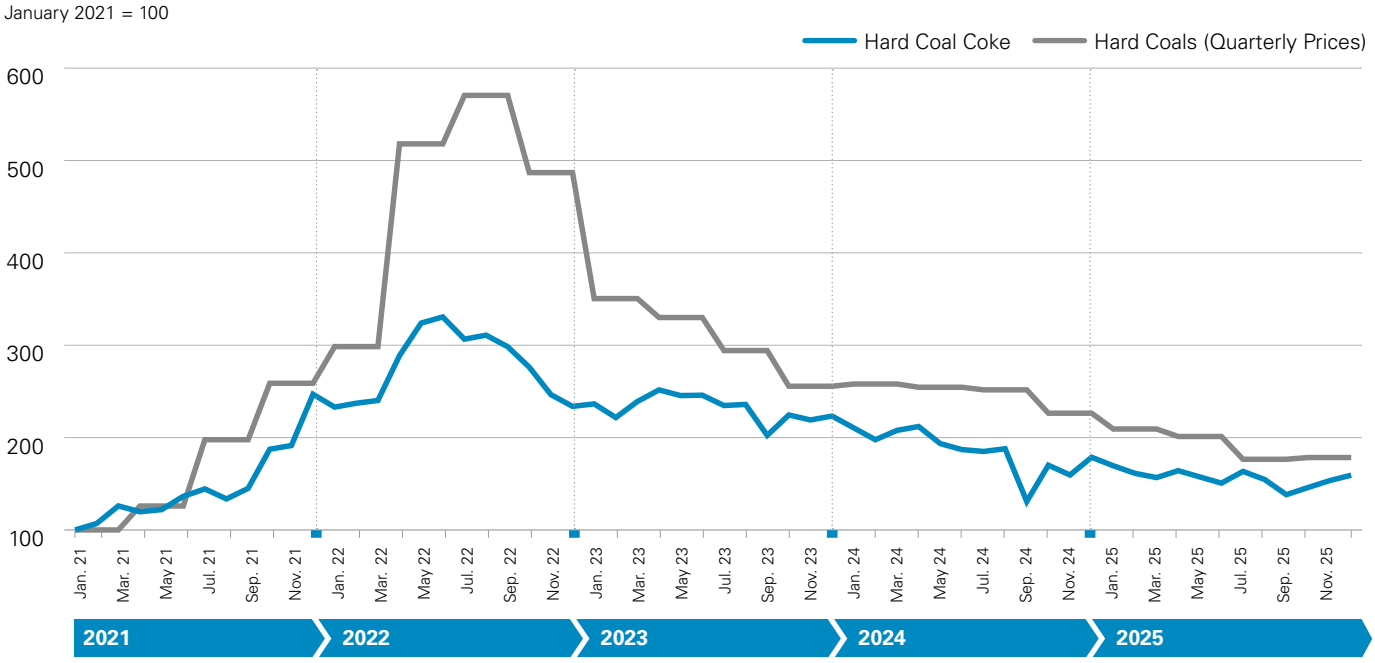
During the first quarter of the reporting year 2025, the import price for hard coal started at € 146/tce and sank to € 123/tce by the third quarter and then stayed essentially at this level until the end of the year. It ended the fourth quarter of 2025 with a price of € 125/tce. The import price for hard coal coke, which had amounted to € 310/t in January 2025, dropped to an annual low of almost € 253/t by September 2025. An increase in the import price for hard coal coke to € 291/t was recorded by December 2025.

29) Spot price for power plant coals cif, NWE; average over the weekly quotations according to the MCIS Steam Coal marker; expressed in US $/tce.

Figure 10

AGEB
AG Energiebilanzen e.V.

Development of Selected Hard Coal Import Prices between 2021 and 2025



Sources: German Coal Importers Association (VDKi); Federal Office for Economic Affairs and Export Control (BAFA); Federal Statistical Office (Destatis)

On an annual basis and compared to 2024, the import price for steam coals decreased by about 23 %. Thus in 2025, the price reductions in the steam coal market ended up being a bit greater than in the hard coal coke market where the prices dropped by around 16 %. This means that the prices for hard coal coke developed parallel to the prices for crude oil: In 2025, the import price for a ton of crude oil decreased by more than 16 % when compared to 2024.

Lignite

With 84.4 million tons in 2025, lignite production as a whole was about 8.2 % below the previous year's yield. The calorific value of the extracted coal was all told on average marginally higher than during the previous year so that the energy content of the mined lignite was with 26.2 Mtce (767 PJ) 7.1 % below the previous year's value.

Lignite's share in domestic energy generation amounted to about 23 %. It, thus, continues to be a significant domestic energy source despite its overall downward trend.

Production developed differently in the individual mining districts: In the Rhineland it dropped by 12.6 % and in Lusatia by 8.6 % while it increased by 12.2 % in Central Germany which was primarily due to the lower starting level of the previous year. Correspondingly, deliveries to power plants supplying the general public, which continued to receive about 90 % of the lignite production, also experienced a decline (75.0 million tons; -7.3 %).

The use of lignite became more flexible over the course of the year and reflected the fluctuating feed-in of renewable energies into the power grid due to shifting weather conditions. Electricity production based on lignite decreased from almost 78.8 TWh in the previous year to 74.2 TWh (-5.9 %) in 2025. Its share in the gross electricity production was around 14.6 %. The reasons for this decline were, above all, the continued expansion of renewables, the overall moderate demand for electricity as well as the ongoing decommissioning of power plant capacities within the context of the phase-out from coal-fired power generation. The installed capacity of lignite-fired power plants continued to decrease. A decisive factor in this were the shutdowns determined within the framework of the German Coal-Fired Power Generation Termination Act (KVBG), including the Weisweiler Unit F as of January 1, 2025.

In 2025, the manufacture of refined products based on lignite was with 3.4 million tons about 13 % below the previous year's level. Particularly apparent was the decrease in pulverized and fluidized bed coals.

The primary energy consumption of lignite dropped to 25.6 Mtce (749 PJ) and was, thus, 7.1 % below the previous year's value. Lignite, thus, covered more than 7 % of the entire domestic demand for energy (please see Table 11).

The use of lignite in the final energy sectors continued its declining trend (please see Table 12); in particular, in the industrial sector. The overall demand for lignite products also decreased slightly within the private household sector despite the colder weather.

Table 11

AGEB
AG Energiebilanzen e.V.

Volume and Use of Lignite in Germany in 2024 and 2025

	Unit	2024	2025 [1]	Change in %
1. Domestic Raw Lignite				
Total Lignite Production	**Million Tons**	**91.9**	**84.4**	**-8.2**
	Mtce	**28.2**	**26.2**	**-7.1**
	PJ	**826**	**767**	**-7.1**
2. Foreign Trade				
Total Imports	1,000 tce	34.3	39.5	15.0
Total Exports	1,000 tce	658.2	625.8	-4.9
Foreign Trade Balance	1,000 tce	623.9	586.3	
3. Primary Energy Consumption				
	Mtce	27.5	25.6	-7.1
	PJ	807	749	-7.1
4. Sales				
Total Sales	**Million Tons**	**81.6**	**75.5**	**-7.4**
to Power Plants Supplying the General Public	Million Tons	80.9	75.0	-7.3
to Other Customers	Million Tons	0.7	0.5	-24.6
Use for Refinement	Million Tons	8.8	7.3	-16.5
Use in Lignite-Fired Power Plants	Million Tons	1.6	1.5	-6.1
Change in Stocks	Million Tons	-0.1	0.0	
5. Electricity Production from Lignite				
Power Plants Supplying the General Public	Billion kWh	76.4	72.2	-5.5
Industrial Power Plants	Billion kWh	2.4	2.0	-16.7
Total Electricity Production from Lignite	**Billion kWh**	**78.8**	**74.2**	**-5.9**

1) Preliminary data; some figures are estimates

Source: The German Coal Industry's Statistical Office

Table 12

AGEB
AG Energiebilanzen e.V.

Lignite Balance[1] for Germany in 2024 and 2025

in PJ and Mtce

		2024		2025 [2]		Change
		PJ	Mtce	PJ	Mtce	in %
Domestic Production		826	28.2	767	26.2	-7.1
+	Imports	1	0.0	1	0.0	-5.1
=	**Volume**	**827**	**28.2**	**768**	**26.2**	**-7.1**
+/–	Change in Stocks (Reduction: +, Replenishment: -)	-2	-0.1	0	0.0	-
–	Exports	19	0.7	18	0.6	-4.8
=	**Primary Energy Consumption**	**809**	**27.6**	**749**	**25.6**	**-7.4**
–	Use in Power Plants [3]	728	24.9	672	22.9	-7.7
–	Use in Combined Heat and Power Plants (Heat)	18	0.6	19	0.6	2.0
–	Other Conversion Input [4]	85	2.9	73	2.5	-13.3
+	Conversion Output	85	2.9	74	2.5	-13.3
–	Consumption during Production and Conversion as well as Non-Energetic Consumption	17	0.6	15	0.5	-12.1
+	Statistical Differences	-16	-0.5	-18	-0.6	-
=	**Final Energy Consumption**	**62**	**2.1**	**61**	**2.1**	**-1.2**
	Industry [5]	56	1.9	56	1.9	-1.2
	Including					
	Processing of Stones and Soils	35	1.2	34	1.2	-2.6
	Private Households	6	0.2	5	0.2	-1.2

1) Lignite = raw lignite, lignite briquettes, other lignite products, and hard lignite
2) Preliminary data for 2025; some figures are estimates
3) Used for electricity generation in general utility power plants, industrial power plants, and combined heat and power plants
4) Use in coking plants and briquette factories
5) Including the use of raw lignite and lignite products for heat generation in industrial cogeneration plants

Sources: Working Group on Energy Balances (AGEB); The German Coal Industry's Statistical Office

The Electric Power Industry

In 2025, the electric power industry was characterized by a historically poor wind yield during the first quarter, a significant increase in the production of electricity from photovoltaics (through the successfully continued expansion) as well as a low level of electricity consumption (as had also been the case in the previous two years). Despite lower electricity prices, the continued sluggish economy resulted in a demand-driven decrease in consumption in some subsectors of industry when compared to the previous year.

In 2025, consumption of electric power (gross domestic electricity consumption) decreased by an estimated 0.1 % to 528.7 billion kWh when compared to the previous year. Despite the decrease in consumption, gross electricity production increased by 1.2 % during the same period of time. Consequently, slightly less electricity had to be imported for domestic use in 2025 than in the previous year. With 19.5 billion TWh, the electricity exchange balance registered a lower import surplus of 6.8 billion kWh when compared to 2024. Nonetheless, Germany was for the third year in a row a net importer of electricity.

The electricity production mix in 2025 was, above all, influenced by the weather conditions; specifically, by the historically low wind conditions during the first quarter as well as the low rainfall levels throughout the entire year. In addition, the decommissioning of fossil fuel fired power plant capacities and a high price level for CO_2 emissions certificates also had an impact on the production structure; specifically, electricity production from lignite was affected by these developments. The lower wind supply led to a reduced electricity production from wind power and increased the contributions from natural gas and hard coal fired power plants to the overall electricity production. The increase in electricity production from natural gas was also due to the significantly lower price level for natural gas on the spot and futures markets over the course of the year; even though the natural gas prices had been at a comparatively high level at the beginning of 2025.

A significant increase was recorded by electricity production from hard coal with a production volume of 29.9 billion kWh which was 10.9 % higher than the historically low level of 2024. With a share of 5.9 % in electricity production, however, hard coal assumed only a marginal role in the electricity mix. Natural gas fired power plants also produced more electricity in 2025 than in the previous year (+5.8 %) while electricity production from lignite-fired power plants decreased by 5.6 %. According to preliminary figures, almost 292 billion kWh of electric power were produced from renewable energies in 2025 and, thus, around 1.2 % more than in 2024. Thus, renewables accounted for a proportion of 58 % of the gross electricity production in 2025 (please see Table 13). The share of renewables in gross electricity consumption – the decisive quota in achieving the target for renewable energies – amounted to about 56 %.

In 2025, wind power was the most important energy carrier in the German electric power mix with a total electricity production of 134.2 billion kWh or 26.3 %. This was followed by photovoltaics with 92.2 billion kWh or 18.1 %, and natural gas with 86.3 billion kWh or 17.0 %. Electricity production from lignite followed immediately thereafter with 74.4 billion kWh which, thus, accounted for a share of only 14.6 % in the entire electricity production in 2025.

Lignite-fired power plants generated, as already pointed out above, 74.4 billion kWh of electricity. This translates into a 5.6 % decrease in production when compared to the previous year. A net power plant capacity of 14.8 GW was installed at the end of the year. This was 0.4 GW less than at the end of 2024. On January 1, 2026, Unit A of the Jänschwalde power plant with a capacity of 0.6 GW began its staggered decommissioning.

With an estimated 29.9 billion kWh, hard coal fired power plants delivered once again significantly more electricity in 2025 than in the previous year. Their electricity production rose by 10.9 %. This development was primarily due to adverse weather

Table 13

AGEB
AG Energiebilanzen e.V.

Gross Electricity Production in Germany between 1990 and 2025 According to Energy Carriers

	1990	2020	2021	2022	2023 [1]	2024	2025	2025/ 2024	2025/ 1990
	Gross Electricity Production and Gross Electricity Consumption in Billion kWh							Average Annual Change in %	
Lignite	170.9	91.7	110.1	116.2	86.3	78.8	74.4	-5.6	-2.3
Hard Coal	140.8	42.8	54.6	63.7	38.5	26.9	29.9	10.9	-4.3
Nuclear Energy	152.5	64.4	69.1	34.7	7.2	0.0	0.0		-100.0
Natural Gas	35.9	94.7	90.3	79.1	76.6	81.6	86.3	5.8	2.5
Mineral Oil	10.8	4.7	4.6	5.8	4.9	4.3	4.2	-3.1	-2.7
Renewables	19.7	253.5	239.7	255.5	275.1	288.1	291.6	1.2	8.0
Other	25.5	24.9	24.5	23.8	22.6	23.4	23.2	-0.9	-0.3
Gross Electricity Production	**549.9**	**576.8**	**592.8**	**578.9**	**511.3**	**503.2**	**509.2**	**1.2**	**-0.2**
Electricity Flows from Foreign Countries	31.9	48.0	51.7	49.3	69.3	81.7	79.7	-2.4	2.6
Electricity Flows into Foreign Countries	31.1	66.9	70.3	76.6	60.1	55.4	60.2	8.7	1.9
Foreign Electricity Exchange Balance	0.8	-18.9	-18.6	-27.3	9.2	26.3	19.5	-	-
Gross Electricity Consumption	**550.7**	**557.9**	**574.3**	**551.6**	**520.5**	**529.4**	**528.7**	**-0.1**	**-0.1**
Change versus Previous Year in %	*X*	*-3.4*	*2.9*	*-3.9*	*-5.6*	*1.7*	*-0.1*		
	Structure of Gross Electricity Production in %								
Lignite	31.1	15.9	18.6	20.1	16.9	15.7	14.6		
Hard Coal	25.6	7.4	9.2	11.0	7.5	5.4	5.9		
Nuclear Energy	27.7	11.2	11.7	6.0	1.4	0.0	0.0		
Natural Gas	6.5	16.4	15.2	13.7	15.0	16.2	17.0		
Mineral Oil	2.0	0.8	0.8	1.0	1.0	0.9	0.8		
Renewables	3.6	44.0	40.4	44.1	53.8	57.3	57.3		
Other	4.6	4.3	4.1	4.1	4.4	4.7	4.5		
Gross Electricity Production	**101.1**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**		

1) Some figures are preliminary and estimates

Discrepancies in the totals are due to rounding off

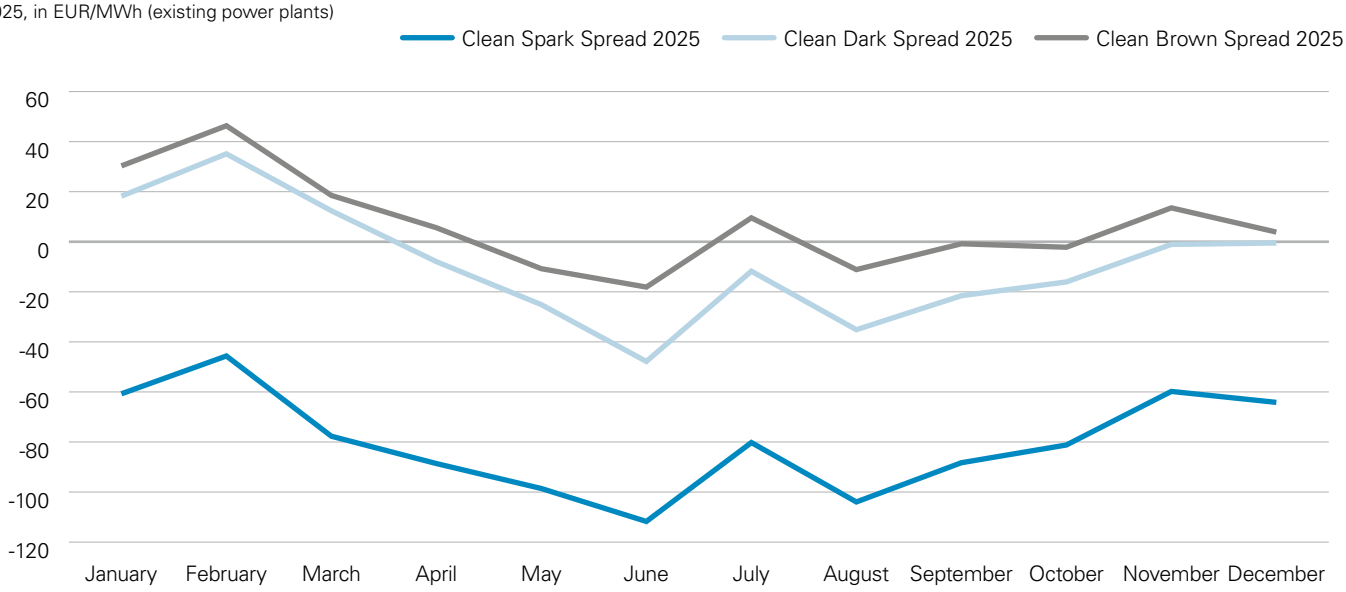
Sources: German Association of Energy and Water Industries (BDEW); The German Coal Industry's Statistical Office; Working Group on Energy Balances (AGEB); Working Group on Renewable Energies-Statistics (AGEE-Stat) (for renewables)

Figure 11

AGEB
AG Energiebilanzen e.V.

Profit Situation of Different Power Plant Types

2025, in EUR/MWh (existing power plants)



Sources: Our own calculations in line with the Federal Statistical Office (Destatis), European Energy Exchange AG (EEX), and The German Coal Industry's Statistical Office

conditions for wind power generation which was why hard coal fired power plants produced significantly more electricity during these respective months. By the end of the year, the installed capacity of hard coal fired power plants amounted to 15.4 GW and equaled a decrease of 0.6 GW which was due to the exit from coal-fired power generation. 6.7 GW of this capacity, though, were in the grid reserve and, thus, were not active on the electricity market, but were kept in an operational-ready mode.

According to preliminary figures, a total of 86.3 billion kWh of electricity were generated from natural gas in the power plants of electricity suppliers, in industrial enterprises, and in the combined heat and power plants of other electricity producers during the year under review. Thus, electricity production from gas-fired power plants increased by 5.8 %. Here as well, the impact of the low-wind months was reflected by the higher electricity production from natural gas. At the same time, falling natural gas prices over the course of the year in combination with rising CO_2 prices played a role as well so that more electricity was produced from natural gas and less from lignite. The installed capacity of gas-fired power plants declined slightly in 2025 for the second year in a row. At the end of 2025, 33.5 GW were installed. Of which, 1.3 GW were in the grid reserve, 1.4 GW were in the capacity reserve, and just under 1 GW assumed the role of special grid-technical equipment (bnBM). 1.4 GW were temporarily decommissioned. Consequently, 15 % of the installed capacity were not active on the electricity market.

In comparison to 2024, the gas prices on the spot market and/or for power plant gas improved the competitiveness of natural gas fired power plants specifically over the course of the second half of the year. Indicators which are typically used to measure the contribution margin of power plants in a specific market environment (fuel prices, CO_2 price, EEX spot market price, degree of efficiency) are the so-called "clean spark spread" (gas-fired power plants), the "clean dark spread" (hard coal fired power plants) as well as the "clean brown spread" (lignite-fired power plants).[30] Figure 11 shows the changes in the profit

30) The calculation of "clean spreads" represents an approximation of the costs incurred from the conversion of fuels into electric power while also taking the CO_2 costs into account. Consequently, this indicator helps assess whether the production in the individual type of power plant under review will be profitable with regard to the specific market situation or whether the production should be limited and/or suspended. The "clean spreads" shown herein were ascertained with the help of average degrees of efficiency in the existing power plant pool, which means that they do not refer to the competitive situation of any single plants or new plants.

situation of natural gas fired power plants in relation to coal-fired power plants over the course of the year 2025.[31]

Wind energy continued to be the most important renewable energy source in Germany; although onshore wind turbines produced with 107.6 billion kWh about 5.4 % less electricity than in 2024 due to the very low wind conditions during the first quarter of 2025. In contrast, the installed capacity of onshore wind turbines increased by about 4.6 GW to now 68.1 GW in 2025. The gross capacity increase of 5.3 GW was actually higher because the first generations of a large number of installed wind turbines were now reaching the end of their operating life so that the newly installed capacities were offset by the decommissioning volumes which were slightly higher than in previous years. This year, the gross capacity increase was actually the second highest that has been realized so far. Only 2017 had seen more newly installed capacity with 5.5 GW.

In contrast, offshore wind turbines increased their output and supplied with 26.6 billion kWh actually 1.9 % more electricity than had been the case in the previous year. Here, it was possible to offset the adverse weather conditions, on the one hand, through the reduced curtailment of wind turbines in 2025 and, on the other hand, through the added capacity of 0.7 GW in 2024. In 2025, offshore wind turbines with an additional capacity of 0.5 GW went into operation so that the installed capacity amounted to 9.7 GW by the end of the year.

With an electricity production output of 92.2 billion kWh, photovoltaic systems recorded a significant increase of more than 18 % in 2025. The reason for this significant increase was the renewed record increased capacity of an estimated 17.7 GWp in 2025 after about 17.6 GWp had already been added in 2024. The amount of the additionally installed capacity in 2025 is still in part estimated because photovoltaic systems are often registered with a considerable time lag which is why no final added capacity can be determined from the Core Energy Market Data Register. The present value includes an estimation of the still missing registrations.

The installed photovoltaic capacity in Germany, thus, reached more than 118.0 GWp by the end of 2025. Thanks to the higher installed capacity, photovoltaics became now for the first time ever the technology with the second highest electricity production volume after wind power in 2025.

According to preliminary data, 42.4 billion kWh of electricity were produced from solid, liquid, and gaseous biomass (including landfill gas, sewage gas as well as sewage sludge) in 2025 and, thus, 4 % less than during the previous year. With the proportionate volume produced in waste-fired power plants (domestic trash divided equally into regenerative and non-regenerative) from biogenic waste, a total of about 48 billion kWh of electricity were produced from biogenic energy sources in Germany in 2025.

Electricity production from hydropower decreased by more than 24 % to 17.1 billion kWh in 2025. In the previous year, electricity production actually reached the highest production value since 2013 due to the above average amounts of precipitation and, thus, the correspondingly higher volume of available water whereas in 2025, electricity production from hydropower was significantly below the 10-year annual average due to lower precipitation volumes.

In 2025, power storage facilities connected to the German electricity grid (with a net nominal capacity of at least 1 MW and/or a storage capacity of at least 1 MWh) collected a total of 9.7 billion kWh of electric power and fed 7.4 billion kWh back into the grid again. Pumped storage plants accounted for the largest proportion in this development: While the pumping capacity was 9.2 billion kWh, 7 billion kWh were withdrawn from the plants. The usable storage capacity of these large-scale storage facilities amounted to 143.6 GWh at the end of 2025.[32]

Furthermore, a large number of small battery storage units (with a net nominal capacity of less than 1 MW

31) For lignite, a constant fuel price of € 833/MWh was assumed while for power plant coal (hard coal), the average price for coal from third countries (and since 2018, its price as updated by the German Coal Importers Association (VDKi)) was applied and for power plant gas, the updated price in line with the Coal Industry's Statistics published by the Statistik der Kohlenwirtschaft e. V. association was used.

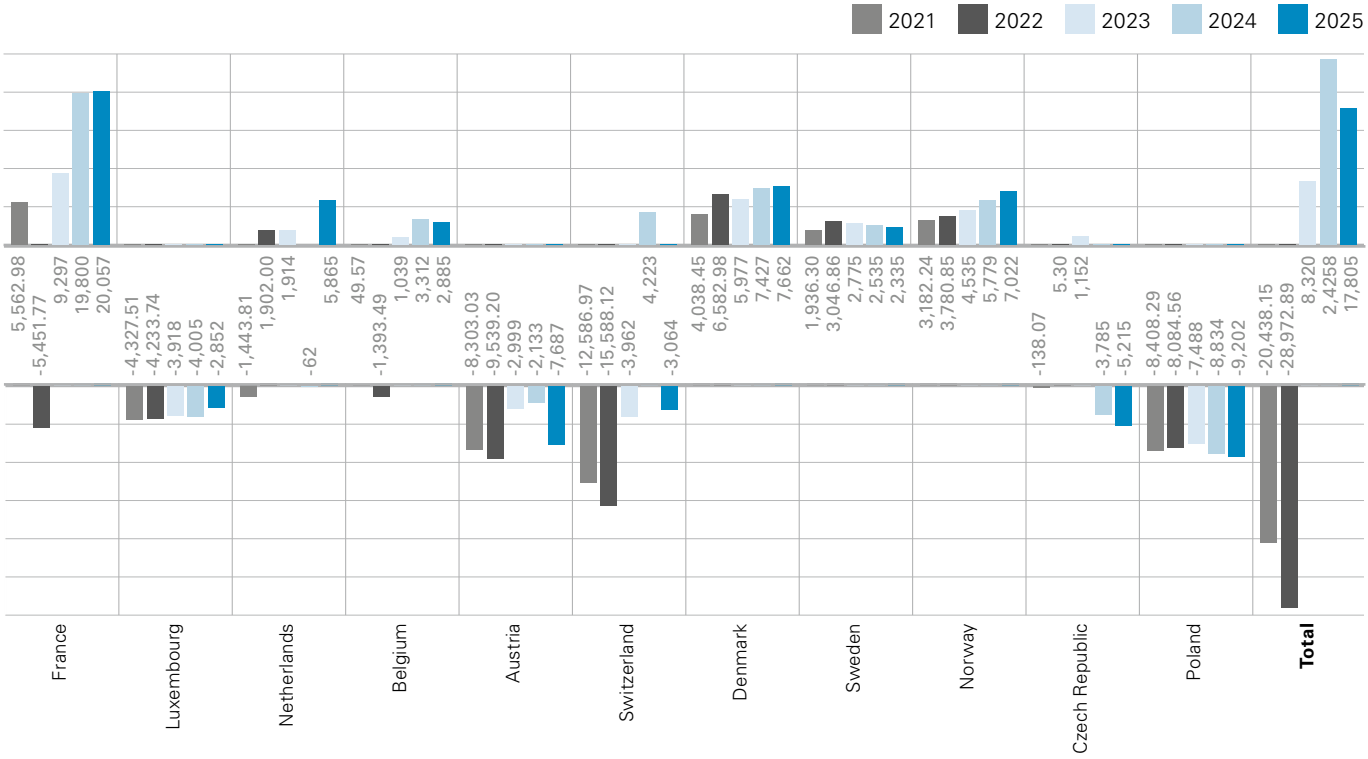
32) In addition, pumped storage facilities exist in Austria and Luxembourg which are connected exclusively to the German power grid. According to the Core Energy Market Data Register, these storage facilities provide an additional capacity of 3.6 GW and a storage capacity of about 960 GWh.

Figure 12

AGEB
AG Energiebilanzen e.V.

Germany's Electricity Exchange Balance with Neighboring Countries between 2021 and 2025

Electricity flows in billion kWh



Source: German Association of Energy and Water Industries (BDEW)

and/or a storage capacity of less than 1 MWh), mostly so-called home storage units, must be added as well. On the basis of data from the Core Energy Market Data Register, there was a usable storage capacity of 20 GWh in the home storage units and, thus, 4.5 GWh more than in the previous year. The expansion of large battery storage units of > 1 MW nearly doubled due to a capacity increase from 2.3 GWh to 4.1 GWh.

In 2025, 17.8 billion kWh more electric power flowed from abroad to Germany than the other way around from Germany to neighboring countries.[33] Germany was, thus, once again a net importer of electricity after 2023 and 2024. Electricity imports decreased by 2.3 % to 78.5 billion kWh when compared to the previous year while electricity exports increased by 8.1 % to 60.7 billion kWh (please see Figure 12).

Particularly high import surpluses were observed, in the order of their relevance, for the exchange with France (20.1 billion kWh), Denmark (7.7 billion kWh), and Norway (7.0 billion kWh). Import surpluses were also observed in the electricity exchange with the Netherlands, Belgium, and Sweden in 2025. Whereas an export surplus was attained in the electricity exchange with Poland (9.2 billion kWh), Austria (7.7 billion kWh), the Czech Republic (5.2 billion kWh), Switzerland (3.1 billion kWh) as well as Luxembourg (2.9 billion kWh).

The changes in the exchange of electricity are a sign of a functioning single European electricity market. Also in 2025, cheaper production options were at times available in neighboring countries to meet the electricity demand in Germany than would have been the case domestically. The expansion of renewable energies is moving ahead not only in Germany, but also in other European countries and resulted there in a higher electricity production from renewables during sunny months as well as during phases of high winds.

33) The official data which are also used in the Energy Balance for Germany, please see Table 12 of this report, cannot be used hereinafter due to data confidentiality of the federal states. Against this backdrop, the deviations in the foreign trade with electricity indicated in Table 12 are based on another data source (ENTSOE).

Table 14

AGEB
AG Energiebilanzen e.V.

Electricity Balance of Germany's Power Supply between 2020 and 2025

	2020	2021	2022	2023	2024	2025	Changes 2025/2024
	Billion kWh						Change in %
Gross Electricity Production	**576.8**	**592.8**	**578.9**	**511.3**	**503.2**	**509.2**	**1.2**
Self-Consumption in Power Plants	-27.7	-29.3	-28.4	-23.5	-21.8	-22.6	3.8
Net Electricity Production	**549.2**	**563.5**	**550.5**	**487.7**	**481.4**	**486.6**	**1.1**
Electricity Flows from Foreign Countries	48.0	51.7	49.3	69.3	81.7	79.7	-2.4
Electricity Flows into Foreign Countries	66.9	70.3	76.6	60.1	55.4	60.2	8.7
Net Domestic Electricity Volume	**530.3**	**545.0**	**523.3**	**497.0**	**507.6**	**506.0**	**-0.3**
Pump Current Consumption	8.8	7.2	8.0	7.3	8.3	9.2	10.2
Grid Losses and Unrecorded Factors	26.9	26.6	26.3	25.8	26.1	27.3	4.6
Net Electricity Consumption	**494.6**	**511.2**	**489.0**	**463.9**	**473.2**	**469.6**	**-0.8**
Proportion of:							
Mining and Manufacturing Industries	206.7	214.4	201.4	185.8	186.0	184.4	-0.9
Private Households	127.4	138.5	134.1	131.4	132.3	132.5	0.2
Commerce and Trade, Public Institutions	138.2	134.8	128.4	121.1	127.8	124.4	-2.6
Transportation	11.6	13.2	14.8	16.0	17.4	18.8	8.3
Energy Consumption in the Conversion Sector (without Power Plants' Own In-House Consumption)	10.6	10.4	10.4	9.5	9.7	9.4	-3.5
Gross Domestic Electricity Consumption	**557.9**	**574.3**	**551.6**	**520.5**	**529.4**	**528.7**	**-0.1**

Some figures are preliminary and estimates

Sources: Working Group on Energy Balances (AGEB); Federal Statistical Office (Destatis); German Association of Energy and Water Industries (BDEW)

Higher electricity imports do not necessarily indicate any dependence on other European countries when it comes to the supply of electricity nor do they indicate any shortfall in Germany because sufficient domestic production capacities to cover the energy demand would actually have been available in Germany.

The utilization of cheaper production options in other European countries – in particular from renewable energies, but also from nuclear power plants – has actually substituted fossil-based electric power generation in Germany. Consequently, the importation of electricity actually led to a reduction of emissions in the German CO_2 balance.

According to initial data, the end consumption of electricity (net electricity consumption) amounted to 469.6 billion kWh in 2025; this translates into a decrease of 0.8 % when compared to the previous year (please see Table 14).

In 2025, the largest electricity consumer by far was still industry with a share of 39.2 %, followed by private households with a share of 28.2 %. The share of the trade, commerce, and service sector was more than 26 %, and the share of the transportation sector nearly 4 %.

The electricity consumption of industry (mining and manufacturing industries, in the classification of the German Energy Balance, Energy Balance Row 60; that is, without electricity input in such energy conversion sectors as, for example, refineries, coking plants, etc.) is expected to have amounted to a total of 184.4 million kWh during the year under review, which translates into a decrease of 0.9 % when compared to 2024. The electricity consumption of private households increased by 0.2 % over the same period of time. According to first data and/or estimates, the transportation sector is expected to exhibit a plus of 8.3 % for the traction current of rail vehicles and for electric mobility. The electricity consumption

of enterprises in the trade, commerce, and service sector declined by 2.6 % to more than 124.4 billion kWh in 2025.

The average electricity price for industry (160,000 kWh to 20 million kWh, supply in the medium voltage range, including electricity tax) amounted to 17.6 ct/kWh in 2025 and was, thus, 0.3 ct/kWh or 1.7 % higher than the average value of the previous year. For comparison: In 2024, the industrial electricity price had dropped by almost 30 % when compared to 2023. The reason for this decline in 2024 was, on the one hand, the reduction of taxes, duties, and levies for industrial customers (concession fee, CHP levy, § 19 Electricity Grid Charges Ordinance (StromNEV) levy, offshore grid levy, and electricity tax) to 1.46 ct/kWh which had still amounted to a total of 2.86 ct/kWh in 2023. On the other hand, it needs to be kept in mind that also the prices for procurement, network charges, and distribution had sunk by about 6.1 ct/kWh (this equals 28.2 %) in 2024.

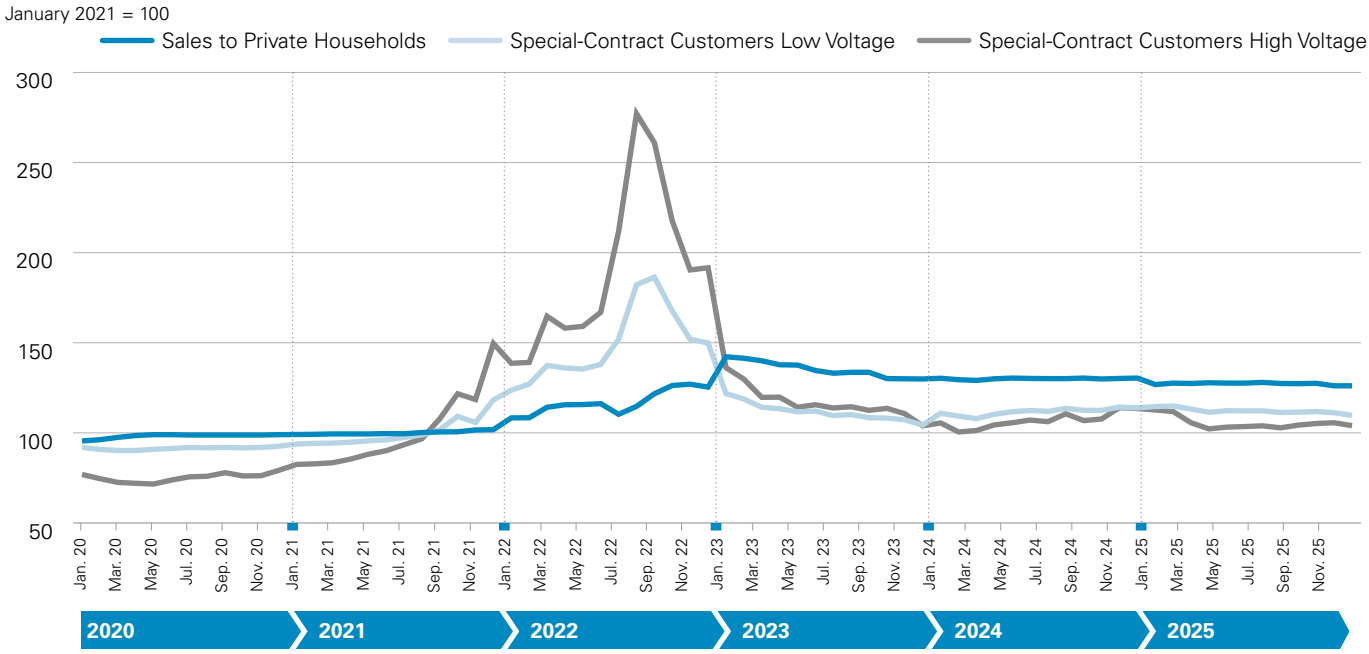
The electricity price for customers from private households dropped by more than 2 % to an average level of 39.3 ct/kWh in 2025 when compared to the previous year.[34] This was due to further decreasing prices in the wholesale trade and due to lower network charges. In 2025, the costs for procurement and distribution were 1.3 ct/kWh or 7.5 % below the previous year's level. Expenses for network charges dropped by 0.5 ct/kWh and, thus, by more than 4 %. In contrast, governmental charges and fees consisting of taxes, duties, and levies actually increased by almost 1 ct/kWh in 2025 when compared to the previous year; thus, their share in the electricity price rose from 29 % to 32 % (please see Figure 13).

The monthly development of the exchange prices for electricity on the spot market shows the following picture: In 2022, the electricity exchange price had undergone strong fluctuations and reached a historic all-time high with € 465.18/MWh (Phelix Base) in August 2022. During the fourth quarter of 2022, the situation on the market calmed down so that the wholesale price dropped significantly and ended at € 251.62/MWh in December 2022. In the subsequent years between 2023 and 2025, however, it could be observed that the price level only exhibited

Figure 13

AGEB
AG Energiebilanzen e.V.

Electricity Producer Price Index for Special-Contract Customers and Sales to Private Households in Germany between 2020 and 2025



Source: Federal Statistical Office (Destatis)

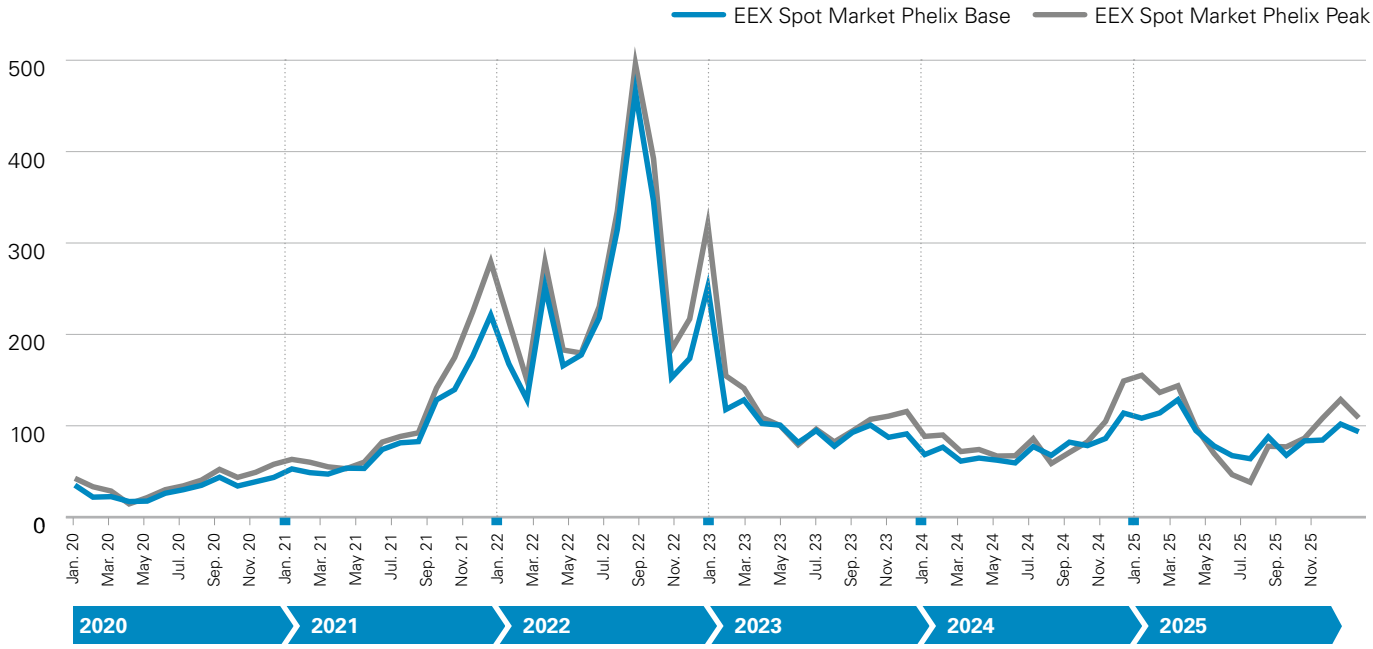
34) Average electricity price for a private household in ct/kWh; annual consumption of 3,500 kWh; base price pro rata share included. For more details, please see the Electricity Price Analysis published by the German Association of Energy and Water Industries (BDEW) in April 2026. Internet: https://www.bdew.de/service/daten-und-grafiken/bdew-strompreisanalyse/ (download date: 2026-06-15; currently only available in German).

Figure 14

AGEB
AG Energiebilanzen e.V.

Development of Electricity Prices on the EEX Spot Market (Phelix Base and Peak) between 2020 and 2025

Electricity in EUR/MWh



Source: Udo Leuschner

comparatively minor fluctuations. In January 2023, the exchange price for electricity was at € 117.83/MWh; by December 2024, it dropped to € 108.32/MWh. In 2025, the exchange price for electricity started at € 114.10/MWh and sank to € 93.47/MWh by December 2025 (please see Figure 14).

In 2025, the annual average of the electricity exchange price (Phelix Base) increased by 12 % to € 88.79/MWh when compared to 2024 while the EEX electricity price (Phelix Peak) increased only by almost 4 % to € 93.28/MWh during the same period of time.

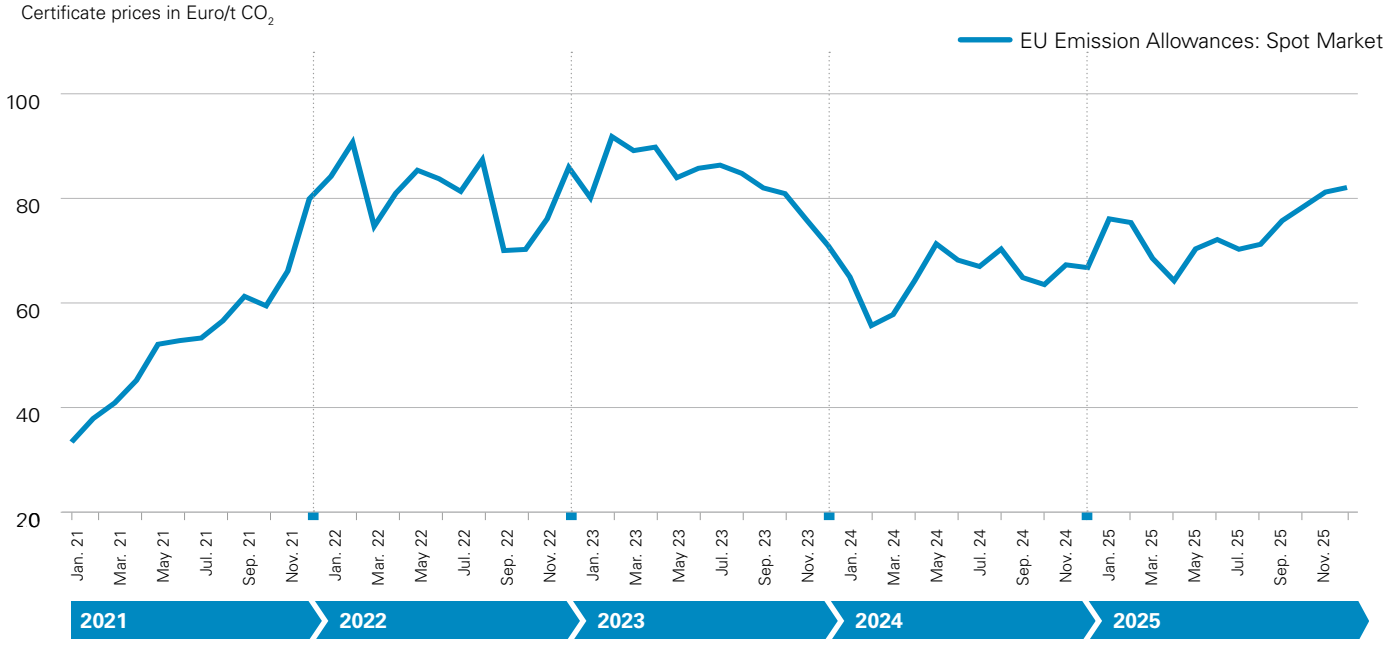
The CO_2 emissions of the electric power industry – that is, the CO_2 emissions of all the electricity production plants and facilities in Germany as a whole including the plants and facilities of industry – fell according to preliminary figures by 1.9 % in 2025 when compared to 2024. The total electricity production increased by 1.2 %. Consequently, the specific emissions of the (net) electricity production also decreased by 3.0 % to 0.32 kg/kWh of CO_2. Decisive for the decline in emissions were in addition to the continued increase in efficiency also the shifts within the production mix. In 2025, the production mix recorded a shift from lignite to natural gas and hard coal while electricity production from renewables increased by 1.2 %.

According to preliminary calculations, the CO_2 emissions of the electric power industry within the classification of the German Energy Balance – in other words, the CO_2 emissions of all electric power generation plants and facilities as a whole including the plants and facilities of industry and electricity generation from CHP plants – dropped by about 1.6 % to 134.5 million tons of CO_2 in 2025 (in 2024: 136.7 million tons of CO_2).

However, relevant and decisive for Germany to reach its climate targets in line with the Climate Protection Act (KSG) is the energy industry sector which is categorized differently when it comes to electricity production and which includes not only CO_2, but also other greenhouse gas emissions. The largest proportion of the emissions are produced here in electric power generation plants as well; however, the energy industry sector does not include any emissions from the electric power generation plants of industry, but instead, for example, emissions coming from district heating plants, mineral oil refineries, or diffuse emissions from the gas supply. In 2025, emissions

Figure 15

European Emission Allowances on the EEX Spot Market between 2021 and 2025



Source: European Energy Exchange AG (EEX)

in the energy industry sector dropped according to preliminary calculations by 1 million tons of CO_2 equivalents to 189 million tons of CO_2 equivalents. Hence, a stagnation can be observed here as well; however, the emissions are still below the indicative reduction path for the sector between the target years 2022 and 2030 as specified in the Climate Protection Act (KSG) which was to have been 201 million tons of CO_2 equivalents for the year 2025.

The general price trend for CO_2 emissions certificates showed a slight upward movement in 2025. They started at € 76.00 per ton of CO_2 in January 2025, dropped to a minimum of € 64.00 per ton of CO_2 by April, and ended with a peak price of € 82.00 per ton of CO_2 in December. The annual average price was around € 74.00 per ton of CO_2; in 2024, the average price had still been € 65.00 per ton of CO_2 (please see Figure 15).

Renewable Energy [35]

In 2025, the primary energy consumption of renewable energy sources amounted to a total of 2,190 PJ (please see Table 15). When compared to the previous year (2,127 PJ), this equals an increase of 2.9 %. The main reasons were the consistently high number of additionally built photovoltaic systems as well as the increased use of renewable energy sources for the supply of heat. In the transportation sector as well, more biofuels were used when compared to the previous year.

The entire electricity production from renewable energy sources amounted to a total of nearly 292 billion kWh in 2025. Compared to the previous year, this translates into an increase of 1.2 % (2024: 288.1 billion kWh).

In 2025 as well, wind energy ranked once again far ahead as the most important energy carrier in the German electricity mix. All told, wind turbines generated more than 134.2 billion kWh of electric power. Onshore and offshore wind turbines, thus, covered about 25 % of the gross electricity consumption. Even though wind power production on shore declined by 5 % during the first half of the year when compared to the previous year due to the wind conditions which were very low on a historical scale, just onshore wind turbines alone produced more electricity than all lignite and hard coal fired power plants taken together. At the same time, the electricity production of offshore wind farms increased by 2 %. In addition to the weather, the continued expansion of production capacities also contributed to this development: While about 0.5 GW of new production capacities went into operation off shore, the net addition on shore reached about 4.6 GW. Thus, a total wind power capacity of about 68.1 GW was installed on shore and approximately 9.7 GW off shore at the end of 2025 (source: Core Energy Market Data Register published by the Federal Network Agency (BNetzA); data status: February 2026).

In 2025, photovoltaics made the second largest contribution to Germany's electricity production; they ranked even ahead of natural gas. Both an above average global solar radiation and the addition of new capacities amounting to about 17.6 GW over the course of the year caused solar-based electricity production to increase by 21.5 %. Including those amounts of electricity that were self-generated and self-consumed, photovoltaic systems produced about 92.2 TWh of electric power in 2025. Thus, a total PV module capacity of about 120 GW was installed at the end of the year 2025 (source: Core Energy Market Data Register published by the Federal Network Agency (BNetzA); data status: February 2026).

Due to the dry weather during the first half of 2025, electricity production from hydropower was at a historically low level of 17.1 billion kWh. Compared to the previous year with its high precipitation, this equals a sharp decline of 24 %. Electricity production from biomass including biogenic waste (about 48.0 billion kWh) also experienced a downturn in 2025 when compared to the previous year; it dropped by about 3 %. When it comes to the primary-energetic representation of electricity production from renewables as shown in Table 15, attention should be paid to a special energy-statistical convention, the so-called efficiency principle: In the absence of a physically ascertainable calorific value, a fictitious efficiency of 100 % is assumed for the conversion of energy in the balance sheets for the energy carriers hydropower, wind power, and photovoltaics while the use of biogenic fuels in power plants and other production facilities is entered with their actual energy content in the balance sheets. The convention of the efficiency principle, thus, results in the fact that, for example, the primary energy contribution of electricity production from photovoltaics (conversion input: 332 PJ) shown in Table 15 is entered in the balance sheet as being lower than the fuel input for electricity production from biomass including biogenic waste

35) *This text is based on the work conducted by the Working Group on Renewable Energies-Statistics (AGEE-Stat; last update: 2026-05-12). For further information on the development of renewables in 2025, please turn to the background paper published by the Federal Environmental Agency (UBA) under the title:* Erneuerbare Energien in Deutschland - Daten zur Entwicklung im Jahr 2025: *https://www.umweltbundesamt.de/system/files/medien/479/publikationen/2026-03/UBA_Erneuerbare%20Energien%20in%20Deutschland%202025.pdf (download date: 2026-05-18; currently only available in German).*

Table 15

Renewable Energy in Germany in 2024 and 2025 According to Its Use and Energy Sources

	Hydropower			Wind Energy (Onshore and Offshore)			Solar Energy			Geothermal Energy			Biomass			Waste			Total		
	2024	2025	Changes	2024	2025	Changes	2024	2025	Changes	2024	2025	Changes	2024	2025	Changes	2024	2025	Changes	2024	2025	Changes
	Petajoules		%	Petajoules		%	Petajoules		%	Petajoules		%	Petajoules		%	Petajoules		%	Petajoules		%
Domestic Production	81	61	-32	503	483	-4	305	365	17	89	103	13	1,045	1,056	1	129	130	1	2,152	2,199	2.2
Foreign Trade Balance													-25	-10					-25	-10	
Primary Energy Consumption	**81**	**61**	**-32**	**503**	**483**	**-4**	**305**	**365**	**17**	**89**	**103**	**13**	**1,020**	**1,047**	**3**	**129**	**130**	**1**	**2,127**	**2,190**	**2.9**
Use in Power Plants (Electricity)	81	61	-32	503	483	-4	273	332	18	8	8	5	322	308	-5	58	59	1	1,246	1,252	0.5
Use in Power and Heating Plants (Heat)							0	0	23	7	8	10	51	53	4	49	50	1	108	111	2.8
Consumption during Conversion, Losses													17	16	-7	3	2	-4	19	18	-5.9
Final Energy Consumption							**32**	**33**	**5**	**75**	**87**	**15**	**628**	**668**	**6**	**19**	**19**	**0**	**753**	**808**	**7.2**
Industry							0	0	0	1	1	0	102	102	0	19	19	0	121	121	0.0
Transportation													123	134	8				123	134	9.0
Private Households, Trade, Commerce, Services							32	33	5	74	87	15	403	432	7	0	0	-10	509	552	8.5

All values are preliminary (last update: May 16, 2026)

Source: AGEEStat

AGEB
AG Energiebilanzen e.V.

(conversion input: 367 PJ) even though electricity production from photovoltaics was almost twice as high as electricity production from biomass including biogenic waste (92 billion kWh vs. 48 billion kWh).

The temperatures in 2025 were just one reason why the entire primary energy consumption of biomass and biogenic waste (1,177 PJ) increased by approximately 2 % when compared to the previous year (1,149 PJ). About 41 % of the energetically used biomass were used in the conversion sector, i. e. essentially as a fuel for the generation of electricity and district heat including the in-house consumption of the production plants. The majority (59 %) of the energetic use of biomass accounted for the final energy consumption. Private households as well as enterprises in the trade, commerce, and service sector were responsible for more than three fifths of the final energy consumption (432 PJ, +7 %) while the share of the transportation sector amounted to approximately one fifth (134 PJ, +9 %) due to the use of liquid and gaseous biofuels, and the share of the industrial sector was also nearly one fifth (121 PJ, +0 %).

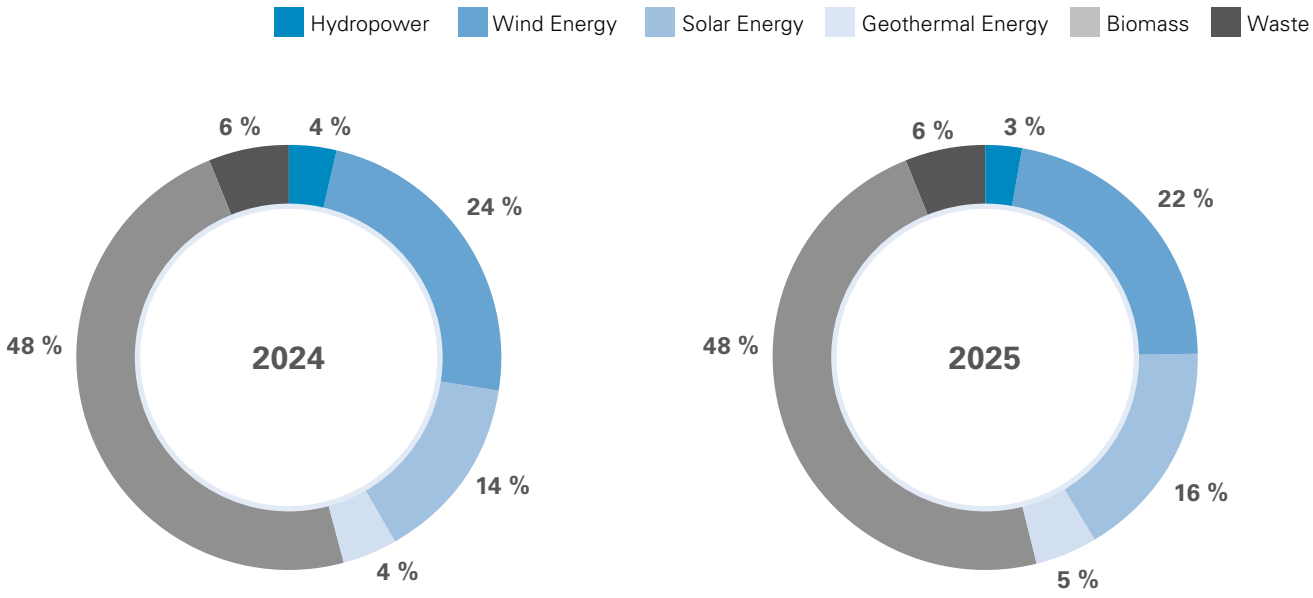
Other renewable energy carriers including environmental heat, near-surface geothermal energy, deep geothermal energy, and solar thermal energy accounted for a share of 6 % in the total primary energy consumption of renewables in 2025. After the market had collapsed in 2024, about 300,000 heat pumps for heating purposes and about 50,000 domestic hot water heat pumps were actually sold in 2025 (source: German Federal Heat Pump Association (BWP)). Thus, the total number of heat pumps increased by approximately 10 % to about 2.2 million heat pumps that were installed in 2025. Subsequently, and in combination with the cooler weather, the utilizable environmental heat and near-surface geothermal energy generated through these heat pumps increased as well; namely, by 17 % to 84 PJ. In addition, about 19 PJ of deep geothermal primary energy were used for the production of electricity and heat. Despite the declining number of installed systems, solar thermal heat generation increased due to the higher amount of solar radiation by 5 % to 33 PJ in 2025 when compared to the previous year.

Figure 16

AGEB
AG Energiebilanzen e.V.

Structure of Renewable Energy Sources in Germany between 2024 and 2025

Share of total primary energy consumption of renewable energies in %



Source: Working Group on Renewable Energies-Statistics (AGEE-Stat)

In a nutshell, the diagram of the primary energy contribution made by the individual renewable energy carriers (please see Figure 16) illustrates that biomass (including renewable waste) continued to be by far the most significant energy carrier amongst renewable energies with a share of about 53.7 % in 2025, followed by wind energy with 22.1 %, solar energy with 16.7 %, geothermal energy and environmental heat with 4.7 %, and hydropower with 2.8 %. Compared to the previous year, different trends can be observed: While the primary energy contribution of solar energy increased significantly (+2.4 %), wind energy lost some shares due to the reduced supply of wind (-1.6 %). The contribution of hydropower decreased as well due to the weather conditions (-1.0 %). And the share of energetically used biomass and biogenic waste also experienced a slight decline when compared to the previous year (-0.3 %). In contrast, growth was recorded by geothermal energy including environmental heat (+0.5 %).

Energy Efficiency in Germany

Already within the scope of Germany's national Sustainable Development Strategy, the Federal Government had established the objective of doubling the macroeconomic energy productivity by 2020 when compared to the respective figures ascertained for 1990. The Energy Efficiency Strategy 2050 also continues to see improvements in increasing the energy efficiency as a key strategy for the success of the targeted energy turnaround.

It should be kept in mind, though, that empirically determining energy efficiency is by no means clear and simple, and not every technically feasible increase in energy productivity is, at the same time, also economically viable. Because efficiency improvements actually require not only time, but usually also the application of innovative technologies and, thus, the increased use of physical capital.

A typical indicator for the measurement of energy efficiency is considered to be the energy intensity; namely, the consumption of primary or final energy in relation to such guiding economic parameters as, for example, the gross domestic product or the population. Every reduction of the energy intensity defined that way is synonymous with an increase in energy productivity and/or energy efficiency.

While the macroeconomic performance increased (adjusted by price effects) by 0.2 % in light of the simultaneously observed 0.4 % decline in energy consumption, the macroeconomic energy productivity in Germany improved substantially in 2025; namely, by approximately 0.6 % when compared to the previous year 2024 (based on the original values ascertained for primary energy consumption). By using a unit of primary energy (GJ), it was possible to generate an estimated gross domestic product of € 342.70 in 2025; in 2024 (final data), this value had still amounted to € 340,60. Compared to 1990 and on an annual average, the macroeconomic energy productivity (unadjusted values) increased by about 2.8 %.

A further (consumption-reducing) impact which is reflected in the development of the original values of the macroeconomic energy consumption and/or energy productivity emanated from the milder weather conditions in 2025 when compared to the long-term average between 1990 and 2024.[36] By excluding the temperature influence when compared to the long-term average (1990 to 2024) and adjusted by stock level effects,[37] the macroeconomic energy productivity would have increased much more significantly in 2024 when compared to the previous year; namely, by 2.3 %. In the longer-term trend (1990 to 2025), the adjusted value also hovered around a level of 2.8 % per annum (please see Table 16 and Figure 17). All told, the decoupling process between the overall economic development and energy consumption continued during the current reporting year 2025 (as measured by the long-term trend).

When interpreting the indicator macroeconomic energy efficiency and/or energy productivity, it should be kept in mind that their development is typically due to numerous, partially overlapping causes. In particular, efficiency is determined by such influencing factors as economic growth (utilization of the capital stock and/or production system), energy prices, technical improvements of production processes (degree of modernity of the capital stock) as well as the demand-induced intersectoral and intrasectoral structural change.[38] In the past, the sectoral structural change tended to have had an energy consumption reducing effect in Germany.

36) Compared to the previous year, the weather in 2025 was cooler (+9.1 % and/or 273 degree days).

37) Unadjusted and/or observed original values are not only co-determined and/or influenced by the weather, but also by changes in the stocks and inventories of storable energy carriers (such as, for example, light fuel oil). Due to reduced prices, for example, when it comes to light fuel oil, private consumers increased the filling levels of their storage tanks by an estimated volume of 55 PJ (which equals approximately 1.5 million tons). All told, private and commercial consumers (the trade, commerce, and service sector) stocked up on light fuel oil to refill their tanks by about 60 PJ in 2025. Increasing the tank levels causes sales to simultaneously increase as well but has a consumption-dampening effect when taking adjusted figures into account; in contrast, cooler weather causes consumption/sales to increase as well but has a consumption-reducing effect when taking temperature-adjusted figures into account.

38) In the market economy, intersectoral structural change is defined as the change in the share that an economic sector and/or branch has in macroeconomic production. In contrast, intrasectoral structural change describes the change in the production structure and/or product portfolio at the level of homogeneous economic branches. In the paper industry, for example, the entire output consists of a varying product structure due to permanent shifts in the demand for individual types of paper (printing and newsprint papers, graphic papers, technical papers and, finally, tissue and toilet papers) whose production requires different inputs of energy and raw materials. The structural change (both intersectoral and intrasectoral) can both decrease and increase energy consumption if and when the shifts caused by the structural change act either in favor of or to the detriment of the respective energy-extensive branches and/or products.

Table 16

AGEB
AG Energiebilanzen e.V.

Macroeconomic Energy Productivity in Germany between 1990 and 2025

	Unit	1990 [1]	2021	2022	2023 [1]	2024	2025 [2]	Average Annual Change in %	
								2025/2024	2025/1990
Gross Domestic Product (Price-Adjusted; Reference Year 2020)	Concatenated Volume Figures in Billion Euros	1,959.1	3,585.6	3,650.5	3,618.8	3,600.8	3,608.4	0.2	1.8
Population [3]	1,000	79.8	82.0	82.5	83.3	83.5	83.5	0.0	0.1
Primary Energy Consumption (Unadjusted)	Petajoules	14,905	12,477	11,711	10,658	10,571	10,530	-0.4	-1.0
Primary Energy Consumption (Adjusted) [5]	Petajoules	15,014	12,499	11,926	10,854	10,881	10,659	-2.0	-1.0
Total Electricity Consumption [4]	Billion kWh	550.7	574.3	551.6	520.5	529.4	528.7	-0.1	-0.1
Energy Productivity (Unadjusted)	Euros/GJ	131.4	287.4	311.7	339.5	340.6	342.7	0.6	2.8
Energy Productivity (Adjusted) [5]	Euros/GJ	130.5	286.9	306.1	333.4	330.9	338.5	2.3	2.8
Electricity Productivity	Euros/kWh	3.6	6.2	6.6	6.95	6.80	6.83	0.4	1.9

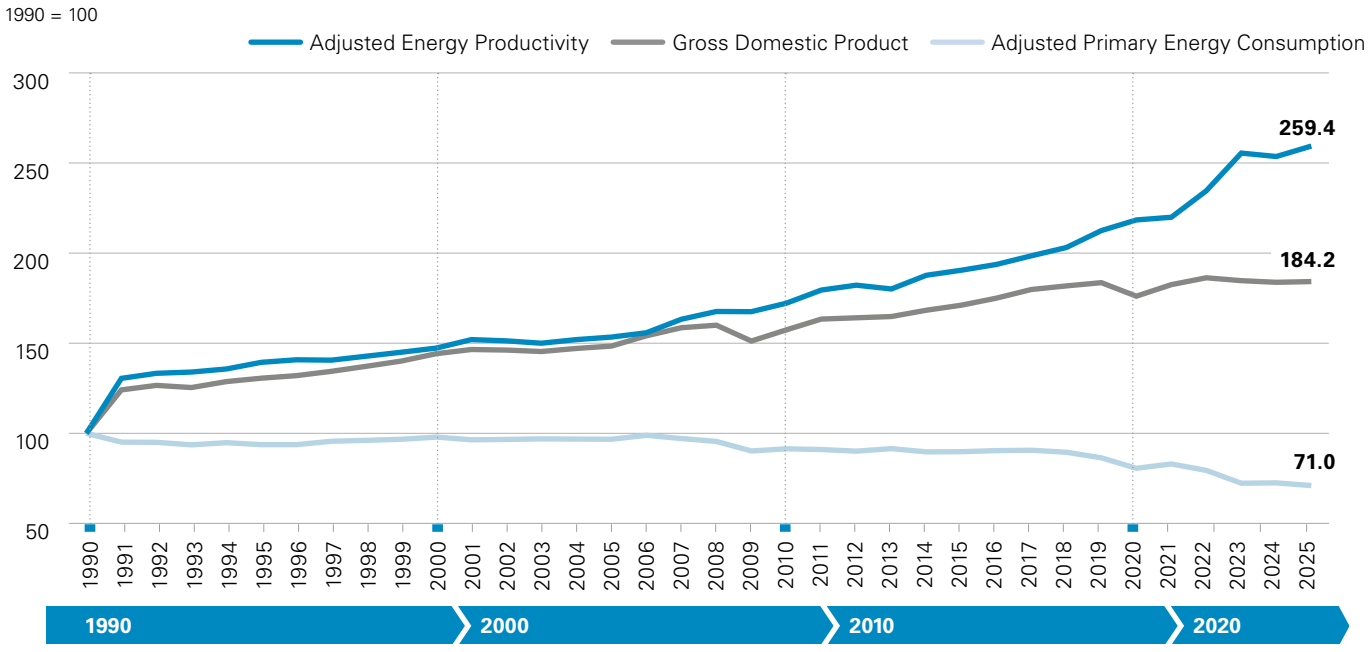
1) Some figures are estimates
2) Preliminary information for 2025, partially estimated
3) Average population based on the 2011 census (result as per the closing date May 9, 2011: 80,219,695 inhabitants)
4) Including pump current generation
5) Values adjusted for temperature, mineral oil adjusted for inventory

Sources: Working Group on Energy Balances (AGEB); Federal Statistical Office (Destatis); Germany's National Meteorological Service (DWD); German Association of Energy and Water Industries (BDEW)

Figure 17

AGEB
AG Energiebilanzen e.V.

Gross Domestic Product, Primary Energy Consumption, and Energy Productivity in Germany between 1990 and 2025



All values for 2025 are provisional

Sources: Federal Statistical Office (Destatis); Federal Ministry for Economic Affairs and Energy (BMWi); Federal Ministry of Finance (BMF); Working Group on Energy Balances (AGEB)

It should also be considered that such a review of the macroeconomic energy productivity, which is based on primary energy consumption, also reflects statistical effects. These effects are associated with the assessment of hydropower, wind energy, photovoltaics, geothermal energy as well as nuclear energy from a primary energy perspective (which are all used for electricity production and) for which no uniform conversion standard such as the calorific value (for fossil fuels) exists. Within the scope of preparing its Energy Balances, the AG Energiebilanzen evaluates and assesses these energy carriers according to the so-called efficiency method (which is also applied internationally for calculating the primary energy consumption and for preparing energy balances). In the past,[39] the substitution method used to be the common evaluation standard in Germany. Depending on the respective substitution processes in the mix of energy carriers, any decision made in favor of the one or the other method actually influences not only the level, but also the development of primary energy consumption and the associated macroeconomic energy productivity. Details of the effects both assessment methods have on primary energy consumption can be found, for example, in the AGEB publication *Energy Consumption in Germany in 2019*, p. 38, which is available in English and can be downloaded from the AG Energiebilanzen's website at: https://ag-energiebilanzen.de/wp-content/uploads/2020/05/ageb_jahresbericht2019_20200505_engl_web.pdf.

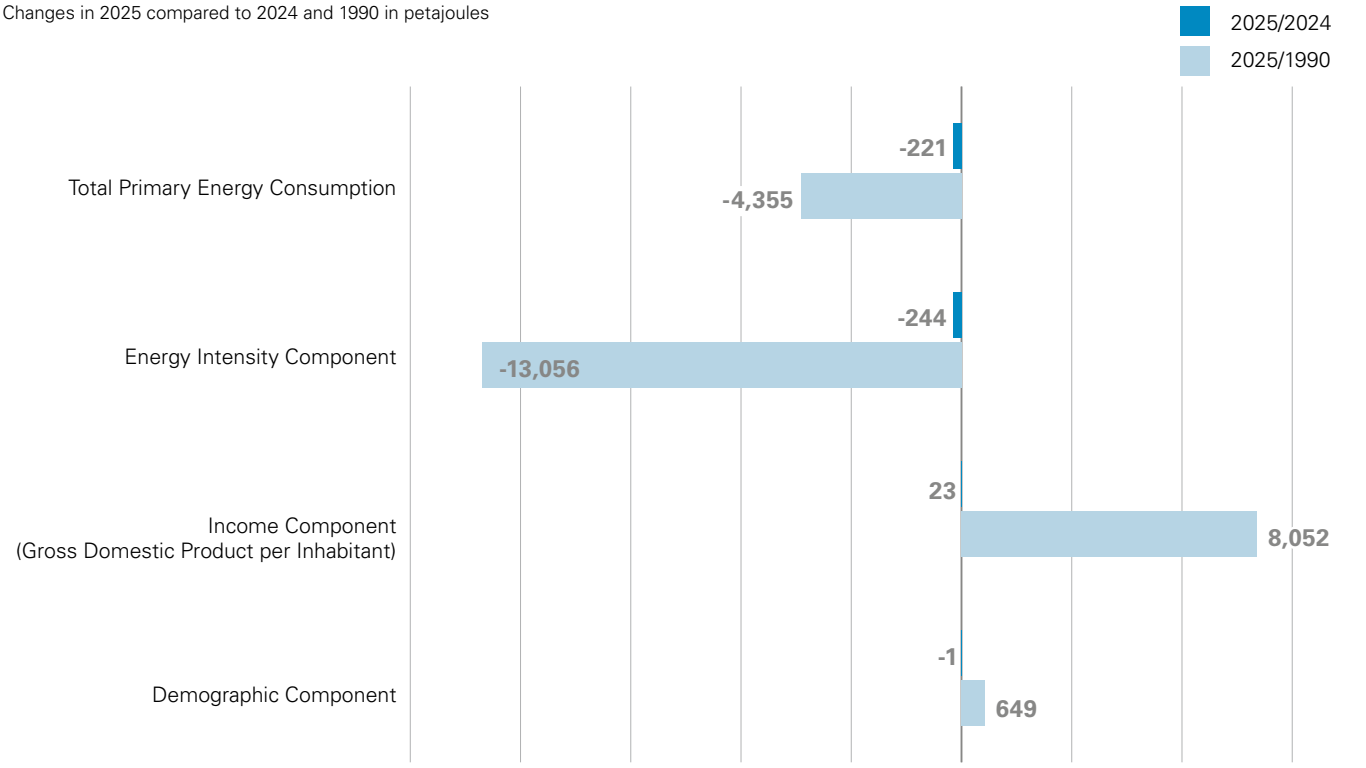
The highly aggregated focus on macroeconomic energy efficiency actually prevents a clear view of many other factors already mentioned above which characterize energy consumption. With the help of the component decomposition method, it is possible to at least illustrate the key factors which influence the changes in the (adjusted) primary energy consumption (please see Figure 18). Towards this end, the long-term changes (1990-2025) clearly demonstrate the considerable influence of the decreased energy

Figure 18

AGEB
AG Energiebilanzen e.V.

Contributions of Diverse Influencing Factors to the Changes in the Adjusted Primary Energy Consumption in Germany

Changes in 2025 compared to 2024 and 1990 in petajoules



Sources: Federal Statistical Office (Destatis); Germany's National Meteorological Service (DWD); Working Group on Energy Balances (AGEB)

39) Until the mid-1990s.

intensity (in other words, the improvement of the energy efficiency) on the reduction of the (temperature-adjusted) primary energy consumption (-13,056 PJ). This way, it was possible to significantly overcompensate the consumption-enhancing effects of macroeconomic growth (+8,052 PJ) and the increase in population (+649 PJ). All told, the adjusted primary energy consumption decreased by 4,355 PJ between 1990 and 2025.

The correlations outlined above apply in a similar way to the short-term consideration of the changes between 2024 and 2025: The reduction of the (adjusted) macroeconomic energy productivity resulted in a decrease in primary energy consumption by about 244 PJ when compared to 2024. The growth in the economic performance increased the adjusted primary energy consumption by 23 PJ in 2025 when compared to the previous year. When seen from the short-term perspective, a consumption-reducing effect emanated additionally from the population component (-1 PJ) which, when also seen from the long-term perspective and viewed absolutely, had a relatively low impact on the absolute values of primary energy consumption. All told, this resulted in a decline of the (adjusted) primary energy consumption by 221 PJ in 2025 (when compared to 2024).

Nevertheless, when assessing the results of such a component decomposition, it should be noted that the changes in primary energy consumption are, of course, not only influenced by the factors which are taken into account here (economic growth, population trend, and macroeconomic energy efficiency). In fact, the development of energy consumption can neither be sufficiently explained from a monocausal perspective nor in an extremely simplified form; it is rather the result of a very complex interaction between numerous (partially interdependent) determinants which, in addition to the influencing factors considered within this component decomposition, also have an impact on the consumption trend. In particular, the effects of the structural change already referred to hereinabove are not included in the macroeconomic component decomposition for primary energy consumption which is assumed here in a simplified manner.

The sectoral structural change in Germany tended to have caused energy consumption to decrease in the past. In order to substantiate this hypothesis with more precise empirical data, an isolated component decomposition was additionally conducted here which, in addition to the activity and intensity components (gross production value and energy efficiency), also takes a structural component into account. This structural component records the influence of the intersectoral structural change (by categorizing the industrial sectors in the Energy Balance for Germany, Energy Balance Rows 46 to 59, whereby the economic branches "basic chemistry" and "other chemical industry" were summarized as one sector) on industry's final energy consumption (Energy Balance Row 60).[40]

Against this backdrop, Figure 19 illustrates that the intersectoral structural change contributed substantially towards reducing the total final energy consumption of industry between 2003 and 2025. Only during the period between 2003 and 2009 did the increase in energy efficiency have a stronger consumption-reducing impact on the development of industry's final energy consumption than the sectoral structural change. As expected, but with the exception of the recession year 2009, a distinctly positive impetus for industrial energy consumption came from economic growth.

When assessing the macroeconomic energy productivity (please see Figure 17), it must also be kept in mind that above average gains in efficiency in the use of fuels and heat are often contrasted by comparably moderate savings in the specific consumption of electricity. This is due to the fact that an improvement of the energy productivity in numerous economic branches can often only be attained through the increased use of state-of-the-art plant engineering, and that many of the applied process technologies which are designed to save fuels actually increase the specific electricity consumption. Yet there are also the increased requirements with regard to matters revolving around environmental protection as well as the persistent trend towards automation and the electronic control of processes which, for example, resulted in the fact that the

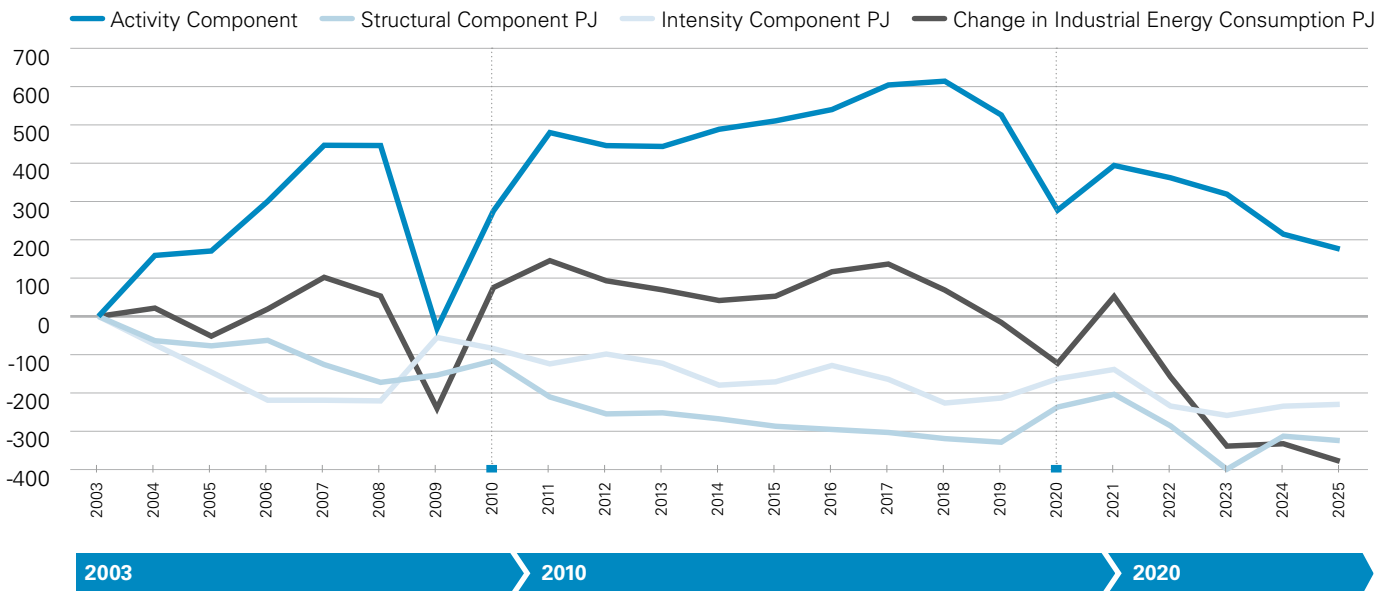
40) *This report uses the so-called Log-Mean Divisia Index Method I (LMDI I) for the component decomposition of industry's final energy consumption. For more details on this topic, please see: Ang, B. W., Liu, F. L., 2001.* A new energy decomposition method: perfect in decomposition and consistent in aggregation. *Energy 26 (2001), 537-548.*

Figure 19

AGEB
AG Energiebilanzen e.V.

Decomposition Analysis of Final Energy Consumption in Industry Based on the LMDI I Methodology

2003 - 2025



Source: Calculations made by the Working Group on Energy Balances (AGEB)

electricity savings potentials, which are to be rated lower anyway, were partially compensated for by the increased use of this energy carrier in new fields of application.

Against this backdrop, the macroeconomic electricity productivity (expressed as the ratio of the price-adjusted gross domestic product to gross electricity consumption) improved by 0.4 % in 2025 when compared to 2024 due to the slight decline in electricity consumption (by 0.1 % to 528.7 billion kWh) while the price-adjusted gross domestic product increased by 0.2 % to about 3,608 billion euros during the same period of time. As a result, a gross domestic product of about € 6.83 was generated by using one kilowatt hour of electric energy in 2025; in 2024, the same figure had been € 6.80.

When taking the long-term period between 1990 and 2025 into account, the electricity productivity increased by an annual average of 1.9 %. For comparison: The total energy productivity (adjusted) increased by 2.8 % per annum over the same period of time (for more details on this topic, please see Table 16 as well as Figures 20 and 21).

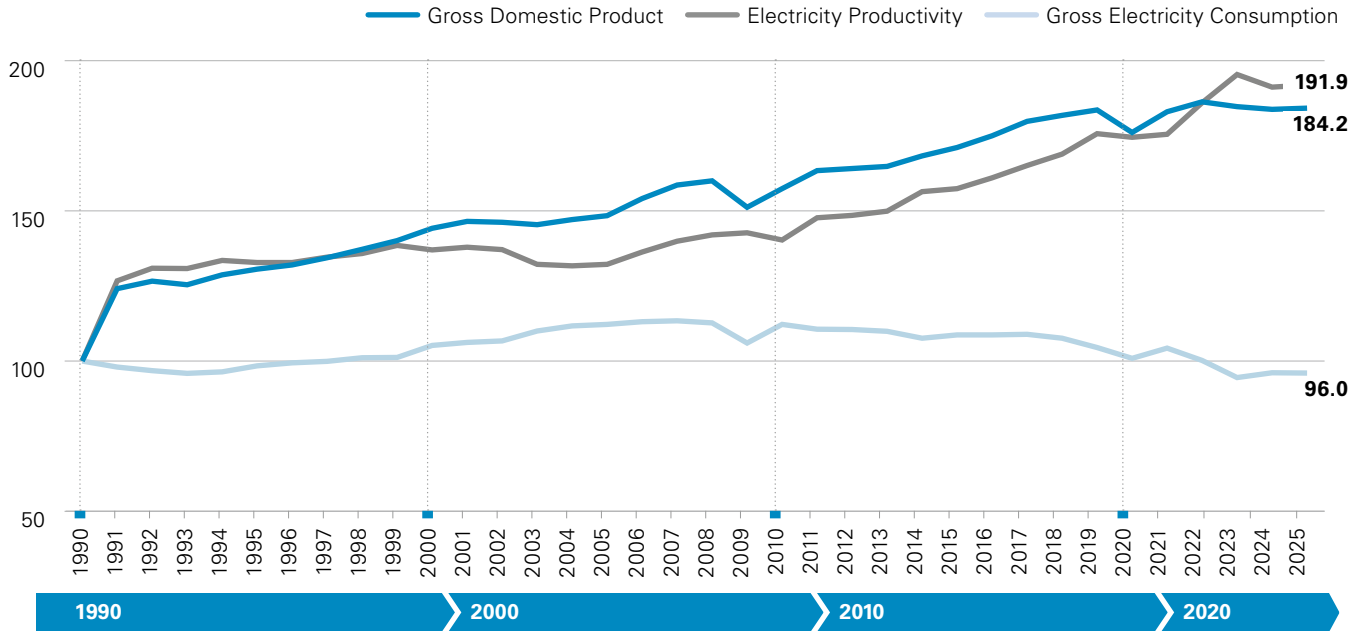
The impact of select components (economic growth, population trend, and electricity productivity) on the development of gross electricity consumption in Germany between 1990 and 2025 and/or 2024/2025 is illustrated in Figure 22. In contrast to the component decomposition of the total primary energy consumption, the following representation of electricity consumption is based on observed values that are not temperature-adjusted. The diagram shows that the reduction of the gross electricity consumption by 0.8 billion kWh in 2025 was primarily caused by the increase in electricity productivity (decrease of the current intensity component) when compared to the previous year 2024 (-1.9 billion kWh). In 2025, the growing economic performance had a consumption-increasing effect. Just the increase in the macroeconomic production and/or economic performance alone caused electricity consumption to increase, in purely mathematical terms, by 1.3 billion kWh. The contribution of the demographic component to the development of electricity consumption was negligibly small in 2024/2025 (+0.03 billion kWh). All told, the consumption-enhancing effects were unable to fully compensate the decline in electricity consumption resulting from increases in the electricity efficiency in the short run.

Figure 20

AGEB
AG Energiebilanzen e.V.

Gross Domestic Product,[1] Gross Electricity Consumption, and Macroeconomic Electricity Productivity[2] in Germany between 1990 and 2025

1990 = 100



1) Price-adjusted
2) Gross domestic product per unit of gross electricity consumption

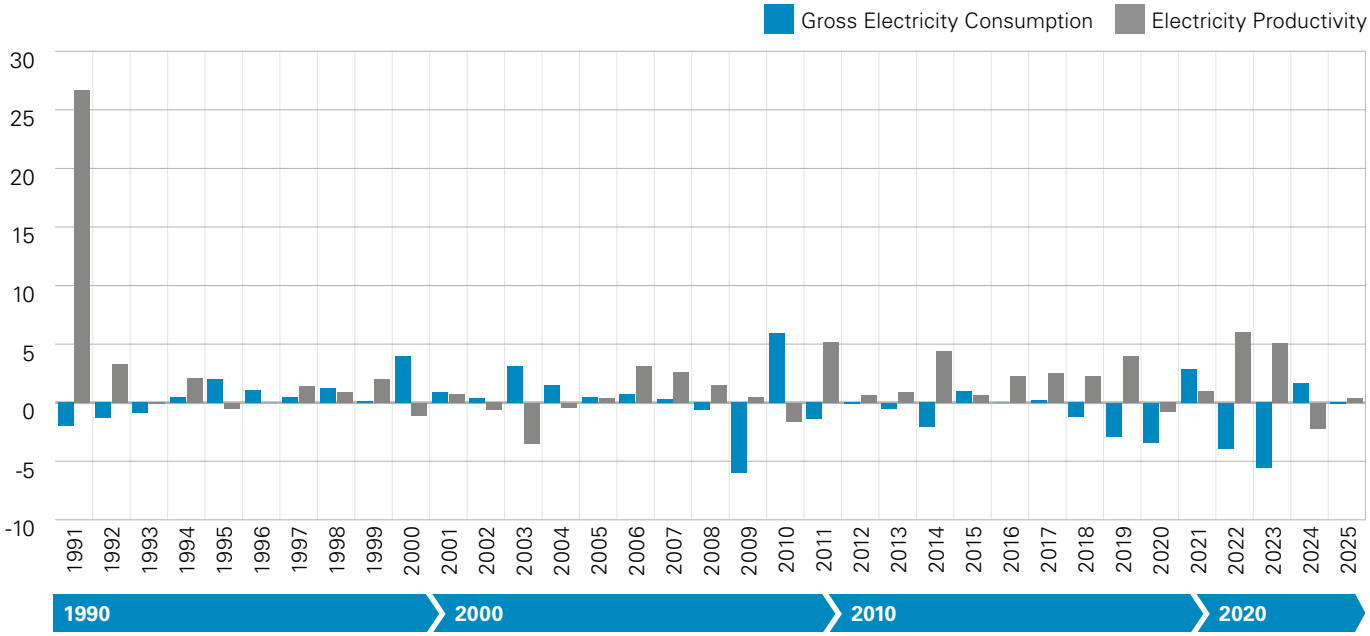
Sources: Working Group on Energy Balances (AGEB); Federal Statistical Office (Destatis); Federal Ministry for Economic Affairs and Energy (BMWi); Federal Ministry of Finance (BMF); German Association of Energy and Water Industries (BDEW)

Figure 21

AGEB
AG Energiebilanzen e.V.

Changes in Gross Electricity Consumption and Electricity Productivity between 1991 and 2025

Changes compared to the previous year in %



Sources: Federal Statistical Office (Destatis); German Association of Energy and Water Industries (BDEW); Working Group on Energy Balances (AGEB)

When considering the entire period between 1990 and 2025, i. e. over the long-term perspective, the continuous increase in electricity productivity led "in purely mathematical terms" to a significant absolute decrease in electricity consumption; namely, by almost 373 billion kWh. However, when it comes to the use of electric energy, the achieved gains in efficiency were to a large extent offset again by increased consumption due to the noticeably expanding economy (+325 billion kWh) when compared to 1990 as well as the demographic component and/or the growing population (+26 billion kWh).

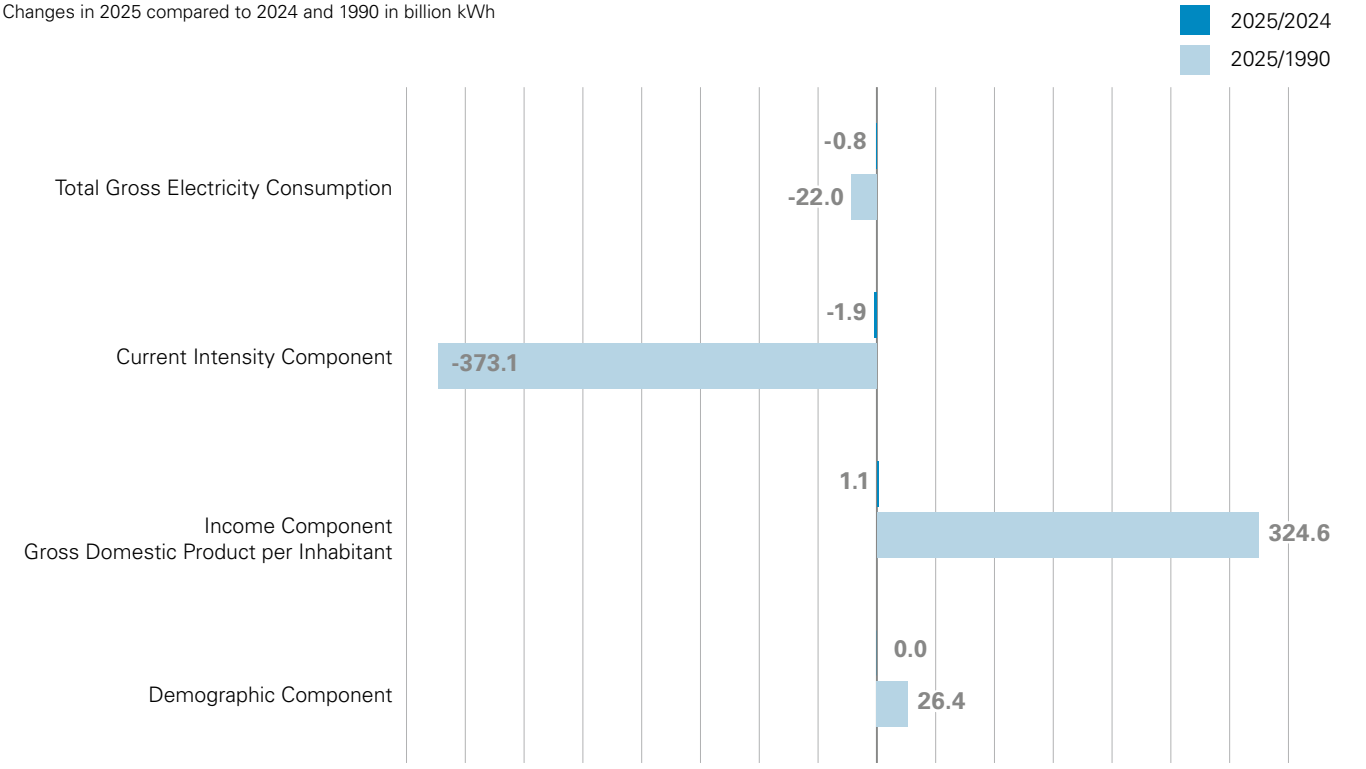
Electricity consumption as a whole dropped by about 22 billion kWh (which equals a decrease of about 4 %) when compared to 1990; in 2025, it was, thus, still approximately 29.2 billion kWh (-5.2 %) below the Covid-driven low point of 2020 (557.9 billion kWh) and, all told, at the second lowest level since 1990.

Figure 22

AGEB
AG Energiebilanzen e.V.

Contributions of Diverse Influencing Factors to the Changes in Gross Electricity Consumption in Germany

Changes in 2025 compared to 2024 and 1990 in billion kWh



Sources: Federal Statistical Office (Destatis); Federal Ministry for Economic Affairs and Energy (BMWi); Federal Ministry of Finance (BMF); Working Group on Energy Balances (AGEB); German Association of Energy and Water Industries (BDEW)

Energy-Related CO_2 Emissions

Against the backdrop of the developments in the energy industry outlined in the individual chapters of this report and according to current calculations made by the Federal Environmental Agency (UBA), Germany's energy-related emissions in 2025 amounted to a total of 531.9 million tons of CO_2.[41] Compared to the previous year, energy-related CO_2 emissions increased by about 1.1 million tons, which translates into almost 0.2 %, in 2025.[42]

Based on the early estimate of Germany's Energy Balance for 2025 (dated February 15, 2026), whose data were also used in this report, the Federal Environmental Agency (UBA) estimates the total CO_2 emissions (including processes and other sources) to have declined slightly by 0.38 million tons of CO_2 (which equals a minus of 0.06 % when compared to the previous year) to a level of 573.5 million tons of CO_2 in 2025.

When interpreting the Federal Environmental Agency (UBA)'s Trend Tables (with emission data for the period between 1990 and 2025), it needs to be considered that the representation follows, above all, the requirements laid down in the Federal Climate Protection Act (KSG) and, thus, does not reflect the horizontal breakdown according to economic branches as is applied in the Energy Balance for Germany. In fact, the representation also encompasses cross-sectional areas (such as, for example, the building sector) or specific assignments, for example, CO_2 emissions associated with electricity production in industrial power plants which are categorized under the economic segments "energy industry" and/or "manufacturing industry."[43] That is why the "sectoral" information on the development of CO_2 emissions (energy-related) is not fully comparable to the developments in the energy industry outlined in this report.

Table 17

AGEB
AG Energiebilanzen e.V.

Change in Energy-Related CO_2 Emissions
2024 and 2025, in million tons

	2024	2025	Change	
			in %	Million Tons
Energy-Related CO_2 Emissions (UBA Trend Tables)	530.9	531.9	0.2	1.1
Including				
Energy Industries (CRF 1.A.1)[1)]	181.2	180.6	-0.3	-0.6
Manufacturing Industries and Construction (CRF 1.A.2)[2)]	101.0	97.4	-3.7	-3.6
Commercial/Institutional, Residential, Other (CRF 1.A.4.a, 1.A.4.b, 1.A.5)	98.8	102.0	3.2	3.3
Civil Aviation, Road Transportation, Railways, Navigation (CRF 1.A.3.a to 1.A.3.d)	142.6	144.7	1.4	2.1
Agriculture/Forestry/Fishing (Stat. and Mobile Furnaces, CRF 1.A.4.c)	7.3	7.3	0.0	0.0

1) Incl. CO_2 emissions from fuel use in industrial power plants in the energy sector
2) Incl. CO_2 emissions from fuel use in industrial power plants in the manufacturing sector

Source: Federal Environmental Agency (UBA)

41) Energy-related CO_2 emissions which are directly attributable to the use of fuels and, thus, combustion processes in accordance with the emission quantities as classified under the Common Reporting Format (CRF) sectors 1.A.1 (Energy Industries), 1.A.2 (Manufacturing Industries and Construction), 1.A.4.a (Commercial/Institutional), 1.A.4.b (Residential), 1.A.5 (Other Sectors), 1.A.3.a to 1.A.3.d (Civil Aviation, Road Transportation, Railways, Navigation) as well as 1.A.4.c (Agriculture/Forestry/Fishing).
42) For more details on this topic, please see the Federal Environmental Agency (UBA) (2025): Aktuelle Treibhausgas-Projektionen. *Internet: https://www.umweltbundesamt.de/system/files/document/Emissions%C3%BCbersichten%20KSG-Sektoren%201990-2025.xlsx (download date: 2026-06-02; currently only available in German).*
43) In the Energy Balance for Germany, the fuel input of industrial power plants producing electricity and the associated CO_2 emissions are recorded in Row 12.

Despite these restrictions (with regard to the classification made in the Energy Balance for Germany), Table 17 provides essential clues about the direction and extent of the changes in energy-related CO_2 emissions in the most important sectors of the energy system.

The energy industry sector recorded a reduction of CO_2 emissions (by a total of 0.6 million tons, which translates into -0.3 %, to 180.6 million tons of carbon dioxide in 2025). Partially driven by the economic situation, the greatest CO_2 reduction by far was exhibited by the manufacturing industry. In 2025, energy-related CO_2 emissions in this sector decreased by 3.6 million tons, which equals a decline of 3.7 % when compared to the previous year. However, the successful reduction rates outlined above which were attained in the energy industry and manufacturing industry sectors (in total, minus 4 million tons of carbon dioxide) were negated again in the building and transportation segments whose CO_2 emissions increased in total by 4.6 million tons in 2025 when compared to the previous year. When interpreting the increase in CO_2 emissions in the building sector (2024/2025: +3.4 million tons), it must be considered that this development was to a large extent driven by the impact of the weather (2025 was on average significantly colder than 2024; consequently, the number of degree days was 9.1 % above the previous year's level) as well as by price-related replenishments of the fuel oil stocks on part of private and commercial customers (the trade, commerce, and service sector). The mere fact that private consumers stocked up on fuel oil could have caused CO_2 emissions to have dropped by up to 4 million tons in 2025 (2024: Approximately 6 million tons) if and when the effects resulting from changes in stocks would be subtracted from the emission data.[44]

According to preliminary data submitted by Germany's estimated Energy Balance, the CO_2 emissions of all power generation plants (power generation plants supplying the general public as well as power generation plants of mining facilities and the manufacturing industry, including the electricity produced in cogeneration plants) decreased to 146.9 million tons in 2025. Compared to the previous year, this equals a reduction of CO_2 emissions of around 1.5 % which translates into 2.2 million tons of CO_2. The reason for this development was that the electricity production mix in Germany became more CO_2-extensive when compared to 2024, which means that specifically the contribution of coal to electricity production continued to decrease even further whereas the share of renewables in electricity production remained more or less at the previous year's level. Another aspect is that Germany once again (and to a greater extent than had been the case in the previous year) imported more electricity from abroad than it exported into neighboring countries in 2025. Against this backdrop and with regard to the electricity mix,[45] the specific CO_2 emissions decreased by more than 2 % to 344 g of CO_2/kWh in 2025. With regard to the domestic electricity consumption (i. e. including the foreign trade balance), the decline amounted to more than 1 % so that the specific emissions in 2025 dwindled to a level of about 330 g of CO_2/kWh.[46]

The production of district heat (in heating plants and cogeneration plants) and the associated CO_2 emissions increased in 2025 (primarily due to the cooler exterior temperatures); namely, by about 0.5 million tons of CO_2 which translates into more than 9 %.

From the preliminary data and estimates compiled in this report on the energy consumption trend in 2025 and on the development of greenhouse gas emissions, initial indications can also be derived for the estimated development of energy-related carbon dioxide emissions in other sectors, primarily those related to final energy consumption:

- According to first estimates, the consumption (and/or sale) of fuel and energy in the transportation sector ought to have increased in 2025. This development is reflected in the CO_2 emissions

44) However, it should also be pointed out in this context that any and all estimates of changes in stocks are by their nature associated with considerable uncertainties when it comes to such storable energy carriers as fuel oil (or liquid gas).

45) The electricity mix is defined as gross electricity production minus the power plants' own in-house electricity consumption, power generation from pumped storage as well as flare and line losses.

46) For more details, please see Petra Icha, Dr. Thomas Lauf (2026), on behalf of the Federal Environmental Agency (UBA): Entwicklung der spezifischen Treibhausgas-Emissionen des deutschen Strommix in den Jahren 1990-2025. *Climate Change 16/2026. Internet: https://www.umweltbundesamt.de/system/files/medien/11850/publikationen/2026-03/16_2026_CC.pdf (download date: 2026-06-02; currently only available in German).*

which went up by 2.1 million tons and/or 1.4 % in 2025 when compared to the previous year. However, the outlined increase in traffic-related carbon dioxide emissions is the result of various, partially contrasting developments: An increase in CO_2 emissions amounting to about 2.6 million tons (which is 1.9 % more when compared to 2024) appears to have occurred in road traffic due to decreased fuel prices as well as the economic development (commercial passenger car and truck traffic). And in air traffic as well, the CO_2 emissions ought to have increased by approximately 1.8 % and/or about 0.5 million tons when compared to the previous year. This is contrasted by rail traffic where reduced CO_2 emissions are to be expected in 2025 (2025/2024: -2.4 %). Inland water transportation is also likely to have emitted less CO_2 in 2025 than in 2024 (-5.3 %). In absolute terms, however, the CO_2 emissions of this traffic carrier hovered at a rather low level (2025: 0.71 million tons) so that changes in this subsector did not have any particular impact on the CO_2 balance of the transportation sector as a whole.

- In the manufacturing industry (here without the emissions from electricity production in industrial power plants which are attributable to the manufacturing industry), it can be anticipated on the basis of the currently available estimates that due to the decline in industrial production (manufacturing industry 2024/2025: -1.5 %) and the even more pronounced production decline of energy-intensive economic branches (-2.3 %), energy-related CO_2 emissions are likely to have decreased even further in 2025. In the manufacturing industry, energy-related CO_2 emissions (within the delimitation of the German Energy Balance) dropped by more than 5 million tons and/or 3.6 % in 2025 when compared to the previous year. In absolute terms, the greatest emission reductions by far, in the order of their relevance, referred to the economic branches "metal production" (Energy Balance Row 54; -0.3 million tons of CO_2), "manufacture of basic chemicals" (Energy Balance Row 49; -1 million tons of CO_2), "other economic sectors" (Energy Balance Row 59; -0.5 million tons of CO_2), and "manufacture of motor vehicles, trailers, and semi-trailers" (Energy Balance Row 58; -0.4 million tons of CO_2).

- Due to the cooler weather when compared to the previous year, private households and the trade, commerce, and service sector seem to have consumed more energy for heating private homes and commercial premises in 2025 which is most likely associated with a development in emissions heading in the same direction. Against this backdrop and according to first estimates, the CO_2 emissions of private households could have increased by about 0.5 million tons and/or 0.4 % and those of the trade, commerce, and service sector by nearly 0.1 million tons and/or 0.1 % in 2025 when compared to the previous year. When interpreting these findings, it must be taken into account that the calculations for these sectors, which are made on the basis of the requisite data contained in Germany's Energy Balance, also include CO_2 emissions that have not yet been emitted at all, but are still stored in the fuel oil tanks of consumers in the form of stock replenishments.

Summary of the Trends

According to preliminary calculations made by the Arbeitsgemeinschaft Energiebilanzen (AG Energiebilanzen) – Working Group on Energy Balances (Energy Balances Group), energy consumption in Germany decreased by 0.4 % to 10,530 petajoules (PJ), which translates into 359.3 million tons of hard coal equivalents (Mtce), in 2025.

Responsible for the drop in energy consumption were, above all, the still fairly high energy prices as well as the weak economic development, especially in the energy-intensive sectors of the economy. Irrespective of the slight GDP growth (2025: Price-adjusted +0.2 %), the energy-intensive industrial branches in particular recorded significant declines in production which, in turn, had a major impact on energy consumption. In contrast and when taken in isolation, the weather, which was cooler than in the previous year, actually had a consumption-enhancing impact at least in those sectors of energy consumption that depend on space heating. However, the consumption-enhancing effect of the weather influence in 2025 became less important than the outlined consumption-reducing influencing factors (development of production in the producing and/or manufacturing industry), and/or the aforementioned effect was actually overcompensated.

In addition, those determinants of energy consumption which are more likely to have a long-term effect continued to be effective in 2025 as well. It was, above all, improvements of the energy efficiency, energy-saving substitution processes as well as the sectoral structural change which generated consumption-reducing impulses for the development of primary energy consumption.

A glance at the individual energy carriers reveals, also in light of the developments already described above, the following picture for 2025: When compared to the previous year, the consumption of renewable energies increased by 2.9 % in 2025. In contrast, all other energy carriers, with the exception of natural gas (whose consumption increased by 77 PJ, which translates into 2.8 %), exhibited a dwindling consumption trend. When compared to the previous year, the consumption of hard coal decreased by 6.8 % and the consumption of lignite by 7.4 % in 2025. Finally, the consumption (and/or sales) of mineral oil went down by 1.1 %.

Consequently, renewables as well as natural gas gained additional market shares in the overall marginally shrinking energy market. Consumption of natural gas accounted for a share of 26.6 % in 2025 (2024: 25.8 %) while renewables covered 20.8 % of the primary energy consumption (2024: 20.1 %). Whereas in the (ascending) order of their relevance, lignite (-0.5 %), hard coal (-0.5 %), and mineral oils (-0.3 %) lost market shares. In 2025, lignite still covered 7.1 % and hard coal still 6.8 % of the demand for primary energy. In 2025 as well, mineral oil continued to be by far the most significant energy carrier; it covered a total of 36 % (2024: 36.2 %) of the primary energy demand in that year. The outlined structural changes in the composition of the primary energy consumption reveal that the energy carrier mix in 2025 became once again less carbon-intensive when compared to the previous year 2024.

As measured by the original values, the macroeconomic energy productivity continued to improve in 2025 (according to preliminary calculations). It increased by 0.6 % so that almost € 342.70 GDP_{2020} were generated in 2025 while utilizing one gigajoule of primary energy (GJ); in 2024, this value had still amounted to € 340.60 GDP_{2020}/GJ. The average annual increase in the macroeconomic energy productivity between 1990 and 2025 currently amounts to 2.8 %; by excluding weather effects and inventory movements, this value would also amount to 2.8 %.

Gross electricity consumption decreased in 2025 primarily as a consequence of the production decline in the producing industry, the manufacturing industry, and to a particularly great extent in the energy and electricity intensive branches. The decline was decelerated, for example, by ongoing substitution processes in favor of the use of electric energy. In 2025, gross electricity consumption dropped to 528.4 million kWh and was, thus, 0.1 % below the value of 2024. All told, gross electricity consumption

as a whole during the reporting year 2025 was 1.5 % above the lowest level that has been measured so far in 2023 (520.5 billion kWh).

Compared to the previous year, the macroeconomic electricity productivity increased slightly by an estimated 0.4 % in 2025 and rose to a value of € 6.83/kWh after it had amounted to € 6.80/kWh in 2024 (according to the data indicated in the final Energy Balance for Germany). All told, the increase in the macroeconomic energy productivity during the reporting year fell below the long-term development that could be seen in the average value for the years between 1990 and 2025. Between 1990 and 2025, it was actually possible to increase the electricity productivity on average by 1.9 % per annum.

Gross electricity production increased by approximately 1.2 % to about 509.2 billion kWh in 2025 (2024: 503.2 billion kWh). The structure of electricity production according to the individual energy carriers continued to change as well: A noticeable decline was recorded for electricity production based on the use of lignite (-5.6 %) and mineral oil (-3.1 %). Electricity production based on the use of other energy sources (-0.9 %) was also lower in 2025 than in the previous year. In contrast, electricity production based on the use of hard coal (+10.9 %) and natural gas (+5.8 %) recorded a clear plus. And parallel to the development of gross electricity production, electricity production based on the use of renewable energy sources also increased by 1.2 % in 2025.

All told, renewable energies were able to maintain their top position with a total production volume of 291.6 billion kWh and a share of 57.3 % in the power generation mix; for the third year in a row, renewables actually managed to provide more than half of the electric power produced in Germany. Electricity production from natural gas was in second place with a contribution of 17 % and electricity production from lignite ranked third with a contribution of approximately 14.6 % to the power generation mix. Hard coal still contributed about 5.9 % to the total electricity production in 2025.

When it comes to gross electricity consumption, renewable energies accounted for a share of 55.2 % in 2025; in the previous year (final data), this share had still amounted to approximately 54.4 %.

The electricity exchange balance[47] experienced additional changes in 2025. In 2025, 17.8 billion kWh more electricity flowed from foreign countries into Germany than flowed from Germany into neighboring countries. This made Germany a net importer of electric power for the third time in a row after 2023. When compared to the previous year, imports of electric power decreased by 2.2 % to 78.5 billion kWh whereas exports of electric power dropped by 8.3 % to 60.7 billion kWh. Particularly high import surpluses were recorded, in the order of their relevance, for the exchange with France (20.1 billion kWh), Denmark (7.2 billion kWh), and Norway (7.0 billion kWh). Import surpluses also occurred in the electricity exchange with the Netherlands, Belgium, and Sweden in 2025. In contrast, the electricity exchange with Poland (9.2 billion kWh), Luxembourg (2.9 billion kWh), the Czech Republic (5.2 billion kWh) as well as Austria (7.7 billion kWh) and Switzerland (3.1 billion kWh) resulted in export surpluses.

Importing electric power instead of generating it in Germany's natural gas, hard coal, or lignite fired power plants represents an economically viable option if and to the extent that more favorable production possibilities (also from renewables) are available in foreign countries.

At the moment, it is not yet possible to precisely ascertain the energy-related CO_2 emissions for 2025 on the sole basis of final statistical data. However, a rough estimate of the development of energy-related CO_2 emissions can be made on the basis of the preliminary estimates of Germany's Energy Balance for 2025 (data status: February 15, 2026, and their update of May 15, 2026) in combination with the respective CO_2 content of the individual energy sources. In total, the overall structure of energy consumption shifted in favor of CO_2-containing fossil energy carriers (natural gas and hard coal) in 2025.

47) The data on international electricity trading which are used in this report generally relate to the physical exchange of electricity with foreign countries.

Despite the slight decrease in primary energy consumption (2025: -0.4 % when compared to the year before) in combination with the described shifts within the energy carrier mix as well as the sectoral consumption structure, energy-related CO_2 emissions ought to have increased by some 0.2 % in 2025 according to initial calculations made by the Federal Environmental Agency (UBA) on the basis of the requisite estimated data from the energy balance sheet. This increase would correspond, related to the emission level of the previous year, to an absolute increase in energy-related CO_2 emissions by 1.1 million tons to nearly 532 million tons of CO_2.