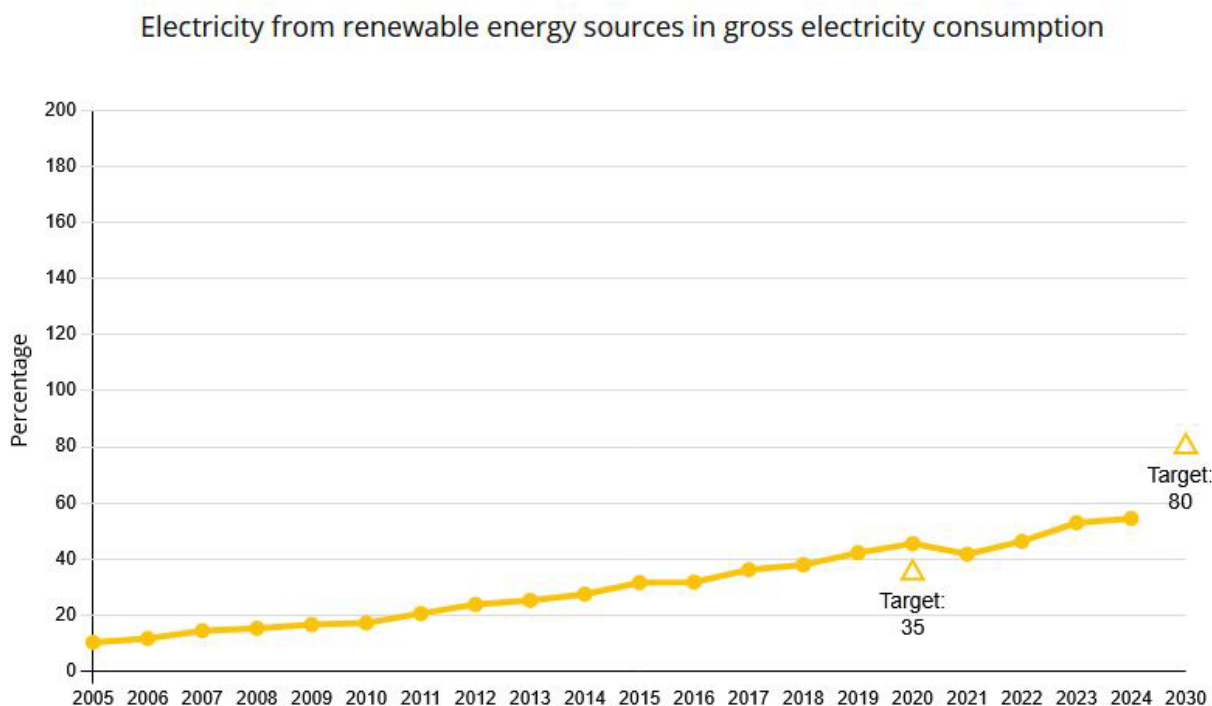




Renewable energies – Strengthening a sustainable energy supply

7.2.b Share of electricity from renewable energy sources in gross electricity consumption



Note(s):

2021 and 2023 revised data. – 2024 provisional data.

Data source(s):

Working Group on Renewable Energy Statistics, Federal Ministry for Economic Affairs and Energy

Definition

The indicator represents the share of electricity from renewable energy sources in gross electricity consumption (in %).

Intention

Switching to renewable energies, which are constantly regenerating as natural energy sources, can reduce the need for fossil fuels. This would both reduce our dependence on imports of conventional energy sources and reduce energy-related emissions, thereby curbing the extent of climate change.

Target

Increase to 80% by 2030

Content and progress

The calculation of the indicator is carried out by the Working Group on Renewable Energy Statistics (AGEE-Stat), based on various official and non-official sources. The gross electricity consumption (denominator) includes the total amount of electricity generated and



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imported in Germany, minus electricity exports. It therefore covers domestic electricity generation, the cross-border exchange balance, the own electricity consumption of power plants, as well as grid losses. The numerator reflects the amount of electricity generated in Germany from renewable energy sources. These include wind energy, hydropower, solar radiation energy, geothermal energy, and biomass – including biogas, biomethane, landfill gas and sewage gas – as well as the biodegradable fraction of household and industrial waste.

An increase in the indicator does not necessarily mean that electricity generation from renewable sources has risen. The indicator value may also increase, for example, if electricity exports grow while the amount of electricity generated from renewables remains constant. Another methodological particularity arises in the treatment of storage power plants. The denominator of indicator 7.2.b includes, as electricity consumption, both the energy used for transformation in storage processes and the electricity generated by storage power plants. Thus, electricity storage generally leads to an increase in the denominator. However, electricity generated by storage power plants is not counted as electricity from renewable sources – regardless of whether the electricity originally stored was sourced from renewables or not. Consequently, electricity storage mathematically leads to a reduction in the share of electricity from renewable energy sources in gross electricity consumption.

The target formulated in the Federal Government's energy concept for 2020 – to cover at least 35% of electricity consumption with renewable energies – was already achieved in 2017. In the following years, the share continued to rise, reaching 45.5% in 2020. This development was largely driven by legislative measures such as the Renewable Energy Sources Act (EEG), which, among other things, obliges grid operators to give priority to feeding renewable electricity into the grid. In 2021, the share of renewable energies in electricity consumption dropped to 41.7%, but increased again in subsequent years, reaching a value of 54.4% in 2024. The temporary decline in 2021 was due to an increase in gross electricity consumption and a weather-related reduction in electricity generation from renewable sources.

Since 2005, the share of renewable energies in electricity generation has risen almost continuously, particularly due to the expansion of wind power, biomass, and photovoltaics. Between 2005 and 2024, a reduction in electricity generation from conventional energy sources was offset by an increase of around 220 terawatt hours in electricity production from renewable sources. Electricity generation from wind energy – onshore and offshore – increased from 27.8 terawatt hours in 2005 to nearly 138.9 terawatt hours in 2024. Of this, around 26.1 terawatt hours in 2024 (about 19% of total electricity generation from wind energy) came from offshore wind power.

Electricity generation from photovoltaics rose significantly over the same period – from 1.3 terawatt hours in 2005 to 74.1 terawatt hours in 2024. Electricity generation from biomass also more than tripled in the same period, reaching 48.6 terawatt hours in 2024. Continuing this trend would have been sufficient to meet the Federal Government's originally targeted goal of achieving a 65% share of renewable energies in electricity consumption by 2030. However, achieving the current target of 80% by 2030 would require a significantly higher annual increase than the average so far.



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The expected simultaneous rise in electricity demand – for example, for electric mobility or space heating – further complicates target achievement. The expansion of large battery storage power plants can contribute to reducing electricity demand from fossil energy sources. However, due to the methodological design of the indicator, this will only partially be reflected as an increase.

Type of target

Target with specific target value

Assessment

The share of electricity from renewable energy sources in gross electricity consumption should be increased to at least 80% by 2030.

According to the target formulation, if the average rate of increase from 2019 to 2024 continues, indicator 7.2.b would fall significantly short of the politically defined target. The shortfall amounts to more than 20% of the gap between the current indicator value (2024) and the target. Accordingly, achieving the target is considered unlikely. Indicator 7.2.b is therefore assessed as cloud for 2024.

