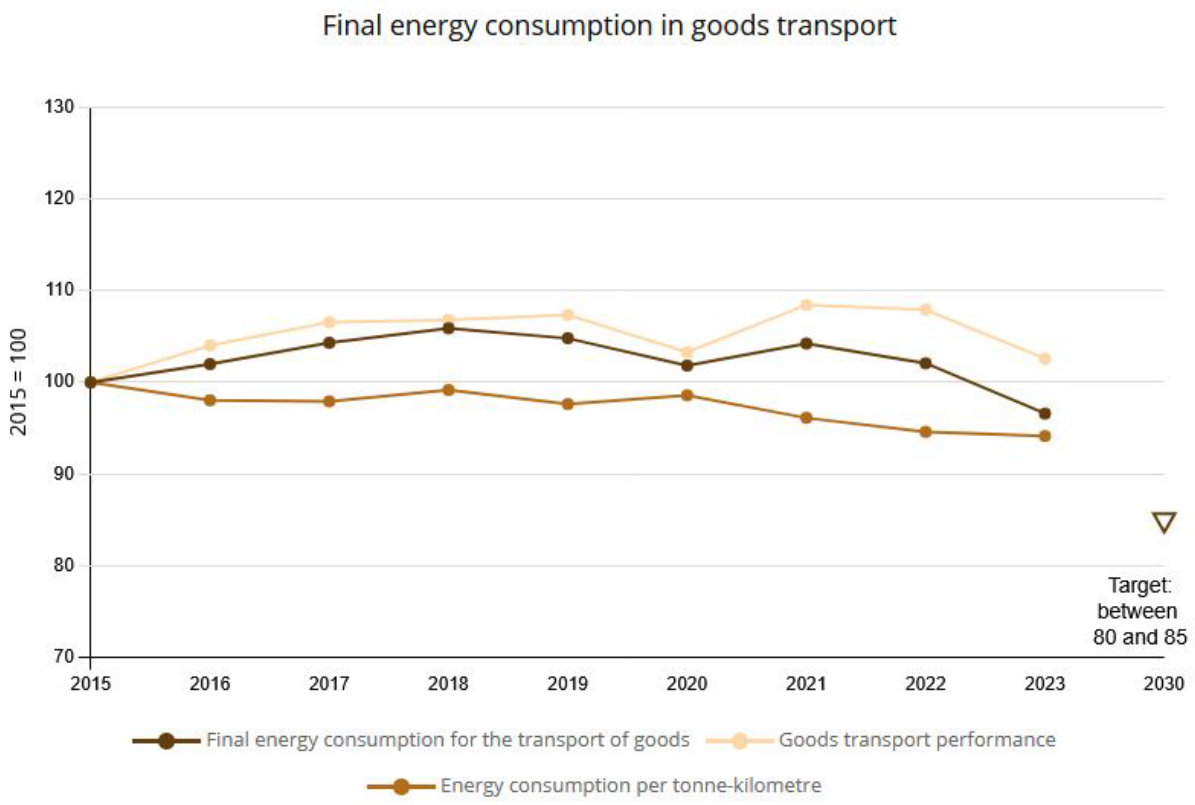
Mobility – *Guaranteeing mobility – Protecting the environment*

11.2.a Final energy consumption in goods transport



Definition(s):
Freight transport performance: Product of the weight of the transported goods in tonnes (t) and the distance travelled in kilometres (km) during transport (generally only in Germany).

Data source(s):
Institute for Energy and Environmental Research Heidelberg, Federal Statistical Office

Definition
The indicator shows the development of final energy consumption for the domestic transport of goods by inland waterway, rail and road compared to the base year 2015.

Intention
Transport brings with it a number of problems. For example, noise and air pollutants affect the quality of life, particularly in cities, and transport-related emissions contribute to climate change. The emission of harmful greenhouse gases (GHG) is closely linked to the energy consumed in transport.

Target
Reduction by 15 to 20% by 2030 compared to 2015

Content and progress
This indicator represents the final energy consumption (FEC) resulting from the transport of goods within Germany. Final energy refers to the energy directly used in transport –

such as petrol or diesel fuel. Transformation losses during the production of fuels, as well as potential transmission losses, are not taken into account. The underlying data is sourced from the TREMOD database (Transport Emission Model) developed by the Institute for Energy and Environmental Research (ifeu). This model is used to assess transport-related emissions and captures domestic fuel consumption, regardless of the place of refuelling. Air freight is excluded from the analysis due to its relatively minor share of total freight volume. Due to the definitional limitation to domestic FEC, the indicator reflects the effects of increasing international economic integration of Germany's economy only to a limited extent.

In 2023, transport of goods accounted for 26.1%[1] of total transport-related final energy consumption. For the first time, FEC in this sector fell below 2015 levels – representing a 3.4% decline compared to the base year. The politically defined goal is to reduce FEC in transport of goods by 15% to 20% between 2015 and 2030. If recent trends continue, this target is likely to be met.

Transport of goods performance measures the quantity of goods transported over a given distance, based on data from the TREMOD database. Between 2015 and 2021, the number of tonne-kilometres travelled rose by 8.4%, interrupted only by a brief decline in 2020. However, by 2023, transport performance had decreased again, remaining only 2.6% above the 2015 level.

In addition to absolute energy consumption, FEC is also considered in relation to freight transport performance to provide insight into energy efficiency. In 2023, FEC per tonne-kilometre stood at 94.1% of the 2015 value – the lowest level in eight years. FEC has declined across all modes of freight transport compared to 2015. The most significant reduction was recorded in inland waterways, with a decrease of 26.2%. In contrast, energy consumption in road freight transport dropped by only 2.8%, and by 1.1% in rail transport.

Type of target
Target with specific target value

Assessment
Final energy consumption in goods transport should be reduced to a maximum of 85% of the 2015 level by 2030.

For targets without a specific value but with a target interval, the weakest requirement (here: reduction to 85% of the 2015 level) is used as the minimum politically defined target. Indicator 11.2.a has developed in the desired direction on average over the past six years. If this trend continues, the minimum requirement of 85% will be narrowly met. Indicator 11.2.a is therefore assessed as sun for 2023.

[1] The sum of the shares of freight transport (indicator 11.2.a) and passenger transport (indicator 11.2.b) in total final energy consumption in transport does not add up to 100%. This deviation results from different definitions: While the energy consumption in passenger and freight transport is based on domestic consumption (source: TREMOD), the total final energy consumption in transport is based on domestic sales (source: AG Energiebilanzen).