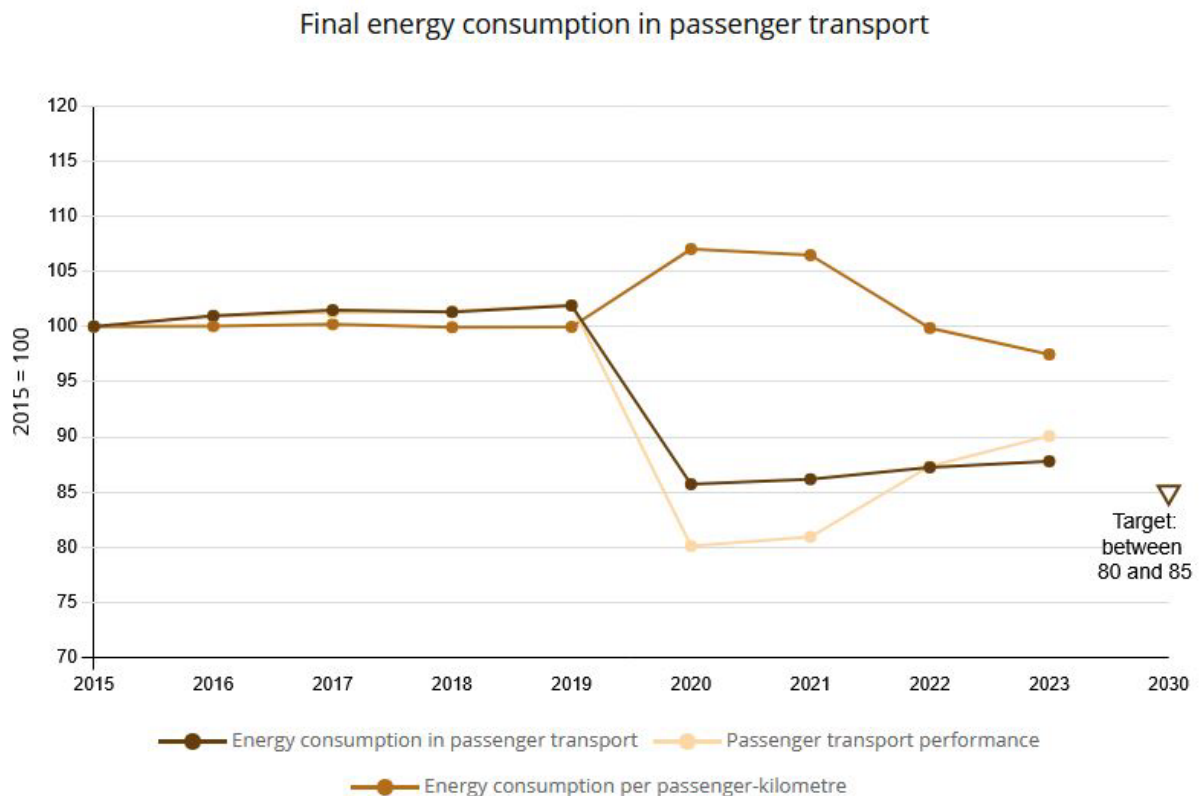




Mobility – Guaranteeing mobility – Protecting the environment

11.2.b Final energy consumption in passenger transport



Definition(s):

Passenger transport performance: Product of the number of persons transported (P) and the distance travelled in kilometres (km).

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 transport of passengers by rail, air and road (public and private transport) in Germany compared to the base year 2015.

Intention

Transport poses a number of challenges. 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 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 people within Germany. The underlying data comes from the TREMOD database (Transport Emission Model) developed by the Institute for Energy and Environmental Research (ifeu). TREMOD is a model for assessing transport-related emissions. It captures fuel consumption in domestic passenger transport in Germany – regardless of the refuelling location – based on the consumption concept. The term final energy refers to the amount of energy directly used in transport. It does not account for transformation losses during fuel production or possible transmission losses. In air transport, only domestic flights are included; international flights to and from Germany are excluded. Passenger transport by ship is also not included.

In 2023, 30.8% of total FEC was attributable to the transport sector, with passenger transport accounting for 61.5%¹. Energy savings in this area therefore have a significant impact on Germany's overall energy consumption. Between 2015 and 2019, FEC in passenger transport initially rose by 1.9% compared to the base year 2015, reaching a peak. With the onset of the COVID-19 pandemic in 2020, the indicator value dropped sharply due to the population's severely restricted mobility – by 16.2 percentage points. In the following years, values increased only slowly. Over the full period from 2015 to 2023, FEC in passenger transport declined by a total of 12.2%. If the recent trend continues, the politically defined target of a 15% to 20% reduction between 2015 and 2030 will be achieved.

The so-called passenger transport performance indicates the total number of person-kilometres travelled. It serves as the basis for calculating the specific energy consumption in passenger transport and also originates from the TREMOD database. Between 2015 and 2023, transport performance declined by 9.9%. In addition to the indicator, FEC per person-kilometre is used as a measure of energy efficiency in passenger transport. In 2023, this value – across all modes of transport – stood at 1.52 megajoules per person-kilometre², representing a 2.5% decrease compared to 2015.

Motorised individual transport (passenger cars and two-wheeled vehicles) accounted for by far the largest share of total passenger transport performance in 2022, at 81.9%. This category can be further broken down by trip purpose: in 2022, 36.5% of journeys were work-related (commuting and business travel), 31.0% were for leisure, and 17.6% for shopping. Trends in these trip purposes have varied since 2015: leisure travel showed the most pronounced decline (–19.9 percentage points), followed by shopping trips (–7.9 percentage points) and work-related trips (–3.1 percentage points).

Type of target

Target with specific target value

¹ The combined shares of freight transport (indicator 11.2.a) and passenger transport (indicator 11.2.b) in total transport-related FEC do not add up to exactly 100%. This discrepancy arises from differing definitions: while energy consumption in freight and passenger transport is based on domestic consumption (source: TREMOD), total FEC in transport is based on domestic fuel sales (source: AG Energiebilanzen).

² For context: the calorific value of one litre of petrol is 32 megajoules. A consumption of 1.52 megajoules per person-kilometre is equivalent – extrapolated to 100 kilometres – to the energy content of approximately 4.8 litres of petrol.



Assessment

Final energy consumption in passenger 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.b has declined significantly on average over the past six years, so that continuation of this trend is expected to achieve the 85% target. Indicator 11.2.b is therefore assessed as sun for 2023.

Note:

Even the 80% target, which is not relevant for this assessment, would be reached if the current trend continues.

