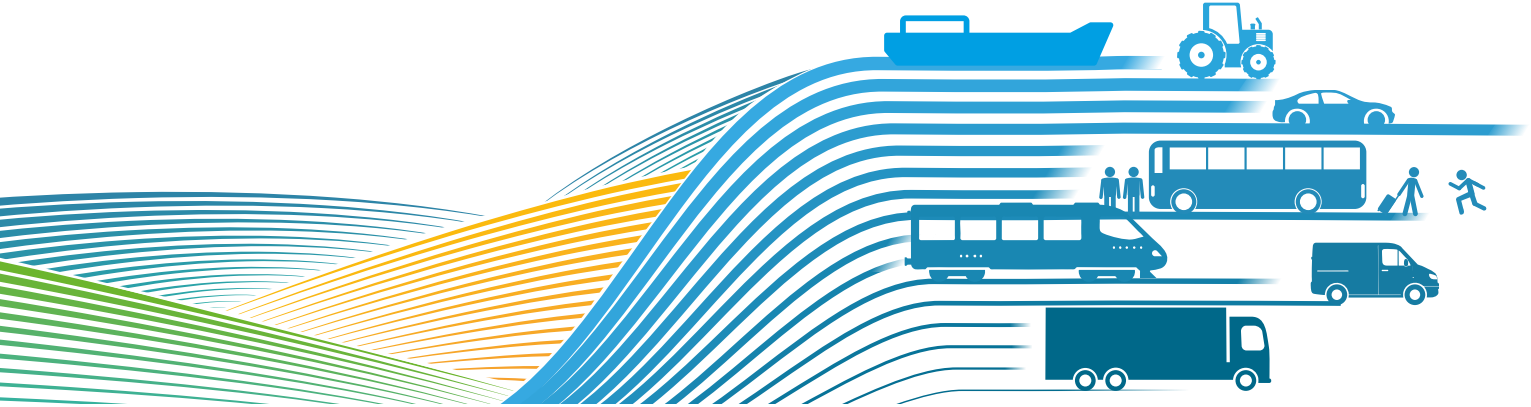
POLICY INFORMATION
BIOFUELS

Consumer confidence
Facts and Background



BDBe Bundesverband der deutschen Bioethanolwirtschaft e.V.

DBV Deutscher Bauernverband

Fachverband BIOGAS

MVaK Mittelstandsverband abfallbasierter Kraftstoffe

OVID – ASSOCIATION OF THE OILSEED CRUSHING AND OIL REFINING INDUSTRY IN GERMANY

ufop

VDB Zukunft tanken.

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What does Germany think about biofuels and sustainable mobility? For some time now, this question has not only concerned fuel producers and car manufacturers but has also been on the agenda for polling institutes, initiatives, and organisations seeking viable measures to mitigate climate change. The biofuel industry commissioned market research institute KANTAR to gather opinions on biodiesel, bioethanol, and biomethane. This revealed that the vast majority has a positive view of biofuels and support including a higher share in blends. Surveys for other clients, such as ADAC, come to a similar conclusion concerning consumers' choice of drive system and fuel: Combustion engines and biofuels continue to enjoy a high level of acceptance.

According to a report from the International Energy Agency (IEA), road traffic in Germany is slowing down the energy transition. The report states that 95% of emissions can be attributed to road traffic. In future, the transport sector must make a more significant contribution to climate action and respond more rapidly. Within just six years, greenhouse gas emissions must be reduced from 143 million to 85 million tonnes. Biofuels are already protecting the climate today. They save around 11 million tonnes of CO_2 emissions every year and reduce dependence on fossil fuels. Biofuels can do even more. Measured in terms of input volumes, biofuel production mainly generates co-products. These are primarily protein feed for animal nutrition or substances that arise directly from the process, e.g. glycerine for a variety of everyday products: toothpaste, cosmetics, detergents and disinfectants.

You will find information on this and many other relevant topics related to biofuels in our brochure.

Alois Gerig, Chairman, BDBe

Horst Seide, President, German Biogas Association

Michael Fiedler-Panajotopoulos, Chairman of the Board, MVaK

Jaana Kleinschmit von Lengefeld, President, OVID

Torsten Krawczyk, Chairman, UFOP

Stefan Schreiber, President, VDB

"Germany could also take greater advantage of the emissions reduction potential that sustainable biofuels can bring to its transport sector. Sustainable biofuels can play a particularly important role in decarbonising harder-to-abate transport sectors such as trucking, shipping and aviation, but have also proven to hold considerable potential to lower emissions from light-duty vehicles in the near term before electrification becomes more mainstream. In particular, sustainable biofuels could bring cost advantages relative to more expensive options such as e-fuels."

***Source: "Germany 2025"**,*
Energy Policy Review, IEA

We want to see timely implementation of the Renewable Energy Directive III (RED III), increase the national greenhouse gas reduction target (GHG quota), and take advantage of potential leeway offered by EU provisions. In the process, we want to promote the use of alternative fuels, including biofuels.

Source: "Verantwortung für Deutschland",
Coalition agreement between CDU, CSU and SPD for the 21st legislative term

Climate action goals – the clock is ticking

The effects of global climate change are now impossible to ignore. The media continuously report on droughts, storms with flooding, melting glaciers and polar ice; the rise in sea levels is measurable. **The causes and effects are ignored.** Looking at international climate protection policy reinforces that impression. There is a lack of consistent action to attain the targets set at the 2015 UN Climate Change Conference or measures are only being implemented in a piecemeal fashion.

The current status of climate change mitigation in the transport sector is forcing both the German government and the European Union to step up the pace of requisite climate action measures. **With the EU Climate Law and the Green Deal, measures, support, and steering instruments, as well as commitments to reduce greenhouse gases and promote renewable energies, have been enshrined in law,** with penalties introduced in the event of non-compliance (purchase of emission allowances).

Third countries outside the EU must also comply with rigorous sustainability requirements if, for example, biofuels, biomass or waste inputs used to produce them are to be counted towards national quota obligations. In the international market environment, biofuels hold the promise of a viable contribution to climate protection in the transport sector that is available today. Statutory provisions also serve as a model for the entire supply chain, starting with farms. **This policy information is therefore aimed at all interested parties.**

"Biofuels are the latest innovation from the traditional oil mill industry – they combine climate change mitigation and regional value creation, reduce use and consumption of mineral oil-based products, and secure the supply of high-quality protein feed. Relying on biofuels strengthens our country's economic and ecological resilience."

Jaana Kleinschmit von Lengefeld, President, OVID, Association of the Oilseed Crushing and Vegetable Oil Refining Industry in Germany

"One rarely acknowledged advantage of German biodiesel production is that it also produces glycerine; we encounter this valuable by-product in many applications in our daily lives, where it has completely replaced glycerine from fossil feedstocks. It is found in tablets, toothpaste, chocolate, and many other products."

Stefan Schreiber, President, German Biofuels Industry Association (VDB)

"Biofuels set the pace for rule-based climate action nationally and internationally. This begins with efficiency-driven farming and, via the supply chain, extends to vehicle tanks as quantifiable greenhouse gas reductions. Potential for innovations, and thus scope for GHG reduction in production technology, has not yet been exploited to the full."

Torsten Krawczyk, Chairman, Union for Promotion of Oil and Protein Crops (UFOP)

"Boosting climate protection in the transport sector will only be possible with more renewable fuels. To this end, the potential of the compliance options specified in the GHG quota regulation must be leveraged. There is a need for a long-term framework that regulates how the transport sector can be decarbonised in a sustainable manner that is affordable for the economy and citizens."

Alois Gerig, Chairman, German Bioethanol Industry Association (BDB[e])

"Sustainable biofuels are emblematic of agriculture's active contribution to climate action. There is now an urgent need to increase the cap for biofuels from cultivated biomass to achieve the ambitious climate targets."

Joachim Rukwied, President, German Farmers' Association

"Biodiesel made from waste and residues not only makes a significant contribution to climate change mitigation. Used cooking oil is the most important feedstock to produce this fuel. Collecting the oil means it is not disposed of improperly in the sewage system or returned to the food cycle."

Michael Fiedler-Panajotopoulos, Chairman of the Board, Association of Medium-Sized Waste-Based Fuels Producers (MVaK)

"Biomethane in particular is an essential option for decarbonising heavy goods and agricultural transport by water, land and air. We need planning security in order to protect our investments in a climate-neutral future, mobilise further residues, and make a reliable contribution to the energy transition."

Horst Seide, President, German Biogas Association

Biofuels Survey

In a representative survey, the market research institute KANTAR questioned 1,009 citizens aged 14 and above about their attitudes towards biofuels. Consumers want freedom of choice and a variety of drive systems. At 43%, biofuels were considered to make almost as significant a contribution to climate action in the transport sector as e-mobility (51%) or hydrogen (49%).

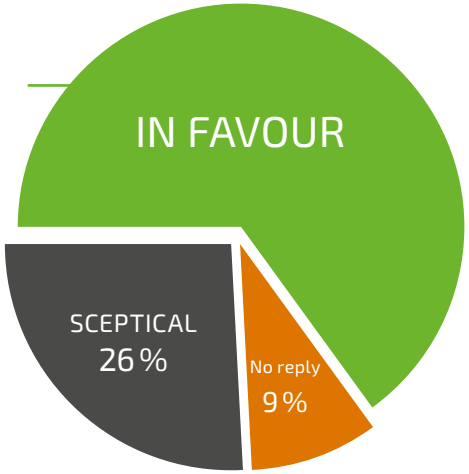
Snapshot: In terms of renewable propulsion energies in road transport in 2024, biofuels account for 91%, while 9% comes from renewable electricity.*

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

WHAT DO GERMANS THINK ABOUT BIOFUELS?

65%

of the general public have a largely positive view of biofuels.



Most people in Germany (65%) have an essentially positive view of biofuels; only around a quarter of respondents is sceptical. Protecting the environment and resources is the main reason given for a generally favourable view, while more critical respondents often cite concerns about wasting land that could be used to grow food.

WOULD YOU PUT BIOFUELS IN YOUR TANK?

… if a guarantee were provided that biofuels cut greenhouse gas emissions by at least 60% compared with fossil fuels and if their production were certified as "sustainable".

YES, DEFINITELY
39 %

PROBABLY
28 %

i.e. more than **2/3** would put biofuels in their vehicle's tank.

67% of survey respondents would refuel with sustainably produced biofuels if a guarantee were provided that these fuels cut greenhouse gas emissions by at least 60%compared to mineral oil. If such guarantees are factored in, even more than 50% of sceptics would no longer reject biofuels. Many people simply don't realise that sustainability certification and greenhouse gas reduction are already legal requirements – and some biofuels demonstrably cut greenhouse gas emissions by over 90%.

How do consumers view combustion engines?

Current survey results confirm that liquid fuels remain an option

Only 9% of motorists over 50 assume that their next car will be an electric vehicle, while a further 18% could possibly imagine going electric.

ADAC (06/2024)

Only 16% of fleet managers in Germany currently rely on electrified commercial vehicles.

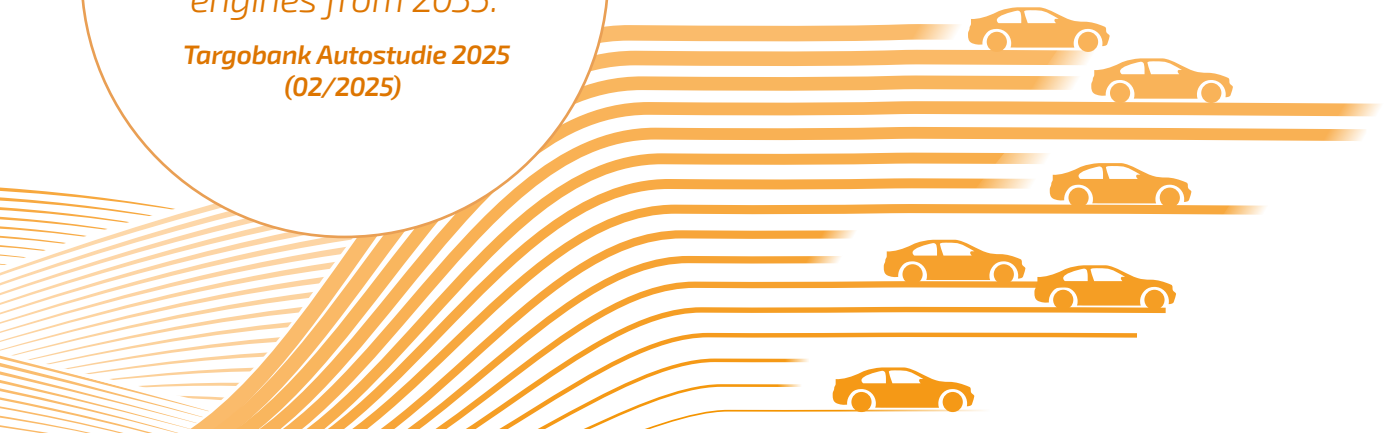
Arval Mobility Observatory (09/2024)

14% of Germans would buy a purely electric car, while 53% prefer a car with a combustion engine.

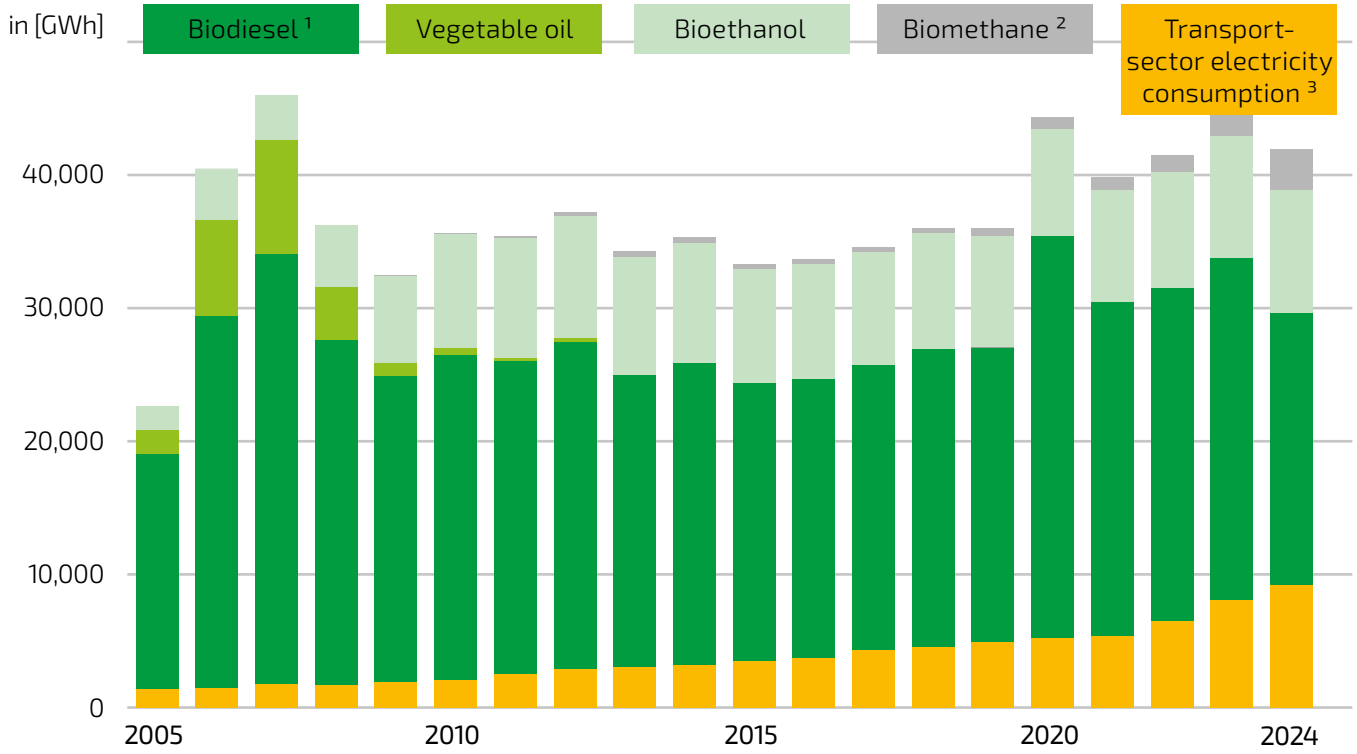
Deloitte (2024)

73% of German motorists oppose the planned ban on combustion engines from 2035.

Targobank Autostudie 2025 (02/2025)



RENEWABLE ENERGIES IN THE TRANSPORT SECTOR



1) Consumption of biodiesel (including HVO) in the transport sector (excluding agriculture, forestry, construction, and the military)
2) Until 2021, exclusively bio CNG; from 2022, bio CNG and bio LNG; based on calorific value, ratio of gross calorific value to net calorific value according to BDEW/AGEB convention
3) Calculated using the share of renewable energies in gross electricity consumption for the respective year

Sources: AGEE-Stat based on BAFA; BLE; BMF; BReg; StBA; FNR; ZSW; DBFZ; AGQM; UFOP; some data provisional

Climate change mitigation in the transport sector – What are the issues?

The goal in the transport sector is to reduce use of fossil fuels rapidly in order to lower greenhouse gas emissions effectively. There are various options to achieve this : sustainably certified biofuels (immediately available), electromobility (under development) and e-fuels (in future). As each solution has certain limitations, potential from all options must be combined and utilised efficiently.

In 2024, emissions from the transport sector fell by 2.1 million tonnes of CO_2 (–1.4%) compared to 2023, but at 143.1 million tonnes were still well above the target.* Biofuels' potential has not yet been fully exploited in technical and regulatory terms; higher market shares and blending ratios (E10, B10, HVO) in accordance with the ordinance on fuel quality (10th Ordinance on the Implementation of the Federal Immission Control Act/ BImSchV) would open up greater scope to tap into this potential.

Goal: An integrated strategy for alternative drive systems and fuels

The sluggish expansion of electromobility – due in part to reduced subsidies – is putting the brakes on the urgently needed transformation process. Although the share of hybrid vehicles among new registrations rose to 26.6% in 2024, new electric car registrations fell by 27.4%. In total, just over 1.6 million electric cars were registered – out of a total of over 49 million cars. The target of 15 million electric cars by 2030 is unlikely to be achieved.

That is why climate action must also take the vehicle fleet into account: with alternative fuels in existing combustion engines and more efficient blends such as E20 or B10. At the same time, speeding up the switch to electric drives remains crucial – they offer around 2.5 times more efficiency on energy consumption.

*legislative standardisation or target value of the German Climate Action Act

Security of Supply: An Additional Driving Force

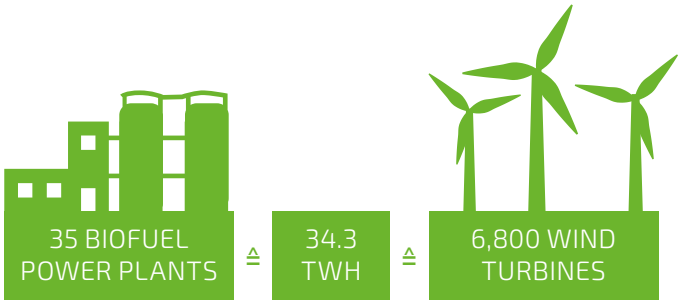
Over and above their importance for climate action, alternative drive systems and fuels are also significant for geopolitical reasons; they reduce dependence on fossil fuel imports. Germany cannot meet its energy needs in the transport sector independently with biofuels or renewable electricity, which is why the expansion of wind power, photovoltaics and electricity grids is crucial – especially in view of growing electricity demand from e-mobility, heat pumps, and industry.

Fuel Consumption 2022 – 2024 in Mio. t

	2022	2023	2024
Biodiesel and HVO	**2.537**	**2.599**	**2.111**
Diesel fuel	32.403	30.709	29.902
Diesel + blend	34.6	33.309	32.013
Share of biodiesel and HVO	7.0%	7.5%	6.3%
Bioethanol blend	**1.191**	**1.251**	**1.28**
Petrol	15.724	16.092	16.43
Petrol + Bioethanol	16.915	17.34	17.7
Share of bioethanol	6.7%	6.8%	6.9%

Source: BAFA

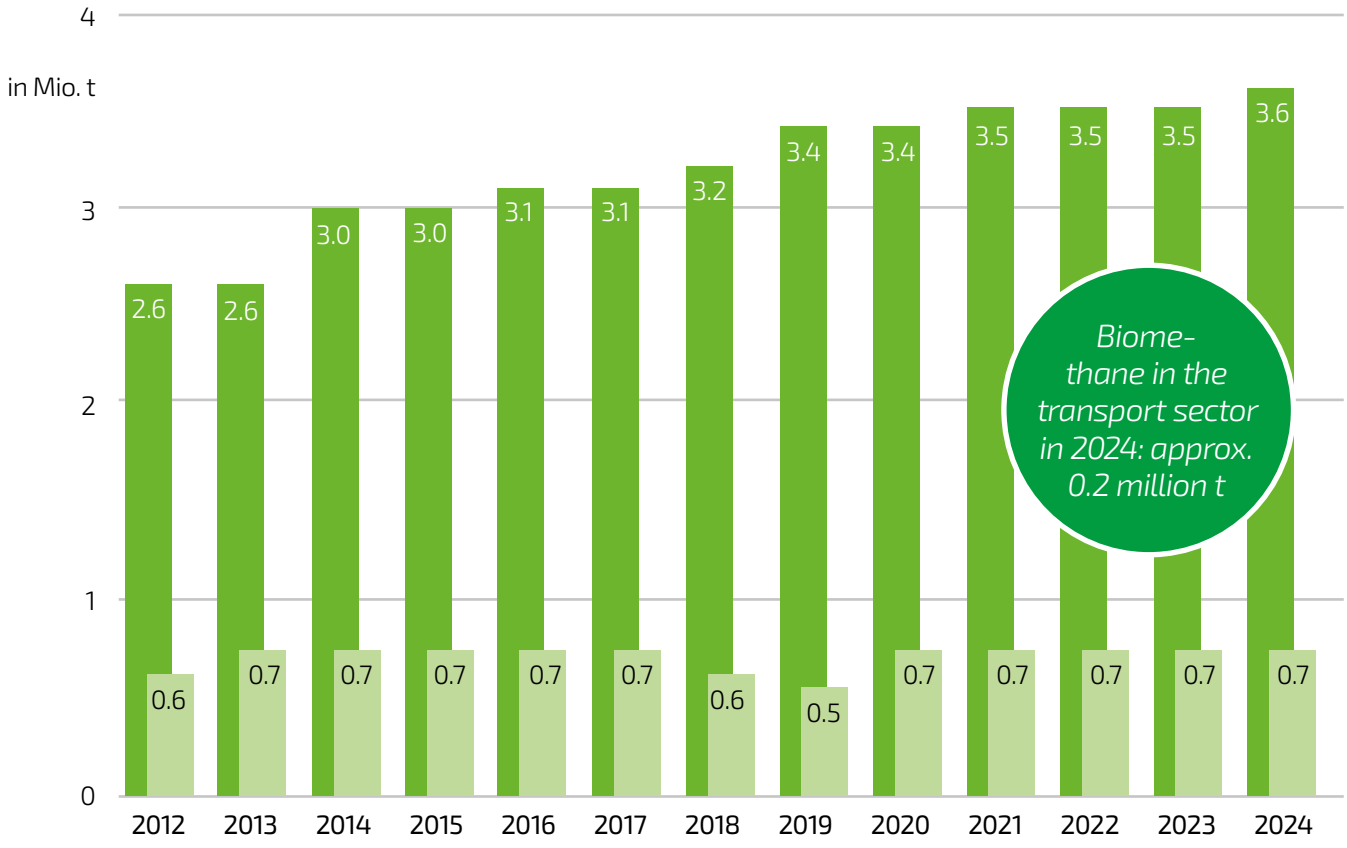
Despite a slight decline in fossil fuel consumption (from 48 to 46.7 million tonnes between 2022 and 2024) – partly due to economic factors and partly due to structural changes – consumption levels remain high.



Currently, renewable fuels account for around 7% of total consumption – equivalent to 32.8 TWh. By way of comparison, that corresponds to the energy produced annually by approximately 6,800 wind turbines (out of a total of around 29,000*). This ratio shows how important biofuels already are today – and underscores the urgent need to draw on all available options for climate action in the world of transport.

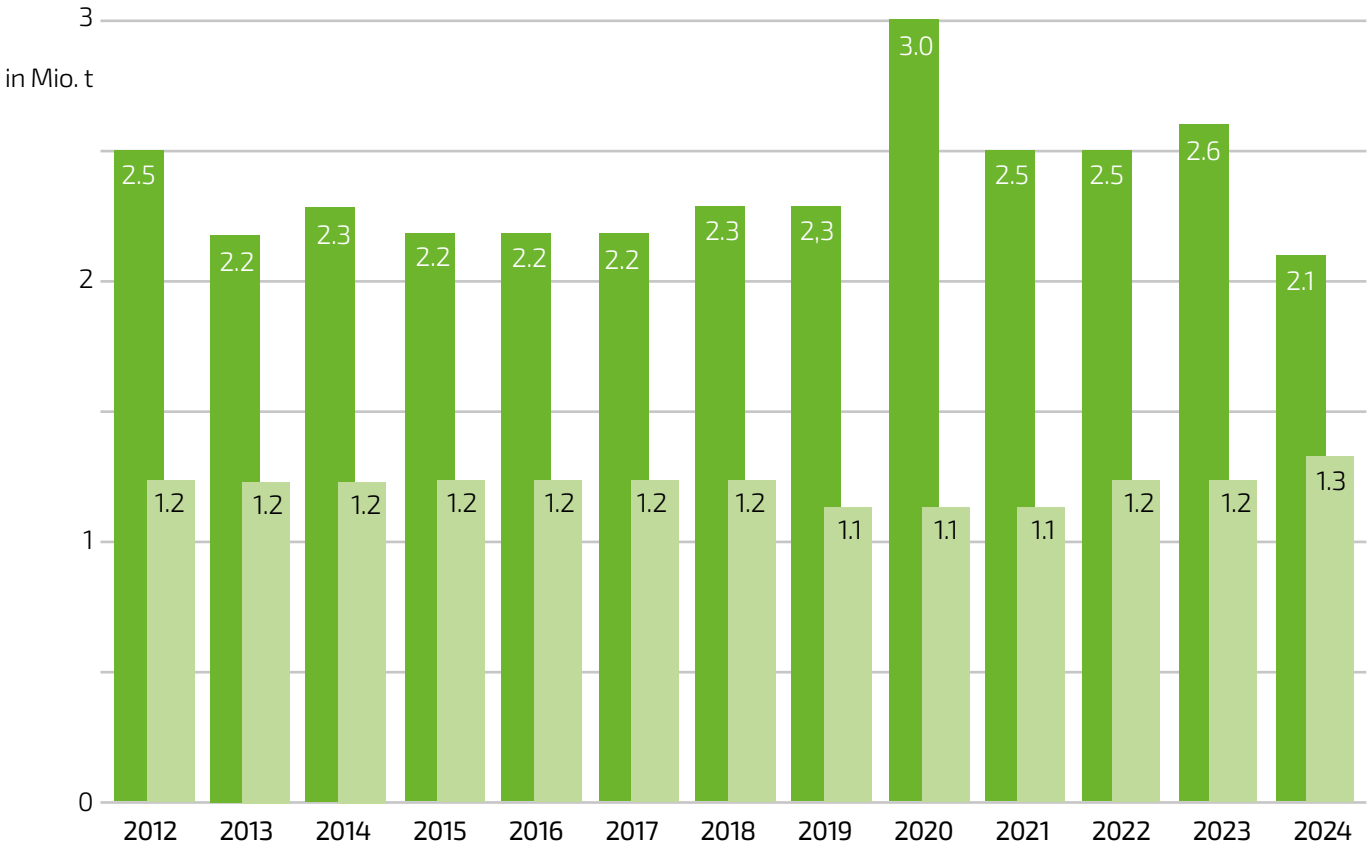
* © 2025 Bundesverband Windenergie (German Wind Energy Association)

DOMESTIC PRODUCTION OF **BIODIESEL** AND **BIOETHANOL SINCE 2012**



Sources: VDB, BDB[e], (biomethane: BLE), figures rounded, biodiesel 2023 + 2024 VDB estimate

BIODIESEL* AND BIOETHANOL SALES FIGURES



* Biodiesel and HVO | Sources: VDB, BDBe , BAFA, figures rounded

Biofuel economic significance

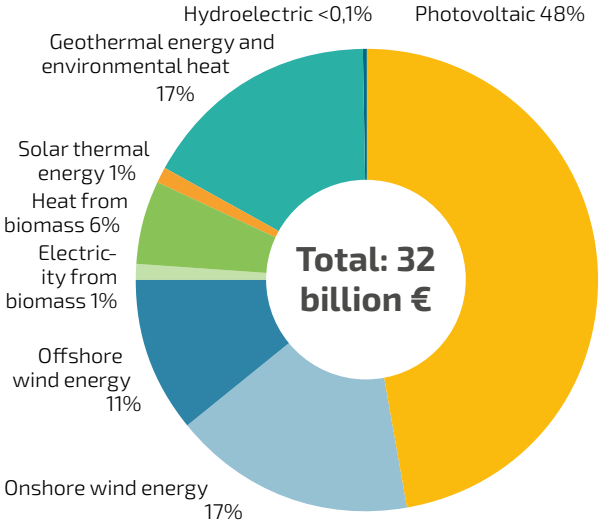
The economic effects of renewable energies vary depending on the biomass feedstock and the processing technology. In terms of investment, biofuels currently play only a minor role. The reason for this is that existing production capacities for biodiesel, bioethanol, and biomethane are currently considered sufficient to supply the market. In addition, the biofuel sector in Germany and Europe is under pressure from intense international competition, in particular due to imports of biofuels from third countries such as China, some of which are falsely declared as advanced biofuels. This distorts the market and inhibits investment in facilities for sustainable biofuel production within Germany and the EU.

In contrast, the ongoing economic impact, i.e. the economic stimulus that arises, is significantly more relevant, as the Federal Environment Agency shows in its study "Renewable Energies in Germany". At €23.3 billion, the economic stimulus in 2024 was slightly higher than the previous year's figure (€23.2 billion).

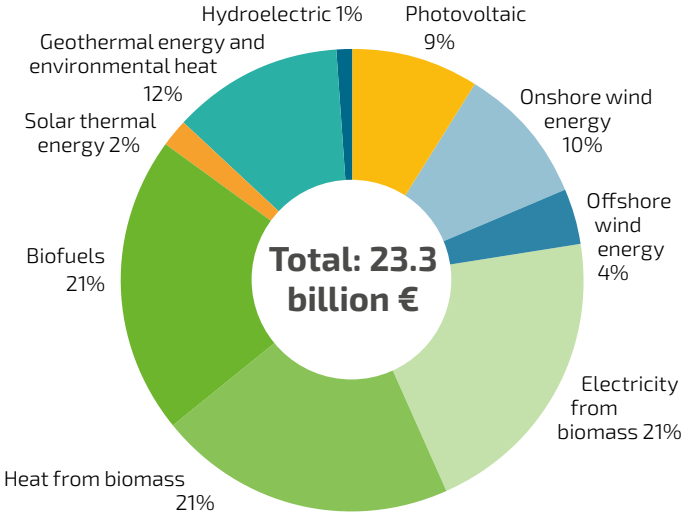
Biofuels accounted for around 21% of this total – contributing approximately 5 billion € from continuing operation of production facilities alone. The sector's economic significance extends far beyond fuel production; it has been estimated that it also secures **over 20,000 direct and indirect jobs** in Germany. In addition to approximately 35 industrial plants nationwide for the production of biodiesel, bioethanol, and biomethane, a further significant economic contribution comes from upstream and downstream value-added stages. These include cultivation of agricultural feedstocks (e.g. rapeseed, sugar beet, and cereals), processing of by-products from biofuel production, such as glycerine, in the chemical and pharmaceutical industries, and the production of fertilisers or high-quality protein feed.

ECONOMIC IMPACT OF RENEWABLE ENERGIES IN 2024

Investments[1]



Economic Stimulus[2]



[1] Investments: mainly investments in new-builds, and to a lesser extent in expanding or upgrading facilities, such as reactivation of older hydroelectric power plants. In addition to investments by energy supply companies, investments by industry, commerce, trade, and private households are also included. | [2] Economic stimulus from plant operation mainly comprises expenditure on plant operation and maintenance (including fuel) and revenue from the sale of biofuels. | Source: Calculation by the Centre for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW).

Sustainably produced feedstocks for biodiesel

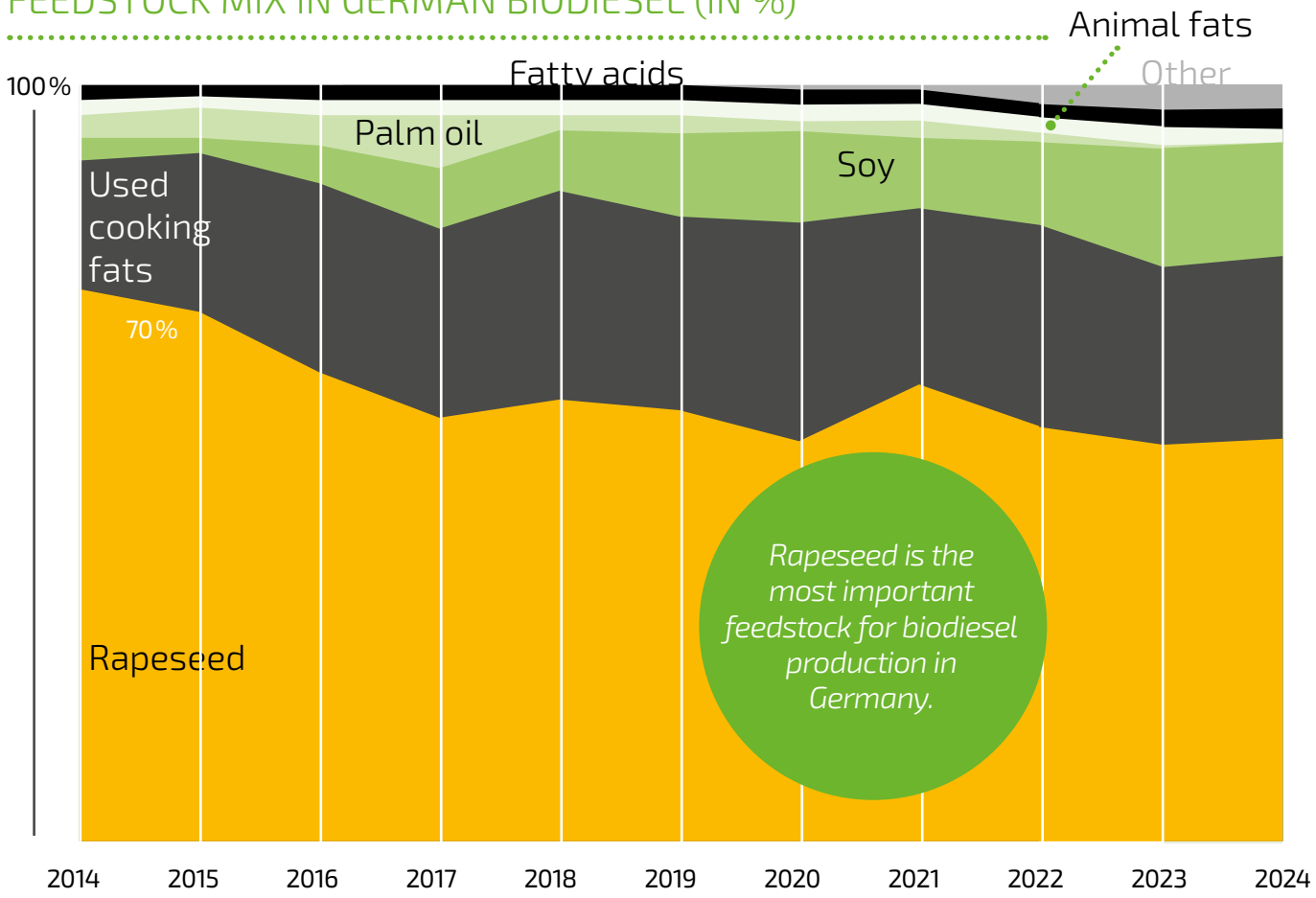
Rapeseed has always been the most important feedstock for biodiesel production in Germany. It accounts for over half of the total; in 2024, rapeseed made up 53% of all inputs. Used cooking oils supplied a further 24%, a figure that has risen significantly in recent years. Soybean oil (15%) ranked third. Biodiesel is also produced from animal fats in Germany, accounting for 2%. Use of palm oil has been banned in Germany since 2023

Even if some feedstocks are imported, Germany is diversifying its energy supply thanks to biofuels, making it less dependent on fossil fuel exporters such as Russia.

Agricultural feedstocks for biofuel production must be cultivated sustainably worldwide. The Biofuel Sustainability Ordinance (2009) stipulates that feedstocks may not come from former rainforest areas, grassland or peat bogs, in order to preserve these ecosystems, which merit particular protection. There is also a statutory requirement to demonstrate that greenhouse gas emissions are cut by at least 50% compared to fossil fuels.

Data from the Federal Office for Agriculture and Food (BLE) shows that in 2023, biodiesel, bioethanol, and biomethane achieved average emissions savings of 90%, a somewhat higher figure than in previous years.

FEEDSTOCK MIX IN GERMAN BIODIESEL (IN %)

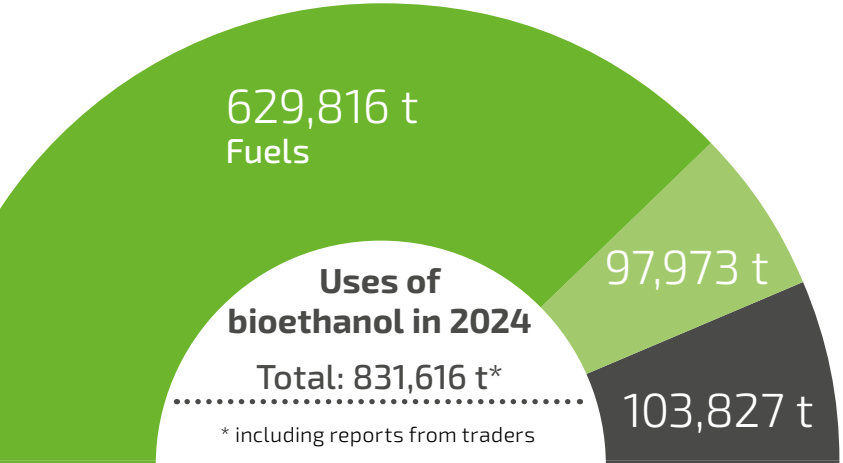


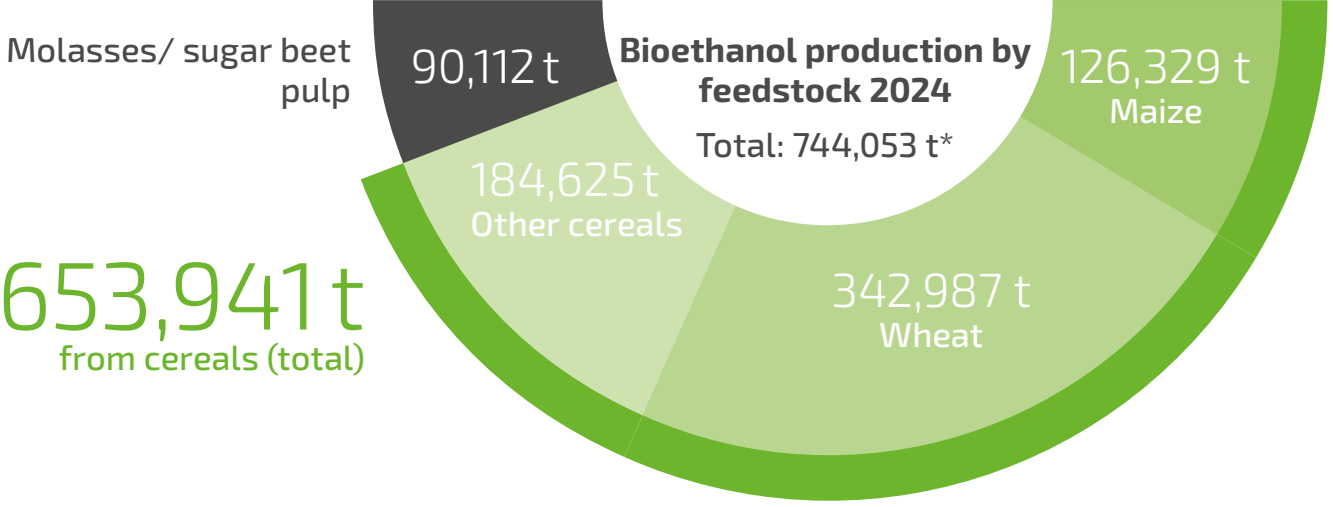
Source: VDB

FEEDSTOCKS FOR BIOETHANOL

In Germany bioethanol is made primarily from sugar beet and grain. In 2024, over 744,000 t of bioethanol were produced in Germany from these feedstocks. That figure is 11% higher than in 2023. In addition, a small proportion of bioethanol is produced from residues and waste, although a precise percentage is not given in the figures from the Federal Office for Food and Agriculture (BLE). Bioethanol is used for fuel, feed, in the food and beverage sector, as well as in the chemical and pharmaceutical industries.

In 2024, petrol consumption hit approx. 17.7 million tonnes, 2% more than in the previous year (17.3 million t). At the same time, the share of bioethanol in total consumption rose to circa 1.3 million tonnes. That represents a 2.4% increase. The volume of bioethanol sold to the food and beverage sector dropped slightly (-1.2%), while sales to the chemical and pharmaceutical industries (+39.4%) as well as for fuel (+9.6%) rose significantly compared to 2023.





Around 654,500 tonnes of bioethanol were produced from feed grain in 2024 (+5.5%). That required around 2.6 Mio. t of feed grain as feedstock. That is equivalent to 6.8% of the German grain harvest, with a total harvest of nearly 39 Mio. t in 2024. Around 90,000 t of bioethanol were produced from sugar beet in 2024 (+78%). That is equivalent to roughly 3% of the German sugar beet harvest.

The feedstocks to supply all domestic bioethanol production were cultivated on approx. 403,000 ha. This corresponds to about 3.5% of total arable land in Germany. Alongside bioethanol, other plant-based components from the processed feedstocks provided proteins, dietary fibres, minerals and vitamins, which were turned into high-quality co-products: protein feed from feed grain, concentrated feed from sugar beet, and other products for the food and feed industry, such as gluten and biogenic carbon dioxide for beverages.

* Total without residues and waste materials, information not indicated due to antitrust law.

Biofuels from waste and residues

Use of liquid, waste-based biofuels in road and maritime transport has grown steadily over the last few years. These biofuels, largely produced from used cooking oils, can slash greenhouse gas emissions particularly dramatically.

Used cooking oil is already collected nationwide from the food-processing industry and hospitality businesses. It also accumulates in households and is increasingly collected there. Suitable well-functioning collection systems are now available. More importantly, the general public is willing to make use of these systems. Collecting used cooking oil from households has a particularly positive impact, since households often dispose of cooking oil by tipping it down the drain and into the sewage system. Used cooking oil can contribute to the formation of problematic deposits in sewage systems that are especially tricky to remove. That means collecting used cooking oil from homes is good news for environmental protection, too. In addition, collecting used oil means it does not find its way back into the food and feed cycle.

There is not an unlimited supply of residues and waste materials. However, their potential has not yet been fully exploited. The Federal Government should set the course for road and maritime transport by ensuring that feedstocks for production of renewable fuels are used as efficiently as possible in the interest of consumers and climate action. Turning waste-based oils or oils from cultivated biomass into biodiesel for use in road transport and shipping offers the highest yield and most significant reduction in greenhouse gas emissions.

Moving towards climate neutrality: Biofuels are crucial for the transport sector

The German Federal Climate Act stipulates that Germany must achieve greenhouse gas neutrality by 2045. **In order to hit this ambitious target in just 20 years, enormous efforts are required** in all sectors: industry, housing, energy generation, and transport. It will be challenging to achieve the requisite emission reductions, especially in the transport sector. After all, greenhouse gas emissions in this sector have scarcely decreased since 1990. In the light of scant progress in reducing CO_2 emissions, the contribution made by biofuels to date is vital. In addition, use of biofuels must be expanded, to help secure the level of CO_2 savings needed, in conjunction with other measures. **Biofuels reduce greenhouse gas emissions by about 11 million tonnes per annum.** That shows clearly that sustainably produced biofuels play a crucial role in helping the transport sector move away from fossil fuels.

Biofuels are of course not entirely climate-neutral. Nevertheless, they have gradually improved their performance in terms of greenhouse gas reductions and have for years been the most significant and reliable means of reducing emissions in the transport sector. Depending on the feedstock used, biodiesel and bioethanol can cut greenhouse gas emissions by around 70% to over 90% compared to fossil fuels. Although biofuels from cultivated biomass do emit CO_2 when burned, the volume in question is only equivalent to the CO_2 previously absorbed by the plants being processed. Any further emissions are linked to aspects of agricultural cultivation, transport, processing, etc. The 2023 status report from the Intergovernmental Panel on Climate Change (IPCC) underlines that every tonne of CO_2 makes a difference as we move towards climate neutrality. In this spirit, biodiesel, bioethanol, and biomethane will continue to be absolutely necessary in years to come.

Potential applications (B7, B10, B100, E5, E10, E85)

Biodiesel, bioethanol, and biomethane are placed on the market in the form of fuels that comply with specific standards. That guarantees that they can be used safely and without technical problems. **The higher the percentage of biofuels in the blend, the greater the positive impact for the climate.**

Biodiesel:

- B7: Permissible admixture of biodiesel to fossil diesel with a maximum share of 7% (by volume) biodiesel (DIN EN 590)
- B10: Permissible admixture of biodiesel to fossil diesel with a maximum share of 10% (by volume) biodiesel (DIN EN 16734)
- B20/B30: Permissible admixture of biodiesel to fossil diesel with a maximum share of 20% (by volume) or 30% (by volume) biodiesel (DIN EN 16709).
- B100: pure biodiesel (DIN EN 14214)

HVO:

- As a substitute for diesel for use in EN 15940-compliant vehicles

Biomethane:

- Biomethane as pure fuel or blended with fossil natural gas (DIN EN 16723-2)

Bioethanol:

Fuels that comply with DIN EN 51625 and DIN EN 15376.

- E5: Permissible admixture of bioethanol to fossil petrol with a maximum share of 5% (by volume) ethanol (DIN EN 228)
- E10: Permissible admixture of bioethanol to fossil petrol with a maximum share of 10% (by volume) ethanol (DIN EN 228)
- E85: Permissible admixture of bioethanol to fossil petrol with a maximum share of 85% (by volume) ethanol (DIN EN 15293).

In the medium term, along with B7 and B10, blends with higher biodiesel levels should also be approved for sale at public filling stations, as is the case for the already standardised grades B20 or B30. Numerous automobile and HDV manufacturers have approved use of blends with higher levels of biodiesel than B7.

*The standardisation process for a petrol blend with a higher proportion of biofuel (E20) is currently underway.

GHG quota

Since the introduction of the greenhouse gas reduction quota (GHG quota), biofuels have cumulatively saved over 100 million tonnes of CO_2 in Germany from 2015 to 2023. This quota does not stipulate a requirement to use a specific amount of biofuel. Instead, the quota obliges the mineral oil industry to reduce the greenhouse gas emissions of fuels placed on the market. To that end, firms may opt to use biodiesel, bioethanol or biomethane as well as electromobility or green hydrogen. The lower the greenhouse gas emissions of the chosen alternative, the faster the stipulated reduction can be achieved, while also meaning that oil companies will need lower volumes of biofuels. If the obligation is not fulfilled, the company must pay 600 € per tonne of CO_2 as a compensation to the state. Companies can make purchasing decisions for biofuels based on price and performance of greenhouse gas reduction. This creates competition to produce biofuels that give rise to the lowest possible GHG levels. As a result of significantly enhanced performance in cutting emissions, smaller volumes of biofuels are needed to meet GHG reduction targets. That also means the same amount of biofuel has an even greater impact on climate change mitigation.

Fuel distributors obliged to meet the GHG quota can also trade GHG reductions with other firms in the same business, e.g. if they deploy a higher level of biofuels than required. This offers greater flexibility to meet the quota.

Promoting biofuels without tax breaks

The statutory obligation to reduce greenhouse gas emissions provides a key incentive to use biofuels.

Unlike other renewable energies, there are no subsidies or tax breaks for utilising biofuels.* In addition, an ambitious GHG quota eases the burden on the national budget, as it avoids the need to purchase expensive emission rights – particularly relevant in view of the future ETS 2 and rising certificate prices. Gradually increasing the proportion of biofuels in fossil fuel blends will be essential to tap into the full climate action potential of sustainable biofuels. The infrastructure is in place – but clear political signals are needed.

Calculation of the GHG quota:

Mineral oil companies multiply the energy amount of the fuels they put on the market (diesel, petrol, biofuels, etc.) by a "fossil fuel reference value". This corresponds to the European fuel mix in 2010 and is 94.1 g CO_2/MJ. Mineral oil companies calculate in terms of this notional value to appraise their mandatory emission reductions (biofuels, green hydrogen, electromobility, UER), which will rise steadily from 10.6% in 2025 to 25.1% by 2030 (see following pages).

*On the contrary, biofuels are fully taxed just like fossil fuels.

Developing GHG quota legislation along the right lines

Germany has created an internationally recognised legal framework thanks to the Act on the Further Development of the Greenhouse Gas Reduction Commitment (GHG Quota), adopted by the Bundestag in 2021.

This legislation even served as a model for the recent revision of the EU RED II Directive. Some Member States – such as Austria – have now also introduced a greenhouse gas quota, thereby replacing the former energy quota obligation.

It is particularly noteworthy that Austria, like Germany, has set a compensation payment of 600 € per tonne of CO_2 for failing to comply with the mandatory quota.

Given the impact of this "reference price" in shaping markets, there seems to be a need for EU-wide harmonisation to ensure fair competition and investment security.

The GHG Quota Act stipulates the following provisions:

- A continuing increase in the GHG quota (in %).

2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
6	7	8	9.35	10.6	12.1	14.6	17.6	21.1	25.1

As explained above, higher quota levels do not however reflect the actual physical contribution that various compliance options make in terms of GHG savings, as multiple crediting is possible in order to fulfil the GHG quota:

- Electromobility: 3-fold
- Green hydrogen used in mineral oil refineries: 3-fold
- Green hydrogen as a fuel as well as PtX (Power to Gas or Power to Liquid): 3-fold

- Advanced biofuels from, for example, straw, manure, nutshells or similar (Annex XI, Section A, RED II) **must** make up a defined minimum share.

2023	2024	2025	2026	2027	2028	2029	2030
0.3%	0.4%	0.7%	1.0%	1.0%	1.7%	1.7%	2.6%

- Greenhouse gas reductions that exceed this sub-quota are counted twice towards the GHG quota, with no cap on eligible volumes.

1. A maximum contribution to climate change mitigation of 4.4% of final energy consumption is stipulated for biofuels from cultivated biomass. Any additional percentage shares will be treated in the same manner as fossil fuels.

2. Crediting of biofuels from animal fats and used cooking oils is restricted to at most 1.9% of final energy consumption in the transport sector.

3. If there is more rapid ramp-up of electromobility, the GHG quota is to be increased automatically to compensate (§ 37h Federal Immission Control Act /BImSchG).

4. Since 2023, biofuels made from palm oil can no longer be counted towards the GHG quota.

Appraisal:

1. Although the current greenhouse gas reduction rate describes the potential contribution of biofuels to climate protection by 2030, the potential is unlikely to be exploited to the full. In order to improve the stagnating pace of GHG reduction in the transport sector, the GHG quota must be gradually increased so that all renewable options can contribute.

2. With a view to preventing fraud involving advanced biofuels, sustainability certification and government oversight must be made more stringent as soon as possible.

Environmentally friendly, climate-compatible production chain

Calculating the greenhouse gas footprint of biodiesel, bioethanol, and biomethane includes each stage of the biofuel production process (cultivation, transport, processing), irrespective of whether the feedstock materials are grown in Germany or overseas.

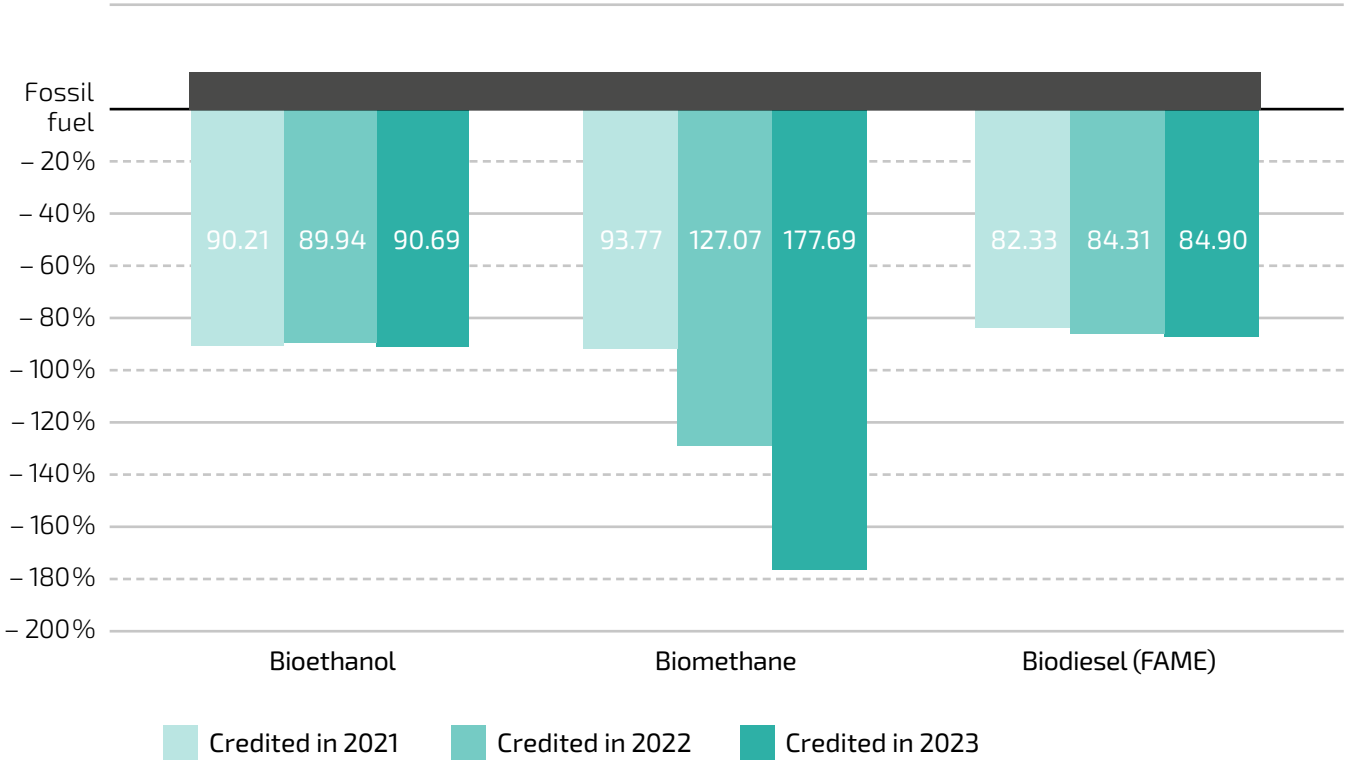
Firms that produce biodiesel, bioethanol, and biomethane are in fierce competition to achieve the lowest possible GHG emissions. The following options are available to optimise GHG reduction in biofuel production:

» Using combined heat and power (CHP)
» Improved insulation of heating pipes
» Using more efficient machines
» In-house power supply based on renewables
» Shorter transport routes
» Cutting fertiliser use
» Use of biofuels in agriculture
» Reducing emissions through
  • Carbon capture and storage (CCS)
  • Use of CO_2 in other applications (CCU, e.g. fertilisation in greenhouses, beverage industry applications)

Non-governmental organisations have criticised indirect land use change (iLUC) due to demand for feedstocks for biofuels, thus leading to high additional CO_2 emissions. However, the Intergovernmental Panel on Climate Change (IPCC) notes in its Special Report on Climate Change and Land that "There is low confidence in attribution of emissions from iLUC to bioenergy". Despite the clear statement from the IPCC, the EU has reacted to the iLUC theory by capping the permitted contribution to climate change mitigation for biofuels from cultivated biomass at 7% of energy consumption. Palm oil will be banned as a feedstock in the EU by 2030, as it has a high iLUC risk. **Palm oil has already been prohibited as a feedstock for biofuels in Germany since 2023.** Biofuels from cultivated biomass may only constitute 4.4% of total energy consumption in the transport sector in Germany.

BIOFUELS' CONTRIBUTION TO CLIMATE CHANGE MITIGATION

Average emission savings (in %) compared to reference fossil fuel



Source: BLE Evaluations- und Erfahrungsbericht 2023, pp. 64–65

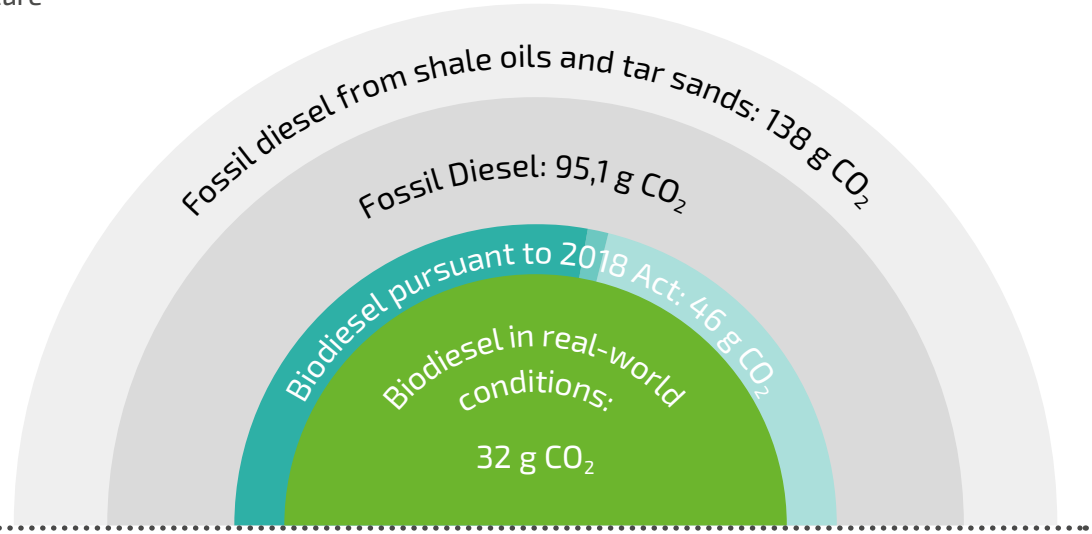
GHG EMISSIONS FROM BIOFUELS (WITH BIODIESEL AS AN EXAMPLE)

Greenhouse gases are generated during biodiesel production. The figure shows GHG emissions from (rapeseed-based) biodiesel compared with fossil fuel.

56 %
Crop cultivation and agriculture*

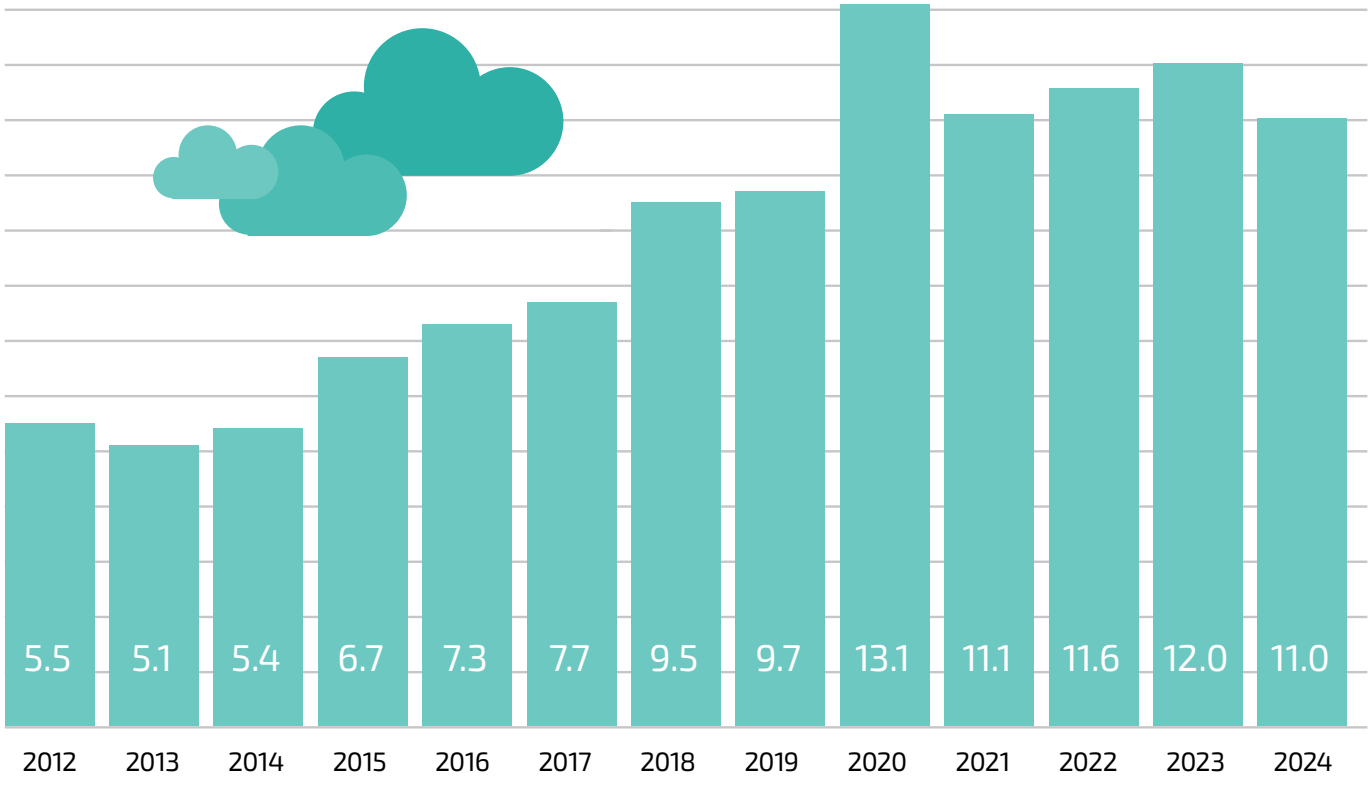
2 %
Transport*

42 %
Processing*



* Reference values

CO_2-SAVINGS THROUGH BIOFUELS IN MILLION TONNES



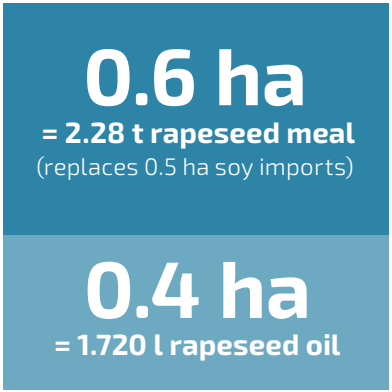
Sources: BMWK / Federal Ministry for Economic Affairs and Climate Action, UBA/German Environment Agency, AGEE-Stat, BLE/Federal Office for Agriculture and Food (for 2024: UFOP estimate) | Evolution of greenhouse gas reduction ratio (GHG ratio): 2015: 3.5%; 2017: 4%; 2020/2021: 6%; 2022: 7%; 2023: 8%; 2024: 9.35%; 2025: 10.6%. Fossil fuel reference value until 2018: 83.8 g CO_2eq./MJ, thereafter 94.1 g CO_2eq./MJ

A key role in food security and biodiversity

The general public raises critical questions concerning ethical justifications for using rapeseed and grain as feedstocks for biofuels, particularly as this is sometimes held to undermine efforts to foster biodiversity. There is even talk of "land consumption" by biofuels, with critics calling for more extensive agriculture (30% organic farming).

Rapeseed cultivation for table, tank, and trough

1 ha oilseed rape = 4 t rapeseed



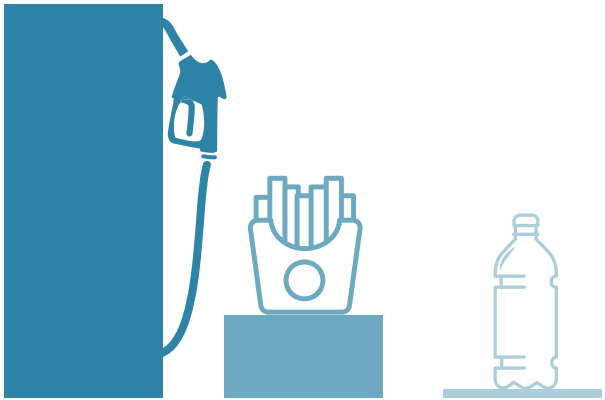
From the agricultural perspective, the term "land consumption" is disconcerting, distorts the facts, and devalues good professional practice in arable farming. It makes no sense to talk about land consumption because biofuel only emerges as an intended use in the commodity chain after harvesting, i.e. when the rapeseed oil is sold to a biodiesel producer, for example. When a decision is taken to grow a particular crop, its subsequent use is not determined. Oilseed rape is cultivated in accordance with increasingly stringent legal requirements concerning use of fertilisers and pesticides.

Producing biofuels from cereals and rapeseed always produces large quantities of protein feed, i.e. part of the harvest is always deployed to feed livestock and thus ultimately contributes to human nutrition. As a further option, the entire harvest may be channelled into food production. In contrast to extensification (organic farming), in which harvest volumes are reduced by 30–40%, the full genetic yield potential is exploited in the light of the conditions on each specific site – for

biofuel production or to produce food. Growing feedstocks for biofuel production thus also plays an important part in ensuring security of supply, if harvest volumes are lower or if imports dry up. In 2022, it was possible to compensate for the shortfall in sunflower oil imports due to the war in Ukraine by drawing on rapeseed oil from the EU. There was no supply problem, only a temporary shortage. Sufficient volumes were also available on global grain markets and were diverted to Africa to replace deliveries from Ukraine.

Securing food supply takes priority over biofuels. Rapeseed oil intended for biodiesel production was utilised to make up for the sunflower oil shortfall. This example demonstrates that biofuels ensure that inputs intended for biofuels are available as a buffer. These reserves would not have existed if there had been a switch to more extensive agriculture or if biofuels had been abolished. What's more, the food market always wins in price-driven demand-side competition!

Private households account for less than 2% of total consumption of German rapeseed oil (2021)



4,200,000 t production

c. 800,000 t for food production

c. 80,000 t purchases by private households

Opportunity costs of biofuels

Non-governmental organisations opposed to biofuels argue that renaturation of arable land would be a preferable option, as it would bind more greenhouse gases, or that solar power systems should be installed instead, as these would generate more energy.

Renaturation vs. biofuels
Greenhouse gas savings from biofuels are verified, certified, and the data is sound. In contrast, storage of carbon in the soil or in vegetation – e.g. in trees or shrubs – is not stable. That has been demonstrated worldwide in recent years, especially due to forest fires.

Photovoltaics vs. biofuels
Comparing these technologies is like comparing chalk and cheese. Photovoltaics is a technology for generating electrical energy. Biofuels, on the other hand, are energy repositories, in other words, energy is bound within molecules, can be readily stored and transported, providing reserves in case of energy bottlenecks. The feedstocks involved can be used for other purposes at any time as a function of market demand, in particular as food. It is fair to say that photovoltaic systems generate significantly more energy in the long term per unit area than cultivating feedstocks for biodiesel or bioethanol. However, the energy yield from photovoltaics is virtually zero in winter, at night or in cloudy conditions. In contrast, the energy stored in biofuels can be supplied consistently. Biofuels can reduce greenhouse gas emissions in the existing fleet, while electricity from photovoltaic systems can only be used in e-vehicles. Both technologies are important and complementary. Land used to generate solar energy is not available for food production or, in the case of agrivoltaics, limits agricultural output. That is however not the case for cultivation of biomass, which can be used to produce biofuels.

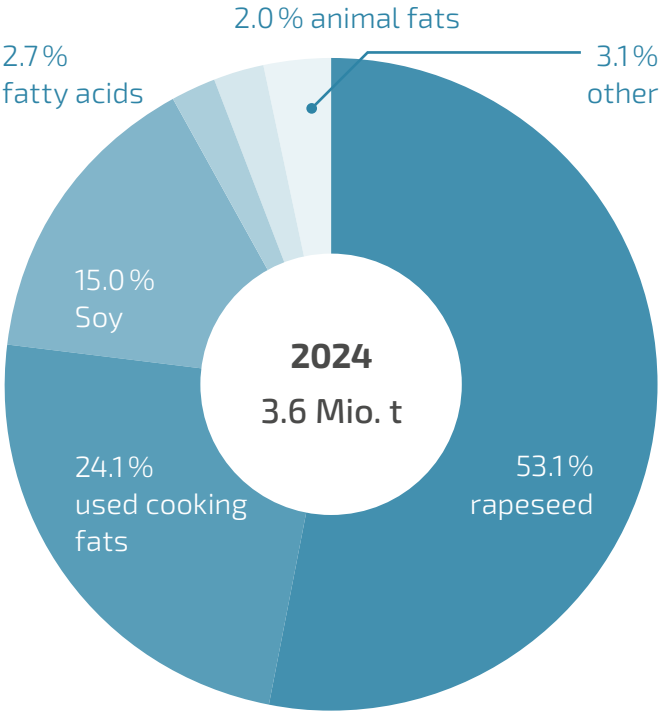
Germany exports GHG reduction potential

Germany is not only the EU's largest producer of biodiesel (3.6 Mio. t in 2024), but also its largest exporter of this fuel, with exports to the tune of 3.2 Mio. t. At the same time, imports of 1.6 Mio. t of biodiesel gave rise to an export surplus of 1.6 Mio. t. Export surpluses are also expected in future, as Germany is the most competitive production location in the EU, with an oilseed processing capacity of around 13 Mio. t, approximately 10 Mio. t of which is rapeseed. The high-quality protein feed produced during processing is used in animal nutrition. Bioethanol production complements this, further boosting the supply of protein feed.

The annual export surplus represents additional potential for reducing greenhouse gas emissions in the transport sector in Germany. This potential should be harnessed at the national level.

BIODIESEL PRODUCTION IN GERMANY

Feedstock mix (% of total)



Biofuel production and animal feed

Protein feed is indispensable in rearing cattle, pigs, and poultry. Much of the demand is met by imported soybeans or soybean meal from overseas. The protein feed produced while making biofuels considerably diminishes the need for imports. **The most important protein feed is rapeseed meal produced while making biodiesel from rapeseed oil.** During biodiesel production, around 60% of the rapeseed input is turned into meal, while 40% serves to make vegetable oil as an input for biodiesel. Oilseed rape grown in the European Union is not genetically modified. Producing bioethanol from grain also generates protein-rich animal feed in the form of dried silage. These by-products of biofuel production mean high-quality protein sources are available that farm animals can convert efficiently, creating high-quality foodstuffs, with no competition at all between table and trough.

Total biofuel and animal feed production in Germany means import savings of around 2.4 Mio. t of soybean meal per annum. Biofuel production in Germany thus helps conserve valuable and sensitive ecosystems in soybean-producing countries. The biofuel industry and production of protein feed are inextricably linked.

A crucial point to remember is that rapeseed and sugar beet are a good supplement to crop rotations with a high proportion of cereals. Furthermore, these crops improve the humus balance thanks to biomass that remains on fields after the harvest, thus contributing to carbon storage as a further facet of climate change mitigation. As a flowering plant, oilseed rape is an attractive addition to the landscape in spring and the most important forage plant for bee colonies and thus for honey production.

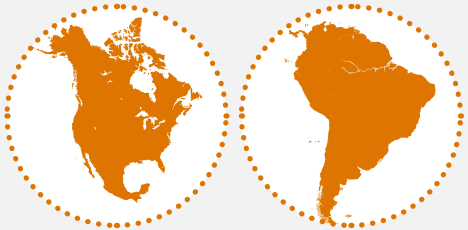
DOMESTICALLY PRODUCED BIOFUELS AVOID SOY IMPORTS

Germany would need to more than double its soybean meal imports if co-products from domestic biofuel production were not available.

Area under cultivation in 2024: 1.6 million ha (e.g. rapeseed, feed grain, sugar beet)

Cultivation in Europe

2024: 2.7 million t biofuels



Imports

2024: 3.4 million t of feed from co-products of domestic biofuel production replace 2.4 million t of soybeans, which means a drop of 1.1 million ha in land used for soybean cultivation

2024: 2.1 million t feed from soybeans

Sources: AEE/Renewable Energy Agency; BDBe ; BMEL; DBFZ/German Biomass Research Centre; DLG /German Agricultural Society; Feedipedia; Oil World; OVID; Proteinmarkt.de; UFOP; VDB

Keeping an open mind about technology options in the transport sector

The transport sector is the problem child of the energy transition. Biofuels offer a ray of hope. For years, they have been the only alternative to fossil petrol and diesel available for large-scale use. **Biodiesel, bioethanol, and biomethane currently supply around 98% of the renewable energy used in road transport.** In seeking to achieve extensive defossilisation of the transport sector, they thus form a crucial underpinning for development of other renewable fuels and alternative drive systems.

Data from the German Environment Agency indicates that overall, renewable energies provided 7.2% of total energy consumption in road, rail, and air transport in Germany in 2024. The share of biodiesel, bioethanol, and biomethane can gradually be increased to boost climate change mitigation. As e-mobility begins to play a more significant role, fuel sales will decline, meaning that higher percentage blends will be possible even if the overall volume of biofuel available is unaltered. Significant volumes of green hydrogen and electricity-based synthetic fuels (e-fuels) are unlikely to be available before 2030.

Reducing traffic and switching to other modes of transport such as rail, inland waterways, local public transport, cycling, and walking are also crucial steps to help cut greenhouse gas emissions in the mobility sector.

All these measures must be implemented in conjunction to meet the German government's ambitious goals.

Gradually increasing the share of biodiesel, bioethanol, and biomethane has an immediate impact on climate change mitigation.

Biofuels in road transport – now, in 2030, and post-2030

In the hope of cutting transport-sector emissions rapidly, electromobility is being promoted vigorously at present, inter alia, through tax incentives and state-supported development of charging infrastructure. As a result, the proportion of electric vehicles amongst new cars is rising, although less rapidly than predicted and expected.

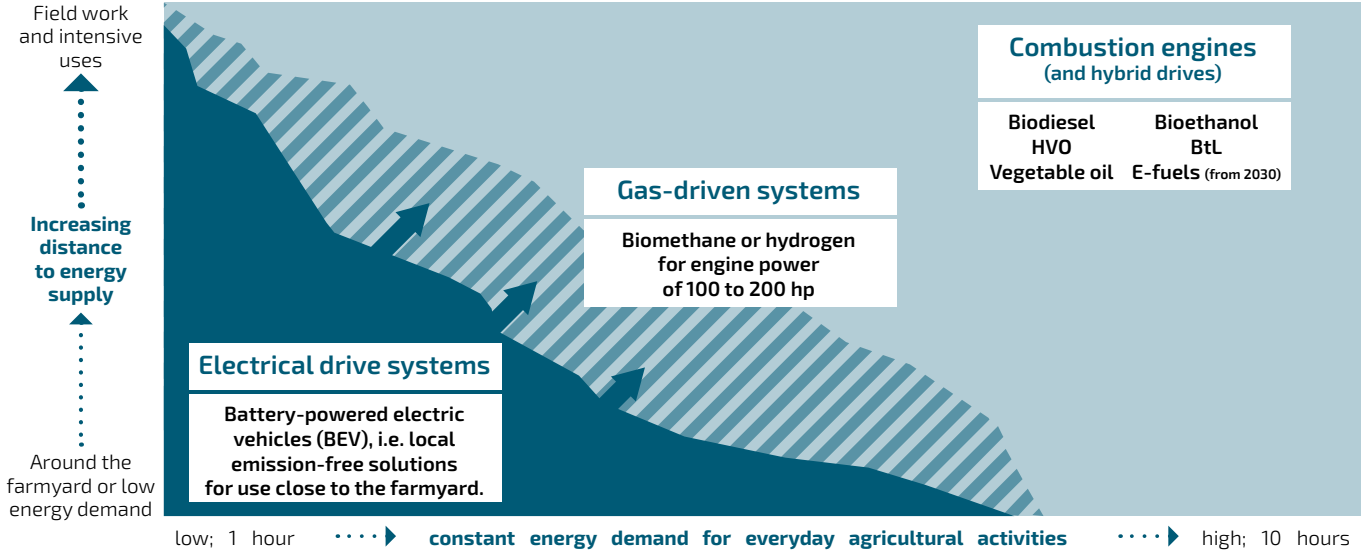
The target of 15 million electric vehicles on Germany's roads by 2030 will not be attained. Biodiesel, bioethanol, and biomethane must continue to play an important role in the energy mix for the transport sector, to ensure that the forecast of roughly 38 million passenger cars with internal combustion engines in 2030 can operate with the lowest possible greenhouse gas emissions.

In addition, it will be some time before the electricity grid and battery technology will be sufficiently developed to enable heavy commercial vehicles like HDV to operate with electric motors in the road-based freight sector.

This is where the limits of electrification become apparent. HDV, buses or even agricultural machinery have high, enduring power requirements due to the range required for transportation or the tractive force needed for ploughing. Biofuels can already offer a technically viable, cost-effective option for greenhouse gas reduction.

There's no question; today and beyond 2030, biofuels provide a significant, indispensable alternative to fossil fuels when it comes to meeting transport-sector climate targets.

Renewable propulsive energy in agriculture and forestry



SOURCE: BASED ON CLAAS; EXTENDED

For longer periods of heavy field work or high traction loads, liquid or gaseous biofuels are the only way to reduce emissions significantly and ensure economically efficient operation.

The fuel required for tractors run on vegetable oil can be sourced via decentralised oil mills, keeping all the added value in the countryside.

Alternative fuels in shipping

The volume of shipping traffic has risen continuously worldwide over the past decades. Currently, around 90% of global trade is seaborne. The destination or port of departure of around one third of global shipping journeys is within the EU. Maritime transport generates an estimated 3–4% of greenhouse gas emissions across Europe.

Maritime transport with ambitious climate targets

Since 2024, maritime transport has been included in the European Emissions Trading System (EU ETS 1). In 2025, the EU Regulation on the use of renewable and low-carbon fuels in maritime transport came into force, setting binding limits for the greenhouse gas intensity of energy used on board. In addition, the International Maritime Organisation (IMO) has set targets for reducing CO_2 emissions from shipping, initially up to 2030.

Biofuels for maritime transport have proved to be an immediately available, efficient climate action option that work well in engines. Biofuels can now be bunkered almost worldwide. Today, B30 is mostly used, i.e. a blend of 30% biodiesel and conventional marine fuel.

No climate targets for inland navigation

Inland waterway transport should also make an increasing contribution to reducing greenhouse gas emissions. To date, climate action targets have not been set for this market. There is considerable potential to reduce greenhouse gas emissions by changing the type of propulsion, adopting various technical and operational measures, and, above all, deploying alternative fuels such as biodiesel. Biodiesel would also significantly reduce the proportion of particulate matter emissions in exhaust gases. Furthermore, as a virtually sulphur-free fuel, biodiesel is easily biodegradable and is not classified as a hazardous substance, due to its high flash point. **Inland waterway transport could make a rapid and significant contribution to climate change mitigation by adding biodiesel to the fossil fuels currently utilised in shipping.** That would be straightforward in technical terms. Many ship engines are approved for operation with biodiesel blends (B7, B20, B30) or with pure biodiesel and BioLNG.

Sustainable Aviation Fuels: the energy transition in aviation

ReFuelEU Aviation stipulates binding minimum quotas for marketing of Sustainable Aviation Fuel (SAF) to apply throughout Europe from 2025. **This means that airports in the European Union must ensure that at least 2% of the aviation fuel they use comes from sustainable sources.** This share is set to rise to 70% by 2050. According to the International Air Transport Association (IATA), SAF was only able to cover around 0.2% of the industry's global fuel demand in 2023.

Sustainable aviation fuel (Jet A1) produced from biomass is referred to as biokerosene. This can be produced from a wide range of biomass containing sugar, starch, oil, fat, and/or lignocellulose, provided that it meets generally accepted sustainability criteria and no cultivated biomass is used. Depending on the feedstock used, the CO_2 footprint of SAF from biomass, viewed over its entire life cycle, can be up to 80% lower than that of fossil kerosene.

Feedstock supply and production capacity constraints, as well as considerable additional costs, currently limit use of SAF. The most relevant technologies for producing biokerosene today are:

» the hydroprocessed esters and fatty acids (HEFA) process, and
» the alcohol-to-jet (AtJ) process, in which ethanol is converted into biokerosene.

Statutory provisions on biofuels

Biofuels legislation is embedded in a wide range of standards and provisions on the mobility of the future. At the European level, these include:

» The recast **Renewable Energy Directive (RED III)**, adopted in 2023, stipulates a mandatory target for Member States: at least 29% renewable energies by 2030 or at least 14.5% reduction of greenhouse gas emissions in the transport sector. Although all technologies can be used to meet the target (with minimum percentages of IX A and RFNBO), it will only be possible to attain this goal if biofuels are used.

» The **Effort Sharing Regulation (ESR)** sets binding CO_2 reduction targets for EU Member States by 2030 for the building, transport [aviation and shipping ETS 1], agriculture, and waste management sectors. Germany must reduce its emissions by 50% compared to 2005. If this target is not met, the German government will be obliged to purchase additional pollution rights from other Member States that have cut their omissions by more than the mandatory amount.

» **European CO_2 fleet limits.** The average emissions target set for new passenger cars in 2025 is 93.6 g CO_2/km. That figure should drop to zero by 2035, which will only be possible under the current system with electric vehicles. At present, there are indications that new vehicles with combustion engines will still be authorised after 2035 if they run exclusively on what are known as carbon-neutral fuels.

» **Emissions Trading System II (ETS II).** From 2027, ETS II will replace Germany's national emissions trading system (as stipulated in the German Fuel Emissions Trading Act (BEHG)). Under ETS II, biofuels will also not be subject to any subsequent increases in CO_2 pricing that are to be expected.

» **Clean Vehicles Directive (CVD).** Binding quotas are stipulated for public-sector procurement of low-emission and zero-emission vehicles, e.g. municipal buses for public transport systems. Using electric vehicles and switching to 100% biofuels offers scope to fulfil the requirements.

A significant body of legislation governs climate action in the transport sector in Germany, in some cases implementing European provisions:

» **Federal Climate Action Act (KSG)** stipulates that CO_2 emissions in the transport sector must be reduced from the current roughly 143 million tonnes per annum to 85 million tonnes by 2030.

» **German Fuel Emissions Trading Act (BEHG)** establishes rising CO_2 prices for the period up to 2026. Sustainable biofuels are exempt from the pricing system, while petrol and diesel will become more expensive due to the CO_2 price.

Factoring in the maximum CO_2 price – pricing of fossil diesel and petrol (pursuant to § 10; German Fuel Emissions Trading Act (BEHG))

	2022	2023	2024	2025	ab 2026
Emission certificate price in €	30	30	45	55	65*
Diesel in Ct/l	**10.8**	**10.8**	**16.2**	**19.8**	**23.4**
Petrol in Ct/l	**9.8**	**9.8**	**14.7**	**18.0**	**21.3**

*=maximum price, price including VAT

» **Alternative Fuel Infrastructure Regulation (AFIR)** obliges EU Member States to create charging infrastructure – especially for fuels such as bioLNG – to move away from fossil fuels for heavy-duty transport.

» **Federal Immission Control Act (BImSchG)** regulates the greenhouse gas reduction quota in §§ 37a ff. BImSchG and contains several provisions authorising the authorities to adopt ordinances when required.

» **36th – 38th Federal Immission Control Ordinances (BImSchV)** contain implementing provisions for the Federal Immission Control Act (BImSchG).

» **10th Federal Immission Control Ordinance (BImSchV)** contains regulations and standards for placing fuels on the market.

» **Biofuel Sustainability Ordinance** addresses sustainability of biofuels in keeping with the Renewable Energy Directives.

Transparency and monitoring build trust in products and boost acceptance

The comprehensive statutory sustainability requirements for biomass are the unique selling point of this branch of production. They must be respected throughout the entire supply chain to ensure eligibility for crediting towards quota obligations in the European Union. National and EU legislative provisions also apply to biomass imports from third countries. These are the cornerstones of a global 'level playing field' in a market that is also driven by competition.

This market is fundamentally welcome, as it also promotes competition to secure greater GHG efficiency and boosts efficient use of resources within the framework of national legislation on GHG reductions. In a nutshell: achieving greater climate change mitigation with less biofuel. This finding is confirmed by the evaluation and experience report published annually by the Federal Office for Agriculture and Food (BLE). In Germany, sales of sustainable biofuels are severely constrained by politically imposed caps based on end-use energy consumption in the transport sector. The upper limit is 4.4% for sustainable biofuels produced from agricultural biomass and 1.9%.for waste materials listed in Annex IX, Part B of RED II (used cooking oil, animal fat).

Fraud cases have increased

The number of fraud cases that have come to light has increased significantly with the introduction of double counting for certain feedstock categories. This has forced the European Commission to introduce stricter documentation requirements, verification systems, and, above all, information obligations. This also applies to the preconditions for voluntary certification systems approved by the European Commission. These systems in particular de facto function as the "long arm of the law" for EU statutory provisions in the European Union and also especially for companies along the entire supply chain that are based in third countries, in areas encompassing feedstock cultivation, waste collectors, feedstock providers, along with oil mills and biofuel producers as processing stages.

Union database – a tool to prevent and investigate fraud

Against this backdrop, we explicitly welcome the initial steps taken to build up a European Union database for biofuels (UDB). As well as meeting the biofuel industry's functionality requirements, the UDB must also serve as a tool for investigating suspected fraud. This requires reliable verification by certification bodies of the entries made in the UDB and constant analysis by the European Commission of the UDB's data flows.

Improving sustainability certification and controls

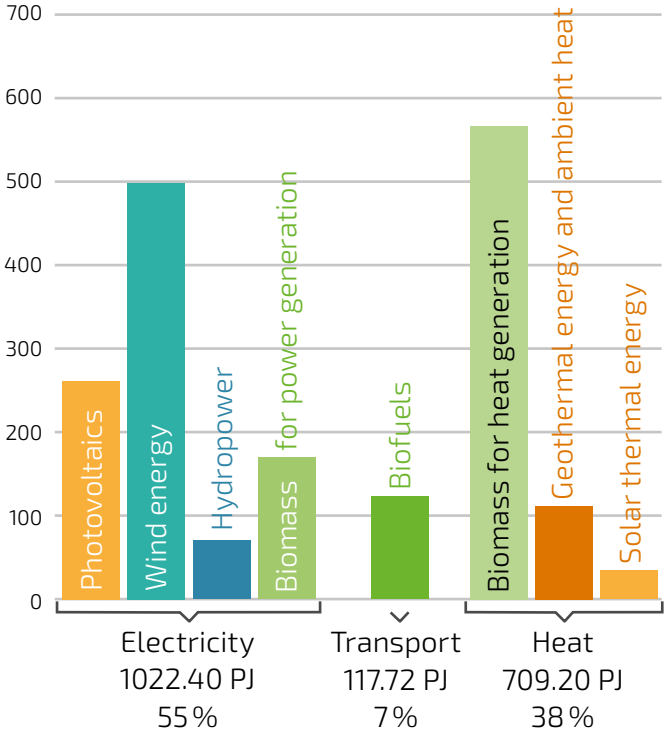
The biofuel industry associations, both at national and EU level, have proposed a series of measures to the European Commission and called for more stringent rules, which are vital to restore and secure product confidence. The aim is to ensure that sustainability criteria are met and to prevent fraud.

FINAL ENERGY CONSUMPTION OF RENEWABLE ENERGIES IN THE TRANSPORT SECTOR IN 2024

Final energy consumption in the transport sector in petajoules (PJ) in 2024	
Biodiesel*	73.29
Pure vegetable oil (PVO) fuel	0.11
Bioethanol	33.28
Biomethane**	11.20
Electricity consumption of renewable energies in the transport sector	33.20
	151.08
Share of total energy consumption in the transport sector	6%

* incl. HVO | ** Bio CNG and Bio LNG | Source: Federal Environment Agency based on data from AGEE-Stat

ENERGY SUPPLY FROM RENEWABLE ENERGY SOURCES IN 2024 (TOTAL: 1,849 PJ)



Source: Federal Environment Agency based on data from AGEE-Stat (Working Group on Renewable Energy Statistics)

Political demands: creating reliable policy on biofuels

The National Energy and Climate Plan (NECP) was updated in August 2024 and submitted to the European Commission. Some of the national climate action targets are even more rigorous than EU requirements – for example, the target reduction in greenhouse gas emissions of 65% by 2030, compared with 55% in the EU Climate Law. If the climate action strategy is to be successful, it is crucial that measures take effect in good time, particularly in the transport sector. Ambitious targets are vital to exploit the full potential of all technical options. Establishing a long-term regulatory framework beyond 2030 creates planning security, boosts investor confidence, and enables implementation of technological innovations. Robust, officially monitored sustainability certification ensures genuine climate action and fair competitive conditions.

I. Raise greenhouse gas reduction quota (GHG quota) and fine-tune flexibly

Germany is leading the way in the EU and internationally with its commitment to reduce greenhouse gases in road transport (GHG quota) by more than 25% by 2030. The targets are not ambitious enough, partly due to the changed calculation basis for charging current for e-mobility. The GHG quota must therefore be raised to 34% by 2030 and subsequently developed consistently until 2040. The sub-quotas for advanced biofuels and RFNBOs should be increased automatically as soon as a specified threshold for one of the compliance options is exceeded in a specific quota year. The GHG quota should be raised accordingly. These mechanisms ensure ever greater climate change mitigation in the transport sector and ensure that individual compliance options can be complementary rather than displacing each other.

II. Abolish double counting of advanced biofuels – strengthen sub-quota

The current double counting system has led to warped incentives and massive fraud at the expense of national and European value creation in the local biofuel industry. Instead of the option of double counting for advanced biofuels, there should be an ambitious increase in the sub-quota for advanced biofuels.

III. Mandatory registration requirement and on-site inspections by authorities to ascertain quota eligibility

The option of double counting has led to an unexpectedly high level of over-fulfilment of the advanced biofuels' sub-quota. This is primarily because double counting serves as an incentive to submit false declarations for feedstocks. It puts the domestic biofuel industry and agriculture at an enormous economic disadvantage. A significant improvement in sustainability certification to prevent fraud can be achieved by combining the following measures:

» **Registration requirement** for producers of advanced biofuels
» **Binding confirmation on the sustainability certificate for implementation of witness audits** (accompanying on-site audits during certification)
» **Access to all relevant data and information** for auditors and national authorities at all times

IV. Blends with a higher percentage of biofuels to expand the offer and reduce costs

Fuel standards limit market access for biofuels. In order to accelerate defossilisation of the existing fleet and new vehicles, blends with a higher percentage of biofuels, such as E20 for passenger cars and B30 for commercial vehicles, must be approved rapidly.

Consumers should have a chance to deliberately opt for climate-friendly fuels. This increased flexibility is particularly relevant for transport companies that must prove to their clients that they are helping to cut greenhouse gas emissions. Sustainable renewable fuel components are not subject to CO_2 pricing.

V. Adopt the EU Energy Taxation Directive and transpose it into national law

The draft revision of the Energy Taxation Directive provides for differentiation according to energy content and environmental performance when setting minimum tax rates.

This creates a key instrument for targeted promotion of alternative fuels and drive systems – a crucial contribution by the transport sector to achieving climate action targets. That means the directive must be adopted promptly and transposed fully into national law.

VI. Harnessing biomass potential for climate change mitigation – factoring in synergies

Biofuels from cultivated biomass are currently limited to 4.4% of final energy consumption in the transport sector. However, this existing potential is not being exploited to the full; imports of presumably misdeclared "advanced" biofuels are displacing domestic production – and are increasingly being exported.

Raising the GHG quota creates scope to harness the permissible contribution of biofuels from cultivated biomass to the full. In line with EU requirements, the cap must be raised to 5.8%. This increase takes into account the future decline in absolute energy consumption in the transport sector and makes it possible to increase the relative share for these biofuels. That is vital to ensure the absolute quantity of these biofuels remains constant.

During processing, a large proportion of the feedstocks are turned into protein feed, which replaces feed imports from third countries.

VII. Tapping into additional potential – expanding the eligibility of waste-based biofuels

The upper limit for crediting waste-based biofuels (in accordance with Annex IX Part B of RED II) for the GHG quota must also be increased. On the one hand, the foreseeable decline in absolute energy consumption in the transport sector must be taken into account. On the other hand, the potential of waste-based biofuels is growing significantly due to the inclusion of new feedstocks in this category.

Further information

Biodiesel & Co. Status Report
› bit.ly/BiodieselReport2025

UFOP biodiesel information
› www.ufop.de/biofuels

Bioethanol
› refuele10.com/en

Biodiesel from waste and residues (in German)
› bit.ly/4n7UGIN

Biomethane and fuel
› biogas.org/en/media/publications

Information portal on fuels (in German)
› kraftstoffe.info

Associations' statement on the BMUKN draft bill (July 2025, in German)
› bit.ly/45GRnma

Oilseed strategy 2030 (in German)
› bit.ly/4ljAxi3

Co-product issues (in German)
› bit.ly/4g2JNWg

German Biomass Research Center
› dbfz.de/en

KTBL BIOKRAFT project
› ktbl.de/international

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