Market data 2018

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German Bioethanol
Industry Association

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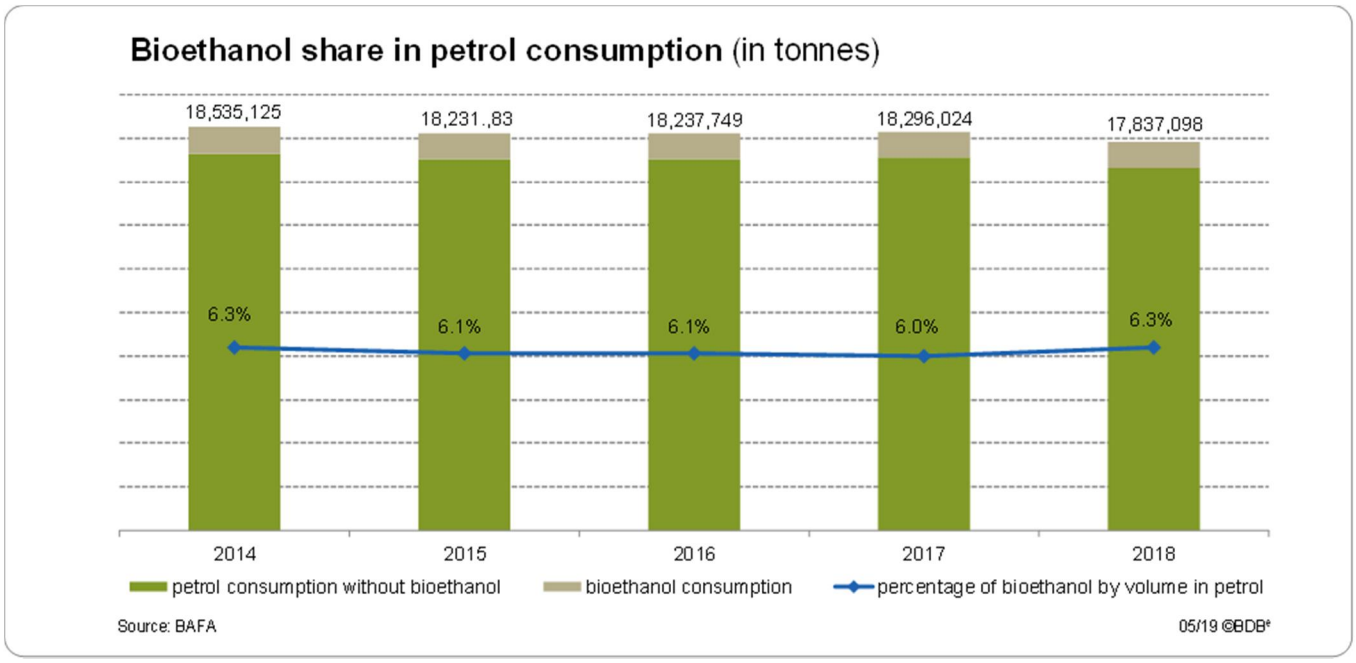
Overview

The German Bioethanol Industry Association (Bundesverband der deutschen Bioethanolwirtschaft ï BDBe*) takes a generally positive view of the past year 2018 and also looks to the future with optimism. In 2018, sales of bioethanol as a petrol admixture in Germany increased markedly by almost 3% year-on-year, while the petrol market shrank at the same time. For the first time in several years, this has again resulted in increasing percentages of bioethanol in the petrol types Super (E5), Super E10 and Super Plus. By contrast, German bioethanol production for use as fuel decreased for the second year in a row to 613,000 tonnes, a further decline of almost 9% compared with the previous year. The 3.1 million tonnes of CO_2 saved by using bioethanol in petrol in 2018 is equivalent in mathematical terms to around 1.0 million passenger cars without CO_2 emissions.

1. Production 2018

At the bioethanol plants located in Brandenburg, Mecklenburg-Western Pomerania, Saxony-Anhalt and Bavaria, the production of bioethanol for use as a petrol admixture fell to a total of 613,087 tonnes in 2018. Compared to the previous year with a production volume of 672,930 tonnes, this represents another significant decline in domestic production of 8.9%.

In 2018, responsibility for collecting and evaluating production data for German bioethanol production was transferred from the now disbanded Bundesmonopolverwaltung für Branntwein (BfB), the German federal agency for spirits, to the Federal Agency for Agriculture and Food (Bundesanstalt für Landwirtschaft und Ernährung ï BLE). As a result, data for 2018 only covers the use of raw materials for bioethanol production for all applications, i.e. fuels, industrial use and the food and beverage industry.



Of the more than 750,000 tonnes of bioethanol produced, about 590,000 tonnes (79%) came from feed grain and 160,000 tonnes (21%) from sugar beet. A small amount of bioethanol, which cannot be accurately quantified and is likely to be at the level of the previous year (9,000 tonnes), was produced in 2018 from residual and waste materials, for example from the food industry.

Bioethanol production by raw material in 2018 (in tonnes)		
Total grain		592,359
of which:	Maize	112,079
	Wheat	242,876
	Other	237,404
Molasses/sugar beet pulp		161,231
Other		no data
Total*		**753,590**

Bioethanol use in 2018 for (in tonnes)	
Automotive fuels	613,087
Food and beverages	92,248
Industry	47,246
Total*	**752,581**

* The difference between the quantity sold and the quantity produced is the result of storage

Source: BLE 05/19 ©BDB[e]

More than 160,000 tonnes of bioethanol were produced from sugar beet pulp or molasses. This is equivalent to raw material input of almost 1.7 million tonnes of sugar beet and thus about 6.4% of the beet harvest of 26.2 million tonnes in 2018.

Around 590,000 tonnes of bioethanol were made from feed grain in 2018. Around 2.6 million tonnes of feed grain were used as a raw material for this purpose. This corresponds in mathematical terms to 7.0% of Germany's grain harvest of 38 million tonnes in 2018.

Bioethanol production for fuels by raw material (in tonnes)

	2014	2015	2016	2017	2018	± 2017/2018
Feed grain	475,962	467,272	534,589	522,638	no data*	
sugar beet	242,713	264,664	191,270	141,400	no data*	
Residues, waste	8,205	7,884	12,310	8,892	no data*	
Total	**726,881**	**739,821**	**738,169**	**672,930**	**613,087**	**-8,9%**

* from 2018, BLE data not broken down by raw material for bioethanol as fuel

Source: BfB, BLE

05/19 ©BDBe

In addition to bioethanol, the other plant components of the processed raw materials such as proteins, dietary fibres, minerals and vitamins supplied high-quality co-products: protein feed from grains, concentrated feed from sugar beets and other products for the food and feed industry, gluten for aquaculture or biogenic carbon dioxide for beverages.

2. Consumption 2018

In 2018, when the overall fuel market declined overall, with 17.8 million tonnes of petrol sold ï around 2.5% less petrol than in the previous year (2017: 18.3 million tonnes) ï the consumption of bioethanol, which is used as a petrol admixture for the petrol types Super E10, Super Plus and Super (E5) or used to produce ETBE (ethyl *tert*-butyl ether), rose to just under 1.2 million tonnes. While just under 110,000 tonnes of bioethanol were used for ETBE production, around 1.4% less than in the previous year, the admixture percentage rose significantly.

Last year, bioethanol's share of the petrol market reached 6.3% by volume, 0.3 percentage points higher than in 2017.

Bioethanol (EtOH) in petrol 2017 and 2018 (in tonnes)

	2017	2018	Change from previous year
EtOH in ETBE	111,440	109,928	-1.4%
EtOH as an admixture	1,045,080	1,077,434	3.1%
EtOH total	1,156,520	1,187,362	2.7%
Total petrol without EtOH	17,139,504	16,649,736	-2.9%
Total petrol with EtOH	18,296,024	17,837,098	-2.5%
Percentage of EtOH by volume in petrol	6.0%	6.3%	

Source: BAFA

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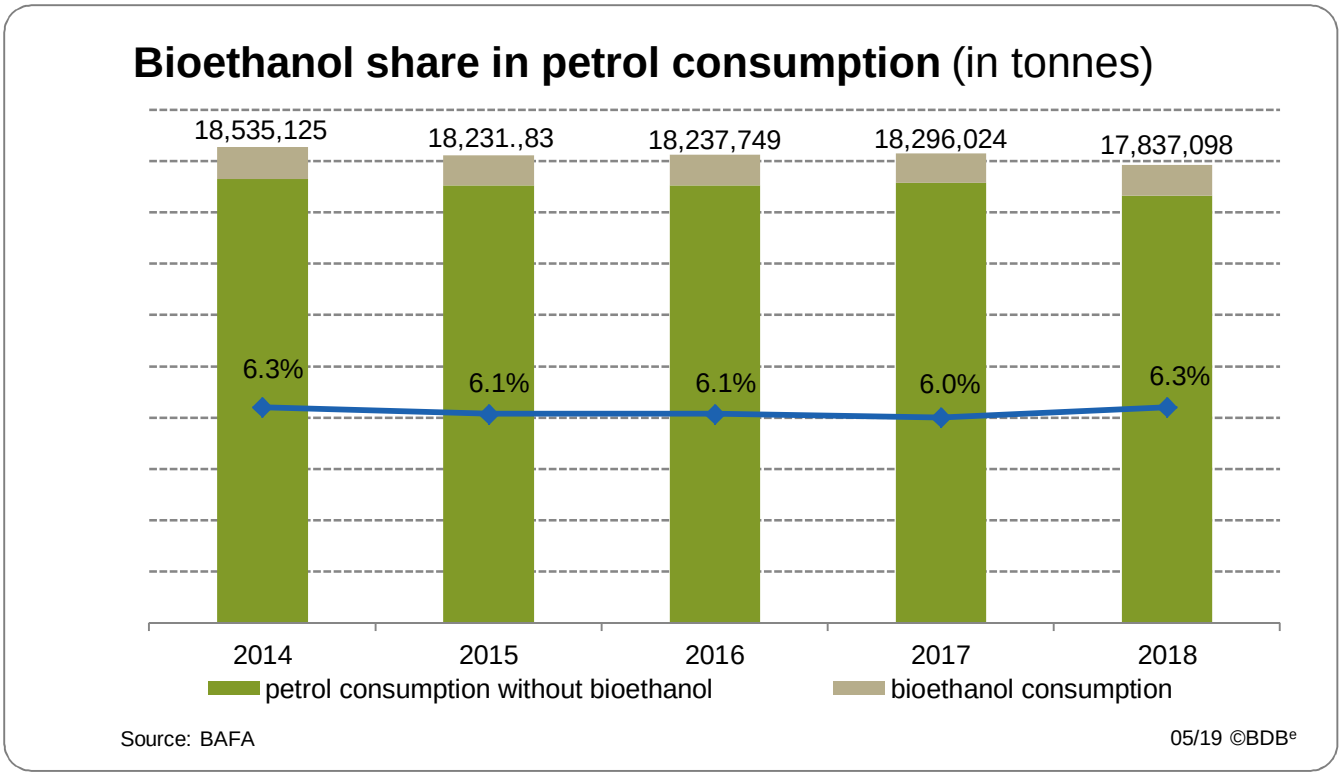

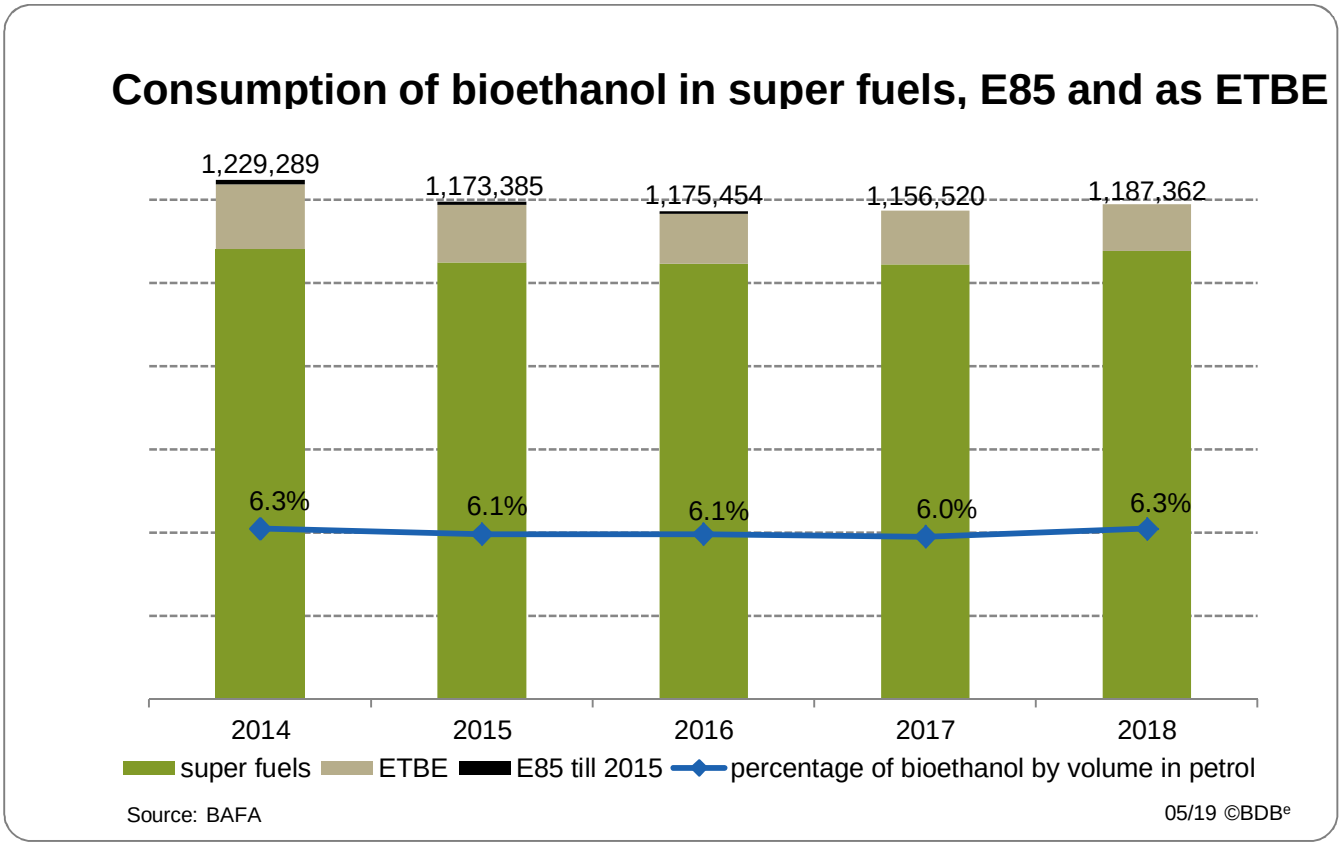

At 14.7 million tonnes in 2018, Super E5 achieved a slightly higher market share of 82.5%. In the previous year, the figure was 15.0 million tonnes, which represents a market share of 82.1%. Super Plus, which is also mixed with up to 5.0% bioethanol, had a market share of around 810,000 tonnes, roughly the same as in the previous year at 4.5%.

Sales of Super E10 fuel, which contains up to 10% bioethanol, decreased slightly in 2018 to 2.3 million tonnes, which is equivalent to a market share of 12.9%. The figure was 13.4% the previous year.

Petrol types 2017 and 2018 (in tonnes)				
	2017	**Market share 2017**	**2018**	**Market share 2018**
Super Plus	830,289	4,5%	810,650	4,5%
Super (E5)	15,023,928	82,1%	14,717,831	82,5%
Super E10	2,441,807	13,4%	2,308,617	12,9%
Total	**18,296,024**		**17,837,098**	

Source: BAFA ©BDBe as of 05/19

3. Outlook 2019

The discussions about meeting climate change mitigation targets, especially in the transport sector, about the necessary measures such as higher prices for fossil-based fuels, the promotion of electromobility and the use of alternative fuels are also raising public awareness of the potential biofuels have to lower CO_2 emissions. The consumption of bioethanol in petrol is already reducing CO_2 emissions in the transport sector by 3.1 million tonnes.

At the end of 2019, Germany will introduce climate change mitigation legislation describing concrete measures to reduce greenhouse gases harmful to the climate by 2030. In addition, Germany must also meet its international climate change mitigation obligations and submit concrete ideas for achieving its climate change mitigation targets to the European Commission by the end of the year.

Against this background and due to the increase in the greenhouse gas savings quota for all fuels from 4% to 6% from 2020, which has already been enshrined in law, the BDBe assumes that there will be positive effects on the German and European bioethanol market as early as 2019.

In addition, comparative tests initiated by the BDBe at the beginning of 2019 showed that the use of Super E10 not only significantly reduces CO_2 emissions, but also nitrogen oxide and particulate matter emissions from petrol engines. This was the result of roller-type bench tests for five cars from different vehicle classes, alternating between Super E10 and Super (E5). The increased consumption compared to Super (E5) due to the lower calorific value of bioethanol compared to mineral oil, feared by many when Super E10 was introduced, was not confirmed by the extensive tests which applied the new WLTP measurement method.
In order to dispel the remaining uncertainty among some car drivers with regard to the compatibility of their engines with Super E10, the BDBe published the information platform www.e10tanken.de with reliable manufacturer information on all passenger cars registered in

the EU. Since the ADAC and other online advisory sites have started to reference this information platform, awareness has increased and the BDBe assumes that this will have a positive effect on the sales of Super E10.

*The Bundesverband der deutschen Bioethanolwirtschaft (BDBe) represents the interests of the biofuel sector's member companies and associations, spanning agricultural production of the raw materials all the way to industrial production and processing of bioethanol and all by-products. Co-products include DDGS, CDS, biogenic carbonic acid, gluten, yeast, biomethane and organic fertilisers. For fuel uses, beverages and food or the chemical industry, bioethanol with different classifications is produced from feed grain, sugar beet or biogenic waste and residues. In Germany, the types of petrol currently available at petrol stations contain between 5% and 10% certified sustainable bioethanol.