

UNION ZUR FÖRDERUNG VON OEL- UND PROTEINPFLANZEN E.V.



Good reasons for biofuels

Facts about the continuation of decarbonisation in road transport

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Market situation for agricultural commodities precarious!	6
Importance for agricultural sector.....	8
Securing domestic protein feed production	10
Biofuels: A global market with global rules.....	12
Vegetable oil production growing more strongly than demand	14
Germany: Requirements to minimise greenhouse gases, driver for efficiency in minimisation of raw biomass consumption, greenhouse gas minimisation and costs	16
Climate protection in the agriculture and forestry sector	18
Road transport: Decarbonisation only possible together	20
Survey confirms: Consumers have positive image of biofuels	22
That's what we want!	24

Introduction

Human-caused climate change is a natural disaster which measured by geological standards is already occurring at a rapid pace and is already visible and noticeable. Agriculture is immediately affected by these changes. It is also part of the solution and contributes to the reduction of greenhouse gas emissions. The Climate Action Plan 2020 and Climate Plan 2050 show the challenges of adapting to the decarbonisation of road transport. This has to involve almost no fossil fuels by 2050. Sustainably certified and greenhouse gas-enhanced biodiesel

from rapeseed can – alongside other renewable fuels and engines – make a noticeable contribution to the decarbonisation of road transport and to the agriculture and forestry of today.

The Paris Agreement on Climate Change has been ratified by Germany and the European Union and now has to be implemented legally under international law. Germany is moving forward with the 2050 climate change plan.

The national action plans to be presented by the signatory states by 2020 will show how seriously these obligations are being taken. In the national action plans, biofuels from cultivated biomass will assume a central role in the decarbonisation of road traffic in the short to medium term. European – and particularly German – biofuel legislation will determine the design, development and implementation of sustainability at the global level.

In the post-2020 funding policy, there must also be a place for biofuels introduced to market from biomass cultivation.



Wolfgang Vogel, Chairman of UFOP

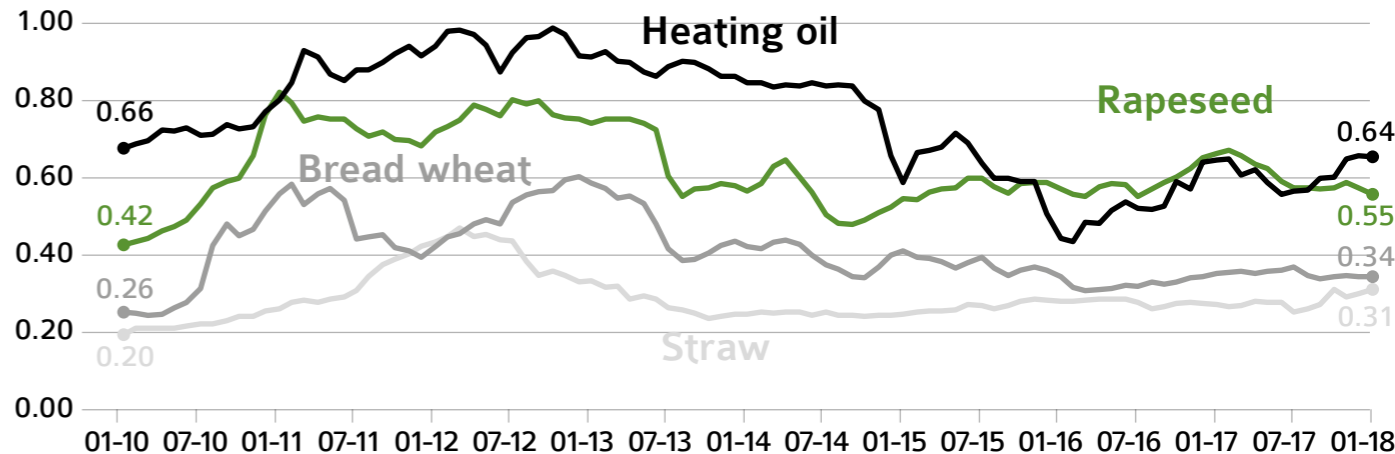
Market situation for agricultural commodities precarious!

Heating oil is more valuable than rapeseed and grain

- › For years, a dramatically low price level has determined yields on rapeseed and bread wheat.
- › Energy prices and prices for agricultural commodities are developing in opposite directions, agriculture is the 'brake on inflation'!
- › Additional demand for the urgently needed improvement in the prices for rapeseed and grain is not foreseeable. Practically no political discussions about the precarious market situation are taking place.
- › It is not appropriate to use a 'food vs. fuel' or 'iLUC debate' as an argument against sustainably certified biofuels.

Food cheaper than energy!?

Prices for bread wheat, rapeseed and straw as well as heating oil, converted into the heating oil equivalent, in euro per kg or l, incl. VAT



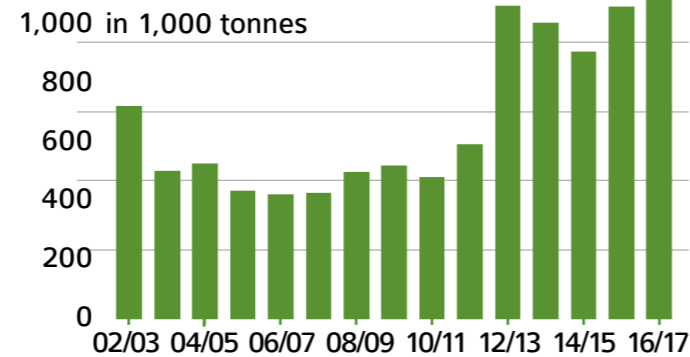
Conversion of producer prices for agricultural products with heating oil equivalent (1 l heating oil = 1.35 kg rapeseed = 1.95 kg bread wheat = 2.9 kg straw) as well as heating oil price for quantities over 3,500 l delivered free | Source: AMI

Importance for agricultural sector

Biofuels offer relief to agricultural markets, slowing the descent of producer prices

- Record harvests and surpluses dominate the global supply situation and compensate for lower crops in other regions, such as those currently in the EU.
- Record harvests in South and North America allow worldwide inventories to grow.
- However, the price of the raw material determines the end use. Food use has always taken precedence over energy use due to the higher net value.

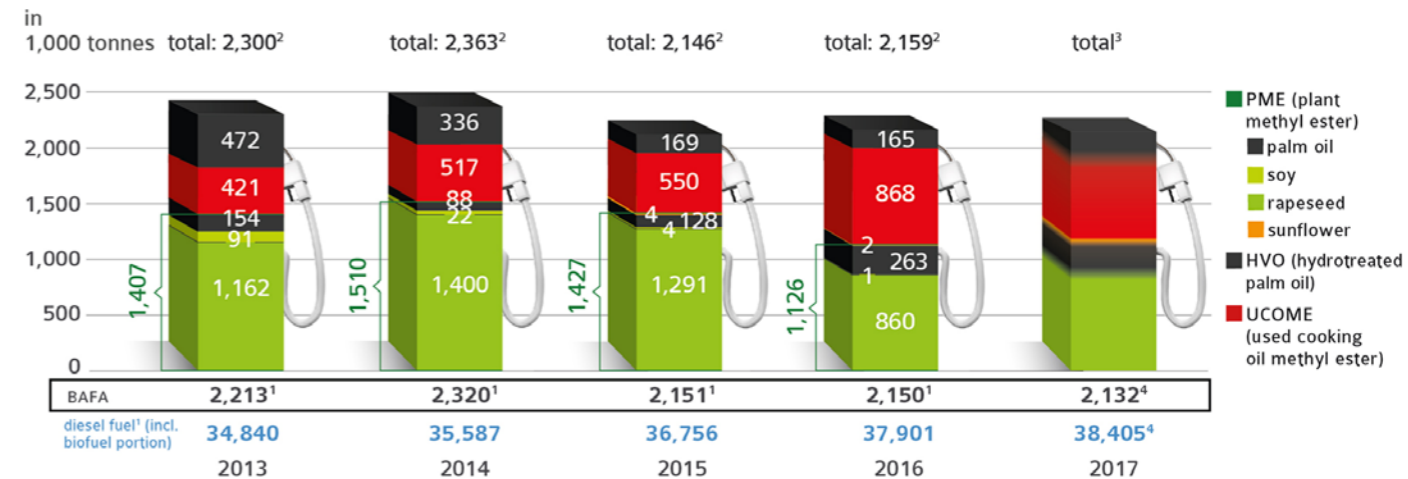
German rapeseed oil exports at record levels



© Sources: Statistisches Bundesamt, AMI

Biodiesel: Development of sales and raw material composition

Domestic consumption 2013–2017¹ | Quota assessment²

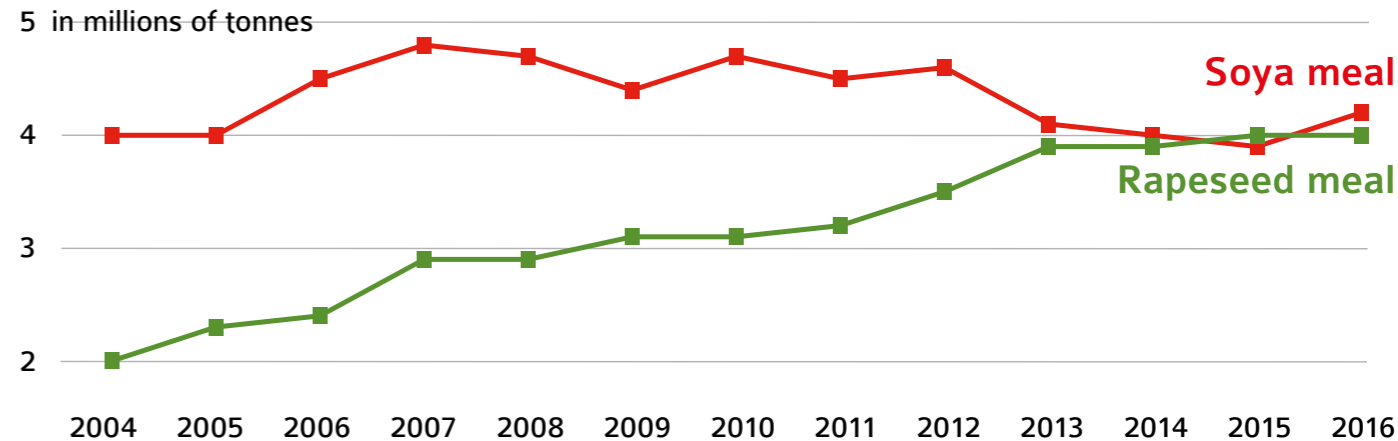


Sources: ¹BAFA, ²BLE, ³BLE Evaluation and Progress Report 2017 expected for October 2018, ⁴projection according to BAFA monthly inputs

Securing domestic protein feed production

- › Rapeseed is the most important GMO-free protein source in Germany and the EU. The German and European protein plant strategy is therefore based on rapeseed.
- › Rapeseed cultivation reduces soya imports and thus also 'surface imports' and 'raw material imports'.
- › Rapeseed meal use is particularly increasing in dairy cattle feeding.
- › The Deutsche Milchkontor (DMK) is the largest cooperative dairy in Germany. Of 7.3 billion kilograms from 8,600 farms in 2017, the share of GM-free milk was 31.5 per cent (2.3 billion kilograms)!
- › 2015 was the first year in which more rapeseed meal was used for feeding than soya meal.
- › In addition, rapeseed is as a flowering plant essential in grain-rich crop rotations.

What do German farmers use as feed?



© OVID 2017 | Sources: Oil World, UFOP, DLG Futterwerttabelle, BMEL, Eurostat

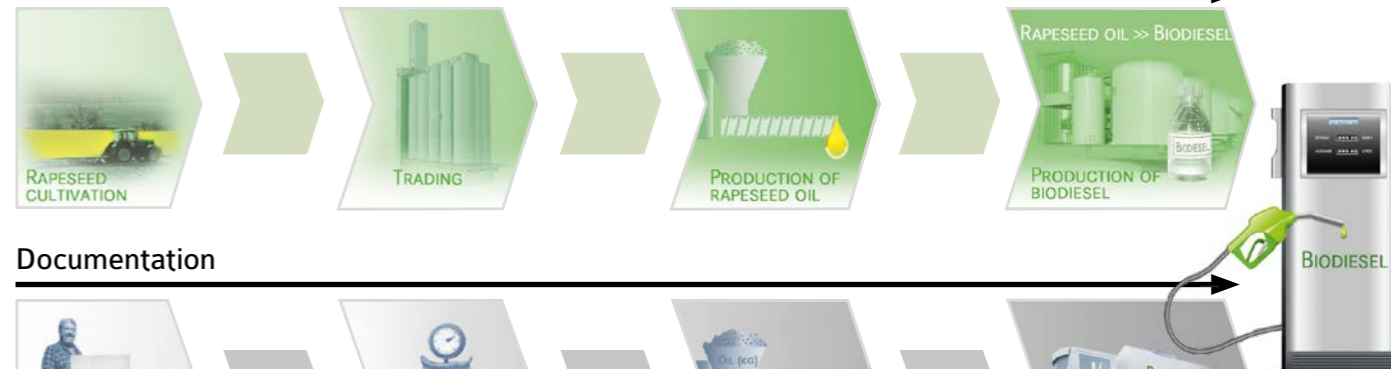
Biofuels: A global market with global rules

(indirect) land use change – a question of monitoring!

- › EU rapeseed farming areas in the last ten years roughly constant: 6.5 million hectares.
- › EU biodiesel sales from rapeseed since 2008: About 6 million tonnes per year, which corresponds to approx. 4.3 million hectares cultivated per year.
- › The sale of biodiesel secures the profitability of rapeseed cultivation and, therefore, the GM-free protein feed production of approx. 8.5 million tonnes.
- › EU biofuel policies – no scientific proof possible of cause-effect relationship for iLUC.
- › iLUC factors punish European oilseed producers!
- › **Primeval forest protection is an immediate government task and cannot be solved by means of iLUC factors – therefore: Enforce the ban on the use of palm oil, as called for by the European Parliament.**

Certification and documentation of biodiesel

Production pathway



Documentation



Traceability

Vegetable oil production growing more strongly than demand

- › The global production of vegetable oil is growing steadily and especially that of palm and soybean oil.
- › Soya meal (protein) demand is driving acreage development in South America.
- › Palm oil and soya oil production is increasing although the biofuel industry in the EU is stagnating.
- › Germany exports rapeseed oil because sales of biodiesel are stagnating.
- › Abundant sources for food or material use.

- › **Path in third countries: Increasing commitment targets for blending biodiesel into diesel fuels.**

Biofuel mandates*

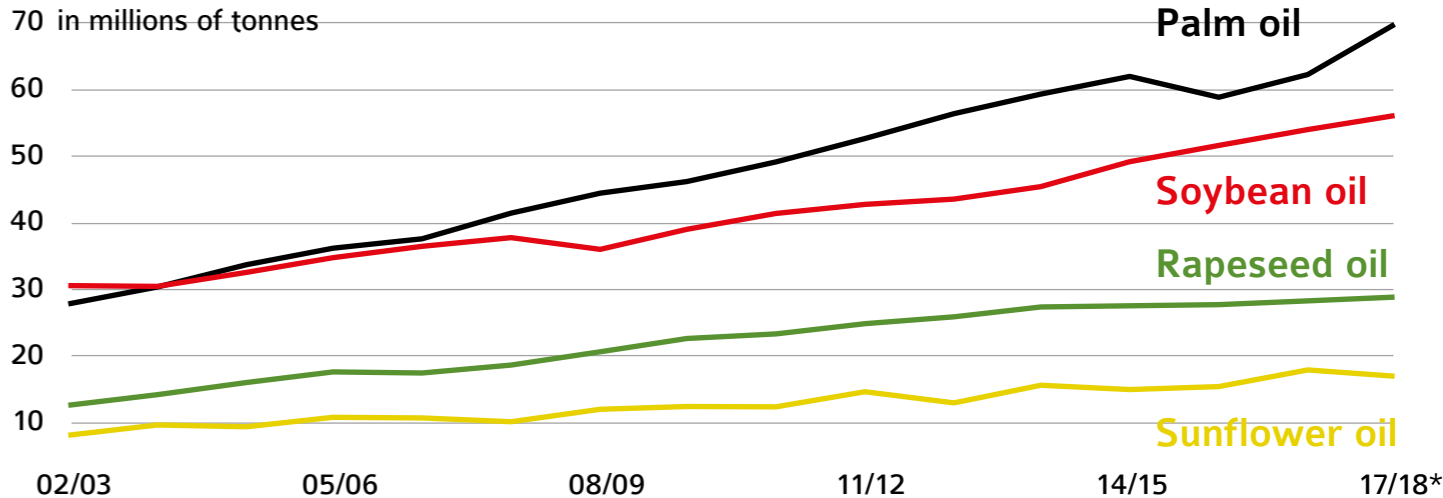
Biofuel mandates %	2015	2016
Indonesia	15	20***
Malaysia	10 (7)	10 (7)
Argentina	10	10
Brazil	7	7 20/30**
Thailand	7	7
USA RFS Program	5.8 million tonnes	6.3 million tonnes ****

* Higher outside EU

** Truck fleet test for market introduction

*** 20% → CHP units (industry) | **** 2017: 6.7 million tonnes

Global vegetable oil production



© Sources: USDA, AMI | * Estimation

Germany: Requirements to minimise greenhouse gases, driver for efficiency in minimisation of raw biomass consumption, greenhouse gas minimisation and costs

Greenhouse gas reduction drives GHG competition – climate protection potential not exploited

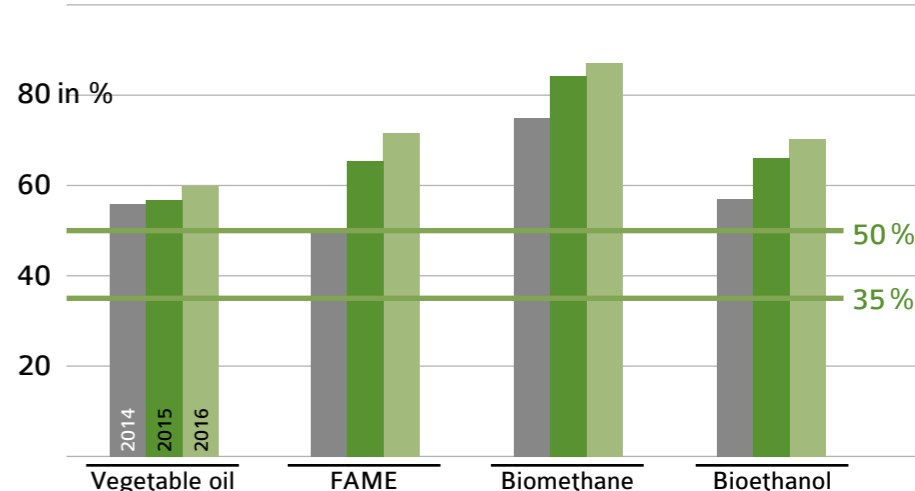
- › BLE, Germany's Federal Office for Agriculture and Food, confirms vastly improved greenhouse gas efficiency.
- › GHG reduction must be geared towards the blending proportions stipulated by standards for biofuels (E10, B7, B30).
- › Stabilised, gradual increase of GHG reduction duties is appropriate, the obligated parties and the biofuel industry can adjust flexibly.
- › Biodiesel is currently the only full-coverage option for the decarbonisation of heavy goods traffic and non-road-based machines (agriculture, construction and forestry) with high power requirements in the diesel market.
- › The GHG reduction potential can be enhanced **immediately** in existing vehicle fleets.
- › **2016: Contribution of biofuels to greenhouse gas reduction: 7.3 million tonnes.**

GHG reduction rate*

	Current legislation	Proposal: UFOP, VDB, OVID, MVaK**
2015	3.5	3.5
2016	3.5	4.0
2017	4.0	4.5
2018	4.0	5.0
2019	4.0	5.5
2020	6.0	6.0

* Of total diesel and petrol amounts (in %)
 ** German Waste-based Biofuels Producers Association

GHG savings for biofuels***



Source: © BLE | *** From sustainability proofs in the state database Nabisy (savings compared to the default value for fossil fuel (83.8 g CO₂eq/MJ) and without taking their use (type, member state) into consideration)

Climate protection in the agriculture and forestry sector

Certified sustainable and GHG-optimised biofuels create added value

- › The use of vegetable oil fuels in the agriculture and forestry sector enables regional material cycles ('oat principle').
- › Public acceptance extraordinarily high.
- › Due to the high energy density, decarbonisation can only be initiated with biofuels (performance requirements: Fieldwork, harvesting etc.).
- › **Climate Protection Plan 2050**
 - › GHG reduction commitment agriculture: -34%!
 - › Fuel consumption agriculture approx. 1.5 million t, equivalent to approx. 4 million t of equivalent CO₂.
 - › Target: 100% vegetable oil fuel use – GHG efficiency: 65%.
 - › GHG avoidance potential: Approx. 2.5 million t equivalent CO₂.
 - › Land requirement: Approx. 1 million ha of rapeseed of 1.3 million ha in Germany.

National Climate Action Plan 2050 – GHG reduction targets

Action area	1990*	2014*	2030*	2030**
Energy sector	466	358	175–183	62–61 %
Buildings	209	119	70–72	67–66 %
Transport	163	160	95–98	42–40 %
Industry	283	181	140–143	51–49 %
Agriculture	88	72	58–61	34–31 %
Sub-total	1,209	890	538–557	56–54 %
Other	39	12	5	87 %
Total	1,248	902	543–562	56–55 %

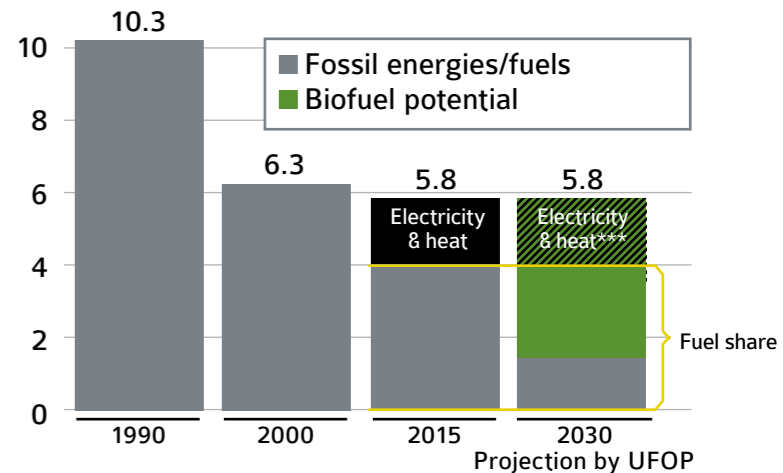
* Emissions in million tonnes of equivalent CO₂

** Reduction target in % compared to 1990

Source: Climate Protection Plan 2050 (14 November 2016)

Agricultural emissions through energy use

In million tonnes of equivalent CO₂



*** GHG reduction potential through the use of electricity and heat from biogas plants, wind power and photovoltaics

Source (until 2015): National greenhouse gas inventory reports | © DBV

Road transport: Decarbonisation only possible together

Challenge: Road traffic fuel consumption in Germany in 2017: Approx. 37 million tonnes of diesel and about 18 million tonnes of petrol

Understanding and 'driving' decarbonisation of traffic as an evolutionary process:

- › Modal shift of transportation.
- › Greenhouse-gas-efficient biofuels.
- › Gradual electrification – hybridisation strategy.
- › More efficient engines.

Challenge:

Use biofuels to reduce greenhouse gases now!

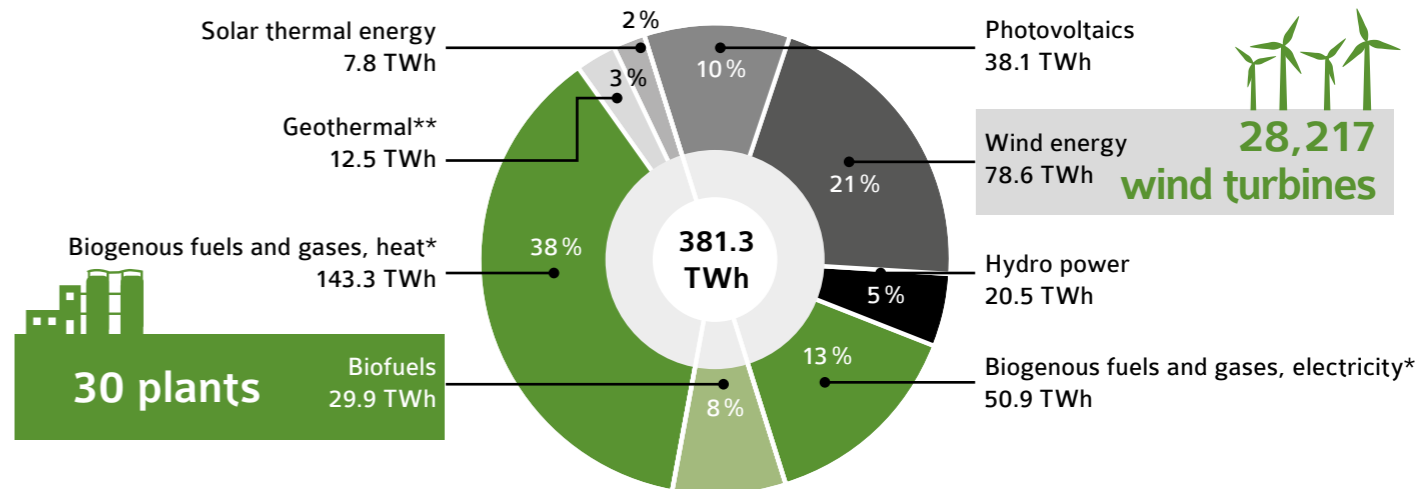
- › Use sustainably certified and greenhouse-gas-optimised biofuels in existing vehicle fleets.
- › Biofuels as a blend component in plug-in hybrid vehicles.
- › Key problem of heavy traffic: Advantage of high energy density in biofuels.

The challenge of public acceptance – where does renewable electricity come from?

- › Situation: Biofuels are the only significant alternative with 6.2% market share.
- › About 30 biofuel plants provide as much energy as around 9,250 wind turbines.
- › GHG efficiency and innovation determine market access: Competition open to biomass raw materials and technology.

Energy supply from renewable energy sources (2016)

About 30 biofuel plants provide as much energy as about 10,700 wind turbines



© Umweltbundesamt (UBA) on the basis of AGEE statistics, time series of the development of renewable energy in Germany, information current as of December 2017 | * With biogenic share of waste | ** Electricity production from geothermal power 0.1 TWh (not separately shown)

Survey confirms: Consumers have positive image of biofuels*

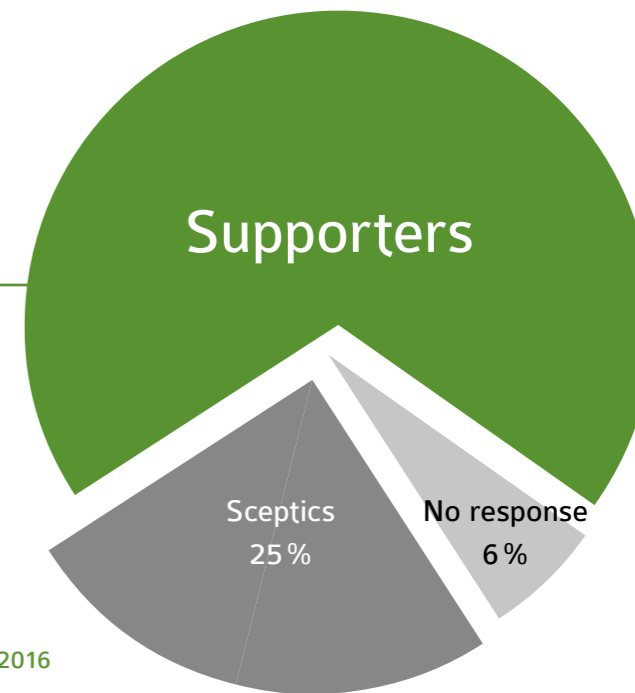
Misjudgement regarding the image of biofuels inhibits politicians

- › 69 per cent of Germans have positive image of biofuels.
- › Criticism of the sustainability of biofuels is perceived.
- › According to a survey by TNS Infratest (2016), sceptics change their mind after receiving factual information.
- › The survey shows the basic need for information on the use of biomass, independent of whether a case of energy or material usage.
- › **Required: More public relations work and factual information.**

* Consumer survey biofuels, release of UFOP, OVID, VDB; (2016)

What does Germany think about biofuels?

69 %
of the population views
biofuels as generally
a good thing



© Survey commissioned by UFOP, OVID, VDB; first quarter of 2016

That's what we want! – Increase the greenhouse gas reduction potential of the agricultural sector as an energy supplier and user, create perspectives and acceptance

Design of funding law frameworks for a sustainable and balanced biofuels policy after 2020 – empower the agricultural sector

- › Retention of cap limit of 7 per cent for biofuels derived from cultivated biomass after 2020 as a 'iLUC-free base amount'. not possible – models are no basis for decision-making.
- › Land use changes must be tackled and supervised as soon as possible, through intergovernmental agreements and compensation offers. › iLUC/dLUC concerns all uses of palm oil, an independent and transparent sustainability certification has to be implemented by law! Voluntary certification systems are weak in terms of sanctions.
- › The 'iLUC position' of the European Commission cannot be the basis for the political decision – scientific proof of a cause-effect relationship is. › Introduction of requirements to mitigate greenhouse gases in the EU.

- › Gradual increase of greenhouse gas mitigation requirements.
- › Alternative fuels and drives must be affordable as a prerequisite for a possible timely market penetration without subsidies.
- › With competition, funding which is open in regards to technologies and raw materials is a driver of a preferably also cost-efficient use of certified sustainable biomass resources (including residues such as straw).
- › Evolutionary development of alternatives in order to reduce supply risks.
- › The hybridisation of power trains is the introductory phase, sustainably certified biofuels bridge the transition to pure electromotive drives and not biogenic fuels.
- › Forward projection of full tax relief for biofuels in agriculture and forestry sector.
- › Creation of the legal framework for agriculture, including in the energy tax, to be able to bring quantities of biofuels into greenhouse gas quota trading.

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Claire-Waldoff-Str. 7 · 10117 Berlin, Germany
info@ufop.de
www.ufop.de

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Claire-Waldoff-Straße 7 · 10117 Berlin, Germany

info@ufop.de
www.ufop.de