



Bundesministerium für
Ernährung, Landwirtschaft
und Verbraucherschutz

Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

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Biofuels Roadmap

Joint Strategy between
BMU/BMELV, VDA, MWV, IG, VDB and DBV*

At the round table discussions on biofuels held on 17 January and 5 June 2007 respectively, a joint strategy to promote biofuels – the Biofuels Roadmap – was agreed between Germany's automotive industry, oil industry, SMEs operating in the oil industry, agricultural sector, Federal Environment Ministry (BMU) and Federal Ministry for Food, Agriculture and Consumer Protection (BMELV). The Roadmap sets out the medium-term measures needed to promote the use of biofuels in Germany and the EU.

The Roadmap has the following aims:

- Increase the use of biogenic fuels overall and increase fuel-mix ratios for biodiesel to diesel and for bioethanol and bio-ETBE to petrol
- Set more ambitious biofuel targets
- Secure sustainable use of biofuels and achieve ongoing improvements in carbon efficiency
- Promote second generation biofuels

Raising the Fuel-Mix Requirements

In accordance with the EU Fuel Quality Directive and other prevailing fuel quality standards, no more than five percent bioethanol may be mixed with petrol and no more than five percent biodiesel with diesel. The threshold for ETBE is fifteen percent. This means that fuels with blends exceeding five percent of biodiesel or bioethanol and more than fifteen percent ETBE may not be marketed as standards-compliant diesel or petrol. The five percent threshold is equivalent to 3.3 percent for bioethanol to petrol relative to energy content and 4.4 percent for biodiesel to diesel.

To meet the prescribed targets (for Germany: 6.25 percent by 2009 and 6.75 percent by 2010; for the EU: 8 percent by 2015 and 10 percent by 2020 relative to energy content) as cost-effectively as possible, the fuel-mix quotas for biodiesel to diesel and bioethanol to petrol must be raised within the realm of available technology. Fuels with a higher percentage of biogenic components should be made suitable for use in existing and newly manufactured vehicles.

In the case of petrol, raising the fuel-mix quota from 5 to 10 percent would pose few problems. Work is already underway on the necessary standards at national and EU level. The automotive industry has agreed to approve the use of E10 in accordance with national standards in the near future. This will likely occur in advance of any EU standards being implemented.

Existing vehicles that cannot run on E10 must use a premium fuel, Super Plus, with a blend of no more than 5 percent bioethanol or 15 percent ETBE (equivalent to 7 percent ethanol). By 2016 this premium fuel must be available country-wide at at least 1,000 specially installed fuel pumps. These pumps will be made available by the oil industry and by SMEs relative to their shares in the fuel market.

In the case of diesel, the automotive industry will shortly approve B7 for use in all passenger vehicles. Work is now in progress on the necessary standards at national and EU level, the ultimate aim being to develop a unified standard that will apply throughout the EU. Subordinate legislation will be issued to allow timely approval for hydrated plant oils mixed with oil to be counted towards the quota. This will allow a 10 percent biofuel mix, comprising 7 percent biodiesel and 3 percent hydrated plant oils, to be achieved during the refinery process.

For biofuels to be approved, their environmental benefits as regards the carbon balance must be identified and the crops they derive from must be certified as having been produced under sustainable conditions.

If used in the right way, the requirements for engines to run on fuel mixes with higher biofuel components have already been fulfilled in heavy vehicles. Based on customer demand and in line with the changes in fuel quality requirements, the automobile industry will continue to approve heavy vehicles for B100 biodiesel (RME) use. It will also offer more flexible fuel passenger vehicles (FFVs) that can run on fuel containing up to 85 percent ethanol (E85).

Setting More Ambitious Biofuel Targets

The Biofuels Directive requires that Member States achieve an indicative target of replacing two percent of petrol and diesel consumption with biofuels in 2005, increasing to 5.75 percent by 2010, calculated on the basis of energy content in each case.

When the EU Commission launched its Energy Package on 10 January 2007, it also announced its intention to propose a binding 10 percent target for biofuel use by 2020. Subsequently, on 9 March 2007, the European Council called for a binding 10 percent target by 2020 for all EU Member States. This is expressly welcomed. The target's binding nature is linked to securing sustainable use of biofuels, ensuring commercial availability of second generation biofuels and appropriate amendments to the EU's Fuel Quality Directive to provide for adequate fuel-mix ratios.

The Commission's proposal to amend the Fuel Quality Directive also contains a decarbonisation strategy which provides for an annual one percent reduction in emissions in the fuel sector between 2011 and 2020. It makes sense, therefore, to analyse biofuel use relative to the potential reduction in emissions. Reductions already achieved by the Member States should, of course, be taken into account.

The findings of studies commissioned by the German government have shown that in energy policy terms an increase in biofuel use to 17 percent is ambitious but doable.

Worthy of note as regards petrol are a higher blend of alcohol and E85. Synthetic biofuels are also thinkable.

To increase the ratio of biodiesel to diesel to 20 percent by 2020 and to clarify the details of how the additional 10 percent biodiesel in the diesel fuel-mix might be technically made possible, the German government, in consultation with the industry associations involved, will devise a joint strategy and time corridor.

As its contribution to sparing valuable resources, the automotive industry will continue its efforts to reduce fuel consumption. The combination of lower fuel consumption and a greater share of biofuels in fuel supply is the key to achieving climate change and energy policy goals.

Sustainable Biomass Production and Greater Emissions Reduction Potential

The German government intends to make the earliest possible use of the provisions contained in the Federal Biofuel Quota Act (*Biokraftstoffquotengesetz*), whereby biofuels may only be counted towards the prescribed quotas or are only subject to tax concessions if the biomass used in their production is certified as originating from sustainably managed arable land or meets specific requirements for the protection of natural habitats or if the energy produced promises a specific degree of potential as regards greenhouse gas reductions. These provisions include crop-growing standards and rules designed to prevent the production of biomass crops destroying or having an adverse effect on conservationally valuable natural habitats. To ensure compliance with such minimum requirements, use may be made of yet-to-be-established national, EU and international certification schemes. The German government is currently working apace on appropriate draft legislation.

The German government will also work to promote bilateral cooperation with partner countries to ensure biomass crops are produced under sustainable conditions and pose no threat to food crops. An integrated approach is needed if we are to reduce greenhouse gas emissions in the transport sector.

Promoting Second Generation Biofuels

Second generation biofuels promise huge benefits when it comes to environment protection and security of supply: raw materials (e.g. waste wood and straw) are far more suited to the production of second generation biofuels than to first generation biofuels. Also, forecasts show that the energy yield per land unit is more than double and the emissions balance is considerably better than with first generation biofuels. The use of second generation biofuels will likely bring a further significant increase in biofuels produced from domestic raw materials.

Tax concessions on second generation biofuels and allowing them to be counted towards prescribed biofuel quotas until 2015 is an important incentive for investment, both in research and development and also in production facilities.

The current legal definition of biofuel takes in the following forms:

- Synthetic hydrocarbons or synthetic hydrocarbon mixes produced by thermo-chemical conversion of biomass
- Alcohols produced using biotechnology processes to break down cellulose
- Energy products containing between 70 and 90 percent bioethanol

A demonstration facility for BtL fuel production is currently being built in Freiberg, Saxony, and is expected to go into operation in 2007. Should it prove a success, the company intends to press forward with plans for mass production. Issues concerning viability, life-cycle assessment and potential technical risks are to be clarified without delay. Another company is now looking to build a facility for bioethanol production using enzyme hydrolysis of lignocellulose in Germany.

Whether or not mass production of second generation biofuels is viable remains to be seen. Further action will focus on the experience gained during the initial phase. The oil industry supports the advancement of second generation biofuels, especially in the R&D sector. With things as they stand, no reliable conclusions can be drawn as regards the possibility of building a mass production facility. A number of concerns remain, not least that of planning and investment security for the period after withdrawal of tax concessions in 2015 because BtL will not be marketable without subsidies of one kind or another.

To provide additional investment incentive and secure potential for the period beyond 2015, subordinate legislation is needed which requires biofuels to be assessed for their contribution to greenhouse gas reductions under the decarbonisation strategy. This would result in biofuels with an acceptable greenhouse gas balance receiving a higher factor in the calculation towards prescribed biofuel quotas, thus giving them preference over other types of biofuels.

* Abbreviations:

BMU	<i>Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit</i> (German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)
BMELV	<i>Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz</i> (German Federal Ministry for Food, Agriculture and Consumer Protection)
VDA	<i>Verband der Automobilindustrie</i> (German Association of the Automotive Industry)
MWV	<i>Mineralölverschäftsverband e.V.</i> (Association of the German Petroleum Industry)
IG	<i>Mittelständische Mineralöl- und Energiewirtschaft Deutschland e.V.</i> (as of 1 January 2008; formerly IG Interessengemeinschaft mittelständischer Mineralölverbände e. V. – an association of German SMEs in the petroleum and energy industries)
VDB	<i>Verband Deutscher Biodieselhersteller</i> (Association of the German Biofuel Industry)
DBV	<i>Deutscher Bauernverband</i> (German Farmers' Association)