Fact sheet

Good bye Germany: The fast lane for environmentally friendly mobility leads to the USA

- Advanced second generation biofuels
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Advanced second generation biofuels

Advanced second generation biofuels include all biofuels which are manufactured using raw materials which are not sources of foodstuffs and are from waste materials. This includes biodiesel from used fat as well as other sources, for example biomethane from 100 percent straw – a biofuel for natural gas-powered vehicles which can demonstrate 90 percent CO_2 savings, fine-particle and nitrogen oxide savings, as well as the highest efficiencies/driven km and competitive production costs.

38th BImSchV

The 38th Regulation on the Implementation of the Federal Emissions Protection Act was enacted by the Federal Government at the end of 2017 (38th BImSchV). The regulation entered into effect from January 1, 2018 and is intended to implement the EU directives 2015/652 and 2015/1513 for conventional and alternative fuels and directive 2009/28/EC to promote the use of energy from renewable sources in the transport sector. Previous regulations obliged companies bringing fuels into circulation to reduce the greenhouse gas emissions of these fuels by a specific legally-set percentage compared to the reference base value of a fossil fuel (**see GHG quota**).

On implementation of the new regulation the base value of fossil fuel was increased from 83.8 to 94.1 kilogram carbon dioxide equivalent/Gigajoule (kg CO_2eq/GJ). In future the GHG quota can be met by using various additional non-biogene fuels (including CNG, LPG and LNG, as well as hydrogen from natural gas with steam reforming) as well as further biogene fuels (e.g. biogene liquid gas, electricity-based fuels). A minimum quota for advanced second generation fuels is introduced. The minimum quota increases in stages from 0.05 percent in 2020 to 0.5 percent in 2025.

www.gesetze-im-internet.de/bimschv_38_2017/BJNR389200017.html.

UER-Regulation

The regulation for crediting upstream emission reductions for greenhouse gas quota purposes (UERV) came into effect on January 22, 2018. It supports the implementation of the council directive EU 2015/652 dated April 20, 2015 to determine the calculation method and reporting obligations for the quality of petrol-based and diesel fuels under the directive 98/70/EC of the European Parliament and the European Council. The regulation is intended to enable the crediting of so-called upstream emissions reductions (UER) for greenhouse gas reduction purposes. UERs

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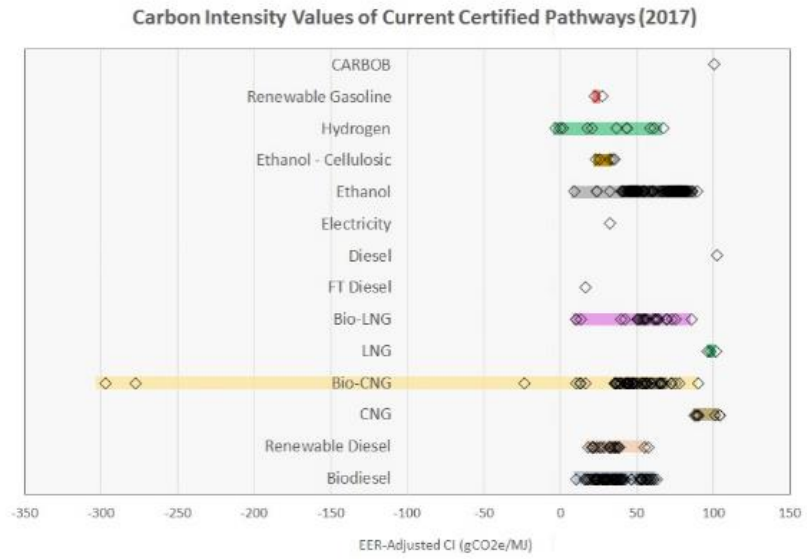
are exclusively greenhouse gas emission reductions made in the supply chain before the raw materials reach the refinery or processing plant stage. This is based on meeting the 2020 6 percent greenhouse gas reduction quota. This regulation means that measures taken to reduce CO_2 emissions, for example in the oil extraction process on location at the source of the oil, also reduce the CO_2 balance of fuels used in Germany, despite the fact that those measures will have no direct effect on actual CO_2 emissions in Germany itself since the oil extraction will not take place in Germany.
www.gesetze-im-internet.de/uerv/BJNR016900018.html

California Air Resources Board (CARB): RNG

The California Air Resources Board (CARB) is a government commission established in the State of California, USA. This consultancy body has been in existence since 1967 and has an international reputation for particularly strict legislation proposals concerning air quality. The CARB has recently recognised “Renewable Natural Gas” (RNG), the English language term for “renewable methane” or biomethane, as the cleanest fuel source – cleaner than electro mobility. This is based on a calculation model that takes account of the reduction in methane emissions which result from converting agricultural waste products such as liquid manure or straw in determining the carbon intensity value, as these would otherwise be released into the atmosphere. As a result, RNG even achieves significant levels of negative emission levels (see illustration).



Source: https://zack-cupkovic-096t.squarespace.com/resources/rng-101/

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GHG quota

In Germany the greenhouse gas quota (GHG quota) has been in force since January 1, 2015, enacted in § 37a of the Federal Emissions Protection Act (BImSchG). This requires all fuel providers to achieve specific greenhouse gas savings in comparison to a pre-determined reference value from 2015 onwards:

1. from 2015: 3.5 percent,
2. from 2017: 4.0 percent, and
3. from 2020: 6.0 percent

The reference value used for greenhouse reduction purposes is calculated based on the CO_2 equivalent, expressed in kilograms per gigajoule equivalent (kg CO_2eq/GJ). On implementation of the 37th BImSchV the reference value was 83.8 kg CO_2eq/GJ, and this was increased on implementation of the 38th BImSchV to 94.1 (kg CO_2eq/GJ) **(see 38th BImSchV).** www.gesetze-im-internet.de/bimschg/__37a.html

VERBIO-Technology: Straw biomethane plant

VERBIO AG currently has three biomethane plants which generate biomethane wholly from waste materials. The plants use VERBIO's own technology in an anaerobic fermentation process using distillation waste, which is a residual waste product from ethanol production, or straw, a waste product from regional agriculture. The capacity of VERBIO's plants ranges from 15 to 65 MW. VERBIO has been operating the world's first large-scale biomethane plant based on 100 percent straw since 2014. The second plant of this type will be connected to the grid in the spring of 2019. According to a study published by the German Biofuels Research Center (Deutsche Biomasseforschungszentrum Leipzig – DBFZ), between eight and thirteen million tonnes of straw remain unused in Germany every year, meaning that these are available for the generation of biofuels. In the last financial year VERBIO generated 600 GWh of biomethane from waste materials. With this, VERBIO's current production alone could meet almost 25 percent of German demand for CNG fuel. Four large bales of straw (2 tonnes) are sufficient to fuel a medium-sized CNG powered passenger vehicle for an entire year. At present CNG and biomethane are also the only CO_2 efficient alternative fuels for heavy goods vehicles used in long-distance transport.

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