

# **BACKGROUND PAPER**

## **German GHG quota | Quota fulfilment 2023**

**Karin Naumann, Karl-Friedrich Cyffka, Franziska Müller-Langer**

# 1 TABLE OF CONTENTS

1	Table of contents.....	II
2	Status quo of the GHG quota   Initial situation .....	3
3	Development to date   The market is undergoing massiv change .....	5
4	List of figures .....	14
5	Bibliography.....	15

**Publisher:** DBFZ Deutsches Biomasseforschungszentrum gemeinnützige GmbH  
 Torgauer Straße 116  
 04347 Leipzig  
 +49 (0)341 2434-112  
[info@dbfz.de](mailto:info@dbfz.de)  
[www.dbfz.de](http://www.dbfz.de)

**Date of publication:** 20.01.2025

**Citation suggestion:** Naumann, K.; Cyffka, K.-F.; Müller-Langer, F. (2024): Background paper relating the German GHG quota and the quota fulfilment 2023. Leipzig: DBFZ. January 2025

**Note:** Unless otherwise stated, the data and calculations are based on the BLE's evaluation and progress report on the Biofuel Sustainability Ordinance and the quota fulfilment statistics of the main customs office in Frankfurt (Oder).

In addition, the authors had access to disaggregated data for the years 2022 and 2023. Many thanks to the staff of the Federal Office for Agriculture and Food (BLE) for their cooperation, as well as for preparing and sending the data.

## 2 STATUS QUO OF THE GHG QUOTA

### INITIAL SITUATION

---

***Since 2015, the German GHG quota has become the most important instrument for reducing greenhouse gas emissions in the transport sector.***

---



The greenhouse gas reduction quota (GHG quota) obliges companies that distribute petrol and diesel fuel to reduce GHG emissions. So-called fulfilment options, such as electromobility and biofuels, are permitted. In accordance with the regulatory framework, specific requirements are associated with this, particularly with regard to the raw materials used for fuel production. The GHG reductions achieved must be reported to the customs quota office for each quota year. Compensation payments are levied in the case of non-fulfilment. It is possible to transfer one's own obligation to third parties within the framework of a contractual agreement. Trading with GHG quotas at corresponding quota prices is well established in this context, with these prices set in euros per tonne of CO<sub>2</sub> equivalents (CO<sub>2</sub>-eq) avoided depending on supply and demand according to the principle of a merit order (Dögnitz et al. 2023). Further information on the GHG quota can be found in a previous background paper (Naumann et al. 2022) and in DBFZ Report 44 (Schröder und Naumann 2022).



In order to address the so called “plate-or-tank debate” and to promote advanced feedstocks/technology options, **advanced biofuels** have been defined in addition to the specification of maximum quantities for conventional biofuels. Only certain feedstocks are authorised for advanced biofuels and, since 2020, they have received special support in the GHG quota insofar as they must be placed on the market in a minimum quantity (so-called sub-quota). In addition, quantities above this minimum sub-quota may be counted twice towards the GHG quota. The feedstocks for the production of advanced biofuels are defined in Annex IX A of the EU Renewable Energy Directive (2001/2018) or in Annex 1 of the 38th Federal Immission Control Ordinance; examples are biowaste, straw and liquid manure. Exceptions apply to POME (palm oil mill effluent) as a residual material from palm oil production; in accordance with § 37b (8) BImSchG, double counting above the sub-quota is actually not permitted. The sustainability of all biofuels that are to be included in the GHG quota must be certified and need to fulfil the standards defined at European level. The recording and monitoring of those is the responsibility of the certification systems, which must be recognised by the European Commission. The Federal Agency for Agriculture and Food (BLE) is responsible for approving and monitoring certification bodies.

---

**Questionable contributions to the fulfilment of the GHG quota  
reduce confidence in resilient framework conditions and thus  
hinder sustainable climate protection contributions in the transport sector.**

---



The framework conditions for the competition of fulfilment options have led to a pull for imported advanced liquid biofuels and thus to a change in the market situation in Germany. However, there is a concrete suspicion of fraudulent activity, especially in connection with advanced biodiesel: produced in China, imported to Germany and counted towards the German GHG quota for fuels.

In the case of the Upstream Emission Reductions (UER) fulfilment option, the suspicion of fraud has also become increasingly substantiated over the course of 2023 and 2024 and has now been confirmed for at least some projects in China.

If further allegations of fraud are confirmed to a significant extent, this could result in increased financial expenses under the EU Effort Sharing Regulation (ESR). According to estimates, potential payments for emission certificates due to a lack of climate protection efforts in the transport sector could already amount to around 16.2 billion euros by 2030 (Transport & Environment 2024a).



Furthermore, both cases have particular **consequences for companies** pursuing the production and provision of advanced fuels and renewable energies for the transport sector, which is only possible with the help of innovative technologies and in conjunction with financial risks. Due to a massive oversupply and the possible cases of fraud the GHG quota prices crashed (approx. 400 to 200 euros/t CO<sub>2</sub>-eq within a few months). This also has a massive impact on the profitability of these innovations due to significantly reduced revenues, which even reaches the point of jeopardising the existence or insolvency of well-known companies (dena 2024; Etzold und Naumann 2024). Numerous companies have joined forces in the 'Stop Climate Fraud Initiative' in the wake of the two allegations of fraud involving advanced biodiesel and UER from China. Companies in the German biofuel industry are even considering to claim damages against the Federal Ministry for the Environment for violation of official duties (Stratmann 2024).

### 3 DEVELOPMENT TO DATE

#### THE MARKET IS UNDERGOING MASSIV CHANGE

Due to the GHG quota, a total of 140 PJ of liquid and gaseous biofuels were used in Germany in 2023, corresponding to around 3.4 million tonnes of oil equivalent (Mtoe). The absolute amount of renewable energy carrier used has thus hardly changed compared to the previous year, as Figure 1 shows. Despite an increase in the GHG quota from 7 % to 8 % compared to the previous year, several aspects lead to a significantly higher GHG reduction than required (BLE 2024b), own calculations based on (Zoll 2024a, 2024b):

- Increasing specific GHG reductions of biofuels from 87.4 % to 90.2 % (weighted average),
- Increasing amount of double-counted advanced biofuels from 15 PJ to 54 PJ (Figure 3); with average specific GHG emissions of 11 g CO<sub>2</sub>-eq/MJ of waste-based biofuels in conjunction with the fossil comparative value of 94.1 g CO<sub>2</sub>-eq/MJ, this reduction in purely accounting terms corresponds to around 4.6 million tonnes of CO<sub>2</sub>-eq,
- Increasing virtual amount of the triple counted electricity from 12 PJ to 23 PJ, which corresponds to around 1 million tonnes of CO<sub>2</sub>-eq.

The very large quantities of advanced biofuels in particular have a major impact. They are in total far above the sub-quota. This overfulfilment can be carried forward to subsequent years as a credit or counted twice towards the overall quota (virtual). Both options are used on a large scale. In addition to the 6 PJ required to meet the sub-quota, 27 PJ are carried forward to the following year (exception for the years 2025 and 2026) and 54 PJ are counted twice in the GHG quota (see Figure 3).

The GHG reductions which not required to meet the quota are carried forward to the following year and now amount to 8.1 million tons of CO<sub>2</sub>-eq. The increase of this transferable amount (credit to following year) compared to the previous year amounts to 4.7 million tons of CO<sub>2</sub>-eq, which roughly corresponds to the emission reduction resulting from the virtual double counting of advanced biofuels.

Germany | Fulfilment options in the GHG quota

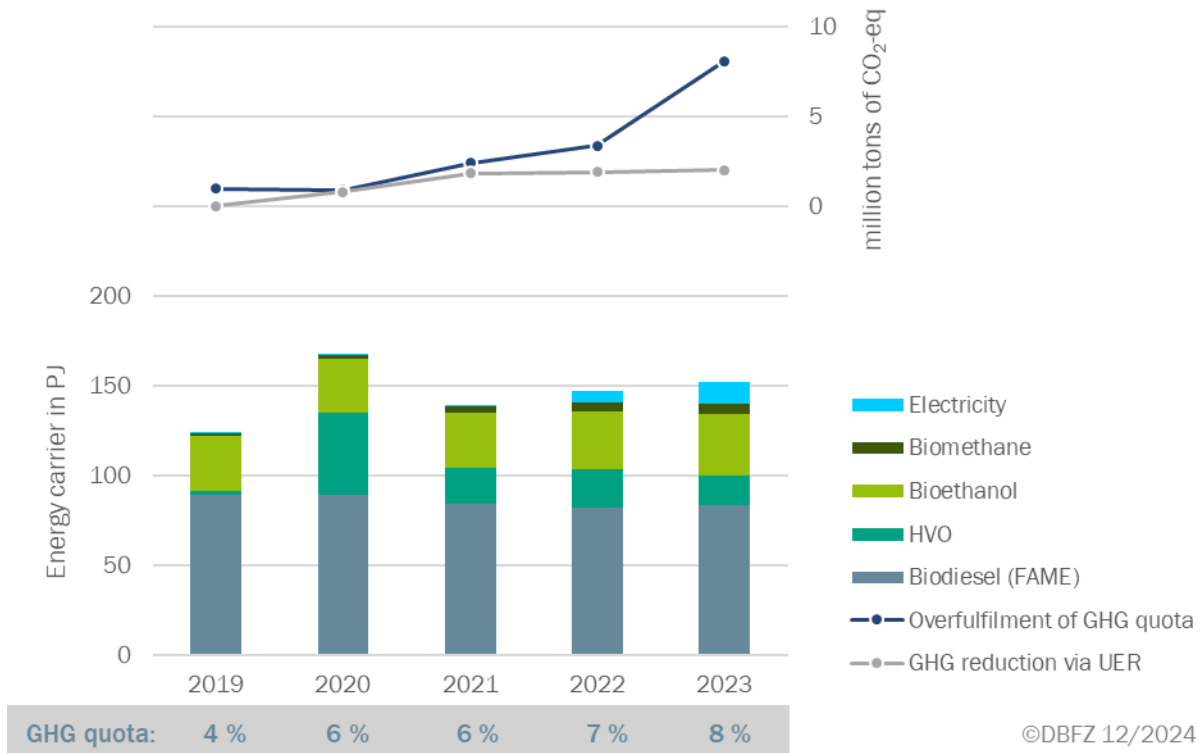


Figure 1 Fulfilment options of German GHG quota from 2019 to 2023, note: without fossil fuels, amount of energy without multiple counting, data base: (Zoll 2024a, 2024b, 2022, 2021, 2020; BLE 2024b, 2024a, 2023, 2021, 2020)

FAME and HVO account for around 88 % of advanced biofuels, biomethane (CNG and LNG) accounts for around 9 %, and bioethanol and biomethanol make up around 1 % each (Figure 2). In contrast to what was stipulated at European level until 2030, biofuels made from palm oil have no longer been accountable for fulfilment of the GHG quota in Germany since 2023 due to the high risk of indirect land use changes in the cultivation of raw materials. At 0.6 % (13.3 PJ of 2,134 PJ), the share of so-called conventional biofuels from palm oil fell below the legal limit of 0.9 % as early as 2022. At the same time, however, the amount of advanced biofuels from palm oil-based residues that are generally permitted (primarily palm oil mill effluent (POME) or palm sludge oil (PSO)) increased significantly. The data for 2023 show that the amount of advanced biofuels once again increased significantly. In particular, the share of fuels from biogenic industrial waste increased significantly - from 7.3 PJ in 2022 to 41.8 PJ in 2023 (Figure 2 and Figure 4).

**The amount of biodiesel (FAME) and HVO from biogenic industrial waste increased by a factor of 8.**

Approximately 90 % of advanced biofuels from industrial waste in 2023 are based on biodiesel (FAME) produced from the following feedstocks:

- Waste from the production, preparation, distribution and application of fats, lubricants and soaps;
- Wastewater sludge from the preparation and processing of fruit, vegetables and cereals - contents of fat separators and floating substances from plants processing animal products but only use vegetable fats/oils;
- Sludges from the preparation and processing of edible oil;
- Wastes from the production, preparation, distribution and use of organic basic chemicals - free fatty acids (FFA), residues from transesterification;
- Waste oils, fats or fatty acids, separated by specialised treatment companies from the contents of grease separators and re-esterified before processing, not waste oils, fats or fatty acids from sewage systems.

In terms of feedstocks and product origin, they come mainly from imports; the share of feedstocks from Germany is relatively low at only 15 %. Around 52 % (34 PJ) of the total advanced biofuels used in Germany in 2023 were produced in China (product origin), while around 62 % of the feedstocks for advanced biofuels originated in Asia (raw material origin). The amount of biomethane from feedstocks such as manure or liquid manure with a comparatively high feedstock origin from Germany also increased significantly, although at a comparatively low level.

Germany | Advanced, waste based and other biofuels in PJ

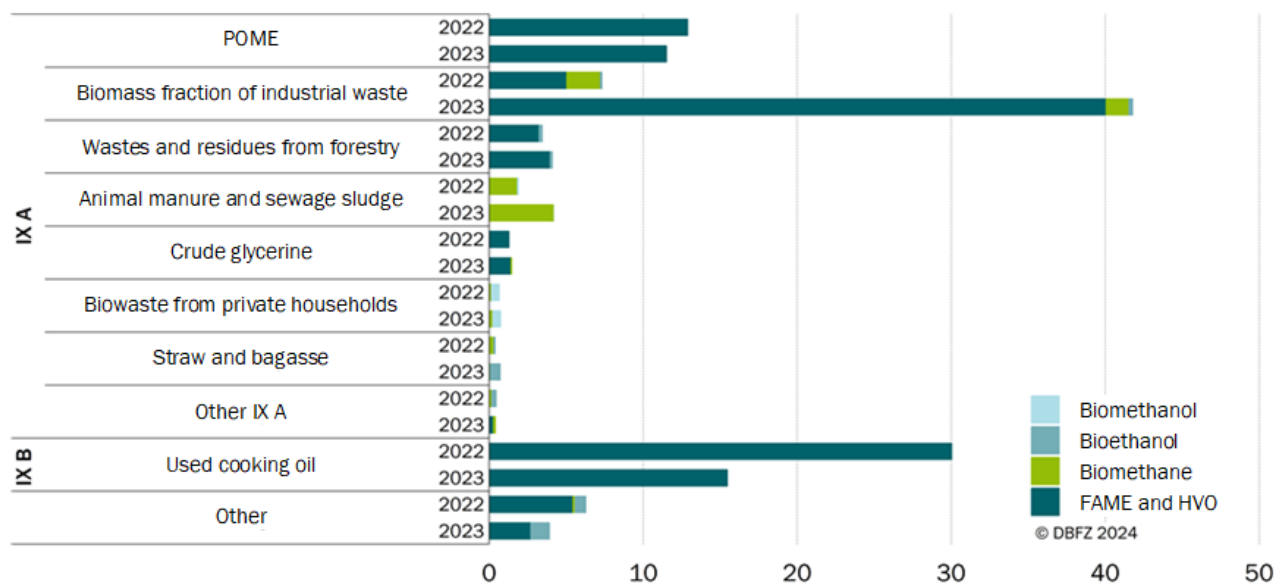


Figure 2 Biofuels from advanced (IX A) and waste based (IX B) feedstocks, used as transport fuel in Germany in 2022 and 2023, data base: (BLE 2024b, 2024d, 2024c)

**The amount of advanced biofuels used in 2023 is 10 times the required sub-quota.**

**Germany | Sub-quota for advanced biofuels**

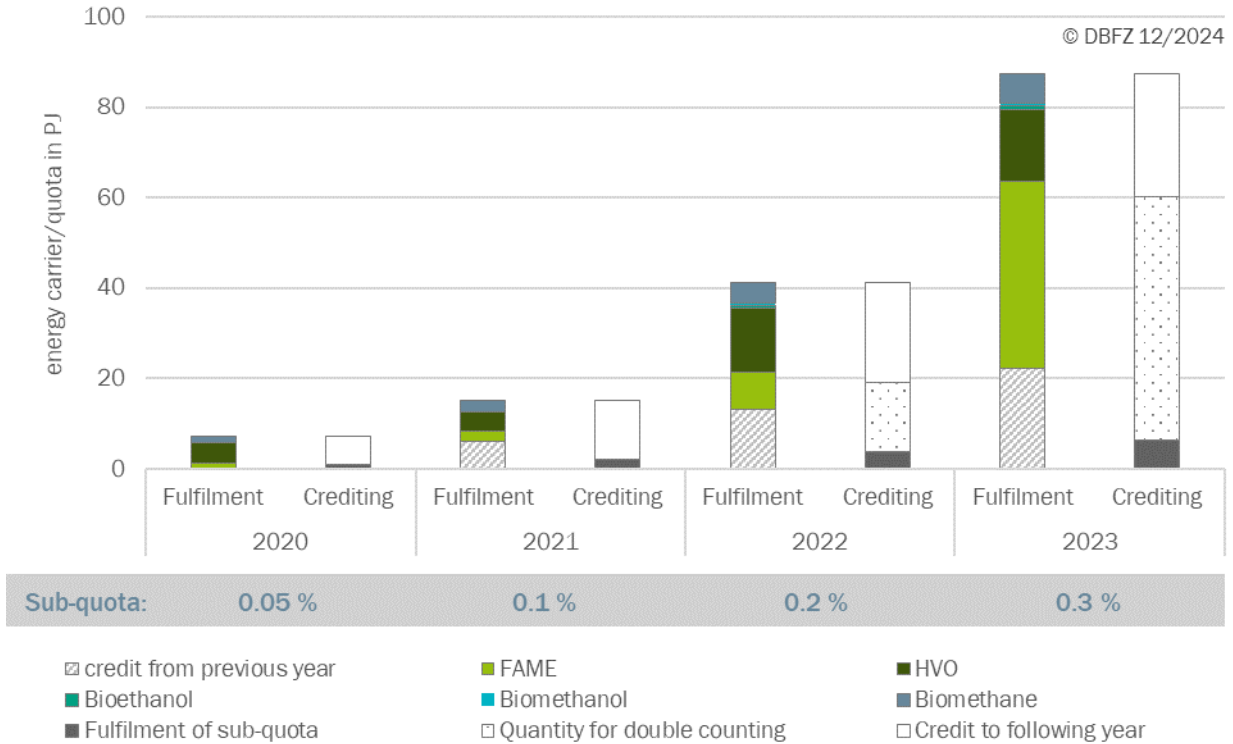


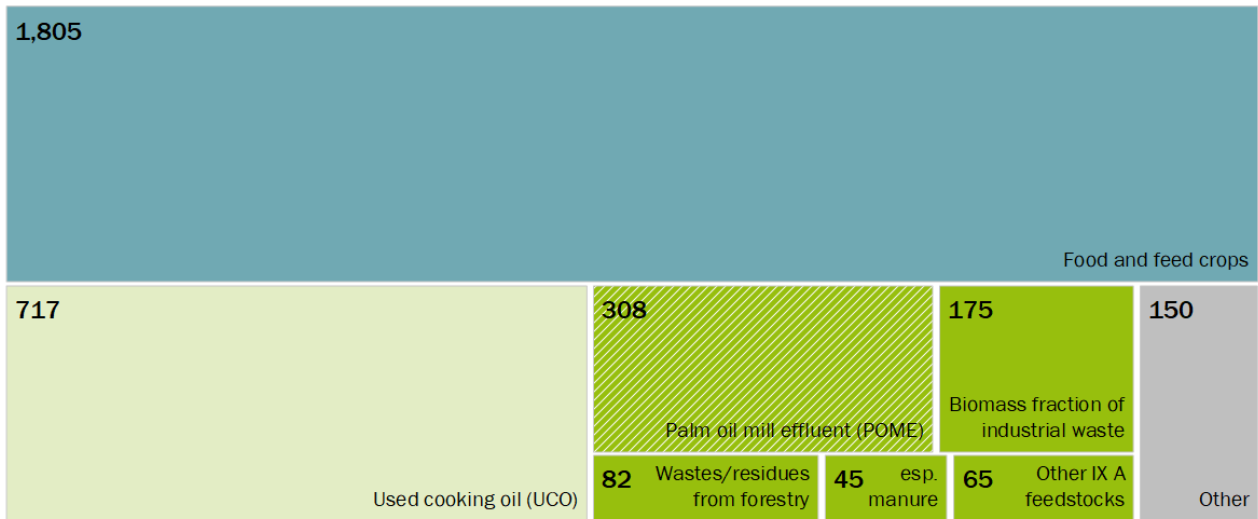
Figure 3 Advanced biofuels in Germany from 2020 to 2023 in PJ, fulfilment: fulfilment options for sub-quota, crediting: utilization of fulfilment; data base: (Zoll 2024a, 2024b, 2022, 2021, 2020; BLE 2024b, 2024a, 2023, 2021, 2020)

**The market shifts in the feedstock base for advanced biofuels and the impact on the biofuels industry in Germany are substantial.**

In the 2023 quota year, there will be a clear shift in the feedstock base for biofuels in Germany from conventional and waste-based feedstocks to feedstocks for the production of advanced biofuels. The high proportion of POME is declining slightly, whereas biogenic industrial waste is increasing substantially (Figure 4).



Germany 2022 | Feedstocks for biofuels in transport in 1,000 tons of OE



Germany 2023 | Feedstocks for biofuels in transport in 1,000 tons of OE

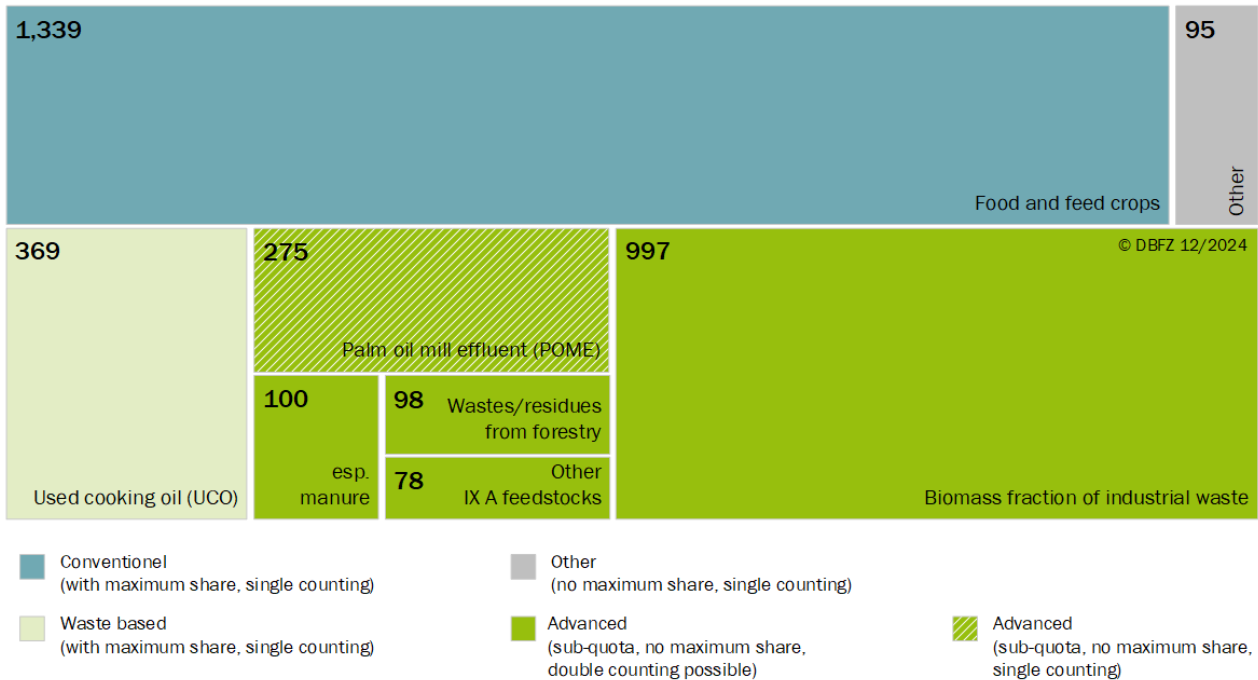


Figure 4 Biofuel feedstocks in German GHG quota 2022 and 2023, biofuels amount in thousand tons of oil equivalent (OE | 41.87 MJ/kg), note: waste and residues from forestry is mainly talloil, data base: (BLE 2024b, 2024d, 2024c)

Advanced biofuels from biogenic industrial waste are neither limited in their accountability for the GHG quota, nor can they be clearly identified in the statistics as waste or residues from palm oil production and processing. However, it is reasonable to assume that relevant proportions of advanced biofuels have precisely this origin. The specific GHG emissions from the provision of waste-based biodiesel average 11 g CO<sub>2</sub>-eq/MJ and the amount of advanced biodiesel produced in China and used as fuel in Germany in 2023 was around 34 PJ or 0.9 million tonnes. In conjunction with the fossil comparative figure of 94.1 g CO<sub>2</sub>-eq/MJ, this results in a GHG reduction of approx. 2.8 million tonnes, a very high proportion of which can be counted twice towards the GHG quota due to the far exceeded sub-quota

for advanced biofuels. Based on a quota price of 400 to 800 euros per tonne of CO<sub>2</sub>-eq quota price (Etzold und Naumann 2024) for this option, this corresponds to a quota value of 1.1 to 2.3 billion euros.

The significant market changes in the 2023 quota year will again lead to a massive overfulfilment, of both the sub-quota for advanced biofuels and of the GHG quota overall (see Figure 1). The demand for quota fulfilment is met by a massive oversupply of biofuels, with a corresponding impact on quota prices. Due to the low demand and high price pressure, domestic biodiesel production has been reduced in the meantime (AMI 2024).

The effects are also significant beyond the established biofuel industry in Germany. For example, the collapse of the quota price for vehicle owners and charging infrastructure operators has had a negative impact on revenues and GHG bonuses<sup>1</sup>. A high quota price was attractive for the development and realisation of projects for the fermentation and mobilisation of previously unused biogenic residual and waste materials into biogas or biomethane. This is often associated with comparatively higher costs. The intended mobilisation has so far only taken place to a limited extent. The desired increase in the fermentation of farm manure of animal origin and the avoidance of emissions (target according to the Climate Action Programme 2030) has been slowed down due to high import shares (BMU 2019).

These effects result primarily from the fact that the intended incentive effect of the GHG quota for climate-efficient powertrains and fuels only unfolds to a limited extent in Germany and Europe, particularly with regard to the development of production capacities for advanced biofuels. The main direct beneficiaries are Chinese companies and, indirectly, the distributors of fuels (primarily the mineral oil industry).

Already at the beginning of 2023, ISCC, a global certification system, received suspicious reports of unusually high import volumes of advanced biodiesel from China (mainly palm oil-based sludge, waste and residues) indicating possible fraud. ISCC investigated the suspected cases, withdrew or suspended certificates in seven cases and adjusted its certification system. However, no criminal offences were identified (ISCC System GmbH 2023).

The responsible German authority (BLE) also received information about the possible cases of fraud in March 2023 and consequently filed an application for criminal prosecution (Bundestag 2023b). The proceedings were discontinued by the public prosecutor's office in Bonn due to a lack of sufficient factual evidence (Bundestag 2024). Given the impossibility of on-site inspections in countries such as China, where the BLE has no authority to inspect, there is ultimately a lack of knowledge regarding two key questions: whether the technical requirements are in place to produce advanced biofuels and whether the feedstocks used have been correctly declared.

On the 13<sup>th</sup> of November 2024, the German government adopted an amendment to the 38<sup>th</sup> BImSchV to suspend the crediting of quota fulfilment from previous years for the years 2025 and 2026. Accordingly, in the next two years, fuel distributors may only count GHG reductions from renewable fuels and electricity towards their GHG quota also if they are achieved in the same year. Other measures aimed at the questionable origin of the raw material, such as a volume limit or more

---

<sup>1</sup> Financial bonus for owners of electric vehicles via GHG quota trading

reliable monitoring of biofuels from palm oil based waste, have not yet been implemented (Europäische Kommission 2022; European court of auditors 2023).

The double counting of GHG reductions for quantities above the sub-quota follows the objective of incentivising advanced technologies (Art. 28 (6) RED II), their accelerated market ramp-up and the development of production capacities. This results from the implicit effect of reduced or even halved GHG avoidance costs. The extent to which the instrument of double counting still meets this requirement under the current circumstances or can be further developed in other ways should be examined with due caution (BMUV 2021).

On the 20<sup>th</sup> of December 2023, the **European Commission** initiated an anti-dumping investigation into biodiesel imports from China. As a result, Regulation (EU) 2024/2163 came into force on 14 August 2024, imposing an anti-dumping duty of 36.4 % (reduced to 12.8 % for selected companies) on all imports of biodiesel (FAME and HVO) from China for an initial period of six months.

---

***On the EU level, doubts about the plausibility  
of the proven quantities of POME utilised as biofuel prevail.***

---

The feedstock discussion is still ongoing and the plausibility of the POME-based fuel volumes used in Europe is being questioned. A European Commission report on potential new feedstocks for the production of advanced biofuels found that palm oil-based residues such as POME have a medium to high risk of fraud (Europäische Kommission 2022). There is also a suspicion that the quantities used in the EU exceed the global potential, which could imply that other palm oil based quantities are being re-declared or production processes are being manipulated (Transport & Environment 2024b). The assumption that crude palm oil was re-declared or used as waste or residue-based raw materials was confirmed by the Indonesian Ministry of Trade on January 9, 2025. The export volumes of palm oil-based residues (4,87 Mio. t, POME and HAPOR, high acid palm oil residue) were higher than the export volumes of crude palm oil in both 2023 and 2024. According to the ministry, the export volumes of palm oil-based residues exceed the plausibly available volumes in Indonesia by far (factor 16 in 2023) (Kementerian Perdagangan Republik Indonesia 2025; Kurniawati 2025). According to FAOSTAT, this compares to a total export volume of 26.1 million tonnes of palm oil in 2023 (25.0 million tonnes in 2022). The total amount of palm oil produced in Indonesia reached 46.8 million tonnes in 2022. In the Transport, Telecommunications and Energy Council, the member states Ireland, Belgium, Germany and the Netherlands have proposed a cap on eligible POME quantities in this context (Rat der EU 2024b). The European Court of Auditors and the European Commission have also already proposed this and other measures.

As preventive measures, the European Commission proposes improvements to various aspects of the certification process, the establishment of a centralised database with definitions and greater harmonisation of feedstock definitions across EU countries (Europäische Kommission 2022). The European Court of Auditors is also in favour of improving the guidelines for the classification of advanced biofuels and considering a cap on certain advanced feedstocks (European court of auditors 2023). During the hearing in the Transport, Telecommunications and Energy Council, Germany even called for the complete removal of POME from Annex IX A (Rat der EU 2024a). However, given the current shift towards waste from industrial processes, it does not seem sufficient to focus solely on

wastewater from palm oil mills (POME) as a specific feedstock. Such problems may also arise with other raw materials for bio-based products and fuels or fulfilment options (e.g. electricity-based fuels RFNBOs or fuels from recycled carbon RCF). This highlights the need for improved raw material monitoring at EU level, not only for fuels, but for all products of a bioeconomy or circular economy.

---

***The national implementation of the REDII revision as an overhaul of the existing GHG quota cannot be delayed and must continue beyond 2030 in order to create target and planning certainty, but also trust for all stakeholders.***

---

The deadline for **implementing the revised RED II** (Directives (EU) 2018/2001 and (EU) 2023/2413) into national law is the 21<sup>st</sup> of May 2025. In Germany, this will mainly take place through the revision of the GHG quota for the transport sector. In addition to implementing the requirements of the EU directive, a critical and appropriate review of the following is required

- the specific framework conditions of selected fulfilment options,
- the level of ambition of the GHG quota target pathway and any sub-quotas up to 2030 and beyond,
- further accompanying measures to make the sustainability certification process more robust.

This process should be used at the latest to integrate measures to make the system as a whole less susceptible to fraud. However, given the current situation in the German government and the new elections scheduled for February, it is difficult to see how the deadline can be met. Further measures are therefore unlikely to be discussed and implemented in the foreseeable future.

Nevertheless, it remains to be hoped that, given the urgency of the issue, cross-party cooperation can work towards the implementation of suitable measures in a timely manner, which also properly consider the indispensable role of biomass as a carbon source today and in the future (Bundestag 2023a). It is the responsibility of all members of the German federal parliament to strengthen confidence in climate protection measures and the competitiveness of the German and European economy.

### Case study UER | Suspected fraud and consequences

The need for decisive action and the avoidance of fraud-prone subsidy mechanisms is also shown by the example of the so-called **Upstream Emission Reductions (UER)**; another fulfilment option in the GHG quota. They relate to the reduction of GHG emissions that occur before the refinery feedstock or crude oil reaches the refinery or processing plant. Such UER projects, which are generally international, are validated by the Federal Environment Agency (UBA) and ultimately verified for crediting. The necessary test reports are prepared by certifiers. Following investigation by private companies and media reports, there were also suspicions of large-scale fraud here, particularly in projects in China, which became increasingly substantiated over the course of 2023 and 2024. After criminal investigation authorities were also involved here, the UBA announced in September 2024 that the release of certificates for the year 2023 has now been prohibited for eight of the reviewed UER projects in China. A decision is still pending for a further 13 projects. The UBA has only received unrestricted authorisation to review the projects on site for five of the 21 projects in total. The refusal to allow on-site inspections is also a reason for UBA to review the cancellation of approval for these projects.

As a result of these incidents, the German Federal Ministry of the Environment decided to prematurely end the possibility of counting UER towards the GHG quota. The end of the fulfilment option would normally have been planned for 2026. The correspondingly revised UER Regulation was published in May 2024. Accordingly, the accountability ended in 2024 or will end in 2025 under certain conditions.

## 4 LIST OF FIGURES

Figure 1	Fulfilment options of German GHG quota from 2019 to 2023, note: without fossil fuels, amount of energy without multiple counting, data base: (Zoll 2024a, 2024b, 2022, 2021, 2020; BLE 2024b, 2024a, 2023, 2021, 2020) .....	6
Figure 2	Biofuels from advanced (IX A) and waste based (IX B) feedstocks, used as transport fuel in Germany in 2022 and 2023, data base: (BLE 2024b, 2024d, 2024c).....	7
Figure 3	Advanced biofuels in Germany from 2020 to 2023 in PJ, fulfilment: fulfilment options for sub-quota, crediting: utilization of fulfilment; data base: (Zoll 2024a, 2024b, 2022, 2021, 2020; BLE 2024b, 2024a, 2023, 2021, 2020) .....	8
Figure 4	Biofuel feedstocks in German GHG quota 2022 and 2023, biofuels amount in thousand tons of oil equivalent (OE   41.87 MJ/kg), note: waste and residues from forestry is mainly talloil, data base: (BLE 2024b, 2024d, 2024c) .....	9

## 5 BIBLIOGRAPHY

AMI (2024): Marktwoche Ölsaaten und Biokraftstoffe. Wöchentlicher Newsletter. Hg. v. Agrarmarkt Informations-Gesellschaft mbH.

BLE (2020): Evaluations- und Erfahrungsbericht für das Jahr 2019. Biomassestrom-Nachhaltigkeitsverordnung, Biokraftstoff-Nachhaltigkeitsverordnung. Hg. v. Bundesanstalt für Landwirtschaft und Ernährung. Online verfügbar unter [https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht\\_2019.pdf](https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht_2019.pdf), zuletzt geprüft am 21.10.2021.

BLE (2021): Evaluations- und Erfahrungsbericht für das Jahr 2020. Biomassestrom-Nachhaltigkeitsverordnung, Biokraftstoff-Nachhaltigkeitsverordnung. Hg. v. Bundesministerium für Landwirtschaft und Ernährung. Bonn. Online verfügbar unter [https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht\\_2020.pdf;jsessionid=E4B37F25CA48344B01D7917DC1A922C3.2\\_cid335?\\_\\_blob=publicationFile&v=3](https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht_2020.pdf;jsessionid=E4B37F25CA48344B01D7917DC1A922C3.2_cid335?__blob=publicationFile&v=3), zuletzt geprüft am 04.01.2022.

BLE (2023): Evaluations- und Erfahrungsbericht für das Jahr 2021. Online verfügbar unter [https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht\\_2021.html](https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht_2021.html), zuletzt geprüft am 20.11.2024.

BLE (2024a): Evaluations- und Erfahrungsbericht für das Jahr 2022. Biomassestrom-Nachhaltigkeitsverordnung, Biokraftstoff-Nachhaltigkeitsverordnung. Hg. v. Bundesministerium für Landwirtschaft und Ernährung. Online verfügbar unter [https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht\\_2022.pdf;jsessionid=C457A859E3B69763F9FBE0D2E7EAD2EA.internet012?\\_\\_blob=publicationFile&v=4](https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht_2022.pdf;jsessionid=C457A859E3B69763F9FBE0D2E7EAD2EA.internet012?__blob=publicationFile&v=4), zuletzt geprüft am 09.08.2024.

BLE (2024b): Evaluations- und Erfahrungsbericht für das Jahr 2023. Online verfügbar unter [https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht\\_2023.pdf?\\_\\_blob=publicationFile&v=2](https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht_2023.pdf?__blob=publicationFile&v=2), zuletzt geprüft am 19.12.2024.

BLE (2024c): Annex IX - Herstellungswege Quotenjahr 2021 und 2022, 22.05.2024. E-Mail an DBFZ.

BLE (2024d): Nutzung von Biokraftstoffen in 2023 nach Art, Herkunft, Herstellungsort und Emissionen, 18.11.2024. E-Mail und Excel-Datei an DBFZ.

BMU (2019): Klimaschutzprogramm 2030 der Bundesregierung zur Umsetzung des Klimaschutzplans 2050. Hg. v. Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit. Online verfügbar unter <https://www.bundesregierung.de/resource/blob/974430/1679914/e01d6bd855f09bf05cf7498e06d0a3ff/2019-10-09-klima-massnahmen-data.pdf?download=1>, zuletzt geprüft am 15.10.2021.

BMUV (2021): Referentenentwurf. Verordnung zur Festlegung weiterer Bestimmungen zur Weiterentwicklung der Treibhausgasminderungs-Quote. Online verfügbar unter [https://www.bmu.de/fileadmin/Daten\\_BMU/Download\\_PDF/Glaeserne\\_Gesetze/19.\\_Lp/thg\\_aenderung\\_vo/Entwurf/thg\\_aenderung\\_vo\\_refe\\_2\\_bf.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Glaeserne_Gesetze/19._Lp/thg_aenderung_vo/Entwurf/thg_aenderung_vo_refe_2_bf.pdf), zuletzt geprüft am 12.12.2024.

- Bundestag (2023a). Bioenergie eine klare Zukunftsperspektive geben und bestehende Hemmnisse beseitigen. Online verfügbar unter <https://dserver.bundestag.de/btd/20/097/2009739.pdf>, zuletzt geprüft am 14.12.2024.
- Bundestag (2023b): Bundesregierung zu mutmaßlich falsch deklariertem Biodiesel. Online verfügbar unter <https://www.bundestag.de/presse/hib/kurzmeldungen-955546>, zuletzt geprüft am 14.12.2024.
- Bundestag (2024): Import von Biokraftstoffen. Online verfügbar unter [https://www.bundestag.de/presse/hib/kurzmeldungen-989160#:~:text=Berlin%3A%20\(hib%2FNKI\),wurde%2C%20wird%20strafrechtlich%20nicht%20verfolgt.](https://www.bundestag.de/presse/hib/kurzmeldungen-989160#:~:text=Berlin%3A%20(hib%2FNKI),wurde%2C%20wird%20strafrechtlich%20nicht%20verfolgt.), zuletzt geprüft am 12.12.2024.
- dena (2024): Branchenbarometer Biomethan 2024. dena-ANALYSE. Unter Mitarbeit von Toni Reinholz und Klaus Völlner. Hg. v. Deutsche Energie-Agentur GmbH (dena). Deutsche Energie-Agentur GmbH (dena).
- Dögnitz, Niels; Etzold, Hendrik; Naumann, Karin (2023): Marktanalyse und Treibhausgasquote für erneuerbares Methan im Verkehr. Fokusheft im Projekt Pilot-SBG. Leipzig. Online verfügbar unter DOI: 10.48480/fctg-2823.
- Etzold, Hendrik; Naumann, Karin (2024): Pilot-SBG. GHG-quota as a driver for renewable methane from regional biogenic residues and waste materials. Fuels of the Future, Session 5B: Biomethane as fuel.
- Europäische Kommission (2022): Assessment of the potential for new feedstocks for the production of advanced biofuels – Final report. Unter Mitarbeit von Haye, S., Panchaksharam, Y., Raphael, E., Liu, L. et al. Hg. v. Publications Office of the European Union. Directorate-General for Energy. Online verfügbar unter <https://data.europa.eu/doi/10.2833/719121>, zuletzt geprüft am 04.09.2023.
- European court of auditors (2023): The EU's support for sustainable biofuels in transport. An unclear route ahead. Online verfügbar unter [https://www.eca.europa.eu/ECAPublications/SR-2023-29/SR-2023-29\\_EN.pdf](https://www.eca.europa.eu/ECAPublications/SR-2023-29/SR-2023-29_EN.pdf), zuletzt geprüft am 04.09.2023.
- ISCC System GmbH (2023): Recent Suspected Cases of Mislabelling of Advanced Biodiesel. Online verfügbar unter <https://archive.newsletter2go.com/?n2g=ij14sms7-o8am5zg0-t>, zuletzt geprüft am 19.12.2024.
- Kementerian Perdagangan Republik Indonesia (2025): Jamin Ketersediaan Bahan Baku Industri Dalam Negeri, Pemerintah Perketat Ekspor POME, HAPOR, dan UCO. Online verfügbar unter <https://www.kemendag.go.id/berita/siaran-pers/jamin-ketersediaan-bahan-baku-industri-dalam-negeri-pemerintah-perketat-ekspor-pome-hapor-dan-uco>, zuletzt geprüft am 17.1.2025.
- Kurniawati, Dewi (2025): Indonesia suspects virgin palm oil mixed into used cooking oil exports. Online verfügbar unter <https://theedgemalaysia.com/node/740427>, zuletzt geprüft am 17.1.2025.
- Naumann, Karin; Müller-Langer, Franziska; Schröder, Jörg; Meisel, Kathleen; Cyffka, Karl-Friedrich (2022): Hintergrundpapier zur Quote zur Treibhausgasminderung bei Kraftstoffen. Deutsches Biomasseforschungszentrum (DBFZ). Leipzig. Online verfügbar unter [https://www.dbfz.de/fileadmin//user\\_upload/Referenzen/Statements/Hintergrundpapier\\_THG-Quote\\_DE\\_Nov2022.pdf](https://www.dbfz.de/fileadmin//user_upload/Referenzen/Statements/Hintergrundpapier_THG-Quote_DE_Nov2022.pdf), zuletzt geprüft am 23.11.2022.



- Rat der EU (2024a): AOB: Biofuels supply from palm oil derivatives and fraud prevention. Transport, Telecommunications and Energy Council. Video. Online verfügbar unter <https://video.consilium.europa.eu/event/en/27656>, zuletzt geprüft am 20.11.2024.
- Rat der EU (2024b): Biofuels supply from palm oil derivatives and fraud prevention. Information from Ireland, Belgium, Germany and The Netherlands. Brüssel (14325/2/24). Online verfügbar unter <https://data.consilium.europa.eu/doc/document/ST-14325-2024-REV-2/en/pdf>, zuletzt geprüft am 20.11.2024.
- Schröder, Jörg; Naumann, Karin (Hg.) (2022): Monitoring erneuerbarer Energien im Verkehr. DBFZ Report Nr. 44. DBFZ. 1. korrigierte Auflage. Leipzig. Online verfügbar unter [https://www.dbfz.de/fileadmin/user\\_upload/Referenzen/DBFZ\\_Reports/DBFZ\\_Report\\_44\\_DE.pdf](https://www.dbfz.de/fileadmin/user_upload/Referenzen/DBFZ_Reports/DBFZ_Report_44_DE.pdf), zuletzt geprüft am 16.02.2022.
- Stratmann, Klaus (2024): Biokraftstoff-Branche droht Ministerium mit Milliardenklagen. Hg. v. Handelsblatt. Online verfügbar unter <https://www.handelsblatt.com/politik/deutschland/energie-wende-biokraftstoff-branche-droht-ministerium-mit-milliardenklagen/100089203.html>, zuletzt geprüft am 12.12.2024.
- Transport & Environment (2024a): National climate targets off track: Six years left to course correct and avoid penalties. Online verfügbar unter [https://www.transportenvironment.org/uploads/files/National\\_climate\\_target\\_off\\_track\\_07\\_2024\\_2024-07-10-173954\\_jdsa.pdf](https://www.transportenvironment.org/uploads/files/National_climate_target_off_track_07_2024_2024-07-10-173954_jdsa.pdf), zuletzt geprüft am 12.12.2024.
- Transport & Environment (2024b): The advanced and waste biofuels paradox: Availability and sustainability of advanced and waste biofuels. Online verfügbar unter [https://www.transportenvironment.org/uploads/files/202407\\_TE\\_advanced\\_biofuels\\_report-1.pdf](https://www.transportenvironment.org/uploads/files/202407_TE_advanced_biofuels_report-1.pdf), zuletzt geprüft am 20.11.2024.
- Zoll (2020): Vorläufige Statistische Angaben über die Erfüllung der Treibhausgasquote - Quotenjahr 2019. Hg. v. Generalzolldirektion. Online verfügbar unter [https://www.zoll.de/SharedDocs/Downloads/DE/Links-fuer-Inhaltseiten/Fachthemen/Verbrauchssteuern/quotenerfuellung\\_2019.pdf](https://www.zoll.de/SharedDocs/Downloads/DE/Links-fuer-Inhaltseiten/Fachthemen/Verbrauchssteuern/quotenerfuellung_2019.pdf), zuletzt aktualisiert am 01.11.2020, zuletzt geprüft am 20.01.2021.
- Zoll (2021): Vorläufige Statistische Angaben über die Erfüllung der fortschrittlichen Quote - Quotenjahr 2020\*. Hg. v. Generalzolldirektion, zuletzt geprüft am 13.01.2021.
- Zoll (2022): Vorläufige Statistische Angaben über die Erfüllung der Treibhausgasquote - Quotenjahr 2021. Hg. v. Generalzolldirektion. Online verfügbar unter [https://www.zoll.de/SharedDocs/Downloads/DE/Links-fuer-Inhaltseiten/Fachthemen/Verbrauchssteuern/quotenerfuellung\\_2021\\_vorlaeufig.pdf?\\_\\_blob=publicationFile&v=3](https://www.zoll.de/SharedDocs/Downloads/DE/Links-fuer-Inhaltseiten/Fachthemen/Verbrauchssteuern/quotenerfuellung_2021_vorlaeufig.pdf?__blob=publicationFile&v=3), zuletzt geprüft am 23.11.2022.
- Zoll (2024a): Statistische Angaben über die Erfüllung der Treibhausgasquote. Quotenjahr 2022. Hg. v. Zoll. Online verfügbar unter [https://www.zoll.de/DE/Fachthemen/Steuern/Verbrauchssteuern/Treibhausgasquote-THG-Quote/Statistiken/statistiken\\_node.html](https://www.zoll.de/DE/Fachthemen/Steuern/Verbrauchssteuern/Treibhausgasquote-THG-Quote/Statistiken/statistiken_node.html), zuletzt geprüft am 09.08.2024.
- Zoll (2024b): Vorläufige Statistische Angaben über die Erfüllung der Treibhausgasquote - Quotenjahr 2023. Online verfügbar unter

[https://www.zoll.de/DE/Fachthemen/Steuern/Verbrauchssteuern/Treibhausgasquote-THG-Quote/Statistiken/statistiken\\_node.html](https://www.zoll.de/DE/Fachthemen/Steuern/Verbrauchssteuern/Treibhausgasquote-THG-Quote/Statistiken/statistiken_node.html), zuletzt geprüft am 20.11.2024.