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Agriculture and Food

Evaluation and Progress Report 2014

Biomass Electricity Sustainability Ordinance
Biofuel Sustainability Ordinance

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Preface

Dear Reader

As the competent authority, the Federal Office for Agriculture and Food (BLE) publishes this annual evaluation and progress report in its fifth consecutive year.

The implementation of the sustainability criteria plays a key role in the achievement of the national, European and international climate protection targets. This report gives an overview of the developments in this field in Germany.

Two years after the entry into force of the amendment of the 36th Ordinance on the Implementation of the Federal Immission Control Act – Ordinance on the implementation of the regulations regarding the biofuel quota (36th BImSchV), it is now possible to provide a direct annual double counting comparison by means of proofs of double counting issued towards the energetic biofuel quota.

The conversion from a mandatory energetic admixture to a greenhouse gas reduction quota, which was codified in 2009, was implemented in due time. For fuels brought onto the German market later than 31.12.2014, the obligated parties thus have to demonstrate emission savings of 3.5 % compared to their individual reference value. As a result of this conversion, the rules for the proofs of double counting of certain waste and residual substances have been cancelled as well.

For the first time, this report shows the background data of the diagrams separately. This is intended to help expert readers to analyse the data more quickly and easily.

Dr. Hanns-Christoph Eiden
President
Federal Office for Agriculture and Food

1 General Matters

1.1 Introduction

On 5 June 2009, the Directive of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources was published in the Official Journal of the European Union. It emphasises that the control of energy consumption in Europe and the increased **use of energy from renewable sources** together with energy savings and an improved energy efficiency are essential elements of the set of measures that is to reduce greenhouse gas emissions and to provide for **compliance with the Kyoto Protocol to the United Nations Framework Convention on Climate Change** and other community and international commitments to reduce greenhouse gas emissions beyond 2012. The use of energy from renewable sources in the transport sector is considered one of the most effective means *c-for the Community to reduce its dependence on oil imports for the transport sector, where the problem of a secure energy supply is most acute, and where it can influence the fuel market[1].

The Directive's aims include increasing the share of energy from renewable sources within the EU, reducing dependency on fossil energy sources and decreasing greenhouse gas emissions. Every Member State is to take relevant measures at national level and to develop instruments which help reach the targets set at European level or even go beyond them.

According to Commission Communication 2010/C 160/01, the Renewable Energy Directive can be transposed as follows:

1. through national systems,
2. by applying a voluntary system which the Commission has recognised for that purpose,
   or
3. by complying with the terms of a bilateral or multilateral agreement concluded by the European Union with third countries and which the Commission has recognised for that purpose.

On 4.8.2010, the German government adopted the National Renewable Energy Action Plan. In addition, on 28.9.2010, the German government published its energy concept for an environmentally friendly, reliable and affordable energy supply. In order to transpose the Renewable Energy Directive into national law by 5.12.2010, as required by Article 27(1) of the Directive, both the Biomass Electricity Sustainability Ordinance of 23.7.2009 (BioSt-NachV, see glossary at the end) and the Biofuel Sustainability Ordinance (Biokraft-NachV) of 30.9.2009 were published in the Federal Law Gazette. Both sustainability ordinances implement the Renewable Energy Directive and are part of the measures listed in the national action plan and the German government's energy concept.

[1] Recitals of Directive 2009/28/EC of the European Parliament and of the Council

By 31.12.2014, the European Commission had published implementing decisions for the recognition of 18 voluntary systems in the scope of the Renewable Energy Directive. Since then, these voluntary systems have been active in addition to the certification systems recognised by the BLE and national systems of other Member States in the field of sustainable biomass production. Furthermore, the European Commission recognised a greenhouse gas calculation tool.

1.2 Summary of important results in 2014

- The overall reduction of greenhouse gas emissions of all biofuels (clean) amounted to just over 51 % as compared to fossil fuels and thus was, as in 2013, higher than the emissions generated.
- Total savings of greenhouse gas emissions of all bioliquids (clean) amounted to almost 94 % compared to fossil fuels.
- The certification bodies recognised by the BLE certified 341 operations worldwide in the reporting year. 2,500 operations according to the requirements of the voluntary systems.
- 124,582 TJ of biofuels were the subject of applications to be counted towards the biofuel quota obligation or to be considered for tax relief.
- Proofs of double counting were issued for 16.9 % (21,109 TJ) of these biofuels.
- Approximately 31 % (38,998 TJ) of biofuels are made from raw materials which were grown in Germany or accumulated there (waste/residual materials).
- The largest share of biofuel is attributable to biodiesel (FAME).
- Rapeseed was the most commonly used raw material for the production of biodiesel.
- Maize and wheat were the most commonly used raw materials for the production of bioethanol.
- 52,644 TJ of biofuels and bioliquids were booked on accounts of other states and are thus not energetically used in Germany.
- At the reference date of 31.12.2014, two certification systems and 26 certification bodies had been permanently recognised by the BLE.
- By the end of 2014, the Commission had recognised a total of 18 voluntary systems.

1.3 Methodology

This evaluation and progress report describes the existing processes and measures, and analyses the data made available to the BLE. It also includes issues relevant for implementation in Germany such as the transposition of Directive 2009/28/EC in other Member States and the recognition of voluntary systems by the European Commission.

The results of the analysis are presented, compared and explained from various perspectives.

The following presentations refer to data submitted by economic operators to the BLE in its role as the competent authority according to Art. 66 Biokraft-NachV and/or Art. 74 BioSt-NachV.

Since 01.01.2011, the national ordinances BioSt-NachV and Biokraft-NachV are to be applied without limitations. This makes it possible to draw comparisons with the years 2012 and 2013.

The revised 36th BImSchV has been in effect since 01.01.2013, which, for the first time in this report, allows for comparisons with previous years.

The following information does not permit any conclusions as to the actual number of participants in individual voluntary systems or in national systems of other Member States.

Economic operators are obliged to enter sustainability data for their deliveries of biofuels into the public database Nabisy, if those data could become relevant for the German market. Amounts entered by way of precaution, which are not then used for energy generation in Germany are contained in Nabisy without being attributed to Germany. It is the responsibility of the economic operator to enter and book the data correctly.

The required data are collected in an organised way and are documented systematically.

The available information shall be the basis for optimisation processes conducted by decision-makers in politics and economy.

The available data permitting, this analysis will also serve to verify the measures' effectiveness.

Where information regarding the number of Nabisy users or certifications is provided it should be noted that economic operators who used multiple certification systems simultaneously and/or who acted as producers as well as suppliers were counted more than once. It is therefore impossible to draw conclusions as to the number of operations participating in the measures.

Targets to be achieved with regard to evaluating the measures' effectiveness are:

- increasing the percentage of “renewable energies” where the supply of fuels and electricity production are concerned,
- decreasing greenhouse gas emissions by using sustainable biomass and
- developing more efficient procedures and raw materials for the generation of electricity from biomass.

Changes occurring in each respective calendar year are analysed within the framework of the BioSt-NachV and the Biokraft-NachV.

In concrete terms, the areas to be analysed include:

- the effectiveness of the sustainability ordinances with regard to the objectives of the German government,

and

- potential improvements to be made in implementing the specifications of the Renewable Energy Directive.

Appropriate methods were chosen to collect, measure and evaluate the data.

Initially, the analysis examined and evaluated product data entered into Nabisy by the economic operators, i.e. all proofs of sustainability with regard to type of fuel, amount, energy content, raw materials used and their origin.

It also examined those certificates for which applications had been submitted to be counted towards the biofuel quota obligation for the respective quota year or to be considered for tax relief, as well as certificates which were entered for remuneration pursuant to the Renewable Energy Sources Act (EEG). Frequently, these are partial proofs of sustainability which have developed from multiple combinations or divisions along the supply chain through to the final recipient. These certificates were identified by the notations of usage applied by the main customs offices or the network operators.

Because it was not compulsory in the past for economic operators to provide information on the origin of biomass, this information is inevitably inaccurate in combined certificates. The results for information on origin were therefore set in relation to the data containing the notation of usage (”subsequent certificates”/”partial certificates”) on the basis of all certificates entered (”basic certificates”).

Primarily, the focus is on the situation as at 31.12.2014 and on changes in the implementation of the measure during the given (annual) period related to the initial values by way of a statistical comparison.

BLE control measures and/or administrative procedures will also be analysed, evaluated and optimised in this connection.

Discrepancies in the sum totals in this report are due to rounding.

2 BLE responsibilities

The BLE is the competent authority in Germany for the implementation of the sustainability criteria laid down in the Renewable Energy Directive in the area regulated by the sustainability ordinances. Together with the Federal Revenue Administration, the BLE is also responsible for implementing the 36th Ordinance for the implementation of the Federal Immission Control Act – Ordinance for the implementation of the regulations of the biofuel quota (36th BImSchV).

The BLE's responsibilities include the following:

- in the **biofuels sector - making data** required to count biofuels towards the biofuel quota or in connection with tax relief **available** to the biofuels quota body and the main customs offices,
- in the **bioelectricity sector - making data** required for remuneration and for the renewable raw materials (NawaRo) bonus for installation operators **available** to network operators,
- in the **bioelectricity sector - maintaining a register** of all installations which convert bioliquids into electricity[2],
- **administration of data** on the sustainability of biofuels and/or liquid biomass through **the public web-based database Nabisy** and issuance of partial proofs of sustainability at the request of economic operators,
- the regular **evaluation of the sustainability ordinances** and **compilation of an annual progress report** for the federal government,
- the **recognition** and **supervision** of **certification systems** and **certification bodies** according to the sustainability ordinances,
- **determination of the suitability** and supervision of certification systems and certification bodies according to the **36th** BImSchV and their announcement[2],
- running the public database Nabisy for the proofs of double counting and partial proofs of double counting which, according to the 36th BImSchV, are to be issued in addition to the **proofs of sustainability and partial proofs of sustainability** in the area of **double countability** of liquid and gaseous biofuels from waste and residual materials.

[2] Now omitted

Within the framework of its responsibilities pursuant to Art. 74 BioSt-NachV and/or Art. 66 Biokraft-NachV or Art. 14(3) of the 36th BImSchV, the BLE also carried out the following regular measures between 2012 and 2014 to implement the sustainability ordinances and the 36th BImSchV:

- execution of office audits at the certification bodies on a yearly basis and risk-oriented evaluation of the audit work of the certification bodies (witness audits),
- maintenance and development of the BLE website with information and documents in German and English,
- maintenance and development of a continuous system to recognise certification systems and bodies and to monitor compliance with legal requirements,
- maintenance and development of the public database, Nabisy, to document the origin of biofuels and proofs of sustainability, general issues regarding the documentation and plausibility validation of the data on the sustainability of biofuel supplies, exchange of data with other Member States' databases,
- maintenance and development of the installations register pursuant to Art. 61 BioSt-NachV,
- maintenance and development of the register of information pursuant to Art. 66 BioSt-NachV and/or Art. 60 Biokraft-NachV,
- hosting the meetings of the advisory council for sustainable bioenergy,
- events with certification systems, certification bodies and industry to exchange experiences and other information,
- presentations at informative events for multipliers such as associations, certification systems, certification bodies, country representatives and competent authorities of other Member States,
- representation at various special events and trade fairs,
- cooperation and coordination with the executive authorities of other Member States within the CA-RES (Concerted Action-Renewable Energy Sources Directive) and REFUREC (Renewable Fuels Regulators Club) committees to coordinate the implementation and
- training of BLE Control Service staff employed as assessors in the field of sustainable biomass production,
- reviewing the suitability of individual certification systems and certification bodies to start activities within the framework of the 36th BImSchV and announcing them in the Federal Gazette and
- developing specifications for the implementation of the 36th BImSchV.

3 Certification systems, voluntary systems and national systems of other Member States

The Renewable Energy Directive and its national implementation by means of the sustainability ordinances require the sustainable production of biomass along the entire value chain. To guarantee and control this is the task of the certification systems recognised by the BLE, the voluntary schemes recognised by the European Commission or national systems of other Member States.

Certification systems have to ensure, organisationally, that the requirements for the production and supply of biomass laid down by the Renewable Energy Directive and the national legislation issued for its transposition are met. They also contain standards which further determine the requirements for evidence of their implementation and for verifying such evidence.

3.1 Certification systems recognised by the BLE pursuant to Art. 33 Nos. 1 and 2 BioSt-NachV and/or Biokraft-NachV

By 31.12.2014 the BLE had received the following number of applications for recognition of certification systems:

Table 1: Number of applications submitted by certification systems

Total number of applications lodged by 31.12. 2014	**4**
rejected	1
accepted	3
recognition withdrawn	1
currently recognised by the BLE ISCC System GmbH, Cologne REDcert GmbH, Bonn	**2**

ISCC System GmbH and REDcert GmbH have also been announced as suitable certification systems in the context of the 36th BImSchV, which came into effect on 01.01.2013.

In the context of their application to be recognised as certification systems, the BLE has granted recognition to the following states:

- all Member States of the European Union, and
- Argentina, Australia, Belarus, Bolivia, Bosnia and Herzegovina, Brazil, Burkina Faso, Cambodia, Cameroon, Canada, Chile, China, Colombia, Costa Rica, Ecuador, Egypt, El Salvador, Ethiopia, Georgia, Ghana, Guatemala, Hong Kong, India, Indonesia, Israel, Ivory Coast, Kazakhstan, Kenya, Laos, Madagascar, Malaysia, Mauritius, Mexico, Moldavia, Mozambique, Nicaragua, Norway, Panama, Papua-New Guinea, Paraguay, Peru, Philippines, Republic of Korea, Russia, Serbia, Singapore, South Africa, Sudan, Switzerland, Tanzania, Thailand, Togo, Turkey, Uganda, Ukraine, United Arab Emirates, Uruguay, USA, Uzbekistan, Venezuela and Vietnam.

3.2 Voluntary systems pursuant to Art. 32 No. 3 BioSt-NachV and/or Biokraft-NachV

According to the first sentence of the second subparagraph of Article 18 (4) of Directive 2009/28/EC, the European Commission may decide that voluntary national or international systems setting standards for the production of biomass products contain accurate data for the purposes of Article 17 (2). These data may be used as evidence that consignments of biofuel comply with the sustainability criteria set out in Article 17 (3) to (5).

Pursuant to Article 41 of the BioSt-NachV and/or Biokraft-NachV, these voluntary systems are considered as recognised in Germany if and so long as they are approved by the Commission of the European Communities. By 31.12.2014, the Commission of the European Communities had approved the following 18 voluntary systems as well as one greenhouse gas calculation tool:

Table 2: Voluntary systems

Voluntary systems	Registered in	Approved on
2BS Association	France	10.08.2011
Greenergy	United Kingdom	10.08.2011
Bonsucro	United Kingdom	10.08.2011
ISCC System GmbH	Germany	10.08.2011
Roundtable on Responsible Soy Association (RTRS)	Argentina	10.08.2011
Abengoa	Spain	10.08.2011
Roundtable on Sustainable Biomaterials (RSB)	Switzerland	10.08.2011
ENSUS UK	United Kingdom	14.05.2012
REDcert GmbH	Germany	15.08.2012
NTA 8080	Netherlands	20.08.2012
Roundtable on Sustainable Palm Oil RED (RSPO)	Malaysia	13.12.2012
HVO Renewable Diesel Scheme for Verification of Compliance with the RED sustainability criteria for biofuels	Finland	29.01.2014
KZR INiG	Poland	23.06.2014
Red Tractor Farm Assurance Combinable Crops & Sugar Beet Scheme	United Kingdom	06.08.2012
Scottish Quality Farm Assured Combinable Crops Limited	United Kingdom	13.08.2012
Gafta Trade Assurance Scheme	United Kingdom	23.06.2014
Trade Assurance Scheme for Combinable Crops		07.10.2014
Universal Feed Assurance Scheme		07.10.2014
Biograce GHG calculation tool		19.06.2013

3.3 National systems of other Member States

National systems of other Member States also ensure organisationally that the requirements regarding the sustainability criteria for the production and supply of biomass laid down in the Renewable Energy Directive are met. They regulate the standards which further determine the requirements for evidence of their implementation and for verifying such evidence.

In 2014, data of the national systems of Hungary, Slovenia and Austria were available in Nabisy. Operations based in the territory of Austria are obliged to enter their sustainability data into the Austrian database elNa.

3.4 Economic Operators

Basically, economic operators throughout the value chain in the field of sustainable bioenergy work in accordance with the requirements of a certification system, a voluntary system or a national system of another Member State, while users (installation operators and parties under the obligation to provide proof) are exempted.

The following economic operators are to be considered in particular:

Growers

A grower is an agricultural business which grows and harvests biomass.

First gathering points

Economic operators who first take on the biomass required for the production of bioliquids or biofuels from the growers and for the purpose of trading it on, e.g. agricultural traders.

Gatherers

Economic operators who first take on the biomass required for the production of biofuels in the case of waste and residual materials from the operations or private households which generated the waste and residual materials for the purpose of trading it on.

Conversion operations

Economic operators who process liquid or gaseous biomass up to the quality class required for final use. These might be oil mills, esterification plants, ethanol plants or biogas upgrading plants.

Operations along the production and supply chain that require certification and are connected with the certification systems recognised by the BLE are referred to as interfaces.

An existing plant is a special type of conversion operation. Existing plants, in the sense of Article 8(2) BioSt-NachV and/or Biokraft-NachV are plants which first started operating before 23.1.2008 and which upgrade liquid or gaseous biomass to the quality class required to produce electricity or for them to be used as biofuels, or plants that produce biofuels. Until 31.3.2013, it was optional for existing plants to deliver proof of the greenhouse gas emissions generated during growing, transport and use. As far as volun-

tary systems are concerned, the term “existing plant” is used in a broader sense. Here, it suffices that an existing plant is present within the supply chain for the existing-plant regulation to come into effect.

Suppliers or traders within the supply chain

Suppliers are economic operators between the first gathering point and the conversion operation or between the final interface and the distributor of biofuels or the installation operator who supplies electricity generated from biofuels. If suppliers after the final interface are not subject to customs supervision, they are required to join a certification system recognised by the BLE or a voluntary system recognised by the EU.

Installation operators

Anyone using liquid biomass for the purpose of generating electricity in their BTTP plant in the sense of the biomass ordinance as amended.

Party under the obligation to provide proof

Parties under the obligation to provide proof are economic operators who, according to the Federal Immission Control Act, are obliged to distribute a certain minimum share of biofuels in the course of the calendar year. Parties under the obligation to provide proof also include those who apply for tax relief for biofuels pursuant to the Energy Tax Act.

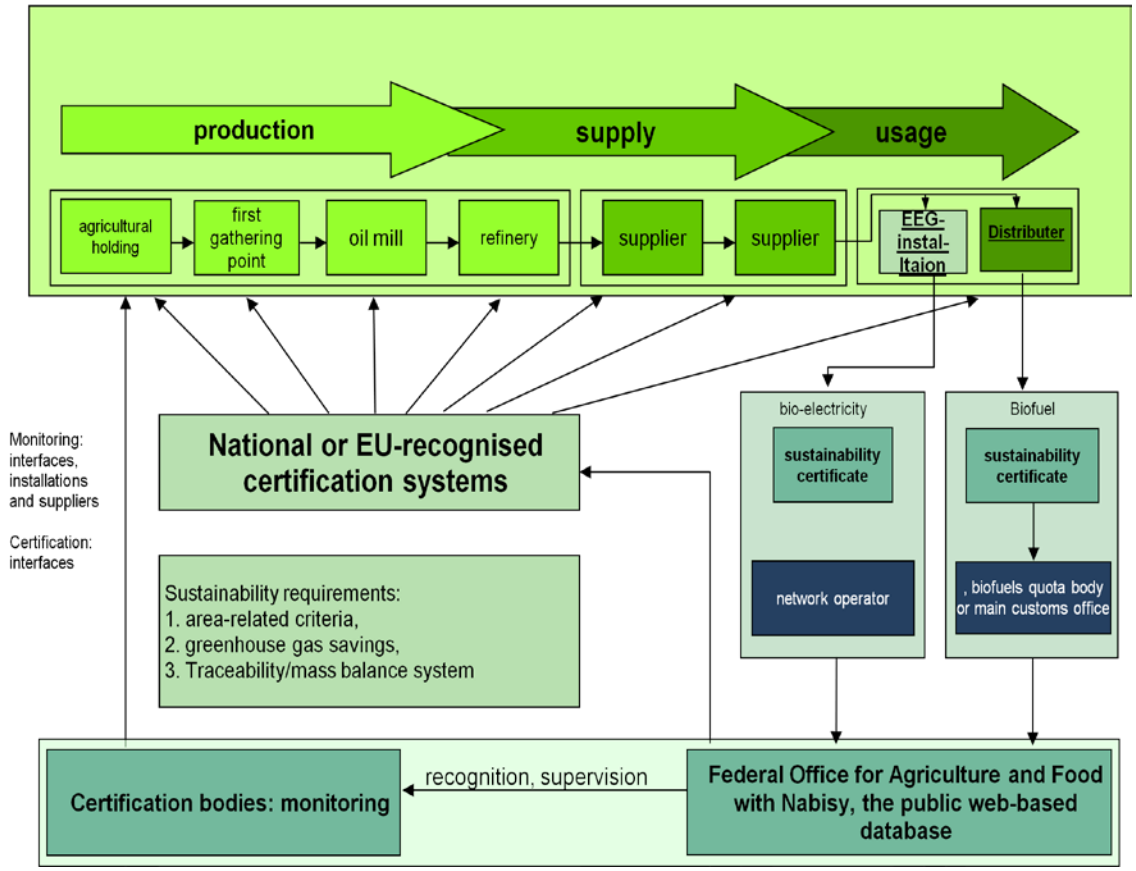

Figure 1: Control system

3.4.1 Economic operators reported to the BLE

Within the framework of the sustainability ordinances, voluntary national or international systems which have laid down standards for the production of biomass products are considered as informally recognised by Germany alongside the BLE-recognised certification systems as long as and to the extent to which they are recognised by the European Commission. The same applies to national systems of other Member States.

By 31.12.2014, 3,757 participants (previous year: 3,603) were registered with the BLE along the supply chain, producing or trading in biofuels and/or bioliquids. These are participants in a certification system recognised by the BLE and/or a voluntary system recognised by the EU, or are monitored under national systems of other Member States.

The registration of participants in BLE-recognised certification systems is mandatory. With regard to voluntary systems and national systems, only those participants are considered which have been registered with the BLE, as the biofuels they produce or trade could be or become relevant for the German market. By now, the majority of participants have joined an EU-recognised voluntary system.

The overall figures result from all participants reported to the BLE. If a company has multiple roles at the same time, e.g. producer of biofuels and supplier after the final interface and/or participates in more than one certification system, multiple counting will occur.

The following diagram clearly shows that the DE systems continuously become less important while voluntary arrangements register increasing numbers of participants. The total number of participants increased by more than 4 per cent compared to 2013.

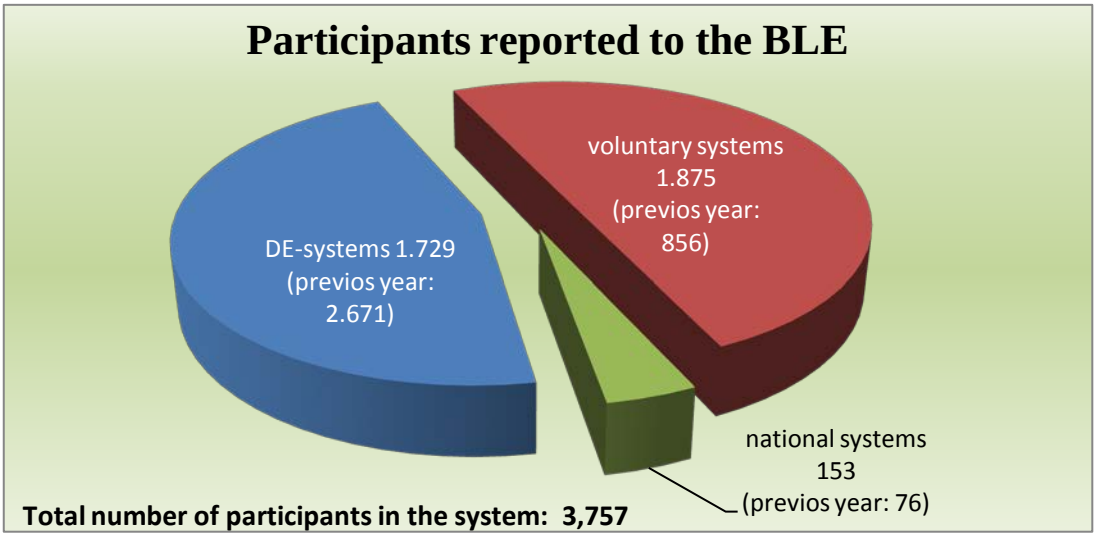

Diagram 1

3.4.2 Suppliers subjected to supervision by German customs offices

If suppliers after the final interface are under supervision by German customs offices in terms of Article 17(3) No. 2 Biokraft-NachV, they will not necessarily be required to participate in a certification system recognised by the BLE or a voluntary system recognised by the European Commission. A prerequisite for this exception is that the suppliers' mass balance system be regularly subjected to controls carried out by the main customs offices for reasons of taxation in accordance with the Energy Tax Act or for the monitoring of the biofuel quota obligation under the Federal Immission Control Act, and that suppliers document the receipt and forwarding of biofuels in the electronic Nabisy database including the place and date as well as the information on the proof of sustainability.

In the application process for access to Nabisy, the BLE asks the main customs office responsible for the supplier's place of business to confirm that the applicant is actually under customs office supervision. Once this confirmation is provided, the economic operator is given access to the database.

As at 31.12.2014, 276 (previous year: 292) suppliers under customs office supervision were registered in Nabisy.

3.4.3 Participants in national systems of other Member States

Some of the participants registered in Nabisy are part of national systems of other Member States. As at 31.12.2014, a total of 153 participants (previous year: 76) of the national systems of **Austria, Hungary and Slovenia** were notified to the BLE. The relatively small number of notifications does not mean that biofuels, bioliquids or their raw materials from these Member States are of limited relevance for the German market (see chapter 6.1, Diagram 9). Rather, it is due to the fact that some Member States transposed Directive 2009/28/EC at a later date. For that reason, interested economic operators from other Member States usually joined the certification systems recognised by the BLE or the voluntary systems recognised by the European Commission.

4 Certification bodies

Certification bodies are independent natural or legal persons who issue certificates to economic operators along the supply chain and who monitor all operations along the supply chain with regard to fulfilment of the requirements laid down in the Renewable Energy Directive and in national legislation adopted for its implementation as well as other requirements of the used system. Certificates certify that the specific requirements of the Renewable Energy Directive for the production of sustainable biofuels or bioliquids are met. In Germany, the BLE is responsible for the recognition and supervision of certification bodies within the context of sustainable biomass production. This applies irrespective of whether the certification bodies become active in connection with the certification systems recognised by the BLE or with voluntary schemes, since the monitoring task of the BLE refers to all certification bodies located in Germany.

For interfaces having issued a double counting proof within the framework of the 36th BImSchV for biofuels from waste and residual materials and for the upstream interfaces, the certificate required according to Article 10(1) of the 36th BImSchV must have been issued by a certification body recognised in accordance with Article 42(1) of the Biokraft-NachV. The certification body must also be able to ensure that the requirements of Article 7 of the 36th BImSchV are met. The BLE announces the certification bodies suitable for the scope of the 36th BImSchV in the Federal Gazette and supervises them. Pursuant to Article 42 Nos. 1 and 2 and Article 43 in connection with Article 56 BioSt-NachV and/or Biokraft-NachV, the following number of applications for the recognition of certification bodies were lodged with the BLE by 31.12.2014:

Table 3: Number of applications for recognition as certification body

Total applications	**48**
rejected	6
accepted	**42**
recognition withdrawn or void due to inactivity of the certification body	13
Number of certification bodies permanently recognised as at 31.12.2014	**29**

Of the 29 permanently recognised certification bodies listed in Table 3, 23 certification bodies were also announced as being suited for activities within the framework of the 36th BImSchV in the Federal Gazette. These are listed in table 4. Within the framework of the recognition procedure, certification bodies receive a provisional recognition at first which allows them to take up their certification activities. This provisional recognition can only be replaced by a permanent recognition after an office audit was carried out. Certification bodies which received a provisional recognition in 2014 and had not been permanently recognised as at 31.12.2014 are not listed in table 4.

The currently recognised certification bodies can be viewed at http://www.ble.de/Biomasse at any time.

Table 4: Recognised certification bodies

Recognised certification bodies	Permanently recognised on	Suited pursuant to 36th BImSchV Announced on
SGS Germany GmbH, Germany	23.08.2010	27.12.2012
DQS CFS GmbH, Germany	23.08.2010	23.07.2013
TÜV SÜD GmbH, Germany	23.08.2010	27.12.2012
GUT Certifizierungsgesellschaft mbH, Germany	23.08.2010	27.12.2012
Global-Creative-Energy GmbH, Germany	30.08.2010	27.12.2012
Peterson Control Union Deutschland GmbH, Germany	30.08.2010	27.12.2012
Agrizert Zertifizierungs GmbH, Germany	29.09.2010	27.12.2012
IFTA AG, Germany	01.12.2010	27.12.2012
DEKRA Certification GmbH, Germany	01.12.2010	27.12.2012
ABCERT AG, Germany	09.12.2010	27.12.2012
LACON GmbH, Germany	15.12.2010	not applied
ÖHMI Euro Cert GmbH, Germany	20.12.2010	27.12.2012
QAL Umweltgutachter GmbH, Germany	20.12.2010	27.12.2012
Agro Vet GmbH, Austria	21.12.2010	27.12.2012
ACG Agrar-Control GmbH, Germany	05.01.2011	not applied
TÜV Rheinland Cert GmbH, Germany	06.01.2011	27.12.2012
ASG cert GmbH, Germany	14.03.2011	27.12.2012
Bureau Veritas Certification Germany GmbH, Germany	14.03.2011	27.12.2012
LKS Landwirtschaftliche Kommunikations- und Servicegesellschaft mbH, Germany	21.04.2011	27.12.2012
TÜV Thüringen e. V., Germany	21.04.2011	not applied
TÜV Nord Cert GmbH, Germany	25.09.2011	27.12.2012
proTerra GmbH, Germany	27.09.2011	27.12.2012
DVGW Cert GmbH, Germany	09.05.2012	27.12.2012
ELUcert GmbH, Germany	17.04.2013	27.12.2012
SC@PE international Ltd.	05.06.2014	not applied
Intertek Certification GmbH	13.02.2013	13.02.2013
ICIM S.p.A	19.09.2014	18.06.2014
DNV GL Business Assurance Zertifizierung und + Umweltgutachter GmbH	08.01.2014	not applied
BSI Group Deutschland GmbH	13.11.2014	not applied

4.1 Global certifications under the requirements of DE systems

In Germany, the transposition of Directive 2009/28/EC into national law stipulates an obligation for certain economic operators along the supply chain for the production of biofuels or bioliquids, the so-called **interfaces**, to be certified. The interfaces include the first gathering points/ collectors as well as all conversion operations. In addition, assessments of conformity and random controls required by law are carried out along the production and supply chain.

The certification bodies acting according to the requirements of the certification systems recognised by the BLE (REDcert-DE and ISCC-DE) mainly carried out certifications in Germany and within the European Union.

Compared to a total of 857 DE certifications in 2013, only 341 certifications were carried out in 2014. This is a sharp decline of more than 60 % (32 % in the previous year).

Approximately 20 % of the certifications in 2014 were carried out according to the 36th BImSchV. A total of 26 certificates were revoked by the certification bodies.

Table 5: Number of DE certifications

Number of operations certified and recertified under DE requirements	2013	2014
Total	857	341
in Germany	479	160
within the EU, excluding Germany	340	161
in third countries	38	20

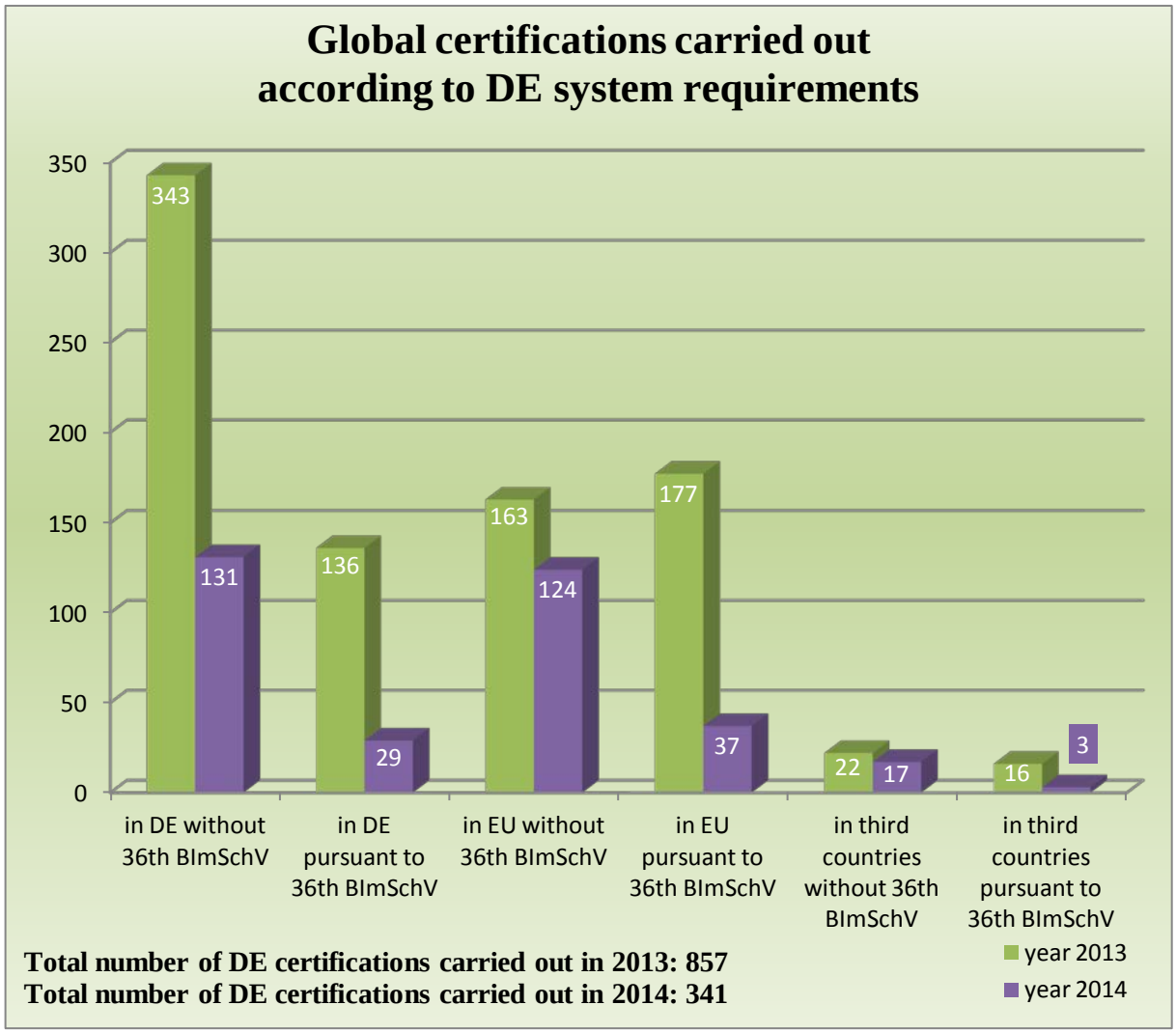

Diagram 2

4.2 Certifications under the requirements of the voluntary systems

The BLE is responsible for the recognition and supervision of certification bodies based in or operating a branch in Germany.

Wherever these certification bodies carry out certifications according to the requirements of voluntary systems and where the certification decision is taken in Germany, they are subjected to BLE supervision as well. Therefore, these certificates are also to be transmitted to the BLE. In the reporting year, 2,500 certifications and recertifications were reported for operations which were certified according to EU requirements.

BLE auditors monitor certification audits of certification bodies around the world, provided that the countries concerned have permitted the BLE to carry out monitoring audits on their territory. The audits concern both the requirements of the DE systems and the voluntary systems. In 2014, the BLE monitored more than 200 certification audits carried out by the certification bodies.

5 The public database Nabisy and proofs of sustainability

5.1 Sustainable biomass system (”Nabisy”)

According to Commission Decision 2011/13/EU of 12th January 2011, economic operators have to submit certain data on the sustainability of every consignment of biofuels and bioliquids to the Member States where these can become relevant for the German market.

In Germany, this is done electronically. The economic operators must enter respective data into the web-based public database Nabisy for every supply of biofuels or bioliquids. Proofs of sustainability or partial proofs of sustainability contain the data regarding compliance with the sustainability criteria entered into Nabisy and are to be handed on along the supply chain.

In the reporting year, economic operators used 1,539 accounts. Only operators downstream of the final interface were involved as this is where the Nabisy system commences. The largest share is accounted for by plant operators that use liquid biomass to generate electricity.

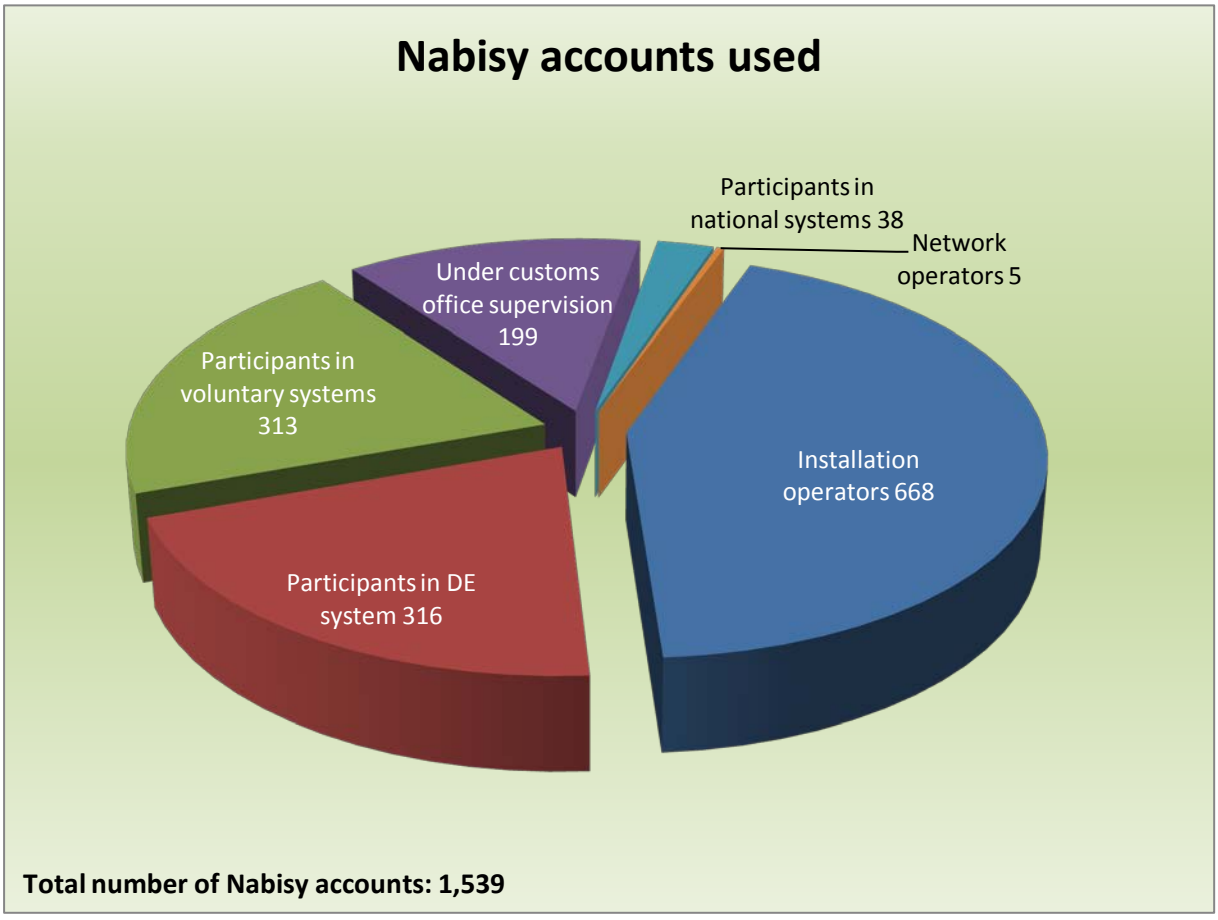

Diagram 3

Depending on their function, economic operators with an account in Nabisy can create sustainability certificates (final interfaces), transfer, split and combine proofs of sustainability and partial proofs of sustainability (suppliers/plant operators) and apply notations of use (network operators). Economic operators may apply to the BLE for a needs-based number of accesses to their account. The following overview shows the number of accesses as at 31.12.2014.

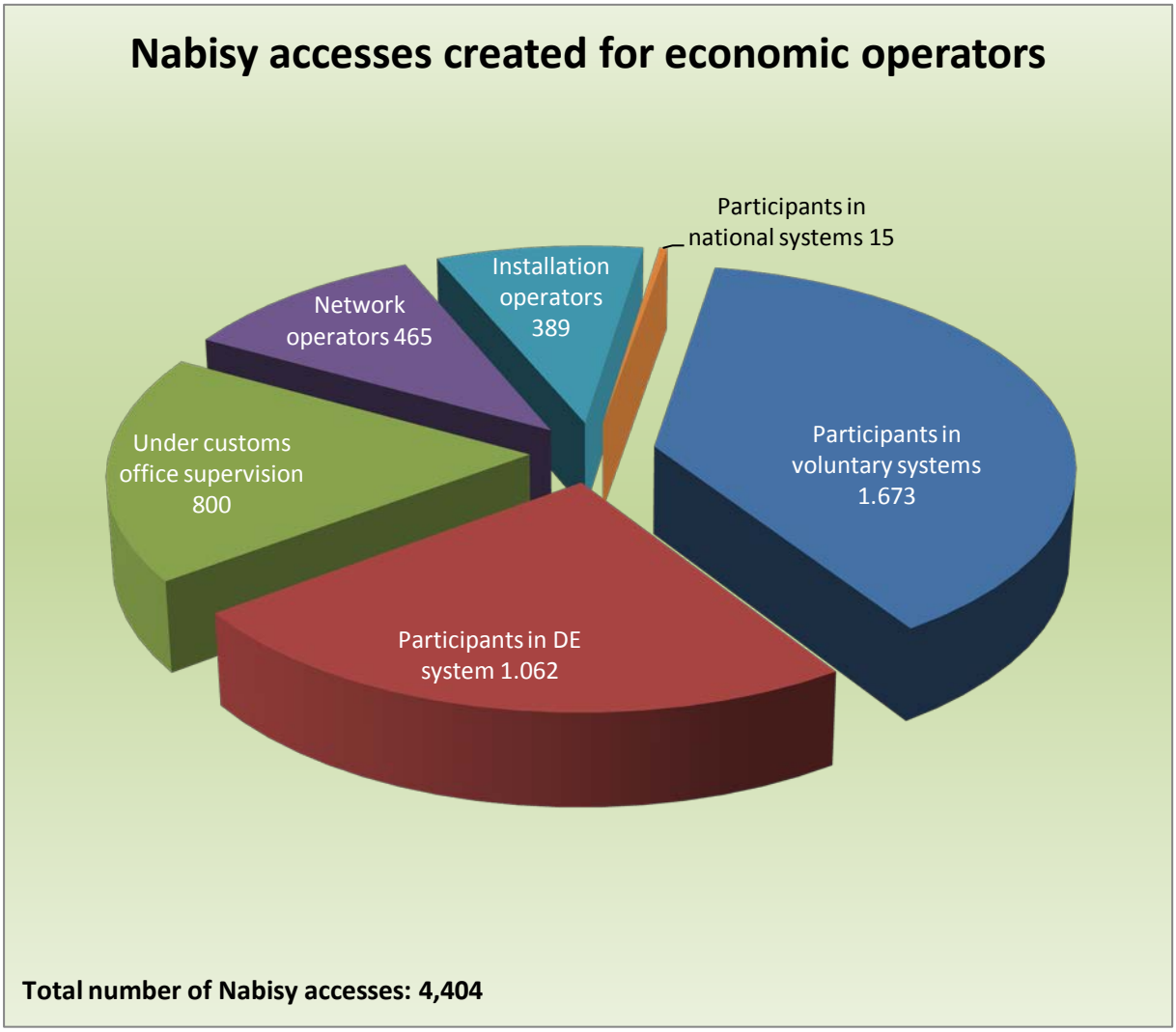

Diagram 4

5.2 Certificates

Only producers of consignments of biofuel or bioliquids can issue a proof of sustainability. They are a so-called "**final interface**". By issuing the proof in Nabisy, they ensure that the consignment can be used on the German market. If a down-stream part of the supply chain, e.g. a supplier, decides that the goods are to be used outside Germany, they have to retire the respective certificate to the retirement account of the state in which the final use takes place.

Presenting proofs of sustainability or partial proofs of sustainability to the customs authority is a prerequisite for counting biofuels towards the biofuel quota obligation of the distributor. Installation operators are entitled to remuneration for electricity produced from biomass and fed into the grid pursuant to the Renewable Energy Sources Act and the renewable resources bonus (if applicable) only if they present a

proof of sustainability or partial proof of sustainability.

Proofs of sustainability are issued by certified economic operators who upgrade the liquid or gaseous biomass to the quality class required for the use as a biofuel, or by those who produce biofuels from the biomass (issuing bodies). In the sustainability ordinances, these economic operators are referred to as the final interface. As the voluntary systems do not use this terminology, this report uses the term “economic operator issuing the proof of sustainability”.

A proof of sustainability identifies a certain amount of biofuel or bioliquids as sustainable. If biofuels are traded in the supply chain through to the party under obligation to deliver proof or to the installation operator, the respective amounts are split or combined as required. In order to document this accordingly, it is necessary to split a proof of sustainability or to combine it with other certificates. In this way, but also by transferring the certificate to the customer, partial proofs sustainability are generated.

Since 1.1.2013 it was possible to issue a proof of sustainability in combination with an additional **proof of double counting**.[3]

The proof of double counting was created by Nabisy automatically if all requirements were met and if the issuing economic operator selected this option.

Model forms for the proof of sustainability, proof of double counting, partial proof of sustainability and partial proof of double counting are presented in the following pages.

[3] Now omitted

NACHHALTIGKEITSNACHWEIS

für flüssige Biomasse nach §§ 15 ff. Biomassestrom-Nachhaltigkeitsverordnung (BioSt-NachV) oder
für Biokraftstoffe nach §§ 15 ff. Biokraftstoff-Nachhaltigkeitsverordnung (Biokraft-NachV)

Nummer:
Lieferdokument:

Schnittstelle:	Nachweis-Empfänger:	Zertifizierungssystem:

1. Allgemeine Angaben zur Biomasse / zum Biokraftstoff:

Art: Anbauland / Entstehungsland:

Menge (t oder m^3): Energiegehalt (MJ):

Die flüssige Biomasse / der Biokraftstoff ist aus Abfall oder aus Reststoffen hergestellt worden, und die Reststoffe stammen nicht aus der Land-, Forst- oder Fischwirtschaft oder aus Aquakulturen.

☐ ja ☐ nein

2. Nachhaltiger Anbau der Biomasse bzw. nachhaltige Herstellung des Biokraftstoffs nach den §§ 4 – 7 BioSt-NachV / Biokraft-NachV:

Die Biomasse erfüllt die Anforderungen nach den §§ 4 – 7 BioSt-NachV/ Biokraft-NachV.

☐ ja ☐ nein

3. Treibhausgas-Minderungspotenzial nach § 8 BioSt-NachV/ Biokraft-NachV:

☐ Das Treibhausgas-Minderungspotenzial ist wie folgt erfüllt:

- Treibhausgasemissionen (g CO_{2eq}/MJ): Vergleichswert für Fossilbrennstoffe (g CO_{2eq}/MJ):
- Erfüllung des Minderungspotenzials* bei einem Einsatz ☐ zur Stromerzeugung ☐ als Kraftstoff ☐ in Kraft-Wärme-Kopplung ☐ zur Wärmeerzeugung
- Erfüllung des Minderungspotenzials bei einem Einsatz in folgenden Ländern/Regionen (z.B. Deutschland, EU):

Der Nachhaltigkeitsnachweis wurde elektronisch erstellt und ist ohne Unterschrift gültig.
Die Identifizierung des Nachweises erfolgt über seine einmalig vergebene Nummer.

Ort und Datum der Ausstellung:

Lieferung auf Grund eines Massenbilanzsystems nach § 17 BioSt-NachV / Biokraft-NachV **:

Die Lieferung ist in einem Massenbilanzsystem dokumentiert worden. ☐ ja ☐ nein

☐ Die Dokumentation erfolgte nach den Anforderungen des folgenden Zertifizierungssystems:

☐ Die Dokumentation erfolgte in der folgenden elektronischen Datenbank:

☐ Die Dokumentation erfolgte auf die folgende andere Art:

Letzter Lieferant (Name, Adresse):

Ort und Datum:

* **Hinweis**: Im Falle, dass Rohstoffe aus mehreren Anbau- oder Entstehungsländern in dem Nachhaltigkeitsnachweis enthalten sind, werden nur die zwei Staaten mit den größten Mengenanteilen angezeigt.

** **Hinweis**: auszufüllen vom letzten Lieferanten

Vordruck der Bundesanstalt für Landwirtschaft und Ernährung

DOPPELGEWICHTUNGSNACHWEIS

nach § 9 der Sechsunddreißigsten Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes (36. BImSchV)

Nummer:
Nummer des Lieferdokumentes:

Schnittstelle:	Nachweis-Empfänger:	Zertifizierungssystem:
(Name, Adresse, Registriernummer)	(Name, Adresse)	(Name, Registriernummer)

1. Angaben zum Biokraftstoff

Bezeichnung des Biokraftstoffs:

Doppelgewichtungsfähige Menge (t oder m³ 15°C):

2. Der Biokraftstoff wurde hergestellt aus:

☐ 1. Abfällen im Sinne des § 7 Absatz 1 Nummer 1 der 36. BImSchV

Art des Abfalls:

☐ 2. Reststoffen im Sinne des § 7 Absatz 1 Nummer 2 der 36. BImSchV

Art des Reststoffs:

☐ 3. zellulosehaltigem Non-Food-Material im Sinne des § 7 Absatz 1 Nummer 3 der 36. BImSchV

Art der Biomasse:

Anteil des doppelgewichtigungsfähigen Biokraftstoffs, der aus Zellulose hergestellt wurde: %
Anteil des doppelgewichtigungsfähigen Biokraftstoffs, der aus Hemizellulose hergestellt wurde: %

☐ 4. lignozellulosehaltigem Material im Sinne des § 7 Absatz 1 Nummer 4 der 36. BImSchV

Art der Biomasse:

Anteil des doppelgewichtigungsfähigen Biokraftstoffs, der aus Zellulose hergestellt wurde: %
Anteil des doppelgewichtigungsfähigen Biokraftstoffs, der aus Hemizellulose hergestellt wurde: %
Anteil des doppelgewichtigungsfähigen Biokraftstoffs, der aus Lignin hergestellt wurde: %

Herstellungsdatum des Biokraftstoffs:

Der Doppelgewichtungsnachweis ist auch ohne Unterschrift gültig. Für die Richtigkeit des Nachweises ist die ausstellende Schnittstelle verantwortlich. Die Identifizierung des Nachweises erfolgt über eine einmalig vergebene Nummer. Der Doppelgewichtungsnachweis kann nur anerkannt werden, wenn er zusammen mit dem dazugehörigen Nachhaltigkeitsnachweis der Einhaltung der §§ 4 bis 8 Biokraftstoff-Nachhaltigkeitsverordnung geführt wird.

Ort und Datum der Ausstellung:

Vordruck der Bundesanstalt für Landwirtschaft und Ernährung

NACHHALTIGKEITS-TEILNACHWEIS

für flüssige Biomasse nach §§ 15 ff. Biomassestrom-Nachhaltigkeitsverordnung (BioSt-NachV) oder
für Biokraftstoffe nach §§ 15 ff. Biokraftstoff-Nachhaltigkeitsverordnung (Biokraft-NachV)

Nummer des Teilnachweises:
Nummer des Basis-Nachweises:
Lieferdokument: 1234567890abcde
Aussteller:

Schnittstelle*:	Teilnachweis-Empfänger:	Zertifizierungssystem*:

1. Allgemeine Angaben zur Biomasse / zum Biokraftstoff:

Art: Anbauland / Entstehungsland*:
Menge (t oder m^3): Energiegehalt (MJ):

Die flüssige Biomasse / der Biokraftstoff ist aus Abfall oder aus Reststoffen hergestellt worden, und die Reststoffe stammen nicht aus der Land-, Forst- oder Fischwirtschaft oder aus Aquakulturen.
☐ ja ☐ nein

2. Nachhaltiger Anbau der Biomasse bzw. nachhaltige Herstellung des Biokraftstoffs nach den §§ 4 – 7 BioSt-NachV / Biokraft-NachV:

Die Biomasse erfüllt die Anforderungen nach den §§ 4 – 7 BioSt-NachV / Biokraft-NachV.
☐ ja ☐ nein

3. Treibhausgas-Minderungspotenzial nach § 8 BioSt-NachV / Biokraft-NachV:

☐ Das Treibhausgas-Minderungspotenzial ist wie folgt erfüllt:
- Treibhausgasemissionen (g CO_{2eq}/MJ): Vergleichswert für Fossilbrennstoffe (g CO_{2eq}/MJ):
- Erfüllung des Minderungspotenzials bei einem Einsatz ☐ zur Stromerzeugung ☐ als Kraftstoff ☐ in Kraft-Wärme-Kopplung ☐ zur Wärmeerzeugung
- Erfüllung des Minderungspotenzials bei einem Einsatz in folgenden Ländern/Regionen (z.B. Deutschland, EU):

Der Nachhaltigkeits-Teilnachweis wurde elektronisch erstellt und ist ohne Unterschrift gültig. Die Identifizierung des Teilnachweises erfolgt über seine einmalig vergebene Nummer.
Ort und Datum der Ausstellung:

Lieferung auf Grund eines Massenbilanzsystems nach § 17 BioSt-NachV / Biokraft-NachV **:

- ☐ Die Lieferung ist in einem Massenbilanzsystem dokumentiert worden:
  - ☐ Die Dokumentation erfolgt über die elektronischen Datenbank der BLE.
  - ☐ Die Dokumentation erfolgt nach den Anforderungen des folgenden Zertifizierungssystems:
  - ☐ Die Dokumentation erfolgt nach § 17 Abs. 3 Biokraft-NachV.
  - ☐ Die Dokumentation erfolgt in der folgenden elektronischen Datenbank:

Letzter Lieferant (Name, Adresse):

* **Hinweis:** Im Falle, dass Rohstoffe aus mehreren Anbau- oder Entstehungsländern in dem Nachhaltigkeits-Teilnachweis enthalten sind, werden nur die zwei Staaten mit den größten Mengenanteilen angezeigt.
** **Hinweis:** auszufüllen vom letzten Lieferanten
Vordruck der Bundesanstalt für Landwirtschaft und Ernährung (BLE)

DOPPELGEWICHTUNGS-TEILNACHWEIS

nach § 9 der Sechsunddreißigsten Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes (36. BImSchV)

Nummer des Teilnachweises:
Nummer des Basisnachweises:

Nummer des Lieferdokumentes:

Schnittstelle:	Teilnachweis-Empfänger:	Zertifizierungssystem:
(Name, Adresse, Registriernummer)	(Name, Adresse)	(Name, Registriernummer)

1. Angaben zum Biokraftstoff

Bezeichnung des Biokraftstoffs:

Doppelgewichtungsfähige Menge (t oder m³ 15°C):

2. Der Biokraftstoff wurde hergestellt aus:

☐ 1. Abfällen im Sinne des § 7 Absatz 1 Nummer 1 der 36. BImSchV

Art des Abfalls:

☐ 2. Reststoffen im Sinne des § 7 Absatz 1 Nummer 2 der 36. BImSchV

Art des Reststoffs:

☐ 3. zellulosehaltigem Non-Food-Material im Sinne des § 7 Absatz 1 Nummer 3 der 36. BImSchV

Art der Biomasse :

Anteil des doppelgewichtungsfähigen Biokraftstoffs, der aus Zellulose hergestellt wurde: %
Anteil des doppelgewichtungsfähigen Biokraftstoffs, der aus Hemizellulose hergestellt wurde: %

☐ 4. lignozellulosehaltigem Material im Sinne des § 7 Absatz 1 Nummer 4 der 36. BImSchV

Art der Biomasse :

Anteil des doppelgewichtungsfähigen Biokraftstoffs, der aus Zellulose hergestellt wurde: %
Anteil des doppelgewichtungsfähigen Biokraftstoffs, der aus Hemizellulose hergestellt wurde: %
Anteil des doppelgewichtungsfähigen Biokraftstoffs, der aus Lignin hergestellt wurde: %

Der Doppelgewichtungsnachweis ist auch ohne Unterschrift gültig. Für die Richtigkeit des Nachweises ist die ausstellende Schnittstelle verantwortlich. Die Identifizierung des Nachweises erfolgt über eine einmalig vergebene Nummer. Der Doppelgewichtungsnachweis kann nur anerkannt werden, wenn er zusammen mit dem dazugehörigen Nachhaltigkeitsnachweis der Einhaltung der §§ 4 bis 8 Biokraftstoff-Nachhaltigkeitsverordnung geführt wird.

Ort und Datum der Ausstellung:

Vordruck der Bundesanstalt für Landwirtschaft und Ernährung

6 Biofuels

The following illustrates the quantities of biofuels distributed in Germany for which
- applications were submitted to be counted towards the biofuel quota obligation or
- to be considered for tax relief.

The data are based on the notations of the Federal Revenue Administration in Nabisy.

Please note that statements can be made only regarding the amounts applied for and energy contents. Based on the available data, no statements can be made as to whether tax relief will actually be granted for all the amounts and energy contents presented here

The data regarding the biofuel quota obligation and tax relief were presented together.

Diagram 5 gives an overview of the amounts for which applications were submitted towards the biofuel quota obligation for 2012, 2013 and 2014 in comparison.

In 2013, the amount of biofuels declined by 9.4 per cent compared to the previous year. 2014 recorded a slight increase by 0.7 per cent.

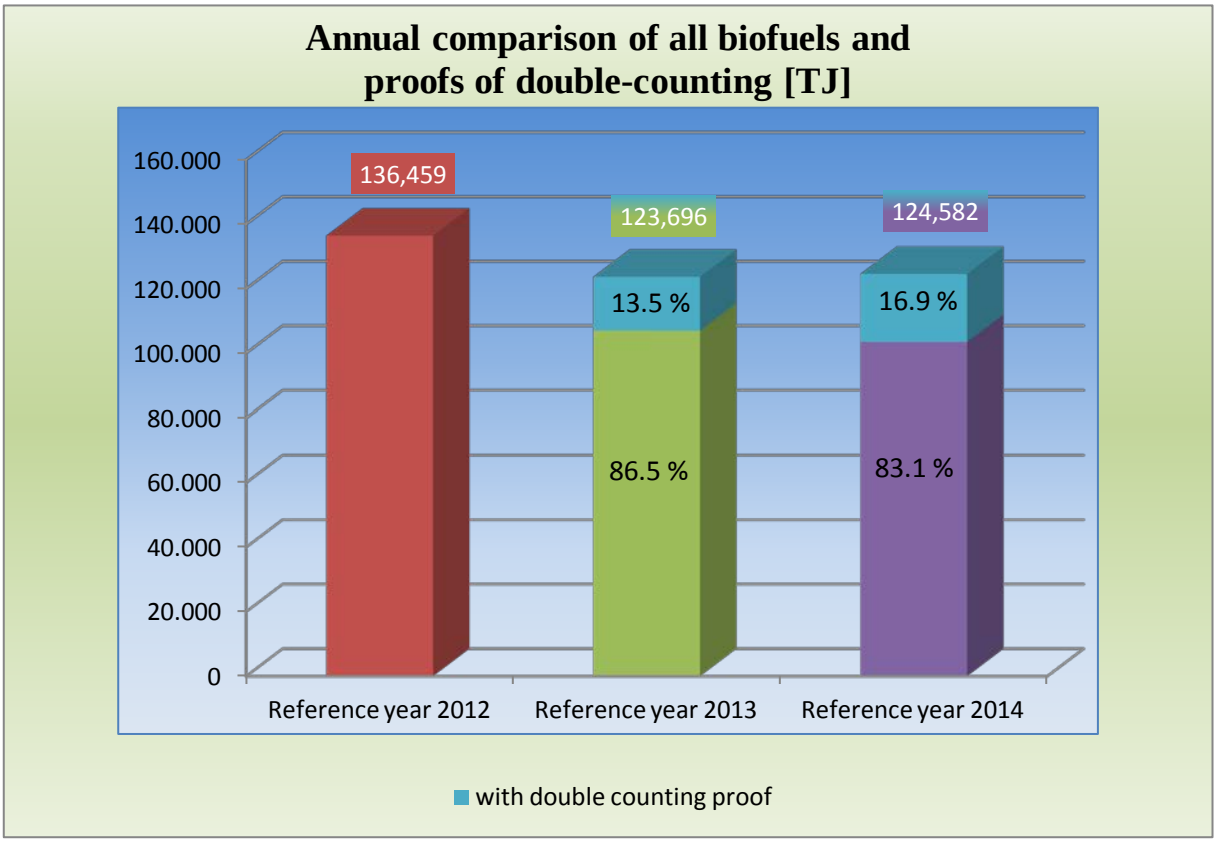

Diagram 5:

The share of waste and residual materials in biofuel has been increasing since 2012. Almost the entire amount of biofuels based on waste and residual materials and distributed in 2013 and 2014 was issued with proofs of double counting (see Diagram 5).

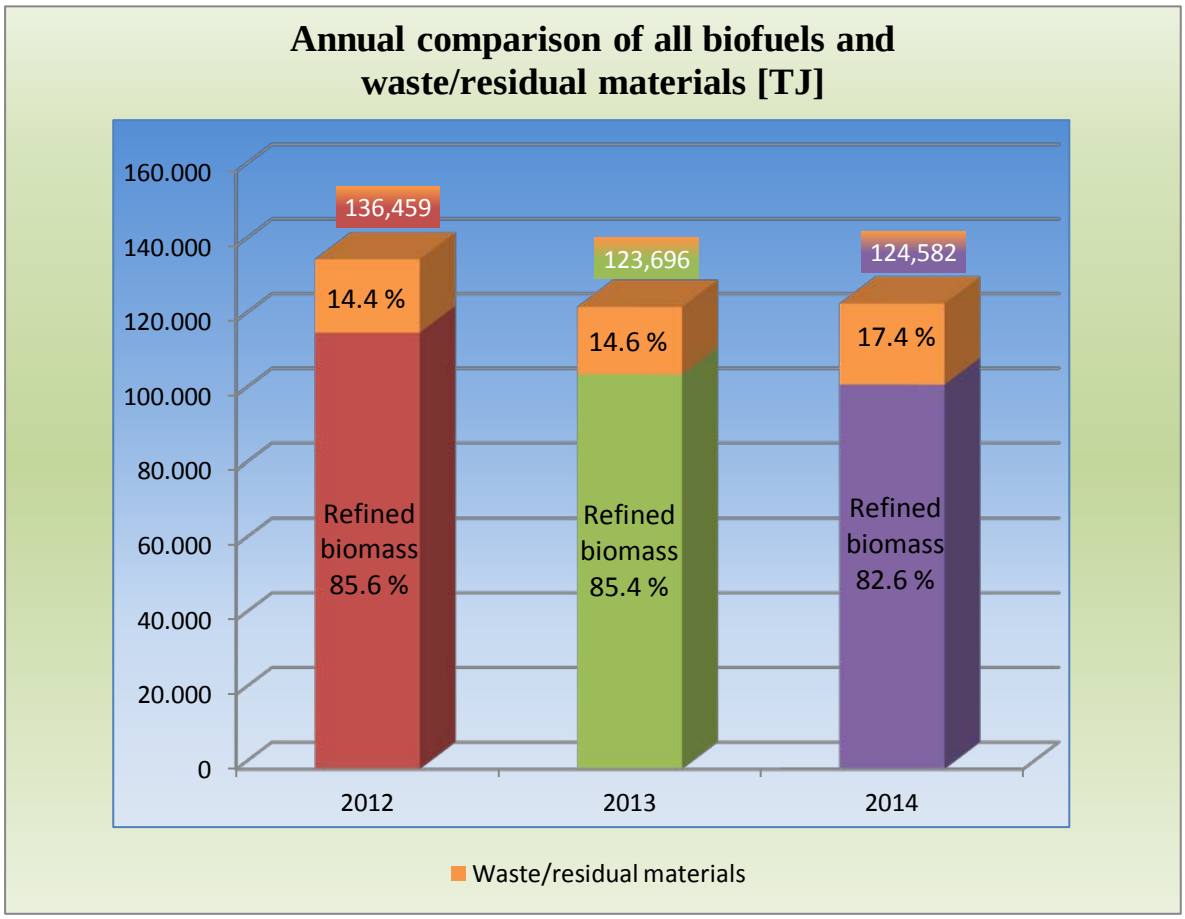

Diagram 6

6.1 Origin

Viewed on the basis of the recorded certificates, the raw materials of the biofuels which were brought onto the German market mainly originated in Europe, followed by Asia, North America, Australia and South America. Up to and including 2012, it was possible to enter certificates into Nabisy without giving evidence of the origin of the biomass. As of 2013, this information has been mandatory.

Overall, there was a significant increase in raw materials of European origin (plus 12 per cent). Raw materials of Asian origin, on the other hand, decreased by approximately one quarter in the reporting year, compared to the previous year.

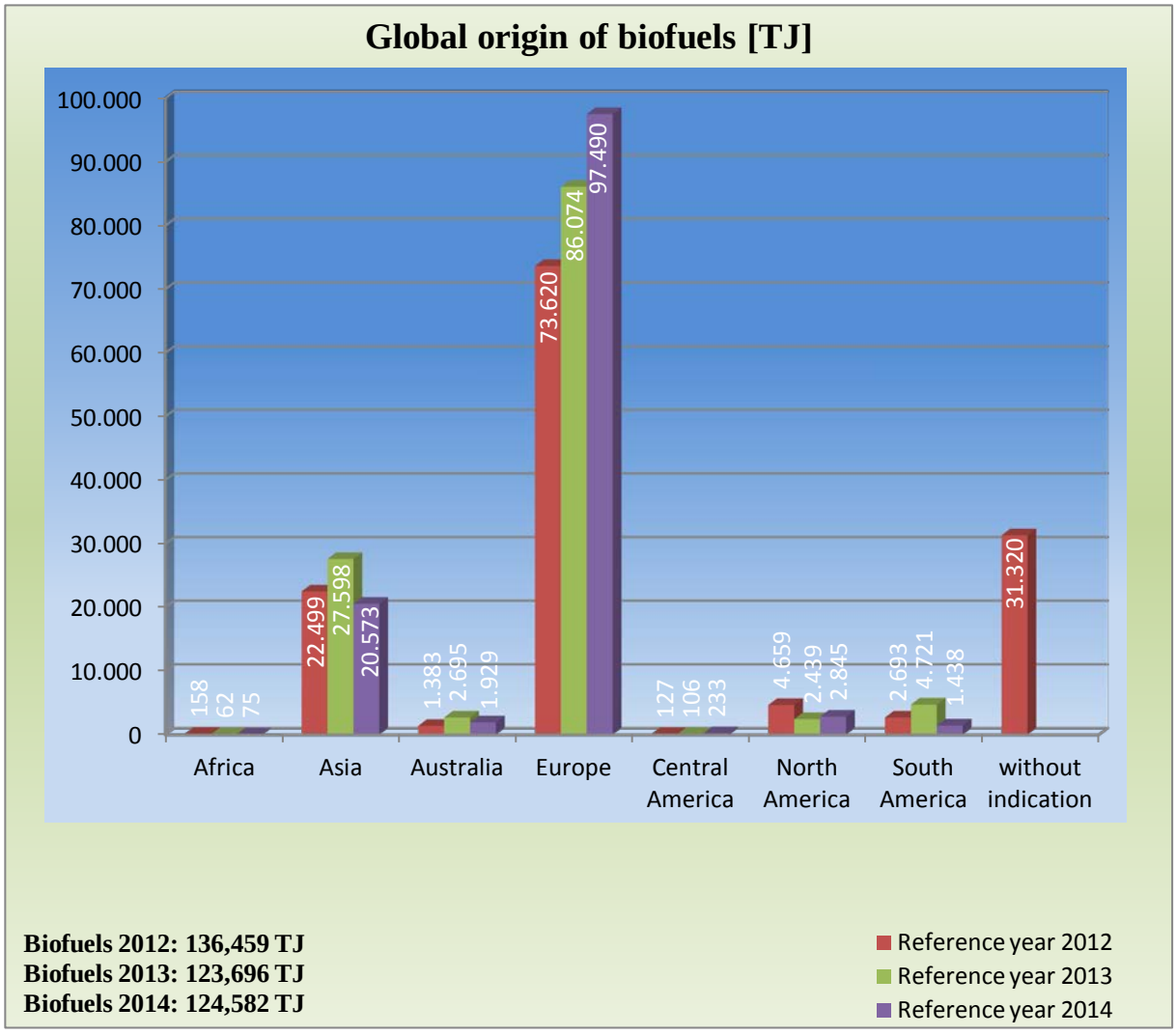

Diagram 7

The share of biofuels made from raw materials which originated in Germany or in European third countries (mostly Ukraine) declined in 2013 compared to the previous year. In 2014, an increase was recorded. The shares of materials originating in other EU Member States, on the other hand, declined again in 2014.

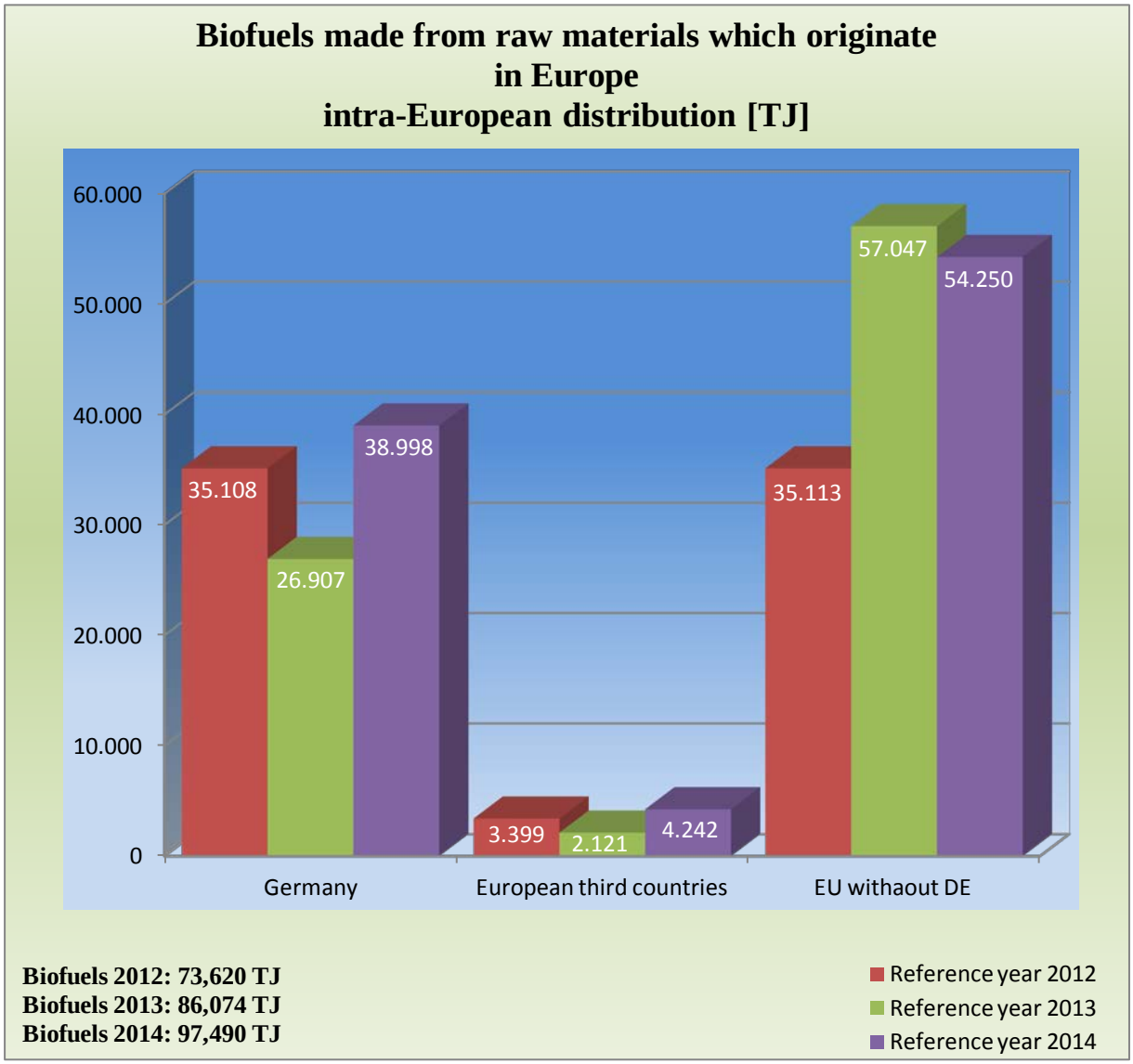

Diagram 8

Almost 42 per cent of the raw materials for biofuels originating in the European Union came from Germany. More than thirteen per cent originated in France, almost nine per cent in Poland, around six per cent in the United Kingdom and over five per cent in Hungary.

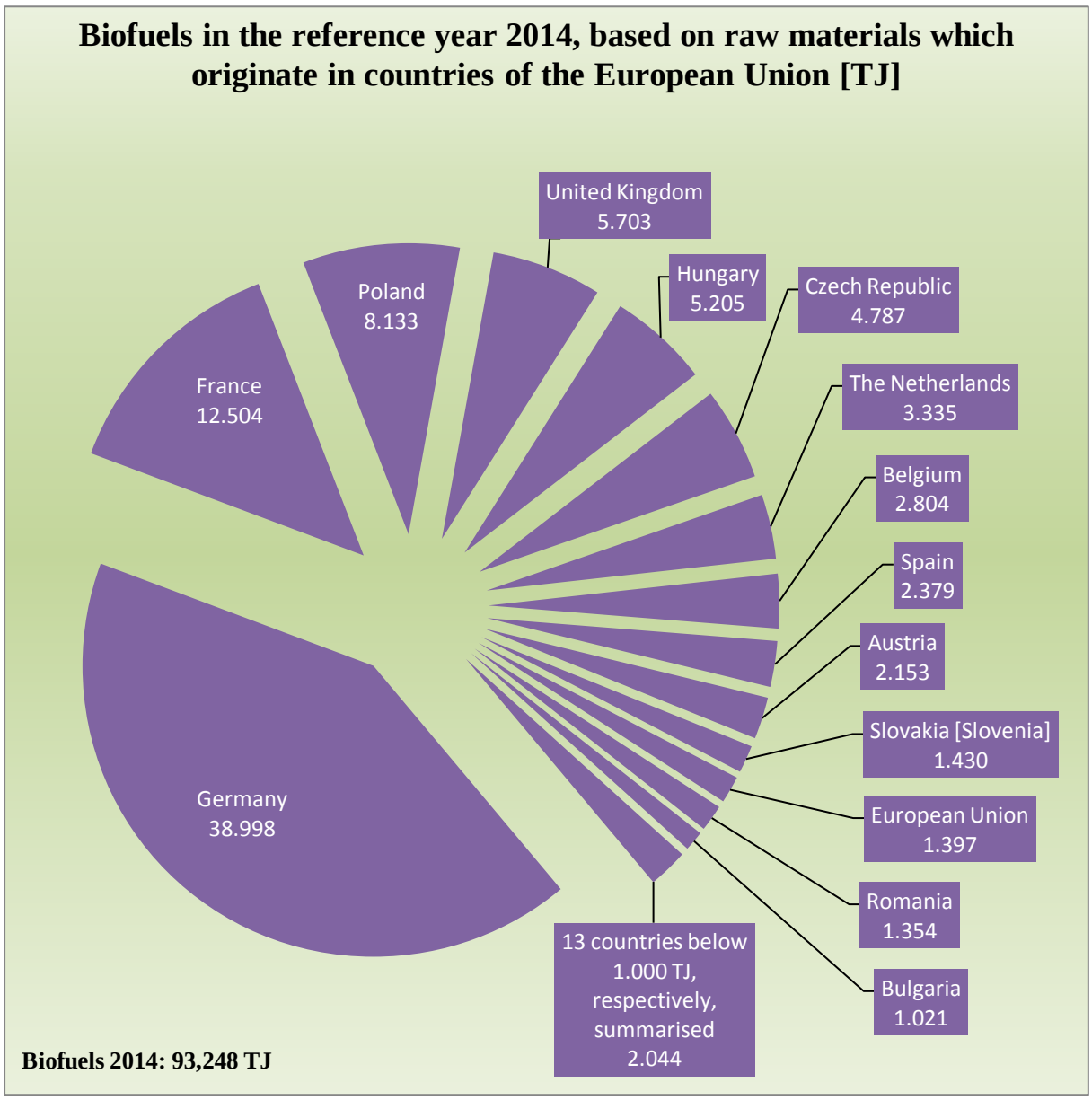

Diagram 9

The shares of the thirteen countries summarised here are as follows:

Lithuania	847 TJ	Sweden	580 TJ	Latvia	213 TJ	Denmark	121 TJ
Italy	80 TJ	Luxembourg	50 TJ	Ireland	50 TJ	Portugal	32 TJ
Slovenia	29 TJ	Estonia	19 TJ	Finland	18 TJ	Croatia	5 TJ
Greece	0.1 TJ						

Raw materials from European third countries were mainly from Ukraine.

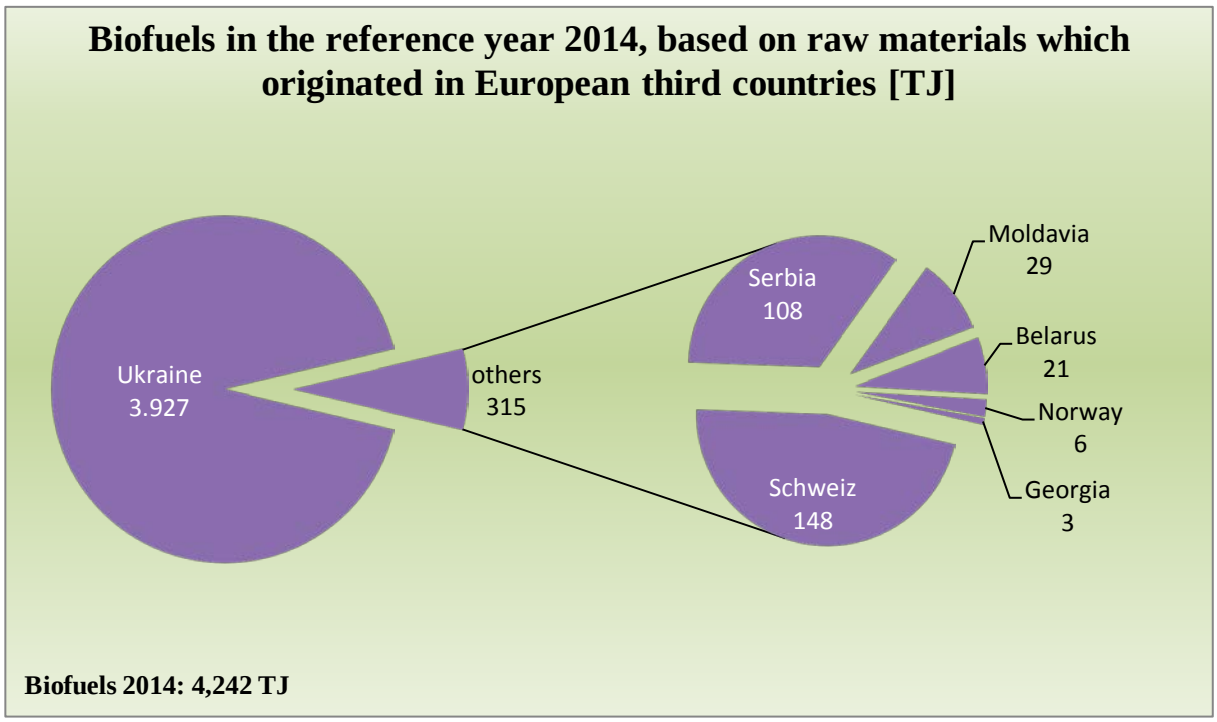

Diagram 10

6.2 Raw materials according to origin

Raw materials from **Africa** were mainly waste and residual materials and mostly consisted of used cooking oil. The total quantity has slightly increased again since 2013.

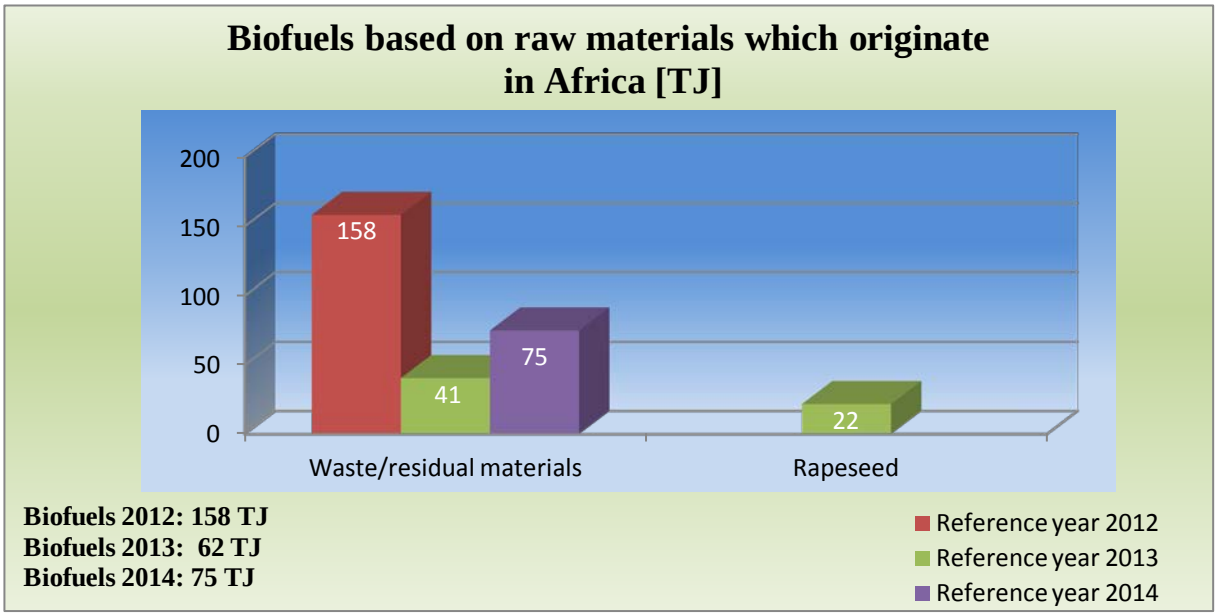

Diagram 11

The total quantity of Asian raw materials has decreased by almost one quarter compared to 2013. **Asia** mainly delivers palm oil. However, the share of palm oil has decreased by almost 30 % in 2014, compared to the previous year. The share of waste and residual materials has almost tripled at a low level.

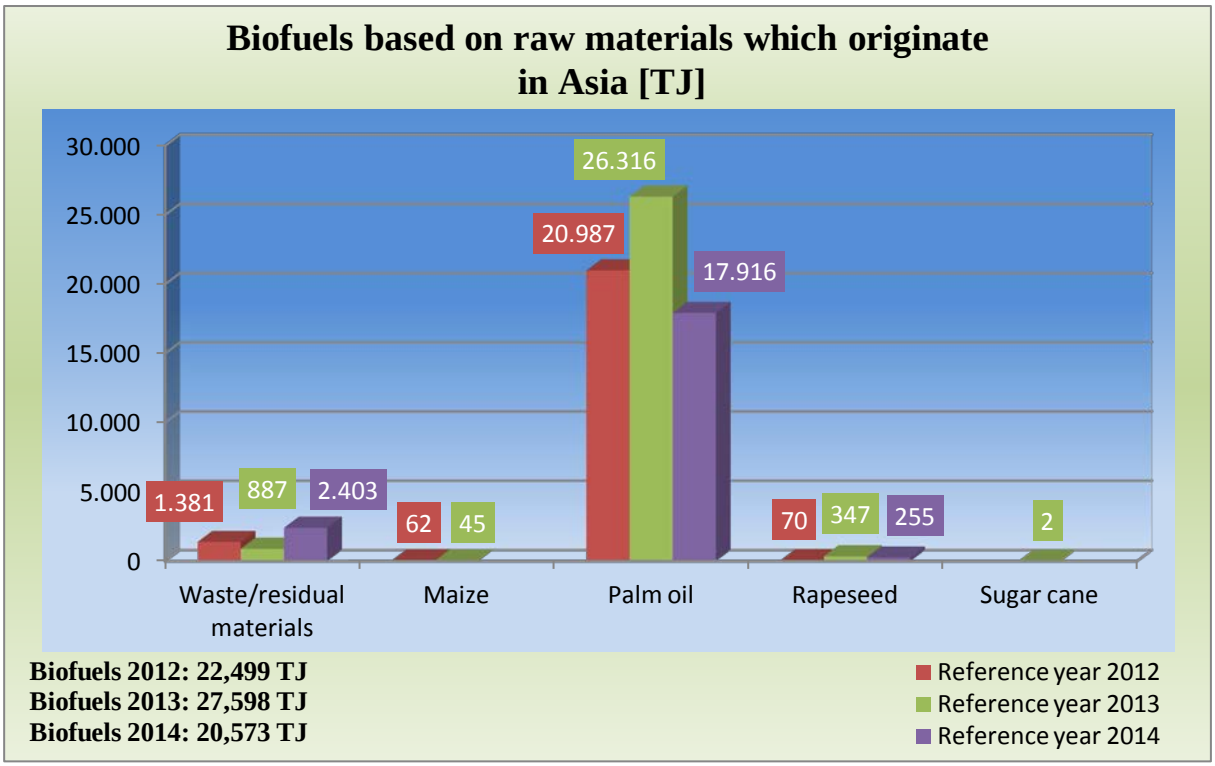

Diagram 12

Germany, overall, saw less biofuels distributed on the market based on raw materials which originated in **Australia**. The shares of waste/ residual materials and rape decreased substantially, while soya as a raw material was six times higher in 2014 than in the previous year, yet still of low overall importance.

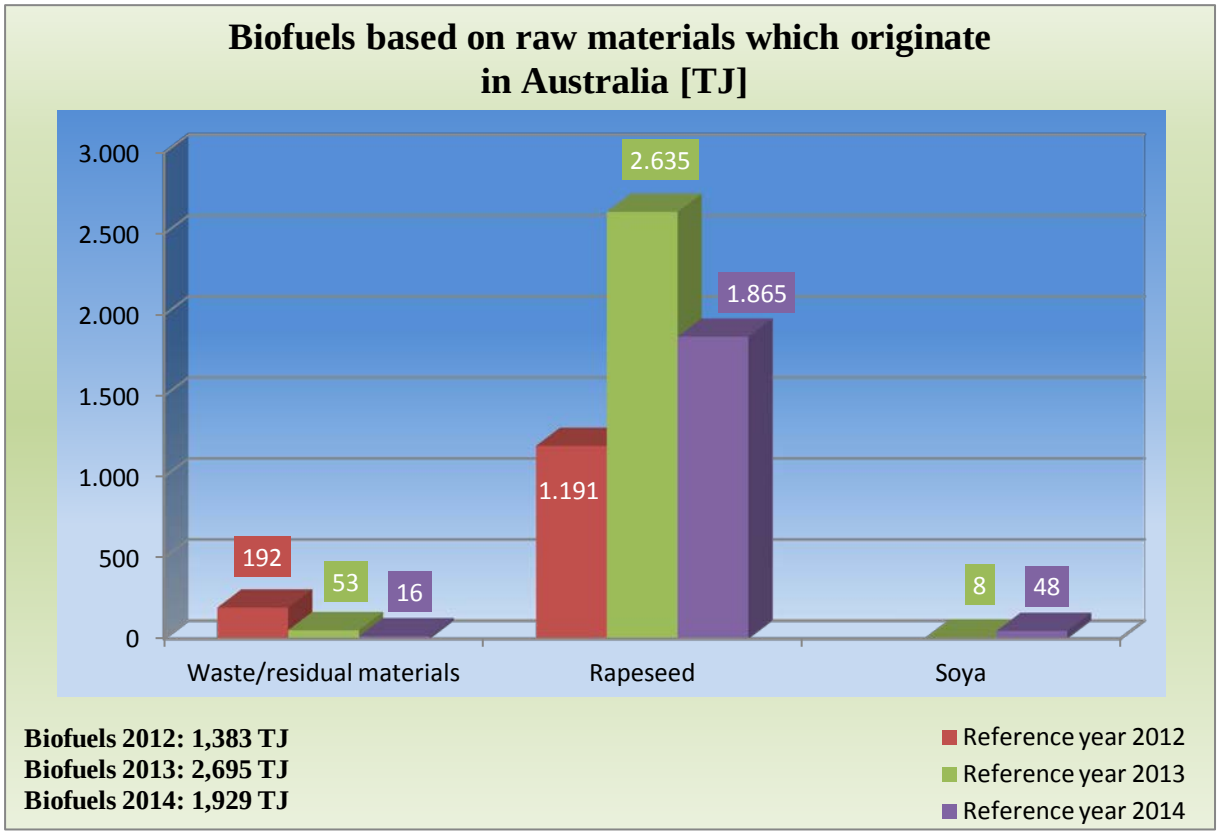

Diagram 13

An increasing amount of raw materials are from **Europe**. For all reference years, rapeseed was the most important raw material. Its share increased considerably by approx. 23 % in the quota year 2014, compared to the previous year. The share of waste and residual materials (mainly used cooking oil) rose by almost 10 % in the same period, while the share of biofuels made from maize and sugar beet declined by more than 12 %, respectively. The share of triticale, on the other hand, has more than tripled. Wheat recorded a plus of more than 23 %.

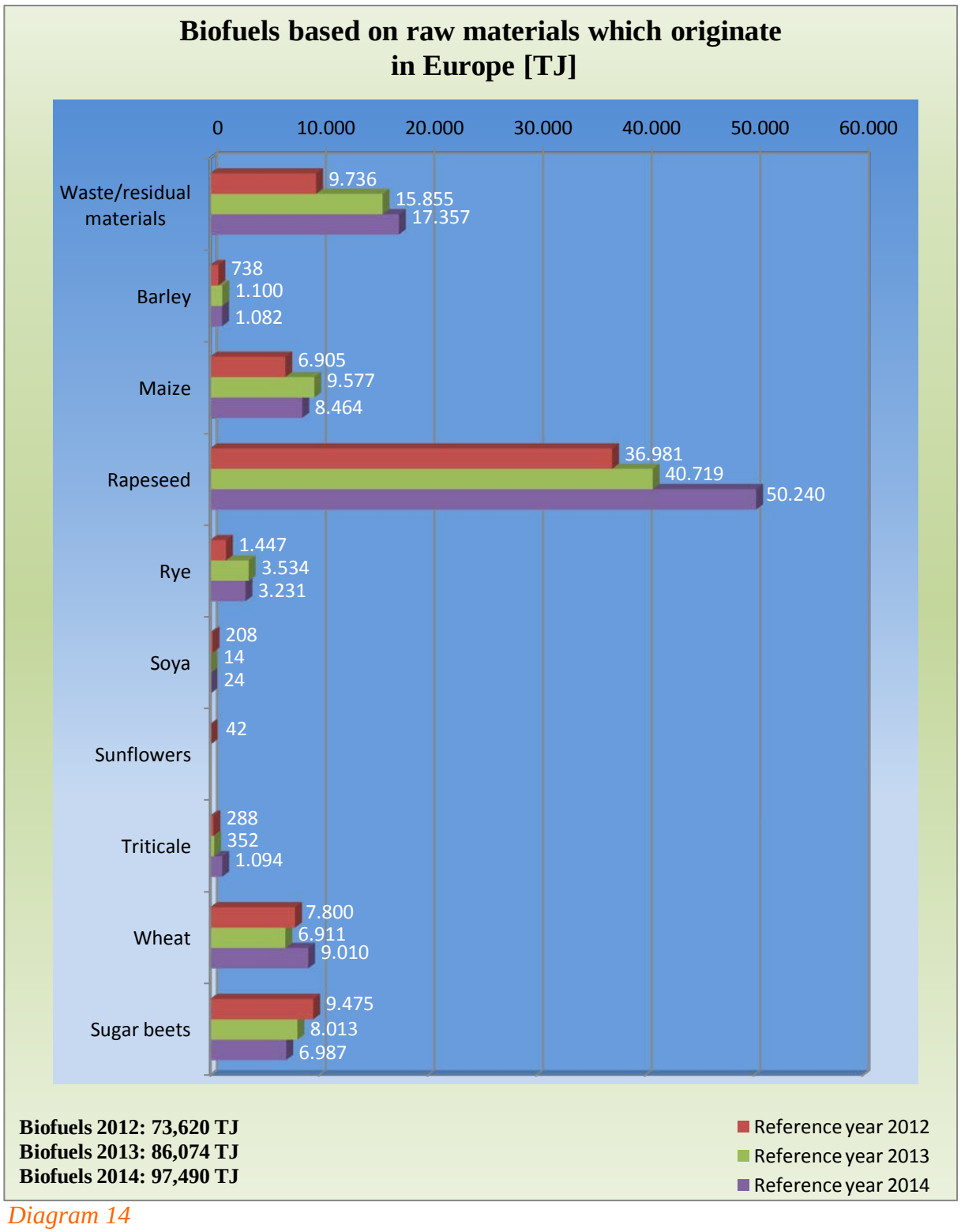

Diagram 14

The quantity of raw materials from **Central America** for the production of biofuels has doubled compared to the previous year 2013. Sugar cane continues to be the most important raw material from Central America. After a slight decrease in 2013, its quantity more than doubled in 2014. Although the share of waste and residual materials has increased sevenfold compared to the previous year, it still remains very low.

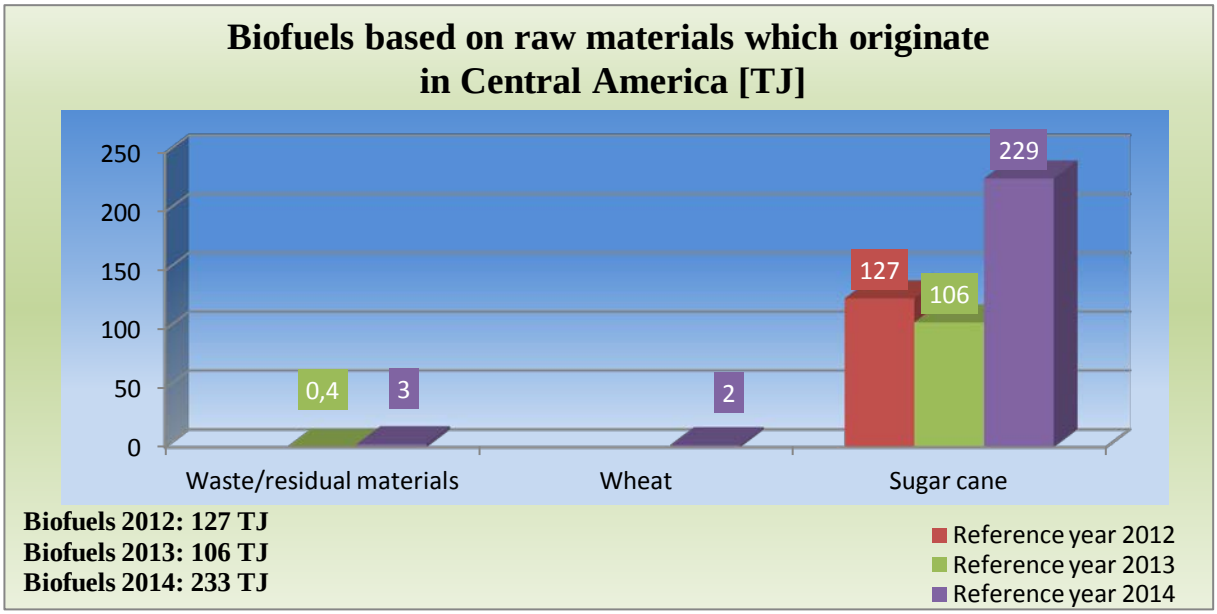

Diagram 15

While the use of maize from **North America** as a raw material has become even less significant, an increasing amount of biofuels was produced from waste and residual materials. Although the share of soya has increased sevenfold in 2014 compared to the previous year, it still only plays a minor role, while wheat has become insignificant.

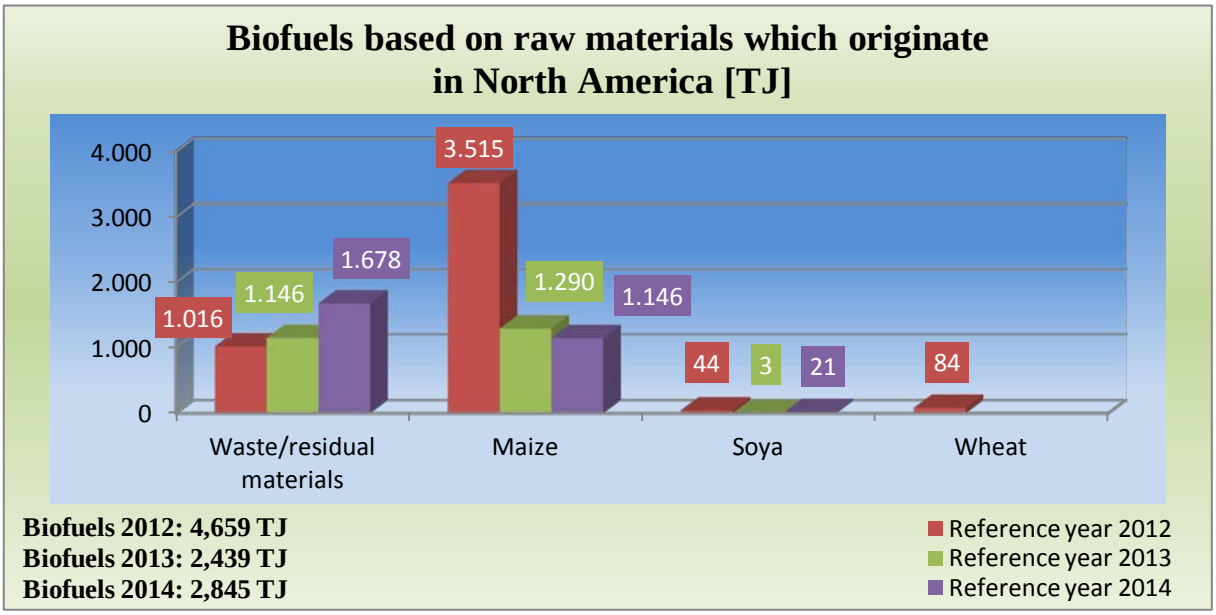

Diagram 16

The importance raw materials of biofuels originating in **South America** seemed to gain in 2013 could not be confirmed in 2014. The quantities of biofuels made from soya (-78 %) and sugar cane (-66 %) plummeted. However, the quantities produced from waste and residual materials as well as rapeseed have doubled.

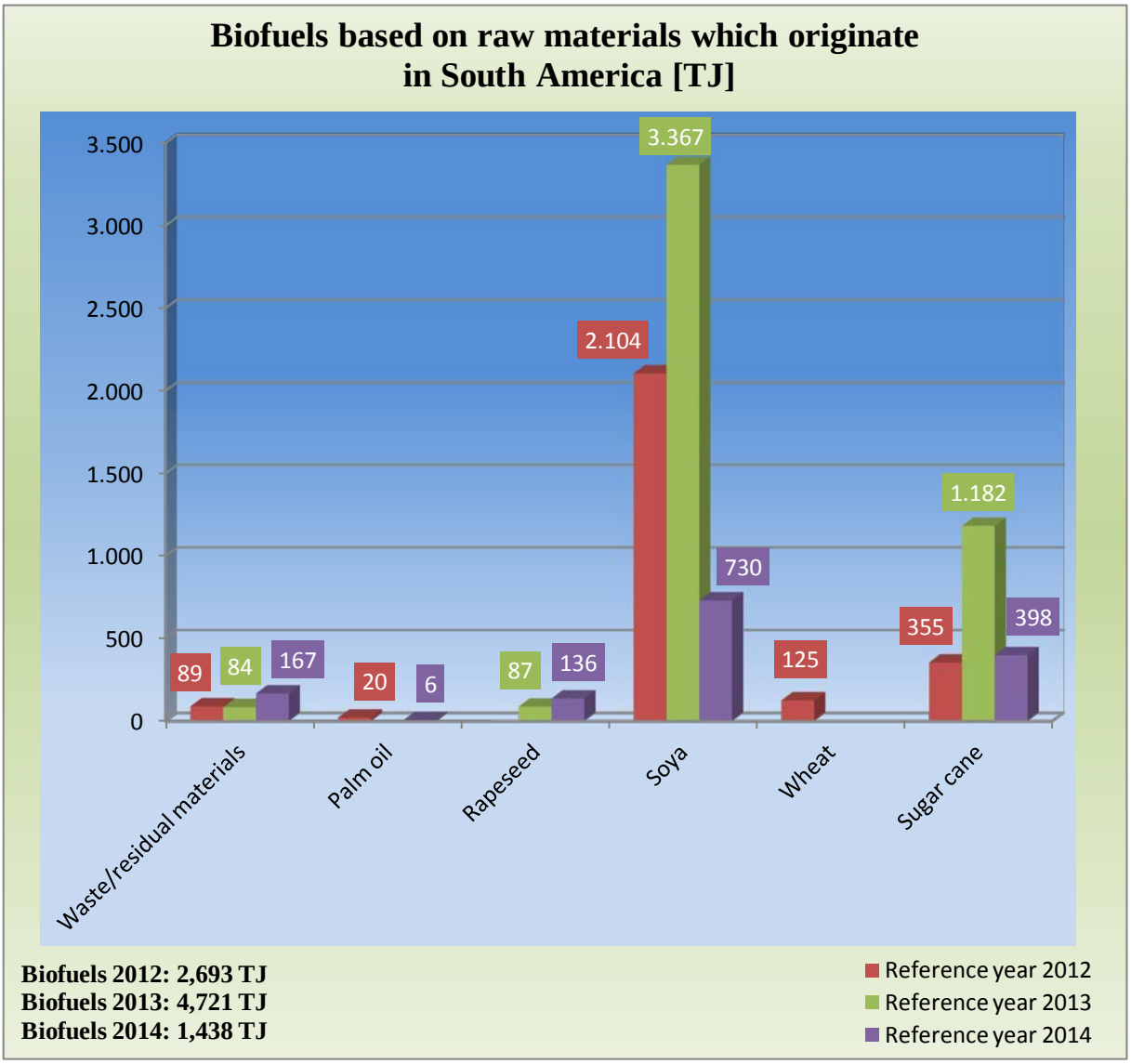

Diagram 17

6.3 Biofuel types

The fuel type FAME still makes for the largest share by far of the total quantity of biofuels. After amounts decreased by 18 % between 2012 and 2013, they increased again by 11 % in 2014. The second largest share was provided by bioethanol, the amounts of which stayed at a similar level between 2012 and 2014. As in previous years UCO (clean fuel), biomethanol and vegetable oil played a minor role only. The HVO share decreased by 29 % compared to the previous year.

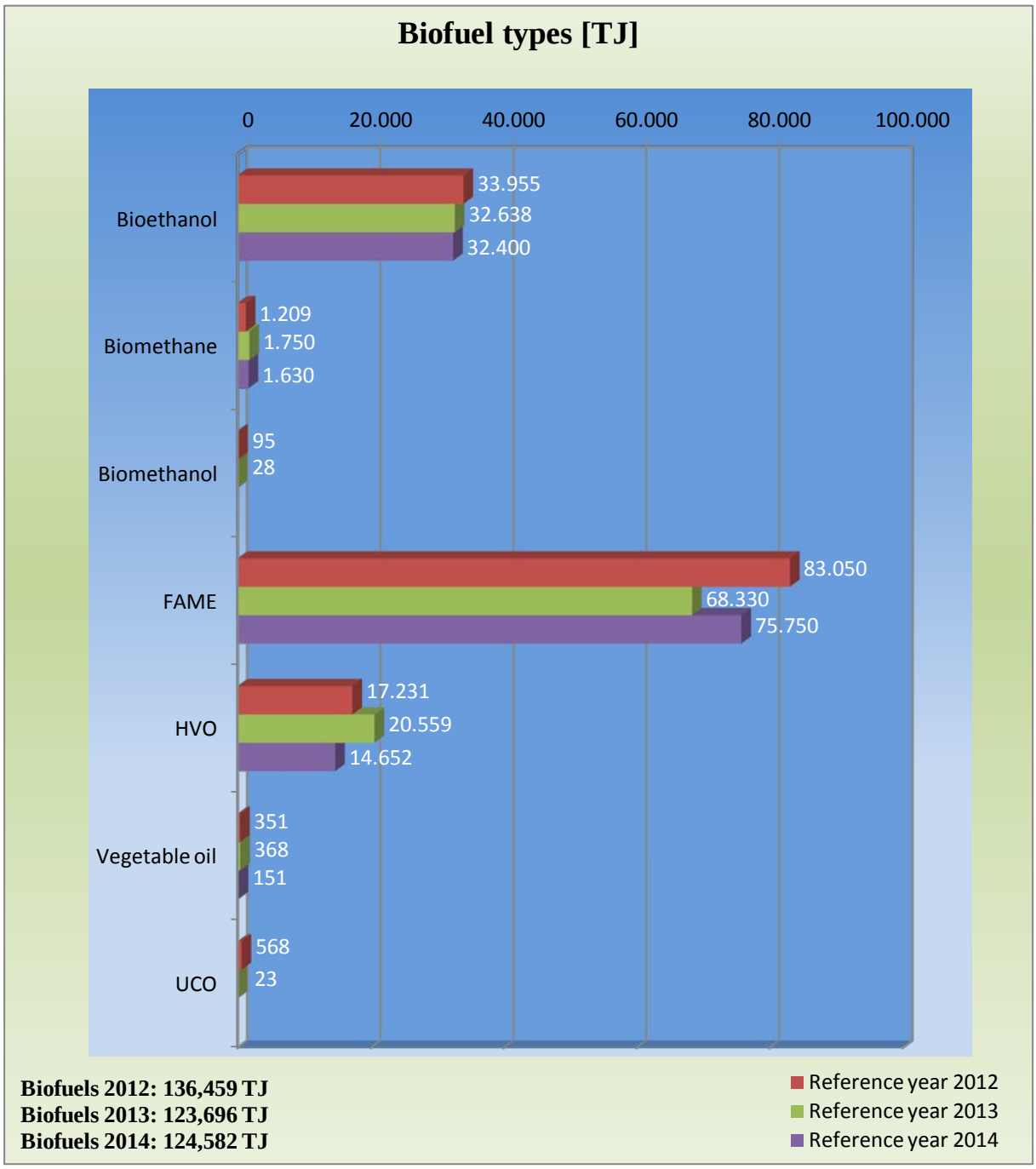

Diagram 18

In 2014, the most important raw materials for bioethanol were again maize, wheat and sugar beet. After the share from sugar cane had increased considerably between 2012 and 2013, it was significantly lower again in 2014. In relation to the total quantity, sugar cane was of low importance.

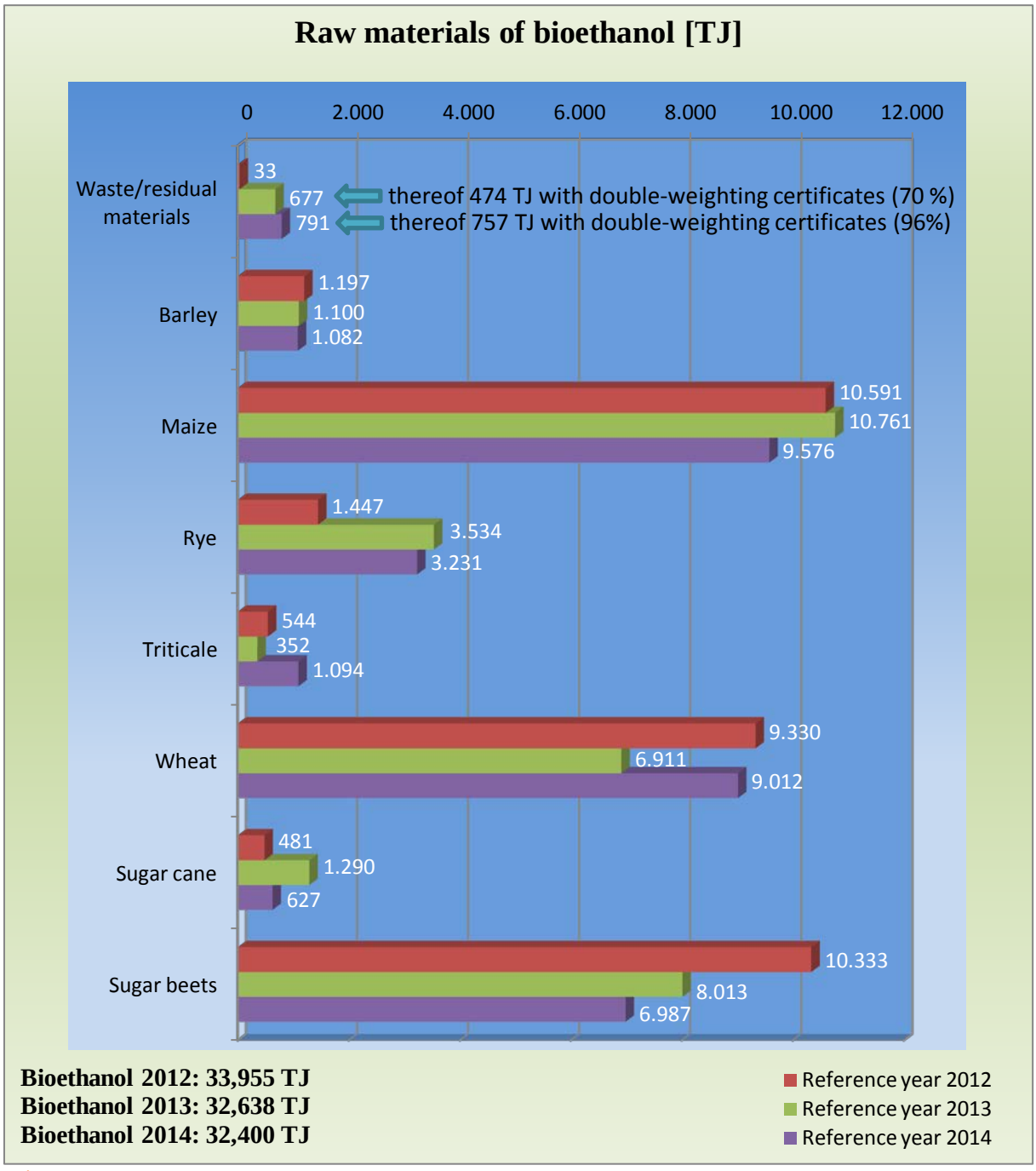

Diagram 19:

FAME (biodiesel) was mainly produced from rapeseed. The share of rapeseed increased in 2014 compared to the previous year. In comparison to the previous year, more waste and residual materials were used, with the share rising by 23 %. Palm oil, on the other hand, declined by 43 %.

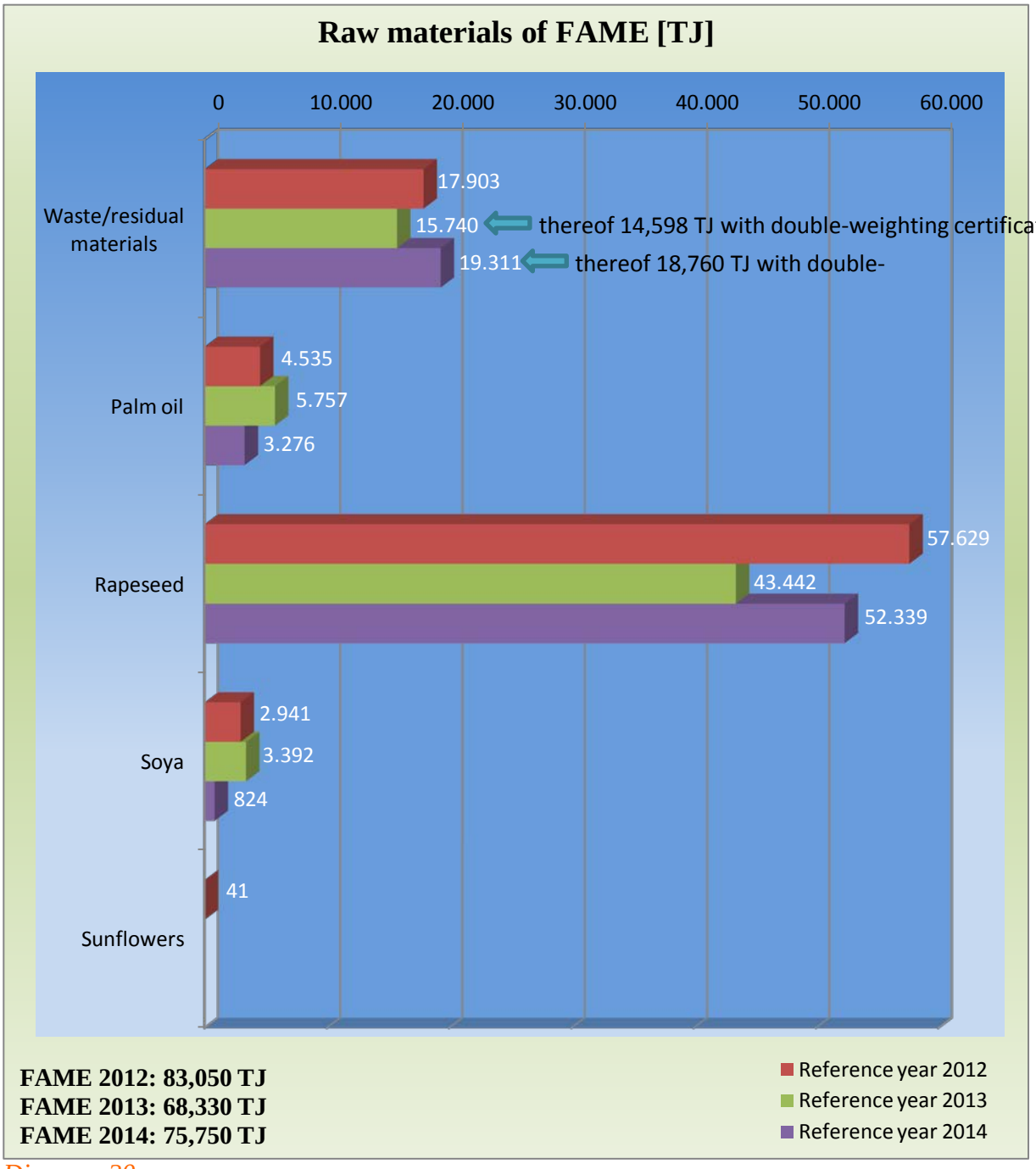

Diagram 20

In 2014, proofs of double counting were issued for 97.1 % of the amount of FAME made from waste and residual materials and registered with Nabisy. This represents an increase of 4.4 percentage points compared to the previous year.

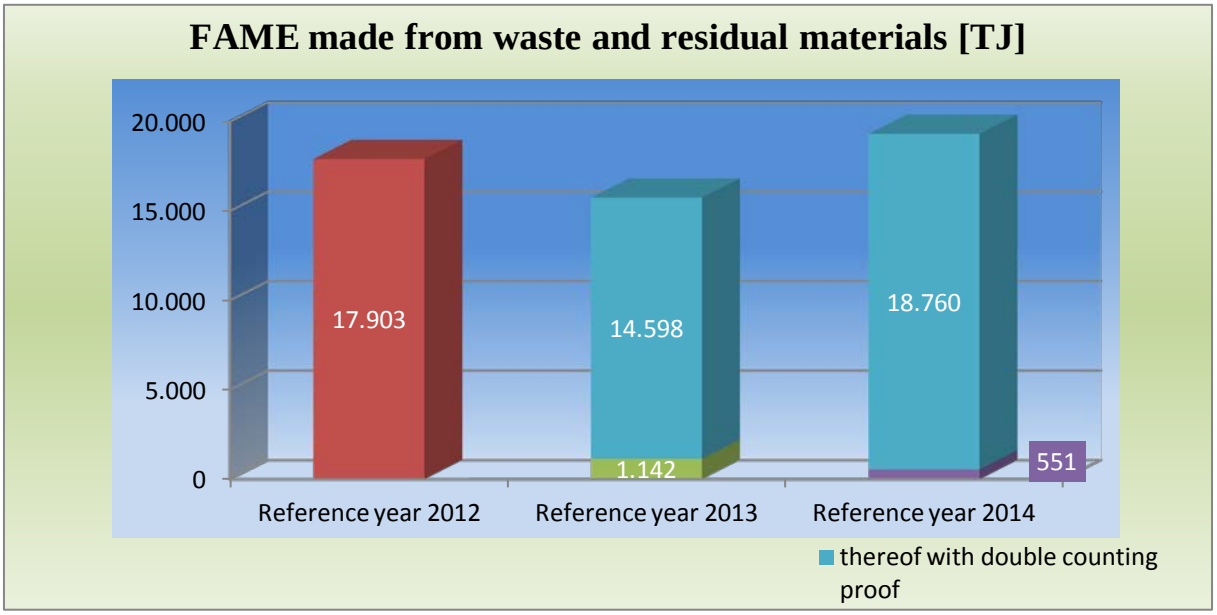

Diagram 21

Hydrogenated vegetable oils (HVO) were again predominantly made from palm oil in 2014. However, the quantity declined by almost one third compared to 2013. The overall share of hydrogenated vegetable oils declined, compared to the year before.

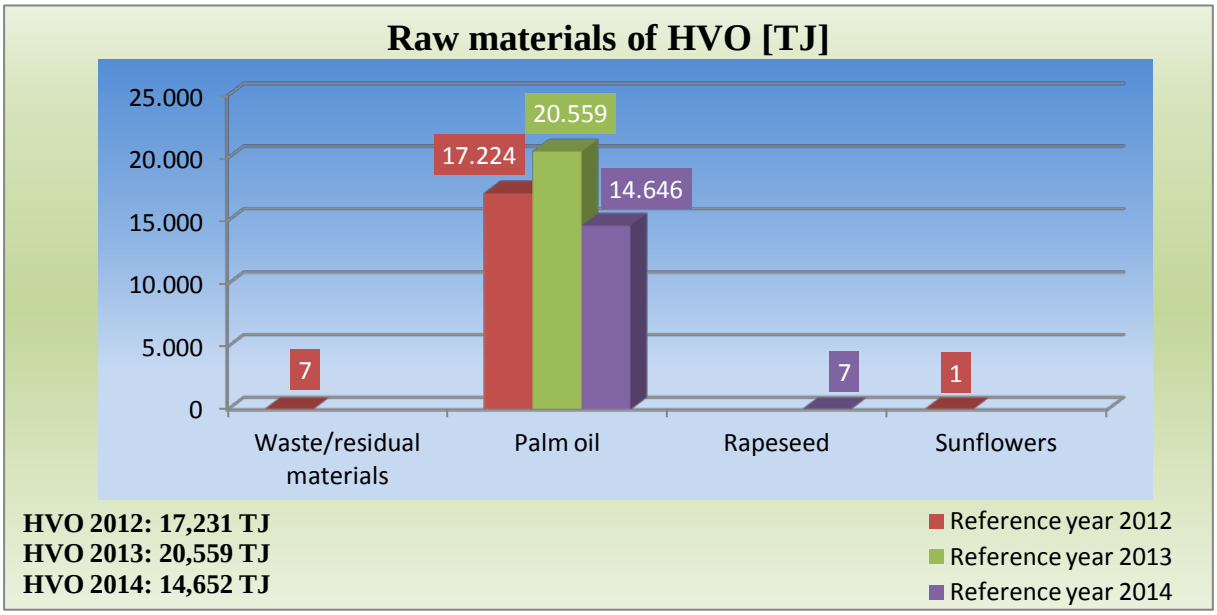

Diagram 22

Biomethane as a fuel played a minor role in all years considered and was predominantly made from waste and residual materials. The share of refined biomass which consisted of maize only decreased by about 78 %. Almost all certificates in 2013 and 2014 were additionally issued with a proof of double counting. In 2013 and 2014, the proof of double counting was a prerequisite for double counting towards the quota obligation.

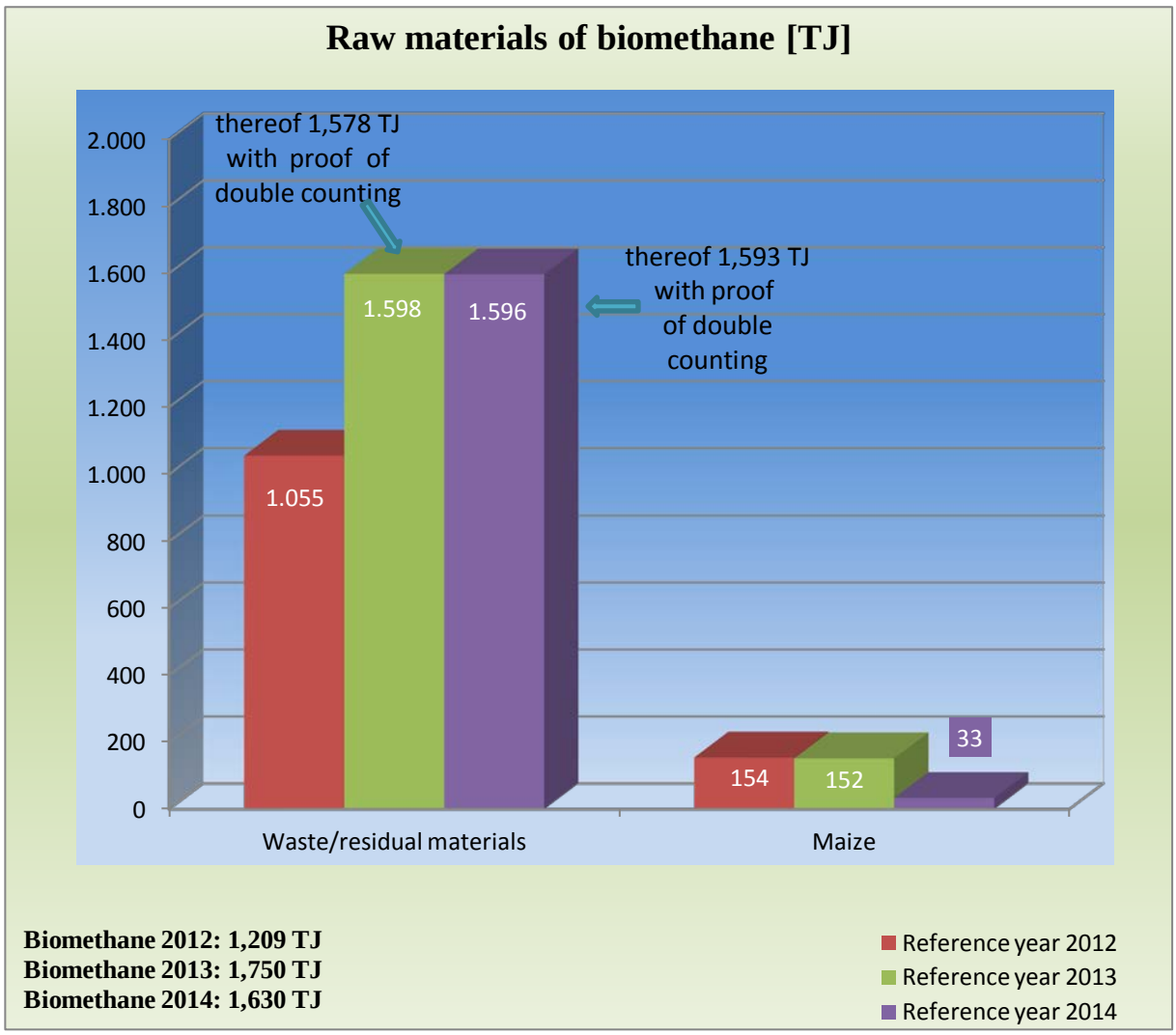

Diagram 23

Vegetable oil as a fuel was also of minor importance in relation to the total amount in the reporting year. Rapeseed was the only raw material, with only half the quantity of the previous year.

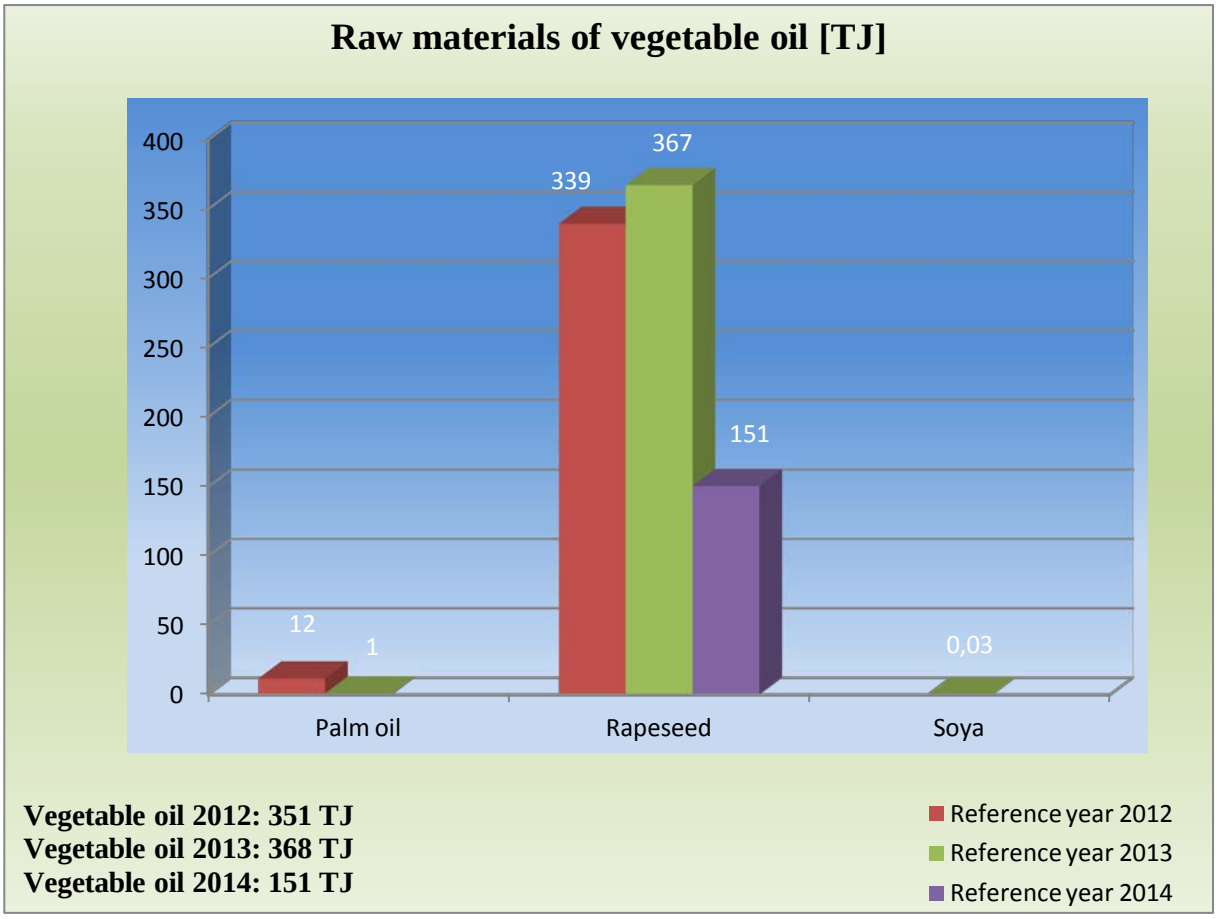

Diagram 24

6.4 Absolute greenhouse gas emissions and savings potential

The reduction of greenhouse gas emissions is one of the objectives of the **Renewable Energy Directive (EEG)**, (Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC). Proofs of sustainability must contain details on the emissions of the product, pursuant to Art. 18 BioSt-NachV and/or Biokraft-NachV. Only "existing plants" could make use of the rule of having to prove the required greenhouse gas savings potential as of 1 April 2013 only. Thus, no emission details of existing plants which made use of this rule can be provided. The remaining certificate shares of existing plants are virtually negligible in the reporting year 2014, as can be seen in Table 6. The reference values underlying the emission calculation can be seen in Table 6.

Table 6: Reference values for the emission calculation of biofuels

	Total [TJ]	with emis-sion details [TJ]	without emission details [TJ]	without emission details [%]
Reference year 2012	136,459	113,951	22,508	16.49 %
Reference year 2013	123,696	120,128	3,568	2.88 %
Reference year 2014	124,582	124,553	29	0.02

The emission indicates the total amount of all greenhouse gas emissions generated for the final product, throughout the entire production process, and is quoted as CO_2 equivalent in mass per energy unit.

In the evaluation and progress reports of 2011 and 2012, the emissions and related savings were calculated on the basis of the proofs of sustainability entered into Nabisy. Since the 2013 report, emissions can be calculated on the basis of the proofs of sustainability and partial proofs of sustainability actually counted towards the German biofuel quota.

The following diagrams show emissions of those biofuels for which applications were submitted to be counted towards the biofuel quota obligation or to be considered for tax relief.

To calculate emission savings (Diagram 27) the emissions generated (Diagram 26) were compared to the fossil reference value for biofuels. The value of 83.8 g CO_{2eq}/MJ for the field of biofuels was used as a reference value.

It is important to note that the presented emission savings are based on the comparison of **pure biofuels** and **pure fossil fuels**. In order to calculate the total savings in fuel in Germany, the sum of the emissions of biogenic and fossil fuels would have to be used as a basis.

The graph below shows which amount of emissions would have been created if only fossil fuels had been used instead of biofuels.

As in the previous year, the share of saved emissions was higher than the emissions generated in 2014. In the reporting year 2012, this was not the case yet.

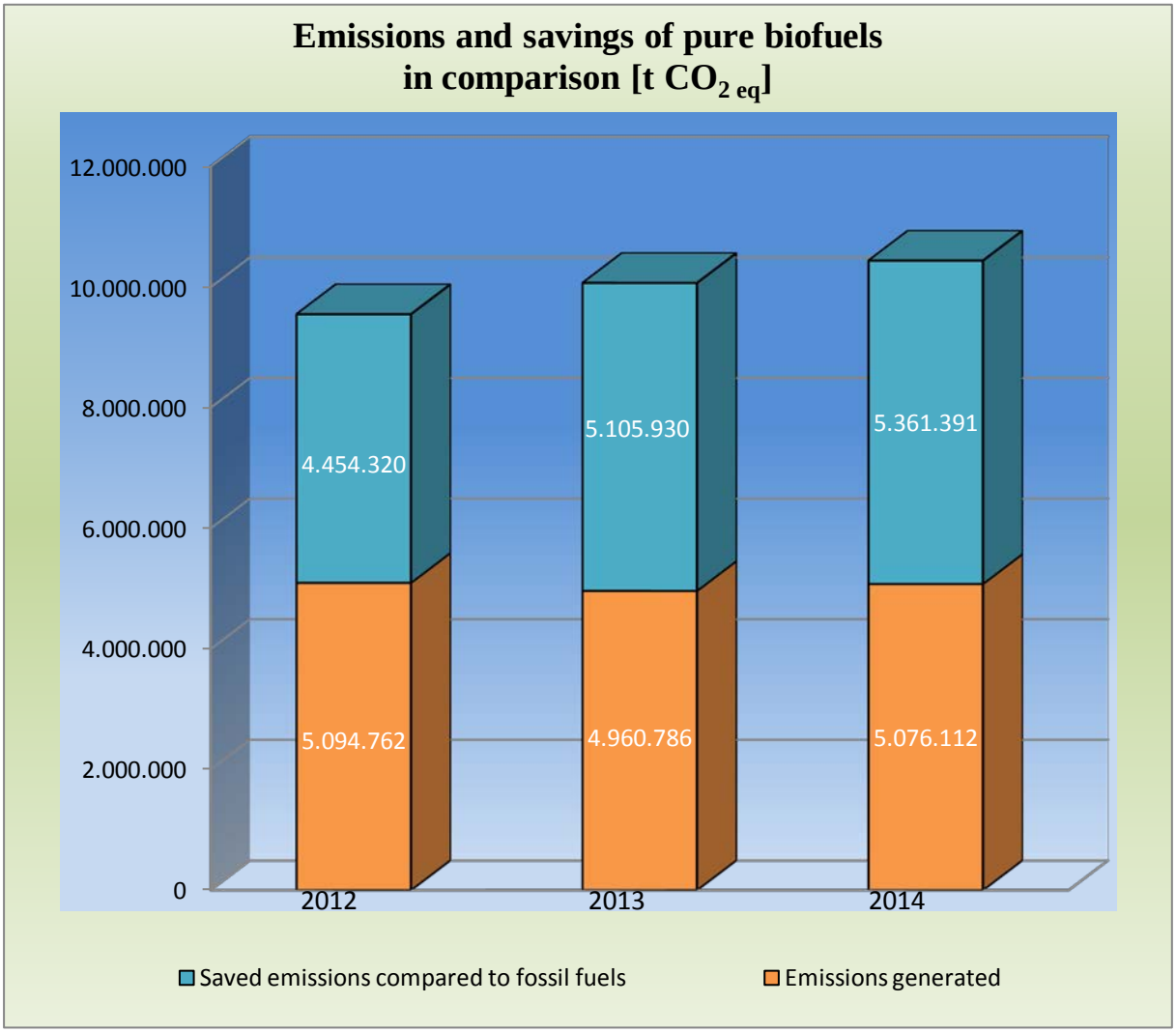

Diagram 25

As not all proofs of sustainability contain emission details, the reference value of the biomass is smaller than the amount actually cited in the application to be counted against the biofuel quota obligation or to be considered for tax relief. Diagram 26 indicates the emissions generated per terajoule, demonstrating a steady decrease.

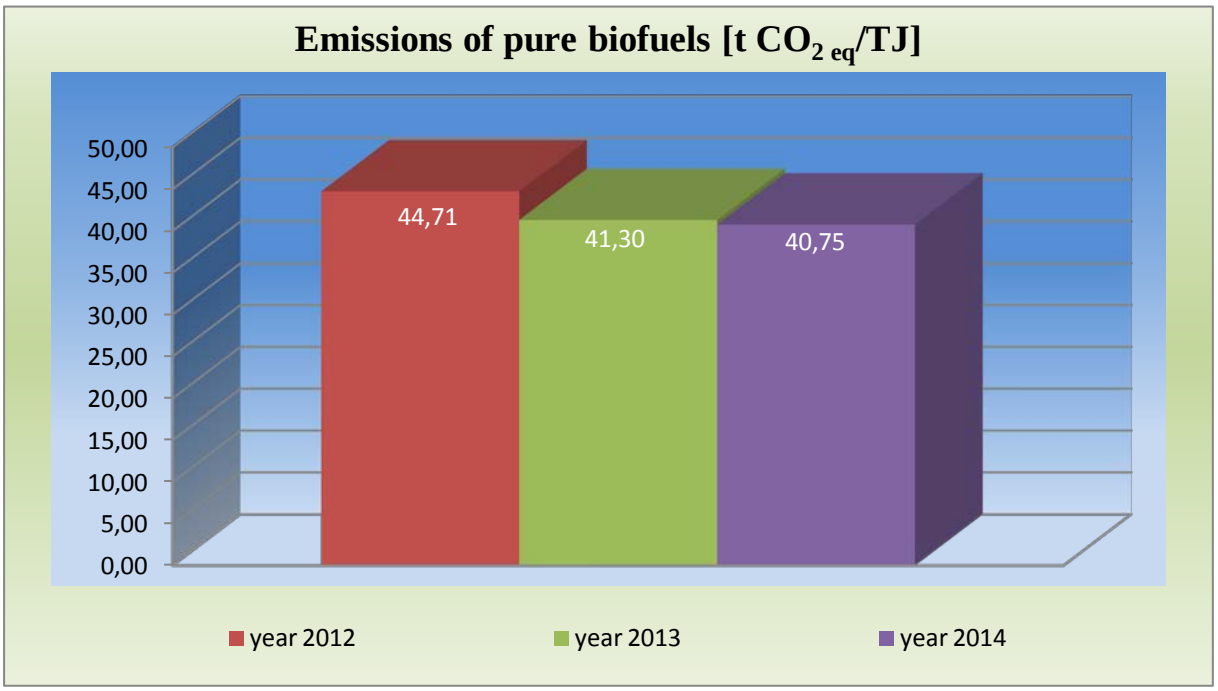

Diagram 26

The total emission savings could be improved over the years and exceeded 51 % for the first time in 2014.

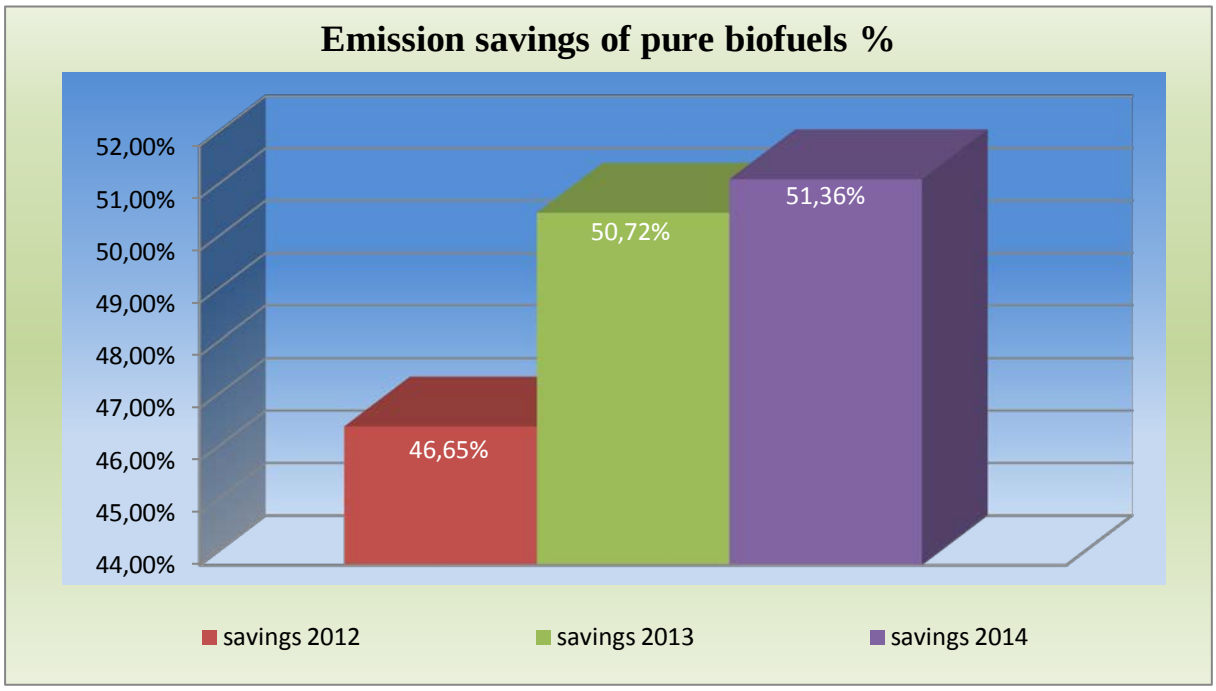

Diagram 27

In the reporting year 2014, HVO, FAME and bioethanol had the highest shares of emissions generated, while biomethane had the lowest. With regard to the total amount of emissions, however, biomethane played a minor role only. The diagram shows the emissions generated per terajoule.

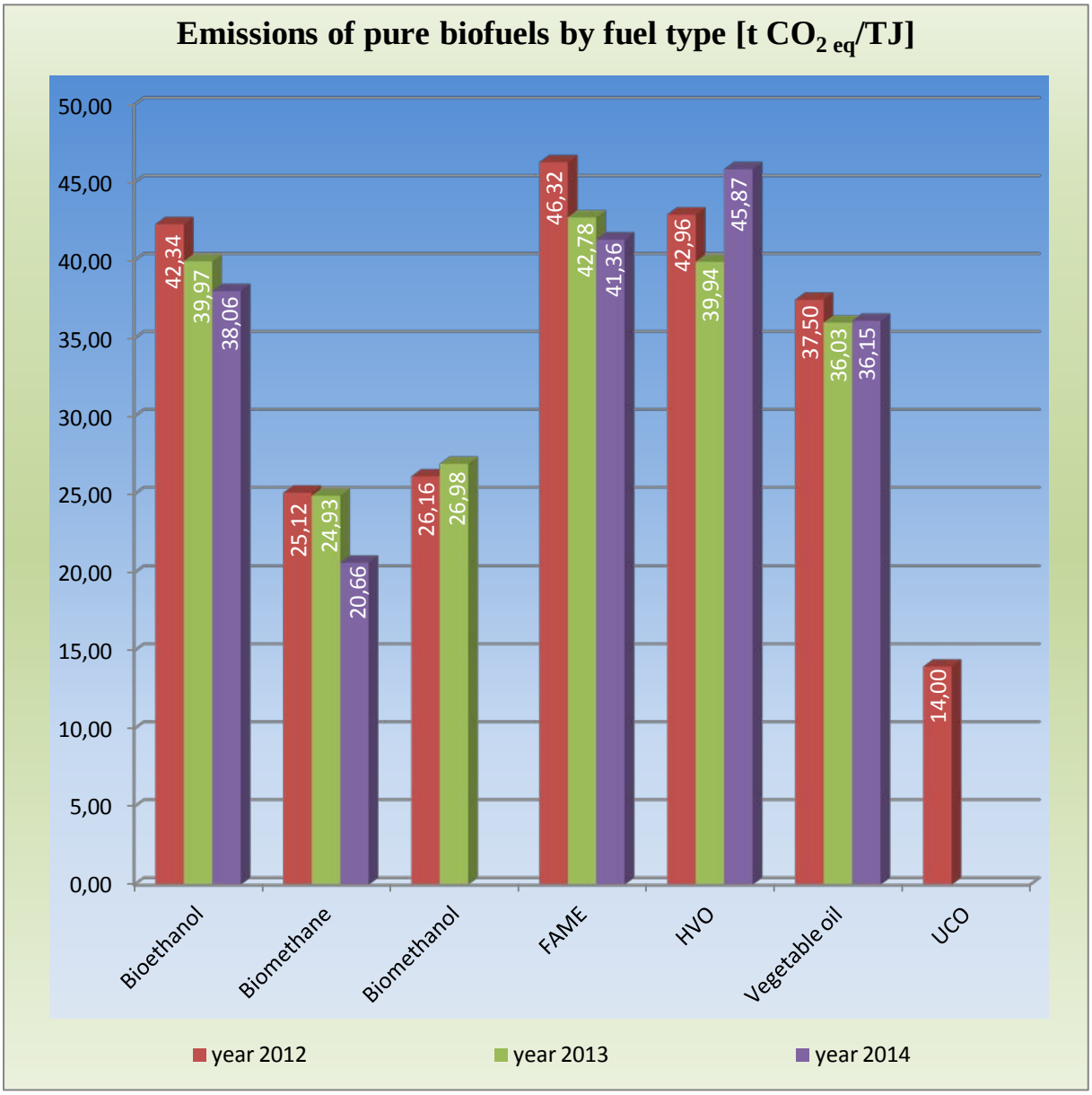

Diagram 28

In the reporting year 2014, biomethane had the highest potential to reduce greenhouse gas emissions, followed with some distance by vegetable oil and bioethanol. Hydrogenated vegetable oils were the only fuel to have a reduction potential of less than fifty per cent.

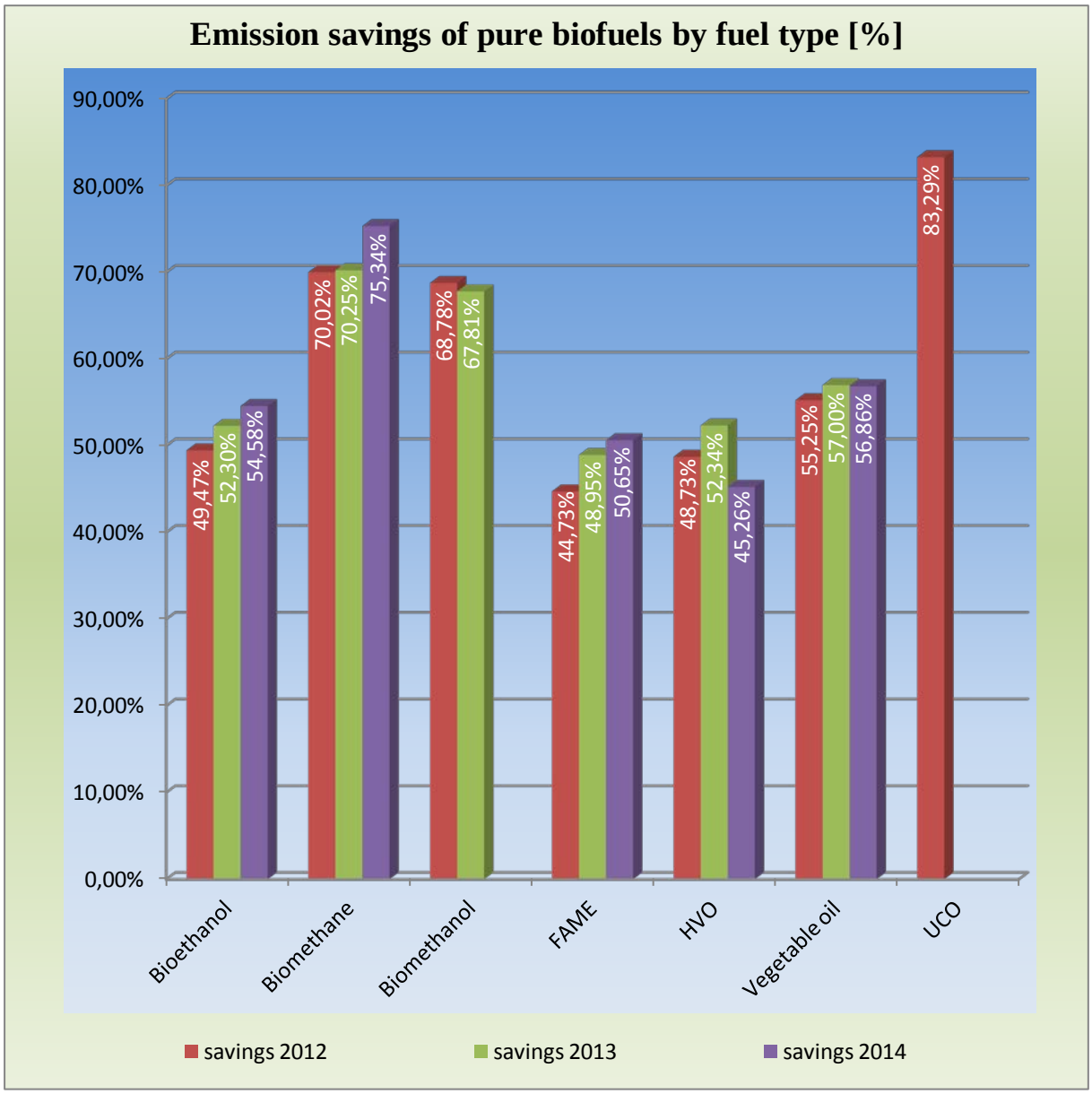

Diagram 29

7 Bioliquids

The total quantity of bioliquids registered for electricity production and feed-in pursuant to the EEG rose steadily and moderately in the reference years.

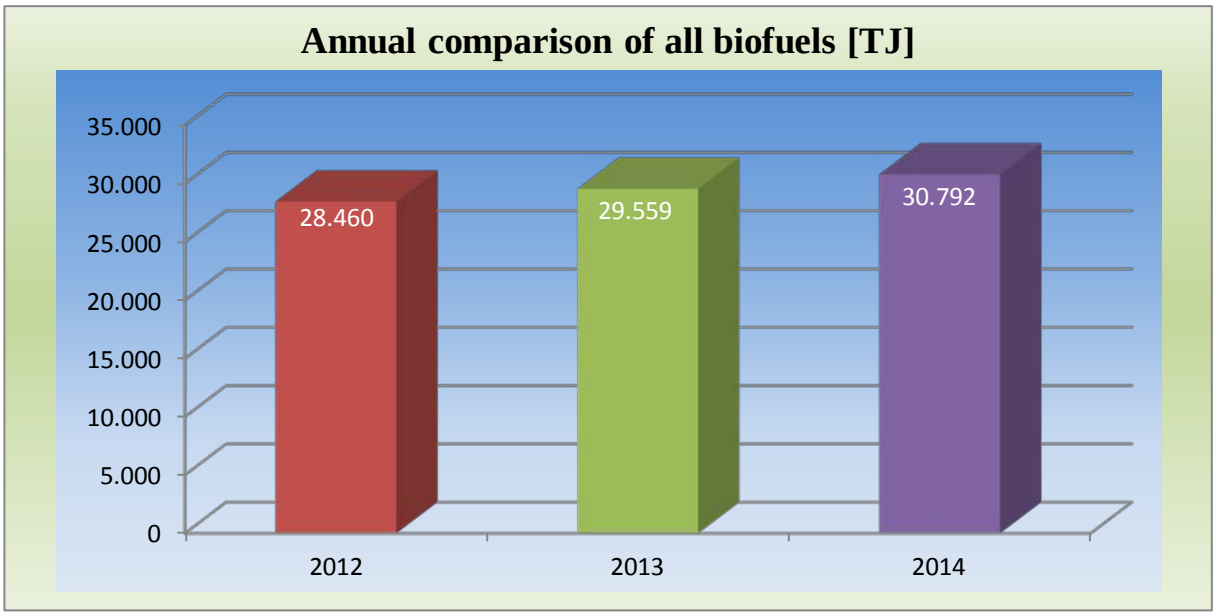

Diagram 30

7.1 Bioliquid types

Bioliquids from the pulp industry (thick waste liquor) were the most important bioliquids. Their quantities increased continuously over the reference years. The entire quantity of the pulp industry comes from Germany.

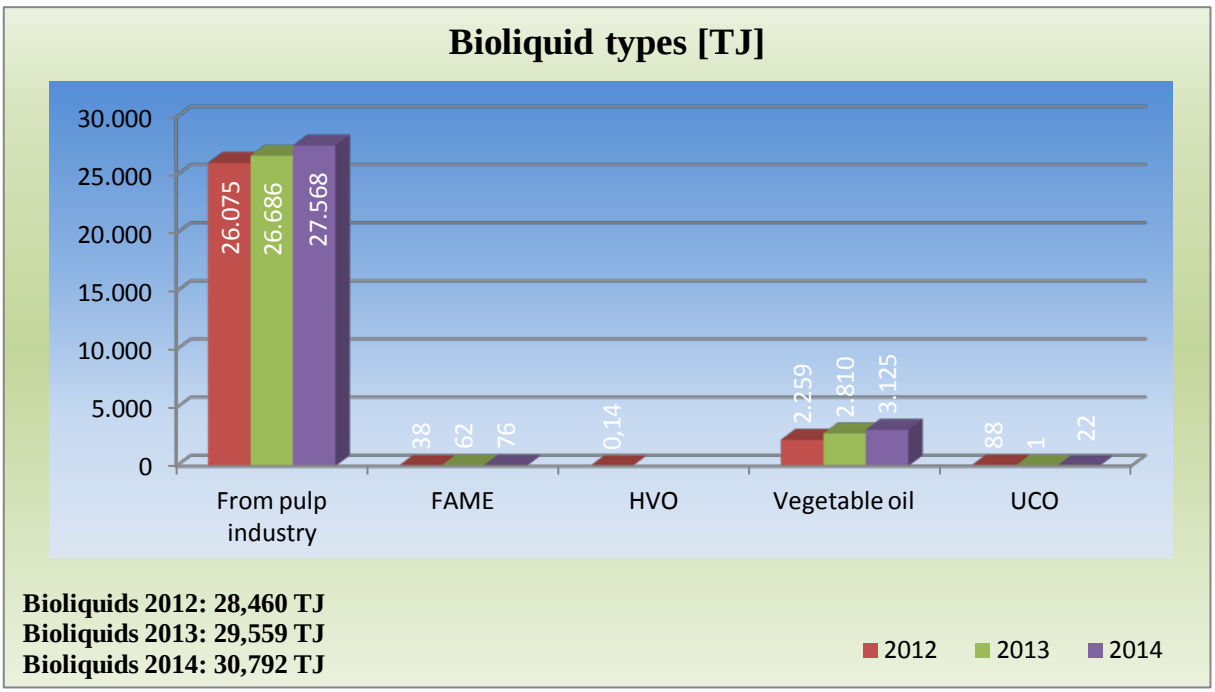

Diagram 31

7.2 Origin of the vegetable oils used as bioliquids

Palm oil was the most important energy source among the vegetable oils used as bio-liquids, followed by rapeseed oil. Soya oil played an insignificant part.

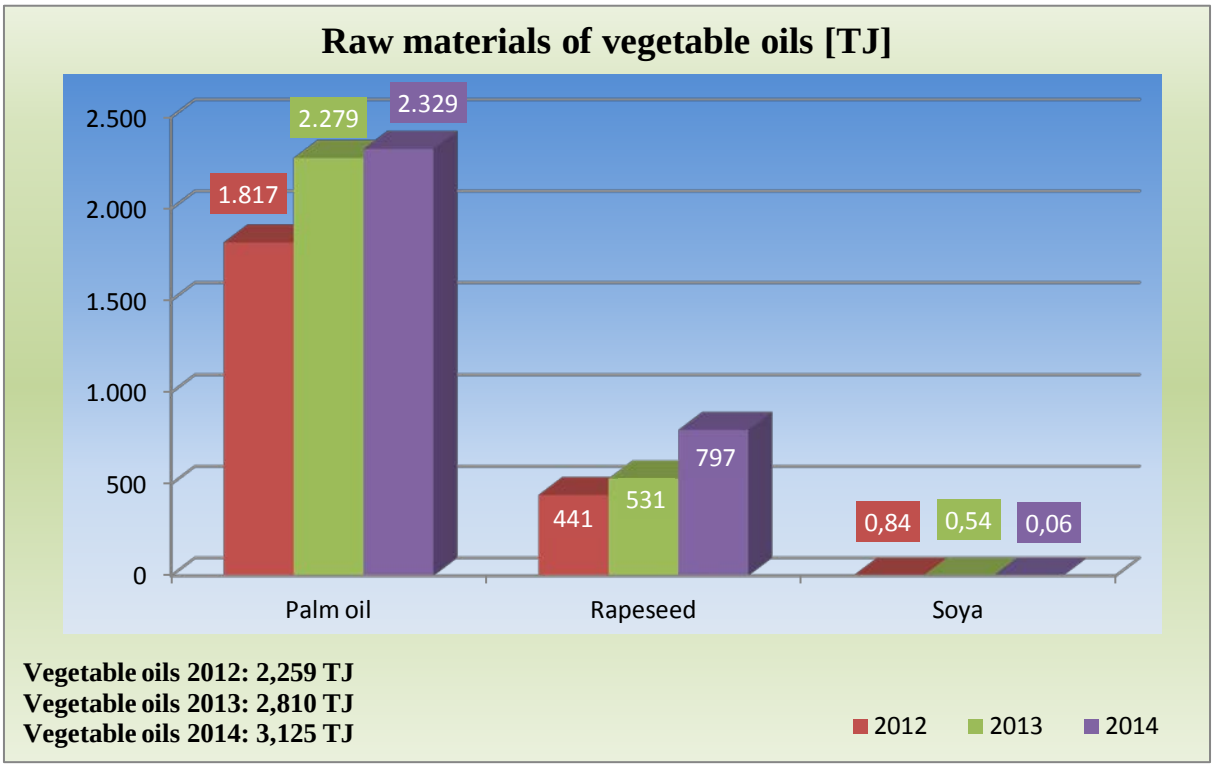

Diagram 32

Palm oil exclusively originated in Asian countries.

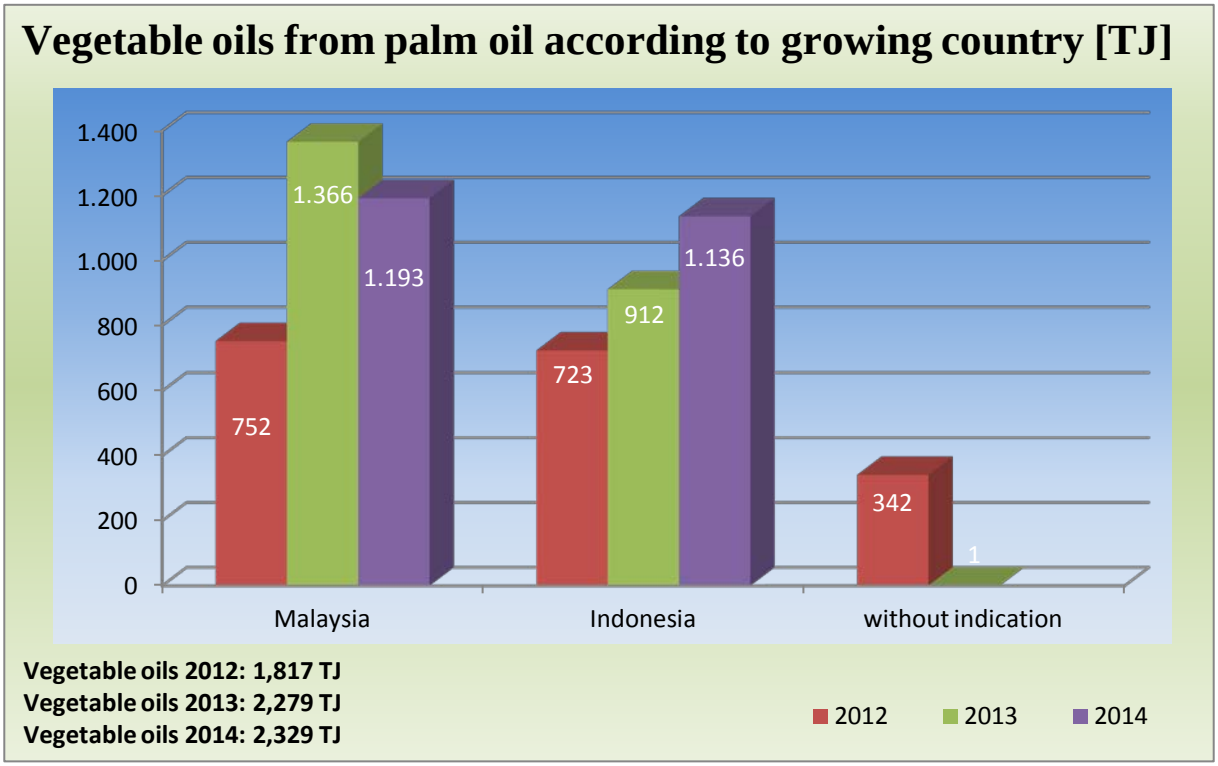

Diagram 33

7.3 Greenhouse gas emissions and savings potential

In the calculation of the emission savings, the emissions generated were compared to the fossil reference value for bioliquids. The value of 91 g CO_{2eq}/MJ for electricity was used as a reference value.

The reference values underlying the emission calculation can be seen in Table 7.

Table 7: Reference values for the emission calculation of bioliquids

	Total [TJ]	with emission details [TJ]	without emission details [TJ]	without emission details [%]
2012	28,460	28,335	125	0.44
2013	29,559	29,440	119	0.40
2014	30,792	30,791	1	0.003

The savings in greenhouse gases in the bioliquids sector are very high, due to the large share of bioliquids from the pulp industry with very low emissions.

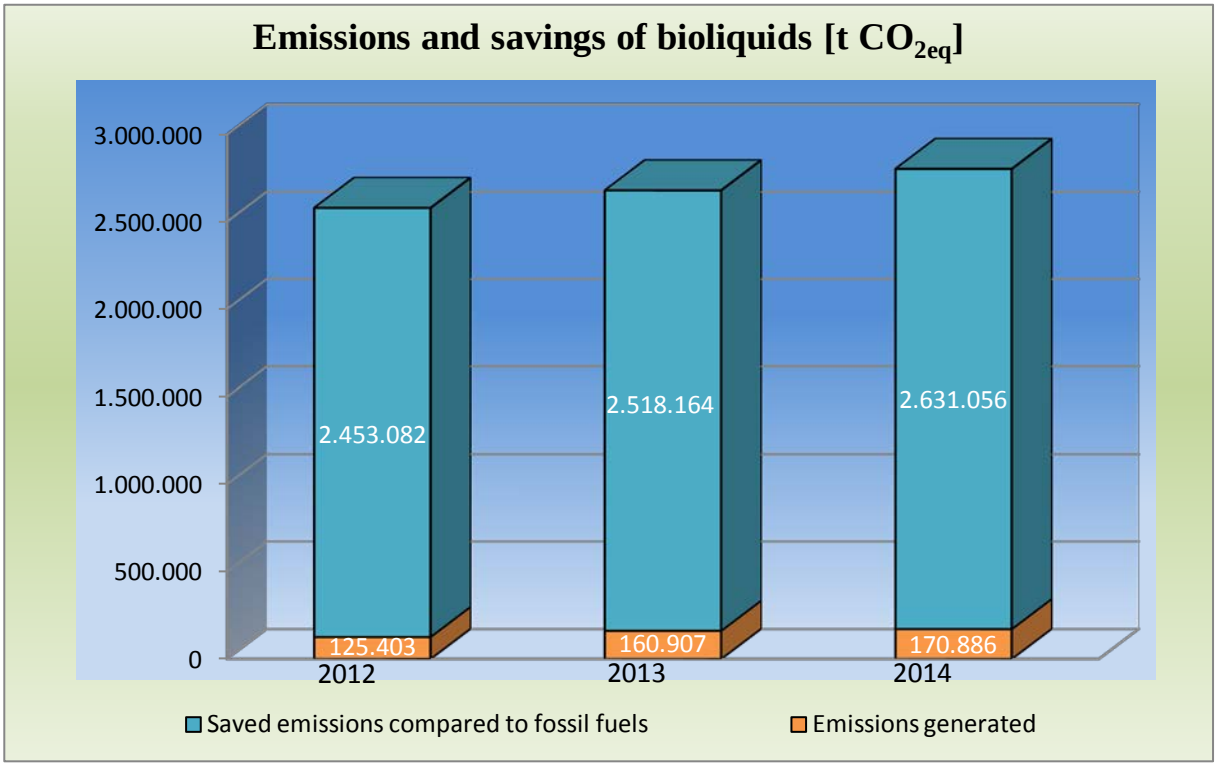

Diagram 34

Emissions generated by bioliquids showed a slight increase in the amount of CO_{2eq} per TJ.

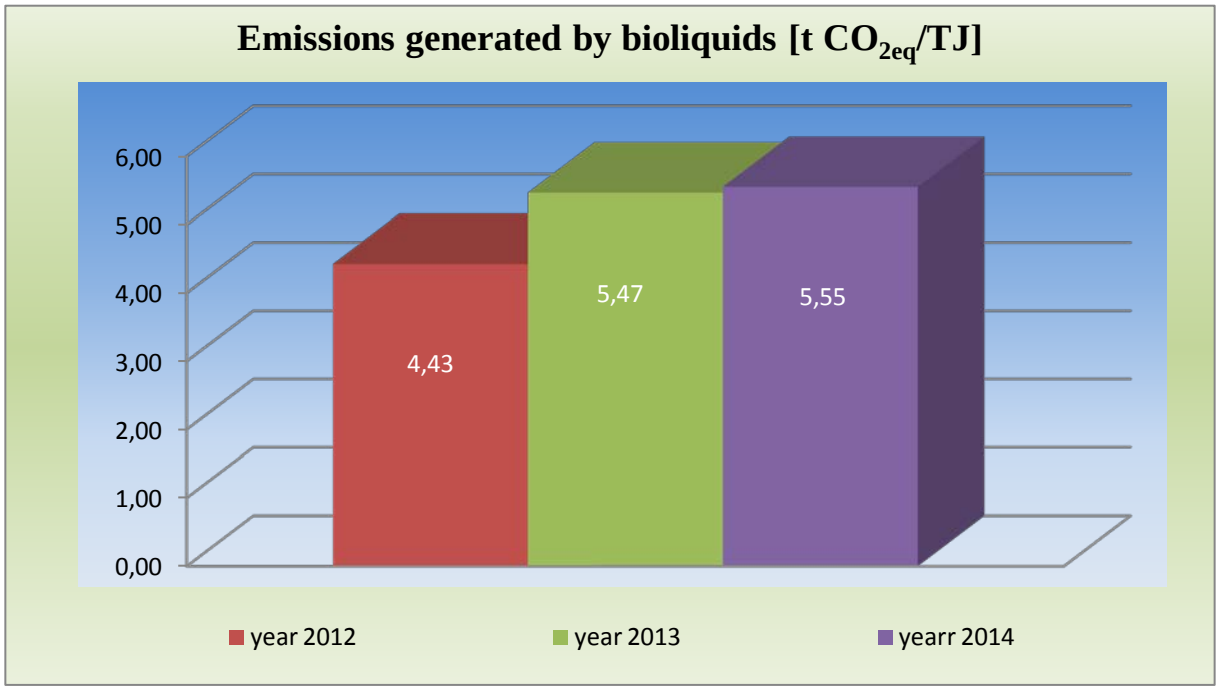

Diagram 35

Greenhouse gas savings deteriorated accordingly.

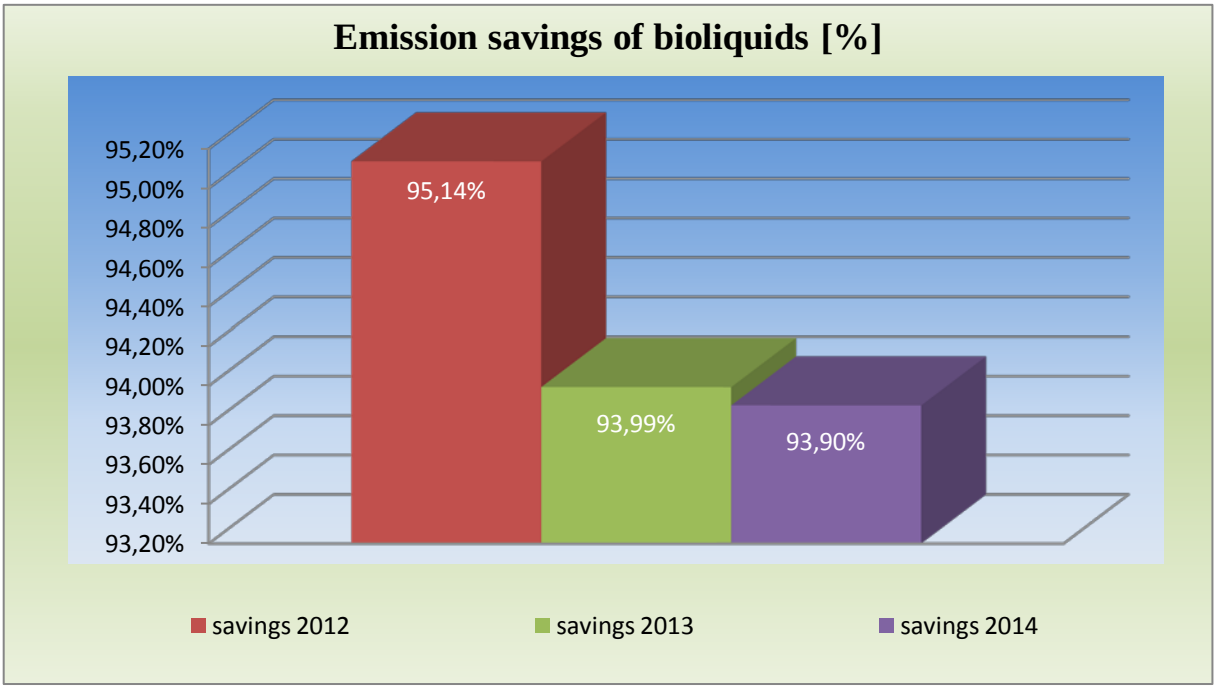

Diagram 36

While the emissions generated by bioliquids from the pulp industry and FAME and UCO could be further reduced, emissions in the field of vegetable oils increased marginally.

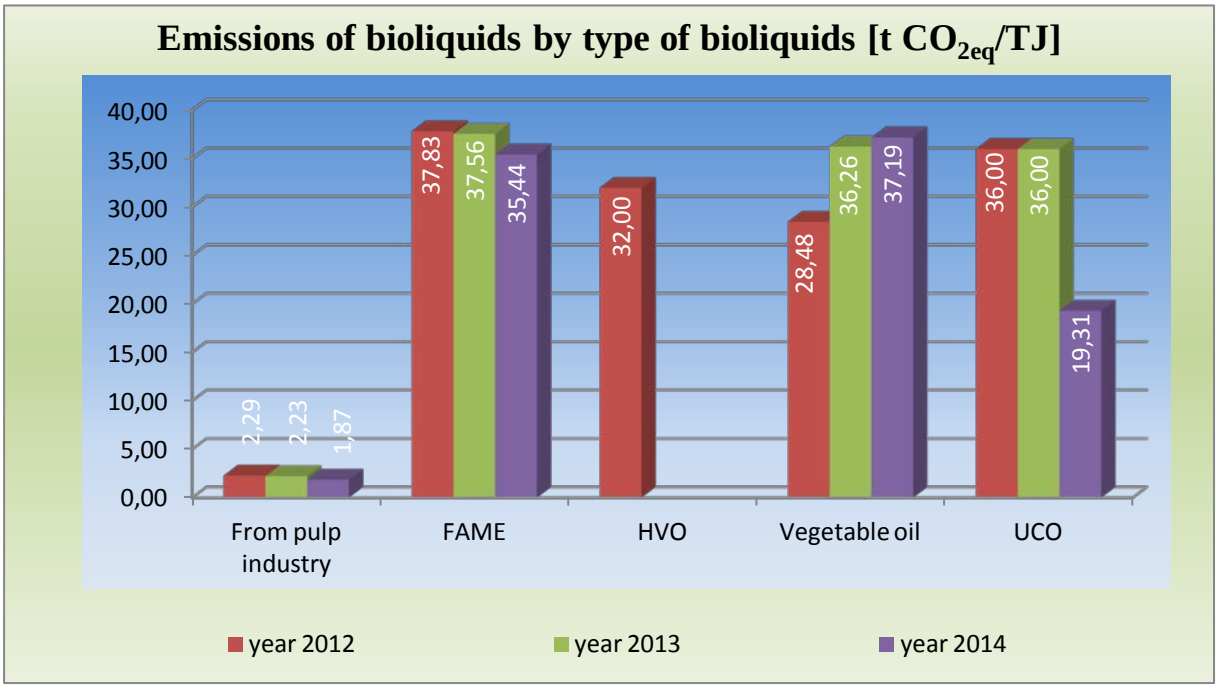

Diagram 37

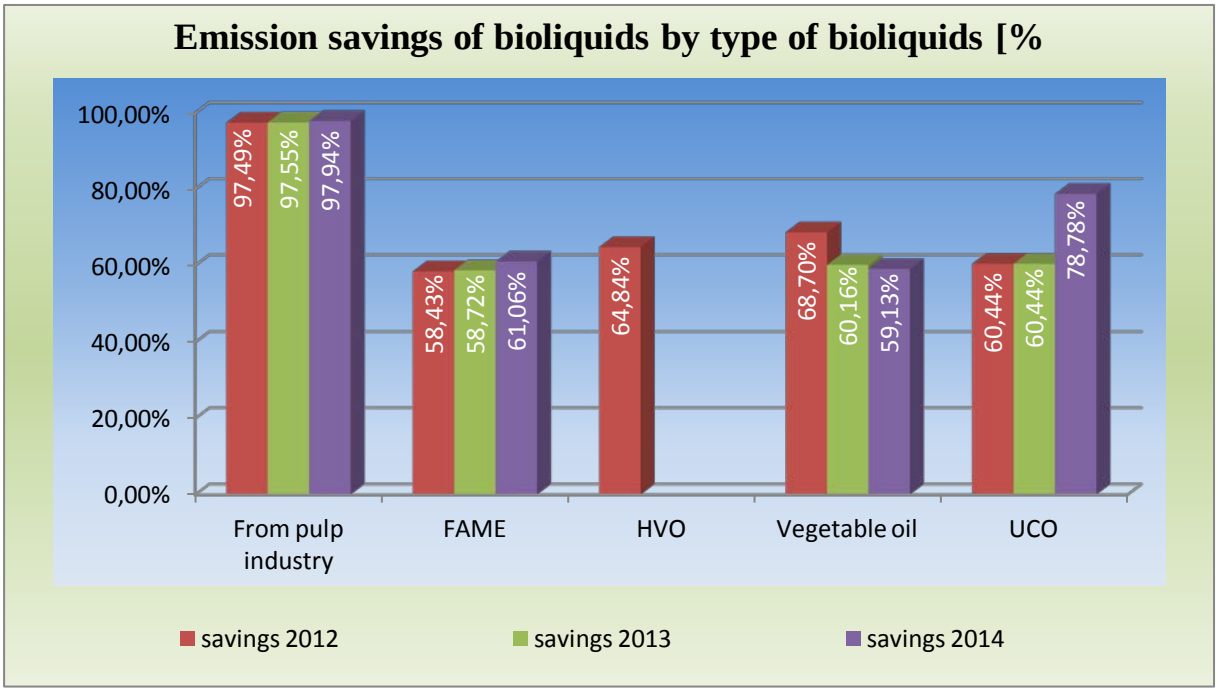

Diagram 38

8 Installations register

According to the BioSt-NachV, from 2011 to 2014 all installation operators were obliged to register their installation in the BLE installations register if they used liquid biomass to generate electricity.

An installation in the sense of the Renewable Energy Sources Act in connection with Article 3(1) No. 3 BioSt-NachV is any installation for the generation of **electricity from liquid biomass**, including operations which receive temporarily stored energy produced exclusively from liquid biomass to convert it into electrical energy. An installation operator uses an installation to produce electricity from liquid biomass.

Installation operators may only claim remuneration for the produced electricity pursuant to the Renewable Energy Sources Act if they can demonstrate to the network operators that the sustainability requirements were met and that the installation is registered.

In the reporting year 2014, proofs of sustainability and/or partial proofs of sustainability were issued for 668 installation operators (742 in the previous year). These installation operators had a total of 745 operations (884 operations in the previous year), generating electricity from sustainable liquid biomass. It is important to note that the certificates refer to the installation, not to the installation operator. Thus, no statement can be made as to the actual activity of the operations.

In accordance with the provisions of the **Installations Register Ordinance (AnlRegV)** of 01.08.2014 and the amendment of the Biomass Electricity Sustainability Ordinance (BioSt-NachV), maintenance of the installations register was transferred from the BLE to the Federal Network Agency (BNetzA) with effect from **01.01.2015**. Since then, the registration of installations and installation operators as well as the master data management have been carried out by the BNetzA.

Changes in the installation operators master data are submitted to the BLE by the BNetzA. This is to ensure that Nabisy data are up to date and proofs of sustainability and partial proofs of sustainability can continue to be issued or transferred to installation operators.

9 Retirement accounts

Biofuels which are registered in the Nabisy database and are exported to other countries need to be retired to the account of the respective country by the economic operators.

According to the amounts recorded in proofs of sustainability and partial proofs of sustainability which were retired to the accounts of the respective countries in Nabisy, the largest amounts of sustainable biofuels and/or bioliquids were exported to the **Netherlands**, **Austria** and the **United Kingdom** in the reporting year (see Diagram 40). It shows the most important country accounts, to which more than 1,000 TJ were retired between 2012 and 2014, respectively.

Apart from the retirement to country accounts, the electronic Nabisy database provides other retirement options for certified quantities which were not used or will not be used for energy purposes in Germany. The following diagram shows the developments for three of these other accounts.

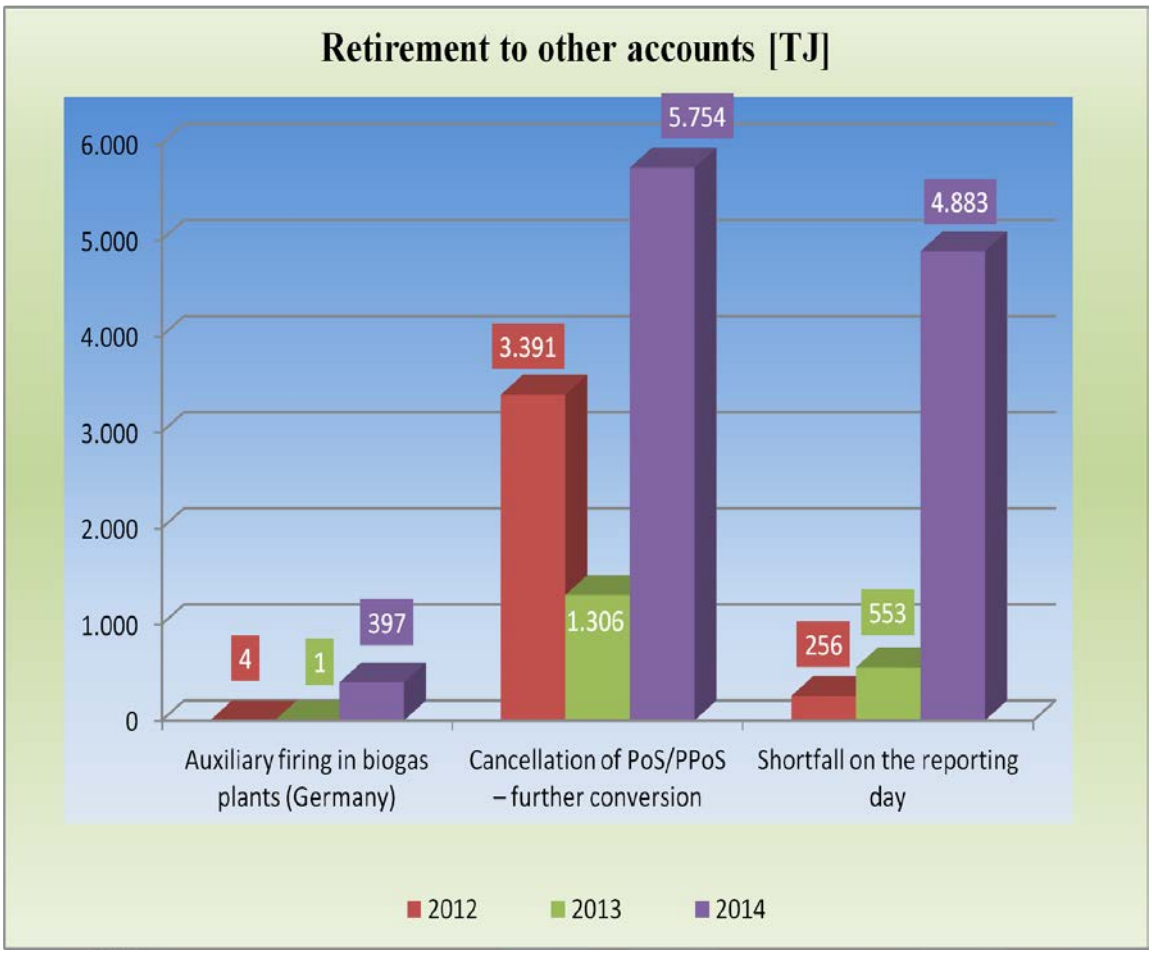

Diagram 39

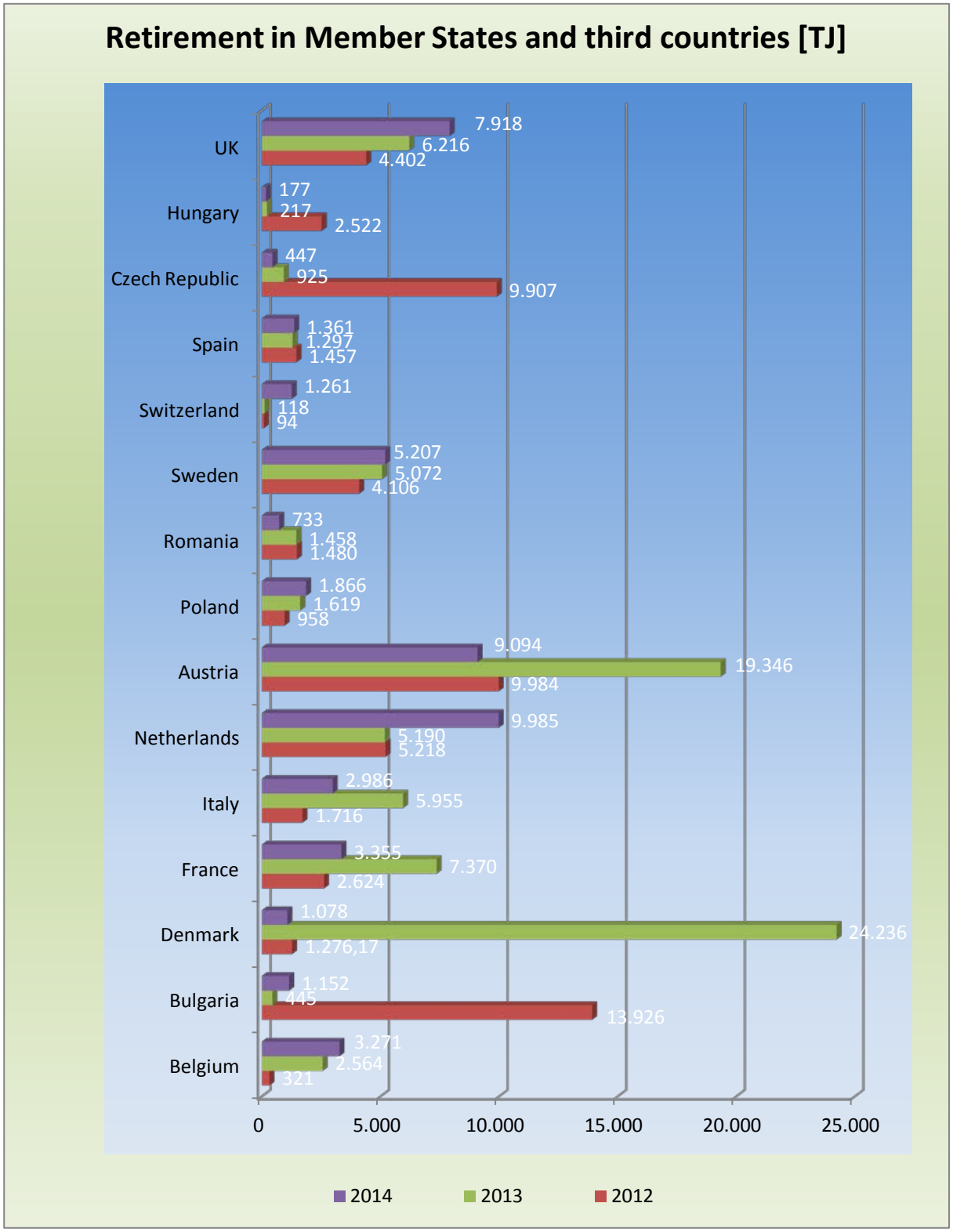
Retirement in Member States and third countries [TJ]
UK
7.918
6.216
4.402
Hungary
177
217
2.522
Czech Republic
447
925
9.907
Spain
1.361
1.297
1.457
Switzerland
1.261
118
94
Sweden
5.207
5.072
4.106
Romania
733
1.458
1.480
Poland
1.866
1.619
958
Austria
9.094
19.346
9.984
Netherlands
9.985
5.190
5.218
Italy
2.986
5.955
1.716
France
3.355
7.370
2.624
Denmark
1.078
24.236
1.276,17
Bulgaria
1.152
445
13.926
Belgium
3.271
2.564
321
0
5.000
10.000
15.000
20.000
25.000
2014
2013
2012

Diagram 40

10 Outlook

Fuels distributed in Germany after 31.12.2014 must save at least 3.5 % of greenhouse gases emissions in relation to the individual reference value of the respective party under the obligation to provide proof. This marked the end of the energetic biofuel quota obligation, which was in effect until the end of the reporting year. This also marks the end of the option to double-count biofuels produced from certain waste and residual materials.

As expected, the new greenhouse gas reduction quota considerably motivates all parties concerned to generate the lowest amount of emissions possible throughout the entire value chain. The market demands biofuels with high greenhouse gas savings.

As has been confirmed by market participants, this results in significantly more individual greenhouse gas calculations and thus leads away from standard values, particularly at production level. This causes an increased yet necessary effort for the certification bodies that verify the individual greenhouse gas balances. Only if every individual greenhouse gas calculation is verified in an individually adequate way can the confidence of the market in the correctness of the specified certified emissions be justified. This also requires detailed monitoring specifications to ensure that certificates are equivalent.

Political and economic decision makers believe that, provided biofuels with high savings potentials continue to be readily available, the overall demand in biofuels will decline, as the high emission savings of blended biofuels allow the oil industry to use higher shares of fossil fuels.

It remains to be seen whether and how the greenhouse gas reduction quota will impact the flow of goods.

Even if the other Member States continue to apply energetic blending quotas and implement them by way of various regulations at respective national levels, all Member States still pursue the same minimum targets specified by the EU for 2020.

For the transport sector this includes, on the one hand, that the percentage notified in the Renewable Energy Directive, i.e. the share of renewable energies in all modes of transport, must be at least 10 %. In achieving this, the 7 % limit for conventional biofuels has to be taken into account.

On the other hand, the greenhouse gas reduction target stated by the Fuel Quality Directive requires the Member States to generate 6 % less life cycle greenhouse gas emissions per energy unit of the fuel delivered or the energy carrier.

11 Background data

Table 8: Raw materials of biofuels in terajoule [TJ][1]

Fuel type/ quota year / Raw material	Bioethanol Diagram 19 p. 44			Biomethane Diagram 23 p. 47			Bio-methanol[4]		FAME Diagram 20 p. 45			HVO Diagram 22 p. 46			Vegetable oil Diagram 24 p. 48			UCO[2]	
	2012	2013	2014	2012	2013	2014	2012	2013	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013
Waste/residual materials	33	677	791	1,055	1,598	1,596	95	28	17,903	15,740	19,311	7						568	23
Barley	1,197	1,100	1,082																
Maize	10,591	10,761	9,576	154	152	33													
Palm oil									4,535	5,757	3,276	17,224	20,559	14,646	12	1			
Rapeseed									57,629	43,442	52,339			7	339	367	151		
Rye	1,447	3,534	3,231																
Soya									2,941	3,392	824					0.03			
Sunflower									41			1							
Triticale	544	352	1,094																
Wheat	9,330	6,911	9,012																
Sugar cane	481	1,290	627																
Sugar beet	10,333	8,013	6,987																
Total Diagram 18, p. 43	**33,955**	**32,638**	**32,400**	**1,209**	**1,750**	**1,630**	**95**	**28**	**83,050**	**68,330**	**75,750**	**17,231**	**20,559**	**14,652**	**351**	**368**	**151**	**568**	**23**

[1] Discrepancies in the sum totals are due to rounding
[4] No data for 2014

Table 9: Raw materials of biofuels in 1000 tons [kt][1,2]

Fuel type/ quota year / Raw material	Bioethanol			Biomethane			Bio-methanol[3]		FAME			HVO			Vegetable oil			UCO[3]	
	2012	2013	2014	2012	2013	2014	2012	2013	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013
Waste/residual materials	1	26	30	21	32	32	5	1	479	421	517	0.2						15	1
Barley	45	42	41																
Maize	400	407	362	3	3	1													
Palm oil									121	154	88	395	472	336	0.3	0.02			
Rapeseed									1,542	1,162	1,400			0.2	9	10	4		
Rye	55	134	122																
Soya									79	91	22					0.001			
Sunflower									1			0.01							
Triticale	21	13	41																
Wheat	353	261	341																
Sugar cane	18	49	24																
Sugar beet	390	303	264																
Total	**1,283**	**1,233**	**1,224**	**24**	**35**	**33**	**5**	**1**	**2,222**	**1,828**	**2,027**	**395**	**472**	**336**	**9**	**10**	**4**	**15**	1

[1] Discrepancies in the sum totals are due to rounding
[2] Conversion into tonnage was done on the basis of the certificates counted towards the quota
[3] No data for 2014

Table 10: Raw materials of biofuels by origin in terajoule [TJ][1]

Region/ Quota Year / Raw material	Africa Diagram 11 p. 38			Asia Diagram 12 p. 38			Australia Diagram 13 p. 39			Europe Diagram 14 p. 40			Central America Diagram 15 p. 41			NN[2]	North America Diagram 16 p. 41			South America Diagram 17 p. 42		
	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2012	2013	2014	2012	2013	2014
Waste/residual materials	158	41	75	1,381	887	2,403	192	53	16	9,736	15,855	17,357		0.4	3	7,088	1,016	1,146	1,678	89	84	167
Barley										738	1,100	1,082				459						
Maize				62	45					6,905	9,577	8,464				263	3,515	1,290	1,146			
Palm oil				20,987	26,316	17,916										763				20		6
Rapeseed		22		70	347	255	1,191	2,635	1,865	36,981	40,719	50,240				19,728					87	136
Rye										1,447	3,534	3,231										
Soya								8	48	208	14	24				584	44	3	21	2,104	3,367	730
Sunflower										42						0						
Triticale										288	352	1,094				256						
Wheat										7,800	6,911	9,010			2	1,321	84			125		
Sugar cane					2								127	106	229					355	1,182	398
Sugar beet										9,475	8,013	6,987				857						
Total Diagram 7, p. 34	**158**	**62**	**75**	**22,499**	**27,598**	**20,573**	**1,383**	**2,695**	**1,929**	**73,620**	**86,074**	**97,490**	**127**	**106**	**233**	**31,320**	**4,659**	**2,439**	**2,845**	**2,693**	**4,721**	**1,438**

[1] Discrepancies in the sum totals are due to rounding
[2] NN indications no longer permitted in 2013 and 2014 as the indication of origin has become mandatory

Table 11: Raw materials of biofuels by origin in 1000 tons [kt][1,2]

Region/ Quota Year / Raw material	Africa			Asia			Australia			Europe			Central America			NN[3]	North America			South America		
	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2012	2013	2014	2012	2013	2014
Waste/residual materials	4	1	2	37	24	64	5	1	0.4	258	422	463		0.01	0.1	188	27	30	45	2	2	4
Barley										28	42	41				17						
Maize				2	2					259	359	319				10	132	48	43			
Palm oil				498	626	423										18				0.5		0.1
Rapeseed		1		2	9	7	32	71	50	990	1,090	1,344				528					2	4
Rye										55	134	122										
Soya								0.2	1	6	0.4	1				16	1	0.1	1	56	90	20
Sunflower										1												
Triticale										11	13	41				10						
Wheat										295	261	340			0.1	50	3			5		
Sugar cane					0.1								5	4	9					13	45	15
Sugar beet										358	303	264				32						
Total	**4**	**2**	**2**	**539**	**660**	**494**	**37**	**72**	**52**	**2,260**	**2,624**	**2,936**	**5**	**4**	**9**	**869**	**163**	**79**	**89**	**77**	**139**	**43**

[1] Discrepancies in the sum totals are due to rounding
[2] Conversion into tonnage was done on the basis of the certificates counted towards the quota
[3] NN indications no longer permitted in 2013 and 2014 as indication of origin has become mandatory

Table 12: Sum totals of biofuel raw materials[1]

Raw material	2012 [TJ]	2013 [TJ]	2014 [TJ]	2012 [kt]	2013 [kt]	2014 [kt]
Waste/residual materials	19,334	17,859	21,698	513,458	474,974	578,536
Barley	1,174	1,100	1,082	44,369	41,558	40,881
Maize	10,676	10,882	9,610	401,231	408,861	362,512
Palm oil	23,108	24,805	17,922	547,234	591,048	423,643
Rapeseed	57,219	43,559	52,496	1,531,126	1,165,585	1,404,683
Rye	1,447	3,534	3,231	54,685	133,522	122,090
Soya	2,903	3,321	824	77,684	88,849	22,044
Sunflower	41			1,109		
Triticale	546	353	1,094	20,632	13,320	41,336
Wheat	9,300	6,945	9,012	351,409	262,433	340,526
Sugar cane	479	1,290	627	18,111	48,750	23,691
Sugar beet	10,261	7,977	6,987	387,710	301,435	264,010
Total	**136,489**	**121,624**	**124,582**	**3,948,757**	**3,530,335**	**3,623,953**

[1] Discrepancies in the sum totals are due to rounding

Table 13: Emissions and emission savings of biofuels[1]

Biofuel type	Emissions 2012 [t CO_{2eq}]	Emissions 2013 [t CO_{2eq}]	Emissions 2014 [t CO_{2eq}]	Savings 2012 [%]	Savings 2013 [%]	Savings 2014 [%]
	Diagram 28, p. 52 and Diagram 26, p. 51			Diagram 29, p. 53 and Diagram 27, p. 51		
Bioethanol	42.34	39.97	38.06	49.47	52.30	54.58
Biomethane	25.12	24.93	20.66	70.02	70.25	75.34
Biomethanol	26.16	26.98		68.78	67.81	
FAME	46.32	42.78	41.36	44.73	48.95	50.65
HVO	42.96	39.94	45.87	48.73	52.34	45.26
Vegetable oil	37.50	36.03	36.15	55.25	57.00	56.86
UCO	14.00			83.29		
Weighted average of all biofuels	**44.71**	**41.30**	**40.75**	**46.65**	**50.72**	**51.36**

Table 14: Emissions and emission savings of bioliquids[1]

Bioliquid type	Emissions 2012 [t CO_{2eq}]	Emissions 2013 [t CO_{2eq}]	Emissions 2014 [t CO_{2eq}]	Savings 2012 [%]	Savings 2013 [%]	Savings 2014 [%]
	Diagram 37, p. 58 and Diagram 35, p. 57			Diagram 38, p. 58 and Diagram 36, p. 57		
From pulp industry	2.29	2.23	1.87	97.49	97.55	97.94
FAME	37.83	37.56	35.44	58.43	58.72	61.06
HVO	32.00			64.84		
Vegetable oil	28.48	36.26	37.19	68.70	60.16	59.13
UCO	36.00	36.00	19.31	60.44	60.44	78.78
Weighted average of all bioliquids	**4.43**	**5.47**	**5.55**	**95.14**	**93.99**	**93.90**

[1] Discrepancies in the sum totals are due to rounding

Table 15: Bioliquid types [TJ][1]

Diagram 31, p. 54

Bioliquid type	2012	2013	2014
From pulp industry	26,075	26,686	27,568
FAME	38	62	76
HVO	0.14		
Vegetable oil	2,259	2,810	3,125
UCO	88	1	22
Overall result Diagram 30, P. 54	**28,460**	**29,559**	**30,792**

Table 16: Raw materials of vegetable oils (bioliquids)[TJ][1]

Diagram 32, p. 55

Raw material	2012	2013	2014
Palm oil	1,817	2,279	2,329
Rapeseed	441	531	797
Soya	0.84	0.54	0.06
Total	**2,259**	**2,810**	**3,125**

Table 17: Vegetable oils by origin (bioliquids) [TJ][1]

Diagram 33, p. 55

Region	2012	2013	2014
Asia	1,475	2,280	1,878
Australia	4	0.3	
Europe	433	529	1,247
Central America	1		
North America	1	1	
Without indication	345	1	
Total	**2,259**	**2,810**	**3,125**

[1] Discrepancies in the sum totals are due to rounding

12 Conversion tables, abbreviations and definitions

Conversion of energy units

Energy unit	Megajoule [MJ]	Kilowatt hour [kWh]	Terajoule [TJ]	Petajoule [PJ]
1 megajoule [MJ]	1	0.28	0.000001	0.000000001
1 kilowatt hour [kWh]	3.60	1	0.0000036	0.0000000036
1 terajoule [TJ]	1,000,000	280,000	1	0.001
1 petajoule [PJ]	1,000,000,000	280,000,000	1,000	1

Density

Biofuel type	Tonne per cubic metre [t/m^3]	Megajoule per kilo-gramme [MJ/t]
Biofuel from the pulp industry	1.32	7,000
Bioethanol	0.79	27,000
Biomethane	0.00072	50,000
Biomethanol	0.80	20,000
FAME	0.883	37,000
HVO	0.78	44,000
Vegetable oil	0.92	37,000
UCO	0.92	37,000

Abbreviations and definitions

Abbreviations	Meaning
36th BImSchV	36th Ordinance for the implementation of the Federal Immission Control Act (Verordnung zur Durchführung des Bundes-Immissionsschutz-gesetzes)
BHKW	Combined heat and power plant
Biokraft-NachV	Biofuel Sustainability Ordinance (Biokraftstoff-Nachhaltigkeitsverordnung)
BioSt-NachV	Biomass Electricity Sustainability Ordinance (Bio-massestrom-Nachhaltigkeitsverordnung)
DE system	Certification systems according to Art. 33 Nos. 1 and 2 BioSt-NachV and/or Biokraft-NachV, recognised by the BLE
EEG	Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz)
EU system	Voluntary system according to Art. 32 No. 3 BioSt-NachV and/or Biokraft-NachV
FAME	Fatty acid methyl ester (biodiesel)
HVO	Hydrogenated Vegetable Oils
UCO	Used Cooking Oil

Terms	Meaning
Bioliquids from the pulp industry	Bioliquids from the pulp industry are energy- and lignin-rich by-products of cellulose production in the paper industry.
Bioethanol	Bioethanol (ethyl alcohol) is derived from renewable raw materials by distillation after alcoholic fermentation or by comparable biochemical methods.
Biomethane	Biogas is a methane-rich gas which results from the fermentation of biomass.
Biomethanol	Like BTL fuel, methanol can be produced via synthesis gas from a wide range of biomass types. In addition, methanol can also be produced through the conversion of crude glycerol.
FAME	Fatty acid methyl ester (FAME), which is generated during the chemical conversion of fats and oils with methanol, is referred to as biodiesel.
HVO	Hydrogenated vegetable oil (HVO) is vegetable oil which is converted to hydrocarbon chains through a chemical reaction with hydrogen in a hydrogenation plant.
Vegetable oil	Vegetable oil fuel can be produced from rape or other oil plants; in contrast to biodiesel, no chemical conversion takes place.
UCO	UCO are used cooking fats and oils. They can be used as clean fuels or as a component of FAME.