

# IEA BIOENERGY T39 BIOFUEL NEWS

Issue 62  
July 2023



## *Upcoming Events*

ADVANCED BIOFUELS CONFERENCE  
20-21 September, Sweden

## *In this issue*

Biofuels and Development  
in the European Union

# Painting the blue skies green

With the first newsletter for 2023 and in this edition, we feature an article on biofuels and developments in the European Union. The development is clear, aviation is showing a lead for a green lift-off. More and more Sustainable Aviation Fuel (SAF) projects and plants are in the pipe-line.

We thank our colleagues at JRC (Joint Research Centre) in Italy for their contribution. The article is of special importance as the European Union declares new directives which will form the basis for climate reduction and energy for decades to come.

Despite difficult times in the energy & fuels markets and setback in the financial markets with higher interest rates and increased inflation the global development in phasing out fossil fuels continues. The air industry and now shipping takes on the challenge and bring forward much of new capacity.

We are colouring the blue seas and skies green. Join us in our upcoming webinars, seminars, and conference presentations and read our reports and publications. Take action and join our development for replacing fossil fuels with biofuels.

We appreciate your readership and value your input and feedback!

Tomas Ekblom, Task Leader IEA Bioenergy TCP T39

**Publisher:** IEA Bioenergy TCP Task 39

**Editor in chief:** Tomas Ekblom

**Graphic Design:** Hannah Edgren

**Feature Article:** Marco Buffi & Nicolae Scarlat



## IEA Bioenergy TCP Task 39

IEA Bioenergy is a Technology Collaboration Programme (TCP) set up in 1978 by the International Energy Agency (IEA) with the aim of improving cooperation and information exchange between countries that have national programmes in bioenergy research, development and deployment. Twenty five countries plus the European Commission currently participate in IEA Bioenergy.

[www.task39.ieabioenergy.com](http://www.task39.ieabioenergy.com)

[task39@svebio.se](mailto:task39@svebio.se)

[Join our newsletter](#)

## Swedish Bioenergy Association

While Tomas Ekblom is Task Leader for IEA Bioenergy TCP Task 39, he also works for the Swedish Bioenergy Association (Svebio). Svebio is a environmental organisation for companies and individuals. We are strongly rooted in our values, and believe in renewable energy, entrepreneurship and a free market economy.

[www.svebio.se](http://www.svebio.se)

[info@svebio.se](mailto:info@svebio.se)

## Recommended reading

[Bioenergy International](#)

Online & E-magazine

[BC-SMART Low Carbon Fuels Consortium](#)

Newsletter

ISSN 2004-7002

## IN THIS ISSUE

From the task	1
Task 39 members	3
Biofuels production and development in the European Union	5
In the news	19
Upcoming meetings, conferences and webinars	24



# From the task

## Current progress in the triennium

During the spring of 2023 we have had two Business meetings where we have monitored ongoing projects and discussed inter-task cooperation and new projects. We also have added material to our website about the task, projects, reports, publications, and the calendar with events. The website link to IEA Bioenergy Task 39 is [here](#).

Task 39 also plan for a joint meeting in October 2023 in Leipzig, Germany at DBFZ with IEA AMF for common interest and possible cooperation and projects. There are important considerations for both internal combustion engines and biofuels in the matter of adopting political measures for future sales where combustion engines are restricted or not allowed.

Task 39 continues to actively organize and participate in other webinars and conferences with the goal of sharing the networks insights on how decarbonization of the transport sector can contribute to a “green economic recovery”.

As of 2023 fifteen countries participates in Task 39 : Austria, Belgium, Brazil, Canada, China, Denmark, European Commission, Germany, Ireland, Japan, The Netherlands, New Zealand, South Korea, Sweden, and the USA. In addition, US Grains Council participates as a Limited Sponsor. See Figure 1. We welcome the new National Team Leaders and experts to the Task group.

With the collaboration among these countries, Task 39 is set to deliver cooperative research projects to address and assess policy, markets, and sustainable biofuel implementation issues. We welcome international contact from industry and academia and authority to our group to work on common ground for further use and commercialization of biofuels to replace fossil fuels.

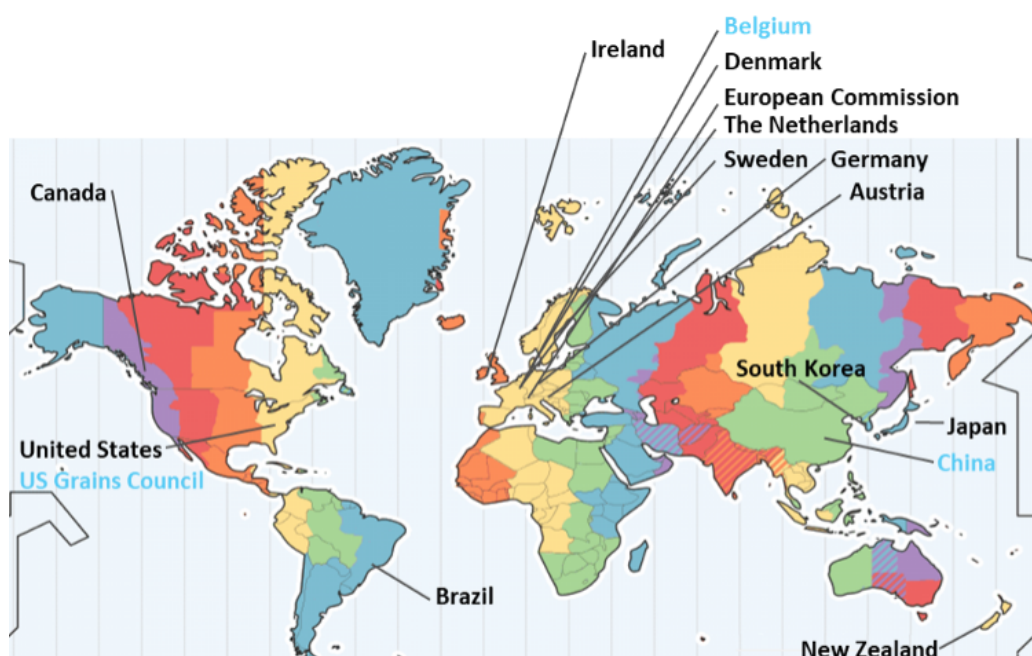


Figure 1: Members of IEA Bioenergy TCP Task 39, 15 member countries and 1 Limited Sponsor.

## Task 39 programme of work

The mission of Task 39 is to facilitate and advance development and deployment of sustainable, lower carbon intensity biofuels to decarbonize the transport sector. Our method is to assist member countries transport biofuels stakeholders in their efforts to develop and deploy sustainable, lower carbon intensive biofuels through a coordinated focus on technology, commercialization, sustainability, policy, markets, and implementation.

The task leads and coordinates activities in the three main program areas of :

### Technology and Commercialization (T-projects)

Technical/commercial aspects of producing and using low carbon intensity (CI) liquid and gaseous biofuels for transport, including both “conventional” and “advanced” biofuels.

### Sustainability (P-projects)

Sustainability and carbon intensity metrics are playing an ever-increasing role in the policies used to develop and use biofuels. Biofuels sustainability/LCA assessment will stay a priority for the Task.

### Policy (P-projects)

Policy analysis, the “right” policies (such as LCFSs) significantly influence the rate and extent of development, deployment, and use of biofuels (e.g., bioethanol, biodiesel, renewable diesel, drop-in biofuels, etc).

The list of ongoing and proposed projects is provided below :

#### T39-T2

Ongoing progress in the commercialization of SAF/biojet fuel

#### T39-T3

Progress in the commercialization of drop-in biofuels and co-processing to produce low-CI transport fuels

#### T39-T4

“Extend assessment of decarbonisation of the marine transport sector and evaluate the commercial production and use of biofuels”

#### T39-T5

“Phase 2- Successes and Lessons Learned for Advanced Biofuel Technologies Commercialization (possibly InterTask with Tasks 40 and 45)”

#### T39-T6

Inter-Task project ‘Synergies of green hydrogen and bio-based value chains deployment’

#### T39-P1

Implementation Agendas compare-and-contrast report of each member country’s biofuels policies that have been/are being used to develop, deploy and expand biofuels production and use

#### T39-P2

“Assessment of the sustainability of biofuels pathways, including social and environmental aspects of sustainability, the specific CI impact of “new/advanced” feedstocks, and also further compare and harmonize leading LCA models to support biofuels categorization and regulation (possibly InterTask with Tasks 45)”

#### T39-P3

Improvement opportunities for policies and certification schemes promoting sustainable biofuels with low GHG emissions. Part 2 : Robustness of GHG emission certification and verification –a case study of selected biofuel value chains and policies

#### T39-P4

Biofuel's production and use status in “emerging” economies.

We appreciate your readership and value your input and feedback.  
Thank you for participating in the IEA Bioenergy Task 39 network!



# Task 39 members

Starting from 2023 Task 39 will have 15 member countries participating as listed per below. Each country is represented by a National Team Leader (NTL) and additional representatives as well as an ExCo member. Furthermore, external experts may be involved as well. Australia has taken part during 2022 as Observer and is in decision to take active part in 2023. As no confirmation has been given at the ending of 2022, they will not be a full Member. In addition, US Grains Council participates as a Limited Sponsor making the total number of members to 16.

## Current IEA Bioenergy task 39 members (from 2023)

Member country	Task representative	Organisation	ExCo member
Austria	Andrea Sonnleitner (NTL) Dina Bacovsky	<a href="#">BEST</a> <a href="#">BEST</a>	Hannes Bauer
Belgium	Robert Malina	<a href="#">Hasselt University</a>	Thibaut Masy
Brazil	Glaucia Mendes Souza (NTL) Rubens Maciel Filho Luiz A Horta Nogueira	<a href="#">FAPESP</a> <a href="#">FAPESP</a> <a href="#">UNIFEI</a>	Renato Godinho
Canada	Jack Saddler (NTL) Hana Mohamadi Allison Simmons	<a href="#">UBC</a> <a href="#">UBC</a> <a href="#">NRC</a>	Oshada Mendis
China	Fuli Li (NTL)	<a href="#">QIBEBT</a>	Dou Kejun
Denmark	Sune Tjalfe Thomsen (NTL)	<a href="#">UCPH</a>	Katharina Paarup Meyer
European Commission	Nicolae Scarlat (NTL) Marco Buffi	<a href="#">EC</a> <a href="#">EC</a>	Maria Georgidaou
Germany	Franziska Mueller-Langer (NTL) Nicolaus Dahmen	<a href="#">DBFZ</a> <a href="#">KIT</a>	Birger Kerckow
Ireland	TBD	TBD	Luiz Gay-Tarazona
Japan	Yuta Shibahara	<a href="#">NEDO</a>	Takahisa Yano
New Zealand	Paul Bennett (NTL)	<a href="#">Scion</a>	Paul Bennett
South Korea	Chang Hyu Ko (NTL)	<a href="#">CNU</a>	Jin-Suk Lee
Sweden	Tomas Ekbom (NTL) Hannah Edgren	<a href="#">Svebio</a> <a href="#">Svebio</a>	Jonas Lindmark
The Netherlands	Paul Sinnige (NTL) José Muisers Stephan Janbroers	<a href="#">RVO</a> <a href="#">RVO</a> <a href="#">TNO</a>	Kees Kwant
United States	Ling Tao (NTL)	<a href="#">NREL</a>	Jim Spaeth



Study visit at Pyrocell, Business Meeting 12-13 September Gävle, Sweden

### Current IEA Bioenergy Task 39 limited sponsor(s)

Organisation	Task Representative	Alternative
U.S Grains Council	Isabelle Ausdal	Mackenzie Boubin



# Biofuels production and development in the European Union

**By Marco Buffi & Nicolae Scarlat**

European Commission Joint Research Centre, Directorate C - Energy, Transport and Climate, Energy Efficiency and Renewables - Unit C.2. Ispra (Varese), Italy.

## 1. Summary

- The EU-27 supply of biofuels in 2020 was around 16 Million Tonnes of Oil Equivalent (Mtoe), which accounted for 6.3% of the total transport fuel consumption in the EU. About 85% of biofuels supply came from primary production within the EU.
- In 2020, the overall EU production of biofuels was 20 billion litres per year, of which 15 billion litres (about 13 Mtoe) biodiesel and 5 billion litres (about 3 Mtoe) bioethanol. Most biofuels are conventional biofuels produced from vegetable oil as rapeseed, sugar beets and maize, but a growing amount of them is produced from feedstocks such as used cooking oil (listed in Annex IX (Part A and B) of the Renewable Energy Directive 2018/2001 (RED II), reaching more than 4 Mtoe in 2020, representing around 25% of total biofuel consumption. Of this, 1.2 Mtoe are advanced biofuels, produced from lignocellulosic feedstocks listed in Part A, with a limited planned production up to 1.85 Mt/y.
- After Covid-19 period, the production of liquid biofuels for road transports remained almost constant, but a rapid market uptake is expected in the coming years, in particular for advanced biofuels as biomethane and aviation biofuels.
- New policy mechanisms have been promoted to stimulate the production of biofuels, in particular the Fit-for-55 package revising the RED II and setting more ambitious targets for GHG emissions reduction by 2030. The package also introduced specific targets for non-biological fuels, aviation and maritime biofuels.
- As part of the REPowerEU plan the EC proposed in May 2022 to further increase the share of energy from renewable sources in the gross final consumption of energy to 45% by 2030. REPowerEU is the action for substituting fossil fuels, reducing the dependence on Russian fossil fuels and accelerating Europe's clean energy transition, to further deployment of renewables.
- REPowerEU has also set a goal to promote renewable gases such as hydrogen and biomethane and in particular to increase biomethane production to 35 bcm (billion cubic meters) by 2030 to replace natural gas imports.
- Advanced biofuels are expected to play a role in transport : a sub-target for advanced biofuels supplied to the transport sector was set at 0.2% in 2022 ; 1% in 2025 and 3.5% in 2030, integrating the addition of a double counting for these fuels (according to the Council's revision of Council' position on the Fit-for-55). More ambitious targets are currently revised, given the necessity for a higher greenhouse gas emission reduction from transport sector.
- Several delegated acts are expected to be adopted by the European Commission, as requested by the RED II : delegated act setting the rules to determine the sustainability and eligibility of hydrogen and non-biological fuels (released in February 2023) ; delegated act setting the methodology for bio-carbon in co-processing crude oil and bio-based feedstock ; delegated act updating the RED II Annex IX list for the feedstocks eligible for advanced biofuels production (pending, 2023).



## 2. Biofuels in the EU scenario

### 2.1 Production

EU biofuels production remains highly relevant in the global biofuels scenario and below nominal capacity. The limited growth in biofuel production is related to the sustainability debate in the EU and the cap for biofuels made from food and feed crops introduced by the so-called ILUC Directive. EU production of biofuels was 20 billion litres per year, of which 15 billion litres (about 13 Mtoe) biodiesel and 5 billion litres (about 3 Mtoe) bioethanol. Biofuels supply in the EU-27 in 2020 was about 6.3% of the total transport fuel consumption in the EU (where the overall transport fuel demand was about 251 Mtoe – Eurostat). The majority of biofuels produced in the EU are biodiesel, i.e., FAME made from lipids, and bioethanol, made from sugar- and starch- based crops, all deriving from food-based crops. The largest biofuels producers in the EU are Germany, France, Spain, and Italy. The production of biofuels in these countries is supported by national policies and incentives, such as blending mandates and tax exemptions, as well as by the EU's regulatory framework for biofuels.

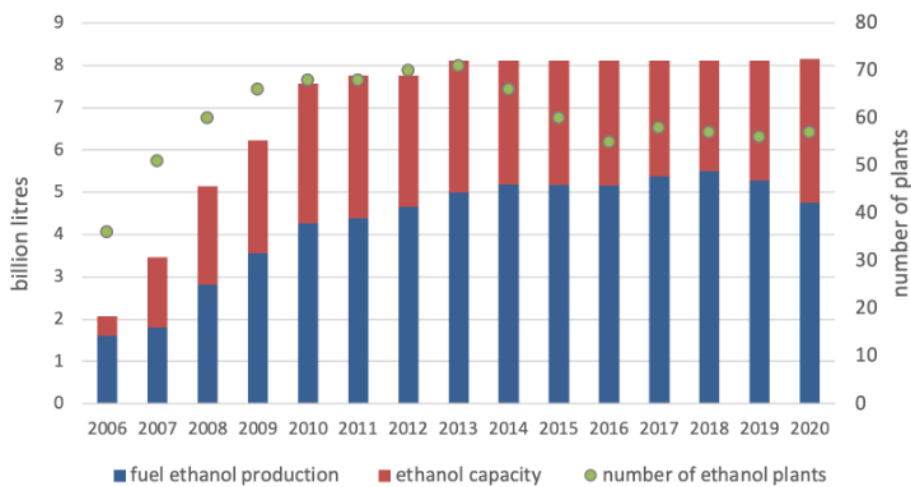
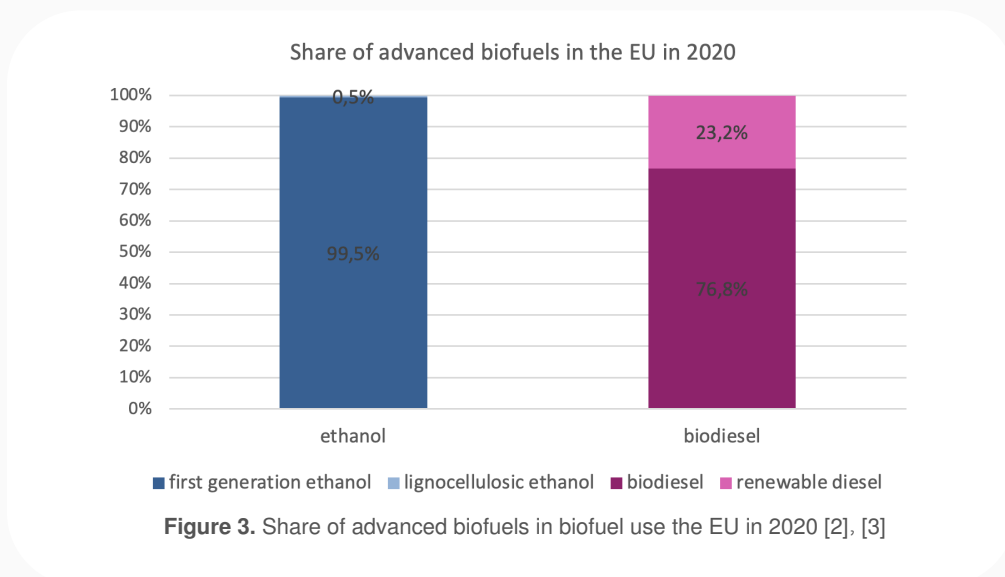


Figure 1. Evolution of ethanol production and capacity in the EU [2], [3]



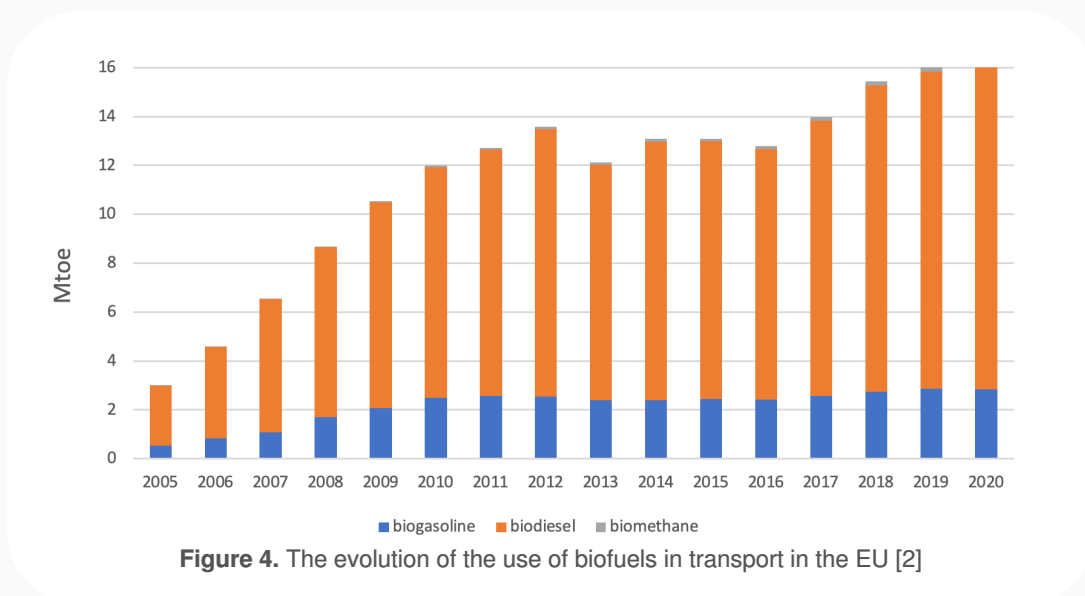
Figure 2. Evolution of biodiesel production and capacity in the EU [2]

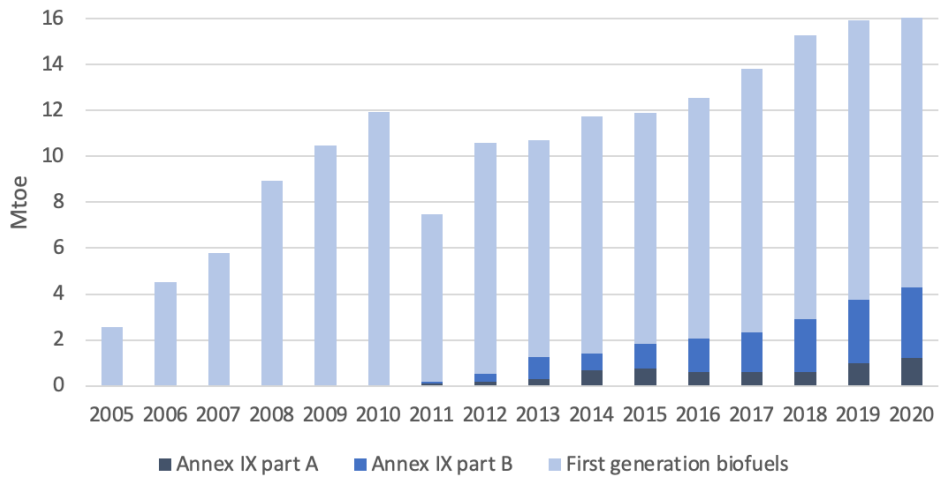
In recent years, there has been a shift in the EU's biofuels policy towards promoting the use of more sustainable, renewable and low-carbon fuels, such as advanced biofuels (hence non-food based crops). In EU, advanced biofuels are defined as biofuels listed in Annex IX part B of the RED II [4], and commercial production mostly consists in HVO (Hydrotreated Vegetable Oil), co-processed fuels inside or close oil refinery environments and stand-alone alcohol-based biorefineries (see Figure 3). The share of renewable diesel in the total bio-derived diesel use in EU reached 23.2% in 2020, mainly deriving from Used Cooking Oil (UCO) and other waste-based lipids, while advanced ethanol was at only 0.5% in 2020 [2], [3].



## 2.2 Consumptions

The biofuel consumption in EU transport sector was 13 Mtoe in 2015 and increased to 16 Mtoe in 2020, with a biodiesel share of around 80% of biofuels used in transport (Figure 4). The use of biofuels produced from feedstock listed in Annex IX (Part A and B) is increasing in the last years and was just above 4 Mtoe in 2020 at around 25% of total biofuel consumption. Of this, 1.2 Mtoe (according to Eurostat database) were advanced biofuels (biofuels produced from feedstock listed in Annex IX Part A) (Figure 5). Germany was by far the main biofuel consumer in Europe in 2020, with almost 3.5 Mtoe, followed by France with more than 2.5 Mtoe consumed, while most of countries are still under 0.5 Mtoe.

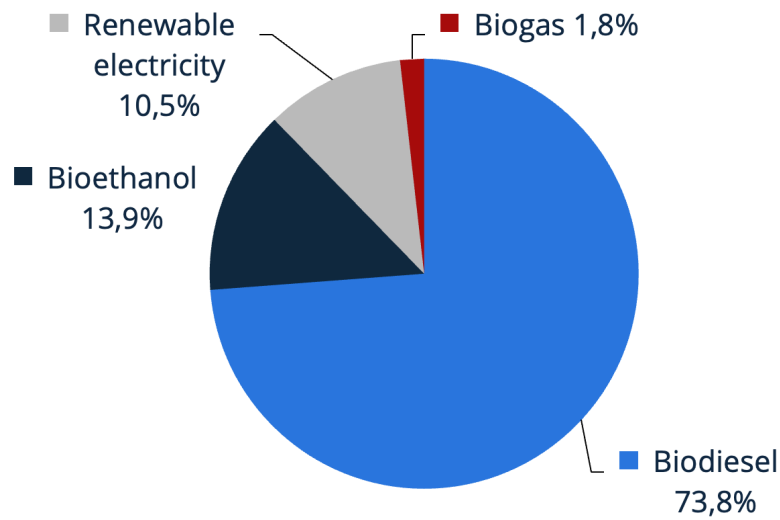




**Figure 5.** The evolution of the use of biofuel, including advanced biofuels in the EU [5].

The predominant feedstocks after rapeseed and sugar beets, can be highlighted as cooking oil and other waste-based lipids increasingly introduced into the mix.

Considering the current use of renewable electricity within transport sector in EU, biodiesel still had a share of 73.8% in 2020 (Figure 6).

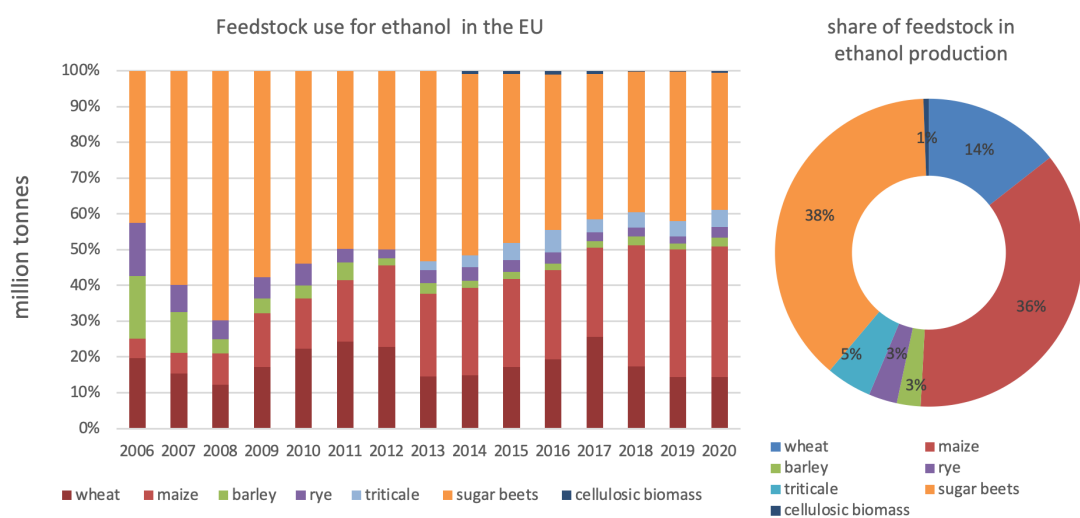
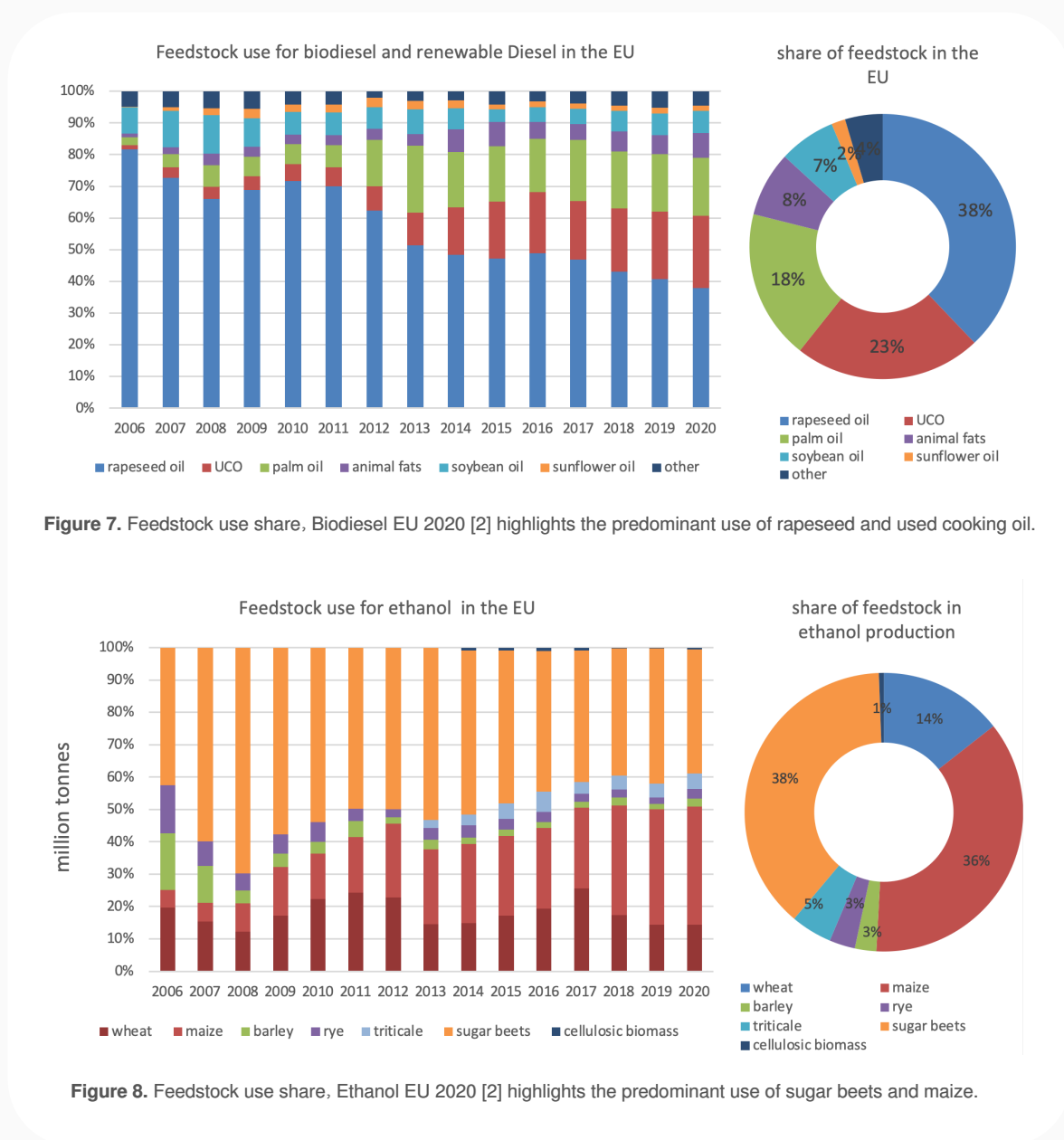


**Figure 6.** Distribution of renewable energy by fuel used in EU, 2020 [6]



## 2.3 Primary feedstock needed for the 1st generation biofuels (conventional or starch and oil-based biofuels)

Considering the commercial biodiesel, globally, about 75% of FAME is based on vegetable oils (20% rapeseed oil, 25% soybean oil, and 30% palm oil) or used cooking oils (20%) [5]. Rapeseed oil is still the dominant biodiesel feedstock in the EU, accounting for 38% of total feedstock use in 2020 (see Figure 7). The popularity of rapeseed oil is grounded on its domestic availability as well as in the higher winter stability of the resulting rapeseed methyl ester (RME) compared to other feedstocks. Used cooking oil was the second most important feedstock in 2020, accounting for 23% of the total feedstock. Palm oil was third in terms of feedstock source in 2020 (18%), mainly used in Spain, Italy, France, and the Netherlands, and to a much lesser extent in Belgium, Finland, Germany, and Portugal. Palm oil use will be affected by the phase-out of biofuels deriving from high-risk ILUC crops. Regarding ethanol, at world level, about 60% of ethanol is produced from maize, 25% from sugarcane, 3% from wheat, 2% from molasses and the residues from other grains, cassava or sugar beet. As for EU, the feedstocks used for bioethanol production are mainly sugarbeets (38%), maize (36%), wheat (14%) and the rest from triticale, barley and rye (see Figure 8). Advanced biofuels from cellulosic feedstock (e.g. crop residues, dedicated energy crops, or wood) account for a very small share of total biofuel production.



## 3. Policies driving the production and use of biofuels in the EU

### 3.1 RED II, revision (Fit-for 55 package)

The European Union (EU) has established a specific regulatory framework for the promotion of the production and use of renewable energy through the Renewable Energy Directive (EU) 2018/2001 (RED II) , which entered into force since 2018 and replaced the Renewable Energy Directive 2009/28/EC (RED) from 2009 [4]. In December 2019, the European Commission proposed the European Green Deal (EGD) [7] that set a vision of how to achieve sustainability and climate neutrality goals by 2050 to tackle climate and environmental challenges. Sustainable alternative transport fuels are an option to decarbonise the sectors in which electrification remains challenging. The European Climate Law set a legally binding target of net zero greenhouse gas emissions by 2050 of the European Green Deal and the intermediate target of reducing net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels. As part of the EGD, on 14 July 2021 the EC adopted the 'fit for 55' package [8], which provided updates of the existing climate and energy legislation to meet the EU objective of a minimum 55 % reduction in greenhouse gas (GHG) emissions by 2030.

A key element of this Fit for 55 framework is the revision of the Renewable Energy Directive (RED II) [4]. The proposal for the revision of RED II sets a minimum 40% renewable energy share in final energy consumption by 2030, accompanied by new sectoral targets. The proposal increased the ambition level for the use of renewable fuels and renewable electricity in transport and changed the approach toward reaching a greenhouse gas intensity reduction of at least 13 % by 2030, compared to the baseline. The proposal also set new targets for the share of advanced biofuels and biogas produced from the feedstock listed in Part A of Annex IX to 2.2 % in 2030 and added a target for the share of Renewable Fuels of Non-Biological Origin (RFNBO) is at least 2.6 % in 2030. The proposal for revision of RED II removes the multipliers associated to certain renewable fuels and to renewable electricity used in transport.

### 3.2 GHG emissions calculation methodology for biofuels

In the European Union, the methodology for calculating GHG emissions (CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>) from biofuels is set out in the RED II [4] and establishes the rules for calculating the entire life cycle emissions of biofuel, from the production, transportation and use. The emissions should include emissions from the extraction or cultivation of raw materials, from land use change, emissions from processing, emissions from transport and distribution and from the fuel in use. The calculation also includes emission savings from soil carbon accumulation via improved agricultural management, from carbon capture and storage and carbon capture and replacement. The GHG emission savings from the use of biofuels are calculated using the pre-calculated default values reporting the carbon intensity of some biofuels and bioenergy pathways. Carbon intensities and savings can be also calculated by using a combination of actual values and disaggregated default values (reported on Annex V & VI). The emissions from the biofuel in use (combustion) are considered to be zero for biofuels, due to the biogenic origin of the fuels. The methodology takes into account all other CO<sub>2</sub> equivalent emissions as CH<sub>4</sub> (e.g. from biogas fugitive emissions) and N<sub>2</sub>O (e.g. from fertilizers), and the accounting system considers how much emissions are saved by using biofuels instead of fossil fuels. Emissions from the manufacture of machinery and equipment are not taken into account. The GHG emissions savings are calculated by comparing them to the carbon intensity of a reference fossil fuel set at 94 gCO<sub>2</sub>e/MJ with an eligibility reduction threshold of 50-65% for biofuels, depending on the date of facility construction and 70% for RFNBOs and Recycled Carbon Fuels (RCFs). Fuel supply certification can use voluntary schemes and national certification schemes available for EU countries [14].

### 3.3 Advanced biofuels requirements and ILUC

The increased demand for biofuel can be fulfilled partly by the increase of crop area through the expansion of agricultural land into non-crop land, possibly into areas with high carbon stock, such as forests, wetlands and peatlands. This process is known as indirect land use change (ILUC). To address the issue, high ILUC-risk biofuels have been limited at 2019 levels, and then gradually reduced to zero by 2030 at the latest. The European Commission published in 2019 a report on the status of production expansion of relevant food and feed crops worldwide [15] to support this initiative. The Delegated Regulation on indirect land-use change [16] set down provisions to determine the high ILUC-risk feedstock for which a significant expansion of the production area into land with high carbon stock is observed. It also set out criteria to certify low ILUC-risk biofuels, bioliquids and biomass fuels. Furthermore, specific rules and methodological guidance for certification of low ILUC-risk biofuels, bioliquids and biomass fuels have been included in the Implementing Regulation on sustainability certification proposed by the Commission in line with Article 30(8) of the RED II, and entered into force on 14th June 2022 [17]. For other specific rules for certain feedstocks and their potential effect on deforestation, it is worth mentioning also the regulation on deforestation-free production [18], approved in December 2022, which set out rules to tackle deforestation and forest degradation linked to specific commodities and products placed on or exported from EU markets. This is of significant importance since most of the feedstock for bioenergy is recovered from wood processing for the production of materials.

In order to translate part of these policies into practical information for the operators producing advanced biofuels, in December 2022 the Commission released the draft Delegated Directive for the amending Annex IX (RED II) list for eligible feedstocks [19]. This list is subject to periodic review by the European Commission, following an analysis of the potential feedstock which consider the principles of the circular economy and of the waste hierarchy for avoiding significant distortive effects on markets, negative impacts on the environment and biodiversity and avoiding creating an additional demand for land. Final adoption of the revised list is highly likely to be done during 2023, followed by an 18-month transposition period for Member States.

### 3.4 Non-biological fuels and co-processing

Within the RED II, also non-biological fuels (the so-called renewable fuels of non-biological origin) are included within the renewable energy targets, and the rules to determine their use have been set out in specific delegated regulations. Such fuels must be produced with renewable energy (other than biomass).

On 7th February 2023 the EC proposed two Delegated Acts related to the promotion of Recycled Carbon Fuels (RCF) and Renewable Fuels of Non-Biological Origin (RFNBO).

The first Delegated Act [20] defines when hydrogen, hydrogen-based fuels or other energy carriers can be considered as a renewable fuel of non-biological origin. The rules are to ensure that these fuels can only be produced from “additional” renewable electricity generated at the same time and in the same area as their own production.

The second Delegated Act [21] sets the methodology to calculate GHG emissions savings from RFNBOs and RCF (fuels produced from non-recyclable waste of non-renewable origin or from waste processing gas and exhaust gas of non-renewable origin). The methodology takes into account the full lifecycle of the fuels to calculate the emissions and the associated savings. It also establishes that the greenhouse gas emissions savings from the use of recycled carbon fuels shall be at least 70%, compared to the fuels they are replacing.

Even if not directly linked to EU biofuels targets, these pieces of regulation may also support the market uptake of some advanced biofuels value chain adopting hydrogen as input or reagent for biofuels production (e.g. HVO, FT-fuels and bio-synthetic methane).

During 2023, the EC will also release the methodology for calculating the share of renewables in the case of co-processing in the form of a delegated regulation [22], which aims to establish the share of biofuel and biogas for transport resulting from biomass being processed with fossil fuels in the oil refineries. Following a consultation held in mid-2022, the European Commission is set to adopt a final delegated act on the EU approach to co-processing possibly during Q1 2023. Taking into consideration the final draft shared, a 14C radiocarbon testing could be the cornerstone of the system, ensuring that only the biogenic fraction of feedstocks processed in refineries are taken into consideration for the purposes of counting toward the different renewable energy targets.



### 3.5 Implementation in the member states

While the implementation of the RED II into the EU Member States (MSs) national legislation has been already completed within June 2021, the implementation of the Fit-for-55 package will require further actions and cooperation at MS level to update the previous targets. Each Member State will need to develop and implement its own national plans and policies to achieve the required emissions reductions and meet the package's targets. The Commission has proposed a new governance framework to ensure that Member States work together and share best practices, and to monitor and assess progress towards the package's targets. Under the proposed governance framework, each Member State will be required to develop and submit a national energy and climate plan (NECP) [23] outlining its policies and measures to achieve the package's targets. The plans will be subject to review by the Commission and Member States will be required to report regularly on their progress towards meeting their targets.

### 3.6 EU Methane strategy and the role of biomethane

On December 15th, 2021, the European Commission tabled a proposed regulation targeting methane emissions in the energy sector named EU Methane Strategy [24], which sets the framework to mitigate CH<sub>4</sub> emissions in all sectors, especially agriculture, energy and waste. The initiative targets to improve information for all energy-related methane emissions and to mitigate such emissions with specific interventions and is complementary to other initiatives targeting the penetration of renewable and low-carbon gases to replace natural gas [25]. Few months later, the EC released a complementary communication for hydrogen and biomethane implementing a specific roadmap for a short-term market uptake [26].

Introducing the EU Methane Strategy [27] on the Governance of the Energy Union (which was part of the EU Clean Energy Package adopted in 2019), the European Commission introduced the EU Strategic plan for methane (art. 16). This strategic plan is an integral part of the EU long-term strategy aiming to reach climate-neutrality by 2050 [28], the Fit-for-55 package and the RePowerEU, which set a target of 35 bcm of biomethane to replace the Russian natural gas.

To promote biomethane market uptake, one of the key proposed actions is the creation of a biogas and biomethane industrial partnership at EU level to promote the sustainable production and use of biomethane. So, the Biomethane Industrial Partnership (BIP) was launched on 28 September 2022 with the objective to support the achievement of 35 bcm target of annual production and use of sustainable biomethane by 2030, and to create the preconditions for a further ramp-up of its potential towards 2050 [29]. The BIP will promote participatory multi-stakeholder engagement between the Commission, EU countries, industry representatives, feedstock producers, academia and NGOs.

The European Parliament adopted its position on the Gas Decarbonisation Package [30] on 9th February 2023, that implemented the biomethane binding target of 35 bcm target into the regulation. The Package also included the requirement for Member States to set-up national biomethane strategies and to ensure regional mapping of highest production potential areas. This mapping exercise should inform the national strategies and the network planning carried out by the grid operators. National biomethane strategies shall provide a long-term perspective for the biomethane sector and guidance for investors.

### 3.7 EU rules on certifying carbon removals

The European Commission adopted on 30th November 2022, a proposal for the first EU-wide voluntary framework to certify high-quality carbon removals, carbon farming activities that enhance carbon storage, carbon storage in products in long-lasting products or materials [31]. The proposal aims to boost innovative carbon removal technologies and sustainable carbon farming solutions and contribute to the EU's climate, environmental and zero-pollution goals. It shall significantly improve, in particular, the EU's capacity to quantify, monitor, and verify carbon removals. For this purpose, the European Commission will develop specific certification methods for carbon removal activities for a proper quantification of carbon removals, guaranteeing the long-term storage and ensuring that only sustainable removals are certified.

The proposed certification framework is linked also to biofuels technologies, since an option to mitigate GHG emissions include also Bioenergy with Carbon Capture and Storage (BECCS), the potential use of biochar (still under evaluation), Direct Air Capture and Storage (DACCS), etc. This scheme shall be also in line with the rules set out in the Commission Implementing Regulation (EU) 2018/206613 [32] on the monitoring and reporting of GHG emissions under the ETS [33] and the detailed EU methodologies developed by the Commission for the quantification of GHG emission avoidance of BECCS and DACCS projects under the Innovation Fund [34]. The Commission will develop tailored certification methodologies for the different types of carbon removal activities supported by an expert group.

## 4. Perspectives and challenges in biofuels technologies

According to the EU's regulatory framework, technological and market research in Europe is largely focused on 'advanced' biofuels from non-food or feed feedstocks, while 'traditional' biofuels cover the largest demand even if they are limited by the cap previously described. In order to address the complexity and multi-faced character of the transition to a climate-neutral society in Europe, the EC launched an initiative to monitor advanced energy technologies named Clean Energy Technology Observatory (CETO). This is a joint initiative between the Joint Research Centre (JRC), implementing the Observatory and DGs Research and Innovation (R&I) and Energy (ENER) on the policy side. Starting from 2022, CETO monitors the EU research and innovation activities on the clean energy technologies, including advanced biofuels [3].



Photo: Pixabay

### 4.1 Status of the technologies

While 'traditional' biofuels technologies easily convert vegetable oils or sugars into biodiesel or bioethanol, advanced (second generation) technologies entail high complexity and require further development for converting lignocellulosic material or wastes into drop-in biofuels. In EU, several biofuel technologies for advanced biofuels are at high TRL such as HVO and co-processing, which can cover large fuels demand. Other technologies such as biomass FT-gasification and lignocellulosic ethanol are promising technologies. Main limitations for advanced biofuel production include the need to demonstration in commercial operation, complex logistics, undeveloped non-food biomass value chains and short-term policies on biomass sustainability. Feedstock availability might also be an issue, being limited to the list of feedstock defined in the RED II Annex IX, as well as the hydrogen supply. The EU is world leader in advanced biofuels demo and first-of-a-kind plants, with several demo plants been built, even if overall production capacity is still marginal (see Fel! Hittar inte referenskölla.). New technologies are ready to exploit the potential of those waste and residues feedstocks, even if commercial pathways do exist (e.g., anaerobic digestion to biomethane, hydrogenated vegetable oil, lignocellulosic ethanol production), but without significant production (currently 1.2 Mtoe) and with limited planned production (1.85 Mt/y).

Considering the recent REPowerEU target, the biomethane production is expected to rapidly grow in the coming years : the European biogas production has increased 6 folds from 2005 to 2020, and today an important shift from biogas to biomethane production is expected. Currently the production of biomethane is still low (3 bcm or 32 TWh) compared the overall biogas supply (18 bcm). However, it has been recently estimated that the potential biogas and biomethane production by 2030 is between 35 and 42 bcm (according to EBA [35]). It will be fundamental to consider sustainable biomass (i.e. the feedstocks reported in the RED II Annex IX) to cover this demand, mostly industrial and agro-residues, and bio-wastes [36].

As regards other pathways, a variety of innovative technologies such as biomass gasification to Fischer-Tropsch synthetic fuels and bio-methanol production, which have been demonstrated at industrial scale, are ready to take-off and some next generation technologies are making progress. Moreover, innovative technologies as solar fuels, novel thermochemical processes, microbial fuels and micro-algae derived-fuels are still at lab-scale.

The main challenges for the market uptake of advanced biofuels are their lack of cost competitiveness with existing conventional biofuels derived from food crops and fossil fuels (estimated at 1.5 to 3 times the market price), high capital expenditures and the availability of sustainable biomass feedstock. There is a significant potential of 25-40% for cost reduction through R&I, and 50% further reduction by large scale deployment and co-processing in existing plants.

## 4.2 Fundings

In EU, different funding programme are available, ranging from low TRL research projects to large-scale commercial (high TRL) plants. European funding for research and demonstration, i.e. the Horizon 2020' programme (and thereafter Horizon Europe), has been quite stable over the last years. Figure 9 shows that approximately 5 projects have been funded on average each year since 2015 (with data for 2022 not available at the time of writing).

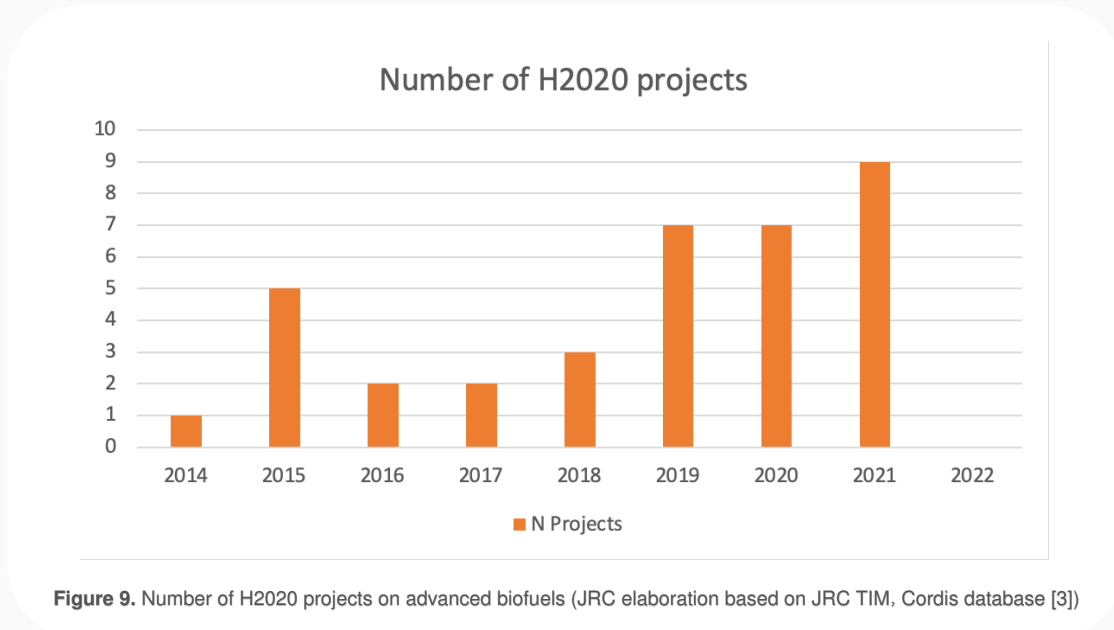


Figure 9. Number of H2020 projects on advanced biofuels (JRC elaboration based on JRC TIM, Cordis database [3])

Typically, an H2020 project is coordinated by one institution, but having inside the project consortium of even more than 20 partners from various Member States and countries participating in the Horizon 2020 programme. The countries with the highest number of projects are those where biofuel production is strong : Germany, UK, Netherlands, Italy and Spain. But also Finland, France, Belgium, Sweden and Austria are notably participating in projects, also due to their feedstock availability or history of biofuels production.

The amount of funding received follows a similar pattern even if some countries like Netherlands, France, Sweden and Romania received higher funding amounts per project than the average (Figure 10).

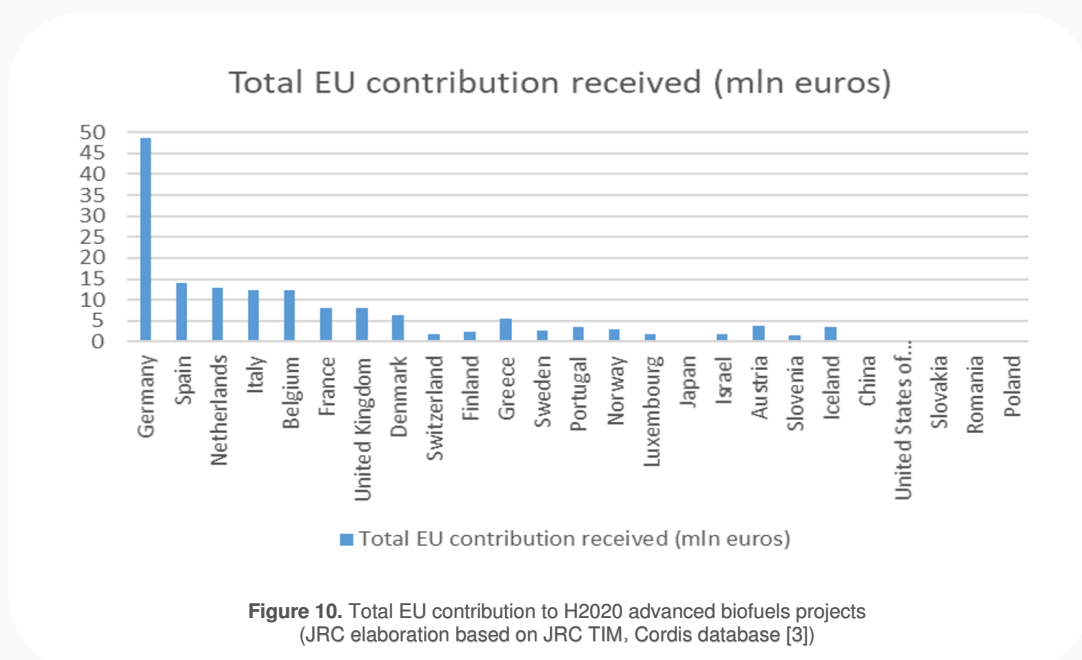


Figure 10. Total EU contribution to H2020 advanced biofuels projects (JRC elaboration based on JRC TIM, Cordis database [3])



The projects cover most of the described technologies, with a focus on gasification and fuel synthesis, but also including biogas, pyrolysis, fermentation and hydrothermal liquefaction. The whole value chain is represented, from feedstocks like algae, oil plants and biomass from degraded land, over pre-treatment and intermediate bioenergy carrier production to liquid fuel synthesis as well as upgrading to road, maritime and aviation fuels.

The funding programme available from the credit recovered by the Emission Trading System (ETS) is named “Innovation Fund” [34] supports the commercial demonstration and deployment of innovative low-carbon technologies, encompassing biofuel refineries under its energy-intensive industries focus. Across the 2020/21, small- and large-scale calls, the Innovation Fund has selected three projects for support (BECCS Stockholm, FirstBio2Shipping and Waga 4 World) with a contribution of EUR 133 million. Later new calls (now it has been just passed the 3rd round of calls) came out, and new projects are being funded.

As regards private R&I, biofuels funding in EU was on average EUR 250 million per year in the period 2010-2021, dominated by the US and Canada, with an EU share of only 6% in the last five years. However, the EU is leading with twice more high-value patents than the US.



Photo: Pixabay

### 4.3 Market analysis

Biofuel market analysis has been carried out in the CETO report [3] as well as in the EC report on Progresses on competitiveness of clean energy technologies [37]. EU shares roughly 7% of the global biofuel market worth EUR 100 billion in 2020, mostly generated from first generation biodiesel. In 2018 the turnover reached a peak at EUR 14.4 billion mostly generated in France, Germany and Spain. Beyond a EUR 2.3 billion direct contribution impact to the EU GDP, 250,000 direct and indirect jobs were created along the value chain. The EU shares 29% of innovation companies, while the US and Japan have the most.

The sector of advanced biofuels is just emerging, the number of commercial plants is still quite low, and international trade is very limited. The EU is the world leader with 19 out of 24 operational, commercial plants of advanced biofuels, with Sweden and Finland having the highest number, i.e. 12 (example plants are taken from the IEA task 39 database [38]).

International trade concerns all biofuels and is nearly inexistent for advanced biofuels. EU biofuel imports have constantly increased since 2014, with a trade deficit above EUR 2 billion in 2021, mainly due to imports from Argentina, China and Malaysia. The Netherlands and Germany are the biggest EU and global biofuel exporters.

## 5. Conclusions

After the Covid-19 pandemic, the production of biofuels in EU-27 has been quite stable, set at about 16 Mtoe, i.e. 6.3% biofuel share considering the 2020 overall transport fuel demand. The new policy mechanisms, considering both GHG emissions reduction and food security are promoting the production of advanced biofuels (with a current production of 1.2 Mtoe, with limited additional planned production up to 1.85 Mt/y), which today is mostly based on “stand-alone” plants (e.g., HVO, second generation ethanol, biomethane...). Co-processed fuels, recycled carbon fuels and renewable fuels on non-biological origin are also fundamental to achieve the RED II targets, and the recently published or coming delegated acts will ensure their rules for a sustainable production. In 2021, the Fit-for-55 package updated the RED II targets, introducing a new GHG emission-based reduction target using RES, which replaced the former energy-based target in RED II. This Fit-for-55 package also introduced specific (non-binding) targets for non-biological fuels, aviation and maritime biofuels. On May 2022, the EC proposed in the REPowerEU plan to further raise the RES to 45 % by 2030. REPowerEU is the action to decrease the EU dependence on the Russian fossil fuels by fast forwarding the clean transition and promotes the use of renewable energy and renewable gases as hydrogen and biomethane. Specifically, a target was introduced for biomethane production at 35 bcm by 2030, so it is of fundamental importance to ramp up its production on short-term, both installing new plants and retrofitting existing CHP-based biogas plant to biomethane production.

Public funding for biofuels projects is provided especially through Horizon Europe programme for research and innovation (previously Horizon 2020), and Innovation Fund programme for the demonstration of innovative low-carbon technologies that contribute to GHG emission reduction to support research and demo activities through specific calls on various sectors of interest. The EU share of worldwide private R&I on biofuels represents only 6% in the last five years in comparison to worldwide private R&I biofuels funding of EUR 250 million on average per year in the period 2010-2021, dominated by the US and Canada. The market analysis showed that EU share represents roughly 7% of the global biofuel market worth EUR 100 billion in 2020, mostly from first generation biodiesel market. In 2018 the turnover reached a peak at EUR 14.4 billion mostly generated in France, Germany and Spain. Apart from a EUR 2.3 billion direct contribution impact to the EU GDP, about 250,000 direct and indirect jobs were created along the value chain. The EU shares 29% of innovation companies, while the US and Japan have the most.

In conclusion, despite the fact that the installed and planned production capacity of advanced biofuels is very low compared to total fuel use, and the potential of advanced biofuels from sustainable feedstock in the EU is limited, they can contribute to the Fit-for-55 GHG emission savings targets, covering sufficiently any delay in transport electrification. A wide potential of sustainable feedstock may come from non-food crops cultivated in degraded lands, developing new value chains producing fuels in rural and remote areas with a high greenhouse gas emission reduction potential. Advanced biofuels are mostly drop-in fuels that can use existing fuel infrastructure (supply, transport and distribution and use) with limited or no additional investments needed. In order to fully realise such supply chains to cover a significant part of the transport fuel demand, certain technical and economic risks must still be overcome : support for CAPEX, support to develop solid value chains for biomass supply and increase conversion technologies reliability. Since EU is the clear market leader in operational, commercial plants of advanced biofuels (HVO, co-processing and lignocellulosic ethanol) and high-value innovations, the next decisions and the available funding will play a crucial role in defining the 2030 scenario.



Photo: Pixabay

## 6. Sources

- [1] OECD-FAO, Agricultural Outlook 2018-2027 : Biofuel production database, (n.d.). <https://stats.oecd.org/index.aspx?queryid=84952> (accessed March 15, 2023).
- [2] USDA Foreign Agricultural Service, B. Flach, S. Lieberz, S. Bolla, EU Biofuels Annual 2021, 2021.
- [3] O. Hurtig, M. Buffi, N. Scarlat, V. Motola, A. Georgakaki, S. Letout, A. Mountraki, G. Joanny, Clean Energy Technology Observatory : Advanced biofuels in the European Union – Status Report on Technology Development, Trends, Value Chains and Markets, Publications Office of the European Union. JRC130727., Luxembourg, 2022. <https://doi.org/10.2760/938743>.
- [4] The European Parliament, DIRECTIVE (EU) 2018/2001 on the promotion of the use of energy from renewable sources (recast), OJ L 328, 21.12.2018. 2018 (2018) 82–209.
- [5] OECD, OECD-FAO Agricultural Outlook (Edition 2021), 2021. <https://doi.org/10.1787/4bde2d83-en>.
- [6] EurObserv-ER, RES in Transport barometer 2021, 2021.
- [7] European Commission (EC), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - The European Green Deal. COM/2019/640, 2019. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1576150542719&uri=COM%3A2019%3A640%3AFIN>.
- [8] The European Commission (EC), Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – ‘Fit for 55’ : moving towards climate neutrality – delivering the EU’s 2030 climate target COM(2021) 55, 2021. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0550> (accessed September 30, 2021).
- [9] European Commission (EC), COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE EUROPEAN COUNCIL, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS REPowerEU : Joint European Action for more affordable, secure and sustainable energy, 2022. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2022%3A108%3AFIN>.
- [10] European Council, EU recovery plan : Council adopts REPowerEU - Consilium, (2022). <https://www.consilium.europa.eu/en/press/press-releases/2023/02/21/eu-recovery-plan-council-adopts-repowerEU/> (accessed March 7, 2023).
- [11] European Commission (EC), Communication COM/2020/456 : Europe’s moment : Repair and Prepare for the Next Generation EUR-Lex - 52020DC0456, Brussels, BE, 2022. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:456:FIN> (accessed March 22, 2021).
- [12] European Commission (EC), Inception Impact Assessment on “ReFuelEU Aviation - Sustainable Aviation Fuels,” 2020. <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12303-ReFuelEU-Aviation-Sustainable-Aviation-Fuels>.
- [13] The European Parliament, Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the use of renewable and low-carbon fuels in maritime transport and amending Directive 2009/16/EC. COM/2021/562., (2021). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0562>.
- [14] European Commission (EC), Voluntary schemes for EU biofuels and bioenergy, (n.d.). [https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes\\_en](https://energy.ec.europa.eu/topics/renewable-energy/bioenergy/voluntary-schemes_en) (accessed March 17, 2023).
- [15] European Commission (EC), REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS on the status of production expansion of relevant food and feed crops worldwide (COM/2019/142 final), Brussels (BE), 2019. <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1558977620744&uri=CELEX:52019DC0142>.
- [16] European Commission (EC), Commission Delegated Regulation (EU) 2019/807 of 13 March 2019 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council as regards the determination of high indirect land-use change-risk feedstock for which a significant expansion. (2019). [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2019.133.01.0001.01.ENG](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.133.01.0001.01.ENG).

- [16] European Commission (EC), Commission Delegated Regulation (EU) 2019/807 of 13 March 2019 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council as regards the determination of high indirect land-use change-risk feedstock for which a significant expansion, (2019). [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L\\_.2019.133.01.0001.01.ENG](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2019.133.01.0001.01.ENG).
- [17] European Commission (EC), Commission Implementing Regulation (EU) 2022/996 of 14 June 2022 on rules to verify sustainability and greenhouse gas emissions saving criteria and low indirect land-use change-risk criteria. C/2022/3740. OJ L 168, 27.6.2022, p. 1–62, (2022). [https://eur-lex.europa.eu/eli/reg\\_impl/2022/996/oj](https://eur-lex.europa.eu/eli/reg_impl/2022/996/oj).
- [18] European Commission (EC), REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the making available on the Union market as well as export from the Union of certain commodities and products associated with deforestation and forest degradation and repealing Regulation (EU) No. (2021). [https://environment.ec.europa.eu/system/files/2021-11/COM\\_2021\\_706\\_1\\_EN\\_ACT\\_part1\\_v6.pdf](https://environment.ec.europa.eu/system/files/2021-11/COM_2021_706_1_EN_ACT_part1_v6.pdf).
- [19] European Commission (EC), Biofuels – updated list of sustainable biofuel feedstocks. Draft delegated legislation of the RED (EC 2001/2018) updating Annex IX (Parts A and B) to meet the criteria set out in Article 28(6), (n.d.). [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13484-Biofuels-updated-list-of-sustainable-biofuel-feedstocks\\_en](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13484-Biofuels-updated-list-of-sustainable-biofuel-feedstocks_en) (accessed March 8, 2023).
- [20] European Commission (EC), COMMISSION DELEGATED REGULATION (EU) of 10.2.2023 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council by establishing a Union methodology setting out detailed rules for the production of renewable liquid and gaseous transport, (2023). [https://energy.ec.europa.eu/system/files/2023-02/C\\_2023\\_1087\\_1\\_EN\\_ACT\\_part1\\_v8.pdf](https://energy.ec.europa.eu/system/files/2023-02/C_2023_1087_1_EN_ACT_part1_v8.pdf).
- [21] European Commission (EC), COMMISSION DELEGATED REGULATION (EU) of 10.2.2023 supplementing Directive (EU) 2018/2001 of the European Parliament and of the Council by establishing a minimum threshold for greenhouse gas emissions savings of recycled carbon fuels and by specifying a methodology, (2023). [https://energy.ec.europa.eu/system/files/2023-02/C\\_2023\\_1086\\_1\\_EN\\_ACT\\_part1\\_v5.pdf](https://energy.ec.europa.eu/system/files/2023-02/C_2023_1086_1_EN_ACT_part1_v5.pdf).
- [22] European Commission (EC), Renewable energy – method for calculating the share of renewables in the case of co-processing. Draft delegated regulation on the methodology to determine the share of biofuel and biogas for transport resulting from biomass being processed with fossil fuels, (2023). [https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12711-Renewable-energy-method-for-calculating-the-share-of-renewables-in-the-case-of-co-processing\\_it](https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12711-Renewable-energy-method-for-calculating-the-share-of-renewables-in-the-case-of-co-processing_it) (accessed March 8, 2023).
- [23] European Commission (EC), National energy and climate plans - NECPs. EU countries' 10-year national energy and climate plans for 2021-2030., (n.d.). [https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans\\_en](https://commission.europa.eu/energy-climate-change-environment/implementation-eu-countries/energy-and-climate-governance-and-reporting/national-energy-and-climate-plans_en) (accessed March 8, 2023).
- [24] European Commission (EC), Reducing greenhouse gas emissions : Commission adopts EU Methane Strategy as part of European Green Deal. (2020). [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_20\\_1833](https://ec.europa.eu/commission/presscorner/detail/en/IP_20_1833).
- [25] European Commission (EC), Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on the internal markets for renewable and natural gases and for hydrogen (recast), 2021. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A804%3AFIN&qid=1639665806476>.
- [26] European Commission (EC), Commission proposes new EU framework to decarbonise gas markets, promote hydrogen and reduce methane emissions, (2021). [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_21\\_6682](https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6682).
- [27] European Commission (EC), EU Methane Strategy, 2020. [https://energy.ec.europa.eu/system/files/2020-10/eu\\_methane\\_strategy\\_0.pdf](https://energy.ec.europa.eu/system/files/2020-10/eu_methane_strategy_0.pdf).



# IN THE NEWS

## Reports and research

[Biofuels in Emerging Markets - Potential for sustainable production and consumption](#)

## Policy and regulations

### January

#### [Brazil suspends tariffs for US ethanol imports](#)

Brazil has temporarily suspended its import tax on ethanol as of March 23 until the end of 2022, officials with the Economy Ministry said. The government said the move will help with rising fuel prices, and as a result help high domestic inflation.

#### [£7 million tech fund to decarbonise freight and boost innovation](#)

Delivering freight across the UK could become more efficient and cleaner thanks to a £7 million government-backed fund launched today, 9 January 2023 that will roll out innovative new ideas and technology across the industry.

#### [Biofuel usage expands despite rising costs](#)

Global biofuel demand is expected to be 6% or 900 million litres per year (MLPY) higher in 2022 than the previous year. Renewable diesel makes up the largest share of this year-on-year expansion, thanks to attractive policies in the United States and Europe.

#### [Europe's oil majors investing eight times more in biofuels than hydrogen](#)

Around 75% of the refining sector's €39bn of planned investments in alternative fuels up to 2030 will go towards increasing biofuels production, according to new research from NGO Transport & Environment.

#### [North west industrial decarbonisation plan hailed as pivotal for UK's net-zero journey](#)

A powerful collaboration of industry leaders has set out a roadmap to decarbonisation for the UK's first net zero cluster. The North West Cluster Plan published today by Net Zero North West (19th January) sets out the action needed to supercharge the region's green industrial revolution and deliver the UK's first zero carbon cluster by 2040.

#### [German minister to propose withdrawal from use of crop-based biofuels](#)

German environment minister Steffi Lemke said on Tuesday she would soon send proposals to the cabinet for the country to withdraw from the use of crop-based biofuels to achieve reductions in greenhouse gases.

#### [Malaysia Renewables Growth Hindered By Unrealistic Targets And Absence Of Robust Policies, Says Report](#)

Malaysia has set a target to achieve 31% of its total power generation from renewables by 2025 and 40% by 2035. Both objectives are highly unrealistic, as only 3.3% of electricity is generated through renewables at present. As per the current growth trend, Malaysia is expected to achieve only 5.5% of its power generation through renewables by 2025 and 6.6% by 2035, due to the absence of robust policy support, states GlobalData, a leading data, and analytics company.

## February

### **New EU data confirm Europe needs to speed up progress on renewables by promoting uptake of biofuels**

The EU is still overly reliant on fossil fuels for transport and Member States are lagging behind in efforts to promote renewable energy sources such as sustainable biofuels, according to new EU data. The new figures confirm the importance of preserving a role in Fit for 55 policies for proven solutions such as crop-based biofuels to meet ambitious climate goals.

### **US department awards \$118 million to accelerate domestic biofuel production**

On January 26, 2023, the Department of Energy (DOE) announced \$118 million in funding for 17 projects to accelerate the production of sustainable biofuels as the Biden administration works to cut greenhouse gas emissions from transportation and manufacturing.

### **Traceability and Transparency of Biofuels Markets to Reach New Heights in 2023**

EWABA has welcomed the newly established Union Database for Biofuels (UDB) which has been open for economic operators' registration since mid-January.

### **Jersey government using biodiesel in its vehicles**

Jersey's government has switched more than 37% of its vehicles to run on vegetable oil-based fuel to reduce its carbon emissions.

### **Clean Fuels urges EPA to act on RFS volumes**

Clean Fuels Alliance America has filed formal comments on the Environmental Protection Agency's proposed Renewable Fuel Standards for 2023–2025.

### **Scientists pour cold water on UK aviation's net zero ambitions**

The UK would have to devote half its farmland or more than double its total renewable electricity supply to make enough aviation fuel to meet its ambitions for "jet zero", or net zero flying, scientists have said

## March

### **ePURE Criticises New Claims Made by T&E**

ePURE has hit back at claims made by Transport & Environment that Europe was wasting land the size of Ireland on biofuels.

### **Ireland's Potential to Shape the Future of Sustainable Aviation Fuel Manufacturing**

There are opportunities for Ireland in the development of sustainable aviation fuels (SAF), according to a report by Aircraft Leasing Ireland (ALI) and KPMG.

### **Biofuels – Sustainable Land Use Instead Of Land Consumption – UFOP**

The discussion about banning internal combustion engines is in full swing at national and the European level, the Union for the Promotion of Oil and Protein Plants (UFOP) said.

### **Shell reports good progress on journey to net-zero emissions**

Shell plc has published its Energy Transition Progress Report 2022, which shows it has again met its climate targets as part of its energy transition strategy. The report will be put to shareholders for an advisory vote at Shell's Annual General Meeting on May 23, 2023.

### **Net-Zero Industry Act: Making the EU the home of clean technologies manufacturing and green jobs**

The Commission proposed the Net-Zero Industry Act to scale up manufacturing of clean technologies in the EU and make sure the Union is well-equipped for the clean-energy transition. This initiative was announced by President von der Leyen as a part of the Green Deal Industrial Plan.

### **Fit for 55: deal on new EU rules for cleaner maritime fuels**

The European Parliament and Council have reached a deal on cleaner maritime fuels - asking to cut ship emissions by 2% from 2025 and by 80% from 2050.

### **Shell Drops Singapore Biofuels Project, Splits Renewables**

Shell has opted not to proceed with planned biofuel and base oil projects in Singapore — and separately announced a split in its renewables business as restructuring continues under new CEO Wael Sawan.

## **April**

### **HVO imported into UK from US as part of post-Brexit deal**

The UK and Ireland Fuel Distributors Association (UKIFDA) revealed its member Mitchell and Webber undertook the first lifting of US imported hydrotreated vegetable oil (HVO) at the Valero terminal in Cardiff.

### **SABA announces collective purchase of SAF certificates**

For the first time, companies including Bank of America, Boom Supersonic, Boston Consulting Group, JPMorgan Chase & Co., Meta and clean energy nonprofit RMI are joining together through the Sustainable Aviation Buyers Alliance to purchase sustainable aviation fuel (SAF) certificates at scale.

### **First UK Clearing House for certifying new sustainable aviation fuels to launch at University of Sheffield**

The University of Sheffield has been chosen to be the home of the UK's first Sustainable Aviation Fuel Clearing House - part of the government's new investment plan to help decarbonise transport.

### **Reform of the EU's Emissions Trading System approved**

MEPs have adopted the reform of the EU's Emissions Trading System including for aviation and maritime - the Carbon Border Adjustment Mechanism and a new Social Climate fund.

### **Fit for 55: Parliament and Council reach deal on greener aviation fuels**

The European Parliament and Council negotiators have agreed to increase the uptake of sustainable fuels such as advanced biofuels or hydrogen in the aviation sector.

## **May**

### **NATSO and SIGMA commend summertime waiver for E15 sales**

NATSO, representing truck stops and travel plazas, and SIGMA, America's leading fuel marketers, commended the Biden Administration for permitting summertime sales of petrol containing 15% ethanol (E15) to ensure optimal availability for consumers during the busy summer season.

### **The council on sustainable aviation fuel introduces SAF support platform**

The Council on Sustainable Aviation Fuel (CoSAFA) has introduced an accounting support platform for companies purchasing Sustainable Aviation Fuel (SAF) through the book and claim system.

### **BP targets farms and feedstock as biofuel race gathers pace**

BP is considering buying stakes in biofuel feedstock producers and investing directly in farming ventures to secure supplies as the global race for the low-carbon fuel gathers pace, a senior executive told Reuters.

### **Parliament backs new rules for sustainable, durable products and no greenwashing**

On Thursday, MEPs backed draft legislation to improve product labelling and durability and to put a stop to misleading claims.

## June

### **SAF Production Set for Growth but Needs Policy Support to Diversify Sources**

The International Air Transport Association (IATA) announced its expectation for overall renewable fuel production to reach an estimated capacity of at least 69 billion liters (55 million tonnes) by 2028.

### **Clean Fuels and stakeholders urge Biden to act on RFS volumes**

Clean Fuels Alliance America and 75 industry stakeholders delivered a letter to President Joe Biden urging him to ensure the Environmental Protection Agency substantially increases the biomass-based diesel (BBD) and advanced biofuels volumes in the Renewable Fuel Standards for 2023, 2024 and 2025.

### **At IEA conference, 45 governments endorse goal of doubling global energy efficiency progress by 2030**

Ministers at Global Conference on Energy Efficiency pledge to support stronger policy action and prioritise investment in 'crucial decade' for energy and climate targets.

### **TotalEnergies invests in sustainable aviation fuel**

TotalEnergies is responding to the increasing demand from aviation customers by ramping up its production of sustainable aviation fuel (SAF).



TotalEnergies invests in sustainable aviation fuel

## Industry Developments

### January

#### **Changi Airport to explore renewable fuel options**

Changi Airport in Singapore has launched a tender for consultants to help develop an offtake mechanism for renewable fuels going forward.

#### **Indonesia and Malaysia Line up against Brussels**

Indonesia's President Jokowi and Malaysian PM Anwar Ibrahim declared their position during the first meeting of the two leaders on January 9, stating that they "agreed to strengthen cooperation to boost markets and combat discrimination against palm oil".

### February

#### **Essar invests in energy transition plan in the UK and India**

Essar Group has formed the Essar Energy Transition (EET) to drive the creation of the UK's leading energy transition hub in north-west England.

#### **Indian Oil signs MoU with LanzaJet for SAF**

Indian Oil Corporation Ltd. recently entered into a memorandum of understanding (MOU) with LanzaJet, a sustainable fuels technology company and sustainable fuels producer, to explore the development of sustainable aviation fuel (SAF) production in India. This partnership will strengthen India's transition to cleaner fuels and help achieve the country's carbon reduction goal.

### March

#### **USDA Funds Washington Biodiesel Hub**

The U.S. Department of Agriculture has granted \$3 million to a regional multimodal biodiesel distribution center to ramp up fuel production and distribution to help Washington, Oregon and Idaho farmers meet clean energy needs during peak harvest seasons.

#### **Brazil raises biodiesel blending mandate to 12% for 2023**

The country's National Council for Energy Policy (CNPE) decided on March 17 that biodiesel mandate will be raised from the current 10% level (B10) to 12% (B12) from April with a progressive increase in mandates to B15 by 2026. The council noted that blending will be increased to B13 in April 2024, B14 in April 2025 and to B15 in April 2026.

### April

#### **Maersk Growth, VAR Ventures invest in Danish biofuel producer**

Maersk Growth, a venture arm of industry major A. P. Moller – Maersk, has together with VÅR Ventures, invested in Kvasir Technologies, a Danish technology company developing a proprietary technology for the production of carbon-neutral biofuel from non-edible biowaste material.

### May

#### **Agency warns Sweden may miss CO2 targets with biofuel cut**

Sweden will struggle to hit its 2030 emissions targets, a government agency warned on Monday, after the country's minority coalition cut the biofuel that must be added to diesel and gasoline.

### June

#### **EcoCeres to invest in 350,000 tpy HVO and SAF plant in Malaysia**

In Malaysia, EcoCeres, Inc. has announced a significant investment in a new facility that will serve as a major production hub Hydrotreated Vegetable Oils (HVO), Sustainable Aviation Fuel (SAF) and Bio-naptha with an annual capacity target at 350,000 metric tons



# UPCOMING MEETINGS, CONFERENCES & WEBINARS

*July*

**IEA Bioenergy Webinar – Understanding Indirect Land-Use Change (ILUC) and Why Reality is a Special Case**  
**28 June 2023, Online**

EA Bioenergy IEA Bioenergy invites you to participate in a free international webinar titled “Understanding Indirect Land-Use Change (ILUC) and Why Reality is a Special Case”, organized by Task 43 (Biomass Supply in Sustainable and Circular Economies).

**International Conference on Biorefinery and Biomanufacturing**  
**23-27 July 2023, Athens, Greece**

It is our great honor to invite you to the 8th of the International Conference on Biorefinery and Biomanufacturing (ICB 2023), that will be held between 23-27th of July 2023 in Athens, Greece.

**Connecting Green Hydrogen APAC 2023**  
**25-26 July 2023, Melbourne, Australia**

A landmark event in the industry's calendar, Connecting Green Hydrogen APAC 2023 will bring together the industry in-person to discuss the green hydrogen agenda in Australia and Asia Pacific.

*September*

**European Bioeconomy Scientific Forum 2023**  
**6-8 September, 2023, Vienna, Austria**

The University of Natural Resources and Life Sciences, Vienna (BOKU), as the current chair of the European Bioeconomy University Alliance (EBU), welcomes all interest parties to Vienna, Austria for the European Bioeconomy Scientific Forum 2023 – EBSF2023 on the 6th-8th September 2023.

**Svebio Fuel Market Day 2023**

**6 September 2023, Stockholm, Sweden**

To be held on September 6, 2023 in Stockholm, Sweden, prominent bioenergy experts, actors, and biomass traders will focus on forest fuels and waste wood, as well as pellets and bio-oils sourcing and production, to handle the coming power and heating season.



**SVEBIO FUEL MARKET DAY**  
6 September 2023 in Stockholm  
**Join us on-site or online!**

ORGANISED BY: **SVEBIO** **BIOENERGY** **BIOENERGI**  
INTERNATIONAL

### **Advanced Biofuels Conference (ABC)**

**20-21 September 2023, Gothenburg, Sweden**

The Swedish Bioenergy Association (SVEBIO) and Bioenergy International magazine welcomes participants, online and on-site, to its 9th edition of Advanced Biofuels Conference 2023 in Gothenburg, Sweden. This conference will focus on biofuels for the maritime and aviation sector, with much development.

The aviation and shipping sectors are being transformed at an increasingly rapid pace, on both the demand and supply side. Oil and gas majors are retrofitting existing refinery assets to produce renewable fuels while others are developing new capacities from a myriad of feedstock sources. Pushed by policymakers and consumers alike, airline- and shipping majors are committing to significant renewable fuel offtakes in the race to zero while competing to stay in the black.

The transport sectors face big changes in the near future. Apart from today's economic situation there are national energy challenges like security of supply, energy security and security of cost. Perhaps the biggest challenge of all is the transition to a low carbon economy using biofuels, while fossil fuel prices fluctuate heavily. How will the Inflation Reduction Act in the USA and the Fit for 55 package in make progress to reduce CO2 emissions? How can the industry create business opportunities for this emerging market, taking advantage of technological innovations? What new technology developments have been made? This will be presented and discussed.

[www.advancedbiofuelsconference.org](http://www.advancedbiofuelsconference.org)



## *October*

### **Argus Biofuels Europe Conference**

**11-13 October 2023, London, UK & Online Access**

The Argus Biofuels Europe Conference returns to London in-person and via online access, 11-13 October 2023. The event will bring together the biofuels market for the industry's premier thought-leadership and networking event. Do not miss your chance to join over 500 attendees at this flagship conference!

### **USGC Global Ethanol Summit**

**16-18 October, 2023, Washington DC, USA**

This meeting is open to all persons without regard to race, color, religion, gender, sexual orientation, gender identity or expression, national origin, age, genetic information, disability or veteran status. Persons who require reasonable accommodation or alternative means of communication (Braille, large-print, sign-language) or language interpretation should contact the Industry Relations Department at (202) 215-8427 no later than one week prior to the meeting.