

BIOFUEL BLUNDERS

Time to fix two
decades of EU
policies driving
food insecurity



OXFAM

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BIOFUELS: A CATASTROPHIC CHOICE

Since 2003, EU policymakers have promoted biofuels to reduce greenhouse gas emissions, but they have turned out to be a disaster for the climate, human rights and food security.

Studies have shown that, when emissions from land-use changes are taken into account, biodiesel made from vegetable oils, such as palm, soy or rapeseed oil, emits more greenhouse gases than fossil fuels.¹

ON A GLOBAL LEVEL, IN 2022, CROPS USED FOR BIOFUEL PRODUCTION COULD HAVE MET THE BASIC MINIMUM ENERGY REQUIREMENT OF 1.6 BILLION PEOPLE IF THEY HAD BEEN USED FOR HUMAN CONSUMPTION.

In 2022, emissions from biodiesel were estimated to be a shocking 17% more than fossil diesel emissions despite being touted as a climate solution.²

EU biofuel policies also incentivize the need for vast areas of land globally to produce feedstocks for the biofuel industry. This led to a global land rush a decade ago,³ and there are still cases of land grabbing for biofuel production, which severely affect local people and their livelihoods.⁴ Human rights violations have also been reported in biofuel production processes.⁵

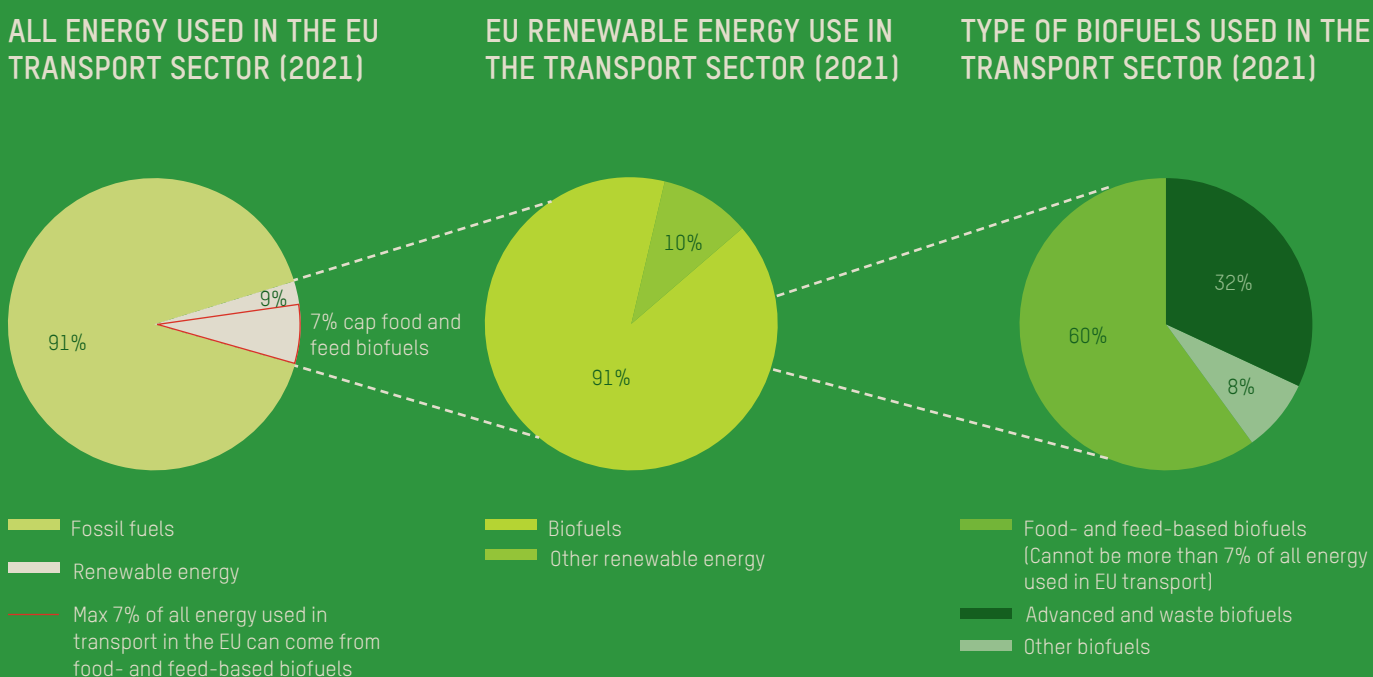
What is more, as this paper details, biofuels are a major threat to food security because of the impact they have on food availability, food prices, food price stability and the social and environmental sustainability of food systems. In a global food crisis, with 783 million people facing hunger in 2022 and 2.4 billion people in a state of food insecurity, it is unacceptable that European countries are still burning food for fuel.⁶ On a global level, in 2022, crops used for biofuel production could have met the basic minimum energy requirement of 1.6 billion people if they had been used for human consumption.⁷

A POWERFUL LOBBY IN PURSUIT OF PROFIT

European policies have nurtured the biofuel industry for years, with it becoming an industrial complex solely focused on profit with overwhelming power in the food system. A study by Oxfam in 2016 exposed how the biofuel industry, including producers, feedstock growers, commodity traders, processors and technology providers, spent between €14.5m and €19.5m and hired 399 lobbyists to influence EU policies in 2015.⁸

Today, the biofuel industry continues to have disproportionate political power in discussions on biofuels, leading EU policymakers to put the industry's profit above global food security considerations. Despite striking evidence to the contrary, the biofuel lobby argues time and time again that its existence supports food security. The industry seeks to weaken biofuel policy reform at every step, both at the European and national levels.⁹

FIGURE ES.1 ENERGY USE IN THE EUROPEAN TRANSPORT SECTOR



EUROPE CONTINUES TO BURN FOOD FOR FUEL

Despite the longstanding global food crisis, EU countries continue to burn food for fuel. The EU acknowledged the damaging impacts of food- and feed-based biofuels in 2015 by putting a cap on the use of food and feed crops and building in incentives to move towards so-called advanced and waste biofuels.¹⁰ In 2023, the EU also acknowledged the damaging impacts of food- and feed-based biofuels in the aviation and maritime sectors by excluding their use in these sectors.¹¹

However, biofuels are still the main source of renewable energy in transport in Europe, taking up a share of 90% in 2021. Biofuel consumption increased massively (39% more in 2021, compared with 2013) and most biofuels (60%) used in 2021 in the EU were still made from food and feed crops (See Figure ES.1).¹² Moreover, while advanced and waste biofuels are made up of non-food and feed materials – such as energy crops like switch

grass and agricultural residues such as empty palm fruit bunches – they potentially have their own negative impacts on food security.

In 2023, the third revision of the EU Renewable Energy Directive (RED III),¹³ the legal framework that sets binding renewable energy targets for Member States, including specific rules for the use of biofuels, offered an opportunity to protect food security by phasing out crop-based biofuels entirely. However, yet again, and under pressure from the industry lobby, European policymakers failed to seize this opportunity to once and for all stop allowing the use of food for fuel,¹⁴ or ensure that advanced and waste biofuels do not have a negative impact on food security.¹⁵

BIOFUEL CONSUMPTION INCREASED MASSIVELY AND MOST BIOFUELS (60%) USED IN 2021 IN THE EU WERE STILL MADE FROM FOOD AND FEED CROPS

EU MEMBER STATES MUST FIX BIOFUEL POLICIES

While the EU RED III was a missed opportunity in the EU policymaking process, Member States can correct this when they transpose the directive into national law. Member States must revise national biofuel policies in line with RED III by May 2025. Member States should use this moment to fully phase out unsustainable and detrimental biofuels and protect global food security.

This paper looks at four Member States – France, Belgium, the Netherlands and Germany – which each have a lot of room for improvement. Each country largely relies on biofuels in its renewable energy mix for its transport sector. While all four Member States want to move away from food- and feed-based biofuels to advanced and waste biofuels, food and feed crops are still predominantly used. Moreover, none of the four countries has adequate arrangements in place to avoid the negative effects of advanced and waste biofuels on food security.

RECOMMENDATIONS FOR SUSTAINABLE BIOFUEL AND TRANSPORT POLICIES

RED III creates legislative space for EU Member States to make national biofuel policies more sustainable and protect food security. Oxfam calls on Member States to:

Phase out biofuels that have negative impacts on food security

- › Member States should phase out the use of food- and feed-based biofuels. They can do this by setting the cap for food- and feed-based biofuels at 0% as early as possible and no later than 2030.
- › As a stopgap measure, Member States should immediately phase out feedstocks with a high indirect land-use change (ILUC) risk: palm and soy oil.¹⁶ When doing so, they should accordingly reduce the limit on food and feed crops. Otherwise, the excluded high ILUC-risk crops will just be replaced by other food and feed crops.
- › Member States should only count advanced and waste (Annex IX of the RED) biofuels towards their renewable energy target for the transport sector after conducting a robust, independent and thorough impact assessment. This should incorporate an analysis of the application of the cascading principle, the principle of waste hierarchy and a fair share principle. Competing uses of the raw materials will therefore be considered, avoiding diverting raw materials, by-products or residues from a higher-value use, in particular in the food value chain.

In addition, the four investigated Member States (France, Belgium, the Netherlands and Germany) should:

- › Assess the availability of feedstocks for advanced and waste biofuels needed to reach the sustainable aviation fuel targets while also taking into account the fair global share. [France].
- › Following the biennial evaluation of the human rights and sustainability implications of Belgian biofuel policies inside and outside the EU, Belgium should act on the outcomes of the evaluation and embed these in the sustainability criteria. [Belgium].
- › Operationalize the fair share principle for the use of global biomass for national biofuel consumption. [Netherlands].

While working towards the phase-out of all food- and feed-based biofuels, as a stopgap measure, Germany should immediately phase out soy biofuels based on its high ILUC risk. When doing so, it should accordingly reduce the limit on food and feed crops, otherwise the excluded high ILUC-risk crops will just be replaced by other crops. [Germany].

Amend sustainability criteria and reporting

- › As long as Member States are not allowed by the RED to add sustainability criteria at national level, they should start adding the criteria to their monitoring and reporting requirements. This should include:
 - › Correct accounting and reporting for ILUC emissions.
 - › Monitoring the impact of biofuels on food prices and food price stability and food availability.
 - › Social reporting to protect people in biofuel supply chains, especially when production is in third countries.

Make changes in transport systems

- › Changing the energy supply alone will not bring about a truly sustainable transport system. Member States should focus on energy demand reduction, public transport and active mobility, a fair distribution of the available energy, the electrification of transport systems and energy efficiency.

ACRONYMS

CSDDD Corporate Sustainable Due Diligence Directive

DGS Distillers' grains and solubles

EU European Union

FAO Food and Agriculture Organization of the United Nations

FQD Fuel Quality Directive

GHG Greenhouse gases

HVO Hydrotreated vegetable oil

ILUC Indirect land-use change

NECP National Energy and Climate Plan

POME Palm oil mill effluent

PFAD Palm fatty acid distillate

RED Renewable Energy Directive

SAF Sustainable Aviation Fuels

DEFINITIONS

ADVANCED BIOFUELS (ALSO REFERRED TO AS SECOND-GENERATION BIOFUELS) Biofuels made of non-food and feed materials – such as algae, energy crops like switch grass and agricultural residues such as empty palm fruit bunches – produced with advanced technologies. Some advanced fuels are made from crop residues (e.g. bagasse, palm oil effluent and nut shells) or byproducts (e.g. palm oil fatty acid distillates).

ANNEX IX, PART A OF THE RED List of feedstocks incentivized by the Renewable Energy Directive (RED) and classified as advanced biofuels because they are not made from food or feed crops and are processed with advanced technologies. For example, energy crops, straw or animal manure.

ANNEX IX, PART B OF THE RED List of feedstocks incentivized by the RED because they are waste-based, not made from food or feed crops and are processed with mature technologies. For example, used cooking oil or animal fat.

BIOFUELS (ALSO REFERRED TO AS AGROFUELS) Liquid fuels for transport produced from biomass such as bioethanol (e.g. from maize or wheat) and biodiesel (e.g. from vegetable oils such as palm or soy oil or animal fats).

BIOFUELS PRODUCED FROM WASTE AND RESIDUES Biofuels produced from waste materials, such as municipal and industrial waste and agricultural residues.

BIOMASS According to the RED, biomass is the biodegradable part of products, waste and residues of biological origin from agriculture, including vegetal and animal substances, from forestry and related industries, including fisheries and aquaculture, as well as the biodegradable part of waste, including industrial and municipal waste of biological origin.

CASCADING PRINCIPLE A principle set out in EU legislation to ensure the efficient and sustainable use of resources by encouraging the following hierarchical higher-value application of biomass utilization: food and feed, materials and chemicals, bioenergy and other applications.¹⁷

CO-PRODUCTS/BYPRODUCTS Secondary products obtained during the processing of primary agricultural products. For example, distiller grains are a co-product of the production of bioethanol from maize and wheat that can be used as animal feed.

CROP-BASED BIOFUELS Biofuels produced from agricultural crops, including food and feed crops, non-food or feed crops, such as energy crops, and intermediate crops.

FOOD AND FEED CROP-BASED BIOFUELS (ALSO REFERRED TO AS FIRST-GENERATION BIOFUELS) Biofuels produced from food and feed crops produced on agricultural land such as corn, soybeans and sugar cane which are also used for human consumption and animal feed.

FOOD INSECURITY A state in which a person does not have sufficient access to safe and nutritious food, as defined by FAO.

INDIRECT LAND USE CHANGE (ILUC) The indirect effects on land use of the cultivation of biofuel feedstocks, often increased deforestation, habitat destruction, displacement of agricultural activities or emissions.

ILUC EMISSIONS Biofuel production leads to the extension of agricultural land into non-crop land, possibly including areas with high carbon stock, such as forests, wetlands and peatlands. This indirect land use change can cause additional emissions as it leads to the release of greenhouse gases stored in trees and soil.

ILUC-RISK FEEDSTOCKS Feedstocks used for biofuels with high ILUC impact risks such as deforestation and conversion of natural ecosystems. Currently, only palm oil is classified as a high ILUC-risk feedstock by EU legislation. This concept does not address ILUC emissions because it only excludes high ILUC-risk feedstock for which a significant expansion of the production area into land with high carbon stock is observed. This means that high-ILUC feedstocks grown in the EU such as rapeseed are not captured by this definition.

INTERMEDIATE CROPS Crops grown between main crop seasons or during fallow periods, such as catch, switch and cover crops, that could be used as feedstock for biofuel production.

LAND-BASED BIOFUELS Biofuels produced from biomass using land, including both crop-based biofuels and agricultural residues and those derived from non-food plants like grasses and woody materials.

RENEWABLE FUELS OF NON-BIOLOGICAL ORIGIN (RFNBO) Synthetic fuels produced from renewable sources other than biomass, such as hydrogen fuel generated by renewable electricity.

WASTE HIERARCHY A hierarchy set out in EU legislation to prioritize waste management strategies in the order of their environmental impact: waste prevention, reuse, recycling, downcycling, energy recovery and disposal.¹⁸

BIOFUEL BLUNDERS

28

2 EUROPEAN BIOFUEL
POLICIES: TRYING TO PUT
THE GENIE BACK IN THE
BOTTLE

16

1 BIOFUELS: A CATASTROPHIC
CHOICE FOR FOOD SECURITY

4 CONCLUSION:
HOW TO MOVE AWAY
FROM BIOFUELS

3 NATIONAL ACTION TO FIX
BIOFUEL POLICIES

BIOFUELS:
A CATASTROPHIC
CHOICE FOR
FOOD SECURITY

1.1

BIOFUELS IN THE CONTEXT OF A GLOBAL FOOD CRISIS

In 2022, a staggering 783 million people around the world were facing hunger – almost one person in 10. Many more people are in a state of food insecurity (Figure 1): **in 2022, 2.4 billion people, about 29.6% of the global population, faced food insecurity.**¹⁹

Global food prices skyrocketed in 2022, partly due to the escalation of the Russian war in Ukraine. However, food prices were high even before Russia's invasion, and they remain so today despite the market stabilizing. **Vegetable oil prices more than doubled in 2022 compared with before the COVID-19 pandemic, and were still 57% higher in April of this year.**²⁰ Increases in food prices are mostly felt in low-income countries, which have seen food inflation that is higher than the global average. In many poorer countries people simply cannot afford food. Climate change is further fuelling food insecurity around the world.²¹

New research commissioned by Oxfam on food prices and biofuels demonstrates that in today's fragile and volatile food system, there are strong and extremely concerning links between the use of biofuels and food insecurity.²² Biofuels lead to higher food prices, increased food price volatility, less availability of food and less sustainable food systems.

783
MILLION
PEOPLE AROUND
THE WORLD WERE
FACING HUNGER
IN 2022



Food security is a situation that exists

all people,

at all times, have

physical, social & economic

sufficient

safe and nutritious food that
meets their dietary needs and

food preferences

for an active and healthy life

ts when

AGENCY The capacity of individuals/groups to make their own decisions about what foods they eat; produce; how that food is produced, processed and distributed within food systems; and ability to engage in processes that shape food system policies and governance.

STABILITY The condition in which the whole system is stable, thus ensuring that households are food secure at all times. Climatic, economic, social and political factors can all be a source of instability.

SUSTAINABILITY The long-term ability of food systems to provide food security and nutrition in a way that does not compromise the economic, social and environmental bases that generate food security and nutrition for future generations.

c access to

ACCESS Whether or not households and individuals have sufficient physical and economic access to that food.

AVAILABILITY Whether or not food is actually or potentially present.

UTILIZATION Whether or not households are maximizing the consumption of adequate nutrition and energy.

1.1.1.

Biofuels drive higher food prices

Increased biofuel demand has driven up the price of food and feed crops, leading to increased food prices in the short and long terms. In 2014, a literature review identified 121 academic studies that assessed the impact of biofuel demand on food prices and concluded that 'there is unequivocal evidence – supported by basic economic theory – that increased demand for biofuels leads to higher prices in agricultural commodity markets'.²⁴

Increased biofuel consumption drives up the demand for food and feed crops, leading to increased food prices in the short and long terms. In 2014, a literature review identified 121 academic studies that assessed the impact of biofuel demand on food prices and concluded that 'there is unequivocal evidence – supported by basic economic theory – that increased demand for biofuels leads to higher prices in agricultural commodity markets'.²⁴

Poorer households spend a larger share of their income on food and therefore food price increases have a relatively higher impact on their household spending. While a small number of people living in poverty are net food producers and may see some short-term benefits from increased food prices, the large majority are net food purchasers who will be negatively affected by higher food prices.²⁵

Biofuel demand has been a significant contributing factor in the three global food price crises since biofuel mandates were introduced at the beginning of the 2000s (in 2007/08, 2011/12 and 2021 to the present day: see Figure 2). A review of over 100 economic modelling studies found that biofuel demand was an important contributing factor to these food price crises.²⁶

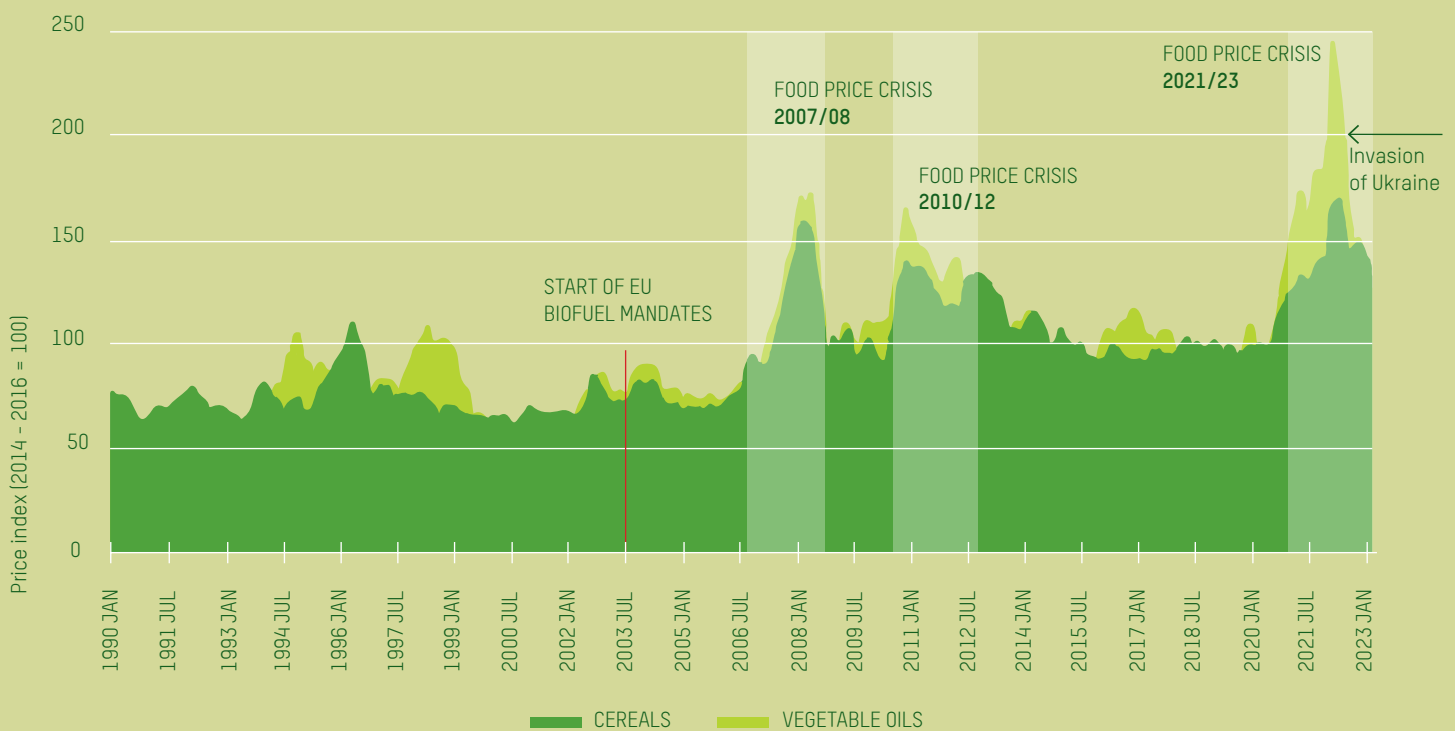
A recent example was the doubling in price of vegetable oil from late 2020 through to 2021. The expansion of the hydrotreated vegetable oil (HVO) industry, which is a form of biodiesel produced from vegetable oils, is one of the reasons for this price rise. In the USA, 96% of the growth in soy oil demand between 2009 and 2022 came from biofuels. The growth of the HVO industry is likely to put much more pressure on the prices of vegetable oils in the foreseeable future.²⁸

The most recent food price crisis, which started in 2021, has reignited the food versus fuel debate. While Russia's invasion of Ukraine caused already high food prices to skyrocket, over 160 million people across the world were suffering from acute hunger, a figure which has sharply increased since.²⁹ At the time, Oxfam and several other civil society organizations called, once again, for the immediate reduction of biofuel mandates to alleviate the pressure on food markets.³⁰ Despite acknowledging these concerns,³¹ the European Commission (EC) failed to use this critical moment to propose further amendments to the Renewable Energy Directive (RED) to speed up the full phase-out of food- and feed-based biofuels.³²

FIGURE 2. FAO PRICES FOR VEGETABLE OILS AND CEREALS 1991–2022

Short-term food price crisis impacts

Biofuel demand has been a significant contributing factor in the three global food price crises since biofuel mandates were introduced at the beginning of the 2000s (in 2007/08, 2011/12 and 2021 to the present day: see Figure 2). A review of over 100 economic modelling studies found that biofuel demand was an important contributing factor to these food price crises.



Source: Malins (2024)²⁷

Figure 2. FAO prices for vegetable oils and cereals 1991–2022

1.1.2.

Biofuels increase food price volatility

1.1.2.1. Biofuel mandates increase food price volatility

Biofuel mandates, such as the EU renewable energy targets in the RED, aggravate the fragility of today's global food system by increasing the volatility of food prices. This most severely affects the poorest communities. Poorer households have less economic stability and fewer cash reserves, making them less resilient to high and fluctuating food prices.³³

Biofuel demand affects food price stability in three ways. First, since the start of biofuel mandates, biofuel production has decreased stocks of cereals and oilseeds. When there are fewer food stocks available, the food market is less resilient to unexpected setbacks. Second, biofuel demand has reinforced the linkages between the agricultural and energy markets. Biofuel producers make agricultural feedstock purchase decisions that are heavily influenced by energy prices, strengthening the connections between both markets. Third, the demand for biofuels is insensitive to price changes because biofuel targets, such as in the RED, are set targets. Such biofuel mandates therefore contribute to the volatility of food prices.

To counter the negative impact of biofuel mandates on food price volatility, flexible biofuel mandates that are relaxed when food prices increase have been suggested on several occasions.³⁴ During the last RED negotiations there was a proposed amendment in the European Parliament to make biofuel mandates flexible based on food price changes, with mandates being reduced when food prices are high.³⁵ While, theoretically, this idea could help counter the negative impact of biofuels, it has little political backing and is hard to implement. It is also unclear how effective flexible mandates could be designed. They also run counter to the biofuel industry's demand for policy certainty to secure investments.

1.1.3.

Biofuels have a negative impact on food and feed availability

1.1.3.1. Biofuel production reduces food and feed availability

In 2021, European countries consumed 26m tonnes of food and feed crops as biofuels.³⁶ These crops could have been used to feed around 125 million people for a year instead of fuelling our cars.³⁷ Biofuel consumption also indirectly affects the availability of food through its use of land. A study by Transport & Environment and Oxfam³⁸ found that the production of crops for biofuels for European consumption requires 5.3 Mha of land, an area larger than Denmark.³⁹

On a global level, crops used for biofuel production in 2022 could have met the basic minimum energy requirement of 1.6 billion people if they had been used for human consumption.⁴⁰

Between 2019 and 2021, 21.6% of global sugar cane production and 15% of all vegetable oils were used for biofuel production.⁴¹ European countries continued to burn thousands of tonnes of wheat, the equivalent of 15m loaves of bread every day, just to fuel cars and trucks.⁴²

The gendered impacts of biofuels



Worldwide, the biofuel industry has a track record of devastating impacts on the rights of local communities and their environments, with women being hit hardest. Research by Oxfam, partner NGOs and local activist groups shows how women's rights and gendered power relations are affected by the biofuel industry.

Violation of women's labour rights and limited economic benefits

Studies report that gendered labour rights violations have occurred through discrimination based on women workers' gender, ethnicity, health and productivity.⁵¹ Women who are partners of workers in the biofuel supply chain also see their workloads increase due to their partners' long work shifts and insufficient salaries.⁵² Moreover, because most jobs offered by biofuel companies favour men, the economic benefits of the biofuel industry are very limited for women.⁵³

Sexism, threats and sexual violence

Women are subject to police violence and gender-based violence or are sexually harassed or asked for sex in exchange for jobs in the plantations.⁵⁴ Women who raise their voices against power dynamics arising with the growth of the biofuel supply chain and who try to organize are threatened or blackmailed in different ways or more intensely than men. Local governance structures that have an over-representation of men and patriarchal forms of negotiation are reinforced by biofuel companies using them to establish deals with the community, further hampering women's political participation.

Effects of environmental degradation on women

Actors in the biofuel industry are associated with land and water grabbing⁵⁵ and the degradation of land, air and surrounding natural resources, affecting the local economies linked to these. The environmental degradation increases women's time and mental load spent on care work. In some cases, women's health is affected because of being exposed to waterborne diseases as they spend more time at home or dealing with the impact of pollution on their bodies.⁵⁶

Food insecurity's heavy burden on women

Impacts on food security caused by the biofuel industry and its suppliers weigh heavier and differently on women who are in charge of preparing meals and feeding their families and who engage in petty trade in addition to stretching their already limited budgets to provide for their households.⁵⁷

Biofuel companies and buying countries' due diligence systems fail to flag the impact on women's rights and gendered relations due to a lack of gender-sensitive human rights risk assessments. As of May 2024, Belgium is the only EU country to have included a gender-specific clause in its national implementation of RED II, requesting public authorities to monitor the impacts on women's rights and other socioeconomic impacts, such as food security, conflicts around land ownership, forced and child labour, farmers' working conditions and health and safety risks, both in the EU and outside.

1.1.4.

Biofuels drive environmentally and socially unsustainable land use and practices

Large-scale production of feedstocks for biofuels is based on monocropping, intensive chemical fertilizer and pesticide use, and exhaustive water use. These practices cause soil degradation, water contamination, additional greenhouse gas (GHG) emissions, biodiversity losses and ecosystem degradation.⁴³

The absurdity of seeking to reduce emissions with these highly unsustainable biofuels becomes evident when considering the fact that, while the production of crops for biofuel consumption in Europe requires 5.3 Mha of land,⁴⁴ the same amount of energy could be produced by solar energy using only 2.5% of that land area.⁴⁵ The rest of the land could then have been set aside as a carbon sink. By restoring natural ecosystems on these lands – a much more sustainable land use – 64.7m tonnes of CO₂ could be absorbed.⁴⁶ This is almost twice the officially reported net CO₂ savings from biofuels replacing fossil fuels. In addition, this would protect biodiversity, contributing to the EU's target to halt and reverse the loss of biodiversity set out in the Nature Restoration Law.⁴⁷ Allocating this amount of land for biofuel production instead of for solar energy, carbon sinks and biodiversity protection has an enormous sustainability opportunity cost and only serves the profits of the European biofuel industry.⁴⁸

Human rights violations have also been reported in plantations feeding European biofuel markets.⁴⁹ For example, an Oxfam study on sugar cane ethanol production in Peru and Brazil uncovered severe human rights violations, including harming the rights of women, children and Indigenous communities, workers' rights, civil and political rights, health rights, the right to education, food, adequate housing, physical integrity, freedom from forced evictions, peaceful assembly and the right to live.⁵⁰ There have also been reports of violations of women's labour rights and sexual and gender-based violence (see Box 1).

1.1.5.

False industry claims: 'biofuels support food security'

When new food security concerns arose after Russia's invasion of Ukraine, the biofuel industry, in an attempt to allay concerns that biofuels were also driving price hikes, claimed that EU biofuel production leads to greater availability of food, feed and fuel.⁵⁸ It also claimed that biofuel production in European biorefineries reduces reliance on feed imports 'by creating important protein byproducts that offset the need to import animal feed'.⁵⁹ These spurious claims are refuted in Box 2.

False food security claims of the biofuel industry

Biofuel co-products

Biofuel industry claims that biofuels support food security are based on the fact that the production of biofuels also produces co-products that can be used as animal feed. Distillers' grains and solubles (DGS) are a co-product in the production of ethanol from maize and wheat, and oilseed meals are a co-product from vegetable oil production.

DGS and oilseed meals are used as animal feed with a medium-protein content. European countries have a protein deficit because they have to import soy, which is a high-protein feed for animals. The use of biofuel production co-products as protein feed for animals could therefore decrease Europe's protein deficit.

FOOD AND FEED CROPS	=	BIOFUEL PRODUCT	+	CO-PRODUCTS
OILSEEDS (e.g. rapeseed)		BIODIESEL		OIL SEED MEALS
MAIZE AND WHEAT		ETHANOL		DGS Distillers' grains and solubles

The production of biofuels for European consumption requires 9.6 Mha of land. When the production of co-products is taken into account European biofuel consumption still requires 5.3 Mha of land.



However, even though the production of biofuels generates these co-products, this does not mean that the biofuel industry contributes to food security.

Economic models calculating the impact of biofuel production on food security already include the contribution of co-products from biofuel production. These models show that the biofuel industry uses much more food and feed than it gives back, so overall there is a net food security harm.⁶⁰

The production of biofuels for European consumption requires 9.6 Mha of land – an area larger than Ireland. When the production of co-products is taken into account, the footprint of European biofuel consumption reduces to 5.3 Mha of land, but this is still an area larger than Denmark.⁶¹

The biofuel production processes do not create additional proteins. This means that instead of using land or primary crops for biofuels, they could be more efficiently utilized if directly used for human consumption.

EUROPEAN BIOFUEL POLICIES: TRYING TO PUT THE GENIE BACK IN THE BOTTLE

2.1

THE BEGINNINGS OF EU BIOFUEL POLICIES

The EU started promoting the use of biofuels in 2003, when its first biofuel policy set a non-binding target of 5.75% for the use of biofuels in the transport sector by 2020, without any environmental and social sustainability or human rights considerations. In 2009, the EU changed its approach to a mandatory renewable energy target of 10% in the transport sector by 2020 via RED I.⁶² Under this legislation limited environmental sustainability criteria for the use of biofuels were introduced. These criteria intend to prevent direct land-use change – the conversion of land for the production of biofuel feedstocks – by excluding biofuels produced from feedstocks originating from biodiverse areas, such as primary forests or designated nature protection areas, and areas with high carbon stocks, such as wetlands and peatland. No social or food security-related sustainability criteria were included. The legislation only introduced reporting requirements for the European Commission on the impact on social sustainability and food availability and prices of the increased demand for biofuels, without any meaningful follow-up requirements.⁶³

From 2009 to 2020 biofuel use was further encouraged via a binding target of a 6% reduction in the greenhouse gas intensity of fuels by 2020, set in the Fuel Quality Directive (FQD). Both policies incentivized all Member States to set national biofuel targets and introduce a wide range of financial support for the production and use of biofuels.

As a result, there was a major uptake of biofuels, predominantly from food and feed crops. Overall, biofuels are still by far the main source of renewable energy in transport in Europe, taking up a share of 90% in 2021. Between 2013 and 2021, European biofuel consumption increased by 39% and is still growing. In 2011, the share of biofuels produced from food and feed crops was over 90% of all biofuels used. Today the share has reduced to 60%, but the net volume is similar to the levels in 2011 due to the increase in global fuel consumption.⁶⁴ At the same time, these EU biofuel policies are not delivering the promised GHG emissions reductions for the transport sector (see Box 3).

European policies created and nurtured an industrial biofuel complex solely focused on profit with overwhelming power in the food system. An Oxfam study in 2016 exposed how the biofuel industry, including producers, feedstock growers, commodity traders, processors and technology providers spent between €14.5m and €19.5m and hired 399 lobbyists to influence EU policies in 2015.⁶⁵ Today, the biofuel industry continues to have disproportionate political power in discussions on biofuels. The biofuel lobby argues time and time again that its existence supports food security, seeking to weaken biofuel policy reform at every step, at both European and national levels.⁶⁶ This shows the vast influence the biofuel industry has over European biofuel policies with the sole purpose to keep growing profits.

Do biofuels actually save greenhouse gas emissions?

From the start, EU biofuel policies have incorrectly accounted for the GHG emissions of biofuels.

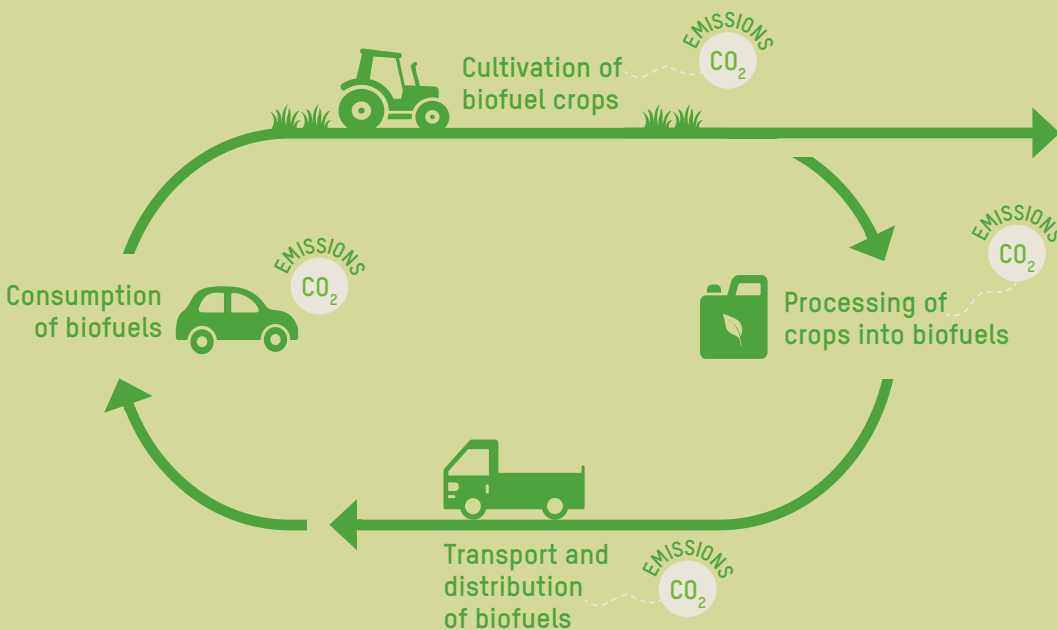
The increased demand for crops to produce biofuels causes indirect land-use change (ILUC) by driving agricultural expansion onto new land, causing deforestation and the loss of carbon from soils. EU emissions calculation rules do not sufficiently take into account ILUC and, as a result, vastly underestimate emissions from biofuels. In 2015 the European Commission acknowledged that the ILUC emissions of crop-based biofuels could fully negate the GHG emission savings of such fuels. 2023 saw the European Court of Auditors publish a report expressing concern about the ongoing overstatement of environmental benefits and GHG emission savings of biofuels by the EU.⁶⁷

Several studies have shown that, when emissions from indirect land-use change (ILUC) are taken into account, biodiesel made from vegetable oils, such as palm, soy or rapeseed oil, emits more GHGs than fossil fuels.⁶⁸ In 2022, emissions from biodiesel were estimated to be a shocking 17% above fossil diesel emissions, despite being touted as a climate solution.⁶⁹

The combination of incorrect GHG emission accounting and the lack of an adequate socio-environmental sustainability framework has escalated the global social and environmental cost of the growing European demand for unsustainable biofuels, including its negative effects on food security.

Why Indirect Land Use Change Matters

ACCOUNTED FOR



NOT ACCOUNTED FOR



KEY DEVELOPMENTS IN EU BIOFUEL LEGISLATION



2003

BIOFUEL DIRECTIVE⁷⁰

First EU non-binding blending targets for biofuels. No sustainability criteria.

2009

2015

REVISION OF THE FUEL QUALITY DIRECTIVE (FQD)⁷¹

- › Regulation on environmental performance of transport fuels, including biofuels.
- › Mandatory GHG emission intensity reduction target of 6% of fuels by 2020.

RENEWABLE ENERGY DIRECTIVE I (RED I)⁷²

- › Overall renewable energy target of 20% by 2020.
- › First binding renewable energy target for the transport sector: 10% by 2020.
- › Introduction of limited sustainability criteria for biofuels.
- › No criteria to account for high ILUC risks.
- › No consideration of the food security impacts of biofuels.

ILUC DIRECTIVE (AMENDING RED I AND FQD)⁷³

- › Introduction 7% cap for food, feed and energy crops.
- › No full ILUC accounting and criteria introduced.
- › Non-binding targets and double counting for advanced biofuels.

2018

2019

RENEWABLE ENERGY DIRECTIVE II (RED II)⁷⁴

- › Overall renewable energy target of 32% by 2030.
- › Renewable energy target for the transport sector of 14% by 2030.
- › Cap for food and feed crop at 2020 consumption levels (with a maximum of 7%)
- › No additional sustainability criteria for biofuels.
- › Advanced biofuels of 3.5% in 2030.
- › Phasing out high ILUC risk biofuels.

DELEGATED REGULATION ON HIGH ILUC RISK FEEDSTOCKS⁷⁵

- › Setting criteria for determining high ILUC-risk feedstock.
- › Certification rules for low ILUC-risk biofuels.

2023

FUEL EU MARITIME⁷⁶

- › Setting GHG emission intensity reduction target for the maritime sector.
- › Rules on the use of biofuels for the maritime sector.
- › Excluding use of food and feed-based biofuels.

REFUEL EU AVIATION⁷⁷

- › Harmonizing rules on sustainable aviation fuels (SAFs).
- › Setting minimal shares of SAFs.
- › Excluding use of food and feed-based biofuels.

RENEWABLE ENERGY

DIRECTIVE III (RED III)⁷⁸

- › Overall renewable energy target of 42.5% by 2030.
- › Target for the transport sector, renewable energy target of 29% or GHG intensity reduction target of 14.5% by 2030.
- › Food and feed-based biofuels still capped and optional.
- › No additional sustainability criteria for biofuels.
- › Updated target for advanced biofuels.

2.2

TRYING TO PUT THE GENIE BACK IN THE BOTTLE: EU BIOFUEL POLICIES SINCE 2015

While the European Commission could have foreseen the huge increase in demand for food and feed crops for biofuels in 2003 and subsequent years, it deliberately did not include any considerations for indirect land-use changes and food security in its initial biofuel policies.⁷⁹ As FAO stated in 2008, this had huge implications for all dimensions of food security.⁸⁰

In the face of mounting evidence, in subsequent policy iterations (see Figure 3), the European Commission has sought to mitigate the negative impacts of its biofuel policies on climate by reducing the share of food- and feed-based biofuels. However, the Commission has not directly tackled the impact on food security.



2.2.1.

Measures taken by the EU to start addressing the impact of indirect land-use change

In 2015, in the so-called ILUC (indirect land-use change) Directive,⁸¹ the EU amended the RED and the FQD in an attempt to mitigate the impacts of crop-based biofuels, including GHG emissions from ILUC. At the time, crop-based biofuels made up almost the entire production of biofuels.

The European Commission acknowledged that the ILUC emissions of crop-based biofuels could fully negate the GHG emission savings of biofuels. To limit the ILUC impacts of food and feed crop-based biofuels the European Commission capped the use of food, feed and energy crops in each Member State at 7% of all energy used in transport by 2020. It also required Member States and the European Commission to report on estimated ILUC emissions from biofuels, but it did not change the rules for the calculation of GHG-emissions savings accordingly.⁸² In 2018, in the second iteration of the RED, the Commission made the use of food and feed crops optional⁸³ and it updated the cap. Energy crops were no longer included in the cap, and food and feed crops were capped in each Member State to their 2020 consumption levels.⁸⁴

Four years later the European Commission decided to set a threshold for the use of feedstocks that cause a more than 10% expansion of feedstocks into land with high-carbon stocks through Delegated Regulation 2019/807 on high ILUC-risk feedstocks.⁸⁵ In reality, because of the chosen threshold this only led to the proposed phasing out of palm oil by 2030, yet soy is also a feedstock with high ILUC risks.⁸⁶ Furthermore, the delegated act does not really address ILUC. If ILUC emissions were accounted for, most food crops, including those grown in Europe such as rapeseed or wheat, would be excluded as they have higher GHG emissions than fossil fuels or do not meet the required GHG savings.

2.2.2.

Weak attempts to reduce the impacts on food security

The EU limit of 7% for biofuels produced from food and feed crops, introduced in 2015, was primarily a measure to limit the ILUC impacts of biofuels but also has the potential to safeguard food security.⁸⁷ Despite potentially curbing the growth rates in food- and feed-crop biofuels, each EU country was already using fewer than 7% of their total energy use in transport in 2020, so the so-called cap still allowed for an increase in consumption of these harmful biofuels. To mitigate the impacts on food security more efficiently, countries should fully phase out the use of food and feed crops and other biofuels that use land.

In the last two decades, EU policymakers have missed the opportunity to include criteria to protect food security and human rights in the sustainability criteria, and controversially EU policy does not allow Member States to add more ambitious sustainability criteria for biofuels in their national legislation.⁸⁸

Although the updated RED II in 2018 acknowledged the impact of biofuels on food security, it only required the Commission to report on the effects of biofuel use on commodity price changes and food security, without an accompanying obligation to act upon the findings.


2.2.3.

Incentivizing advanced and waste biofuels

In 2015, when the EU finally started to acknowledge the negative impacts of biofuels produced from food and feed crops, it did not phase out these biofuels but instead tried to incentivize a shift towards advanced and waste biofuels. It is doing so by setting specific targets and double counting the use of advanced and waste biofuels towards the EU renewable energy targets.⁸⁹ Advanced and waste biofuels are listed by the European Commission in Annex IX of the RED. Recently the European Commission amended the list of advanced and waste biofuels and added several feedstocks.⁹⁰

As explained in Box 4, the uptake of advanced and waste biofuels introduced new challenges for food security. While attempting to move to non-food and feed-based biofuels, the EU has not included any additional sustainability criteria that could have avoided new food security risks from advanced and waste biofuels.

BOX 4.



The EU defines any biofuels produced from the feedstocks listed in Part A of Annex IX of the RED as being advanced and feedstocks listed in Part B as waste-based.⁹¹ In theory, advanced and waste-based biofuels are made from non-food and feed materials, but they have their own direct and indirect negative implications for food security.

Advanced and waste biofuels and new food security risks



COMPETITION FOR LAND AND RESOURCES

Most biofuels labelled as advanced are land-based, such as energy crops. The cultivation of these feedstocks may compete with agricultural land that could otherwise be used for food and feed production, or with resources such as water and fertilizers. While the EU argues that these advanced biofuels can be grown on 'marginal lands' not suitable for growing food or feed, there is currently no reliable definition of marginal lands, creating a huge loophole.⁹²



COMPETING USES FOR FEEDSTOCKS

Several feedstocks on the list of advanced and waste biofuels are also used by other industries and are in limited supply, such as bagasse, a sugar cane residue used in several industries or animal fat being used in the pet-feed industry.⁹³ Their use for biofuel production risks the replacement of these feedstocks in other industries by food and feed crops or distorting the market for these crops due to the increased demand.



CHANGING AGRICULTURAL PRACTICES

The cultivation of feedstocks for advanced biofuels may influence crop choice and agricultural practices, such as large-scale monocultures and the use of synthetic inputs and biocides. This shift can affect crop diversity, soil fertility, biodiversity and agricultural resilience, having an impact on the long-term productivity and sustainability of food production systems. The utilization of agricultural residues such as straw and stalks for advanced biofuels could encourage farmers to use residues as feedstock for biofuel production instead of for soil conservation and soil health.



FRAUD AND LOOPHOLES

The EU list of advanced and waste biofuels contains a mixture of individual and groups of feedstocks that often lack clear definitions and strong sustainability safeguards. This increases the risk of fraud or loopholes, whereby food and feed crops are wrongly used under the banner of advanced biofuels. A case in point is the many suspected cases of fraud in the use of used cooking oil. In 2022, 80% of EU consumed biodiesel from used cooking oil was imported from non-EU countries, and several cases have been uncovered where certified used cooking oil turned out to be blended with raw vegetable oils.⁹⁴

2.3

EU BIOFUEL POLICY SINCE 2023

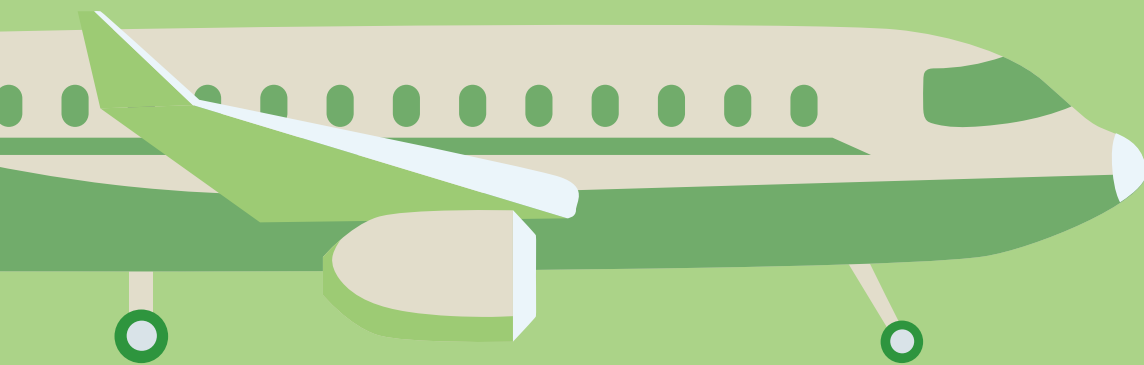
As part of the Fit for 55 package,⁹⁵ the EU developed the third iteration of the Renewable Energy Directive (RED III) in 2023⁹⁶ and updated the sustainability policies of the aviation and maritime sectors.⁹⁷ The European Commission excluded the use of food- and feed-based biofuels in the aviation and maritime sector after acknowledging their damaging impacts. However, biofuels remain a core element of EU climate policies for the transport sector (Box 5).

RED III makes little additional effort to protect food security in its biofuel policies over RED II. Member States are still allowed to count biofuels produced from food and feed crops towards their renewable energy target for transport, and the maximum limit of 7% for the use of food and feed crops has not been lowered. The current increase in energy use in transport could mean that Member States use more food and feed crops in absolute amounts.

The European Commission is currently revising the Delegated Regulation on high ILUC-risk feedstocks,⁹⁸ which is an opportunity to exclude one of the most damaging food crops: soy. Yet while this would be progress, without a stricter limit on the overall use of biofuels produced from food and feed crops, the excluded soy crops would most probably be replaced by other crops.

The EU has also continued its push for advanced biofuels by setting a higher target of 3.5% for advanced biofuels. But its persistent failure to build in strong sustainability and food security safeguards for advanced biofuels means that they can still – inadvertently or via a loophole exploited by industry – lead to increased pressure on food and feed crops.

Annex 2 highlights the key elements of the EU policies regarding biofuels and gives an overview of food security considerations.

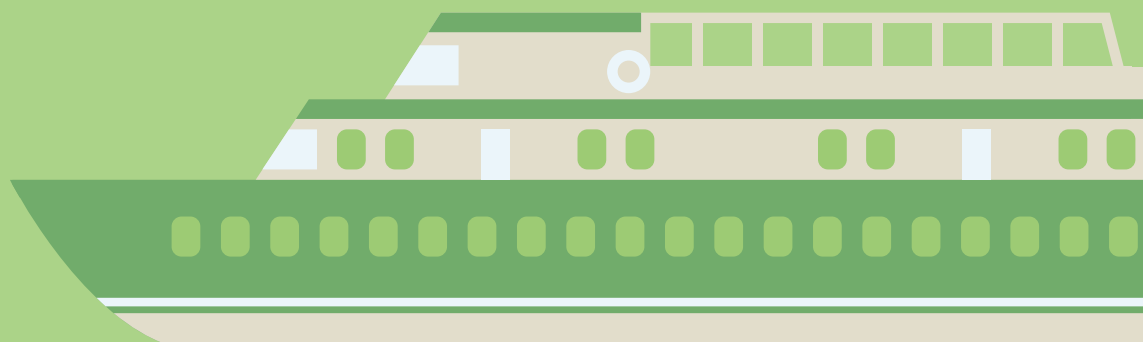


Inconsistent EU biofuel policies for different transport sectors

The EU has acknowledged the food security issues around biofuel use in its maritime and aviation policies. The EU does not allow biofuels produced from food and feed crops to count towards the maritime and aviation climate targets.

In aviation, the EU has gone one step further and excluded the use of palm- and soy-derived materials and intermediate crops, and capped biofuels made from materials on the list in Annex IX of the RED.⁹⁹ The RED should be updated to be consistent and reflect the food security protections in the aviation and maritime legislation and exclude the use of food- and feed-based biofuels immediately in all sectors.

The biofuel industry is taking every opportunity to avoid extra protection for food security in EU biofuel policies. It has launched a legal case against the EU to challenge the exclusion of food- and feed-based biofuels in the EU's aviation and maritime sectors, arguing that food security should not be protected in the biofuel policies in these sectors as it is not in the RED.¹⁰⁰



NATIONAL ACTION TO FIX BIOFUEL POLICIES

3.1

Protecting food security
through the transposition
of the RED

3.2

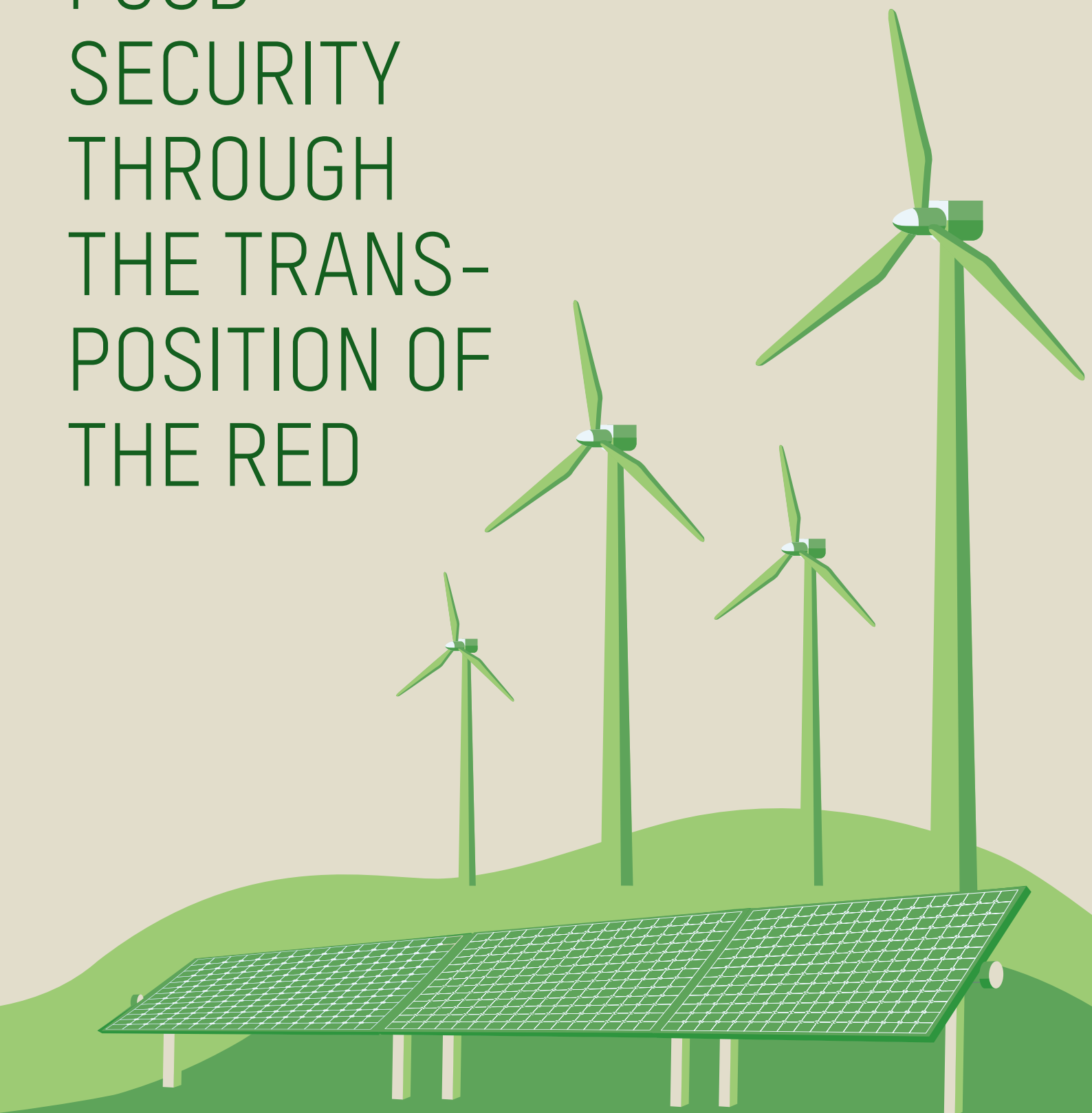
Member States: claiming
to move away from food
and feed crops

3.3

France

3.1

PROTECTING
FOOD
SECURITY
THROUGH
THE TRANS-
POSITION OF
THE RED



Member States have until May 2025 to transpose the revised RED (RED III) into their national legislation. Now that the renewable energy targets, and specifically the target for the transport sector, have been increased, it is more urgent than ever that Member States do everything possible to stop unsustainable bioenergy in their energy mix. Annex 3 contains specific recommendations for Member States. EU countries should focus on the following three aspects:

PHASE OUT BIOFUELS FROM FOOD AND FEED CROPS

Member States should immediately phase out the use of all food- and feed-based biofuels. They can do this by setting the cap for food- and feed-based biofuel at 0% as early as possible and no later than 2030.

As the European Commission is delaying its revision of the Delegated Regulation on high ILUC-risk feedstock, Member States can take the lead. France, Belgium, the Netherlands and Denmark have already decided to phase out soy-based biofuels alongside palm-based biofuels. Other Member States should follow suit and phase out support for these damaging crops immediately. When a country phases out palm and soy-based biofuels it should avoid other food and feed crops that simply replace the market shares of the excluded biofuels.¹⁰¹

LIMIT USE OF UNSUSTAINABLE ADVANCED AND WASTE BIOFUELS

Member States should only count advanced and waste biofuels towards their renewable energy target for the transport sector after conducting a robust, independent and thorough impact assessment. Member States should assess which advanced and waste biofuels they support based on the principles of sustainability, waste hierarchy and cascading principle, and fair share of global resource use.

Now the European Commission has formalized the new list of advanced and waste biofuels,¹⁰² Member States should ban the use of intermediate crops and crops from degraded land. Member States should also carry out their own impact assessments on all feedstocks listed in Annex IX of the RED to assess their negative food security impacts, if the Commission is not doing its due diligence.¹⁰³

STRENGTHEN SUSTAINABILITY CRITERIA, HUMAN RIGHTS PROTECTION AND REPORTING

The current sustainability criteria fail to capture and tackle the social and environmental problems associated with biofuel use. Member States should use the legislative space that RED III has created to improve sustainability and human rights considerations. Controversially, the RED does not allow Member States to add sustainability criteria for biofuels,¹⁰⁴ but they can strengthen environmental, social and human rights considerations by adding these to monitoring and reporting requirements,¹⁰⁵ including the correct accounting rules for ILUC emissions from biofuels.

RED III states that it is aimed at complementing the EU Corporate Sustainable Due Diligence Directive (CSDDD), but this needs to be translated into specific implementation criteria within the RED.¹⁰⁶ Furthermore, the CSDDD only covers less than the largest 0.05% of companies, leaving most of the biofuel market untouched.¹⁰⁷

3.2

MEMBER STATES: CLAIMING TO MOVE AWAY FROM FOOD AND FEED CROPS

The next sections outline the biofuel policies and plans of France, Belgium, the Netherlands and Germany, and in particular their rules for the use of food and feed crops, what they are doing to protect food security in their biofuel policies, and what steps they could take to ensure they phase out all biofuels that have a negative impact on food security. These countries were selected because of the large quantities of biofuels consumed, their strategic role in the production and transport of biofuels and their relevance in EU policymaking. All four countries are still using large amounts of food and feed crops for their biofuel consumption (see Table 1 and Table 2).

TABLE.1

Overview of biofuel from food and feed crops in four EU countries

SHARE OF FOOD AND FEED CROPS IN BIOFUEL MIX IN 2021 (%)^a

BIOFUEL USED FROM FOOD COMMODITIES IN 2021 (MILLION LITRES)

TOP THREE FEED-STOCKS USED FOR BIO-FUEL CONSUMPTION IN TONNES IN 2021^b

FRANCE

88.5%

3508^c

RAPESEED OIL
SUGAR BEET
CORN

BELGIUM

76.3%

794

SUGAR CANE
WHEAT
SOY OIL

THE NETHERLANDS

19.8%

246

CORN
SUGAR CANE
WHEAT

GERMANY

71.7%



3433

CORN
SUGAR CANE
PALM OIL

Notes: ^a Authors' calculations, based on Eurostat (2021).¹⁰⁸ ^b Feedstock quantities estimated from biofuel consumption based on BioGrace standard yields, using: Bundesanstalt für Landwirtschaft und Ernährung (2021); Ministère de la Transition Ecologique (2021); Dutch Emissions Authority (2022); Belgian Federal Public Service for Health Food Chain Safety and Environment (2022).¹⁰⁹ ^c For France the 2020 levels are used.

TABLE.2

Overview of biofuel targets in four EU countries (as of February 2024)

	FRANCE 	BELGIUM 
RENEWABLE ENERGY TARGET 2030 (%)	15	13.9
GHG INTENSITY TARGET 2030 (%)	-	-
FOOD AND FEED CROPS (% CAP BY 2030)	7	2.5 <small>Biodiesel</small> 4.5 <small>Bioethanol</small>
CROP EXCLUSIONS	PALM AND SOY (palm byproduct PFAD)	PALM AND SOY
ADVANCED BIOFUELS LISTED IN ANNEX IX, PART A (MIN % BY 2030) ^a	3.5	4.2
ANNEX IX, PART B (% CAP BY 2030) ^b	0.9 <small>Bioethanol</small> 1.1 <small>Biodiesel</small>	2 (and a 1% cap for animal fats from category 3)

THE NETHER-
LANDS 

GERMANY 

28

-

-

25

1.4

4.4

PALM AND SOY
(palm byproduct PFAD)

PALM

7

3.5

10^C

1.9

Notes:^a The percentage for advanced biofuels is shown after double counting. ^b Annex IX, Part B lists waste-based biofuels which can be developed with mature technologies that are double counted but capped at 1.7%, with the possibility for Member States to increase the cap after asking the European Commission (RED III, Article 27.1(d)). ^c The 10% cap counts for national targets, towards the EU the Netherlands only counts 1.7%.¹¹⁰

3.3 FRANCE



The French government has been promoting and supporting the use of biofuels since the 2000s.¹¹¹ It has yearly updated blending targets for petrol, diesel and jet fuel suppliers, which can be reached by the use of biofuels, renewable electricity and renewable fuels from non-biological origin (RFNBOs). In reality, the blending targets are almost exclusively reached with food- and feed-based biofuels.¹¹²

The government encourages fuel suppliers to reach these targets by providing a full tax exemption when suppliers (over)achieve the blending targets.¹¹³ The French court of auditors published a damning report on the fiscal treatment of biofuels, concluding that only the agro-industry benefited from these measures while consumers are bearing the costs, and environmental benefits have been limited.¹¹⁴

France currently uses small amounts of advanced and waste biofuels, but the French government is trying to stimulate the development of advanced biofuels. It wants to use advanced and waste biofuels predominantly in the aviation and maritime sectors because these are difficult to electrify.¹¹⁵

86%

Biofuels from food and feed crops

7% CAP

on the use of food - and feed-based biofuels in all energy used in transport

ADVANCED BIOFUELS TARGET

1%

> 2025

3.5%

> 2030

REPLACEMENT OF FOSSIL FUELS BY BIOFUELS IN THE AVIATION SECTOR

2% > 2025

5% > 2030

biofuel targets for the aviation sector

€200M

Investment plan to develop sustainable aviation fuels

3.3.1.

Using large amounts of food and feed crops for biofuels

France is the largest consumer of biofuels produced from food and feed crops in Europe,¹¹⁶ and with 86% in 2021 has one of the largest shares of food- and feed-based biofuels in its biofuel mix of all Member States. The cap on the use of food- and feed-based biofuels is set at 7% in France and the government does not intend to lower this cap.¹¹⁷ The use of palm oil, soy oil and palm byproduct palm fatty acid distillate (PFAD) biofuels is excluded from the tax exemption and therefore discouraged.¹¹⁸

3.3.2.

Slow move toward advanced biofuels for aviation

The French government has set targets for the use of advanced biofuel of 1% in 2025 and 3.5% in 2030 (after double counting) of total energy use in the transport sector.¹¹⁹ There is also a strict cap on the use of used cooking oil and category 1 and 2 animal fats.¹²⁰

France's biofuel policies focus strongly on the development of biofuels as jet fuels.

France has a large aviation sector and in 2023 the French president announced a €200m investment plan to develop sustainable aviation fuels.¹²¹ The French government set targets of 2% in 2025, 5% in 2030 and 50% in 2050 for the replacement of fossil fuels by biofuels in the aviation sector. The use of food- and feed-based biofuels is not allowed for aviation, so these targets will incentivize a massive uptake of advanced biofuels (listed in Annex IX part A of the RED).¹²²

3.3.3.

The bare minimum consideration of sustainability

For fuel suppliers to be eligible for the tax exemption, the biofuels they use must meet the sustainability criteria set out in the RED.¹²³ The French government does not have any additional sustainability considerations. In its roadmap for sustainable aviation fuels the government mentioned the need to comply with socioeconomic sustainability criteria alongside environmental criteria, but there is no detail on these criteria or any reference in French biofuel legislation.¹²⁴ There are also no references to the availability or fair distribution of resources needed for the anticipated large increase in sustainable aviation fuels.

3.4 BELGIUM



Biofuels produced from food and feed crops are, at 76% in volume in 2021, by far the largest share of all the biofuels used in Belgium. Between 2021 and 2023, Belgium set stricter limits on the use of biofuels produced from food and feed crops to redress this trend. The new legislation established a cap on food- and feed-based biofuels while incentivizing the uptake of some advanced biofuels as well as other renewable energy sources for the transport sector, such as renewable electricity and green hydrogen.¹²⁵

76%

Biofuels from food and feed crops

CAP ON FOOD AND FEED CROPS

2.5% CAP
BIODIESEL

Made from food - and feed-based biofuels in all energy used in transport

4.5% CAP
BIOETHANOL

ADVANCED BIOFUELS TARGET

1.1% > 2025

4.2% > 2030



Inclusion of human rights and gender considerations

3.4.1.

Lowering the cap for food and feed crops for biofuels

Belgium's was one of the first governments to further limit the use of biofuels from food and feed crops in the renewable energy mix for transport from 2025 to 2030¹²⁶ via the national transposition of RED II in 2030.¹²⁷

Although not a full phase-out, the Belgian government has sent a strong signal about the problems associated with biofuels from food and feed crops and broke with its previous stance: until 2023, Belgium had been pushing for the increased use of food- and feed-based biofuels. The government now highlights the limited GHG emissions savings and environmental benefits, and human rights violations, including of the right to food security.¹²⁸

To implement the policy, the Belgian government introduced a complex system for the use of food- and feed-based biofuels, with minimum and maximum shares for both biodiesel and bioethanol. Limits were gradually introduced from 2023 for food- and feed-based biofuels towards a maximum of 2.5% for biodiesel and 4.5% for bioethanol in 2030.¹²⁹ Belgium excluded palm and soy oil biofuels because of their high ILUC impacts, with a law in 2022 setting it among the first countries in Europe to do so. It will also exclude any other crop that is designated as high ILUC-risk feedstock in the future.¹³⁰

3.4.2.

Moving to advanced biofuels

While decreasing the maximum share for food- and feed-based biofuels, Belgian policies seek to progressively increase the minimum share for advanced biofuels. The minimal share of advanced biofuels in the transport sector is set at 1.1% for 2025 and jumps to 4.2% in 2030, after double counting. Belgium has also set a cap of 2%¹³¹ for used cooking oil and category 1 and 2 animal fats, and of 1% for other non-advanced biofuels, such as category 3 animal fats, to avoid competition for resources and market distortions and indirectly increase the consumption of vegetable oils by other industries.

3.4.3.

First steps towards including human rights

The national RED transposition mandated a biennial evaluation of the human rights and sustainability implications of Belgian biofuel policies inside and outside the EU. This evaluation will look at ILUC risks; the impact on biodiversity and other environmental impacts; socioeconomic impacts, including food security, land rights conflicts, forced labour and child labour, women's rights and labour conditions; and health and safety measures. Although the law foresees revising the policy in 2028, it is yet to be seen to what extent human rights and sustainability considerations will translate into stricter criteria.

3.5 THE NETHERLANDS



However, the ambition to move to zero-emission sources and use biofuels as a transition source is not reflected in the Dutch government's investment plans. Of all EU countries, the Netherlands is planning the largest increase in biorefinery plants between 2022 and 2030, massively increasing its biofuel production capacity.¹³⁴

21% Biofuels from food and feed crops

CAP ON FOOD AND FEED CROPS

1.4%⁰ CAP
on the use of food - and feed-based biofuels in all energy used in transport

ADVANCED BIOFUELS TARGET

2.4% > 2023
7% > 2030

The Netherlands has a long history of using biofuels in its energy mix and biofuels are intended to remain a key component in reaching its renewable energy targets.¹³²

The Dutch government has an increasing renewable energy target for transport, which is set at 28% in 2030. The government aspires to reach this goal by electrifying the sector and using zero-emission sources, such as solar and wind power. But because the full electrification of the transport sector is still some time away, the government plans to use substantial amounts of biofuels to reach this target.¹³³



Inclusion of fair share principle

3.5.1.

A small role for food and feed crops for biofuels

The Netherlands intends to move away from food and feed crops for biofuels and fully focus on developing and using advanced and waste biofuels. The share of food- and feed-based biofuels in the Netherlands (21% in 2021) is already significantly lower than in the three other countries.

Energy suppliers can only count 1.4% of food- and feed-based biofuels towards their renewable energy target.¹³⁵ While not strictly speaking a full ban on food- and feed-based biofuels, there is a strong incentive for them not to pass the 1.4% limit and instead use advanced and waste biofuels to reach their mandatory renewable energy targets.

Since 2022, the use of palm and soy oil biofuels has been banned, because of their high ILUC risks.¹³⁶ In addition PFAD, a palm derivative, is marked as a byproduct and falls under the 1.4% cap for food and feed crops, therefore avoiding its overuse.¹³⁷

3.5.2.

Advanced biofuels that are not really so advanced

To promote the shift from food- and feed-based biofuels to advanced biofuels, the Netherlands has obliged energy suppliers to have a minimum share of advanced biofuels in their energy mix. This share increases from 2.4% in 2023 to 7% in 2030 of all energy used in the transport sector, after double counting.¹³⁸

But instead of using more advanced biofuels, they mainly use waste biofuels. The use of used cooking oil and animal fats has increased in recent years. These biofuels made up 57% of all biofuels consumed in 2020 (compared with 23% of advanced biofuels).¹³⁹ The Dutch government must avoid excessive use of these waste biofuels because of the 1.7% limit on used cooking oil and animal fats in the transport sector set in the RED. However, the government only introduced a cap of 10% (after double counting) of used cooking oil and animal fats in all renewable energy used in the transport sector.¹⁴⁰ This is despite large-scale suspected fraud, where imported used cooking oil biofuels contain large amounts of palm oil.¹⁴¹

No measures are in place to assess the impact of advanced and waste biofuels on food security through their reliance on land and other resources.

3.5.3.

Potential for better sustainability considerations

The Dutch government copied the sustainability criteria from the RED but agreed to explore additional sustainability criteria.

The government intends to add more socioeconomic sustainability criteria for all biomass use, but cannot add sustainability criteria for biofuels as the RED prohibits this. There is no indication if these criteria will include food security considerations.¹⁴²

The Dutch government was one of the first to recognize issues around the limited availability of advanced and waste biofuels and the fair distribution of these. For example, the Netherlands imports large amounts of used cooking oil from China, resources that can no longer be used by China itself.¹⁴³ The Dutch climate agreement aims to apply a fair share principle on this issue, a way to consider how to fairly distribute the available resources globally, but does not clarify this principle and how it will be operationalized.¹⁴⁴

3.6 GERMANY



In 2021, Germany set one of the highest targets regarding renewable energy in transport: an overall GHG emissions intensity reduction target of 25% for road and rail transport by 2030. Biofuels play a key role in Germany to – on paper – reach this target.¹⁴⁵

While there is an intention to move to waste- and residue-based advanced biofuels due to sustainability concerns around food- and feed-based biofuels, in 2021 70% of all biofuels still came from food and feed crops. This translates into around 1.2m hectares of land used for the production of crops for the biofuel consumption of Germany, almost one-third the size of Belgium.¹⁴⁶

70% Biofuels from food and feed crops

CAP ON FOOD AND FEED CROPS

4.4% CAP

on the use of food - and feed-based biofuels in all energy used in transport

ADVANCED BIOFUELS TARGET

2.6% > 2030

1.2 MHA OF LAND

The production of biofuels for German consumption requires 1.2 Mha of land - almost one-third the size of Belgium

3.6.1.

Free-market party in government blocks move away from food and feed-based biofuels

In the last two years, there has been fierce political debate around phasing out food- and feed-based biofuels in Germany. The Minister of Environment, with the support of the Minister of Agriculture, both of the Green party, proposed a full phase-out by 2030, in response to the exacerbated food crisis in the context of the Ukraine war. However, the Minister of Transport, of the Liberal party, has been blocking this proposal, arguing that food- and feed-based biofuels are needed to meet the emission reduction targets in the transport sector.¹⁴⁷ Currently, there is a deadlock and the cap on biofuels from food and feed crops remains at 4.4%, the level of German consumption of these biofuels in 2020.¹⁴⁸

In 2023, the German government phased out palm oil biofuels due to their high ILUC risks, but missed its chance to lower the cap on food and feed-based biofuels in general. As a result, other biofuels are replacing palm oil, with the risk of even higher land use. Should the EU designate soy as a high ILUC-risk feedstock, Germany will also phase out this crop.¹⁴⁹

Even though palm oil biofuels were phased out in 2023, there have been several suspected cases in Germany of palm oil being illegally used while labelled as used cooking oil.¹⁵⁰

3.6.2.

Moving towards advanced and waste biofuels

To encourage a shift from food- and feed-based crops to advanced and waste biofuels, the German government introduced a gradually increasing target for advanced biofuels. In 2030, fuel suppliers need at least 2.6%¹⁵¹ of advanced biofuels in their fuel mix. In line with the exclusion of palm oil, the German government stopped the double counting of palm oil mill effluent (POME), a byproduct of palm oil, which is marked as an advanced biofuel in Part A of Annex IX of the RED. Used cooking oil and animal fat categories 1 and 2 (Annex IX, Part B) are limited to 1.9%, after requesting the European Commission to raise it from the original 1.7%.

3.6.3.

No additional sustainability considerations and reporting requirements






Germany has no additional sustainability criteria or reporting and evaluation criteria based on food security implications. It has only implemented the sustainability criteria and reporting obligations as laid out in the RED.

3.7




FOOD SECURITY PROTECTION SCORECARD: NATIONAL BIOFUEL POLICIES SHOULD DO MUCH BETTER

When plotting the national biofuel policies of France, Belgium, the Netherlands and Germany on the food security protection scorecard below, it is clear that there is a lot of room for improvement for all the countries examined in this paper, as on the majority of food protection measures national governments are not doing enough.

PHASING OUT OF BIOFUELS THAT HAVE NEGATIVE IMPACTS ON FOOD SECURITY

	GOOD	PROGRESS	BAD
CAP ON FOOD AND FEED CROPS	Food and feed crops excluded	Cap on food and feed crops below 3.5% or cap lowered since 2020 	Cap on food and feed crops at 2020 level 
PHASING OUT OF HIGH ILUC-RISK FEEDSTOCKS	Phasing out of all high ILUC-risk feedstocks and accordingly lowering the cap on the use of food and feed-based biofuels	Phasing out of high ILUC-risk feedstocks, soy and palm oil 	Only the phasing out of palm oil 
PHASING OUT OF ADVANCED AND WASTE BIOFUELS WITH FOOD SECURITY IMPACTS	Phasing out of all advanced and waste biofuels that have a proven impact on food security ^a	Phasing out of some advanced biofuels that have a proven impact on food security	No or minimal consideration of the impact of advanced biofuels on food security 

SOLID SUSTAINABILITY CRITERIA AND REPORTING

	GOOD	PROGRESS	BAD
GHG ACCOUNTING	Full GHG accounting, including ILUC emissions and reporting	Additional ILUC accounting	No ILUC accounting 
ADDITIONAL SOCIAL AND FOOD SECURITY MONITORING AND REPORTING REQUIREMENTS	Full set of social and food security requirements included as legally binding criteria ^a	List of additional social and food security requirements included in monitoring and reporting requirements, without direct legal consequences 	No additional social and food security monitoring and reporting requirements 

Notes: ^aThese measures would require changes in the EU biofuel legislation and are not possible in the current EU legislative framework

CONCLUSION: HOW TO MOVE AWAY FROM HARMFUL BIOFUELS



HOW TO MOVE AWAY FROM HARMFUL BIOFUELS

In the context of a devastating global food and hunger crisis, the EU continues to bolster the biofuel industry by allowing EU and Member State biofuel policies to consume large amounts of food for fuel. **While over 2.4 billion people face food insecurity, the biofuel industry rakes up profits.**

The EU promotes biofuels purportedly to reduce greenhouse gas emissions, but these fuels do not live up to this promise and have turned out to be a disaster for the climate and for people. The emission reductions of biofuels only exist on paper, while land grabbing, human rights violations and food insecurity affect real people.

The biofuel industry has an impact on food security in many ways: increasing food prices and food price volatility, reducing the availability of food and resources for food production; using disproportional power in the food system over the agency of smallholder farmers and communities; and making food systems less sustainable.

The 2023 revision of Europe's biofuel policies under the RED was an opportunity to stop using food as fuel, but European policymakers did not make any additional efforts to protect food security. But it is not too late. Member States can right this wrong in the transposition of this EU legislation before mid-2025. This is an opportunity not-to-miss to revise national biofuel policies and move away from biofuels and their negative impacts and protect food security.

While all four Member States analysed in this paper want to move from food- and feed-based biofuels to advanced and waste biofuels, they still predominantly use food and feed crops. Advanced and waste biofuels also have their own serious food security implications. Some Member States have set small steps to protect food security in their biofuel policies, but all still have a long way to go to protect food over fuel.

Considerable change is needed to make the transport sector sustainable, as biofuels will not bring about a truly sustainable transport system. Member States should focus on energy demand reductions, public transport and active mobility, the electrification of the transport system and better urban planning.

4.1

RECOMMENDATIONS

4.1.1.

European Commission biofuel policy recommendations

The European Commission should revise the RED and propose the following changes:

- › Make the use of biofuels produced from food, feed and energy crops, and food byproducts, ineligible to meet the EU 2030 GHG reduction and renewable energy targets in all EU 2030 climate and energy legislation.
- › Advanced and waste biofuels in the transport sector should only be considered as counting towards renewable energy targets after conducting a robust, independent and thorough human rights and food security impact assessment that also takes into account the cascading principle and waste hierarchy.
- › Allow the removal of feedstocks from the Annex IX list of advanced and waste biofuels when they are found to be socially or environmentally unsustainable.
- › Introduce correct accounting for bioenergy GHG emissions, including ILUC emissions, in all EU climate and energy legislation to ensure robust and verifiable emission savings.
- › Allow Member States to add sustainability criteria on biofuels.
- › Adopt a comprehensive and binding set of environmental and social sustainability criteria, including criteria on food security and human rights.
- › Report on food price changes, land use numbers and social and environmental impacts globally.

In the meantime, the European Commission can implement the following stopgap measures:

- › Immediately phase out soy-based biofuels, one of the most environmentally damaging biofuels, from counting towards the renewable energy targets in the upcoming revision of the Delegated Regulation for high ILUC-risk feedstocks. Palm and soy oil should be phased out immediately, not just by 2030.
- › Assess the social and environmental impacts for all feedstocks listed in Annex IX to avoid the use of advanced and waste biofuels that have a negative impact on food security, biodiversity, climate and environment. This requires the European Commission to undertake solid impact assessments: for example, when checking food security risks, to inspect if a feedstock is not distorting (food) markets or creating an additional demand for land which can also be used for food production. Based on these impact assessments the European Commission should also be able to remove feedstocks from the list which do not fulfil the criteria.
- › Include stronger definitions and monitoring and verification processes for intermediate crops and crops from degraded land to counter the high risk of fraud where food and feed crops could be purposefully mislabelled – especially now that the European Commission has added crops from degraded land and intermediate crops to the Annex IX list as these feedstocks are problematic from a food security perspective.

4.1.2.

National biofuel policy recommendations

ALL COUNTRIES

Phase out biofuels that have negative impacts on food security

- › Member States should phase out the use of food- and feed-based biofuels. They can do this by setting the cap for such biofuels at 0% as early as possible and no later than 2030.
- › In the meantime, as a stopgap measure, Member States should immediately phase out feedstocks with a high ILUC risk: palm and soy oil.¹⁵² When doing so, they should accordingly reduce the cap on food and feed crops, otherwise the excluded high ILUC-risk crops will just be replaced by other crops.
- › Member States should only count advanced and waste (Annex IX) biofuels towards their renewable energy target for the transport sector after conducting a robust, independent and thorough impact assessment. This should incorporate an analysis of the application of the cascading principle, the principle of waste hierarchy and a fair share principle. Competing uses of the raw materials will therefore be considered, avoiding diverting a raw material from a higher-value use such as food for human consumption.

Sustainability criteria and reporting

- › As long as Member States are not allowed to add sustainability criteria, they should start with adding these criteria into their monitoring and reporting requirements. This should include:
 - › Correct accounting reporting for GHG emissions should be introduced to ensure robust and verifiable emissions savings, including emissions caused by ILUC.
 - › Monitor the impact of biofuels on food prices, food price stability and food availability for as long as food and feed crops are not fully phased out and set a strict threshold to act when food prices and stability are negatively affected. Include reporting on the impacts of biofuels on food security in national climate and energy plans.
- › Add social reporting to protect people in biofuel supply chains, especially when fuels are produced in third countries, to cover land and water grabbing; land, water and air pollution and degradation; impacts on ecosystem services; impacts on governance; respect for human rights throughout the whole value chain, including the prevention of child labour, and the protection of decent work and labour rights, women's rights and Indigenous People's rights. This should also include protection of the right to education, health, food, adequate housing, physical integrity, freedom from forced evictions, peaceful assembly, self-determination and the right to live.
- › As soon as Member States are allowed to add environmental and social sustainability criteria, they should transform these monitoring and reporting requirements into binding criteria.

4.1.3.

Changes to the transport sector

FRANCE

Assess the availability of feedstocks for advanced biofuels needed to reach the sustainable aviation fuel targets while taking also into account the fair global share.

BELGIUM

Following the biennial evaluation of the human rights and sustainability implications of Belgian biofuel policies inside and outside the EU, Belgium should act on the outcomes of the evaluation and embed these in the sustainability criteria.

THE NETHERLANDS

Reduce the cap of 10% for waste biofuels (Annex IX, Part B).

Operationalize the fair share principle for the use of global biomass for national biofuel consumption.

GERMANY

While working towards the phase-out of all food- and feed-based biofuels, as a stopgap measure Germany should immediately phase out soy biofuels based on their high ILUC risk. When doing so, it should accordingly reduce the limit on food and feed crops, otherwise the excluded high ILUC-risk crops will just be replaced by other crops.

- › Increase efforts to reduce energy consumption in the transport sector and support the long-term decarbonization of the sector by phasing out new internal combustion engines and promoting affordable and accessible low-carbon or carbon-free means of transport, including public transport, and active mobility.
- › Ensure that the available sustainable modes of transport are accessible for everyone, to enhance the mobility of lower-income households.
- › Speed up the electrification of the transport system, energy savings and energy efficiency.
- › Include strong, just energy transition considerations and needs, accompanied by a rethinking of urban and interurban planning and transport organization.
- › Ensure that the richest people who contribute most to pollution through their excessive consumption play a larger role in contributing to the transition, including by paying fair taxes.

ANNEX 1. TIMELINE – KEY DEVELOPMENTS IN EU BIOFUEL POLICIES

2003

BIOFUEL DIRECTIVE¹⁵³

- › First EU legislation promoting biofuels by setting non-binding blending targets for the use of biofuels in the transport sector (2% in 2005 and 5.75% in 2010).
- › No sustainability criteria, only sustainability reporting for the EC.

2009

REVISION OF THE FUEL QUALITY DIRECTIVE (FQD)¹⁵⁴

- › Regulation to improve the environmental performance of transport fuels, including biofuels.
- › Mandatory GHG emission intensity reduction target of 6% of fuels used in road transport by 2020.
- › After 2020, the FQD no longer includes any GHG emission reduction targets.

RENEWABLE ENERGY DIRECTIVE I (RED I)¹⁵⁵

- › Overall renewable energy target of 20% by 2020.
- › First binding renewable energy target for the transport sector: 10% by 2020.
- › Introduction of limited sustainability criteria for biofuels, not including criteria to account for high ILUC risks.
- › No consideration of the food security impacts of biofuels. Only a requirement for the European Commission to report on the impact on food availability and prices.

2015

ILUC DIRECTIVE (AMENDING RED I AND FQD)¹⁵⁶

- › Amending the FQD and RED I to address the ILUC impacts of crop-based biofuels.
- › Limitations of a maximum use of 7% for the use of biofuels from food, feed and energy crops in recognition of their ILUC impacts.
- › Introduction of ILUC factors to estimate ILUC emissions from biofuels (used for reporting only, not in assessing sustainability compliance).
- › Reporting obligations for the European Commission and Member States on ILUC impacts.
- › Push for advanced biofuels because of their low ILUC impacts by introducing a list of advanced biofuels in Annex IX, Part A, double counting them, and setting non-binding targets for 2020.

2018

RENEWABLE ENERGY DIRECTIVE II (RED II)¹⁵⁷

- › Overall renewable energy target of 32% by 2030.
- › Updated renewable energy target for the transport sector of 14% by 2030.
- › No additional sustainability criteria for biofuels.
- › Limitations for the use of biofuels from food and feed crops at a maximum of 7% of all energy used in transport. The limit is set 1 percentage point higher than the 2020 national share of these fuels in the final energy consumption of rail and road transport in each Member State.
- › Updated target for advanced biofuels to reach 3.5% in 2030 after double counting.
- › Phasing out of use of biofuels from specific feedstocks with a high ILUC risk.
- › European Commission must monitor the origin of biofuels and the impact of their production on commodity prices and food security.

2019

DELEGATED REGULATION ON HIGH ILUC-RISK FEEDSTOCKS¹⁵⁸

- › Setting criteria for determining high ILUC-risk feedstock.
- › Certification rules for low ILUC-risk biofuels.

2023

FUELEU MARITIME¹⁵⁹

- › Setting GHG emissions intensity reduction target for the maritime sector.
- › Rules on the use of biofuels for the maritime sector.
- › Excluding use of biofuels produced from food and feed crops.
- › Sustainability criteria of the RED.

REFUELEU AVIATION¹⁶⁰

- › Harmonizing rules on sustainable aviation fuels (SAFs).
- › Setting minimal shares of SAFs for fuel suppliers to aircraft operators in the EU, which can be reached by the use of biofuels.
- › Excluding use of biofuels produced from food and feed crops.
- › Biofuels from PFAD and from palm- and soy-derived materials are excluded (except if they are added to the RED Annex IX list).
- › Sustainability criteria of the RED.

RENEWABLE ENERGY DIRECTIVE III (RED III)¹⁶¹

- › Overall renewable energy target of 42.5% by 2030.
- › For the transport sector, either a renewable energy target of 29% or a GHG intensity reduction target of 14.5% by 2030 of all transport energy, instead of only road and rail.
- › No changes to limitations on the use of biofuels from food and feed crops; food and feed-based biofuels still capped and optional.
- › No additional sustainability criteria for biofuels.
- › Updated target for advanced biofuels.
- › Optional change to high ILUC-risk threshold based on best available scientific data.

ANNEX 2.

EUROPEAN LEGISLATION REGULATING BIOFUEL POLICIES IN 2024

	Key elements	Food security elements
RENEWABLE ENERGY DIRECTIVE III¹⁶²	<ul style="list-style-type: none"> Core legislation on biofuels. Sets out renewable energy targets, including for the transport sector. Sets sustainability criteria for biofuels. Monitoring and verification of targets and rules for fuel suppliers. Reporting obligations on biofuels for Member States and the EC. 	<ul style="list-style-type: none"> Capping biofuels from food and feed crops. Includes limitations on high ILUC-risk feedstocks. Sets targets for advanced biofuels. Includes some food security reporting obligations for the EC.
DELEGATED REGULATION ON HIGH INDIRECT LAND USE CHANGE-RISK FEEDSTOCK¹⁶³	<ul style="list-style-type: none"> Criteria for determining high ILUC-risk feedstock. Criteria for the certification of low ILUC-risk biofuels. 	<ul style="list-style-type: none"> Food and feed crops classified as high ILUC-risk feedstocks will be phased out from 2023–30. Crops that are classified as high ILUC risk but grown on abandoned or severely degraded land and meet the other criteria to be certified as low ILUC-risk feedstock are still allowed.
FUELEU MARITIME¹⁶⁴	<ul style="list-style-type: none"> Sets GHG emission intensity reduction targets for the maritime sector. Includes rules on the use of biofuels to reach the GHG emission intensity reduction targets. 	<ul style="list-style-type: none"> Food- and feed-crop biofuels not eligible for the maritime sector for sustainability reasons and to avoid creating a larger demand for food and feed crops in the transport sector.

	Key elements	Food security elements
REFUELEU AVIATION ¹⁶⁵	<p>Harmonized rules on SAFs.</p> <p>Setting minimal shares of SAFs for fuel suppliers to aircraft operators in the EU, which can be reached by the use of biofuels.</p>	<p>Food- and feed-crop biofuels not eligible for the maritime sector for sustainability reasons and to avoid creating a larger demand for food and feed crops in the transport sector.</p> <p>Biofuels other than food and feed crops and Annex IX feedstocks are capped at 3%.</p> <p>Biofuels from PFAD, and palm- and soy-derived materials are excluded (except if they are added to the Annex IX list).</p>
REGULATION ON THE GOVERNANCE OF THE ENERGY UNION AND CLIMATE ACTION ¹⁶⁶	<p>Sets reporting rules for Member States on bioenergy.</p> <p>Sets reporting rules on bioenergy sustainability for the EC.</p>	<p>Member States must report on the use of biofuels in their biennial National Energy and Climate Plan (NECP) progress report (including feedstock origin, amount of biofuels, GHG saving performance, distinguishing between fuels produced from different types of food and feed crops and Annex IX list, fraud).</p> <p>The European Commission must publish a biennial Union Bioenergy Sustainability report.</p>

ANNEX 3. RED III BIOFUEL REQUIREMENTS AND OXFAM'S TRANSPOSITION RECOMMENDATIONS

Now RED III has entered into force (on 20 November 2023), Member States have until May 2025 to transpose the EU legislation into their national legislation. This table summarizes the key biofuel requirements from RED III and sets out Oxfam's recommendations for the transposition of these requirements into national legislation.

2030 renewable energy targets

RED III ARTICLE 3 and 25

RED III REQUIREMENTS

Member States must collectively ensure that at least 42.5% of all energy used in 2030 is renewable energy. They should try to reach a share of 45%.

The EU has parallel targets for renewable energy in the transport sector: Member States must either ensure a share of at least 29% of renewable energy or reduce the GHG intensity by at least 14.5% by 2030.

OXFAM RECOMMENDATIONS

Member States should ensure that the renewable energy targets are reached while respecting a comprehensive and binding set of environmental and social sustainability criteria.

The increased renewable energy targets, specifically in the transport sector, should not incentivize an uptake of unsustainable bioenergy. Member States should avoid bioenergy sources that compete with food and feed production. Therefore, it is key to develop and incentivize renewable electricity sources and infrastructure.

Biofuels from food and feed crops

Cap on biofuels produced from food and feed crops

RED III ARTICLE
26.1

RED III REQUIREMENTS

Biofuels produced from food and feed crops are still capped and optional. Member States cannot use a higher share of food- and feed-based biofuels in their road and rail sector energy use than the share they used in 2020, with a maximum share of 7%. Member States can set this cap at 0%, meaning they are allowed to use no food- and feed-based biofuel. If Member States lower this cap they can lower their target for renewable energy in transport accordingly. Member States are also allowed to distinguish between different biofuels produced from food and feed crops based on ILUC impacts.

OXFAM RECOMMENDATIONS

Member States should phase out the use of food- and feed-based biofuels immediately, by setting the cap for such fuels at 0%.

High ILUC-risk biofuels

RED III ARTICLE
26.2

RED III REQUIREMENTS

From 2023 to 2030, Member States must gradually phase out the use of biofuels produced from crops with a high ILUC risk because of their significant expansion into land with high carbon stock. So far only palm oil is designated as a high ILUC-risk feedstock that should be phased out by 2030. The European Commission needs to revise the Delegated Regulation on high ILUC-risk feedstocks and has agreed to review the threshold for counting a feedstock as having a high ILUC risk. If they lower the threshold, soy biofuels will also need to be phased out by 2030. The European Commission also has the option to design an accelerated trajectory for the phasing out of high ILUC-risk biofuels.

OXFAM RECOMMENDATIONS

While the EU and its Member States should exclude all food- and feed-crop biofuels, as a stopgap measure, they can already phase out feedstocks with a high-ILUC risk. As the European Commission is delaying its decision on the phasing out of soy and the timeline for phasing out high ILUC-risk biofuels in the revision of the Delegated Regulation for high ILUC-risk feedstocks,¹⁶⁷

Member States can (see Article 26.1) and should immediately phase out soy- and palm-based biofuels, which are among the most environmentally damaging biofuels. When doing so, they should accordingly reduce the limit on food and feed crops.¹⁶⁸

France, Belgium, the Netherlands and Denmark have already decided to phase out soy- and palm-based biofuels. Other Member States should also phase out these damaging crops immediately. Member States are allowed to phase out specific biofuels from food and feed crops based on Article 26.1.

Advanced and waste biofuels

Incentivizing advanced biofuel through double counting and targets

RED III ARTICLE
27.2 and 25.1(b)

RED III REQUIREMENTS

The use of advanced and waste biofuels is incentivized by double counting all biofuels produced from feedstock listed in Annex IX. The use of RFNBOs is also double counted. The use of renewable electricity is even more strongly incentivized. It is counted four times when used for road transport and 1.5 times when used for rail transport.

There is a combined sub-target for the transport sector on RFNBOs and advanced biofuels from the feedstocks listed in Part A of Annex IX. In 2025, Member States should reach a 1% share of RFNBOs and Annex IX, Part A advanced biofuels, rising to 5.5% in 2030. At least 1% should come from RFNBOs in 2030. This means the sub-target for advanced biofuels could be anywhere between 0% and 4.5%. Because advanced biofuels and RFNBOs are double counted, the actual targets are half the headline figure. So, the actual target for advanced biofuels is between 0% and 2.25%.

OXFAM RECOMMENDATIONS

Advanced biofuels should only be incentivized by Member States if they do not compete with food and feed production. Depending on the feedstock used, advanced biofuels have their own negative climate, social and food security impacts. Ultimately, only a limited amount of advanced biofuels – made from waste and residues without competing uses – are likely to contribute to greening transport.

Many advanced biofuels are not sustainably available, technologically developed or economically viable in the amounts needed to reach the sub-target of advanced biofuels, especially when it is set close to 4.5%.

Member States should only count advanced and waste biofuels towards their renewable energy targets for the transport sector after conducting a robust, independent and thorough impact assessment. Member States should assess which advanced and waste biofuels they support based on the principles of sustainability, waste hierarchy and cascading principle, and fair share. For Annex IX feedstock they should assess the social and environmental impacts. Using the waste hierarchy and cascading principles should avoid competing uses, displacement effects and market distortions. With the fair share principle, Member States should assess the domestic and global availability of Annex IX feedstocks and assess whether they are using more than their fair share.

Limit on use of waste biofuels (feedstocks listed in Annex IX, Part B)

RED III ARTICLE
27.1–3

RED III REQUIREMENTS

Member States must limit the use of biofuels produced from feedstock listed in Annex IX, Part B to 1.7% of all energy used in the transport sector. The European Commission has a Delegated Act to increase the limit. Member States themselves can ask for approval from the European Commission to increase this limit based on the availability of these feedstocks.

OXFAM RECOMMENDATIONS

Member States should not seek to increase the 1.7% limit.

Delegated Act on the list of advanced and waste biofuels in Annex IX

RED III ARTICLE
28.6 and
Draft Delegated Act
(2024) 1585 final¹⁶⁹

RED III REQUIREMENTS

The European Commission can add feedstocks to the Annex IX list but is not allowed to remove any. The criteria for adding feedstocks are listed in Article 28.6 of RED III. In 2024 the European Commission added several feedstocks to Annex IX, including biofuels from degraded land and intermediate crops to both Parts A and B of Annex IX.¹⁷⁰ As these feedstocks are not processed with advanced technologies they are not supposed to be in Part A. Therefore, in Part A, biofuels from intermediate crops and degraded land can only be used in the aviation sector.

OXFAM RECOMMENDATIONS

Member States should ban the use of intermediate crops and crops from degraded land to close the loophole of using food, feed and energy crops under the banner of advanced and waste biofuels.

Member States should also carry out their own impact assessments on all feedstocks listed in Annex IX to assess their negative impacts on food security, if the European Commission is not doing its due diligence.

Sustainability criteria for the use of biofuels

RED III ARTICLE

29

RED III REQUIREMENTS

For biofuels to count towards Member States' renewable energy targets they need to comply with the sustainability criteria set out in Articles 29.2–7 and 29.10, irrespective of the country of origin. Biofuels need to save at least 50% to 65%¹⁷¹ of GHG emissions (depending on the start date of the installation) compared with fossil fuels.

Apart from biofuels from waste or industrial residues, all types of biofuels need to comply with the following environmental sustainability criteria:

- › no biofuels from raw material obtained from land with a high biodiversity value.
- › no biofuels from raw material obtained from land with high-carbon stock (wetlands, forest areas).
- › no biofuels from raw material obtained from peatland.

Based on Article 29.12, Member States are not allowed to include additional sustainability criteria for biofuels.

OXFAM RECOMMENDATIONS

Member States are currently not allowed to include additional sustainability criteria to ensure the protection of food security.

If Member States are allowed to adopt sustainability criteria to protect food security in the future, they should include the following criteria:

- › As long as food and feed crops are not phased out, Member States should monitor the impact of biofuels on food prices and stability and set a strict threshold to act when they are negatively affected.
- › For advanced and waste biofuels, Member States should also set criteria to ensure the protection of food security. These should incorporate the cascading principle and the principle of waste hierarchy. This ensures that competing uses of the raw materials are considered, to avoid diverting a raw material from a higher value use as food to be consumed.
- › Member States should set correct accounting criteria for greenhouse gas emissions to ensure robust and verifiable emission savings, including emissions caused by ILUC. This allows Member States to assess the opportunity cost of using land for bioenergy or other purposes such as food production, other renewable energy sources, or rewilding and carbon sinks.
- › Member States should add social sustainability criteria to protect people in biofuel supply chains, especially when produced in third countries, to cover land and water grabbing; land, water and air pollution and degradation; impacts on ecosystem services; impacts on governance; and respect for human rights through the whole value chain, including health, decent work, child work, and women's and Indigenous Peoples' rights.

Member States should report on these proposed criteria so they can track developments and implement them directly as criteria when allowed.

Transparency and accountability

RED III ARTICLE 30 and 31a

Article 20(a) of
Regulation (EU)
2018/1999¹⁷²

RED III REQUIREMENTS

Member States need to ensure that biofuel suppliers comply with the greenhouse gas saving and sustainability criteria.¹⁷³

Member States must report on their progress on the renewable energy targets in their NECP progress reports. This includes details on the amount of biofuel, GHG savings, type of feedstocks used, developments in availability and origin of feedstocks, changes in commodity process and land use, impacts on biodiversity, water resources, water availability and quality, soil and air quality within Member States, and cases of fraud in the biofuel chain of custody.¹⁷⁴

This will be collected by the European Commission in the Union Database to trace renewable fuels, with the aggregated information made publicly available annually.¹⁷⁵ The European Commission also needs to report on the origin of biofuels and the impacts of their production, including on land use, commodity price changes and the positive and negative effects on food security, in the biennial Union Bioenergy Sustainability Report.¹⁷⁶

OXFAM RECOMMENDATIONS

Member States should improve and enforce their monitoring mechanisms as required by the RED, including penalties for non-compliance.

In their NECPs, Member States should include reporting on the impacts on food security based on the proposed sustainability criteria above.

NOTES

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88. Article 29.12 of RED III states 'Member States shall not refuse to take into account, on other sustainability grounds, biofuels and bioliquids obtained in compliance with this Article'. European Parliament and Council of the European Union. (2023). *Directive 2023/2413*, op. cit.
89. Advanced biofuels are defined in Part A of Annex IX of the RED. Part B lists waste feedstocks that can be processed with mature technologies. The use of all feedstocks in Annex IX counts double towards meeting the targets set out in the RED. The use of feedstocks listed in Part B is limited, as countries can count a maximum of 1.7% towards their renewable energy target for transport. However, this is a soft limit, as countries can request to increase this limit. European Parliament and Council of the European Union. (2023). *Directive 2023/2413*, op. cit.
90. The European Commission only has the mandate to add feedstocks to Annex IX, they are not allowed to remove feedstocks from the list. European Commission. (2024). *Biofuels – Updated List of Sustainable Biofuel Feedstocks*. Accessed 29 May 2024. https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13484-Biofuels--updated-list-of-sustainable-biofuel-feedstocks_en.
91. European Parliament and Council of the European Union. (2023). *Directive 2023/2413*, op. cit., Annex IX Part A.
92. This could include crops from severely degraded land. This would imply first verifying whether there are other existing rights on that land. Particularly in developing countries, it might be collective or common land that provides food, fuel, medicine and building materials to local communities, especially women, who usually do not hold formal title to it. Such land may also be sacred to local communities and vital to protecting water sources. The European Commission added crops from severely degraded land in its amendment of Annex IX of the RED. There are inadequate definitions and monitoring to sufficiently safeguard against the risk of this becoming a loophole for using feedstocks suitable for food and feed. European Commission. (2024). *Biofuels – Updated List of Sustainable Biofuel Feedstocks*, op. cit.
93. The feedstocks on this list fall under different categories, including waste, residues and byproducts. For the example of animal fat use, see Transport & Environment. (2023). *Pigs do Fly!* Accessed 29 May 2024. https://www.transportenvironment.org/wp-content/uploads/2023/05/202304_Animal_fats_briefing_TE.pdf
94. S. Suzan. (2023). *Biofuels: From Unsustainable Crops to Dubious Waste?*, op. cit.; Transport & Environment. (2024). *Unknown Cooling Oil: High hopes on limited and suspicious materials*. Accessed 19 June 2024. <https://www.transportenvironment.org/articles/uco-unknown-cooking-oil-high-hopes-on-limited-and-suspicious-materials>
95. Fit for 55 is the package of measures that turn the EU's climate ambition, set out in the European Green Deal, into legislation.
96. RED III entered into force on 20 November 2023.
97. These policies are known as RefuelEU Aviation and FuelEU Maritime, respectively.
98. European Commission. (2019). *Commission Delegated Regulation (EU) 2019/807*, op. cit.
99. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/1805*, op. cit.; European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/2405*, op. cit.
100. Biofuel lobby association ePure launched two legal challenges to the exclusion of food- and feed based-biofuel in the EU's FuelEU Maritime Regulation and the RefuelEU Aviation Regulation. See ePure. (31 January 2024). *European ethanol producers raise legal challenge to EU maritime legislation*. Press release. Accessed 29 May 2024. <https://www.epure.org/press-release/european-ethanol-producers-raise-legal-challenge-to-eu-maritime-legislation>; ePure. (14 February 2024). *European ethanol producers raise new legal challenge to EU aviation-fuel legislation*. Press release. Accessed 29 May 2024. <https://www.epure.org/press-release/european-ethanol-producers-raise-new-legal-challenge-to-eu-aviation-fuel-legislation>
101. RED III, Article 26.1. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/2413*, op. cit.
102. European Commission. (2024). *Biofuels – Updated List of Sustainable Biofuel Feedstocks*, op. cit.
103. C. Douhaire and D. Nieberg. (2024). *Possibilities for excluding or limiting certain feedstocks from Annex IX in national implementation of amended Renewable Energy Directive (RED III)*. Geulen & Klinger Rechtsanwälte. Accessed 27 June 2024. https://www.duh.de/fileadmin/user_upload/download/Projektinformation/Agrokraftstoffe/Legal_Opinion_Annex_IX_RED_III_13.06.2024_clean.pdf
104. Articles 29.12 and 29.14 state that while the RED allows Member States to add sustainability criteria on woody biomass, they are not allowed to add criteria for biofuels.
105. See Annex 3 for full details of these requirements.
106. Recital 87 states that RED III complements the requirements of the Due Diligence. However, experience shows that connectivity between directives does not automatically happen unless they are translated into specific implementation criteria.
107. S. Gonzalez Garcia. (24 April 2024). Reaction: *the European Parliament approves the CSDDD: a step towards corporate justice*. European Coalition for Corporate Justice. Accessed 29 May 2024. <https://corporatejustice.org/news/reaction-the-european-parliament-approves-the-csddd>
108. Eurostat. (2021). *SHARES up to 2020 and 2021*, op. cit.
109. Bundesanstalt für Landwirtschaft und Ernährung. (2021). *Evaluations und Erfahrungsbericht für das Jahr 2011*. Accessed 6 June 2024 [German]. https://www.ble.de/SharedDocs/Downloads/DE/Klima-Energie/Nachhaltige-Biomasseherstellung/Evaluationsbericht_2021.html; Ministère de la Transition Ecologique. (2021). *Panorama 2020 Biocarburants incorporés dans les carburants en France*. Accessed 6 June 2024 [French]. <https://www.ecologie.gouv.fr/sites/default/files/Panorama%202020%20des%20biocarburants%20incorporés%20en%20France.pdf>; Dutch Emissions Authority. (2022). *Rapportage Energie voor Vervoer in Nederland 2021*. 53. Accessed 6 June 2024 [Dutch]. <https://www.emissieautoriteit.nl/onderwerpen/algemeen-hernieuwbare-energie-voor-vervoer/documenten/publicatie/2022/07/01/totaalrapportage-energie->

voor-vervoer-2021; Belgian Federal Public Service for Health Food Chain Safety and Environment. (2022). *Biobrandstofgegevens 2021*.

110. Tweede Kamer der Staten-Generaal. (2021). 32 813 Kabinetsaanpak Klimaatbeleid Nr. 916 Verslag van een Schriftelijk Overleg. Accessed 6 June 2024. <https://zoek.officielebekendmakingen.nl/behandeldossier/kst-32813-916.html>

111. France is using two main political approaches: the National Low Carbon Strategy and the Multiannual Planning for Energy policy. It fully transposed RED II in 2023.

112. Biofuels made up 94% of the targets in 2021 and 93% in 2022. Authors' calculations, based on Eurostat. (2021). *SHARES up to 2020 and 2021*, op. cit.

113. Government of the French Republic. (2024). *Customs Code: Chapter I: Interior Taxes, Section III*. Accessed 29 May 2024. https://www-legifrance-gouv-fr.translate.goog/codes/article_lc/LEGIARTI000048844349/2024-04-22/?_x_tr_sl=nl&_x_tr_tl=en&_x_tr_hl=nl&_x_tr_pto=wapp

114. Cour des comptes. (2021). *La politique de développement des Biocarburants*. Accessed 19 June 2024 [French]. <https://www.ccomptes.fr/sites/default/files/2021-12/20211220-S2021-1718-politique-developpement-biocarburants.pdf>

115. For France's updated NECP, see European Commission. (2023). *National Energy Climate-Plan of France: Draft Update October 2023*. Accessed 29 May 2024. https://commission.europa.eu/document/download/e160e0b8-2ac9-4731-bcad-5024ce97bcc9_en?filename=FRANCE%20-%20DRAFT%20UPDATED%20NECP%202021-2030_EN.pdf

116. France consumed 2,562.5 ktoe in 2021. Authors' calculations, based on Eurostat. (2021). *SHARES up to 2020 and 2021*, op. cit.

117. Government of the French Republic. (2024). *Customs Code: Chapter I: Interior Taxes, Section III*, op. cit.

118. Ibid.

119. Government of the French Republic. (2021). *Energy Code: Section 2: Petroleum Products and Renewable Fuels, Article L641-6*. Accessed 29 May 2024. https://www.legifrance.gouv.fr/codes/article_lc/LEGIARTI000043213513/2021-07-01

120. Government of the French Republic. (2024). *Customs Code: Chapter I: Interior Taxes, Section III*, op. cit., Article V.C. The limit is set at 0.9% for petrol and 1.1% for diesel. The French government has a specific incentive for the use of animal fat category 3 biofuels for fishing ships. These can be double counted by fuel suppliers to reach their blending targets. Category 1 and 2 animal fats have high and medium risk levels for the transmission of diseases. Category 3 animal fats are animal byproducts with low disease transmission risks and therefore have a large variety of uses in the animal feed, pet food and chemical industries. Recent years have seen a strong increase in the use of category 3 animal fats by the biofuel industry. As a consequence their prices increased and other industries had to substitute this product with other food and feed crops, such as palm oil, wheat or maize. See Transport & Environment. (2023). *Pigs do Fly!*, op. cit.

121. P. Messad. (16 June 2023). *Macron announces additional €500m to meet EU sustainable aviation targets*. Euractiv. Accessed 29 May 2024. <https://www.euractiv.com/section/aviation/news/macron-announces-additional-e500m-to-meet-eu-sustainable-aviation-targets>

122. For the French roadmap for the deployment of sustainable aviation fuels, see Government of the French Republic. (n.d.). *Feuille de route française pour le déploiement des biocarburants aéronautiques durables*. Accessed 29 May 2024 [French]. <https://www.ecologie.gouv.fr/sites/default/files/Feuille%20de%20route%20fran%C3%A7aise%20pour%20le%20d%C3%A9ploiement%20des%20biocarburants%20a%C3%A9ronautiques%20durables.pdf>

123. Government of the French Republic. (2021). *Ordonnance n° 2021-235 du 3 mars 2021 portant transposition du volet durabilité des bioénergies de la directive (UE) 2018/2001 du*

Parlement européen et du Conseil du 11 décembre 2018 relative à la promotion de l'utilisation de l'énergie produite à partir de sources renouvelables. Accessed 29 May 2024 [French]. <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000043210190>

124. Government of the French Republic. (n.d.). *Feuille de route française pour le déploiement des biocarburants aéronautiques durables*, op. cit.

125. Federal Government of Belgium. (2023). *Loi concernant les normes de produit pour l'intégration d'énergie produite à partir de sources renouvelables dans les carburants fossiles destinés au secteur du transport et modifiant la loi du 29 avril 1999 relative à l'organisation du marché de l'électricité et modifiant la loi du 12 avril 1965 relative au transport de produits gazeux et autres par canalisations*. Accessed 29 May 2024 [French]. https://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=fr&la=F&cn=2023073111&table_name=loi

126. For Oxfam's reaction, see Oxfam België/Belgique. (31 July 2023). *A step forward in biofuel law*. Accessed 29 May 2024. <https://oxfambelgie.be/ons-verzet-tegen-biobrandstof-loont>

127. Federal Government of Belgium. (2023). *Loi concernant les normes de produit pour l'intégration d'énergie produite à partir de sources renouvelables dans les carburants fossiles destinés au secteur du transport*, op. cit.

128. For the comments on the proposed law in Parliament, see Belgian House of Representatives. (2023). *Projet de loi: concernant les normes de produit pour l'intégration d'énergie produite à partir de sources renouvelables dans les carburants fossiles destinés au secteur du transport et modifiant la loi du 29 avril 1999 relative à l'organisation du marché de l'électricité et modifiant la loi du 12 avril 1965 relative au transport de produits gazeux et autres par canalisations*, op. cit., p.17.

129. While, unfortunately, there are also minimal shares for the use of food- and feed-based biofuels, these shares are also decreasing in the lead-up to 2030.

130. Federal Government of Belgium. (2022). *Loi modifiant la loi du 17 juillet 2013 relative aux volumes nominaux minimaux de biocarburants durables qui doivent être incorporés dans les volumes de carburants fossiles mis annuellement à la consommation*. Accessed 29 May 2024 [French]. <https://www.ejustice.just.fgov.be/eli/loi/2022/12/16/2022043065/justel>

131. After double counting.

132. The latest vision for the Netherlands' bioenergy policy was set out in 2019. See Kingdom of the Netherlands. (2019). *Klimaatakkoord*. Accessed 29 May 2024 [Dutch]. <https://www.klimaatakkoord.nl/documenten/publicaties/2019/06/28/klimaatakkoord>. In light of the climate agreement and the transposition of RED II (which was formalized on 1 January 2022), the Dutch government made changes to its environmental legislation and is still developing action plans, criteria and legislation for the regulation of its bioenergy use. Dutch biofuel use is mainly regulated through the following legislation: Kingdom of the Netherlands. (n.d.). *Wet Milieubeheer*. Accessed 6 June 2024 [Dutch]. <https://wetten.overheid.nl/BWBR0003245/2024-03-30>; Kingdom of the Netherlands. (n.d.). *Besluit Energie Vervoer*. Accessed 6 June 2024 [Dutch]. <https://wetten.overheid.nl/BWBR0040922/2024-04-06>; Kingdom of the Netherlands. (n.d.). *Regelgeving Energie Vervoer*. Accessed 6 June 2024 [Dutch]. <https://wetten.overheid.nl/BWBR0041050/2024-01-01>; Kingdom of the Netherlands. (n.d.). *Besluit stimuleren duurzame energieproductie (SDE+)*. Accessed 6 June 2024 [Dutch]. <https://wetten.overheid.nl/BWBR0022735/2022-03-26>. The transposition process of RED III started in September 2023 with a meeting of the government. See Ministry of Infrastructure and Water Management. (2023). *Kamerbrief start REDIII-implementatie*. Accessed 30 May 2024 [Dutch]. <https://zoek.officielebekendmakingen.nl/blg-1070471.pdf>

133. Kingdom of the Netherlands. (2019). *Klimaatakkoord*, op. cit., p. 49.

134. Going from less than 5 G/yr to almost 12 G/yr in biorefining

- capacity, according to its proposed plans. See S. Suzan. (2023). *Biofuels: From Unsustainable Crops to Dubious Waste?*, op. cit., p. 30.
135. Besluit Energie Vervoer, Article 3.
 136. Ibid.
 137. Netherlands Enterprise Agency for the Ministry of Infrastructure and Water Management. (2023). *RVO Factsheet restproducten palmolieproductie*. Accessed 29 May 2024 [Dutch]. <https://www.tweedekamer.nl/kamerstukken/detail?id=2021D38397&did=2021D38397>.
 138. These targets are after double counting the use of advanced biofuels, so the actual targets are 1.2% in 2023 and 3.5% in 2030.
 139. Authors' calculations, based on Eurostat. (2021). *SHARES up to 2020 and 2021*, op. cit.
 140. Besluit Energie Vervoer, Article 3.
 141. N. Foote. (30 November 2020). *New fraud investigation casts doubt over used cooking oil origins*. Euractiv. Accessed 29 May 2024. <https://www.euractiv.com/section/agriculture-food/news/new-fraud-investigation-casts-doubt-over-used-cooking-oil-origins>; Ministry of Infrastructure and Water Management. (2019). *Signaalrapportage ILT inzake onderzoek OM t.a.v. biodiesel*. Accessed 29 May 2024 [Dutch]. https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2019Z10033&did=2019D20643.
 142. Ministry of Infrastructure and Water Management. (2020). *Duurzaamheidskader biograndstoffen*. Accessed 29 May 2024 [Dutch]. <https://open.overheid.nl/documenten/ronl-2f6f5972-9321-49c4-8420-3e694e04f0fc/pdf>. There is no mention of food security in discussion on additional socioeconomic sustainability criteria in the government letter on the topic. See Ministry of Infrastructure and Water Management and Ministry for Climate and Energy. (2023). *Stand van zaken implementatie duurzaamheidscriteria biograndstoffen in regelgeving*. Accessed 29 May 2024 [Dutch]. https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2023Z08364&did=2023D19829.
 143. Dutch Emissions Authority. (2023). *Rapportage hernieuwbare Energie voor Vervoer in Nederland 2022*. p. 44. Accessed 29 May 2024 [Dutch]. <https://www.emissieautoriteit.nl/documenten/publicatie/2023/07/17/rapportage-hernieuwbare-energie-voor-vervoer-in-nederland-2022>.
 144. Social-Economic Council. (2020). *Biomassa in balans: Een duurzaamheidskader voor hoogwaardige inzet van biograndstoffen*. Accessed 29 May 2024 [Dutch]. <https://www.ser.nl/-/media/ser/downloads/adviezen/2020/biomassa-in-balans.pdf>.
 145. Federal Ministry of Justice and the Federal Office of Justice. (2023). *Gesetz zum Schutz vor schädlichen Umwelteinwirkungen durch Luftverunreinigungen, Geräusche, Erschütterungen und ähnliche Vorgänge [Bundes-Immissionsschutzgesetz - BImSchG]*. Accessed 29 May 2024 [German]. <https://www.gesetze-im-internet.de/bimschg/BImSchG.pdf>.
 146. Environmental Action Germany. (2022). *The Huge Climate Costs of Crop Biofuels: Case Study Germany – More than 1 Million Hectares Wasted*. Accessed 29 May 2024. https://www.duh.de/fileadmin/user_upload/download/Projektinformation/Naturschutz/Agrokraftstoffe/DUH_Briefing_Crop-biofuel-study_23-02-2022_final.pdf.
 147. J. Packroff. (23 January 2023). *Food vs fuel: German ministries clash over role of conventional biofuels*. Eurativ. Accessed 29 May 2024. <https://www.euractiv.com/section/biofuels/news/food-vs-fuel-german-ministries-clash-over-role-of-conventional-biofuels>.
 148. Federal Ministry of Justice. (2017). *Achtunddreißigste Verordnung zur Durchführung des Bundes-Immissionsschutzgesetzes (Verordnung zur Festlegung weiterer Bestimmungen zur Treibhausgasminderung bei Kraftstoffen - 38. BImSchV)*. Para 13.1. Accessed 29 May 2024 [German]. https://www.gesetze-im-internet.de/bimschv_38_2017/BjNR389200017.html#BjNR389200017BJNG000700000.
 149. Ibid., Para 13b.2.
 150. For more background, see N. Kaufmann. (7 May 2023). *Verdacht: China soll Biodiesel mit gefälschtem Zertifikat in Deutschland in Umlauf gebracht haben*. Stern. Accessed 29 May 2024 [German]. <https://www.stern.de/auto/verdacht--biodiesel-mit-gefaelschtem-zertifikat-aus-china-in-deutschland-im-umlauf--33439990.html>; N. Naber and A. Kempmann. (28 November 2023). *Falscher Biodiesel auf deutschem Markt?* Tagesschau. Accessed 29 May 2024 [German]. <https://www.tagesschau.de/investigativ/ndr/biodiesel-palmoel-china-deutschland-100.html>; E. Baumann. (7 July 2023). *Kein Schutz vor fragwürdigen Biosprit-Importen*. Tagesspiegel. Accessed 29 May 2024. <https://background.tagesspiegel.de/energie-klima/kein-schutz-vor-fragwuerdigen-biosprit-importen>.
 151. Before double counting.
 152. Sugar cane could also be considered a high-ILUC risk feedstock. Transport & Environment (2019). *High & low ILUC risk biofuels: Policy recommendations for the EU delegated act*. Accessed 6 June 2024. https://www.transportenvironment.org/uploads/files/2019_01_High_low_ILUC_TE_briefing_final.pdf.
 153. European Parliament and Council of the European Union. (2003). *Directive 2003/30/EC*, op. cit.
 154. European Parliament and Council of the European Union. (2009). *Directive 98/70/EC*, op. cit.
 155. European Parliament and Council of the European Union. (2009). *Directive 2009/28/EC*, op. cit.
 156. European Parliament and Council of the European Union. (2015). *Directive (EU) 2015/1513*, op. cit.
 157. European Parliament and Council of the European Union. (2018). *Directive (EU) 2018/2001*, op. cit.
 158. European Commission. (2019). *Commission Delegated Regulation (EU) 2019/807*, op. cit.
 159. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/1805*, op. cit.
 160. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/2405*, op. cit.
 161. European Parliament and Council of the European Union. (2023). *Directive 2023/2413*, op. cit.
 162. Ibid.
 163. European Commission. (2019). *Commission Delegated Regulation (EU) 2019/807*, op. cit.
 164. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/1805*, op. cit.
 165. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/2405*, op. cit.
 166. European Parliament and Council of the European Union. (2018). *Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, Amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and Repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council*. Accessed 30 May 2024. <https://eur-lex.europa.eu/eli/reg/2018/1999/oj>.
 167. The European Commission should have revised the Delegated Regulation on high ILUC-risk biofuels by September 2023, but as of June 2024 it has still not done this.
 168. Transport & Environment. (2023). *Halt Deforestation-driving Soy Biofuels Before it is Too Late*. Accessed 29 May 2024. <https://www.transportenvironment.org/wp-content/uploads/2023/12/Halt-deforestation-driving-soy-biofuels-before-it-is-too-late.pdf>.
 169. European Commission. (2024). *Annex to the Commission Delegated Directive (EU) amending Annex IX to Directive (EU)*

2018/2001 of the European Parliament and of the Council, as regards adding feedstock for the production of biofuels and biogas. Accessed 6 June 2024. https://eur-lex.europa.eu/legal-content/EN/PIN/?uri=PL_COM%3AAres%282022%298413323

170. European Commission. (2024). Biofuels – *Updated List of Sustainable Biofuel Feedstocks*, op. cit.

171. For installations starting operations from January 2021. It is 50% for installations in operation before 5 October 2015 and 60% for installations starting operation between 6 October 2015 and 31 December 2020.

172. European Parliament and Council of the European Union. (2018). *Regulation (EU) 2018/1999*, op. cit.

173. RED III, Article 30. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/2413*, op. cit.

174. Regulation (EU) 2018/1999, Annex IX, Part A. European Parliament and Council of the European Union. (2018). *Regulation (EU) 2018/1999*, op. cit.

175. RED III, Article 31a. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/2413*, op. cit.

176. RED III, Article 33. European Parliament and Council of the European Union. (2023). *Regulation (EU) 2023/2413*, op. cit.

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