

REDII national implementation

How member states can deliver sustainable advanced transport fuels

January 2020

Summary

The EU published the Renewable Energy Directive recast (REDII) in December 2018, setting the framework for the use of renewable transport fuels in the EU for the period 2021-2030. As the main EU law regulating the policy support for fuels such as food-based biofuels, renewable electricity or advanced biofuels, it is a key piece of legislation in the EU's climate and energy policy framework.

The first RED, adopted in 2009, has been the main driver for the use of land-based biofuels that drive deforestation. The REDII takes a step in the right direction by leaving the possibility to member states to completely end the support for food-based biofuels and by mandating only on advanced renewable fuels. The law sets a general framework of rules but member states have flexibility to implement them. A robust implementation at national level is necessary to exploit the full potential of the REDII and additional actions are needed for an effective decarbonisation of transport fuels.

This briefing explains how EU member states can design their national REDII implementing laws in order to meet the targets in a sustainable way, promoting the use of clean advanced renewable fuels and moving away from unsustainable biofuels.

1. The renewable targets

1.1. The recast of the Renewable Energy Directive

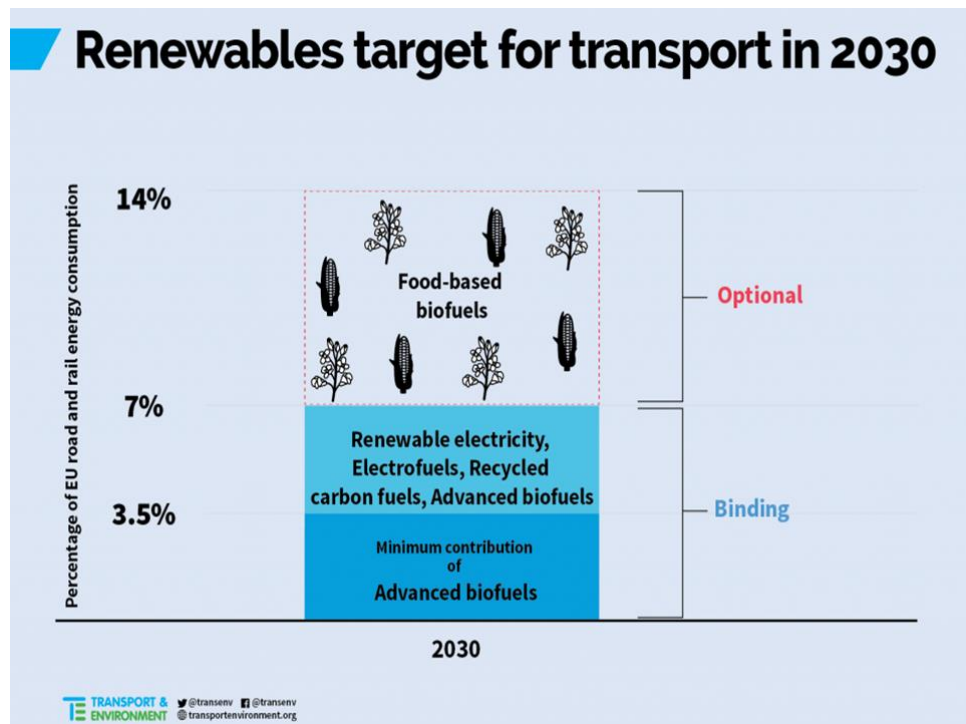
The RED is the main EU piece of legislation that regulates the use of renewable fuels in Europe. The 2009 RED set a target for the use of renewables in transport: by 2020, 10% of the total energy used in transport must be renewable. But this target has led to the use of unsustainable biofuels such as biodiesel from palm and rapeseed oil. Crop-based biofuels lead to deforestation and conversion of carbon-rich ecosystems due to the increased demand for land to grow crops for biofuels and the associated shift in land use (Indirect Land Use Change, or "ILUC"). Because of these indirect effects a majority of biofuels on the EU market is [much worse for the climate than fossil fuels](#).

As part of the so-called "Clean Energy Package", released in late 2016, the EU Commission published a proposal for the review of the 2009 Renewable Energy Directive. After about two years of co-decision process, the EU legislators agreed on [the final REDII](#) in June 2018.

1.2. The REDII targets and transport

Unlike the RED, the REDII now foresees a bigger role for advanced fuels and sets the direction to move away from food-based biofuels - although not fast enough. There's also a specific treatment for biofuels with a significant expansion into high carbon stock areas, so-called "high-ILUC risk biofuels".

The REDII sets a system of targets and limits for the use of different types of renewable transport fuels (RES-T) in the EU. The rules for renewables in transport are mainly regulated under article 25, 26, 27 and 28 of the REDII.



Summary of the target for renewables in transport (RES-T).

Compared to the 2009 RED, there is no longer a binding target for food-based biofuels. The RED requires a minimum share of 14% renewables in transport (article 25) but then allows member states to bring this target down (article 26) if they have a lower limit on food-based biofuels¹. As shown in the graph above, the only binding target is for advanced fuels and is set at 7%. This is de facto allowing member states to end support for food-based biofuels. Fuel suppliers are the designated entities that need to deliver the target and countries can decide to implement it in the form of an energy mandate or a greenhouse gas reduction target².

Our recommendations

- Remove crop-based biofuels from the RES-T target.** We recommend the RES-T target to be as much as possible exclusively filled by advanced fuels. The target for advanced fuels could be higher than 7% provided the new level is in line with the sustainable availability of the feedstocks in the country in question and has a clear electricity component.
- Conduct an impact assessment before setting targets.** It will be crucial to assess the different technology options, their impacts (environment, climate, economics) and the availability of feedstocks at sustainable levels in the country in question, before setting targets.
- Implement the obligation in the form of a greenhouse gas (GHG) reduction target, provided it doesn't drive unsustainable impacts.** A GHG reduction target offers a differentiation and a competition for best performing technologies while giving clear market signals and incentives for clean fuel

¹ Article 26: "Where the share of biofuels and bioliquids, as well as of biomass fuels consumed in transport, produced from food and feed crops in a member state is limited to a share lower than 7 % or a member state decides to limit the share further, that member state may reduce the minimum share referred to in the first subparagraph of Article 25(1) accordingly, by a maximum of 7 percentage points."

² A carbon intensity target already exists as part of the EU Fuel Quality Directive (FQD).

investments in the EU. This will require robust GHG accounting for each fuel technology, as well as a robust impact assessment to avoid driving additional volumes of unsustainable alternative fuels.

1.3 Transparency

For the first time, the REDII includes a provision on transparency in Article 30. Fuel suppliers, operators or national authorities will be obliged to publish information on the type of biofuel supplied by each fuel supplier on an annual basis. This information should contain at least the type of feedstock and their origin and should be made available to the public. We recommend these pieces of information to be made available in a centralized manner by national authorities, e.g. on their official websites.

2. Crop-based biofuels

2.1. The cap on food and feed based biofuels

The [ILUC reform of 2015](#) introduced a limit of 7% on the amount of crop-based biofuels that member states can count as part of the 2020 target for renewables in transport. The REDII, in its article 26, extends this concept but the cap is now based on the level of biofuels produced from “food and feed crops” used in each member state in 2020 (with 1% flexibility). In practice, a country using 3% of food & feed based biofuels in 2020 won’t be able to count more than 3% (or 4% with the flexibility mechanism) of these biofuels in the year 2030. The maximum share cannot exceed 7%.

This provision has implications for the RES-T target explained above. Using the same example, the RES-T target could be reduced to 10% (7% binding share of advanced fuels + 3% of crop-based biofuels - or maximum 11% considering the 1% flexibility). The REDII allows countries to set lower limits and phase out more quickly certain biofuels, based on evidence around ILUC (for instance, a lower limit for crop biodiesel).³

Biofuels considered high-ILUC risk “for which a significant expansion of the production area into land with high-carbon stock is observed” will be first frozen at 2019 shares and, as of 2023, gradually phased down to be completely phased out in 2030.

2.2. High and low ILUC risk biofuels

The Commission presented [the final delegated act](#) on high and low ILUC risk biofuels in 13 March 2019. This delegated act and the mandate to act on high-ILUC risk biofuels emerged from the EU Parliament’s call to phase out palm oil based biodiesel due to its [negative climate, environmental and social impacts](#).

What the law says

The EU Commission’s Joint Research Center (JRC) studied the expansion rates of biofuel feedstocks into high-carbon stock areas (such as forests and peatlands) since 2008. Also, they assessed the maximum emissions the biofuel feedstock would need to have in order to be lower than those of fossil fuels. Based on these two factors (land expansion and emissions reductions), the EU Commission considered that, a crop needs to show at least 10% expansion into high-carbon stock areas since 2008 to be labelled as high-ILUC risk⁴. Based on this, palm oil biodiesel is the only feedstock considered high-ILUC risk, as its expansion rate is found to be 45%. Soy, on the other hand, presents an expansion rate of 8%. The classification of palm oil

³ Article 26 states that “member states may set a lower limit and may distinguish, for the purposes of Article 29(1), between different biofuels, bioliquids and biomass fuels produced from food and feed crops, taking into account best available evidence on indirect land-use change impact. member states may, for example, set a lower limit for the share of biofuels, bioliquids and biomass fuels produced from oil crops.”

⁴ https://ec.europa.eu/energy/sites/ener/files/20190212_draft_report_-_post-isc_final.pdf

in the category of “high ILUC risk” is an important precedent, but [soy should also be classified in this category](#).

Some palm oil biofuels can escape from the phase-out if they can qualify as “low-ILUC risk”. To qualify for this category of biofuels, the production projects must meet one of the following conditions:

- The feedstocks are grown either on abandoned or severely degraded land⁵.
- The project can demonstrate some level of additionality - it only became financially attractive because of the EU biofuels policy in place.
- The feedstock is grown by independent smallholders on plots of land smaller than two hectares. The farmers can’t be employed by a third company, except if it is a cooperative with other smallholders. The amount of palm oil that can be claimed “low ILUC risk” has to be additional to the usual harvest, so the entire production shouldn’t be certified “low ILUC risk”.

Additional action needed

The sole presence of the low-ILUC category is already a big loophole and a major concern. T&E initially recommended to eliminate this option⁶ and required stronger safeguards in the final delegated act⁷. There is no assessment available on the amount of palm oil that could be claimed “low ILUC risk”. Hence, this loophole requires strong monitoring and follow-up to avoid abuse by big companies.

Another major concern is the fact that the phase-out will only take place progressively from 2023 to 2030, still allowing significant volumes of palm oil to be used until 2030. But member states have the right to phase out specific crop biofuels earlier, for example by phasing out support in 2021. France has already decided to remove the fiscal incentives to palm biofuels as part of its [new fiscal law](#).

The delegated act is also due to be reviewed in 2021 and implementation details will be set out by the Commission at a later stage in an implementing act. This will be an opportunity to amend and improve the robustness of the delegated act, for instance by including soy as “high-ILUC risk” and closing some of the loopholes in the “low ILUC risk” category.

Our recommendations

-Remove biofuels produced from food & feed crops from the transport target. The second best option is to set a limit as low as possible for the share of these biofuels. In principle, the level of the cap will be based on the 2020 levels but member states can adopt a lower limit. Member states should also apply the same cap in the context of the implementation of the EU Fuel Quality Directive.

-Set a quicker phase-out trajectory for palm oil, e.g. ending the accounting in 2021 rather than 2030. The REDII sets a minimum requirement to start phasing out palm oil progressively in 2023 but countries can adopt more ambitious rules.

-Differentiate further between different types of food & feed based biofuels, e.g. soy. Countries can set a quicker phase-out for biofuels such as soy biodiesel but they can also set a quicker phase-out for a broader category of biofuels, like crop based biodiesel, considering the best available science on ILUC.

⁵ Abandoned land means land that hasn’t been in use for at least 5 years due to biophysical or socioeconomic reasons. Severely degraded means land that for a significant period of time has been significantly salinated or presents low organic matter content (<https://www.transportenvironment.org/sites/te/files/PART-2019-142068V1.pdf> article 2; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2018.328.01.0082.01.ENG Annex V, part C point 9).

⁶ https://www.transportenvironment.org/sites/te/files/publications/2019_01_High_low_ILUC_TE_briefing_final.pdf

⁷ https://ec.europa.eu/info/law/better-regulation/initiatives/ares-2019-762855/feedback/F78614_en?p_id=525646

3. Advanced fuels

As discussed above, advanced fuels have a *de facto* target of 7%. The fuels that can count towards this 7% target are advanced biofuels in Annex IX of the REDII, renewable electricity, renewable liquid or gaseous fuels from non-biological origin and recycled carbon fuels.

3.1. Advanced biofuels from Annex IX part A

Article 25 introduces a sub-target for advanced biofuels, within the 7% target, based on feedstocks listed in the Annex IX part A of the REDII. The level of the target is set at 3.5% by 2030 (with intermediate targets of 0.2% in 2020 and 1% in 2025). To reach it, member states have the option to double count - meaning that if the multiplier is used, *in practice* the final energy derived from advanced biofuels will be 1.75%.

Sustainable advanced biofuels have a role to play in the decarbonisation of transport if produced from sustainable waste and residues. However there are concerns regarding the use of certain feedstocks in the transport sector, especially if target levels are set too high. These concerns are linked to:

- the significant displacement effects⁸ due to the competing uses for certain feedstocks (for other industrial uses or for environmental services⁹), such as tall oil.
- the presence of feedstocks that should not be considered 'waste' or 'residue', like energy crops grown on agricultural land¹⁰ or pulpwood¹¹.
- the availability of the feedstocks at sustainable levels¹². As an example, sustainable removal rates need to be introduced for agriculture and forestry residues.

A strict implementation of the waste hierarchy and the cascading principle is necessary, to prevent the promotion of the wrong type of feedstocks. These two criteria would ensure that the competing uses of the potential raw materials are considered, to avoid diverting a raw material from a higher value use. If a raw material can be used to make a product, it should be the preferred option, as the product can be reused or recycled before being used for energy, decreasing the need for virgin materials. This is the case for PFAD (Palm Fatty Acid Distillate), a co-product of the palm oil refining which shouldn't be counted as a 'residue' by countries¹³.

3.2. Biofuels from Annex IX part B

The part B of Annex IX includes two main feedstocks - animal fats and used cooking oil (UCO). The contribution of these biofuels is actually limited as they can count up to a maximum of 1.7% towards the 7% target. However, this is a 'soft cap' and countries can inquire the Commission for setting a higher limitation.

Ramping up the use of animal fats and UCO could have unintended negative consequences¹⁴. Animal fats are being used by other industries, such as the chemical industry to make soaps. If the animal fats used to make soap are used to produce biodiesel, a substitution material of similar characteristics will be needed. Cheap vegetable oil such as palm and soy oil are often used as substitutes, creating additional demand and driving deforestation.

⁸ <https://www.theicct.org/publications/waste-not-want-not-understanding-greenhouse-gas-implications-diverting-waste-and>

⁹ <https://www.theicct.org/blog/staff/EU-needs-new-advanced-biofuels-enviro-safeguards>

¹⁰ Annex IX, p) Other non-food cellulosic material.

¹¹ Annex IX, q) Other ligno-cellulosic material except saw logs and veneer logs.

¹² <https://www.transportenvironment.org/publications/target-advanced-biofuels>

¹³ <http://d5i6is0eze552.cloudfront.net/documents/Annet/Palm-Fatty-Acid-Distillate-in-biofuels.-ZERO-and-Rainforest-Foundation-N.pdf?mtime=20160302113207>

¹⁴ <https://theicct.org/blog/staff/eu-alternative-fuels-oils-limit-20191119>

UCO sourced domestically with a robust chain of custody can bring high GHG savings compared to fossil fuels. However, there are real concerns about the ‘used’ status of these oils because UCO may be driving deforestation indirectly. For example, EU member states, like the UK or the Netherlands are heavily dependent on imports of UCO from outside the European Union.

It is thus crucial to scrutinise the origin of UCO more closely and to build a more rigorous chain of custody. We also recommend to prevent the double counting of UCO imported into the European Union for biodiesel production. Most markets outside of the EU are existing markets for UCO as animal feed and import to the EU will lead to substitution and indirect land use change. Finally, countries should not go beyond the soft cap of 1.7%, if this is dependent upon the use of feedstocks causing indirect displacement effects.

3.3. Renewable electricity

Renewable electricity used directly in transport (i.e. in battery-electric vehicles) can count towards the 7% advanced fuels target but it doesn’t have a dedicated sub-target. Renewable electricity is subject to multipliers - 1 energy unit of renewable electricity used in road transport can count 4 times towards the target, whereas renewable electricity used in rail transport can count 1.5 times (the latter is voluntary). Countries must use the share of renewables in the national grid to claim the share of renewable electricity used in transport. In the case where the charging installation is directly connected to a renewable energy generation facility, 100% of the renewable electricity can be counted.

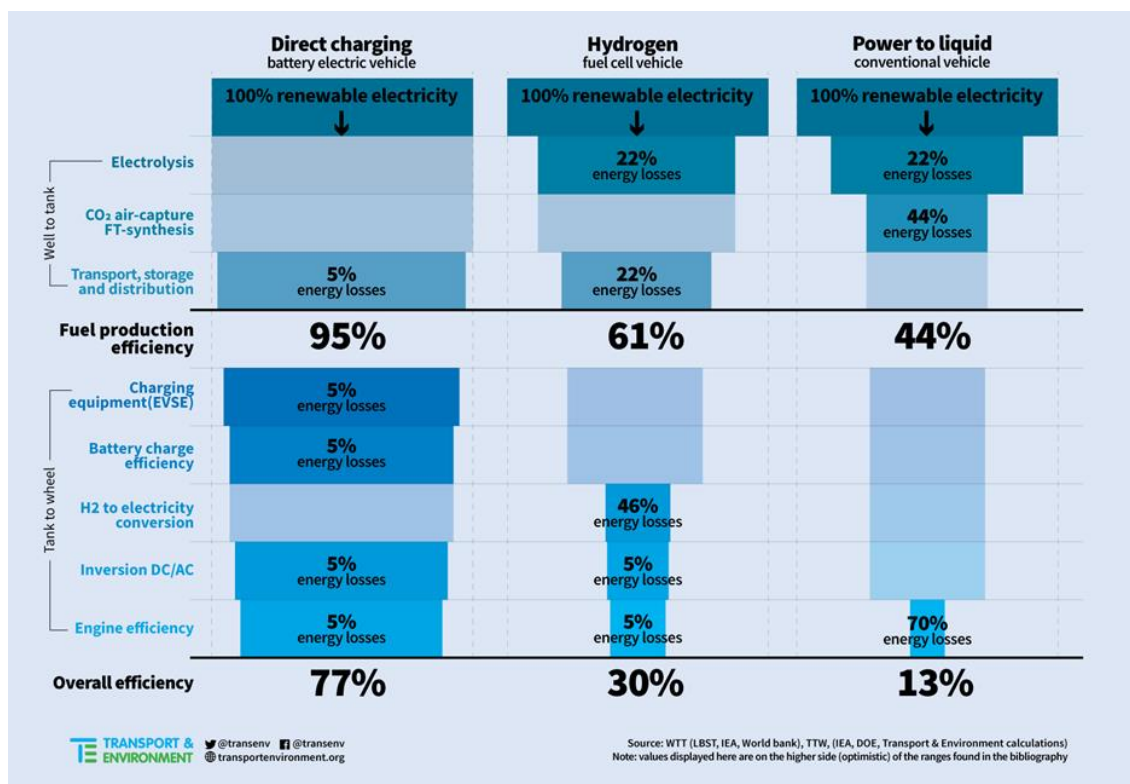
In many countries, the compliance mechanism for the RED target rewards only the use of liquid renewable alternatives - mainly biofuels. Few EU member states have created a level-playing field to reward the use of renewable electricity in transport. Such a mechanism would allow for a technology-neutral and cost-effective implementation of the advanced target and would include and treat all renewable energy forms in an equal manner. More information in a dedicated briefing, available [here](#).

3.4. Renewable fuels of non-biological origin (RFNBO - hydrogen, synthetic fuels)

Fuels such as e-fuels (liquid or gaseous fuels made from electricity) and hydrogen can also be counted towards the 7% advanced fuels target. In order to count, their GHG emissions must be 70% lower than those of fossil fuels - to that end, the EU Commission will develop by 2021 criteria for the accounting of GHG emissions of RFNBO. To be sustainable, these fuels will need to be produced using additional renewable electricity and not the electricity grid¹⁵, but the REDII rules are not that clear. The Commission will prepare an implementing act to detail how the accounting of renewable electricity will take place. The REDII doesn’t require to use a specific source of CO₂ used for producing e-fuels, but Direct Air Capture (DAC) should be preferred. Using an industrial source of CO₂ could create a disincentive for heavy industry to decarbonise, and could lead to double-counting of credits (under EU ETS and under REDII).

Direct use of renewable electricity in battery electric vehicles is the most efficient use of electricity. Figure 2 shows the losses of energy in the production process of hydrogen and e-fuels in comparison with direct use. This should be taken into account when deciding on the use of e-fuels in different modes of transport. Electrofuels are very expensive and an inefficient use of electricity. This is why the limited volumes that will be available should be targeted at the aviation sector, which has fewer options to decarbonise compared to other transport modes.

¹⁵ <https://www.transportenvironment.org/events/electrofuels-what-role-eu-transport-decarbonisation>



Comparison of efficiency of different pathways for the use of renewable electricity in transport

3.5. Recycled carbon fuels

There's one last type of fuels that may be counted towards the 7% advanced fuels - recycled carbon fuels. The REDII text isn't clear regarding what these fuels can be - these fuels could come from any type of fossil waste, including plastic. This would be counterproductive, considering regulatory efforts in areas like recycling or waste reduction. Member states now have the option to count them towards the transport target but they can also decide not to support them under the REDII framework.

There are no sustainability criteria laid down for them yet, but the Commission will present a series of delegated acts in 2021 outlining a minimum GHG savings threshold as well as a methodology to assess their GHG emissions. Civil society organisations¹⁶ have set out recommendations to the Commission for these delegated acts, such as setting the GHG savings threshold at a minimum of 70% compared to fossil fuel, avoiding double-counting of emissions savings (i.e. in the EU ETS and in the REDII) and ensuring that the criteria for the use of these fuels are in line with the principle of circular economy and recycling rules.

Our recommendations

The EU is betting on advanced fuels for the decarbonisation of the transport sector in Europe. Yet, to avoid unsustainable fuels in the market, we recommend countries to:

- Only promote the use of true wastes and residues**, in line with the waste hierarchy and circular economy, as feedstocks for advanced biofuels.
- Avoid setting high targets for advanced fuels that could lead to the use of unsustainable materials and create indirect displacement effects**, due to the concerns around the availability and competing uses of sustainable feedstocks.
- Put in place sustainable removal rates** for the collection of agriculture and forestry residues.
- Develop systems to reward the market penetration of renewable electricity in transport**, such as the [credit system in The Netherlands](#) or [California's Low Carbon Fuel Standard](#). Both are credit systems that reward entities supplying electricity to the transport sector.

¹⁶ <https://network.bellona.org/content/uploads/sites/3/2019/04/NGO-joint-briefing-Recycled-carbon-fuels-1.pdf>

-Promote sustainable electrofuels use only for aviation. Electrofuels shouldn't be promoted for road transport [due to their inefficiency](#) and the availability of cleaner solutions. To provide fuels for the aviation sector, operators must use additional renewable electricity for the production of e-fuels and ensure that the CO2 needed to produce them is captured from air.

-Keep recycled carbon fuels out of the REDII transport target, due to the lack of clarity and sustainability criteria for these fuels. The question on whether or not to include these fuels should only be discussed once clear EU rules will be enacted at EU level.

Further information

Cristina Mestre
Climate & biofuels officer
Transport & Environment
cristina.mestre@transportenvironment.org
Tel: +32(0)2 851 0212