

Press release

nova-Institut GmbH (www.nova-institute.eu)
Hürth, 11 May 2015



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RED reform: European Parliament agrees to cap the use of traditional biofuels

What are the impacts on the bio-based material sector?

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In Brussels, the European Parliament, following the decision of the Environmental Committee one week earlier, has finally voted on 28 April 2015 to endorse at second reading the compromise agreed with the Council on the reform of the Renewable Energy Directive (RED) and Fuel Quality Directive (FQD) in the light of indirect land use change (iLUC). The compromise will be adopted this year after the Council's second reading in the upcoming months.

This short paper highlights the most important changes and additions and explains what they mean for the sector of bio-based chemicals and materials.

Since the new provisions of the Directive are only valid until the end of 2020, this does not constitute a long-term framework that could give security to investors – neither from the energy sector, nor from the material sector. The existing competition for biomass between the sectors is not mentioned, still ignoring highly value-adding and employment-creating bio-based industries. That means that the material sector needs to take the opportunity to influence the framework that will be created for the time up until 2030 in the next few years by actively participating in the political debates in Brussels and the member states to finally establish a level playing field.

The most important changes are summarized in this table and will be explained in more detail further below.

Measure in the iLUC reform	Expected impact on material use
1) 7% cap on food-crop based fuels	neutral/positive – delayed impact
2a) Non-binding 0.5% target on advanced biofuels	neutral
2b) Annex IX – double counting & wastes and residues	negative – high impact
3) ILUC criteria not binding	positive – low impact
4) Carbon capture and utilization for fuels	positive – low, delayed impact
5) Higher incentivization of green electricity	positive – high, delayed impact

1) Cap on food-crop based fuels (1. generation)

Current legislation requires EU member states to ensure that renewable energy accounts for at least 10% of energy consumption in transport by 2020. The compromise approved now states that first-generation biofuels should account for up to 7% of final energy consumption in transport by 2020 (7% cap). The overall target is nominally kept at 10%, but lowered further in real terms as explained below.

Interestingly, the document acknowledges that indirect land use change risks can also occur if dedicated non-food crops for energy uses – such as short rotation coppice (SRC) – are grown on agricultural land. However, these crops are effectively excluded from the cap, which is explained by the alleged circumstance that “dedicated energy crops can have higher yields and potential to contribute to restoration of heavily degraded and heavily contaminated land”. First, higher yield efficiency is extremely doubtful (see Bos et al. 2012, de Bie 2013, Carus & Dammer 2014) and, second, there are no provisions in the legislation to restrict the cultivation of non-food crops to degraded or contaminated land. Even though it is arguable that the 7% cap is an improvement compared to the previous version of the RED (in which it was expected that first generation crops would contribute to 8.1% of the transport energy demand¹), this can be very quickly counteracted if more dedicated energy crops were to be planted on agricultural land. Therefore, the exclusion of non-food crops grown on agricultural land from the cap is lacking scientific basis and does nothing to alleviate the pressure on agricultural land.²

Furthermore, since many Member States have not reached a 7% share of first generation biofuels in their transport energy demand, there is still potential for market growth. The growth might have been worse if the RED had not been amended at all, but this does not constitute a big step forward.

Impact on material use: neutral/positive – delayed impact

Compared to the current RED, the pressure on agricultural land and biomass prices might not increase as strongly as feared – and a delayed positive impact on material sector can be expected.

Many member states have yet to reach the new 7% cap, so the demand for biofuels from agricultural biomass still has room to increase, leading to higher prices for biomass (which can only be paid by the subsidized bioenergy/biofuel sector), which means continued disadvantages for bio-based materials and chemicals. An unlimited contribution of food crop-based biofuels would have been even worse, though.

Disappointing: The EP has – at least in theory – recognized that the real competition is not about food crops, but about agricultural land. The question is not whether a food or energy crop is used for a non-food application, but on which land the biomass is grown. This is a first step towards a more rational discussion. However, since there are no practical and legal consequences from this insight, the framework is still not the right one to achieve the most efficient and science-based use of biomass for non-food applications, which is also detrimental to the development of bio-based materials and chemicals. So the opportunity was missed to switch from a differentiation between first and second generation to instead implement the criterion “grown on agricultural land”.

¹ Based on the “National Renewable Energy Action Plans”

² There has been some confusion in reporting about the compromise with some sources stating that the cap also refers to non-food crops such as switch grass or miscanthus that are grown on agricultural land. Since all feedstocks listed in Annex IX of the proposal are exempt from the 7% restriction, including these dedicated energy crops, this is in fact a misinformation.

The 7% cap is therefore evaluated to have a neutral or delayed positive impact on the material sector.

But the limitation of the restriction to food crops as compared to all crops grown on agricultural land is seen as negative for the material sector, because an opportunity was missed to set biomass-using sectors in a more objective light.

2a) Boosting advanced biofuels by non-binding national targets

EU member states will have to set a national target for advanced biofuels, no later than 18 months after the Directive enters into force. These can be sourced from e.g. certain types of waste and residues as well as from new sources such as algae. The draft legislation sets an indicative target of 0.5% for the share of energy to be produced from advanced biofuels as a percentage of the energy derived from renewable sources in all forms of transport by 2020.

These national targets are not binding: Member states may set a lower target on certain grounds, such as a limited potential for production, technical or climatic constraints, or the existence of national policies that already allocate commensurate funding to incentives for energy efficiency and electric transport.

‘The absence of binding targets for advanced biofuels and renewable energy (ethanol) use in petrol, both key measures to differentiate better biofuels, and both supported previously by the European Parliament on several occasions, undermines the core objectives of this reform’, said Robert Wright, Secretary General of ePURE. For the material sector this means that there will probably not be strong incentives to push for these non-binding targets, therefore not adding to the existing competition.

Impact on material use: neutral

Since member states are free to set even lower targets for advanced biofuels than 0.5% it is not expected that this provision will strongly impact the material sector. However, combined with the double counting mechanisms explained below (2b), they might still contribute to increased competition for biomass.

2b) Annex IX & Wastes and Residues

The eligibility for double counting of certain biomass types included in Annex IX (see full list in Annex a of this paper) has strong impacts on the level playing field between biofuels and bio-based materials. Even though double counting existed already before for “biofuels produced from wastes, residues, non-food cellulosic material, and ligno-cellulosic material“ (RED Art21(2)), there was no agreed list among all EU member states of the feedstocks that fit these criteria. The RED reform pursued the goal to set up such a list to strengthen the harmonized market which resulted in Annex IX. Not all of the included materials and fuels are classified as wastes and processing residues, but some are. For feedstocks classified as waste or processing residue it is much easier to fulfil the sustainability obligations and the double counting makes all Annex IX biomass more feasible in economic terms. Through the increased interest of fuel producers, the access to these feedstocks can become virtually impossible for all other industries. Unfortunately, the materials included in Annex IX cover several feedstocks that are actually used by high-value chemical industries, which now face serious supply risks. Thus, the provisions in Annex IX undermine the declared goals of the European Union to create more value-added, employment and innovation through a sustainable bio-based economy.

Some examples for feedstocks that are contested by both the chemical and the fuels industry are

- Crude Tall Oil (CTO) – CTO is used by the pine chemical industry to manufacture a broad range of high-value products. In Annex IX, it is even incorrectly classified as a residue, causing the pine chemical industry to strongly protest³. With the inclusion of CTO the ILUC text goes clearly into the wrong direction, because up to now it was highly doubtful whether double counting of CTO is in line with EU law, to say the least.
- Glycerol – a by-product of biodiesel production, glycerol is already used for high-value chemicals such as green epoxies. The current RED classifies crude glycerine as “processing residue”⁴ and the opportunity was missed to correct this error now.
- Animal fats – an important feedstock for the European oleochemistry, which needs to be replaced more and more by palm oil imports, causing higher costs and increased transport emissions (and probably land use changes). Animal fat based fuels are already double counted in many EU countries, but not in all, Germany being a positive exception. There is a clear risk that the ILUC text leads to more double counting of animal fats.

Even for those feedstocks that are currently not the subject of competition, the simple allocation to the energy sector does not make sense with regard to creating innovation and value-added in the European Union. For example, millions of Euros are currently invested into researching high-value chemical applications for algae or lignin, while both feedstocks are included in Annex IX. Commercial implementation of any newly developed technology from algae or lignin platforms is highly unlikely if the feedstock supply is so insecure. (For a more detailed evaluation of the competition for these Annex IX feedstocks in an earlier version of the ILUC proposal, please see nova paper #4 on the RED reform, Carus et al. 2014).

Impact on material use: negative – high impact

Even though the target for advanced biofuels is not binding (and not all double counted feedstocks can contribute to the advanced fuel goal), the continuation of the double counting mechanism together with a sometimes doubtful classification as “wastes” and “residues” will further exacerbate the already distorted competition for biomass between energy and material uses. Instead of going to high-value applications, these biomass types will be used for subsidized bioenergy and will be lost for the chemical industry. This is expected to have strong negative impacts on the material use sector, since in several cases there are existing plants to use the concerned feedstock types for energy, which have even more legal security to do so now. It is only a small consolation that the previously discussed quadruple counting of some biomass types was apparently discarded. For future classifications of feedstocks – if any should be done – it is absolutely vital that not only the energy sector is heard in deliberations, but also the chemical and material sector.

3) ILUC factors are out, for now

Taking estimated emissions caused by indirect land-use changes (ILUC factors) into account as a penalty for European biofuels was rejected due to the insufficient scientific basis and the resulting regulatory uncertainty.

However, fuel suppliers will report the estimated level of emissions caused by freeing up more land to grow food crops needed when land has been switched to biofuel crop

³ For more information and statements by the pine chemical industry, see: www.realgreengold.com

⁴ Annex V, part C, number 18

production, known as indirect land-use change (ILUC) to EU countries and the Commission. The Commission will then report and publish data about these ILUC-related emissions. Later, the Commission is expected to report back to the EP and the Council, based on best available science, on the scope for including ILUC emission factors in the existing sustainability criteria.

Impact on material use: positive – low impact

The ILUC impact of promoting biofuels will become common knowledge and, in absence of any strong political incentives there, the discussion will not enter the renewable material sector in the next years. This is positive, but is not expected to have a strong impact on the on-going competition for biomass. At least it does not exacerbate the situation of the material sector.

4) Carbon capture and utilisation for transport purposes

As a new element, transport fuels from carbon capture and utilization (also called CCU fuels, CO₂-based fuels, solar fuels or power-to-liquids) are now explicitly included in the RED. Annex IX lists

“(r) Renewable liquid and gaseous fuels of non-biological origin.

(ra) Carbon capture and utilisation for transport purposes, if the energy source is renewable in accordance with Art 2(a) of this Directive.

(rb) Bacteria, if the energy source is renewable in accordance with Art. 2(a) of this Directive.“

as fuels that shall be counted double and which do not count toward the 7% limit on first generation fuels. Under this regulation, the carbon source of the fuels is not relevant – it is therefore not important whether the CO₂ used for fuels stems from “green” or “black” carbon. The only decisive factor is that the energy used for the process stems from renewable resources, the legislator refrains from establishing a CO₂ saving requirement in line with the one existing for biofuels.

Furthermore, the compromise contains the passage that the Commission is empowered to adopt no later than by December 2017 greenhouse gas emission default values of CO₂-based fuels, including those from non-renewable energy sources, for the FQD, setting the values with which the CO₂-based fuels will count toward the 6% CO₂ reduction goal set out in the FQD.

Impact on material use: positive – low, delayed impact

Incentivising fuels made from carbon capture and utilization will lessen the pressure on biomass, if these fuels substitute biofuels in relevant volumes. That could mean lower prices for biomass and better access for the bio-based chemical and material industries. However, since the technology to produce CCU fuels is very young, production capacities are low and the installation of production plants is connected to considerable investment, it is expected that the development will take time and will have a very low impact in the nearer future. It is regrettable that the legislator decided to remove the quadruple counting for this specific option to comply with the renewable energy target for transport.

5) Green electricity for the transport sector

A greater use of electricity from renewable resources is seen as an important tool to decrease the amount of land used for biofuels and is therefore higher incentivised in the new proposal. Of the electricity used by rail transport, the share that stems from renewable sources will be counted times 2.5 for the national 10% transport goal; the contribution is currently counted once. Energy from renewable sources used for car transport will even be counted times 5 towards the national transport goal whereas the current factor is 2.5. Note that these multipliers would not only apply to additional renewable electricity used in transport in the future but also to the present amount. To determine the share of renewable resources in the input mix, the average renewable share of the national energy mix or the EU energy mix, whichever is higher, is taken as a basis (as it is now).

Impact on material use: positive – high, delayed impact

The stronger incentivization of using electricity to fulfil the renewable energy quota in the transport sector can reduce pressure on agricultural land, if the electricity stems from non-crop biomass renewable resources – namely solar and wind power. Apart from setting the right incentives for the future, the introduction of a new multiplier for rail and the increase of the multiplier for electric cars also have the positive effect that the target for renewable energy in transport is further lowered in real energy terms from the 10% set in nominal terms with a direct impact since the multipliers apply to already used renewable electricity in transport. This reduction compensates for putting the 7% limit (“cap”) on conventional biofuels⁵, so that no new gap emerges between the 7% cap and the 10% target. This gap would have had to be filled with additional advanced biofuels which would be partly based on problematic feedstocks with double counting, as outlined above. Not only will this reduce indirect land use change risks, but will also lessen the existing unfair competition for biomass between the material and the energy sector at a considerable amount of impact.

⁵ Based on “National Renewable Energy Action Plans”

Annex a): List of biomass types eligible for double counting (Annex IX):

Part A. Feedstocks and fuels, the contribution of which towards the target[...] referred to in the first subparagraph of Article 3 [...] (4) shall be considered to be twice their energy content

- (a) Algae if cultivated on land in ponds or photobioreactors.
- (b) Biomass fraction of mixed municipal waste, but not separated household waste subject to recycling targets under point (a) of Article 11(2) of Directive 2008/98/EC.
- (c) Bio-waste as defined in Article 3(4) of Directive 2008/98/EC from private households subject to separate collection as defined in Article 3(11) of that Directive.
- (d) Biomass fraction of industrial waste not fit for use in the food or feed chain, including material from retail and wholesale and the agro-food and fish and aquaculture industry, and excluding feedstocks listed in part B of this Annex.
- (e) Straw.
- (f) Animal manure and sewage sludge.
- (g) Palm oil mill effluent and empty palm fruit bunches.
- (h) Tall oil pitch.
- (i) Crude glycerine.
- (j) Bagasse.
- (k) Grape marcs and wine lees.
- (l) Nut shells.
- (m) Husks.
- (n) Cobs cleaned of kernels of corn.
- (o) Biomass fraction of wastes and residues from forestry and forest-based industries, i.e. bark, branches, pre-commercial thinnings, leaves, needles, tree tops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil.
- (p) Other non-food cellulosic material as defined in point (s) of the second paragraph of Article 2.
- (q) Other ligno-cellulosic material as defined in point (r) of the second paragraph of Article 2 except saw logs and veneer logs.
- (r) Renewable liquid and gaseous fuels of non-biological origin.
- (ra) Carbon capture and utilisation for transport purposes, if the energy source is renewable in accordance with Art 2(a) of this Directive.
- (rb) Bacteria, if the energy source is renewable in accordance with Art. 2(a) of this Directive.

Part B. Feedstocks, the contribution of which towards the target referred to in the first subparagraph of Article 3(4) shall be considered to be twice their energy content

- (a) Used cooking oil.
- (b) Animal fats classified as categories 1 and 2 in accordance with Regulation (EC) No 1069/2009*

Annex b): The fight for Crude Tall Oil (CTO)

<http://www.euractiv.com/sections/transport/bio-based-chemical-industry-victim-eu-biofuel-reform-313834>

Bio-based chemical industry victim of EU biofuel reform

The new biofuels law risks protecting fuel companies that require state support at the EU taxpayer's expense, write the CEOs of Arizona Chemical, Respol Resinas, and Forchem.

Kees Verhaar is CEO of Arizona Chemical, a global leading producer and refiner of specialty pine chemicals. Risto Näsi heads Forchem, an innovative company producing high-quality chemical products of tall oil and are one of the most modern, ecologically sustainable tall oil refineries in the world. Finally, Rui Brogueira is the head of Respol Resinas, a major supplier of gum rosin derivatives in Europe.

Over the past six months, the European Commission, the European Parliament and member states have negotiated an important piece of EU legislation on biofuel policy, the so-called indirect land use change (ILUC) Directive. Unfortunately, the legislation in question is now significantly alienated from what the Commission originally proposed to ensure sustainable policy on renewable energy in Europe.

Misinformation and manipulation

It seems fuel companies have managed to spread misinformation. This has led EU decision makers to believe that their production, which just like ours utilise the scarce raw material Crude Tall Oil (CTO), must be given special protection by EU legislation for energy purposes. **Those fuel companies are asking EU decision makers to adopt an ILUC Directive in which CTO is incorrectly classified as a residue.**

The crux is that those companies are the very same ones that, in their national operating permits and under the EU's chemical legislation (the REACH Regulation), **have registered CTO as a product**. Since the business model of those companies does not stay afloat without state subsidies, they have had to convince the Swedish and Finnish governments to manipulate their national legislation for renewables. **In this way, CTO has been incorrectly and unlawfully classified as a "residue" in Sweden and Finland.**

With a twisted definition of "residue", fuel companies in Finland and Sweden are able to circumventing obligatory sustainability criteria in EU's renewable energy legislation, when using CTO for fuel production. Thus, biofuel producers enjoy preferential treatment and can continue to receive easier access to state aid than if CTO, in accordance with the Commission's analysis, had been correctly classified as a product.

As long as the EU does not react, those companies will, under the protection of their governments, continue to circumvent EU legislation to protect their activities, while draining the pockets of unknowing tax paying citizens in the EU and especially in Finland and Sweden.

There are many paradoxes involved in this bizarre saga.

Firstly, CTO is a scarce resource. This sets natural limits to the volumes available for industries using it, which means that the raw material should be utilised in the most resource efficient and responsible way (cascading use). In total, there is theoretically about 2 million tonnes of CTO, with the right quality, available in the world.

Even if all logistically accessible CTO would be used exclusively for biofuel production and consumed in the EU, it would contribute to less than 0,4% of the EU 2020 target of 10% share of renewable energy in the transport sector. That positive, but minimal, impact on the

environment and green house gas emission reductions must be balanced against what it at the same time would cost to the EU environment, economy and society to achieve.

In that regard, the ILUC negotiations have completely overlooked the fact that CTO also is used by the biochemical sector. The pine chemical industry refines and upgrades CTO into highly valuable and innovative products used in substitutes for antibiotics in animal feed, tires, paints, inks, adhesives, or products that enable reuse of asphalt and much more.

Our value chain is long, and our bio-based products can replace non-renewable (fossil based) chemical products and are thus providing more sustainable solutions to society as a whole. The carbon footprint of CTO-based products is 50% of that of the products they substitute, such as petroleum, gum rosin and edible oils.

Facts show that there is no net gain to the environment and the economy by turning CTO into biofuels, and hence to burn it.

Level playing field for bio-based industries

The pine chemical industry has refined biochemicals from CTO for more than 80 years without state subsidies and it has, so far, been possible to compete for the raw material in a fairly open market.

Our investments have been made on the basis of the existing legislative framework and commercial terms. Currently in Europe, the existing pine chemical industry generates yearly over €1 billion turnover and employs more than 3000 people in Austria, Germany, France, Finland, Netherlands, Sweden, UK and Portugal.

On top of this comes the growth and employment generated in the downstream industry using our CTO-based chemical products.

At a time when Europe, more than ever, needs to focus on creating jobs and growth, EU lawmakers are unfortunately, on the basis of misinformation, supporting a very shortsighted selection of one specific sector of the bio-economy.

In practice, the ILUC Directive risks protecting certain fuel companies that may very well require infinite state support at the EU taxpayer's expense, without which their business cannot run. EU decision makers adopting such regulation are unknowingly and/or without understanding of the bigger picture pulling the carpet from under the feet of an innovative biochemical sector that already is an excellent example of a successful bio-based industry.

We call for a level playing field for all bio-based industries using CTO as raw material, and we strongly encourage EU policy and lawmakers, as well as stakeholders, to make their voice heard, in order to ensure we get this right. Biochemical industries play an important role for the EU environment and economy.

The ILUC Directive must not prevent our sector from continuing making investments in the EU and to contribute to the creation of growth and jobs.

Arizona Chemical, Respol Resinas and Forchem

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