Biofuels are back on the EU agenda

By Sonja van Renssen

Biofuels are returning to the political agenda in Europe as EU policymakers start to shape a strategy for reducing greenhouse gas emissions from transport after 2020. Biofuels producers continue to argue that they are an essential part of the solution, even as the low oil price puts an end to several cutting-edge projects, the European Commission prepares to publish a new report about indirect land-use change (ILUC) and some stakeholders urge a full focus on electrification. Sonja van Renssen investigates.

Rapeseed (Credit: Phil and Pam Gradwell, via Flickr)

"Are we competitive? Certainly not in the short term, but the long term is what matters," said Artur Auernhammer, a Member of the German Parliament and Chairman of the German Bioenergy Association (BBE) in his opening speech at a "Fuels of the Future" conference in Berlin, Germany, on 18 January. "Certified sustainable biofuels from Europe must be a key element in the European decarbonisation strategy both at present and beyond 2020."

Dr Veit Steinle from the German Federal Ministry of Transport and Digital Infrastructure concurred: "If the Energiewende is to be implemented properly in Germany, we need an energy transition in transport. Of course we're putting money on biofuels in this regard."

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It is equally obvious for EU biofuels producers that they are part of the solution. But others have moved on. Jos Dings, Executive Director of Brussels-based NGO Transport and Environment, said in an interview: "The big change since the [EU's] first climate and energy package [in 2008] is the rise of electric vehicles. In contrast, we've seen very little progress in liquid fuels." Still, Gernot Klepper, Chairman of the Board for ISCC System, which certifies bio-based feedstocks and renewables, reminded delegates in Berlin that biofuels make up about a fifth of final energy consumption in transport in 2050, in the International Panel on Climate Change (IPCC)'s two degrees scenario.

Martin Schmied from the German Environment Agency (UBA) called biofuels a "last resort" for countries like Germany and envisaged instead a transport sector based on electro-mobility and electricity-produced fuels such as power-to-liquid and power-to-gas.

Policy dependent

It is into this messy world that the European Commission will issue proposals to decarbonise the transport sector later this year. The first milestone to look out for is a legislative proposal in spring for national emission reduction targets covering economic sectors outside the EU Emission Trading scheme (ETS), i.e. transport, buildings and agriculture.

This will divvy up the goal agreed by European leaders in October 2014 to cut emissions from these sectors by 30% by 2030 versus 2005 levels. Transport accounts for the largest share, a third, of these emissions. At the same time,

the Commission will issue a non-legislative strategy for decarbonising the transport sector and launch a public consultation on bioenergy. The latter will feed into proposals for a new EU renewable energy directive with sustainability criteria for solid and gaseous biomass as well as biofuels due by the end of the year. (A consultation on the new directive just ended on 10 February.)

> ***In a new study, researchers have looked at the climate effects of advanced fuels such as straw and energy crops for the first time.***

When it comes to biofuels specifically, the Commission recognises that it needs to do something. "If we look at the current development of oil prices, it is very certain that at least in the short to medium term, the regulatory framework will be very, very important for the perspectives of biofuels," said Bernd Kuepker, Policy Officer at the Commission's energy department, at the conference in Berlin. Advanced biofuels projects hosted by the likes of British Airways and BP have already fallen victim to the tumbling oil price.

So far the Commission has proposed neither to extend a renewable energy quota for the transport sector nor a greenhouse gas emission reduction target for fuel suppliers beyond 2020, however. Kuepker suggested that Brussels was questioning its role in biofuels policy. "Should we focus only on sustainability issues or also measures to drive technological development?"

New ILUC study

What has become ever clearer over time is that the future of biofuels in Europe lies in using advanced feedstocks such as energy crops grown on marginal land, and wastes and residues. Biofuels that rely on arable land have been discredited by studies that accuse them of indirect land-use change (ILUC), i.e. that their cultivation indirectly displaces forest and therefore increases carbon emissions. The existence and degree of ILUC continues to be contested by the biofuels industry.

This is why all eyes are turning to a new ILUC study that experts say will underpin post-2020 EU biofuels policy. The work, carried out by a consortium of consultancies – Ecofys, IIASA and E4Tech – uses a model called "GLOBIOM" to model ILUC for different feedstocks and policy scenarios. The work was finished last autumn, but the Commission has yet to publish it. Some of those involved expect it by the summer; others believe that the Commission may wait until the end of the year.

> ***"Does it make sense to keep on modelling? The studies show that ILUC is real as a concept, whatever its size." – Daan Peters, Ecofys***

"It is a great shame that there is so much delay because we took a lot of trouble to seek interaction with stakeholders and now many are disappointed that the study is not published," says Daan Peters from Ecofys, one of the authors. Why the delay? "ILUC is a sensitive topic with many different interests. The Commission could fear that some would not like the results."

ILUC remains very sensitive – it basically refutes any contribution of biodiesel to climate action – and new findings are certain to displease some. In this case, "the study will confirm that the ILUC concept is true," says Peters. The results remain confidential, but another source close to the work suggests that the new model does not overturn basic earlier conclusions: "I don't think there is anything here that will fundamentally affect our understanding of the impact of European biofuels policy. There is nothing that fundamentally affects our understanding of the hierarchy between different feedstocks."

What Peters and others close to the work also confirmed is that the researchers looked at the climate effects of advanced fuels such as straw and energy crops (e.g. perennial grasses, short-rotation coppice) for the first time. These have always been assumed to be ILUC-free. “It’s not necessarily so much about land use change per se as about thinking is there an impact on soil carbon,” said one expert. “You can have carbon sequestered in material that isn’t harvested.” How much carbon is stored in forestry residues and energy crops compared to that released through ILUC?

> ***Where is the transparency?***
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> *As for every modelling exercise, the GLOBIOM project has already won its share detractors – and defenders – on the question of transparency. “The industry has submitted data. But was it even used?” asks Philippe Dusser, Secretary General of the European Oilseed Alliance. “The model is not accessible.” He cites the open-source GTAP model used by the California Air Resources Board as an example of best practice.*
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> *But Peters from Ecofys defends their work: “The model consists of tens of thousands of lines of code. There is no point in publishing it. It would be incomprehensible.” He says that the modellers are ready to discuss with experts however, and points to an advisory committee that also peer reviewed the study. One of the committee’s members, Chris Malins from the International Council on Clean Transportation (ICCT), said: “I think the expert review process for this study was very strong. Making something open-source [like the California model] isn’t the only way to do transparency.”*

A future for conventional

For Peters, the point is less about what the latest figures for ILUC are, than how to move forward in practical terms. “Does it make sense to keep on modelling? The studies show that ILUC is real as a concept, whatever its size.” He advocates a two-pronged policy approach: set a binding target for advanced biofuels and require conventional biofuels to prove that they are low-ILUC risk.

> ***“ILUC avoidance is an idea with potential merit. Can you agree robust criteria to identify a good biofuel project?” – Chris Malins, ICCT***

A biofuel is low-ILUC risk “when it can be demonstrated that additional biofuel feedstock is produced compared to the existing situation”, says Peters. He suggests this can be done through increasing crop yields (in a sustainable manner), reducing supply chain inefficiencies, and expanding into low-carbon, low-biodiversity land. It could be proven through existing certification schemes or national systems for both biodiesel and bioethanol. Peters concludes: “The biofuel sector could commit itself to ILUC-free growth in both conventional and advanced biofuels after 2020.”

Chris Malins, who leads the fuels programme at the International Council on Clean Transportation (ICCT), appears to agree: “We think that ILUC avoidance is an idea with potential merit. Maybe it is a more tractable proposition to regulate at the project level. Can you agree robust criteria to identify a good biofuel project?” Kuepker himself said in Berlin: “ILUC is very complex. For example, it is strongly influenced by international trade. There is most likely no one correct ILUC value in the world.”

Unique German experience

ILUC is not top of the agenda in Germany these days. Instead, stakeholders are finding plenty to talk about in the

government's new biofuels promotion policy. Germany is unique in Europe in that it has completely replaced a volume quota for biofuels with a greenhouse gas emission reduction quota for oil companies. Until last year, oil companies had to put a minimum percentage of biofuels on the market, but by the end of this year they will have to reduce their greenhouse gas emissions by 3.5% instead. That target rises to 4% for 2017-19 and 6% in 2020.

In practice, both the old and new German practice derive from EU legislation for 2020: the former from the 10% renewables in transport target for 2020 and the latter from the 6% emissions cut from road transport fuels required by the fuel quality directive.

> ***"The good news is that the same biofuels volumes can contribute more to decarbonisation than we thought in the past." – Elmar Baumann, VDB***

The impact on the German market has been dramatic: biofuel sales (in metric tonnes) were down by 5% in 2015, says Elmar Baumann, Managing Director of the Association of the German Biofuel Industry (VDB). He expects a greater drop still in 2016. The "problem" is that the new legislation has triggered enormous improvements in biofuels' carbon footprint. Until now, biofuels only needed to meet the EU-set minimum 35% emissions saving threshold. Now, "the mineral oil companies start to negotiate at 60%", says Baumann.

The German market is attracting the best-performing biofuels, he says: "Both German rapeseed biodiesel and bioethanol are delivering emissions savings of at least 60%. The [3.5%] quota will definitely be achieved. Given the big emissions savings, the current quota is too low: already in 2014, a quota of 4% could have been met." Official figures are due in April.

There are two uncertainties however. One, none of this data includes ILUC. Two, from 2017, oil companies can also count upstream emissions cuts from venting and flaring for example, towards the target. Their potential influence is "immense". Baumann says: "You could cover the whole 6% target with upstream measures alone." In other words, Germany would not need any biofuels. Brussels is due to issue guidance on how to manage upstream cuts later this year. In the meantime, the German biofuel industry is lobbying the government to tighten the target by 0.5% each year to get to the 6% in 2020. Within biofuels, Baumann expects strong competition from palm oil this year.

Wanted: fuels policy

"Stopping EU support for biofuels wouldn't be the end of biofuels in Europe," says Peters. He points to member states such as Germany, Italy, France and Finland as examples of those who plan to continue. The risk – and this is also what greatly worries the industry – is complete fragmentation of the European biofuels market. The Commission remains tight-lipped over how it plans to proceed however.

For Dings from T&E, the whole focus on fuels is wrong. ""We tried a technologically neutral fuels policy and it failed: the biofuels industry said no to [accounting for] ILUC and the oil industry said no to [accounting for] non-conventional fuels." He wants conventional biofuels to be phased out completely and "only then" a "gentle" phase in of advanced biofuels that "do not use land to any significant extent". The shift from volumes to quality that he talks about is what Germany seems to be achieving.

> ***"We tried a technologically neutral fuels policy and it failed." – Jos Dings, T&E***

The focus for Dings must be on electric vehicles. He envisages not an advanced biofuels mandate, but an ultra low emission (read: electric) vehicles mandate. This would complement CO2 emission standards for cars and vans (and ideally trucks) for 2025.

ILUC has poisoned the biofuels debate for people like Dings. Electric cars are a better fit with air pollution goals, a decentralised energy system and autonomous driving. But what about aviation? Green MEP Claude Turmes says: “Biofuels should only be used as a ‘last resort’ where it is too difficult yet for electricity to replace oil-based liquid fuel. This is the case of aviation for example, but only for cruising since landing/take-off and ground operations could be done with electric engines”.

There are some signs that the Commission is starting to think about advanced biofuels for sectors like aviation as an industrial development opportunity. Experts are currently exploring whether and how the conventional biofuel industry could help grow advanced biofuels. “Traditional biofuels will have to be accompanied by new options,” acknowledges Baumann. “The good news [however,] is that the same biofuels volumes can contribute more to decarbonisation than we thought in the past.” That just leaves policymakers to decide on ILUC.