



# Europe's quest for the best of

# **BIOFUELS**

EU leaders are pushing ahead with ambitious biofuel targets and trying to answer critics of the industry by attaching environmental and social safeguards. Years of work remain putting a proper framework into practice. Meanwhile, biodiesel production is ballooning in Europe's agricultural heartland.

| *by James Osborne*

Progress was slow at the Grand Hyatt Hotel in Sao Paolo, Brazil, as more than 40 experts from the Task Force on Sustainability, part of the Global Bioenergy Partnership (GBEP), met for a third time to define what differentiates "good" from "bad" biofuels. As a yearlong debate over imposing generous biofuels targets in the European Union was reaching its conclusion in faraway Brussels, officials from 10 countries including major producers such as the US, Brazil and Germany, seven international organisations and the European Commission were meeting last November with a mandate from the G8 to hammer out science-based sustainability criteria.

The delegates managed to agree on a 74-word text delimiting their work and to use only neutral language for describing the criteria. They had but the merest outline of which environmental, social and economic areas to cover. 'This is proving to be a very challenging and complex task not least because of the wide range of views held by the participating partners and the highly sensitive nature of this important issue,' recount the minutes.

Perhaps it was more significant that such a meeting happened at all. The painstaking work by groups such as GBEP is crucial if the bioenergy industry is to recover from the bad press it received in 2007 and 2008 and respond to its accusations: that biofuels contribute to world hunger and deforestation, endanger biodiversity, are expensive to produce and do little or nothing to combat climate change. To mention one example, in the UK last year, the so-called Gallagher Review by the Renewable Fuels Agency, concluded that, even though a sustainable biofuels industry was possible, the introduction of biofuels should be 'significantly slowed' until better controls are in place to address indirect effects. Princeton University's Timothy Searchinger wrote in *Science* that taking into account indirect land-use change (i.e. when forest or grassland is turned over to food crops as a result of the greater need for cultivation brought about by the increase in energy crops elsewhere) showed biofuels have a devastating impact on net emissions. 'When I think about biofuel sustainability, I immediately think about land use,' says Suzanne Hunt, the

Washington DC-based founding president of Hunt Green, LLC. 'Some of the numbers coming out of research now suggest that if you are not using absolute waste to produce biofuels then you're always going to be worse off in terms of carbon emissions. I hope the biofuels industry will think about how it fits into a low carbon future for all transport and agriculture in general.'

## Benefits |

All this criticism has done little, however, to persuade the European Union to reduce its biofuel targets. In Brussels the predominant feeling is that the right kind of technology applied in the right conditions could bring substantial benefits, even if the pitfalls are recognised. The EU is therefore pushing ahead with biofuels while seeking to avoid any negative impacts by attaching sustainability criteria to its targets. In December a renewable energy directive was adopted to this effect (see box).

This policy is not without supporters. 'I am quite happy with the directive considering it has been created with remarkable speed,' says Andre Faaij, leader of the IEA's Bioenergy Task 40 on sustainable



bioenergy trade and professor of energy systems analysis at Utrecht University's Copernicus Institute. 'The whole crisis started to develop in 2007 with the food-or-fuels issue. The European commission and parliament were very quick to respond, with the parliament especially helping to address these issues, including social and economic aspects. But it is a learning-by-doing exercise and, at the moment, a question of avoiding the worst, protecting nature and biodiversity. This will evolve.'

IEA Bioenergy, a branch of the International Energy Agency, described the EU directive as a 'major step for the market'. Along with other industry groups such as the Roundtable for Sustainable Palm Oil, it is looking to see how the regulations can be translated into day-to-day guidelines for the biofuels business. That will include voluntary certification schemes or industry standards that can be accredited with the European Commission as providing reliable proof of sustainability. The Commission will continue work on social criteria, such as respect for the land rights of local communities or the fair remuneration of workers.

Years of work lie ahead in refining the criteria and incorporating new scientific findings, for example on the critical

issue of indirect land-use change. In the meantime, the European biofuels industry has not yet witnessed a drastic limitation to existing practices. Instead, producers received an important political signal that a large market would be created and that they would have time before they would have to provide evidence of meeting stringent standards. 'The current biofuels industry can continue but they got a warning signal that this is going to change,' explains Professor Faaij. 'We cannot abandon the current biofuels industry at this stage. They do save overall emissions and they are improving all the time. And remember, the default situation is worse: fossil fuels or even tar sands and gasified coal.'

Thus the enthusiasm in the European biofuels industry remains strong, especially in major agricultural economies such as France. The European Biodiesel Board estimates that EU biodiesel output rose 17% in 2007 to 5.7 million metric tons while 2008 production capacity jumped 56% to 16 million tons. According to the European Bioethanol Fuel Association, ethanol fuel output increased 8.7% to 1.73 billion litres while capacity stood at 5.2 billion litres in 2008 with another 3 billion under construction – mostly in France.

## Shareholders |

In the rural village of Le Mériot, a 158.5 million-euro plant has just been inaugurated by Europe's No. 1 biodiesel producer, Diester Industrie, and sister company Saipol. The facility stands by the River Seine about 100 kilometres south-east of Paris, processing rapeseed to make animal feed as well as producing biodiesel and glycerine in the heartland of agricultural France. This area is Europe's biggest producer of soft wheat and sugar beet and a major growing centre for crops such as barley, oilseed rape, potatoes and hemp.

The 18-hectare site is only part of Diester's investment plan, which in the past three years has seen the company increase capacity in France fivefold to 2 million metric tons a year. It inaugurated the Le Mériot plant in early February, even though it has been operational for over a year. Diester is controlled by oilseed processing company Soprol (in which a state-owned financing company has a 19% stake) while a third of its shares are held by about 600 agricultural collecting bodies, co-operatives and traders.

Its expansion has made France Europe's second-biggest producer of biodiesel after Germany (biodiesel is often known simply as diester in French), firmly backed by state support. France has a target of having biofuels account for 7% of its transport fuels in 2010, compared with the European goal of 5.75%. The industry has benefited from a generous tax break since 2005 of 22 euro cents per litre although this is now due to be phased out by 2012. Diester Industrie spokesman Fabien Kay says the company is in total agreement with the EU regulations. 'The farmers are also our shareholders so the production cycle is very closely regulated already,' he says. 'Growing conditions have been closely controlled since the 1980s and biodiesel made with rapeseed oil has a very good energy balance. Now we're working to improve it.'

An hour's drive from the new Diester plant, through a patchwork of fields that stretches to the horizon, lies the market town of Troyes. Since 2006, Mayor François Baroin has been upgrading local transport with "green" solutions as part of a sustainable

## Bioenergy briefing

- Biomass and waste accounted for 10% of world primary energy demand in 2006. Biomass's share of world primary energy demand may rise to 15% in 2030.
- Biofuels represented 2.6% of the energy content of all fuels used in road transport in Europe in 2007 (7.7 million metric tons of oil equivalent or Mtoe). Roughly 80% of this was biodiesel, the rest bio-ethanol. The biggest markets were Germany (4 Mtoe), and France (1.4 Mtoe).
- The EU has laid down minimum standards on sustainability for biofuels: they must save at least 35% of greenhouse gas emissions compared with fossil fuels (from 2017, this will rise to 50% for existing plants and 60% for new installations); no-go areas include primary forest, highly biodiverse grassland, protected areas, continuously forested areas and undrained peatlands.
- Second-generation biofuels, which do not compete with food or feed production, will be double credited towards the 10% renewables target that all EU member states have. Renewable power consumed by electric cars will be counted at 2.5 times.



Photo: Benjamin Lowy/VII Network/Hollandse Hoogte

development strategy; Troyes now has 71 vehicles that run on a special blend of 30% Diester biodiesel and 70% regular diesel. The town is a member of a partnership scheme set up by Diester in 1994 to persuade municipalities, companies or other organisations that run their own vehicle fleets to adopt the special 30% blend. 'We showed that 1 ton of diester can save the equivalent of 2.5 tons of carbon dioxide,' says Gaël Petton, who's in charge of the Partenaires Diester programme. 'That raised the interest of a lot of municipalities and companies. They don't need to change their motors but can help agriculture, reduce emissions and increase energy independence.' The scheme now has 60 partners – including carmakers PSA Peugeot Citroën and Renault – with 8,000 vehicles. The association commissioned a survey from the French public opinion research agency IFOP that Petton says demonstrated the vast majority of French are in favour of bioenergy as a solution to high petroleum prices and diminishing resources.

#### Horror stories |

Given the scale of the business and its complex relationships with agriculture, transport, international trade and technology, the European sustainability package alone won't be enough to eradicate all the damaging effects of

biofuels. 'Just having a system doesn't mean bad practices are out,' says Jean-Philippe Denruyter, World Wildlife Fund's manager for global renewable energy policy. 'This covers just Europe and imports to the EU. We might see more horror stories.' He notes how in the UK, the Renewable Fuels Agency considers only 20% of its biofuels consumed to be demonstrably "sustainable". 'So the other 80% is either not clear or not performing.' The WWF and other non-governmental organisations are actively involved in putting the EU sustainability criteria into effect. One channel for this is in the

*'Just having a system doesn't mean bad practices are out'*

creation of a standard by the European Committee for Standardization (CEN) to show when products meet the new regulations. Ortwin Costenoble, who is co-ordinating this effort as secretary of technical committee 383 on sustainably produced biomass for energy applications, says it will take until 2011 for that process to come to fruition. Aside from the problems of dealing with a complex and politically sensitive issue, he must oversee the proceedings of six working

groups with 50 to 60 members each, the contribution of 15 industry associations and a public inquiry in 30 states.

'This is certainly not a usual thing,' Costenoble comments. 'Most of the standards are very technical and so you can measure something and you can know. But these criteria are difficult to measure and how to measure is difficult to describe.' The work will also coincide with continued debate in the scientific community on topics such as indirect land use.

'It's highly political and not just technical,' Costenoble explains. 'We might even touch

on ethical questions. Should we as CEN deal with all these questions?' Perhaps he can be reassured that at least he and his colleagues won't be alone in teasing out these thorny issues. The GBEP, European Commission, IEA Bioenergy and other organisations will continue to discuss how to effectively impose sustainability standards on the industry without hampering its promise. In the words of Andre Faaij at Utrecht University: 'This is real open territory'. ■