

Biofuels and development: Will the EU help or hinder?

The development impact of EU biofuels should be enhanced

Key points

- Although cutting greenhouse gas emissions is a stated goal of the EU's biofuels policy, it is not being prioritised at present
- Supporting farmers and reducing dependence on fuel imports are the key goals of EU biofuel policy
- Changes to tariffs and harmonisation of processing rules would make EU policies better both for the environment and for development

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Developing countries are heavily affected by global biofuels policies, both as potential producers (for their own use or export) and as consumers (of crops displaced by biofuels and of energy). Because Europe is a major producer of biofuels, with an estimated 10% share of world bioethanol, its policies can have a significant effect on them. Current EU policy, outlined in the Renewable Energy Roadmap (see Box 1), is to promote the use of biofuels and other renewable fuels for transport. But schemes for biofuels will not automatically mitigate climate change, since production also adds to greenhouse gases. If the production of biofuel crops requires heavy use of nitrogen fertilisers or if forests are felled to grow biofuel crops, the net effect could be negative. Similarly, the net effect on any producing country will depend on whether biofuels displace other crops (and which ones) or damage the local environment (ODI, 2007). Even when the net impact is positive there will be distributional effects favouring some producers over consumers (and possibly producers of displaced crops).

Despite this inherent uncertainty, we identify changes to EU policy that would not only foster development, but help to cut greenhouse gas emissions. These could be incorporated into the initiatives on renewable energy sources that the Commission will be launching in 2008.

EU biofuel policy

The EU has set targets for renewable energy production and use since 1997 (Box 1). Two



EU policy promotes the use of biofuels and other renewable fuels for transport.

important considerations are the objectives of policy, and the way it is implemented.

Objectives

Both the 2006 Strategy and the 2007 Roadmap state the EU's biofuels objectives to be:

1. reducing greenhouse gas emissions;
2. boosting the decarbonisation of transport fuels;
3. diversifying fuel supply sources and developing long-term replacement fuels; and
4. offering new opportunities to diversify income and employment in rural areas.

Because the first two objectives are not always compatible with the others, their relative importance is critical, not least for developing countries. If the aim is to reduce greenhouse gas emissions and find cheap alternatives to oil, biofuels need to be sourced from the

Box 1: The evolution of EU biofuel policy

1997: An EU 'White Paper' sets targets for the share of renewable energy — 12% of 'gross inland energy consumption' by 2010 to be achieved through doubling the contribution of renewables to electricity and heat production, plus a significant increase of biofuel for transport by 2010.

2001: The Commission adopts proposals for legislation on alternative fuels for road transport (biofuels, natural gas and hydrogen). Recommends quantitative commitments, but not until 2005 (to allow production facilities to be established), and proposes a 2% biofuel substitution as a realistic initial target rising annually by 0.75% to 5.75% by 2010.

2003: the EU Biofuels Directive establishes these non-mandatory 'reference values' for the share of biofuels in petrol and diesel consumption (2% in 2005; 5.75% in 2010) with member states required to set 'national indicative targets' in 2004 (for 2005) and by 2007 (for 2010). These targets are not mandatory but constitute a moral commitment by member states. Progress is patchy, reflecting differences between national policies; nine EU countries set mandatory blending requirements. The Energy Taxation Directive allows tax reductions or exemptions to be given under certain conditions by those states wishing to favour biofuels in this way.

2006: Commission Communication on the EU Strategy for Biofuels looks at how to promote biofuels in the EU and developing countries, how this contributes to the Lisbon strategy objectives, and is 'positive for the environment'. It outlines cost-effectiveness issues, 'level of ambition after 2010' and assesses the full environmental impact of biofuels.

2007: The Biofuels Progress Report recognises that the 12% target for the contribution to overall energy consumption by 2010 is unlikely to be met. Only Germany and Sweden have achieved the 2005 reference values against a Member State average of only 52% target achievement. The Renewable Energy Roadmap proposes a legally binding target by 2020 of 20% for renewable energy sources in 'gross inland consumption', with the minimum target for biofuels at 10% of overall consumption of petrol and diesel in transport. The Council approved the latter target in March and member states are to set out their proposed means of achievement in National Action Plans. The Commission plans follow-up action in 2008.

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country with the lowest financial and environmental costs, which may well be in the South (Box 2). If it is to reduce dependency and boost farmer incomes, preference will be given to high-cost European sources.

In its 2006 Strategy, the European Commission recognised the economic and environmental benefits for several developing countries from the production of biofuels from suitable feedstocks. It could create additional employment, reduce energy bills and open up potential export markets, as well as offering a feasible alternative for some sugar-producing countries affected by reform of the EU sugar regime. The Roadmap also accepts that the supply of sustainable biofuels to the EU is constrained and that Europe should be ready to examine whether further market access would be an option to help the development of the market.

Practice

Despite such statements, the EU's current practice seems to favour objectives 3 and 4 (reduced import dependence and farm incomes) over 1 and 2 (reducing greenhouse gases). Support – direct and indirect – that is available only to European producers dominates, and is heavily biased towards the use of domestically grown feedstock for biofuels.

Domestic producers have been supported both directly and indirectly (see Table 1). The 'energy crops' scheme provides a direct subsidy (€45 per hectare) and allows such crops to be grown on 'set-aside' land (which otherwise cannot be used for production under EU agricultural rules). It is needed partly to offset the high cost of European feedstock, which occurs partly because of the indirect subsidy to European farmers (paid for by processors) from

onerous duties on imports from the most competitive global producers. In addition, some member states provide a direct subsidy 'at the petrol pump', by reducing the excise duty on blended fuels, although this practice is changing. Although technically available to biofuels from any global source at present, the other two subsidies keep imports low.

In 2004, rape seed accounted for more than three-quarters of EU energy crops, with the most widely grown grains (maize and barley) accounting for less than a tenth as much. Since then the EC has made sugar beet grown for bioethanol eligible for the energy premium, but its importance relative to grains will be influenced by the demand for food use, which remains high.

The €3.7 billion of subsidies reported in Table 1 (probably an underestimate as many subsidies are under-reported) is increasing. The area planted has increased so rapidly (to 2.84 million hectares) that in October 2007 the EU was reported as having to cut the eligible area to keep within its budget of €90 million. The EU's 2020 target will require a more than five-fold increase in the current rate of biofuel blending. To achieve this, EU support to biofuels could treble if there is no change to current rates of subsidy.

Trade policy

The principal instrument affecting developing countries is European trade policy. The EU claims not to be protectionist, pointing out that ACP (Africa, Caribbean and Pacific) and least developed countries, as well as a few other countries benefiting from its most generous trade preferences, have unlimited duty-free access to the European market.

Although true, this defence overlooks the areas of protection that are critical in determining the pattern of European biofuel production (Table 2).

For sound commercial reasons, countries that have preferential access do not use it to sell bioethanol, whilst those that might sell do not have liberal access. Bioethanol (Harmonised System heading 2207) enters duty free under some preferences, but it does not when supplied by the largest world producers such as Brazil and China. Moreover, every EU member has a different set of complex rules on denaturing, which makes compliance for imports expensive.

Most ACP and least developed country producers of surplus, competitively priced sugar have industries that are geared up to supply the EU sugar market at prices that are still well above world market levels, despite recent and planned cuts. It does not make commercial sense to export low-priced biopetrol feedstock rather than high priced sugar or ethanol for human consumption.

The top three import sources for un-denatured ethanol and all major sources for denatured pay most-favoured-nation (MFN) tariffs. These are high: when expressed as a percentage of the ‘before tax price’, the 2006 tariff on imports from Brazil of denatured ethanol was equivalent to 27%. The net effect is to restrict imports of ethanol.

Recent changes in EU trade policy towards Pakistan (resulting from WTO disputes) illustrate the impact of EU protection. Until 2004, Pakistan had duty-free access under a special preferential Generalised System of Preferences (GSP) regime, but tariffs were imposed in 2005 and reached full, non-preferential MFN levels in 2006. When duty free, Pakistan’s exports were exclusively the higher-value un-denatured ethanol for human consumption. Whilst ending preferences has resulted in a shift towards denatured ethanol for industrial use (for which the tariff is lower), the overall fall in exports has been sharp. EU imports from Pakistan during the first 8 months of 2007 were only 75% (by volume pro rata) the 2004 level.

The precise level of imports exclusively for biofuels is not known, as the EU’s tariff codes do not distinguish between denatured ethanol for biofuel and that for other industrial uses. But it is clear that by providing preferences only to smaller producers selling primarily for human consumption and restricting imports from the lowest-cost global suppliers, EU policy limits biofuel imports to a level that will not ‘disturb’ EU prices, despite a small number of ‘indirect’ routes into the market.

The EU has linked the possibility of liberalisation to multilateral or regional negotiations. The 2007 Biofuels Progress Report links opening the growing EU biofuel market to imports to finding a successful conclusion to on-going multilateral trade negotiations. The Renewable Energy Roadmap links increased market access for competitive Latin American ethanol producers to progress on the

Table 1: Support for ethanol and biodiesel in the EU (2006)

	Ethanol (€)	Biodiesel (€)
Total support	1,290,000,000	2,436,000,000
Support per litre consumed	0.74	0.50
Support per gigajoule (GJ)	35	15
Support per litre of petrol or diesel equivalent	1.10	0.55

‘Support’ encompasses both market price support and subsidies.
Source: Global Subsidies Initiative (2007).

free trade area negotiations with Mercosur. But by offering to liberalise only in these ways, a shift to a more efficient biofuel regime will occur only if the EU obtains ‘concessions’ from its negotiating partners whereas it should happen because it is desirable in its own right.

Does EU policy actually reduce climate change?

By giving priority to its goals of reducing the dependence on imports and maintaining farm incomes, is the EU failing to achieve fully its objective of reducing greenhouse gases? The Commission acknowledged in the 2006 Biofuels Strategy that ‘incentives for biofuels do not take into account the actual greenhouse gas benefits of the different biofuels and their production pathways’ (p.10). By failing to consider the entire EU production chain, policy overlooks elements that add to greenhouse gases and, hence, offset the reductions achieved from biofuels.

Biofuel production within Europe is energy-intensive. Feedstock requires inputs such as nitrogen fertilisers, which also generate greenhouse gases such as nitrous oxide. The OECD calculates that whilst sugarcane in Brazil has the potential to reduce total life-cycle greenhouse gas emissions by up to 90%, the best point estimate for ethanol from starchy grains in the EU

Box 2: Feedstock for biofuels

Biofuels can be made from many widely grown crops (sugar, grains, oilseeds), novel sources (such as Jatropha) are being promoted, and there is scope in future to bypass crops altogether through biotechnology. Sugar and grains are used for biopetrol and oilseeds for biodiesel. EU biopetrol feedstock subsidies have tended to be used for grains (such as barley), which are a less efficient source than sugar. EU tariffs on biopetrol feedstock are higher than on biodiesel because Europe bound its tariffs on oilseeds at low levels (now mainly below 10%) in the 1960s, and cannot now increase them under WTO rules.

Sugar is at the centre: it is the most efficient source of biopetrol, is widely available in developing countries and faces high EU tariffs (plus strong EU preferences for some states over others). Trade is normally in sugar-based ethanol, which can also be used for human consumption. Hence, sugar producers can export (in declining order of unit value) refined or raw sugar for human consumption, ethanol for human consumption, or ethanol for industrial use including biopetrol.

Table 2: EU tariffs on major biofuels and foodstocks

Code	Description	Tariff payable under selected import regimes			
		MFN	GSP	GSP+	Cotonou
Ethanol					
22071000	Undenatured ethyl alcohol of actual alcoholic strength of >= 80%	19.2€/hl	n/a	o	o
22072000	Denatured ethyl alcohol and other spirits of any strength	10.2€/hl	n/a	o	o
Bioethanol constituents					
10030090	Barley (excluding seed)	See note (a)	n/a	n/a	Within the limit of the quota [15,000 tons] reduction 50%
10059000	Maize (excluding seed)				Reduction 1.81€/ton
12129920	Sugar cane	4.6€/100 kg net	n/a	n/a	3.8€/100 kg net
17031000	Cane molasses resulting from the extraction or refining of sugar	See note (b)	n/a	n/a	Within the limit of the quota [600,000 tons] reduction 100%
Biodiesel constituents					
1507	Soya-bean oil	3.2-9.6	0-6.1	o	o
1508	Groundnut oil	0-9.6	0-6.1	o	o
1511	Palm oil	0-12.8	0-4.4	o	o
1513	Coconut copra, palm kernel or babassu oil	2.5-12.8	0-8.9	o	o
1514	Rape, colza or mustard oil	3.2-9.6	0-6.1	o	o

a) The UK tariff states 'The Community undertakes ... to apply a duty at a level and in a manner so that the duty-paid import price ... will not be greater than the effective intervention price (or in the event of a modification of the current system, the effective support price) increased by 55% ...'

(b) 'CAP safeguard changes may apply ... This duty rate may be amended frequently. Please refer to CHIEF or the EPU for the rate in force on day of import.'

Source: UK Tariff (2007).

and USA could be as little as 13% (OECD, 2007:18). Even for ethanol from EU sugar beet, the greenhouse gas reduction over gasoline and mineral diesel is less than half as great as for Brazilian cane.

According to the Global Subsidies Initiative, EU Commissioners have stated in several public meetings that the new Directive proposals will allow only sustainably-produced biofuels to count against targets and obtain subsidy. Whilst not explicitly confirming this, the Renewable Energy Roadmap states that it will promote a proposal for an incentive/support system for biofuels that discourages the conversion of land with high biodiversity value for the purpose of cultivating biofuel feedstocks; discourages poor systems of biofuel production; and encourages the use of second-generation production processes. Further such initiatives have been flagged for 2008.

References

Global Subsidies Initiative (2007) *Government Support for Ethanol and Biodiesel in the European Union*. Winnipeg: International Institute for Sustainable Development (http://www.globalsubsidies.org/IMG/pdf/Global_Subsidies_Initiative_European_Report_on_support_to_Biofuels.pdf).

ODI (2007) 'Biofuels, Agriculture and Poverty Reduction', *Natural Resource Perspectives* 107. London: Overseas

Development Institute (<http://www.odi.org.uk/nrp/NRP107.pdf>).

OECD (2007) 'Biofuels: Is the Cure Worse than the Disease?', Roundtable on Sustainable Development, 11-12 September (<http://media.ft.com/cms/fb8b5078-5fdb-11dc-bofe-0000779fd2ac.pdf>).

A policy to cut emissions and help development

The EU should give primacy to its objective of cutting greenhouse gas emissions, a change that would also help developing countries. In its renewable energy initiatives promised for 2008 it should be ready to examine freer market access rather than further subsidies to domestic production as an option to develop the biofuel market.

Reform of the EU sugar import regime will be a central element. Widespread liberalisation of sugar and its products is unlikely in the medium term (as EU prices would fall so sharply as to cause serious problems for domestic producers). The EU's 2005 sugar reform plan assumes that imports can be restricted to no more than 3.5 million tonnes. Moreover, it would be likely to push many ACP exporters out of the market because Brazil is more competitive.

But the EU could liberalise completely its imports of denatured ethanol only and harmonise its rules on denaturing. If it does this before liberalising imports of sugar (and possibly un-denatured ethanol) it would offer a chance to promote more environmentally friendly biofuels whilst safeguarding traditional sugar exporters. Tariff cuts across the board would encourage Brazil and other major producers to export higher-priced sugar for human consumption not lower-priced ethanol for biofuel. But cutting only denatured biofuel tariffs would bring down feedstock prices without disturbing the sugar market.

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