

Biofuels or Bicycles?

Why the European Union should reconsider its biofuels target

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Biofuels are widely recognised as a climate-friendly alternative to gas and diesel in the transport sector, usually requiring no additional investment in engine technology. The European Union has thus committed itself to increasing the share of biofuels in transport from less than 2% currently to a minimum of 10% by the year 2020. This move was inspired by growing concerns about climate change, high dependence on crude oil imports and expected economic benefits in terms of employment, especially in rural areas. But this target is now itself the subject of growing concern, as doubts about the environmental and economic efficiency of biofuels increase.

It is true that the transport sector deserves special attention. Accounting for over 27% of total EU27 greenhouse gas emissions in 2005, the transport sector is the EU's second biggest greenhouse gas emitter and is quickly catching up with energy industries. Since 1990, transport emissions have been increasing by nearly a third, as more passengers and goods are being transported further and more frequently across the EU. The most striking increase has been in aviation, but road transport still contributes about three quarters of total transport emissions. There is thus incontrovertible evidence that the transport sector should be a major component of the EU's climate policy.

It is also true that biofuels benefit the security of transport fuel supply by decreasing the percentage of the EU's fuel requirements that might be subject to major fossil fuel supply disruptions in the future. However, a number of recent reports cast doubts over the environmental and social benefits of biofuels and their economic competitiveness.

While it is difficult to generalise about the costs and benefits of biofuels due to the various production techniques and raw materials used (feedstock), they are subject to criticism on three main fronts. First, land use changes associated with increasing production may speed up the destruction of natural habitats and lead to large amounts of carbon actually being released from sinks (natural areas that absorb and store CO₂), depending on what land is substituted. In Europe, it could be argued that replacing heavily subsidised export crops or planting feedstock on unused land with low environmental importance would pose few problems. Outside Europe, commonly cited examples refer to deforestation in Indonesia and Malaysia in order to increase the production of palm oil, which is either used indirectly as a substitute for food crops in high demand for the production of biofuels (e.g. rapeseed) or directly to produce biodiesel. While these are 'worst case scenarios', they are of particular relevance, as the EU will need to import about 50% of its biofuel supply if second generation biofuels are not available (10-30% otherwise). Other than upsetting human communities and impairing biodiversity, such land use changes would have a direct impact on climate change, as they release large amounts of carbon previously absorbed by rainforests or other habitats. The protection of habitats and carbon sinks through strong local regulation should thus be a priority in the fight against climate change. New plantings should only be developed on degraded or unused land.

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Second, the implications for developing countries of the increasing demand for biofuels are – at best – ambiguous. A trade-off between greener fuels and higher food prices has been observed, as large scale biofuel industries based on so-called first generation technology increase agricultural commodity prices. The UN Food and Agricultural Organisation has repeatedly warned that displacing food production could damage food security in developing countries. Similarly, increasing biofuels production may decrease freshwater availability for alternative uses, as water becomes a resource of strategic importance in the development of biofuel feedstock production. On the positive side, biofuels could potentially reduce energy bills, open up new export markets (e.g. biofuels instead of sugar), create additional employment and increase revenues for small farmers provided profits are not reaped by big international cooperations. It would be interesting, for example, to look into the potential for ethanol production in those ACP countries that used to export sugar to the EU, since their preferred EU market access for sugar is being weakened.

Third, while biofuels have the potential to reduce greenhouse gas emissions (albeit limited to 3% according to the OECD), far greater reductions could be achieved for the same amount of public money by purchasing the reductions on the marketplace. The OECD argues that instead of ‘betting’ on one technology, governments should phase out support to biofuels and replace them with technology-neutral policies. In the EU, this would mean phasing out subsidies to biofuels (which amounted to at least €3.7 billion in 2006) and abolishing the biofuels target in favour of more effective support for more efficient climate-friendly technologies.

The European Commission addressed some of these issues in its proposal for a Directive on renewable energy sources published on 23 January. It was, however, criticised for leaving important ecosystems unprotected, including savannas and water and soil resources. Furthermore, it leaves open the questions of how to deal with the indirect effects of biofuel production and their impact on developing countries. Given that the EU Council subjected the biofuels target to “production being sustainable”, several environmental NGOs are asking for the Directive to be improved with “proper safeguards” and for the suspension of the mandatory biofuels target. German, British or Dutch biofuel sustainability criteria could serve as models for such safeguards.

While the issue of biofuels is a highly complex one, there is growing evidence that greenhouse gas reductions could be achieved more efficiently if resources were directed towards other technologies. Given these uncertainties, a separate target for biofuels seems unjustified. This does not necessarily mean that bioenergy should be neglected altogether. In terms of efficiency, its application in electricity and heat production rather than in road transport could improve greenhouse gas reductions per unit of land required for growing the feedstock. Similarly, large scale application should be dependent on the development of so-called second generation biofuels (another precondition mentioned by the EU Council), which can be produced from almost any form of biomass, including agricultural waste and non-food plants. They leave a smaller carbon footprint and perform far better in environmental and economic terms than conventional biofuels. Their development is however dependent on a number of technological breakthroughs, which makes it unlikely that they will become a viable alternative in the short or medium term. In the meantime, there are plenty of other policy options to achieve the objectives of the 2007 Spring Council. These range from increasing fuel efficiency and exhaust emission reductions to the progressive electrification of cars (e.g. in the form of hybrid cars) and facilitating the transfer to more sustainable modes of transport, such as public transport or railways. After all, a recent international survey conducted by the World Conservation Union (IUCN) among climate experts showed that they expected bicycles to have more potential than first generation biofuels in reducing atmospheric carbon, without unacceptable side effects.