



APRIL 2013

UNEVEN RETURNS?

The economics of EU biofuels policy

Summary of study by the **Global Subsidies Initiative (GSI)** of the **International Institute for Sustainable Development (IISD)**

Biofuels, at What Cost?

A review of costs and benefits of EU biofuels policies.

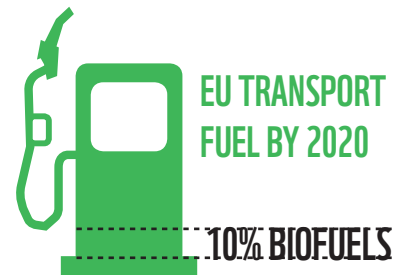
Europe is reforming its biofuels policy due to concerns raised about its impact on global land use change patterns and global food markets. The negative environmental impacts of the biofuels policy have been well demonstrated, but what is less clear are the economic implications. T&E, the EEB, BirdLife Europe and IISD have therefore funded this report to evaluate the costs and the benefits of the EU's biofuels policy and its implications for the EU governments and citizens, who are currently facing economic crisis.

The report finds that the cost of biofuel subsidies were between €9.3bn and €10.7bn in 2011, yet estimates of environmental, social and economic impacts show only marginal benefits at best. Therefore the report casts doubt on the wisdom of supporting biofuels in the future.

Context

The EU has two policies which create demand for biofuels:

- A 10% target for renewable energy (mostly biofuels) in transport in the Renewable Energy Directive (RED)
- A 6% target for decarbonisation (reduction of the carbon footprint of transport fuels) in the Fuel Quality Directive (FQD)



MEMBER STATES' ACTION PLAN

Member States' action plans indicate that, without policy change, conventional biofuels will have a share of approximately 8.6% of EU road transport fuels in 2020, of which 23% will be ethanol, 70% biodiesel and 7% advanced biofuels. A study by the Institute for the European Environment policy¹ found that this will not lead to any greenhouse gas (GHG) emissions savings, but could result in extra CO₂ emissions in the range of 31 and 65m tonnes of CO₂ per year – equivalent of putting between 14 and 29 million additional cars on European roads.

¹ IEEP (2011): Anticipated Indirect Land Use Change Associated with Expanded Use of Biofuels in the EU, http://www.transportenvironment.org/sites/te/files/media/Analysis_of_ILUC_Based_on_the_National_Renewable_Energy_Action_Plans.pdf

RETURN FOR MONEY

INCREASED CO₂ EMISSIONS



of 31 and 65 million tonnes of CO₂ per year for bioethanol and biodiesel



PUTTING BETWEEN 14 AND 29 MILLION



ADDITIONAL CARS ON EUROPEAN ROADS

Both laws included an obligation for the European Commission to come forward by 2010 with a report and, if appropriate, a legislative proposal to address emissions from indirect land use change (ILUC). In October 2012 the Commission published a proposal that limits the amount of biofuels from food crops that can count towards the RED target to 5%, but only includes reporting obligation for ILUC emissions.

But the debate concerning biofuels is not just about their environmental performance; the economic implications of current and future policies are also subject to intense discussion. Therefore this report examines the costs and benefits of current levels of biofuels consumption and evaluates what the impacts of meeting the 10% target in the RED directive would be.

CONCLUSION 1



BETWEEN €9.3 BILLION AND €10.7 BILLION PER YEAR

Total support for biofuels industry in the EU in 2011 was between 9.3 and 10.7bn EUR/year

In 2011, an estimated 9.3 to 10.7 billion EUR per year was spent to achieve a 4.5% market share of biofuels. This figure includes tax exemptions – paid by the government – (5.8 bn EUR), consumption mandates – paid by drivers – (736 million EUR for ethanol and 4.2 bn for biodiesel) and Research and Development funding (52 mn). The IEA, based on a separate methodology, estimated the global support for the industry and found the EU paid for 46% of global biofuel subsidies.

TAX EXEMPTIONS (€5.8 billion)



CITIZENS



CONSUMPTION MANDATES

(€736 million for ethanol and €4.2 billion for biodiesel)



DRIVERS



RESEARCH AND DEVELOPMENT FUNDING (€52 million)



EU AND NATIONAL BUDGETS

According to the study, the total biofuels market in the EU was worth €13bn to €16bn in 2011. This means that the value of the total support to the industry accounted for more than half of the industry turnover in 2011.

CONCLUSION 2

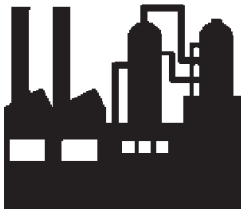
€6.5
BILLION



INITIAL
INVESTMENT
in setting up EU
biofuels industry

COST OF RUNNING
THE INSTALLATIONS

€10 BILLION
PER YEAR



In comparison, a 50% reduction in deforestation from 2005 to 2030 would require €13.4bn to €21.8bn per year and could provide 1.5-2.7Gt CO₂/yr in emission reductions.²

Annual support for biofuels is higher than the total investment in biofuel production facilities

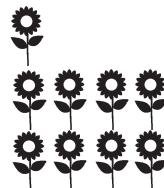
Initial investments made to build up the industry in Europe amounted to €6.5bn. On an annualised basis, this amounts between 3% and 16% of the production cost. Typically, the lower figures apply to biodiesel plants, the higher figures to ethanol plants.

This means that capital costs of biofuels installations are relatively small compared to the costs of buying the feedstock. Biodiesel plants spend more than 90% of their operating expenses on purchasing raw material, while ethanol plants spend 70-80%. This means that annual subsidies boosting the industry are coming close to double the total value of industry investment. The cost of purchasing feedstocks run over the lifetime of investment and will not go away.

BIOFUEL INSTALLATIONS



70-80%
ethanol installations



90%
biodiesel installations

spend the majority of
their operating expenses
on purchasing raw
material or feedstocks.

The annual support for the biofuel industry is 60% higher than the total amount of capital invested in installations.

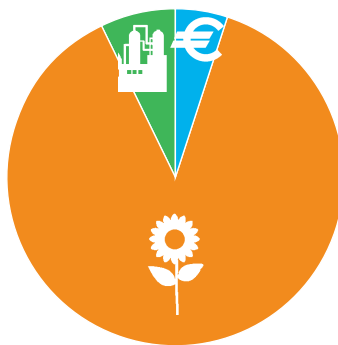
ANNUAL
INVESTMENT COSTS



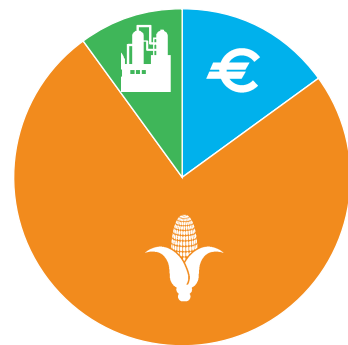
FEEDSTOCK COSTS



OTHER
OPERATIONAL COSTS



BIODIESEL



ETHANOL

CONCLUSION 3

The cost of ramping up to '10% by 2020' will require between €28.8bn and €33.1bn of additional public support

² Kindermann, G., et al. (2008): Global cost estimates of reducing carbon emissions through avoided deforestation. Proceedings of the National Academy of Sciences 105 (30):10302-10307

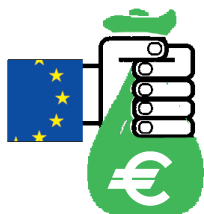
Currently, most of the debate between energy and environment ministers in the European Council is around the issue of protecting the investments and jobs in the existing biofuels industry. Little is said about the public support that the industry receives and about the vast amount of money that will be spent with increases in biofuel consumption to meet the EU's 10% renewables target.



The study shows that increasing biofuels volumes to 8.6%, as projected in the Member States' action plans, would require between €28.8bn and €33.1bn of additional cumulative public support over the 2014-2020 period. If Member States embrace the Commission's proposal to limit biofuels at 5% (close to current levels), they will keep on spending approximately €10bn per year until 2020.

CONCLUSION 4

The majority of support is paid for by governments, not fuel consumers

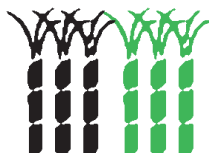


The largest share of support came from tax exemptions and reductions, which are paid by all taxpayers in the EU. In 2011 this support amounted to €5.8bn, while the support from mandates (paid by consumers of fuels) was €318-736m for ethanol and €3.1-4.1bn for biodiesel. The amount of direct subsidies is reducing, as the majority of Member States adopt mandates.

CONCLUSION 5

EU biofuels consumption is increasingly import dependent

According to the study, the EU already imports 40% of biodiesel feedstock and 20% of ethanol feedstocks. The EU's biofuels market reliance on imports will increase further if Member States are to meet their 10% target. According to the IFPRI study, the imports of biodiesel would triple, while the imports of ethanol would increase five to nine-fold.³



The money that went to European farmers supplying biodiesel feedstocks to the biofuels industry amounted to €3.5-4.5bn, while €3-4bn of biodiesel feedstock was imported. For ethanol, €2.5-3.5bn went to European farmers, while around €400m was imported. A reduction in biofuels production would not mean that all this income would be lost for farmers, as they can and will continue to grow crops for food and feed production – also in the light of the growing global demand for food.

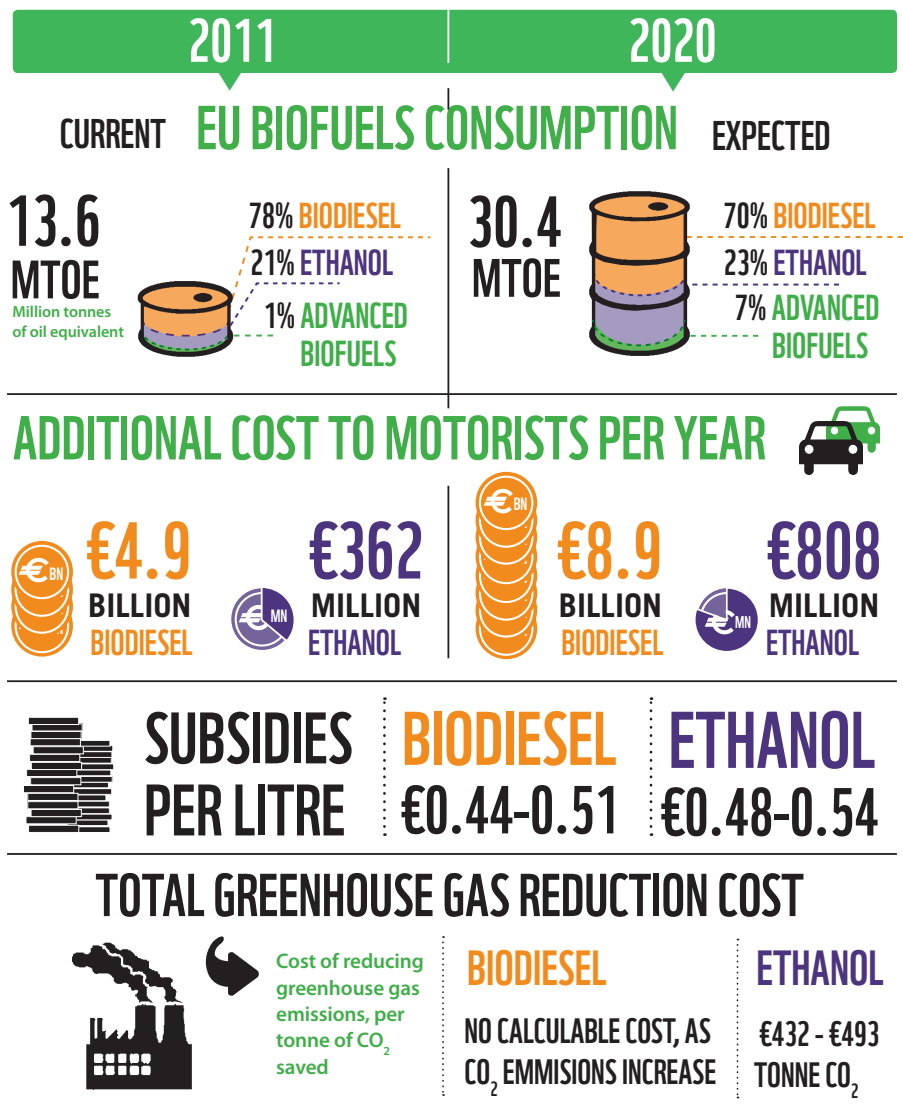
	BIODIESEL	ETHANOL
EU FARMERS PRODUCTION	€3.5-4.5 BILLION	€2.5-3.5 BILLION
IMPORTS	€3-4 BILLION	€0.4 BILLION

CONCLUSION 6

With high levels of current feedstock imports, and projections for these amounts to substantially increase, meeting a 10% target provides minimal to no additional economic benefits and job creation in Europe. In practice, the further expansion of biofuels use will amount to increasing transfer of money from European taxpayers and drivers to foreign feedstock producers.

Biodiesel and ethanol are subsidised equally, but perform differently

Biodiesel represents a higher share of biofuels at the EU market, but has a much worse GHG emissions performance. Due to higher ILUC emissions, biodiesel leads to net GHG emissions increases compared with fossil fuels. The IISD study also shows that any economic benefits of biodiesel are highly questionable and that biodiesel facilities spend much less on initial investment than on purchasing feedstocks (up to 90% of annual expenditure). Because biodiesel is responsible for net emission increases, no abatement cost can be calculated. Ethanol does generate some GHG emissions reductions but at a cost of between €430 and €500 per tonne of CO₂ avoided – this is more than one hundred times the current price of a tonne of CO₂ emissions in the ETS, which is currently around €4.



! BETTER ALTERNATIVES EXIST



The EU biofuels policy was adopted for three main objectives: climate change mitigation, rural development and energy security. The objectives of the policy are not being met. Besides harming the climate, the policy is also not leading to job creation in poorer regions and replaces only a marginal amount of fossil fuel imports.

The €9.3-10.7bn that Europe is spending in support of its biofuels industry is roughly equal to a Cyprus bailout every year.

It would also be the investment cost required for a limit of 80 g of CO₂/km for new cars, instead of 95g CO₂/km that is legally required by 2020⁴ - an investment that delivers around 40 MT of CO₂ and pays for itself through reduced oil imports.



POLICY RECOMMEN- DATIONS

In the light of these new facts, we recommend Member States and the European Parliament to improve the Commission's proposal in the following ways:

- Ensure proper carbon accounting by introducing ILUC factors for compliance purposes, so that public money does not support biofuels that result in increased GHG emissions.
- Put a strong cap on all land-based biofuels. While preventing further environmental damage, not going to '10% target' could save between €28.8bn and €33.1bn of public money that could be invested in technologies that deliver real GHG savings and environmental benefits.
- Support stricter CO₂ standards for cars and vans, which give substantially higher emissions and fuels savings and, at the same time, lead to higher job creation in Europe.
- Do not set any biofuels targets in the 2030 climate and energy framework, which is currently under discussion.

⁴ The ICCT (2013): Mass reduction impacts on EU cost curves, <http://www.theicct.org/mass-reduction-impacts-eu-cost-curves>. The cost of moving from 95 to 80g/km (calculated from figure 14 in the report) is about €750 per car, which, at 13m annual sales, translates into €10bn of investment per year.