

Biofuels: Policies needed to procure energy security and climate change benefits

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Over the past two weeks, distinguished FT-columnists Martin Wolf and Ricardo Hausmann have written very different perspectives on the subject with a few common observations:

1. Energy security and climate change are key challenges confronting humanity
2. Biofuels policies must be standardized and detached from agricultural policies

Energy security and climate change are the issues, but our options for dealing with them *in the transportation sector* are more limited. Biofuels represent the most sustainable solution, but sustainable policies are needed.

The rationale and coherence of current biofuels policy-making deserve to be challenged, but we should not generalize biofuels and put all feedstock- and production models under the same umbrella. Before questioning the rationale of subsidies altogether, let's not forget that the petroleum sector is heavily subsidized by government incentives (for example oil depletion allowance) and indirect costs (military protection of sea lanes, air pollution, etc.) that are not reflected in the cost of fuel at the pump.

Policy makers in Europe and the US have created a distorted market by mixing biofuels policy with agricultural policy and protectionism. For example, by forcing biodiesel producers to use rapeseed oil to aid EU farmers, they have created an unsustainable distortion, for which EU producers are now paying with negative margins.

The production costs for most biofuels are – for the near future - higher than that of fossil fuel equivalents; hence the need for subsidies, but we disagree with the premise that such subsidies are futile to create a sustainable industry.

Brazil had a long period of subsidizing ethanol but phased out the subsidies as they were able to lower production costs through technology- and agricultural yield improvements. Brazil also encouraged efficiency in the production process by overcoming barriers to moving ethanol by pipeline, integrating power generation into the production process and lowering plant construction costs. In the end, Brazilian ethanol has lowered the cost of fuel for spark ignition engines in Brazil, since there is a mandatory requirement of 25% ethanol in all gasoline, competing ethanol gas stations and almost all new gasoline cars are fully fuel flexible at no increase in vehicle cost. More importantly, ethanol from Brazilian sugar cane offers a 90% life cycle carbon reduction over its fossil fuel alternative.

Biodiesel offers a near term opportunity to replace use of diesel in compression ignition engines. Soy biodiesel according to US Dept. of Agriculture provides a 78% life cycle carbon reduction. Tropical oils, which can have very high yields per hectare, can have high life cycle carbon reductions (60-90%) if production is done sustainably. New varieties of West African palm can be as high as 9 tons per hectare of oil and species of tropical oil seed trees in Brazil offer opportunities to reforest large areas deforested for cattle production and provide very high yields

(4-5 tons of oil per hectare) while offering substantial carbon sequestration and habitat improvement. Algae or next generation fuels offer even better prospects. 100 times current yields of soy or rape oils are possible in algae ponds and the technology is advancing rapidly to full commercialization. High yields means very large carbon reductions and provides real answers to how to reduce carbon emissions in transportation.

If we want to address climate change in transportation, it is essential that we require reductions in carbon from all sectors of transportation simultaneously. This requires looking at integrated strategies that combine carbon reductions in fuel, lubricants, tires and cars. It also requires that we take aggressive measures to include biofuels in the distribution system for petroleum. *There is no excuse for not moving biodiesel blends in pipelines and ethanol can be dealt with (as in Brazil). Moving liquids by train, let alone trucks, will neither be sufficiently cost- nor carbon-efficient.*

The policy must target carbon, not agriculture or protectionism. This requires that markets open for imports of biofuels with better carbon footprints, and that subsidies are directed towards the lowest carbon alternatives. It also requires understanding that biofuels can improve the performance of petroleum fuels and are an enhancement, not a replacement. If vehicles are optimized to improve as a result of the characteristics of various biofuel feedstocks (for example palm oil biodiesel has very high cetane that can enhance engine performance and fuel economy), then resulting vehicle fuel economy and carbon emissions can be improved from even a small percentage of biofuels.

The policy must ensure that sustainability criteria are rigidly applied to stimulate reforestation, habitat improvement, sound labor conditions and preserve food supply sources.

Finally, policy-makers must counter the agricultural lobby with the collateral benefits of a sustainable biofuels policy. Mr. Hausmann eloquently demonstrates that increases in land and produce prices will relieve governments of the need to protect the agricultural sector and that free trade remains the answer to rising food prices.

A sustainable biofuels policy will then provide a real solution to both energy security and climate change in the transportation sector.

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