The Oil Drum: Europe
DISCUSSIONS ABOUT ENERGY AND OUR FUTURE

Andris Piebalgs : getting a sense of proportion

Posted by Luis de Sousa on March 29, 2008 - 12:30pm in The Oil Drum: Europe
Topic: Alternative energy
Tags: andris piebalgs, biofuel, energy efficiency, eroei, european commission [list all tags]

Andris Piebalgs continues this Friday his blogging on bio-fuels, addressing some of the concerns expressed by the readers of the last blog-entry.

> I agree that a radical change in consumer behavior is needed if we want Europe to be more energy efficient. At the same time, as policy makers we have to come up with policies that are based on present day realities. And the reality is that most Europeans are living and working in big cities and using modern means of transport. It would be unrealistic to impose sanctions on car producers and users if no alternatives are provided.

Before continuing I can't but express once more my joy in seeing EU's leaders having such a close interaction with their citizens. More bio-fuel talk under the fold.

Crossposted at the European Tribune.

> In Europe, we use less than 2 percent of our cereals production for biofuels, so they do not contribute significantly to higher food prices in the European context. Even if we reach our 10% biofuels target by 2020, the price impact will be small. Our modeling suggests that it will cause a 8 to 10% increase in rape seed prices and 3 to 6% increase in cereal prices. Increase in the price of the latest has very small influence on the cost of bread. It makes up around 4 per cent of the consumer price of a loaf.
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> [...]
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> We need to use first-generation biofuels as a bridge to the second generation biofuels using lignocellulosic materials as a feedstock. With this in mind, the Commission within the forthcoming review of the Common Agricultural Policy will urge the farmers to invest more in short rotation forestry crops and perennial grasses which are the most typical feedstocks for advanced biofuels.Over the past 30 years, Europe's farmers have stood accused, through their association with the Common Agricultural Policy, of over-producing and dumping their surpluses with the aid of massive export subsidies on over supplied world markets, therefore depressing market prices and contributing massively to poverty and starvation in poor countries. That criticism has now been reversed. The charge now is that EU biofuel policy will contribute to third world poverty by driving food prices up. My impression from this debate sometimes is that we the Europeans know best what is good for people in developing world. Let them speak for themselves.

> [...]
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> And let's not forget that oil is a finite commodity, and high oil prices are one of the main factors making food more expensive, particularly in poor countries.

The most important questions raised in the previous log entries were left unattended. Here's a simple accounting exercise to get a real sense of proportion:

The EU consumes today roughly 20 Mb/d of Oil. Of that about two thirds are used in Transport, make it 13 Mb/d. Assuming that EU's Transport use remains unchanged up to 2020 that turns the target to something like 1.3 Mb/d.

Ethanol has an energy density of about 60% of gasoline, biodiesel is somewhat better, so make it 75%. Thus to replace those 1.3 Mb/d of Oil, about 1.75 Mb/d of bio-fuels are needed (1.3/0.75).

Ethanol production in temperate climates has an EROEI below 2:1, biodiesel about 4:1. Oil's EROEI differs markedly from place to place (offshore versus onshore, etc) but 10:1 is a general enough mark. Accounting for EROEI, the useful energy the EU gets from Oil is about 1.2 Mb/d. To match that useful energy, total bio-fuels production has to rise to 2.1 Mb/d (1.2/0.75/0.75).

Corn crops yield about 3500 litres of ethanol per hectare per year (that's 9.5 litres per hectare per day). With sugar cane in the tropics that number goes up to 6000 (16,5 litres per hectare per day). But for bio-diesels the numbers are considerably lower, around 1250 litres per hectare per year (3,5 per hectare litres per day).

Using 159 litres for a barrel, 2.1 Mb correspond roughly to 333 Ml (mega-litre). Using again the most optimistic figure for the temperate regions, the EU needs to allocate thirty five million (35 000 000) hectares to bio-fuels production.

I live in a state that has an area of less than 9 million hectares. Germany has an area just over 35 million hectares.

All that dark green area producing ethanol in 2020?

Good or evil? Friend or foe? This kind of wording doesn't fit in my Engeneering/Architecture dictionaries. Bio-fuels are not an option, it's all a matter of numbers.

Data sources:

Ethanol fuel

Biodiesel

The EROEI of ehtanol

Previous coverage of Andris Piebalgs blog:

Andris Piebalgs on Bio Fuels

Piebalgs on European Energy Security

Andris Piebalgs' Blog

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