



## Andris Piebalgs on Bio Fuels

Posted by [Euan Mearns](#) on March 16, 2008 - 11:15pm in [The Oil Drum: Europe](#)

Topic: [Policy/Politics](#)

Tags: [andris piebalgs](#), [biofuel](#), [energy efficiency](#), [eroei](#), [european commission](#) [[list all tags](#)]

This week European Energy Commissioner, Andris Piebalgs, moves the debate onto the key issue of bio-fuels. The comment I left on his blog pursued the theme of EroEI and energy efficiency. If you feel strongly about bio-fuels then **PLEASE** call by [Andris Piebalg's blog](#) and leave him a polite, forceful, well documented message.



*Andris Piebalgs drives a [Saab 9-5 that runs on bio-ethanol](#). By my estimation, the energy efficiency of this vehicle is a meagre 5%. Andris no doubt believes he is doing the right thing and I believe he cares a great deal about European energy. And yet he is driving one of the least energy efficient vehicles ever produced - and he is a physicist. How on Earth have these totally bizarre circumstances come about?*

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So how have I determined the energy efficiency of a bio-fuel Saab to be 5%. The calculation is as follows:

I have assumed the ERoEI (energy return on energy invested) of temperate latitude bio-ethanol is 1.2. Sources [here](#) and [here](#). Hence the energy efficiency of fuel production is:

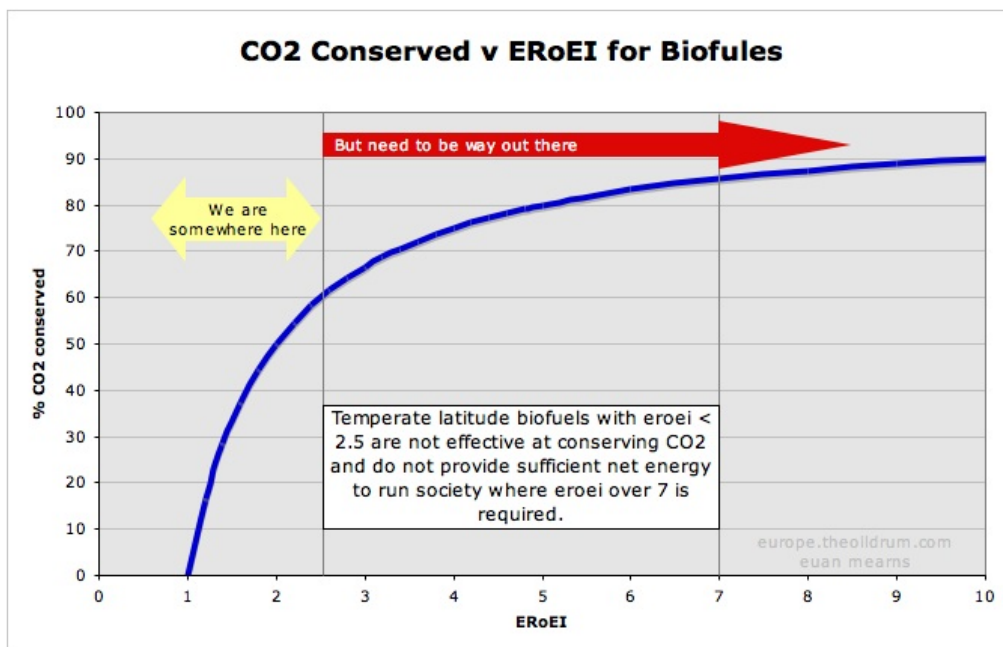
$$((\text{eroei}-1) / \text{eroei}) * 100 = 0.2 / 1.2 = 16.7\%$$

Assuming the internal combustion engine efficiency is 30% (combined urban cycle) yields an overall efficiency of  $0.3 * 0.167 = 5\%$ .

"And how have these bizarre circumstances come about?" - the answer to that I believe lies in an obsession with CO<sub>2</sub> emissions that has lost sight of energy efficiency.

First of all, when biofuels replace fossil fuels, greenhouse emissions are almost always lower. Biofuels are produced from plants that absorb the CO<sub>2</sub> they generate when they are burnt. This has to take into account the fertiliser used to produce the crops, the energy needed to convert them into liquid fuels and so on. On this basis, biofuels produced in Europe from rape seed, wheat and sugar beet, typically reduce emissions by 20-50% compared to the oil they replace. Biofuels from sugar cane, waste vegetable oil and second generation biofuels can save 75% or more. Under our proposal, all biofuels used for the EU target will have to save, at least, 35%.

I have to say that in this statement the claims made about CO<sub>2</sub> conservation seem accurate - proving that the principals involved are understood by the EU Commission. It is just that the energy cost / energy efficiency has not been taken into account.



*Variations in EROEI with CO<sub>2</sub> conserved assuming the energy input to bio fuel production is from fossil fuel.*

Andris goes on to say:

And this is why biofuels are so important. **Today, there are only three ways to reduce greenhouse emissions:** the shift from polluting modes to more energy efficient ones (i.e. rail, short sea shipping, collective transport); the promotion of less consuming cars, by establishing CO<sub>2</sub>/km targets; and biofuels.

I'm sorry this is just not true. The middle of the three options is of course the most sensible - to concentrate upon energy efficient vehicles. But what about:

1. Electric cars running on renewable or nuclear electricity. This is the future of vehicular transportation - so why are the European Commission not sinking billions into this?
2. Pneumatic cars (which I know very little about) but which are reported to be a viable option.
3. Reducing the speed limits across Europe which will save fuel (the number one priority!) reduce pollution and save lives.

Andris, I would like to emphasise how much we appreciate the opportunity to present these arguments on your blog. In your first blog entry you said you were here to listen. I sincerely hope that is the case and that following the period of listening and analysis that there is a period of action.



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