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**Subject: ILUC – modelling will proof to be futile;  
therefore other approaches are needed.**

Baumgarten, October 31<sup>st</sup>, 2010

Dear Mr. Hodson,

We met earlier regarding the sustainability of vegetable (palm) oil use in Combined Heat Power (CHP) plants. The topic of bio-energy is near to my heart and I appreciate the effort the EU Commission and particular you and your team make to address this rather complex issue. Exactly the complexity of bio-energy makes it so interesting and was one of the reasons that I got involved in 2005 as an independent consultant/planner and in 2007 as the co-owner of a company that aims to produce palm oil sustainably with small holders in West Africa.

However the more I am confronted with the reality (in Ghana and Germany), the complexity and issues, the less comfortable I feel about our ability to manage the impact of biofuels in particular and to a lesser extent of bio-energy in general.

**Therefore I do believe that current policies are on the wrong track and need to be replaced by policies that reduce the use of what we do not want (GHG emissions, too high dependency on energy imports), while only temporarily introducing policies that support the introduction of alternatives till they are competitive enough (wind, solar with storage).**

Therefore my policy recommendation is to refrain from further efforts to manage the complexity, which only a few specialists may partially understand. The modelling of ILUC will prove to be even more controversial than the model that derived the EU RED default values for different biofuels, which we have discussed at length in Nov 2008. **The materials on your website actually illustrate the controversy around ILIUC modelling already, and therefore the effort will in the end be futile. Let's avoid this waste of resources and tax payer's money.**

Therefore I rather choose for option

**H. Other policy elements that respondents may wish to raise. Specifically**

1. Stop ILUC modelling efforts.
2. **Protect existing investments in bio-energy in Europe, but stop all further expansion immediately, by:**
  - a. Capping the absolute level of biofuels once the 2015 goal of 5,75% at EU level has been reached. Thereafter any higher % goals shall be achieved by reducing fossil fuel use (see graphs below). A similar approach shall be taken for bio-energy which due to its low(er) energy density must allow for large regional deviations in each member state.
  - b. Only allow support for bio-energy of which the sustainability can be traced back by the actual consumer to the origin/producer, i.e. full "Identity Preserved" **and abandoning "Mass Balance" and other approaches.**
3. All prices for energy in the EU shall be expressed in Euro / GJ, besides common denominations like Euro/Ltr<sup>1</sup> etc., to make different forms of energy more comparable. The total taxation shall be shown transparently and simply to citizens, in just two items:
  - I. cost including profit as paid by the consumer to his supplier
  - II. the sum of all types of taxes, including a hint where details can be found
4. Remove all support of fossil fuels (there are still many countries with special tax breaks and subsidies).
5. Simple taxation of fossil fuels to replace complex trading schemes (Emission Rights, CDM whatever).
6. Taxation of fossil fuels into a "pool", in a similar fashion as the ECU/Euro was prepared. Instead of managing the then relevant currency speculation, now manage

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<sup>1</sup> Citizens are not aware that the still widely available fossil coal costs only about 2,5 Euro/GJ, what translates at 35% efficiency in electricity productions costs of 2,6cts/kWh, competing with wind energy in the order of 6 cts/kWh. Natural gas or diesel without taxes is at 8 to 10 Euro/GJ, while vegetable oil is at 15 to 20 Euro/GJ. Also, the conversion efficiencies shall be made more visible, most coal power plant still waste 50% of the primary energy, local wood or natural gas distributed heating/CHPs lose less than 20% of the primary energy.

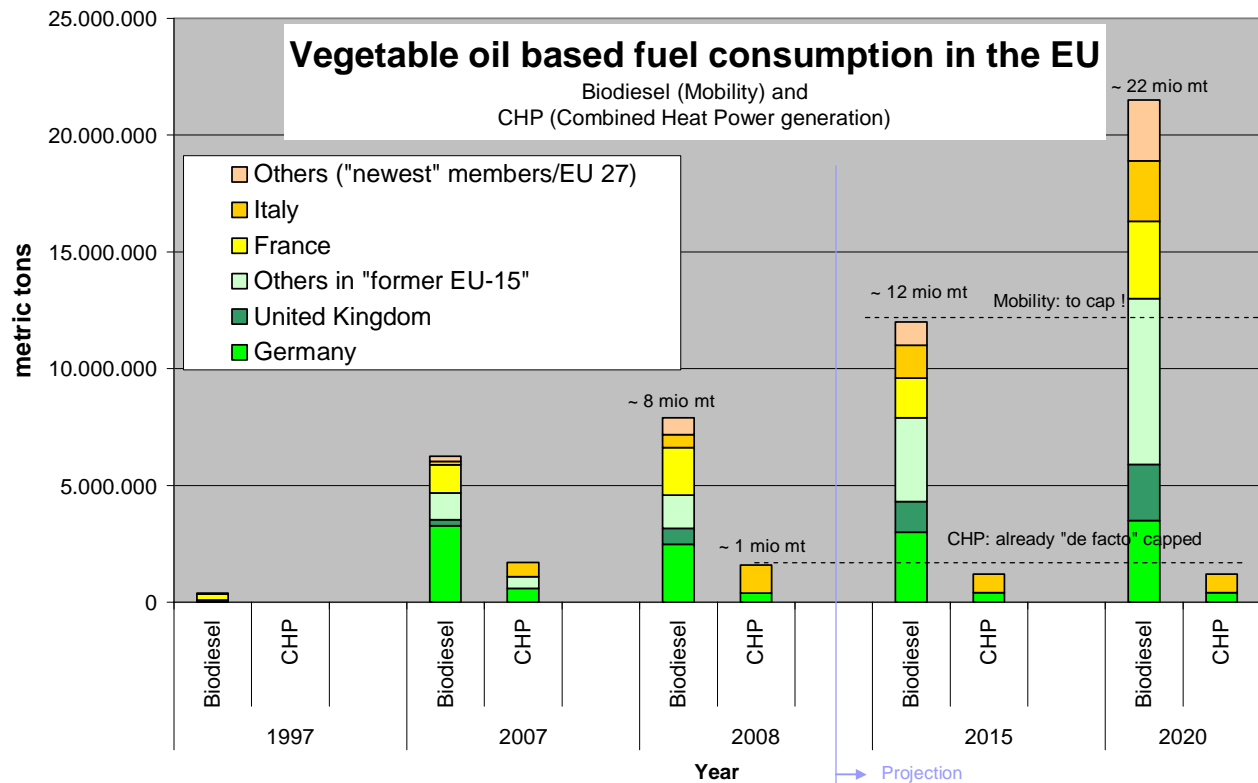
sudden price hikes in fossil fuels, while gradually and predictably making them more costly and therefore alternatives more competitive. Existing taxation mechanisms can be used, only the pool management will require new overhead, the European and Member State Central Banks would be well equipped to execute (past Ecu/Euro experience).

7. The taxation pool shall also be devised to leave room for tax incentives for investments in energy savings by citizens and SMEs. This shall replace mechanisms which make theoretically economic sense (CO2 price setting moves investments to most effective CO2 reduction), but in practice have only been beneficial to traders, advisors and consultants, who understand the complexity of these mechanism (CDM, ERs).

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You can stop reading here, but I like to elaborate a bit more with personal observations. I have been living “bio-energy” the past 5 years and with a significant stake in a company aiming to grow sustainable biomass it would be in my own interest to do everything to defend that we can master the complexity associated with policies that stimulate biofuels in particular. “Bio-energy” does offer opportunities for regional rural development, both in the EU as well as in developing countries. However only when the use of “bio-energy” is very carefully managed, does address highly efficient uses and stays away from demand creation for “insatiable” market segments with low energy efficiency.

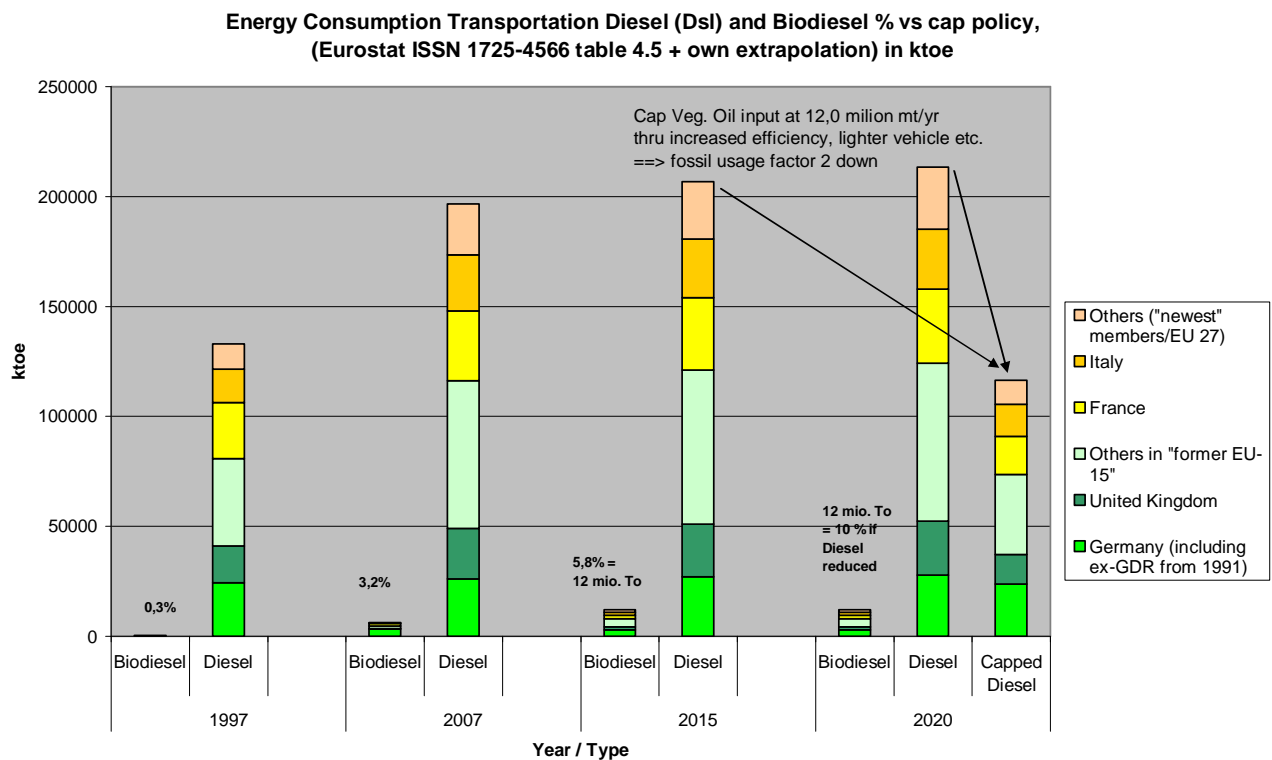
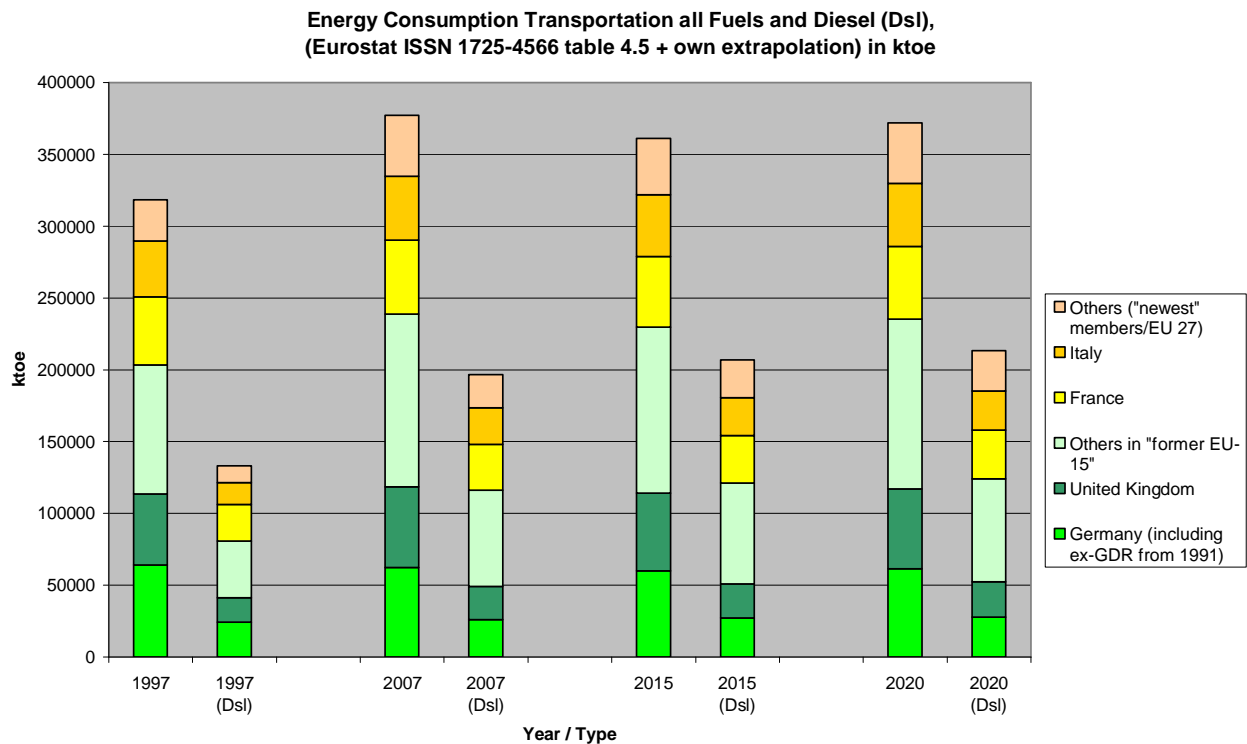
I have to be honest and to answer at my own detriment and say that the sooner we stop (further) stimuli for biofuels the better off the planet and we will be. It is in particular the insatiable demand for fuels in the mobility sector and the tremendous interests behind it that make biofuel policies so tricky. The below graphs, which project the impact of biodiesel blending targets versus the use in Combined Heat Power (where palm oil got so much opposition), illustrate the huge (artificial blending) demand in the transportation sector.



One could argue that if the same type of blending (10% in 2020) goals would be set for bio-energy in CHP sector, which serve households and commerce, that a similar insatiable growth would occur. This is partly true, but the impact would still be smaller, because CHP serves primarily a smaller (Household heat and electricity) sector which counted for 25% across the EU in 2007 versus transportation with 32%. Due to the high energy efficiency in CHP compared to mobility (roughly double) the same 22 million metric tons of vegetable oil needed to achieve 10% blending in transportation by 2020, could reach close to 25% substitution in the CHP Household sector.

The 22 million metric tons of vegetable oil as input for biodiesel shall be considered against the annual production of vegetable oils. The largest producers Indonesia and Malaysia are each very roughly good for that volume annually, which would at current blending allow just 10% fossil (Diesel) substitution in the EU transport sector. Even when output can be increased with better yields, this will take a long time and only marginally close the gap between the supply and demand (from the insatiable transportation sector). The only real solution is to reduce the demand, which is possible with today's engine technology, but we have to set other priorities (less speed, a bit less security). For example a BMW-1 with a weight of about 2.000 kg and a 250 kW engine uses 4 to 5 litres on 100 km. What if we would optimize the engine for maximum speeds of 150 km/h instead of 250 km/h and reduce weight to say 1.000 kg? Usage would probably fall with a factor 2 without significant reductions in convenience or security. Such demand reduction can still be achieved through

blending goals, but rather by capping the “bio” part at a maximum absolute level, after that the % blend can be achieved through such savings, see the two graphs below:



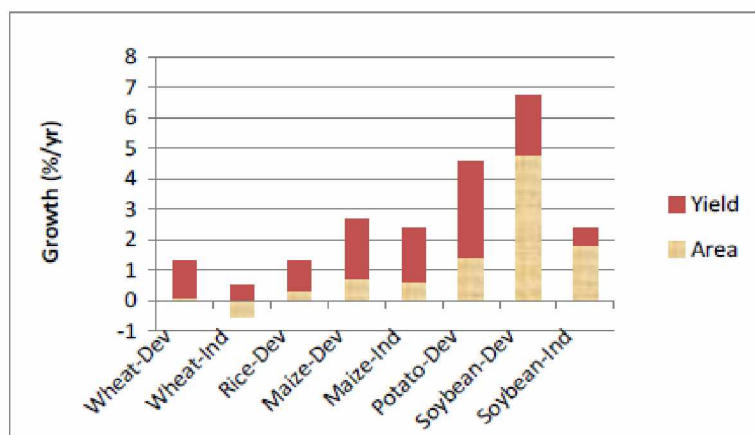
The current blending policies do actually postpone such much needed demand reductions; in addition they support the existing infrastructure and trading, which is in the hands of a few large private and state companies (oligopoly). It does not leave much real choice to the citizens, and as such could be seen as a “dictate”. Of course these companies tell us how green this is, but a true choice would be more in the interest of the citizens.

Or maybe we shall rather stimulate bio-energy applications that are more efficient and more transparent, like biomass based heating districts in his or her municipality? Therefore I recommend the EU commission to take policy clues rather from Member States without a vehicle industry (e.g. Austria, Denmark) than from those with such an industry or large areas of “idle” land (e.g. Germany and France). The worst that can be done is to look at Brazil as an example. A thinly populated huge country, that is the only one where ever a large part of the mobility energy demand can be met by “bio”. At the same time another crop from that area is used as animal nutrition in Europe. In Europe this may have led to the abandoning of agricultural land in the past, which we now put back in use for biofuels. However the below FAO graph

*Can technology deliver on the yield challenge to 2050?*  
Fischer et al.

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**Figure 3.1: Contribution of area and yield to production growth, 1991-2007**



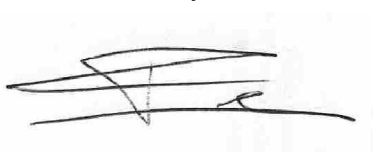
shows clearly that of all the crops worldwide the only crop with significant growth output not from moderate yield increases/ha was soy. We all know what has been happening in the Amazon region! This example, dating from before the times of bio-energy policies, demonstrates the impossibility to put a figure on the impact of any policy by modelling beforehand. No one really bothered to model the shift to soy as nutrition for European cattle, it was the market that decided. Profits will drive trade faster than any method or model can capture, let alone transform in effective, i.e. simple and understandable policies. Therefore creating markets artificially leads quickly to unintended consequences.

The solution lies in taxation and in very strict monitoring of the origin of biofuels, that is using “Identity Preserved (IP)” only and to abandon “Mass-Balance”. The latter is beneficial for traders, certifiers and bureaucrats only. “IP” can provide direct advantages to the producers and end-users. In reality, as we experienced as small biomass firm, the “mass-balance” approaches to certification are applied to “Identity-Preserved” biomass, making the certification complicated and costly for small volumes. However these are more often produced in a less monolithic agriculture system, which is less harmful for bio-diversity, than the “mass-balance” products from large industrial mono-culture farms and plantations. Today, the EU RED and its mass-balance approach have already created a significant barrier to market entry for small producers serving local customers (rapeseed mills in Europe) or export customers (small scale mills in Ghana to CHP units in Italy or Germany).

On the other hand “IP” can serve global community building and support meaningful economic development in the small holder farmer sector in many developing countries. Such a more personal approach to business can command a premium from end-users. Policies as the German Renewable Energy Law can provide the investment security for SMEs to invest in the development of such “IP” biomass, exactly what we tried. However due to their scale such projects are not funded by development banks, which look for deals of 20 million Euro upward, commercial banks will not finance projects in risky countries (Moldavia, Ukraine, Ghana, you name them). Large companies will get political support for multi-million deals in such countries. An approach of a few hundred thousands Euro is virtually impossible to finance, as we can tell.

Adding ILUC models to sustainability requirements based on “mass-balance”, will further increase complexity and therefore reduce the chances for smaller new-entrants in the (bio)-energy markets. Consequentially they will strengthen the established oligopolies (Shell, Exxon, Gasunie, Cargill, ADM, Bunge etc.). Blending, which requires both mass-balance and ILUC assessment, may be convenient for policy makers, but it unavoidably creates market barriers and therefore does violate fair competition rules set by the European Union.

Yours sincerely



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