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Renewable Energy Sources (RES).

Background.

In 1997, the year the Kyoto Protocol was agreed, the Commission published a Communication suggesting that the EU should take steps to increase its share of renewable energy from then approximately 6% of gross energy consumption to 12% by 2010.
The Commission's ideas were well received (by the then EU-15), and has later been accepted as a guideline for subsequent legislation such as the 2001 Directive on renewable energy in electricity production and the 2003 Directive on bio-fuels. The 12%, however, was never as such turned into binding legislation.The fact that 12% happens to be double of 6% led some Member States with low shares of RES to satisfy themselves with doubling their low share, e.g. Germany who around 2000 adopted a national target of 4%, up from 2% at the time. On the other side Members States with shares above 12% felt comfortably "off the hook".
Against this backdrop it is no surprise that progress towards the 12% target has been modest. The 2006 share stood at around 6½% (for EU-27, corresponding to around 7% for EU-15 since the new Member States on average have lower RES shares than EU-15). The 2010 share is unlikely to get significantly above 8% if at all above.
Measured against the proposed increase from 6 to 12% this is less than half of the performance aimed for. It reflects a most disappointing development in the use of biomass, whereas wind energy, the other main foreseen contributor to the increase in RES share, has actually over-performed relative to expectations in 1997. It must be noted that the conventional method of calculating contributions from different renewable energy sources to the overall energy balance underestimates the value of wind energy (and hydropower) by only giving credit for the energy content in the electricity produced, whereas electricity generated by biomass combustion gets credit for the energy content in the biomass, usually 2.5 times the energy content in the electricity generated (thus also being credited for the 60% of the energy lost in the generation process!).
Overall performance under the RES in electricity directive has (as would be expected from the above) been better since wind energy automatically gets full credit for its value when measured as share of electricity generated. A 70% achievement of the 8% increase originally aimed for (14 to 22% for EU-15 when adopted in 2001, modified to 21% after enlargement) can be expected in 2010, roughly the same "success ratio" as expected for the bio-fuels directive (target 5,75% in 2010).

The New Policy.

In their 2006 Spring Council response to the Commission's Green Paper on Energy Policy, the EU Heads of State and Government took the relatively unusual step of proposing to the Commission to "consider" an overall renewable target for 2015 of 15% and an 8% target for bio-fuels. In view of the relatively slow progress so far achieved and in view of the lack of a proper impact assessment this was a quite courageous step and the Commission's "reply" in its January 2007 Energy Policy Package was no less wise: a binding 20% overall RES target for 2020 and 10% bio-fuels at the same date. In view of the backlog in achieving the 2010 targets and in recognition of the time it takes to get new EU legislation in place, including the time to implement directives in national

legislation, ambitious 2015 targets would hardly have had any chance to be met, whereas targets for later than 2020 would have missed the urgency aspect.
More regrettable is the lack of sufficient impact assessment. This should have shed light on the impact of dropping the separate target for RES in electricity, a sector in the process of becoming increasingly trans national and which has so far been the strongest EU driver on RES development. A proper impact assessment could also have provided a better basis for the very important discussion of the implications of expanding the use of bio-fuels.
Not surprisingly the 2007 Spring Council endorsed the Commission's proposal, including that the targets would be binding. Since they weren't binding anybody at the time of the Spring Council decision this could only be understood to mean that the Commission would have to go back to the drawing board and prepare the necessary proposals for legally binding decisions spelling out who should be bound to do what in a way that would add up to the targets decided.
This is basically what the Commission's proposal of January 23, 2008 does. However, the debate during 2007 demonstrated that this job was more demanding than what many assumed when Ms. Merkel declared victory after the Spring Council in March 2007. The price paid for the Spring Council consensus on binding (to be underlined) targets was that many Member States were promised that their special circumstances would be taken into account in the subsequent "burden sharing" whereas there were no echoes from Member States offering to do more than the average 13 percentage point increase necessary to get from the (estimated) 7% in 2007 to 20% in 2020.
In addition to difficulties in making the "burden sharing" ends meet, the question of methodology in calculating RES credits has become a hot issue. Continuing to use the traditional methodology would give a big incentive to the use of biomass over wind for RES electricity, however much less CO2 emission reduction or fossil fuel substitution. In addition, from almost any other point of view (economy, resource availability) wind is the most attractive RES for electricity.
The Commission has responded to the criticism of the existing methodology by changing to measure RES contributions against final energy consumption. This is an unconditionally positive step and must be maintained in the upcoming negotiations. However, achieving 20% RES is not the same task within the two methodologies. Attentive readers of the different documents will see, that since 2007 the estimated share of RES in 2005 has gone up from 6.5 to 8.5% and what at the 2007 Spring Council was declared to imply a tripling of "present" RES levels is now down to little more than a doubling. In fact, if the targets in the Commission's present proposals will be met, a recalculation of the achievement under the traditional methodology would most likely show an increase to 15-16% rather than the 20% previously announced.
This should by no means lead anybody to suggest going back to the old methodology and the Commission (and Council) would still be justified in calling the strategy ambitious. The targets can not be achieved without increasing the rate of RES penetration during the next decade by a factor of four compared to the present decade (the "old" 20% target would have required a factor of close to six) and the value of a certain percentage point increase would be higher under the new methodology if this leads to more wind energy in the overall share. But the new target is unlikely to be equivalent to the one based on gross energy consumption.

"Burden Sharing".

It is difficult to imagine a "burden sharing" methodology that wouldn't make several Member States claim that they have been treated unfairly. The approach chosen by the Commission to share out half of the required 11.5% increase (20 minus presently 8.5) on a "flat rate" basis and the remaining on a GDP pr. capita graduated rate with a modest rebate to Member States demonstrating a good record on early action appears a very good choice. Unfortunately there is reason to fear that

the deliberations in Council will be dominated by efforts by individual Member States to achieve a reduction in their respective proposed percentages. The Presidencies given the task to carry the proposals through to a decision in Council would be well advised to postpone any discussion of national requests for lower targets until the working group have come to an agreement on which targets could be increased if others should be reduced. The Commission could well be asked to shed some light on how the different numbers were arrived at. The commitments for Belgium, Finland and particularly Luxembourg seem low when judged against the criteria as described above.
One must hope that the European Parliament will be able to support a fair distribution of the required effort. This is clearly an opportunity for the Parliament to demonstrate that it can offer a contribution based on position taken with a European perspective rather than along national lines.

Trading. Certificates of Origin.

If it is true, that the Commission for a long period during the preparations of the proposals was planning to introduce a compulsory trading system in "green certificates" one can only welcome that the Commission has abandoned the idea. Insisting on Member States taking responsibility for ensuring the implementation of high shares of RES with considerable cost implications while at the same time opening up for full trading in different types of renewables with different support requirements would have been a high risk experiment. The lessons learned from the Emissions Trading Scheme, where after more than six years since the Commission proposed the scheme still no significant emission reductions have been observed in the industries covered, should not be ignored (this is not to deny that a lot of trading has taken place, but that should hardly be the success criteria).
This being said, it is obvious that the distribution of RES throughout the EU follows a quite different pattern from the distribution of commitments between Member States. A mechanism that allows Member States to trade their commitments easily will facilitate cost effectiveness of the overall exercise as well as provide a development opportunity for less wealthy Member States more generously endowed with RES. The negotiations should clarify whether the present proposal allows that or whether a specific MS to MS trading system should be introduced.

Bio-fuels.

The already established quasi-agreement between Council and Commission to increase the share of bio-fuels in motor fuels for road transport to 10% (presently around 2%) by 2020 is likely to be the most controversial part of the Commission's RES proposal. Or at least it should be.
When in 2001 the Commission proposed to push for a certain percentage of motor fuels to be composed of bio-fuels it was against the increase in oil prices during 2000 and the fact that around 10% of Europe's agricultural land was out of productive use because of over production of food. The 2010 target of 5.75% was estimated to be well below what could be covered by crops to be cultivated on set aside land. It was also recognised that bio-fuels were often inefficient in reducing CO2 emissions (bio-ethanol in particular with at best around 50% reduction potential compared to the fuel substituted) and certainly not cost effective in an overall climate strategy. However, the estimation was, that at oil prices in the range of 70-90$ pr. barrel, they would break even economically. Without a strong push on national governments by the agricultural sector the proposal is unlikely to have been adopted. However,
much has changed since 2001, in particular:

- oil prices have increased to the level where at least some bio-fuels should have become competitive without subsidies. This has not happened. Increased production cost, particularly raw material cost, has pushed the goal posts for competitive production almost as fast as oil price increases. Bio-fuels have often been blamed for the price increases for corn, wheat, soybeans or palm oil. However, at this point in time other factors seem to be more important than the relatively modest increase in global bio-fuel production, but many studies seem to agree, that future global demand for food leaves little room for significant withdrawals of food crops for motor fuel without significant upward pressure on food prices and/or serious environmental impact from increased demand for land and water.
- Processes that convert cellulosic (non food) material such as straw or wood into bio-ethanol or bio-diesel may be close to commercialization. Enzymatic fermentation of straw or wood yields so-called second generation bio-ethanol and gasification of biomass and subsequent catalytic conversion of the gas into hydrocarbons delivers a high quality, second generation bio-diesel. There is no doubt that these processes are technically possible, but cost, yield and energy efficiencies of the processes are either unsatisfactory or uncertain.
- The environmental impact of bio-fuel production, particularly of associated land use changes in some developing countries, is cause for concern beyond what was addressed in 2001 (or later for that sake). It seems clear today, that little land previously set aside has been or will be the land on which future EU bio-fuels will be grown. Land presently covered by tropical forest, whether in South America or in South East Asia may well end up providing the additional bio-fuels for EU with subsequent loss of biodiversity and in some cases with high initial CO2 emissions, outweighing the value of the substitution for decades to come.

With an increasing number of red lights flashing and insufficient impact assessment behind the proposal, the bio-fuel target should not be adopted as prposed at this time. The Commission's proposal of a certification scheme does not solve the problem. There is much more sugar cane or palm oil grown in existing plantations to allow apparently "sustainable" bio-fuels to enter the EU market (assuming no fraud in the system, a somewhat optimistic assumption if judged from experiences in the tropical timber certification scheme), but this will only lead to new land being cultivated in order to cover the uses previously covered from existing production. Brazil has pointed out that increased sugar cane production will not be on land presently covered by tropical forest. But if it will be on land presently used for soybeans and tropical forest will be burnt down to provide land for new soybean production to compensate for the land used for sugar cane, then where is the difference? Any certification scheme that only looks at direct effects is deemed to provide an illusionary comfort. This is worse than nothing. As a minimum, no bio-fuels should be imported from countries that don't have a sustainable land use management. If such a policy is not WTO consistent, there would be scope for WTO to take a second look on the rules.
This should not be taken to mean that bio-fuels as such is a mistake, it only means that care has to be exercised and up to date knowledge has to be taken into account in implementing an EU policy on bio-fuels. The concerns over future oil supply constraints make transport fuel savings and substitution a must in EU energy policy. However, four conditions have to be met in order for bio-fuels to meet acceptability and efficiency criteria:

- bio-fuels have to deliver at least 50% CO2 emission reduction compared to conventional motor fuels on the basis of a life cycle analysis

- bio-fuels, whether EU produced or imported, have to be produced sustainably. Sustainability assessment must include direct as well as indirect effects, implying the need for overall sustainable land management
- bio-fuels should not be based on raw materials used for food unless significant impact on global food prices can reasonably be excluded
- Production of bio-fuels must respect usual energy efficiency criteria in order to ensure responsible use of biomass resources, a criterion that will become increasingly important in a world moving towards less fossil fuel and more renewable energy.

These criteria do not exclude future development of bio-fuels, but they do restrict the options. First generation bio-fuels don't perform well, neither on the CO2 criterion nor on the food price impact criterion if one believes the present forecasts from FAO. Imported bio-fuels as presently planned (bio-ethanol from Brazil or palm oil derivatives from South East Asia) are far from convincing candidates. And some second generation bio-fuels, e.g. synthetic bio-diesel, may represent a waste of precious biomass if only providing a 50% energy yield. Using the biomass to replace gas oil or natural gas presently used for heating and subsequently the gas oil or natural gas substituted for road transport would result in more CO2 reduction, more oil substitution and less cost per unit of biomass used.

What then remains as attractive bio-fuels? Waste material that can be turned into motor fuels with acceptable energy efficiency qualifies. Slaughterhouses burn big quantities of waste animal fat and the food industry, including restaurant, generate significant quantities of waste cooking oil, - both good candidates for bio-diesel. Biogas can be used as bio-fuel as already demonstrated in Sweden and if combined with a policy for broader use of natural gas as a motor fuel, a policy that makes sense from a climate as well as from an oil security policy point of view, biogas could deliver a solid contribution to a bio-fuels target. Second generation bio-ethanol or bio-diesel may be produced with acceptable efficiencies if combined with waste heat utilisation or produced in "bio refineries" where intelligent use of the total biomass is ensured. Finally, EU renewable energy policy should give equal credit to the use of renewable electricity in transport. Since 2001 plug-in hybrid and even electrical only vehicles seem to have developed into more realistic alternatives to conventional vehicles, certainly no less attractive possibilities than bio-fuels.

In conclusion, the right bio-fuels strategy should take priority over one that prematurely fixes a medium term target with uncertain, if not unwanted, consequences. Taking a few more years to better assess the results of the present strategy and developing the framework for possible use of gaseous bio-fuels and for electricity does not prevent the EU from achieving 10% renewables in transport by 2020 and won't affect the overall target for renewables of 20% by 2020.

A binding target of 5.5% bio-fuels by 2014 would still allow a 10% target to be reached in 2020 with annual increases of 0.75% during the 2014-2020 period, the rate of increase originally foreseen in the 2001 proposal. Within such a modest 2014 target (present legislation calls for 5.75% at 2010) a certain share could be imported from developing countries on the condition that the respective countries would demonstrate sustainable land and forest management in the near future, a condition which is not met at present in potential bio-fuel exporters such as Brazil, Indonesia or Malaysia. The slower expansion of bio-fuel penetration would also allow other, less advanced, developing countries an opportunity to develop a sustainable bio-fuel industry, e.g. countries in Sub-Saharan Africa.

Certification of countries rather than of individual plantations or batches of bio-fuel would not only ensure a better guarantee for true sustainability, it would also provide an encouragement for more sustainable forest management in countries where excessive deforestation has been the order of the day for decades. WTO has a golden opportunity to demonstrate green credentials in this case.

With a modest import of bio-fuels, e.g. up to 20% of the total EU bio-fuel consumption, with accelerated use of waste animal fat and cooking oil, with a modest contribution from demonstration projects for second generation bio-fuels, with a more aggressive policy on using biogas and hopefully some electricity in transport, the necessary quantity of first generation bio-fuels wouldn't have to exceed a few percent of total motor fuel consumption, keeping it at a level where serious impact on world food prices would be avoided. All the uncertainties surrounding the future potential for and impact from different types of bio-fuels call for a more trial and error oriented development at the political level. Picking winners is obviously not possible today, but promoting losers should be avoided. This is a challenge for which there is no quick fix.