

## **E C GREEN PAPER – SECURITY OF ENERGY SUPPLY**

1. The E U needs to ensure it maintains maximum diversity of energy source to minimise its vulnerability. In particular, clean coal and nuclear will be key ‘defensive’ fuels in the future being less vulnerable to disruption. Maximising renewables will help, but problems and costs will have to be properly accounted for.
2. To effectively integrate electricity networks EU wide considerable development work needs to be undertaken to cover reinforcement of the network, controllability, fault currents, stability etc.etc. The development of overall standards could come from such work and this is the area the EU should focus on, forming an umbrella set of standards allowing effective interworking. Studies of US good and bad points will provide useful background. Competition rules need to maximise self-sufficiency and diversity where possible.
3. Yes a complete review is needed. Once an overall energy strategy has been determined, taxation policy should be a component to reinforce the strategy.
4. No comment.
5. Diversity would help stockpiling. Some fuels are easier to stockpile than others. Uranium is sufficiently compact to make storage very practical, some biomass crops could be ‘stockpiled’ in their natural state, coal mines could be kept in a “usable” condition for longer term emergencies. In this way there could be short term reserves, medium term and even long term if there are adequate plans in hand to ensure effective implementation. Dual and multifuel generation will also help.
6. Research is needed in each country to determine what electrical generation mix can be accommodated practically. The integration of intermittent electrical generation such as wind, wave and so on, could be made easier by inter-country transfers. Research and Development is needed to model how this can be achieved and controlled with adequate levels of security and maintainability of supply. Only when the practicalities of EU electrical network integration has been determined and solutions found to the problems such as stability, fault currents and control can pressure be applied by various means (pricing/tax) to increase the flows. When the EU is enlarged much greater variability of expectation of supply reliability will pertain. Each country may ‘defend’ itself to ensure it maintains its own level of security which will not help the countries with weaker systems. This again will affect flows because of even greater stability problems. A really good model is needed of how the flows of electricity can be maximised for the good of the overall EU and what agreements, regulation and inducements are needed to make it work. Problems can be very real, e.g. California.

7. Development is needed in many areas – for example system control mentioned above, nuclear waste and reprocessing, clean coal technology and, of course, the renewables. Most of these will need external support and directly offsetting one fuel against another is probably not sensible. Tax is already paid on profits and this should be made effective.
8. A lot more research is required on making nuclear generation acceptable – it is an increasingly essential component of environmental control.
9. Inter alia (1) Clean, efficient and pervasive public transport to wean car users off the road (increasing pain before creating effective alternatives will not work as has been found in UK), (2) Maintain and replace nuclear generation, (3) produce effective clean coal generation, (4) maximise renewables, but even more important (5) reduce demand – demand side control could be maximised, such as larger domestic hot water boilers which could also be used for space heating for periods, switched to suit the generation situation (possibly also associated with thermal solar).
10. The effectiveness of uncoordinated country initiatives is likely to be less than a coordinated programme. However, it will probably be more acceptable if countries carry out work which they deem high priority but the work is done on behalf of the EU and shared. Competitiveness should not be an issue as the market should be pan EU (although this is certainly not the case for electrical equipment at present where some Utilities still only purchase from national suppliers, e.g. EDF)
11. Both regulation and tax should be used in balance, i.e. minimum levels by regulation and improvements over this by tax incentives.
12. It is essential to provide good alternatives first and then make the more emissive one more expensive. If we had good rail freight with local delivery people would use it, similarly public transport versus cars.
13. Make sure all views are sought and listened to. Do not have a politically pre-determined agenda which clearly will turn-off all other views. Convince doubters by logic not deafness.

Some general points are:

1. The emotion of “tripling” of oil price is a bit over the top as it was for a very short period and the main fluctuation was from \$30 to \$20 and reasonable stability is \$25.
2. Many renewables are intermittent in character and the system operator can only depend on the minimum guaranteed generation. Any generation above this would need storage or conventional backup, making these renewables much more expensive (this makes comparison on page 17 of the Technical Document most doubtful, although the problem is mentioned on page 42). Of course, any renewable generation

will contribute to the environmental targets. Steam plant fuelled by biomass may be a possible backup to other renewables in a peak-opping mode. New storage technology such as Regenysis and new products such as superconducting fault limiters are needed.

3. I am wholly against Emissions Trading. A dirty producer should clean up his act not “buy” the right to carry on polluting.
4. Energy saving best practice should be spread across EU – I rarely see escalators in UK which automatically switch on and off when approached.

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