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Professor Nicholas Stern
Second Permanent Secretary
H M Treasury
1 Horse Guards Road
London SW1A 2HQ

8th December 2005.

Energy Policy Review.

Dear Professor Stern,

I am a building services engineer specialising in the heating of buildings.

I read engineering at St Catherine's Oxford ran a factory area for BTH, AEI, and GEC picked up an MBA at Cranfield Business School, installed a production control and manufacturing costing system based on contribution principles, for United Spring in Birmingham. Then started using my engineering as a Building Services Engineering Consulting Engineer. I became particularly interested in the analysis of the costing of the joint products of heat and power from Combined Heat and Power and in the economics of retrofitting insulation to existing buildings and acted as an adviser to the Select Committee on Energy when Arthur Palmer and Ian Lloyd were chairmen.

Our firm was actively involved in the work that went into Energy Papers 35, 37 and 53 and we carried out a feasibility study for Southwark and the GLC on the option of a Coal fired Combined Heat and Power plant to heat Southwark and this work was presented at the Sizewell Enquiry where the return on the CHP was similar or better than the return on Sizewell and where during the enquiry the CEGB accepted that Nuclear CHP as analysed in EP 35 would be economic to heat London if the Nuclear plant was sited at Bradwell instead of Sizewell.

Despite requests for the White Paper team to investigate large (coal fired CHP for cities, the cleanest way to burn coal) and to investigate Nuclear CHP as the means to make best use of this technology to displace carbon emissions neither option was considered as DTI considered it was a job for DEFRA and DEFRA thought it was a job for DTI.

I request that these options are added to your review list.

I request you add the issue of security of heat and power supplies, as cities and central power stations will come to a halt when sufficient transmission lines are blown up or

blown down!

Remote central generation whether nuclear coal or gas fired can not offer security of supply.

Based on work we have done with government support under the Community Energy Programme and further work we are doing under an EU funded project under their Concerto programme it would appear that the installation of medium sized CHP units connected to the Low Voltage side of the numerous 500 and 750 kVA transformers that link the 11kV rings to the 415V/240V final consumer connections may well be more economic as a means of reducing carbon emissions from existing buildings that some measures due to be imposed under building regulations that have capital costs of £2000.00 to £3000.00 per kW of heat load displaced.

I would be grateful if you could add this option to your review.

In our analytical work it is clear that for the electricity sector the conclusions as to the optimum strategy can change depending on the assumptions made about the Carbon overhead for Electrical power.

At a Global level the marginal plant and its carbon overhead, tends to be coal fired and there is a good case to use this measure as the appropriate signal. Currently a variety of different assumptions are used in different papers and I would be grateful if you could investigate how to provide a level playing field in assessing carbon.

Certainly the current practices of the DTI do not appear to be market based as they distort signals in line with their view of the least cost technology for power supply. which may not be least cost overall when security of supply issues are analysed and the linking of power supplies to use of waste heat from power generation are evaluated as a joint exercise with DEFRA instead of the current fragmented arrangements.

The same applies to the building sector under ODPM where supplies of waste heat to groups of buildings fell outside the terms of reference for the development of Part L of the building regulations.

In this sector I request you investigate the methods currently used to evaluate the carbon content of waste heat from power generation.

The DTI, OFGEM take the view that if heat is used from power generation then the heat becomes the prime product and power the waste product.

This view is not supported by a marginal cost analysis of many types of different power cycle.

The view results in incorrect signals in relation to use of waste heat from power

generation to displace other forms of heating.

Consider a tomato grower who wishes to use the heat from the cooling towers of a new CCGT power station to grow food or to heat his house using underfloor heating. The signal in Dukes is that any heat he takes has a carbon content of about half the fuel burn in a boiler and its associated carbon content and that, as such, he is liable for and a carbon tax on its use.

The view of the DTI and OFGEM is that using the heat cleanses the power. The power station is then shown in statistics and other models as having its carbon emissions per kWh of electricity reduced, and is in a better position for carbon trading.

The fundamental signals to encourage the use of waste heat from power generation appear to be on the wrong product and, as a result, encourage more use of power and discourage use of the waste heat.

The signal the assumption produces would tell a motorist first that by running his car heater he could save fuel for his journey and further that insulation of his car could be a way of saving carbon.

I would be grateful if one of your Treasury economists could discuss these issues with me and you could add this item to your list of matters to be investigated.

I know from work I did for EBRD in Romania looking at recommendations to invest in the renovation of two power plants, that the advice resulting from use of the WASP model in a study carried out for the World Bank was not correct. The WASP model like the assumptions made in the economic analysis conducted for the White Paper assumed that heat is the prime product from CHP.

The power plants to be upgraded were changed following my work. Similar changes took place in energy studies where I was the CHP expert in Lithuania, Kaliningrad, Ukraine, Belarus, Crimea and Romania.

I am arranging for papers and reports that address these issues to be forwarded to you in electronic form, some funded by the Community Energy Programme.

I would welcome the opportunity to meet you briefly to discuss these matters briefly and will be happy for this letter to be put into the public domain, though I have reservations about the matter of the vulnerability of the transmission system.

I am copying the letter to Rhodri Morgan who was on the select committee of Energy when we visited the City of Odense in Denmark where the whole city population 175,000 can be heated from a large coal fired CHP plant and where I visited a coal mine.

On our sums, the carbon emissions from this option are similar to the DTI central scenario of central CCGT and local boilers particularly due to the current growth in all electric heating, arising from the new Part L regulations, where I suspect that the use of average costs for all forms of energy electricity gas etc and average savings have resulted in encouraging high carbon electric heating to the disadvantage of lower carbon sources of heat such as gas or waste heat from CHP

We think a scenario of using gas to put in local secure heat and power generation now, to build up a large heat network that then takes waste heat from coal fired CHP or Nuclear CHP, will provide a more secure, economic and sustainable future than investment in remote Nuclear generation with its adverse effect on balance of payments.

Such a scenario will extend our gas reserves provide a supply system for biomass heat in line with Sir Ben Gills proposals and keep all fuel options open whilst at the same time allowing all our carbon targets to be readily achieved.

Yours sincerely,

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Managing Director

cc

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