Some notes and observation on current Energy Policy, December '09

A great deal of talking and posturing has taken place over the last six months, with the Labour energy ministers setting more and more ambitious renewable energy and emissions targets; 80% (even 90%) reduction in CO2 emissions by 2050, 32% renewable electricity by 2020 and so on. We are signed up to a "legally binding" target of 15% renewable energy for the UK, part of the EU target of 20%, by 2020. We currently produce less than 2% renewable energy and are the third worst country in the EU after Luxemburg and Malta; it is puzzling that we are frequently told we lead the way in Europe. To say these targets are "challenging", as Lord Hunt and Ed Miliband frequently do, is politically understandable but they are demonstrably impossible. A recent paper from the Institution of Mechanical Engineers (Climate Change, November 2009) explains this, others have said the same thing but it may be that the engineers and industrialists who have to make them happen have not stood up to be counted and left matters to a few climate change economists.

There are two imperatives; the first is security of supply and the second is managing climate change. We face a particularly worrying decade during which, as a result of inaction by successive governments and a mistaken belief that the market will ensure secure supplies of energy, we lose one third of our electricity generating capacity. This is all explained in "A Pragmatic Energy Policy for the UK" by Ian Fells and Candida Whitmill, (Fells Associates September 2008). Crisis point arises in the middle of the decade when lights may go out. After initially denying that this might happen, Government Papers now agree with this analysis. If this is allowed to happen, whoever is in power at the time will be blamed. So what can be done about it?

Here is a route map to energy survival for the UK that will keep the lights on and yet still demonstrate positive moves towards the ultimate, long term objective of a low carbon economy. This is spelt out in some detail in "A Pragmatic Energy Policy". The bare bones of a strategy are as follows:

- Extend the lives of the nuclear stations due to be decommissioned over the next few years. Accelerate "new build".
- Connect the UK to Norway, Germany, Denmark and France(2) with power lines to integrate us into the European grid network. Start at once.
- Extend the lives of coal-fired stations due to be retired by 2015 for not meeting the EU Large Combustion Plant Directive (LCPD). This will mean applying for derogation from the EU, which may not be granted, in which case we will have to keep them going anyway and be fined.
- Give permission to build new coal-fired stations using supercritical technology. This will reduce CO2 emissions by 20% over old stations which they will replace. Carbon Capture and Storage (CCS), as yet undemonstrated, can come later.

- Build Energy from Waste plants (incinerators feeding electricity generators), typically 30-40 MW, around large conurbations. Start now. This will also ease the landfill problem. Also build power stations to burn indigenous biomass, wood etc. Some are already on the stocks but we have to find around 25,000MW from somewhere.
- The fall back position is to build more gas-fired stations. Build as few as we can get away with, bearing in mind the security aspect of importing gas. Any that are built should be on a site that can accommodate a CCS plant.
- Government figures suggest we will only manage 14% renewable electricity, mostly wind, by 2020. This will only make a modest dent in the Generation Gap, and wind makes little contribution to security of supply, being fickle. Wind is incapable of base load generation but could make a useful contribution by powering desalination plant and recharging batteries for electric transport. Progress should start now on building the Severn Barrage, followed by other barrages up the west coast of England, to provide up to 12% of UK electricity. The Severn barrage could just be completed by 2020.
- Provide substantial gas storage as a matter of urgency.
- Give a guaranteed, government backed, floor price for electricity generated using carbon free technologies, for up to 40 years. This will include nuclear power and provide a valuable incentive to invest in long-lived tidal power and nuclear.

Post 2020 the situation ought to improve as new nuclear stations and Tidal Barrages come on stream. They will contribute to decarbonising the electricity supply. CCS may be available for coal stations by then but a massive increase in electricity generating capacity will be needed if we are to electrify transport.

Professor Ian Fells and Candida Whitmill, Fells Associates, December 2009.