SUBMISSION FROM PROFESSOR BRUCE HOBBBS

Targets:

I believe the targets are unachievable and they are mistaken in their construction. Renewables should mean all forms of renewables – but the Government has concentrated its subsidies on wind power. Through this it seeks to reduce CO₂ emissions. However this is an ill-informed approach – wind power is intermittent, it is not there when most needed i.e. whenever the wind is not strong enough or is too strong (and especially during cold high pressure systems in winter and hot high pressure systems in summer). To deal with intermittency fossil fuel power stations have to be built to guarantee at least 90% of installed wind farm capacity. For much of the time these conventional power stations run at reduced efficiency and increased CO₂ output. The more wind farms that are installed, the more fossil fuel power stations have to be built. (Consider China – hundreds of new coal fired power stations have been built to back up their wind farms). Wind farms use large amounts of concrete in their construction producing copious amounts of CO₂. This, and the increased emissions from back-up power stations, renders the Government’s CO₂ reductions targets unworkable and meaningless.

Research should be fostered into all forms of renewable energy and the Government should not interfere in the market place. Those technologies that are most efficient will come through. The Government has skewed the market place, effectively severely reducing any incentive to do better than the (money-earning) status quo. There are far more efficient technologies even in wind power generation than is seen in the current drive for ever larger turbines with an ever increasing damaging effect on the population’s acceptance of them, damage to the countryside and increased costs to all consumers, rich and poor. For example small (10m high) vertical axis turbines can be closely packed and yield over ten times the power output per unit area. They would be much less intrusive, rather like a stand of trees and could probably be under-planted at existing wind farm sites with power collection infrastructure already in place. These new turbines will make the current models obsolete very soon and Scotland will be left with white elephants. All because of a misguided approach to subsidising one aspect of renewables and backing the wrong one.

A more constructive renewable will probably be found in tidal power (not wave power, which is driven by wind). Tidal flows will continue as long as the Moon revolves around the earth. Moreover the tides themselves are entirely and accurately predictable. Money that could have gone into research in this area has been squandered – given handsomely to wind power generating companies and landowners. This money comes from all consumers’ pockets – I expect they would have preferred it to be used more wisely.

Challenges:

(a) Technology

Wind power technology in the UK is behind the times. CalTech has produced better. Wind power is not what we need (see Targets above). Intermittent energy is not compatible with our needs.
(b) **Supply chain and infrastructure**
I very much doubt if Scotland will be in a position to export its high cost, intermittent electricity, produced from soon to be obsolete technology, to anyone – least of all to England where there will be emission free nuclear power.

(c) **Planning and consents**
The planning system is not fit for purpose. It makes a mockery of democracy. The population spend a large amount of time attending meetings to formulate local plans. Councils adopt these plans and in particular commission land capacity surveys indicating suitable and non-suitable areas for wind farm development. Developers and landowners completely ignore these local plans. If the Councils uphold their own local plans, at enormous cost, inquiries are held and a single Government Reporter makes a decision – very frequently overriding the wish of the people. Indeed Government continually seek to make consent easier and easier for the developer against the democratic decisions of the people.

Instead there should be an overall plan – not a piecemeal one where development can be tested, at enormous expense and agitation, just about everywhere. Take the Council’s reports and make a plan based on the land capacity surveys contained therein. Do not allow speculative and provocative development applications outside the chosen areas.

(d) **Access to finance**
Government have already made a one-sided influence in the market place. Subsidies should be withdrawn and competing technologies should be allowed to compete.

(e) **Skills and workforce development**
There has been a steady decline in the standard of school leavers and University graduates over the last 40 decades. Interfering targets are again the problem. Schools try to make students take fewer subjects so they can beat target grades in a few subjects. This does not encourage broad education with an inter-disciplinary approach. The standard of students entering universities is appallingly low – and yet pressure is placed on institutions to award ever more first class degrees. Such an approach does not produce a skilled workforce.

(f) **Energy market reform and the subsidy regime**
Energy markets and subsidies should be completely reformed. Research needs to be encouraged into diverse forms of renewables. Subsidies to developers should be withdrawn and the Government should not intervene in the market place. Instead finance should be channelled into joint University/Company research development – those products that are good will get commercialisation funds through the usual start-up facilities.

Professor Bruce Hobbs