


Power UK

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VIEWPOINT

Melting markets, melting ice caps

Are the current targets for cutting carbon emissions realistic or setting us up for a fall? Can markets alone deliver such reductions? Dr Thomas Schneider offers his perspective on the UK low carbon ambitions and how to achieve them.

While the European Commission has been working to allocate member countries with their own specific targets, by 2012 the UK has committed to cutting its carbon emissions by 12.5% below 1990 levels under the Kyoto Protocol, a legally binding international agreement.

For the longer term and as a result of the recent G8 meeting, the UK has also agreed to a target of 50% below 1990 levels by 2050.

The purpose of climate scientists proposing target CO₂ atmosphere concentrations is to limit global warming and to help 'stabilise' the planet's climate. Depending on the scenario, the required reductions in carbon emissions are suggested at being between 60% to 80% of the 1990 emission levels, or greater, by 2050.

Historically, UK carbon dioxide emissions did fall at the same time that coal consumption was reduced and that generation shifted to oil and gas. However, coal consumption has increased and carbon emissions, while still lower than previously, are again on the rise.

There is also some controversy about emissions that can be attributed to the UK. Some economists suggest that if the carbon content of imports and the emissions associated with aviation and shipping are taken into account, overall emissions that should be attributed to the UK have actually risen.

Power technology

For the power sector, which contributes around one-third of carbon emissions, the main opportunities for reducing greenhouse gas emissions are as follows:

- Initiating end use efficiency and demand reduction measures;
- Introducing conservation and lifestyle changes on the demand side;
- Fuel switching – this replaces existing generation facilities with renewables and nuclear sources, and also uses carbon capture and storage for any remaining fossil fuel generation.

The Renewables Obligation Order in the UK is one of the government's mechanisms to reduce carbon emissions by increasing the proportion of electricity produced from renewables to some 15% in 2015. It has also created a

market in certificates acquired by suppliers of the renewable electricity.

The magnitude of the challenge in shifting to renewables, nuclear and carbon capture and storage is enormous. For example, in the US, the famous oil and gas billionaire T. Boone Pickens is promoting the Pickens Plan which would seek to generate approximately 20% of US electricity from wind in ten years- an endeavour that would cost more than a trillion dollars!

Unrealistic targets?

Depending on economic and population changes between now and 2050, a business-as-usual scenario might see energy use increase 30, 40 or even 50% in most of the developed world, and more in the rapidly developing countries that are seeing growth rates approaching 10%. Consequently, the actual reductions necessary from emission levels in 2050 would be more than 90% below the business-as-usual levels.

“The magnitude of the challenge in shifting to renewables, nuclear and carbon capture and storage is enormous.”

To achieve this level of reduction will require a drastic transformation of the energy sector that would entail virtually complete conversion for new generation facilities to renewables and nuclear, and an incredibly effective carbon capture and storage for any remaining fossil fuel generating resources. In parallel, nearly all direct fossil fuel use in other sectors of the economy would be eliminated.

Reaching 50% by 2050 and the intermediate target – 20% by 2020 – appear to have been set not by an analysis of the possible, but rather by poetic license or alliteration. In fact, even if all possible means of reducing emissions are pursued to achieve such goals in the long-term, it is likely that committing to an intermediate target of 20% by 2020 is setting us up for failure. Unfortunately politicians and policymakers across the globe seriously misunderstand how difficult it will be to transform the energy sector.

Melting markets compound the problem

The problem is exacerbated by the recent market meltdown and worldwide credit crunch as tight credit and financial instability raise risk premiums on private sector financing, making the achievement of the intermediate target far more difficult today than it was six months ago. Financing the construction of new facilities through the free market will be more difficult, more expensive and raises serious concerns over the reliance on market forces.

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Building new generating facilities powered by wind, other renewables and nuclear will cost trillions of dollars worldwide and will also require government mandates.

Yet, in this time of privatised, restructured and deregulated utilities, these mandates rely on market forces which are best at creating an opportunity to profit and not at achieving a public good. Furthermore, there is not simply a single market to focus on, but individual markets including electricity, renewable certificates and the market in greenhouse gas emission credits.

Can we trust the health of our planet to market forces? Should we turn from the opportunity for corporate profits to embrace again the obligation of the utility industry to serve the public?

It certainly would be easier to administer and probably also less expensive for the consumer but it would also shift accountability from ‘markets’ as the means of discipline to the government. As parliament represents the people, it would make the suppliers responsible to the people. After all, it is the individual’s right to clean air and a safe environment and not industry’s rights to pollute, which is central to the issue of climate change.

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