Crunch time for carbon

Other nations will not take Britain's commitment to tackle climate change seriously if we don't recognise that carbon capture and storage (CCS) is an imperative, not an option, argues Tom Burke

Climate change is a bad problem that is getting worse. For the present, it remains a manageable problem. Quite soon it will become an unmanageable problem. If that happens the future prosperity and security of 60 million Britons, and the 6.5 billion on the planet with us, will be substantially undermined.

Europe's leaders have already defined their view of this threshold. A rise in global average temperature of more than 20°C above pre-industrial levels takes us into the realm of dangerous climate change. Jim Hansen, the doyen of climate scientists, has recently argued that even this is too high.

As things stand, the odds are at best about even that we can stay below this threshold. Unless global greenhouse gas emissions peak within the next decade or so and then decline very rapidly, those odds will worsen considerably.

To succeed, we must make the global energy system carbon-neutral by about the middle of the century. This will be a massive task. It will require coordinated action on a scale never yet attempted by mankind, making the Apollo or Manhattan Projects look trivial by comparison.

The most urgent priority to achieve this goal is the rapid deployment of carbon capture and storage (CCS) on all new, and eventually all operating, fossil-fuelled electricity generation.

A carbon-neutral energy system will be massively electricity-dependent for mobility and for heating and cooling. You cannot have billions of individual gas boilers, air conditioners or petrol driven vehicles, all emitting greenhouse gases, in a climate-secure world.

It is certainly possible to chart a technologically available pathway to a carbon-neutral energy system that does not use coal. But climate security cannot be achieved at the price of energy security. Because it is both very widespread geographically and relatively cheap to obtain, there is no political likelihood that the rapidly rising demand for coal will slow.

Many people have doubts about CCS. Some of them, that the technology is unproven, for example, are not well founded. All of the technologies needed for CCS are available and in use today. Others, for example, that not every country will have readily available reservoirs to store the carbon dioxide, are more serious.

Many people wonder whether the reservoirs will be safe over the very long periods for which the carbon must be stored. There are certainly issues here that must be resolved very quickly but it is important to remember that the reservoir we are currently using, the atmosphere, is definitely dangerous.

The IEA currently projects that the world will build some 1,400 additional large coal-fired power plants to meet increasing energy demand by 2030. If they are all built and operate for their planned lifetime with current technology, there is no prospect that the world can avoid dangerous climate change.

But these projections do not take into account the need to remove gas-driven heating and cooling and petrol-driven movement from the energy system. Since nuclear power can play only a limited role in meeting this vast increase in demand for electricity – the IEA projects only a small increase by 2030, and even the very ambitious Chinese programme of 40 new reactors would only deliver four per cent of their electricity – the bulk will come from renewables and coal.

The renewables, especially wind and solar, can, and will, deliver much more than is conventionally thought. Last year wind alone added 15GW to global generation capacity compared to just 2GW for nuclear. But, for energy security and cost reasons, coal will still be the largest fuel for electricity generation.

This makes CCS an imperative, not an option. It will not be cheap. It is therefore very urgent that we get on immediately with the EU's proposed programme of 12 commercial scale demonstration plants. The faster we learn how to add CCS to new and existing coal-fired plants, the faster we can drive costs down.

It is rightly pointed out that what the Chinese and Indians do will dwarf any efforts to reduce emissions that we make in Britain. But by the same token, it will be our prosperity and security that will be undermined if they do not adopt CCS very rapidly. Since we cannot expect them to do something for our benefit that we are not prepared to do ourselves, that makes our own actions crucially important.

Britain has been widely, and rightly, applauded for taking a global lead in responding to climate change. But actions always speak louder than words. Our actions have often given less of a lead than our words. This is a crucial year in the run up to the negotiation of a global deal on climate change in Copenhagen next year.

In these circumstances, it is difficult to see how other nations will take us seriously, or our children forgive us, if we allow the proposed coal-fired power station at Kingsnorth to go ahead without CCS. If the only way to make this happen is for the public to pay the additional cost, we should do so. ●

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