E3G

Decoding Nuclear Nonsense II

A reader's guide to the Government's announcement on the future of nuclear power in Britain.

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About E3G

E3G is an independent, non-profit European organisation operating in the public interest to accelerate the global transition to sustainable development.

E3G builds cross-sectoral coalitions to achieve carefully defined outcomes, chosen for their capacity to leverage change.

E3G works closely with like-minded partners in government, politics, business, civil society, science, the media, public interest foundations and elsewhere.

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Summary

The Government's case for new nuclear build in Britain rests on two key propositions: that it is essential to maintain Britain's energy security and that without it Britain cannot meet its climate change emissions. Neither proposition is valid. Nuclear power can do nothing to improve Britain's energy security or help it meet the urgent challenge of climate change.

- even if an order were placed today there would be no new nuclear electricity before 2020;
- the capital cost of nuclear power has tripled in the past three years to $6,000/Kw;
- the world's nuclear capacity increased by 2GW in 2007 compared to some 15GW for wind power alone;
- in the next three years, Britain will spend £2.8 billion/year on cleaning up the nuclear legacy of the past and nothing on deploying carbon capture and storage

In this reader's guide, Tom Burke highlights the 5 key claims being made in support of the Government's position, and sets out the real economic, political and environmental evidence against each one.

"The Government is making a 'difficult long term decision'[1] to go ahead with nuclear power."

It is doing no such thing. Nothing has prevented, or now prevents, anyone who wished to build a nuclear power station in Britain from doing so. They have not been built because Britain's privately owned utilities have assessed them as uneconomic.

The Government is simply announcing, to no-one's surprise, that it is in favour of new nuclear power stations in Britain. It is also announcing again that it will

[1] Gordon Brown in The Observer, Sunday 6th January 2008

help potential investors in new nuclear power stations by reducing planning and regulatory constraints.

In due course, Britain's French- and German-owned utilities will have to make a tough decision about whether to order a capital intensive nuclear power station in the face of highly uncertain electricity and carbon prices. The Government has consistently announced that it will provide no public subsidies to nuclear developers. Many people expect that it will try to find some way to work around this commitment in order to guarantee revenues to the nuclear builders.

"Nuclear power is essential for Britain's energy security"

There are three significant threats to Britain's energy security.

The most important is the threat of interruptions to our oil supply. However, essentially all of Britain's oil is used for transport and cannot be replaced by nuclear electricity. Preventing political instability in the Middle East and reducing our dependence on imported oil by more efficient transport systems are the only ways to improve the security of our oil supplies.

Much has been made of the threat of becoming over-dependent on imported gas, particularly from Russia. Unfortunately, half of our gas is used directly for domestic space and water heating and cannot be replaced by electricity.

More is used for industrial processes, leaving under a third that is used for electricity generation. Much of that third is used to generate electricity at peak times because gas turbines can be easily switched on and off to meet short term spikes in demand. Nuclear power stations must be run continuously.

This considerably limits the role nuclear electricity can play in reducing our dependence on gas, from wherever it is imported.

Finally, Ministers have frequently expressed anxiety about the 'generation gap' that will emerge as some 20GW of obsolete coal and nuclear capacity is closed between now and 2020. They argue that this would threaten security of electricity supply. If this capacity is not replaced by new nuclear, carbon-intensive gas or coal will have to be used thus damaging the climate.

Unfortunately, the Government's own nuclear consultation admitted that even if an order were placed immediately under its accelerated regulatory procedures, it would be 8 years before construction could start. It also assumed a 5 year construction period – making an optimistic assumption for a wholly new design.

The Government has not explained how a nuclear power station that will not be operating before 2021 can help it meet a 'generation gap' it expects to appear well before 2020.

"Nuclear power is necessary to maintain climate security"

New nuclear build in Britain will not help with climate change and will divert capital, and more importantly, scarce skills away from investments in the carbon neutral coal technologies, renewables and energy efficiency that will reduce our carbon footprint faster and more cheaply than nuclear.

The Government's commitment to keeping the eventual rise in global average temperature to below 2^0C cannot be met unless the world very quickly makes its coal use carbon neutral by deploying carbon capture and storage technologies. The International Energy Agency forecasts 1400GW of new coal fired power stations by 2030.

China is building new coal fired plant at the rate of 2GW a week. China also has the world's most ambitious nuclear power programme. It plans 40 nuclear power stations by 2030. If they are all built they will still only provide 4% of China's electricity.

If we want others to make their coal burning carbon neutral we must do so ourselves. Action speaks louder than words. In the next three years Britain will spend £2.8billion/year on cleaning up the nuclear legacy of the past. We will spend nothing on deploying carbon capture and storage which is the world's most important technology for ensuring climate security in the future.

Given our real, as opposed to our rhetorical, priorities, why would anyone believe that we were serious about carbon capture and storage?

"A nuclear renaissance is underway around the globe"

But only in the headlines. The build rate for new nuclear power stations around the world has been 1GW/year since 2000. Simply to replace the existing reactors as they become obsolete means building 14GW/year for the next 23 years.

There are major constraints to increasing this rate of build. There is a 6 year waiting list for reactor coolant pumps and only 2 places in the world now produce the specialist forgings required for reactor pressure vessels. Engineers, welders and other workers with the specialised skills for nuclear construction

are in short supply and experiencing very high demand for more immediately valuable projects.

These supply chain pressures have seen a rise from $2,000/Kw to $6,000/Kw in the capital cost of new nuclear power stations in just two years. The much vaunted Finnish reactor, the first of the new generation of reactor designs, is already 2 years late after just 2 years of construction. Construction costs are at least 25% greater than forecast and the whole project is more than £1 billion over budget.

"There are problems but they can be overcome by political will."

This is certainly what Gordon Brown thinks. It is also what Margaret Thatcher thought. Shortly after taking office she announced a programme of 10 new reactors. They were to be built to avoid the danger that Britons would find themselves freezing in the dark. 15 years later 1 reactor had been built at 2 times its original cost. She had been defeated by the economics of nuclear power. No-one froze in the dark.

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