

The UK has ‘invited’ private investment in new nuclear power – but not because the industry’s problems have been solved. As the recent white paper makes clear, the government believes that it will be difficult to meet climate change and energy security objectives without nuclear as part of the fuel mix. But how realistic is the nuclear option?



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Unclear power

| by Alex Forbes

Of the large pile of energy-related documents published by the UK government on the 10th January, it was, predictably, the “new nuclear power” white paper that grabbed the headlines and generated the most debate.

Right from its earliest days the nuclear power generation industry has held a fascination for governments and the general public. Some believed that this new technology would produce electricity that was ‘too cheap to meter’. However, it was not long before the realisation began to dawn that nuclear electricity generation was difficult and expensive to implement – and prone to rather scary accidents. Three-Mile Island and Chernobyl are too well-known to need comment.

These two incidents obscured the fact, however, that in some countries nuclear

electricity had been successful. Nowhere more so than in France, a nation short of indigenous energy resources, which generates more than three-quarters of its electricity from its vast nuclear industry. The consequences of this are that French electricity prices are lower than in most other European countries, France is the world’s largest net electricity exporter and per capita emissions of CO₂ are very low.

Throughout the UK government’s nuclear white paper there is an underlying conviction that nuclear power generation is a ‘proven technology’. This is hard to argue with, not just because of the French experience, but because, around the world, nuclear power stations amount to a substantial proportion of power generation capacity. But the curious thing is that nuclear power seems to

work much better in some countries than others. In France, the nuclear industry is a matter of national pride. In the US, nuclear power has not been something to shout about.

Someone once explained to me why: ‘In France, they have hundreds of types of cheese and only one type of nuclear reactor. In the US they have hundreds of types of nuclear reactor and only one type of cheese.’

This is hyperbole – France’s 59 reactors come in four types, three of which are pressurized water reactors (PWRs). Moreover, my advisor had obviously spent far too much time dining in hamburger joints in the US. But it makes a good point. The French nuclear programme is based on just a few generations of identical reactors. In the US and in the UK, no two reactors are alike.

Until the mid-1990s, outside certain countries – such as France and Japan, another wealthy country desperately short of indigenous energy resources – the nuclear industry was very much in the doldrums. Then, awareness began to grow about the likelihood of anthropogenic climate change. Meanwhile, the low-carbon impact of nuclear power began to give people ideas. What began as a glimmer of hope for a beleaguered industry has today become the biggest come-back in history since Lazarus.

so investment decisions will be needed ‘in the next few years’. Of the 22 GW of capacity that is likely to close over the next two decades, just over half will be fossil-fuel generation, while 10 GW will be nuclear power. At the very least, the government would like to see new nuclear power cover the retirement of old nuclear power.

Over and above that, however, there is the pressure to mitigate climate change, and the uncertainty that still surrounds investment in renewable technologies

currently one of the cheapest low-carbon electricity generation technologies’ sound disingenuous.

The nuclear power white paper is a curiously worded document which – at least to this reader – gives the impression of attempting to justify a decision reached some time ago. Also curious was the wording used by the UK’s energy secretary, John Hutton, when he launched the white paper. Instead of saying that the government was ‘encouraging’ or ‘supporting’ private investment in nuclear power, he used the word ‘inviting’ – as though the government was organizing some kind of garden party or dinner.

Nuclear power seems to work much better in some countries than others

What is now termed the “nuclear renaissance” is gathering momentum fast. In the US, there are so many new proposals for nuclear power stations that it is hard to keep count. The first European Pressurized Reactor (EPR) is under construction in Finland – though way behind schedule and vastly over-budget. And in France, Europe’s second EPR, at Flamanville, passed a significant milestone in December, when first concrete was poured. Construction is expected to take 54 months.

The UK government’s nuclear white paper is part of this zeitgeist. In re-launching its nuclear consultation last year – after an earlier consultation was successfully challenged in the courts by Greenpeace – the government made clear that its ‘preliminary view’ was that ‘it is in the public interest to give energy companies the option of investing in new nuclear power stations’.

The government’s rationale for wanting to pursue the nuclear option – along with the renewable options that January’s new energy bill also encourages – is hard to argue with.

Over the next two decades, the UK will need 30-35 GW of new electricity generating capacity. Two-thirds of this investment will need to be made by 2020,

and, even more so, power generation’s holy grail of commercially-viable carbon capture and storage (CCS) technology.

Adding yet more pressure to encourage new nuclear power is the issue of security of supply. Again, it is hard to argue with the government’s rationale that the nuclear option would increase diversity in the fuel mix and thus increase security of supply.



Fast breeder-reactor at a power plant at Dounray, Scotland. Photo: Charles E. Rotkin/Corbis

Where the government is less than convincing is on the inter-related issues of economics, waste management and decommissioning – issues that time and again have returned to haunt the nuclear industry, especially in the UK. This makes the government’s claim that ‘nuclear is

There are, amongst the measures that the government has announced to ‘facilitate’ new investment, some good-sounding ideas. Streamlining the planning process, and arranging processes for what the government calls ‘Generic Design Assessment’ and ‘Strategic Siting Assessment’ could certainly help to lower some of the barriers that nuclear projects have encountered in the past.

The government insists that: ‘It will be for (*private, ed.*) energy companies to fund, develop and build new nuclear power stations in the UK, including meeting the full costs of decommissioning and their full share of waste management costs.

So, whatever the current debate over the UK government’s decision to ‘invite’ the private sector to build new nuclear power stations, the ultimate test will be whether companies such as Eon and EDF choose to go ahead with their proposals. Given the massive commitments that these require, we can be sure that they will look very carefully at the issues and the risks.

Even if they decide to proceed, the government does not expect construction on the next UK nuclear power station to begin until around 2013, with first power then likely in around 2018. This in itself calls into question the contribution that new UK nuclear power could possibly make to the EU’s ambitious 2020 energy targets.

In the UK, at least, the case for new nuclear power remains unclear. ■