

# *UK takes first step in long journey*

| *By Alex Forbes*

Europe's biggest energy companies have been scrambling to acquire land on which to build the UK's next generation of nuclear power stations. Some say the first of a series of such stations could begin generating electricity as soon as 2017.

But the obstacles – political, technical and financial – remain formidable.

When the government ushered in the UK's nuclear energy renaissance with its White Paper of January 2008, it did so with language that was uncertain, almost hesitant, in tone. Insisting, after a long-drawn-out process of consultation, that 'it would be in the public interest to give energy companies the option of investing in new nuclear power stations' it concluded that 'it is likely that energy companies will come forward with proposals for nuclear power stations although we cannot predict this with certainty'.

The government need not have worried. Developments since then have demonstrated a hearty appetite among Europe's major energy companies to pursue the opportunities that the UK has opened up. EDF has paid what some regard as a very high price – £12.5 billion – for the UK's main nuclear power operator, British Energy, primarily to pursue new-build projects adjacent to existing nuclear stations. Two consortia of major European energy companies – one composed of RWE and Eon, and the other of Scottish and Southern Energy, Iberdrola and GdF Suez – have formed joint ventures to pursue new-builds. Several other energy companies are waiting in the wings.

In a sign of the seriousness of the contenders' intent, an online auction of land nominated for new-build nuclear, arranged in March by the Nuclear Decommissioning Agency, has been attracting unexpectedly strong interest. What was meant to last a week has lasted for several – as bids have spiralled to well above what many had expected. NDA's project manager Sam Hounslow said the NDA was delighted with how the auction had gone. The cash the auction generates will be used to help meet the costs of decommissioning the existing nuclear fleet.

Another sign of the contenders' determination has been the success that some of them have achieved in securing all-important grid connection agreements at these and other sites so that any future power stations are able to export their electricity to the national grid. In yet a further move, some of the contenders have been wooing local residents with extensive campaigns of consultation aimed at smoothing the planning and licensing approvals process once it begins in earnest. Before that can happen, several government initiatives under way to facilitate the processes of site and technology selection and approval – as outlined in the January 2008 White Paper – will need to be successfully completed.

One currently under way is the selection of sites that will be considered for nuclear new-build in a process known as Strategic Siting Assessment (SSA). Announcing the start of the nominations process, Energy and Climate Change Secretary Ed Miliband said: 'We've taken



Oldbury nuclear power station, Gloucestershire, England. Photo by: Martin Page/Hollandse Hoogte

some big steps towards next generation nuclear in the year since the publication of our White Paper. The industry continues to gear up to invest and we are on course to see new nuclear feeding into the grid by 2018.’

The full list of nominated sites is due to be published in the spring of 2010. That will be the green light for the various contenders to apply for planning and licensing approvals – estimated to take around three years, until around 2013. Applications will be fast-tracked by the Infrastructure Planning Commission (IPC) set up as part of planning reforms passed by parliament last year. Assuming a five-year build programme, the first plant or plants could – conceivably – be generating electricity early in 2018.

### Front-runner |

The front-runner among the contenders is widely regarded to be EDF Energy, following its acquisition of British Energy, which was the UK’s biggest power generation company with a share of around 20%. EDF believes that the best locations for potential new-build are adjacent to existing sites, assets with which it is well-endowed. That was a large part of why EDF was willing to fork out as much as it did.

The logic appears to be primarily that local residents will be more comfortable with a nuclear expansion than would people in green-field locations. Also, these sites tend to be in favourable locations for accessing the electricity grid, especially considering that all but five of the existing reactors are due to shut down by 2018.

EDF Energy now owns such land at eight locations around Britain. The technology to be used will be Areva’s 1,600 MW European Pressurised Water Reactor (PWR). ‘EDF Energy intends to build four new EPR nuclear reactors in the UK, with the first to be operational by the end of 2017,’ said chief executive, Vincent de Rivaz, ‘subject to a robust investment framework being put in place in the right timescales. Site selection is vital, but just one of a number of pieces that must be put in place. It is important there is continued progress in all aspects of the framework, also including reactor design assessment, planning and waste and decommissioning policy.’ The company has secured transmission connection agreements with National Grid and has agreed to sell land it owns at Wylfa, through the NDA auction process.

### Open mind |

Hard on the heels of EDF is the German company RWE, on its own account and in joint venture with Eon. Like EDF, RWE has the advantage of owning a major UK power generation company,

*‘We are on course to see new nuclear feeding into the grid by 2018’*



RWE npower, which has evolved from what used to be National Power, the largest non-nuclear generator formed during electricity privatisation in 1990.

Even before the NDA auction, RWE npower had been busy buying up land and options on land for potential new-build nuclear. And like EDF it has several grid connection agreements.

RWE and Eon announced in January that they were establishing a 50:50 joint venture to pursue nuclear power opportunities in the UK, with the aim of developing 'at least 6 GW of capacity'. Unlike EDF, it is keeping an open mind on the choice of technology and has said it 'will make a decision based on a thorough assessment of the technical and commercial merits'.

Scottish and Southern Energy and Spanish power company Iberdrola announced they were forming a joint venture for the nuclear new-build programme in January, just a few days after RWE and Eon announced theirs. They said at the time that they might consider new partners and have since been joined by GdF Suez. Other partners are being considered. They also said that 'the joint venture will not be bound to any single vendor for new nuclear development, and will be able to make use of the best available technology for each element of the nuclear new build programme'.

## Waiting in the wings |

Several other major European energy companies are also believed to want to participate. They include Centrica, Vattenfall, Endesa and Unión Fenosa. Centrica may yet take a stake in British Energy, thus joining up with EDF Energy. Meanwhile, Vattenfall has been linked with the Scottish and Southern Energy/Iberdrola/GdF Suez joint venture.

So, the UK government's hopes that companies would RSVP to its invitation to join in the nuclear renaissance have been more than adequately answered. But there are still many questions to be answered before any of the contenders will feel able to take a final investment decision (FID). One such question relates to technology and the process of Generic Design Assessment (GDA), one of the measures the government has implemented to facilitate the planning and licensing approvals process – in the hope that a generic approval will reduce the amount of inquiry time that needs to be devoted to technology. Neither the government nor the nuclear industry has forgotten how long it took to complete the marathon planning enquiry for Sizewell B.

Three designs are being taken through the second stage of the GDA process: Areva's EPR, the Toshiba-Westinghouse Electric Company's AP1000; and GE-Hitachi's ESBWR. The government has estimated that concurrent assessment of all three will take around 3.5 years, but there are some who fear that the process could take much longer. The government is also going through a process called Justification – required by European and UK regulations because any new class or type of practice involving the use of ionising radiation needs to demonstrate that its benefits will outweigh detrimental health effects. While there has been no suggestion that the decision might be negative – not least because the justification authority in this case will be the government – there are fears that the process could lead to delays.

Last – and by no means least – is the question of how much companies will have to cough up to establish funds for decommissioning and waste management. The phrase 'full share' in the context of waste management is used because part of the costs of waste management will be a contribution to the costs of a future geological waste disposal facility for intermediate- and high-level waste.

The government has agreed in principle that investors 'need clarity on the maximum amount that they would be expected to pay' for their share of such a facility. Again, the government has embarked on a programme to tackle this issue. Again there are concerns that any delay would lead to delays in reaching FIDs.

It is clear therefore that the government and its invited private investors are embarking on a long and complex journey which will involve considerable risk and not a little courage. But they have at least taken their first steps. ■



Photo by: Skyscan/Corbis



Photo by: Corbis