

Utilities signal preferred UK sites

The supporters of the eleven sites nominated for the next wave of new nuclear build in the UK may be more surprising than the sites themselves. By Ian Jackson



received by the 31 March application deadline: ten in England and one in Wales. No Scottish sites were nominated. In an unusual legal move, two of the four NDA-owned sites were nominated jointly by both the NDA and energy utilities as a contingency to avoid nagging legal doubts about the decommissioning authority's powers to nominate its own sites for new nuclear development. Section 10 of the Energy Act 2004 gives the NDA powers to 'operate electricity generating stations' but only for the NDA's principal function of 'the operation pending the commencement of their decommissioning' of nuclear stations and 'the cleaning-up of designated nuclear sites' under Section 3 of the Energy Act. The Sellafield and Bradwell development sites were not nominated separately by energy utilities, potentially exposing the NDA's nominations to a future *ultra vires* legal challenge by Non-Governmental Organisations (NGOs). This risk could affect the auction values of development land at Bradwell and Sellafield.

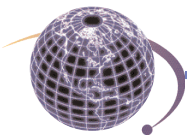
Full technical details of all the applications were published 15 April on www.nuclearpowersiting.decc.gov.uk, a Department of Energy and Climate Change public consultation website. The one-month public consultation period closes on 14 May. After a Strategic Siting Assessment (SSA) is carried out by DECC government officials, the sites will be included in a draft Nuclear National Policy Statement (Nuclear NPS) planned to be published for consultation late in 2009 then finalised before an assumed Easter 2010 General Election. The Nuclear NPS is a crucial strategic roadmap for new nuclear stations in the UK, authorising approved sites for nuclear build over the next two decades and most probably beyond.

As expected, nearly all of the nominated sites are situated adjacent to existing civil nuclear power stations in line with an industry expert group report 'Siting New Nuclear Power Stations: Availability and Options for Government' published in May 2007. The government also set an important pre-condition that site nominations must be accompanied by a letter of support from a Credible Nuclear Power Operator (CNPO), having previous international experience of both running nuclear power stations and of the UK's complex nuclear safety regulatory regime. CNPO energy utility firms were required to demonstrate deployability of at least one new nuclear power station, focusing on constructability, site planning, commissioning and the timing of any transmission and distribution infrastructure upgrade needed to make the nominated sites fully operational by 2025.

In response CNPO letters of support were issued by five European energy utility firms; the French utility EDF

Spanish energy giant Iberdrola has emerged as a surprise leading player in the UK's new nuclear build market, earmarking six potential construction sites. In late January energy companies and land owners were given just two months by the UK government to nominate proposed sites for new nuclear build taking place over the next 16 years, from now until 2025 (see *NEI* February, p9). In parallel the Nuclear Decommissioning Authority (NDA) began an auction on 16 March of three government-owned nuclear development sites at Wylfa, Bradwell and Oldbury, potentially valued at between £80 million to £240 million per site (see *NEI* October 2008, p30-33). A fourth government-owned site at Sellafield is planned to be sold off later.

Eleven nominations for nuclear development sites were



Proposed UK nuclear build sites with letters of deployability from energy utilities.

Source: DECC (15 April 2009)

	EDF Energy	Iberdrola	RWE npower	E.ON UK	Vattenfall
Hinkley	X				
Sizewell	X				
Hartlepool	X				
Dungeness	X	X			
Heysham	X	X			
Bradwell	X	X			
Oldbury		X		X	
Wylfa		X	X		
Sellafield		X	X		X
Braystones (N. Sellafield)			X		
Kirksanton (S. Sellafield)			X		
Totals	6 sites	6 sites	4 sites	1 site	1 site

Energy which supported 6 sites; Spanish utility Iberdrola which supported 6 sites; German utility RWE npower which supported 4 sites; and the German utility E.ON and the Swedish utility Vattenfall which supported one site each (see table). No British-owned utility firms supported any new nuclear build sites. Meanwhile Britain's Centrica – said to be in long-running partnership talks with EDF Energy – was noticeably absent from the list of CNPOs responding.

EDF Energy envisaged its earliest new nuclear build deployments at Hinkley and Sizewell, with an ambitious four-year build timescale beginning construction in 2013 with commercial operation achieved by late 2017.

Depending on winning the NDA land auctions [which were still ongoing as this issue went to press], Iberdrola envisaged its earliest new nuclear builds at the NDA's Wylfa or Bradwell sites reaching commercial generation in 2018/19. However Iberdrola estimated a more realistic seven-year development timescale, one year for site preparation and five to six years for construction and commissioning. Iberdrola also signalled its interest in developing the Dungeness or Heysham nuclear build sites currently owned by EDF Energy that are due to be sold off under a December 2008 merger agreement with European Commission (EC) competition authorities. The sell-off was originally contingent on securing planning permissions for EDF Energy's preferred Hinkley and Sizewell new build sites, but on 2 April the Energy Minister Mike O'Brien announced that the sell-off of Dungeness or Heysham should now happen unconditionally soon after EDF's takeover of British Energy has completed.

E.ON UK envisaged new nuclear build deployment targeted at the NDA's Oldbury site generating electricity from mid 2020. Like Iberdrola, E.ON UK also estimated a seven-year timescale for site preparation, reactor construction and commissioning.

E.ON's joint venture partner RWE npower envisaged new reactor deployment at the NDA's Wylfa site 'before 2025' without providing further details. However RWE npower has secured a 1200MWe grid connection agreement with National Grid at Wylfa available from 2020. Moreover EDF Energy has a 1600MWe grid connection agreement for Wylfa from 2017, which could transfer to the winner of the NDA's Wylfa land auction potentially giving RWE npower deployability from as early as 2017.

Iberdrola, RWE npower and Vattenfall all provided CNPO letters of support to the NDA's nomination for Sellafield deployable 'before 2025.' This is perhaps the most long-range development opportunity, with feasibility dependent on two proposed major grid-upgrade schemes; a northern upgrade circumnavigating the Lake District National Park and a southern upgrade involving a sub-sea marine interconnector spanning Morecambe Bay. RWE has secured a 1200MWe grid connection agreement from National Grid for Sellafield available from 2021/22.

“ The sites will be included in a nuclear NPS planned to be published for consultation late in 2009 ”

Just before the NDA land auction began in March 2009 the utilities announced a series of joint ventures intended to share the large financial burden of the major capital investments needed to construct new nuclear stations (Europe's newest nuclear reactor, the 1600MWe Olkiluoto-3 EPR presently under construction in Finland has reportedly cost €4.5 billion, around \$5.8 billion). Iberdrola has partnered with GDF-Suez of France and Scottish and Southern Energy (SSE) of Britain in a 40:40:20 joint venture to deliver new nuclear build projects in the UK. Similarly the German-owned firms RWE npower and E.ON UK have partnered in a 50:50 joint venture for British new nuclear build projects.

FRENCH FIRMS DOMINATE

In practice the French energy giants GDF-Suez and EDF, with 2008 revenues of €83 billion (\$108 billion) and €64 billion (\$83 billion), respectively, are most likely to determine the speed of future nuclear growth in Britain. But the gradual opening-up of EDF's nuclear siting monopoly in France may divert new reactor investment by GDF-Suez away from the UK toward building in the French nuclear energy market instead. Similar braking of investment in British nuclear power stations may also take place if either EDF or GDF-Suez become involved in the rapidly-expanding United Arab Emirates (UAE) civil nuclear energy programme.

Ian Jackson is the author of Nukenomics: The Commercialisation of Britain's Nuclear Industry published by Nuclear Engineering International