

why dump on us?

Andrew Blowers looks at the siting process for new nuclear reactors and finds power, profit and pragmatism dictating the siting criteria and a return to the 'decide-announce-defend' approach to decision-making



Above

The Sizewell site on the Suffolk coast

If the country's nuclear programme were starting from scratch it seems unlikely, to put it mildly, that a fleet of nuclear power stations would be built on coastal locations liable to erosion or submergence from rising sea levels, storm surges and coastal erosion. Yet this is precisely the policy tacitly being pursued by the UK Government in collaboration with the nuclear industry.

The White Paper on Nuclear Power¹ states: 'We expect that applications for building new power stations will focus on areas in the vicinity of existing nuclear facilities.' British Energy (BE) has echoed this statement during its round of public consultations on new nuclear power stations: 'We believe the best locations for potential new build are adjacent to existing nuclear power station sites.'² Accordingly, BE has, so far, focused its consultation

exercise on four sites – Sizewell (Suffolk), Bradwell (Essex), Hinkley Point (Somerset) and Dungeness (Kent). Oldbury (Gloucestershire) and Wylfa (Anglesey), owned by the Nuclear Decommissioning Authority (NDA), are also in the frame.

These sites, developed in the first flush of nuclear development in the 1950s and 1960s cannot conceivably be regarded as the 'best' sites today. They have been chosen simply because they host existing nuclear activities. There has been little attempt to hide the pragmatic basis for this site selection. Existing sites are favoured for three reasons. They are in friendly ownership with owners anxious to sell; they have available facilities and infrastructure; and they are situated in communities where public support allegedly derives from familiarity with the nuclear industry and the jobs and investment it will bring.

Choosing the sites – they're here because they're here

Taking the first of these reasons, the sale of sites, the obvious incentive is for both government and the nuclear industry to make as much out of the financial asset as possible. The Government, for its part, intends to play a facilitative role, opening up the way 'for 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'.³

As a first step, British Energy, part owned by the British government, is being sold off to Electricité de France (EDF), almost wholly owned by the French government. EDF will own BE's existing but ageing advanced gas cooled reactor (AGR) power stations and the country's only pressurised water reactor (PWR), Sizewell B. Crucially the sale provides EDF with sites that could be available for new power stations. It has made it pretty clear that it favours developing four mega-reactors (generating capacity, depending on design approved, between of 1,100 and 1,650 megawatts), two each at Sizewell and Hinkley Point.

However, as part of the deal and to meet competition rules, EDF must sell part of its asset to other companies willing to develop nuclear



Above

Nuclear power by the sea – the low-lying Blackwater estuary site of the Bradwell twin Magnox reactor power station, now no longer operational, is among the British Energy consultation sites

stations. Consider Bradwell, on the Blackwater estuary, in Essex. To protect its position, EDF has stipulated that the land at Bradwell will not be released for sale until approval is given for EDF to go ahead with two new stations at Sizewell.

In a further twist the Nuclear Decommissioning Authority (NDA) has indicated its intention, through a joint marketing process with EDF, to auction its

substantial land holdings around the Bradwell, Oldbury and Wylfa (Anglesey, North Wales) sites. The NDA intends to get the best price for the land, which 'will be highly attractive to power companies interested in new-build' (*The Guardian*, Nov. 27). This opens up a prospect at Bradwell, for instance, of not just one but two or more new power stations on a low-lying coast.

The second reason for favouring existing sites is that all have some existing infrastructure in the form of transport links and access to transmission lines, although these may need upgrading. It is interesting that three of the possible sites – Sizewell, Hinkley Point and Bradwell – were ranked highest in terms of 'availability' in a siting study undertaken for the Government by consultants.⁴ Already, in anticipation of a go-ahead on these sites, preparations are under way. Grid connections for new stations have been authorised, and work has begun on environmental and socio-economic assessments in the areas around the sites.

In terms of public acceptability, the third reason for siting at existing sites, it is frequently claimed that familiarity with nuclear activities reduces anxiety and that the economic investment is welcomed. Public opinion about nuclear energy in the community at large fluctuates. Not surprisingly, given the propaganda claims that nuclear energy is essential to plug the energy gap and to contribute to carbon dioxide emission reduction, some opinion polls have registered majorities in favour of new-build. But, the new-build plans are not just for nuclear reactors to produce electricity; they also include the storage on site of highly radioactive spent fuel.

Public acceptability of radioactive waste is quite a different matter, with the vast majority of people, consistently over four-fifths, registering concerns about radioactive waste.

At the local level the evidence of public acceptability is conflicting. Some studies suggest a more positive response to nuclear energy in existing nuclear locations, while others suggest that increase in knowledge may result in elevated anxiety. The most recent in-depth study on *Living with Nuclear Power*⁵ portrays the multi-faceted, complex and sometimes ambiguous perspectives experienced by local people.

The study was carried out before the new-build programme was announced and so did not consider how perceptions might be affected once new reactors and spent fuel storage facilities were under active consideration – nor did it consider whether local perceptions might change with the tangible prospect of a new nuclear power station in the vicinity.

Clearly reactions will vary, and the claim that nuclear power is welcomed in those places where it already exists has been neither verified nor

dismissed. But, pragmatically, less resistance is anticipated in existing locations than would be the case if non-nuclear sites were selected. Nevertheless, the developers will still have to face down stern resistance from active community-based action groups at each of the proposed sites.

Legitimizing the choice – the Strategic Siting Assessment process

The reasons existing sites have been chosen have much to do with financial criteria and political expediency and much less to do with environmental, social and democratic considerations. But, to justify the choice, the Government and the nuclear industry must avoid the charge of arbitrary and unfair decision-making.

Accordingly, the Government has set up a parallel process, a Strategic Siting Assessment (SSA), 'a process for identifying and assessing sites which are strategically suitable for the deployment of new nuclear power stations'.⁶ By this means it is hoped to demonstrate that sites put forward for new-build are based on a rational and comprehensive assessment. A set of draft strategic criteria has been drawn up against which sites nominated by 'Credible (*sic*) Nuclear Power Operators' (CNPOs) can be assessed in terms of their suitability for listing in a Nuclear National Policy Statement (NPS). The NPS will be the basis on which decisions will be made by the yet to be appointed Infrastructure Planning Commission (IPC).

In reality the SSA process may be seen as an elaborate means of achieving premature legitimization for a predetermined policy. A careful reading of the SSA criteria confirms that they have been drawn up with the already favoured sites in mind. The criteria suggest that none of the existing sites will be automatically ruled out, and, by implication, it is unlikely that any other sites will come forward to be ruled in. This position has been confirmed in the case of Bradwell by a spokesperson for BE who, at a public meeting, stated there are no criteria which, if applied, would eliminate it as a potential site.

The legitimating role of the SSA becomes transparently obvious if we look at the individual criteria. They are divided into 'exclusionary' and 'discretionary'. Failure to meet any exclusionary criterion would automatically disqualify a site. Not surprisingly there are not many of these criteria – only four in fact. In the case of *seismic risk* the consultation document comments: 'we do not expect that any areas of the UK will be excluded from consideration' on the basis of this criterion. Similarly, *capable faulting* is an equally gratuitous criterion, begging the question why include it if it is unlikely to fail any site anywhere in the UK.

The exclusionary *demographics* criterion is both ambiguous and contradictory. The criterion is basically expressed in terms of population density

weighted for distance from the site. On the one hand it is argued that it is no longer necessary to adopt a 'remote' siting criterion, as was the case for the first power stations. On the other hand, 'urban' sites are regarded as 'strategically unacceptable'. Instead, a compromise 'semi-urban' criterion is proposed, which seems neither fish nor fowl. If it is not necessary, on safety grounds, to site a plant at a remote location then it should follow that it is safe

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to locate close to urban areas. What is clear is that the criterion is drafted in such a way that none of the existing sites would fail on grounds of demographics.

Criteria no constraint to existing coastal sites

When we come to the 'discretionary' criteria (those which could make a site unsuitable) we find that they, too, are unlikely to fail any of the existing sites. The two most critical of these criteria are *flooding and tsunami, storm surge and coastal processes*. On any reasonable judgement such criteria should be exclusionary and they should be very carefully defined. Instead, we find they are discretionary and simply require developers to 'confirm that they can protect the site against flood-risk through the lifetime of the site', as well as 'take into account the wider impacts of their flood protection countermeasures on areas surrounding potential power station sites'.

But the chosen sites are already vulnerable, and some would be inundated without sea defences. Again, take Bradwell as an instance. Who, in their right mind, would consider building such a hazardous activity as a nuclear power station and spent fuel store on the lowest lying of all the proposed sites, where one report states 'direct inundation is a possibility' and another describes the site as 'vulnerable to subsidence, rising sea levels and rollover of the Blackwater estuary'?⁷

The risks from climate change in the form of rising sea levels, storm surge and coastal erosion are serious and increasing over time. While sea level rise of around a metre is expected by the end of the century, the most extreme predictions envisage a rise of over 4 metres. Combined with increased

extreme wave height and increases in the possibility of storm surge, defending a nuclear power station may well be a very tall proposition indeed for future generations to manage. Moreover, it is quite possible that radioactive wastes will remain on some of these sites until long after the reactors have shut down, perhaps indefinitely.

The threat to coastal locations requires an exclusionary criterion that takes into account the considerable uncertainties and rules out any nuclear power plant in circumstances where maximum sea level rise within, say, a period of 300 years would cause inundation of the plant and surrounding areas. Of course, such a criterion would almost certainly rule out the preferred sites and, for that reason, would be unacceptable to the Government and nuclear developers.

Among the other discretionary criteria are those concerned with environmental impacts. Existing nuclear power stations tend to be in or close to areas that are designated as of international or national ecological significance. Over the decades since the first stations were built, public interest in environmental protection of habitats, landscape and cultural amenity has grown. New power stations in such sensitive locations as the East Anglian coast or the Severn estuary would severely compromise precious habitats, wetlands and landscapes, some of them of international significance.

Additional criteria conveniently ignored

While none of the criteria included in the SSA is likely to fail an existing site, there is a notable absence of other criteria which might well do so.

‘While none of the criteria included in the Strategic Siting Assessment is likely to fail an existing site, there is a notable absence of other criteria which might well do so. Four additional criteria come to mind as relevant to a comprehensive siting assessment’

Four additional criteria come to mind as relevant to a comprehensive siting assessment.

First is a criterion on *health effects*, a surprising omission given that safety issues are right at the top of public anxiety about nuclear power. Admittedly, it is notoriously difficult to ascribe causes of leukaemias and other effects to nuclear

facilities, but the circumstantial evidence is suggestive, at very least. The recent German study identifying elevated levels of childhood leukaemias in proximity to nuclear power stations is the latest (and perhaps most authoritative) evidence of association that suggests a precautionary approach should be taken.⁸

A second additional criterion would relate to *socio-economic impacts*. Much is made of the positive economic impacts in terms of jobs,



Above

Sea defences warning next to the Sizewell site – ‘it is inconceivable that the selection of sites on vulnerable coasts in southern England represents the most optimal siting strategy, even in terms of the siting criteria suggested’

regeneration and community benefits that a new power station would bring. Depending on one’s perspective these benefits may be seen as incentives, compensation or, more plainly, bribes. What is rarely considered is any estimation of economic detriments in the form of the blighting effects on other activities (tourism, commercial fishing, etc.) and property values or the deterrence of inward investment. Then there is the overall but unquantifiable impact on a community’s sense of well-being created by the negative image and association with risk and danger.

Third, there should be a criterion on *public acceptability*. It is quite unacceptable to rely on the assertion that communities at existing sites are more welcoming. There is no compelling evidence to back this, the hostility of neighbouring communities is ignored, and no effort has been made to support a view that non-nuclear communities are unwilling to host new nuclear plants. Consultation in the form of presentations by interested parties (in this case British Energy) at thinly attended public meetings are a parsimonious, inadequate and disingenuous approach to gauging public acceptability.

Fourthly, another (un)surprising omission is a criterion on *proximity to demand*. It is evident from

the criterion on demographics that the criterion of remoteness has been relaxed to the point where proximity to substantial population is deemed acceptable. That being so, it can be argued that proximity to centres of demand will be an important consideration. Not only will it save the costs of long-distance transmission, but it would enable the huge amount of heat (about two-thirds of the total output of a power station) that is uselessly discharged into the environment to be used in combined heat and power systems.

Such an efficiency criterion ought to be mandatory, but it is easy to see why it has not been included. New nuclear power stations near load centres on the Thames estuary or located near

that the selection of sites on vulnerable coasts in southern England represents the most optimal siting strategy, even in terms of the siting criteria suggested. A fair and robust siting strategy should, in principle, identify a range of possibilities. But, practically speaking, such a strategy might well demonstrate that, given the choice, few, if any, communities will put themselves forward. In that event other less dangerous and renewable ways of dealing with the energy gap and climate change will have to be more vigorously pursued.

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other major conurbations might prove politically unacceptable. Dumping on existing nuclear communities in vulnerable and sensitive locations, it seems, presents much less of a problem.

An inadequate, flawed and unfair process

A careful analysis of the SSA reveals that it is nothing less than an elaborate exercise in seeking retrospective public justification for decisions already reached. The SSA consultation has an instrumental not a strategic purpose. The idea of siting such risky activities on sinking coasts would be dismissed out of hand if it were not for the privileged access and power seemingly possessed by the nuclear industry and its supporters. If the criteria were more clearly classified and defined and additional criteria included as suggested here, it is improbable that any of the existing sites would be put forward.

We must conclude that the siting process is inadequate, flawed and unfair. It represents a reversion to the discredited, 'decide-announce-defend' (DAD) approach, where sites are first identified and nuclear facilities then imposed on communities. The real reasons for dumping on existing sites are to do with power, profit and taking the line of least resistance.

A strategy based on existing sites provides little scope for alternative locations. It is inconceivable

Notes

- 1 *Meeting the Energy Challenge: A White Paper on Nuclear Power*. Cm 7296. Department for Business, Enterprise and Regulatory Reform. TSO, Jan. 2008
- 2 *New Nuclear Power Stations in the UK*. Consultation leaflet. British Energy, 2008
- 3 *Meeting the Energy Challenge: A White Paper on Nuclear Power* (see note 1), p.10
- 4 *Siting New Nuclear Power Stations: Availability and Options for Government*. Jackson Consulting (UK) Ltd., Apr. 2006
- 5 N. Pidgeon, K. Henwood, K. Parkhill, D. Venables and P. Simmons: *Living with Nuclear Power in Britain: A Mixed-methods Study*. Cardiff University and University of East Anglia. ESRC Social Contexts and Responses to Risk (SCARR) Research Report. School of Psychology, Cardiff University, 2008
- 6 *Towards a Nuclear National Policy Statement: Consultation on the Strategic Siting Assessment Process and Siting Criteria for New Nuclear Power Stations in the UK*. Department for Business, Enterprise and Regulatory Reform, Jul. 2008, p.3. <http://www.berr.gov.uk/files/file47136.pdf>
- 7 Quoted in *Local Options – Potential Effects of Coastal Erosion and Seawater Inundation on Coastal Nuclear Sites*. Document 1625, CoRWM (Committee on Radioactive Waste Management), undated
- 8 P. Kaatsch, C. Spix, R. Schulze-Rath, S. Schmeidel and M. Blettner: 'Leukaemia in young children living in the vicinity of German nuclear power plants'. *International Journal of Cancer*, 2008, Vol. 122 (4), 15 Feb., 721-6