

# The Policy Framework for New Nuclear Build

Response from The Royal Academy of Engineering to the Department of Trade and Industry

1. The Royal Academy of Engineering is pleased to respond to the Government's consultation on the policy framework for new nuclear build as outlined in the recent Energy Review report, 'The Energy Challenge'.
2. This response has been collated from the views of a number of Fellows of the Academy, all of whom have many years of experience working in the energy sector and are familiar with the problems associated with large industrial projects, particularly nuclear power plants.
3. There is agreement amongst the majority of Fellows that uncertainties and delays in the planning process are likely to be a major disincentive to potential private investors in any new nuclear build programme. We therefore welcome the attempt by the Government to streamline and standardise the process. Nevertheless, whilst it is recognised that the public must still have sufficient opportunities to comment on any proposals, it is also important that planning inquiries are not used by those opposed to nuclear power to delay the process unnecessarily. What is most important is that the resulting framework provides a process which is clear and transparent to all those involved. Also, while it is apparent that mistakes have been made in the past, it must be recognised that the situation has changed and decisions made now must be based on best available technical and scientific evidence and best international practices.
4. There is generally a high level of support for the 'Statement of Need' given in Box A3 of the Energy Review Report. Nuclear energy has an important role to play in electricity generation in the UK and this needs to be stated explicitly. The advantages of diversity of supply and low carbon generation are recognised, although there is some concern that the benefits nuclear power can afford in terms of security of supply are not fully recognised. It is also noted that what is needed for private investment in a new nuclear build programme is confidence that political support will continue throughout the lifetime of the nuclear plants and, given that this can be in excess of 50 years, this requires backing from all the major political parties in the UK. While we are aware that this is beyond the control of the current Government, it might be helpful if Parliament debated the issue to gauge the level of cross-party support for such a statement of need regarding nuclear power.
5. There is also widespread support for the 'Justification' process and the Secretary of State for Trade and Industry taking the role of Justification Authority for civil nuclear power in the UK. However, a number of respondents were concerned that this would lead to the Secretary of State having too much control over the process and conflicts arising over the DTI being both sponsor and judge. In order to avoid these problems it is crucial that the process is as transparent as possible and all the relevant Government departments are consulted when appropriate.
6. With regard to the issue of choosing possible sites for new nuclear plants, the consensus of views supports the position of the consultation document that the most likely sites will be those adjacent to existing nuclear facilities. While there may be equally viable alternatives, existing nuclear sites have a number of advantages which make them particularly suitable. The physical infrastructure, including roads and grid connections, is largely in place. Local Liaison Communities have been established which provide an appropriate environment for discussions with the local community. The communities themselves are more amenable to the building of new nuclear plants as they are familiar with the realities of nuclear power and already have a workforce with experience of the industry. Emergency arrangements exist which have been regularly tested. All

these reasons suggest that, particularly for the first tranche of new nuclear power stations, existing nuclear sites will provide the most suitable locations.

7. There is, however, a possible conflict with the policy outlined in the consultation document. If a new nuclear build programme is to be funded entirely by the private sector, it would seem reasonable that any potential investors should choose the particular site they would intend building on rather than the Government. It is therefore important that the proposed Strategic Siting Assessment limits itself to identifying the criteria by which any potential site is assessed and does not name any particular sites, which will be the responsibility of the prospective developer. The Strategic Siting Assessment should define generic criteria for potential sites which would include issues such as environment, water supplies, grid connections and labour force.
8. Pre-licensing of reactor design is also seen as a major contribution to streamlining the planning process. The choice of reactor design is clearly of critical importance in determining the length of time taken to build a nuclear power plant. The history of the nuclear industry in the UK shows the problems associated with opting for a first-of-a-kind design. If the improved economics inherent in a series of reactors of the same type are to be taken advantage of, current reactor designs must be encouraged and all the relevant international assessments of these designs must be utilised.
9. The key consideration for any potential reactor design should be safety, both in terms of operational safety and security. The main organisations associated with these issues are the Nuclear Safety Directorate (NSD), acting on behalf of the Health and Safety Executive (HSE) and the Office for Civil Nuclear Security (OCNS), acting on behalf of the DTI. Additionally, the Environment Agency will assess the radiological and environmental impacts of a reactor design. The roles of each of these organisations is supported and particular emphasis is given to ensuring that they have, and will continue to have, sufficient technical skills and academic knowledge within their staff to carry out their duties satisfactorily. As a result, it is important that the Government ensures that the nuclear skills base is maintained. This is particularly important with regard to the Nuclear Installations Inspectorate (NII) and the proposals to implement a multi-stage design authorisation process which, if it is to be successful, will require a high level of skills within the NII in order to provide timely and competent decisions on safety.
10. Beyond the central issue of safety there are a number of other issues it is felt should be addressed during the pre-licensing process. These include the capacity of the reactor, the decommissioning process and the possibility of future amendments to the design.
11. While there was overwhelming support for pre-licensing of reactor design from the respondents, there was less of a consensus as to which particular design, or how many, should be preferred. The majority favoured current examples of Pressurised Water Reactors (PWRs) such as the European Pressurised Reactor or the Westinghouse AP1000. Clearly, the final choice of design will be determined by the prospective developers, but limiting the choice to no more than two will ensure that national expertise is built up and that costs are kept to a minimum. It is also important that future advances in technology are considered, particularly those which might utilise developments in the fuel-cycle.
12. Linked to the issues of both potential sites and reactor designs is the question of decommissioning. Failure to address this problem within a national, strategic

framework could cause major problems in attracting private financial backing for a new nuclear build programme. With a final strategy of how to deal with the UK's legacy of radioactive waste still to be decided, it is important to implement the recommendations of CoRWM as soon as possible. The decisions taken in this area will have a bearing on the suitability of any potential sites for new reactors, the specific design specifications of potential reactor designs and in the viability of long-term investments by the private sector.

13. Overall, there is wide support for the proposals laid out in the consultation document. Fellows of the Academy recognise that the process of acquiring planning approval for projects such as nuclear power plants has, in the past led to extensive delays and serious increases in costs. There is general support that nuclear power should continue to play a role in supplying electricity in the UK alongside other forms of low carbon generation and that delays in the planning process represent one of the major barriers to private investment in this field. It is also noted that this is the case in many other areas of the energy sector and it is hoped that the Government will consider introducing similar statements of need and improvements in the planning process for other forms of generation and infrastructure which support the goals of increased security of supply and a reduction in emissions of carbon.

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