

The Future of Nuclear Power

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**THE ROLE OF NUCLEAR POWER
IN A LOW CARBON UK ECONOMY**

Consultations on the
proposed processes for
Justification and Strategic
Siting Assessment

MAY 2007

This consultation follows the publication of the Energy White Paper. The wide range of measures set out in the White Paper take forward our commitment to meeting the two long-term energy challenges. They are:

- Tackling climate change by reducing carbon dioxide emissions both within the UK and abroad; and
- Ensuring secure, clean and affordable energy as we become increasingly dependent on imported fuel.

The Government will give greater consideration to the arguments and evidence – in particular any new arguments, information or evidence – than to simple expressions of support or opposition to new nuclear power stations when considering responses to this consultation.



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CHAPTER 1

Introduction

1. This document contains two separate consultations, one dealing with a proposed Justification process (chapter two), the other on a proposed process for a combined Strategic Siting Assessment and Strategic Environmental Assessment (chapter three). This document is being published alongside the Government's main nuclear consultation (The Role Of Nuclear Power In A Low Carbon UK Economy¹, Consultation Document) in which we have considered and set out the preliminary view that nuclear generation has a role to play in the future UK generating mix.

2. The purpose of the Government's main consultation exercise is to provide interested parties with information on nuclear power, and to assist parties to reach an informed view on the future of civil nuclear power in the UK. Based on the responses and evidence gathered during this consultation, we will consider whether it is appropriate to confirm our preliminary view as Government policy, and to allow the private sector to invest in nuclear power stations.

Proceeding with facilitative action on a contingent basis

3. We know there is an urgent need to tackle climate change and to ensure secure supplies of sustainable energy over the medium to long term. We also know there are long lead times for nuclear and for the processes that need to be put in place to facilitate the introduction of new nuclear power stations in the UK. We therefore have a limited window if we are to replace a significant amount of our existing nuclear capacity.

4. We believe it is prudent to start working on this facilitative action now so that, if we conclude that nuclear does have a role to play, no time is wasted. That is why we are consulting now on the proposed Justification and Strategic Siting Assessment processes. We will review whether to continue with this work in the light of the consultation responses.

5. Justification and the Strategic Siting Assessment form part of the regulatory framework which would apply to new nuclear, in the event that the Government were to confirm its preliminary view. For this reason we have developed proposed processes so that those responding to the Government's main nuclear consultation are also able to take a wider view of how these steps might be applied. We would therefore welcome your views on the proposals set out in this document.



How to respond

6. When responding please state whether you are responding as an individual or representing the views of an organisation. If you are responding on behalf of an organisation, please make it clear who the organisation represents and, where applicable, how you assembled the views of members.

7. An electronic version of the consultation document is also available at <http://www.direct.gov.uk/nuclearpower2007>, and respondents can submit their responses via this website.

8. The deadline for responses to this consultation is 10 October 2007:

9. A response can also be submitted by letter, fax or email to

Response – Nuclear Technical Consultation 2007
FREEPOST SEA 12430
Thornton Heath
CR7 7XT
Tel: 020 7215 3331
Fax: 020 8683 6601
Email: response@nuclearpower2007.org.uk

If you are responding on paper you can use the response form which is available on request by contacting the DTI Publications orderline (the address is below). After the consultation has closed, all responses (including respondents' names) will be published unless respondents specifically request that their responses be kept confidential. This will apply to all responses whether submitted online, posted, faxed or emailed. Please indicate on your response if you want us to treat it as confidential. You should also read the section on confidentiality and data protection.

Confidentiality and data protection

10. Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA), the Data Protection Act 1998 (DPA) and the Environmental Information Regulations 2004). There will be a presumption that all responses to the consultation will be published.

11. If you want other information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence.

12. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be

maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

13. The Department will process your personal data in accordance with the DPA and in the majority of circumstances this will mean that your personal data will not be disclosed to third parties.

Additional copies

14. You may make copies of this document without seeking permission. Further printed copies of the consultation document and copies of the questionnaire form can be obtained from:

DTI Publications Orderline
ADMAIL 528
London SW1W 8YT
Tel: 0845 015 0010
Fax: 0845 015 0020
Minicom: 0845 015 0030
<http://www.dti.gov.uk/publications>

15. An electronic version can be found at
<http://www.direct.gov.uk/nuclearpower2007>.

Help with queries

16. Questions about the issues raised in the document can be addressed to:

Query – Nuclear Technical Consultation 2007
FREEPOST SEA 12430
Thornton Heath
CR7 7XT
Tel: 020 7215 3331
Fax: 020 8683 6601
Email: query@nuclearpower2007.org.uk



CHAPTER 2

Consultation on the proposed Justification process for new nuclear power stations

Section 1: Introduction

1. The purpose of this consultation is to seek views on the proposed Justification process for new nuclear power stations in the event that Government confirms its preliminary view that nuclear generation has a role to play in the future UK generating mix.

2. At the end of this consultation, depending on the comments we receive, and the result of the main nuclear consultation, we will produce guidance for applicants on how the justification process would operate and issue a call for applications. A list of questions on the proposed process is included at Section three of this document.

3. Nuclear power stations involve the use of materials which give off ionising radiation and are therefore subject to stringent regulatory requirements regarding their design and operation. Justification is one of a number of statutory regulatory or license clearance processes. It does not, by itself, authorise the construction or operation of any particular plant or activity, nor does it replace the detailed safety, security and environmental assessments carried out by the nuclear regulators.

4. Instead, justification is a high-level assessment to determine the benefits and detriments associated with a particular class or type of nuclear practice. Before a new class or type of practice can be introduced into the UK, it must be justified, i.e. the benefits of its introduction would need to outweigh the health detriment. It is not necessary to show that the class or type of practice is the best of all available options, but instead that there is a net benefit.

5. The Justification assessment is generic rather than site specific.

6. In addition to the domestic regulatory procedures, the UK is required under article 37 of the Euratom Treaty to provide the European Commission with information relating to any plan for the disposal of radioactive waste to make it possible to determine whether the implementation of such plan is liable to result in the radioactive contamination of another Member State.

Legal basis

7. The concept of Justification is based on the internationally accepted principle of radiological protection that no practice involving exposure to ionising radiation should be adopted unless it produces sufficient benefits to the exposed individuals or to society in general to offset the health detriment it may cause. This principle is derived from the recommendations of the International Commission on Radiological Protection (ICRP) and,

in particular, ICRP 60. It has been incorporated into European Community law by article 6(1) and (2) of Directive 96/29/Euratom ('the Basic Safety Standards Directive'²).

8. Articles 6(1) and (2) were implemented in the UK by the Justification of Practices Involving Ionising Radiation Regulations 2004³ (the Justification Regulations). Regulation 4 of those Regulations has the effect that a new class or type of practice involving exposure to ionising radiation may only be carried out if it has been found to be justified i.e. a "Justifying Authority" has made a decision ("a Justification Decision") determining that the relevant class or type of practice is justified by its economic, social or other benefits in relation to the health detriment it may cause.

9. The requirement under article 6 does not apply to practices which were being carried out in the UK before 13th May 2000 or those which have already been found to be justified. Such practices (known as "existing practices") are permitted to continue, provided that there has not been an adverse Justification Decision in relation to them.

10. Regulation 9 of the Justification Regulations provides that any person may make an application to a Justifying Authority for a Justification Decision and that the Justifying Authority must consider and determine such applications. The Justifying Authority may also make a Justification Decision on its own initiative. Regulation 10 provides that any person may apply to a Justifying Authority for a review of an existing practice if "new and important evidence about the efficacy or consequences of the practice is acquired or if there has been a Justification Decision that the relevant class or type of practice is not justified."

11. The Justifying Authority will need to consider whether an application relates to a "new"⁴ or to an "existing" class or type of practice before considering whether the class or type of practice is justified.

What is a "practice"?

12. The Directive defines "practice" as "a human activity that can increase the exposure of individuals to radiation from an artificial source or from natural radiation sources where use is being made of its radioactive, fissile or fertile properties". The Justifying Authority will determine what constitutes the relevant class or type of practice(s) once it has received application(s).

Justifying authorities

13. There are four Justifying Authorities in the UK, namely, the Secretary of State⁵ and the three Devolved Administrations to the extent that they have competence in respect of the subject matter of a particular justification application. Since nuclear energy is a reserved matter, however, the

² Council Directive 96/29 Euratom of 13 May 1996 laying down basic safety standards for the protection of health of workers and the general public against the dangers arising from ionizing radiation. (O.J.L 159 29/06/1996 p.1).

³ Statutory Instrument 2004/1769

⁴ A class or type of practice is "new" for the purposes of the Justification Regulations if no practice in that class or type was carried out in the United Kingdom before 13 May 2000, and the class or type of practice was not found to be justified.

⁵ For civil nuclear power this is the Secretary of State for Trade and Industry.



responsibility for reaching a justification decision will rest with the Secretary of State for Trade and Industry who will be the sole Justifying Authority in the UK. Therefore any Justification decision will be UK-wide. As the Justifying Authority, the DTI will, in accordance with Regulation 18(2) of the Justification Regulations, consult the Devolved Administrations before reviewing an existing practice, determining whether a practice is new, and before reaching a Justification decision. It is also required to consult the Devolved Administrations before exercising certain other functions under the Regulations, such as requiring applicants to provide further information. There is a Concordat⁶ between the Government and the Devolved Administrations which sets out the working relations (including the setting up of a Justification Liaison Group) in a way that respects the devolution settlements.

Health detriment

14. A key feature of Justification is the requirement for an assessment of the health detriment which may be caused by a class or type of practice. Anyone seeking Justification would need to confirm that the health detriment due to the implementation of the proposed activity (including storage and disposal of waste and decommissioning) complies with radiological protection principles and standards. These principles and standards are designed to help ensure that any health impact to workers and to members of the public is minimised.

15. Ionising radiation is emitted by many types of naturally occurring materials, and everyone receives some exposure to natural background radiation. In considering radiological impact, the prudent assumption is made that any exposure to ionising radiation carries with it a risk to health and that this risk is proportional to dose, up to relatively high doses. At the levels of dose commonly encountered, the risk is, however, very small. The majority of the annual dose of radiation (84%) in the UK is from natural sources, such as radon from rocks in the ground and cosmic rays from outer space. By far the largest source of man-made exposure relates to medical procedures (15% of overall annual exposure). The average annual dose to a member of the public, due to radioactive discharges from the nuclear power industry, is 0.01% of the annual average dose from all sources.

16. The law requires that the exposures of workers and public from radiation from nuclear sites are kept below stringent legal levels, and are further reduced as low as reasonably practicable.

17. Applicants seeking justification for new nuclear power station technologies will need to demonstrate that any health detriment is offset by the benefits associated with the practice. Benefits can cover economic, social or other benefits.

⁶ *Concordat on the implementation of the Justification of Practices involving Ionising Radiation Regulations 2004*, <http://www.defra.gov.uk/environment/radioactivity/government/legislation/pdf/concordat-justification.pdf>

Section 2: Justification process

18. Subject to the results of its nuclear consultation, and in the event that Government were to confirm its preliminary view that nuclear generation has a role to play in the UK electricity generating mix, it is anticipated that the Secretary of State would receive applications to justify new nuclear power station technologies under the Justification Regulations.⁷ Government has previously produced guidance on the Justification Regulations. However, that guidance relates to Justification generally and does not deal specifically with nuclear power. The Government has therefore considered the process for making and considering any applications for justification, the “Justification process” in relation to nuclear power, and a proposed process is set out in this document.

Publicising the process/process summary

19. The Government is consulting on the proposed justification process through this document. Subject to confirming the process to be followed, we expect to publicise the Justification process:

- by placing details of the Justification guidance for applicants and a call for applications on the DTI’s web site and through a mail shot to interested parties (e.g. reactor vendors and operators, statutory consultees, other Government Departments, Devolved Administrations, and NGOs);
- by publishing applications received from applicants to give the public an opportunity to comment on them, for instance, via a dedicated mailbox;
- where appropriate, by requesting supplementary information from applicants and inviting views on that too;
- by consulting on a draft decision document;
- we will need to consider whether or not to hold an inquiry or hearing as part of the decision-making process. Under Regulation 17 of the Justification Regulations there is a power to hold such an inquiry or hearing, although there is no requirement to do so. A decision will be taken in the course of the assessment process under the Justification Regulations; and
- by publishing its conclusions in a decision document that sets out the background to and basis for its findings.

Indicative Timetable

23 May 2007	Consultation on this draft justification process starts.
10 October 2007	Consultation closes.
10 October – end 2007	Government considers comments.

If Government confirms its preliminary view that nuclear generation has a role to play in the future UK generating mix.

Early 2008	Government publishes guidance for applicants on the Justification process for new nuclear power stations.
Early 2008	Government announces a “call for applications” for Justification relating to new nuclear power stations.

A description of the indicative process beyond the beginning of 2008 is set out at Figure 1.



Section 3: Process for making and considering applications

20. In the event that Government decides to confirm its preliminary view that nuclear generation has a role to play in the future UK generating mix, the proposed justification process for new nuclear power station technologies should be capable of dealing with the proposed introduction of new nuclear power station technologies into the UK. The Government anticipates, however, that only those technologies which are sufficiently developed to be capable of operating in the UK within the next 15-20 years are likely to be submitted for a Justification Decision.

“Call for applications”

21. If the Government’s preliminary view on new nuclear generation is confirmed, it is proposed that as soon as the guidance on the justification process has been finalised and published, Government would make a “call for applications”. Government currently expects this would be in early 2008.

22. The Government believes that offering a time-limited “window” for applications will ensure greater efficiency in the justification process. We also believe that this will bring greater certainty, clarity and accessibility for applicants, regulators, statutory consultees and the public. However, this does not preclude applications for justification being made at any other time.

23. Following the receipt of submissions from applicants, the Justifying Authority may request that additional information be provided.

Question 1a: Are Government plans to structure the proposed Justification process by making a time-limited “call for applications” helpful?

How will Government Consider Applications?

24. In order for the Justifying Authority to reach a Justification Decision it will need to evaluate a significant amount of information, some of which will be technical in nature.

25. Where necessary, therefore, the Justifying Authority will seek advice from technical and other experts. Before the Justifying Authority reaches a decision, it is proposed that the justification process should follow a series of steps, in a way which should be helpful to applicants, regulators, statutory consultees and all other interested parties. We set out the proposed steps below, although it is possible that the sequence may change (see Table 1).

26. Following the publication of guidance on the justification process and a call for applications, it is proposed that the Justifying Authority should publish applications as they are received to give the public and others the opportunity to comment on them. If additional information is required from the applicant, that information will also be published and the public will be given an opportunity to comment on it. It may be necessary to publish information in redacted form where it contains sensitive information, although it will be the Government’s intention to limit the need for this. The Justifying Authority will consult the statutory consultees (see Step 5), the Devolved Administrations, relevant Government Departments and interested parties (e.g. overseas

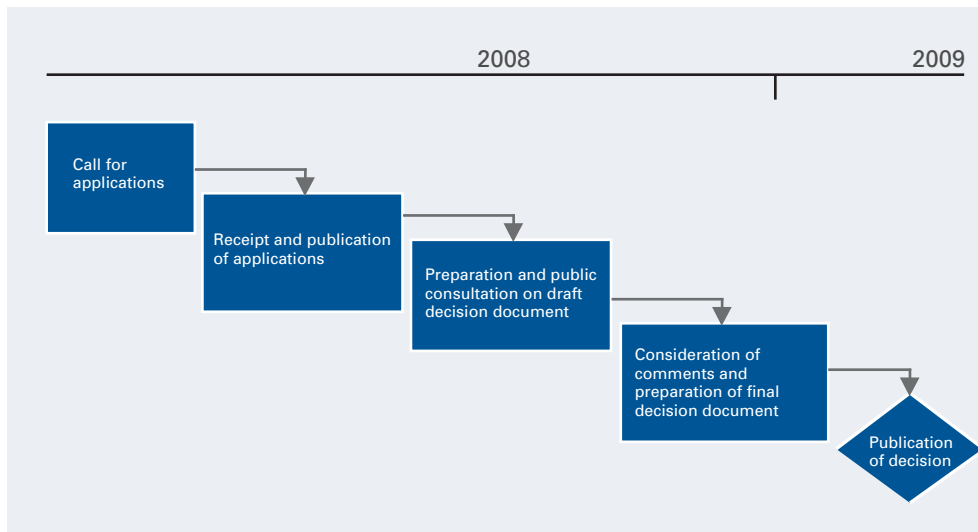
Governments, NGOs, industry). Subsequently, (Steps 6 and 7) the Justifying Authority, will consider all the comments it has received and produce a draft decision document, setting out its assessment of the benefits and detriments of the class or type of practice, and consult on this document. The Justifying Authority will then consider all comments made during the consultation period before producing a final decision document for a decision by the Secretary of State.

27. A more detailed description of all the steps we propose is set out in Table 1. The main steps are also illustrated in Figure 1.

TABLE 1 JUSTIFICATION PROCESS	
Step	Description
1	Publish guidance for applicants and announce call for applications.
2	Receive and publish applications for justification. which gives the public and others an opportunity to comment on applications.
3	Having received an application, the Justifying Authority will need to consider whether it relates to a “new” or “existing” class or type of practice. If it relates to a “new” class or type of practice, the Justifying Authority will then need to carry out a justification assessment. If it relates to an existing class or type of practice, the Justifying Authority will need to consider whether to review the justification of that class or type of practice. It may do so only if new or important evidence about the efficacy or consequences of the class or type of practice has been acquired.
4	Assess whether sufficient information has been provided by applicants and, where necessary, request additional information. Any additional information will be published.
5	Consult statutory consultees (Health and Safety Executive, Food Standards Agency, Health Protection Agency, Environment Agency/Scottish Environment Protection Agency, Department for the Environment, Northern Ireland), Devolved Administrations and relevant Government Departments, other interested parties and the public.
6	Assess applications and comments, gather additional information and seek specialist advice where necessary.
7	Prepare and consult on a draft decision document.
8	Consider consultation responses on the draft decision document.
9	Prepare the final decision document for Secretary of State’s consideration.
10	Make Justification decision in the form of secondary legislation (a Statutory Instrument).



FIGURE 1. PROPOSED JUSTIFICATION PROCESS



Question 1b: Is the proposed application, assessment and decision-making process clear, appropriate and proportionate? If not, how can it be improved?

What information should an applicant provide?

28. In accordance with the Justification Regulations, it is proposed that an applicant should provide sufficient information to allow the Justifying Authority to undertake a high-level assessment of the net economic, social or other benefits against the health detriments of introducing a new nuclear technology for the generation of electricity into the UK.

29. Appendix A provides an indicative list of information expected of applicants.

Question 1c: Is the indicative list of information, described in Appendix A, appropriate for applicants to be able to make applications?

How will the Government consider multiple applications?

30. The Government has considered how and if the Justification process should handle concurrent applications covering a number of specific power station technologies⁸. We propose that, where possible, candidate technologies should be assessed together. This may mean that the results of the assessment are set out in the same draft decision document, rather than in a series of decision documents in which candidate technologies are considered separately.

⁸ Nexia Solutions, *Justification Process of New Nuclear Power stations in the UK: A Discussion of the Basis for Considering Different Reactor Systems*, April 2007. <http://www.dti.gov.uk/energy/whitepaper>

31. However, if an application were to include a nuclear power station technology that was substantially different in terms of its benefits and detriments from the other technologies being considered, then it may be necessary to undertake a separate Justification assessment of that technology, and prepare and consult on a separate draft decision document. Irrespective of whether it is considered necessary to carry out one or more processes to consider the technologies submitted, it may be appropriate to reach separate Justification decisions for each technology. The Government does not expect to be able to reach a final view on these issues until such time as an application has been received.

Question 1d: The Government is planning, where possible, to consider concurrent applications for Justification (relating to new nuclear power station technologies) through a single Justification assessment process. Is the Government's proposal appropriate?

Question 1e: Are there any other ways in which the draft Justification process can be improved? If so, we welcome your suggestions.



Appendix A: Indicative content of a Justification application

1. This Appendix indicates the information that parties seeking justification would be expected to provide to the Justifying Authority in the event the Government confirms its preliminary view that nuclear generation has a role to play in the future UK generating mix.
2. This Appendix is not intended to be prescriptive but rather indicates the main information likely to be necessary to enable a clear, high-level assessment of the health detriments and the net economic, social or other benefits associated with the introduction of a particular technology. Whilst exercising their own judgement on what may be relevant, applicants are nevertheless encouraged to follow the guidance set out below.
3. To facilitate the Justification Decision, the Justifying Authority will require information on the expected benefits and detriments of the proposed nuclear power station technology for which the application is made. In addition to anticipated detriments (e.g. routine controlled radioactive discharges, routine worker radiation exposure) the applicant should provide information on unanticipated, or potential detriments (e.g. radiological exposures due to accidents). For potential detriments, the applicant should explain how the risks of their occurrence are adequately controlled or mitigated to below acceptable regulatory limits. Some of this will also be required as part of the generic licensing process.
4. Applicants may also wish to provide additional information which they consider will help substantiate their application, including expert reports and work commissioned by the applicant.

Indicative list of information

5. A list of the indicative information to be provided is set out below:

INFORMATION REQUIREMENT	GUIDANCE
Introductory information on proposed technology	
Description of the proposed technology	<p>Applicants may submit a single technology, or one or more technologies. Applicants should consider providing information in the following areas:</p> <ul style="list-style-type: none"> • summary of technology, suppliers/vendors and main technical characteristics (e.g. electrical output, fuel type and source, fuel cycle, waste and decommissioning plans etc). <p>Confirmation whether the application is made under Regulation 9 of the 2004 Regulations for a decision in respect of a new class or type of practice.</p>
Health detriments	
Health detriments	<p>Applicants should provide information explaining how the proposed technology may cause radiological detriment to human health. Areas to cover could include:</p> <ul style="list-style-type: none"> • health detriments to general public, plant workers and other specific population groups; • normal operation and accident conditions; and • explanation of how design operation and mitigation strategies will reduce the risk and magnitude of accidental radiological exposures to below regulatory limits.
Economic, social or other benefits and detriments	
Physical security of electricity supply	<p>Applicants may provide information explaining how the proposed technology would benefit or act as a detriment to physical security of supply. Areas to cover could include:</p> <ul style="list-style-type: none"> • benefits and detriments associated with baseload plant; • vulnerability to fluctuations in availability of fuel; • value of more or less diverse portfolio mix; • mitigation strategies, regulatory arrangements and related assurance to address detriments and risks; and • other benefits and detriments.
Carbon reduction	<p>Applicants may provide information explaining how the proposed technology would demonstrate its low carbon footprint and act as a benefit or detriment to emissions of other greenhouse gases and emissions. Areas to cover could include:</p> <ul style="list-style-type: none"> • total emissions across the full life cycle; • net contribution to UK's overall emissions; • emissions if the proposed technology were not justified.



INFORMATION REQUIREMENT	GUIDANCE
	<ul style="list-style-type: none"> mitigation strategies, regulatory arrangements and related assurance to address detriments and risks; and other benefits and detriments.
Other environmental benefits and detriments	<p>Applicants may provide information explaining how the proposed technology would further act as a benefit and/or detriment to the environment. Areas to cover could include:</p> <ul style="list-style-type: none"> non-radiological effects on people and the environment (water, air, chemicals, light, thermal, noise, landscape, animal health, flora/fauna etc.); radiological effects on flora/fauna; normal operation and accident conditions including management and disposal of waste (radioactive and non-radioactive); accident mitigation strategies, regulatory arrangements and related assurance to address detriments and risks; assurance provided against stated risks (including reference to the regulatory regime); and other benefits and detriments.
Waste and decommissioning	<p>Applicants should provide information explaining how decommissioning and waste management and disposal would be dealt with. Areas to cover could include:</p> <ul style="list-style-type: none"> nature and volume of radioactive waste that could be expected to be produced; features of the design that facilitate decommissioning; mitigation strategies, regulatory arrangements and related assurance to address detriments and risks⁹; and other benefits and detriments.
Other benefits and detriments	<p>Applicants should provide information on other significant benefits or potential detriment of the proposed class or type of practice. Areas to cover could include:</p> <ul style="list-style-type: none"> transportation of fuel and waste; non-proliferation; health non-radiological detriments in normal/accident conditions; safety – nuclear, industrial and normal/accident; mitigation strategies, regulatory arrangements and related assurance to address detriments and risks; and other economic, social or other benefits and detriments.

⁹ Licence conditions currently require licensees to “make and implement adequate arrangements for the decommissioning of any plant or process which may affect safety” (Licence Condition 35(1)).

CHAPTER 3

Consultation on the proposed process for a combined Strategic Siting Assessment and Strategic Environmental Assessment for new nuclear power stations

Section 1: Introduction and consultation questions

1. Both in a written Commons statement (Hansard 8 Jan 2007 : Column 302W) and in the DTI's Consultation on the Policy Framework for New Nuclear Build (issued on 11th July 2006), the Government announced its intention to undertake a Strategic Siting Assessment (SSA) which would determine the suitability of potential sites for new nuclear electricity generation. The results of the SSA would inform a subsequent Governmental policy statement on siting for new nuclear power stations, as part of a potential National Policy Statement (NPS) on new nuclear power stations.
2. The SSA would only be taken forward if the Government confirms its preliminary view, that nuclear electricity generation has a role to play in the future UK electricity generating mix.
3. Consideration of the environmental effects of the construction, operation and decommissioning of a nuclear power station would form a vital part of decisions on siting. The European Directive on Strategic Environmental Assessment (SEA)¹⁰ and the UK's own implementing regulations require such factors to be taken into account in developing plans or programmes which will have consequences for the environment.
4. The purpose of this part of the consultation is to seek views on Government's proposal for the **process** that would be used to carry out the SSA – that is, the proposed course of action for consulting on and then identifying siting criteria and sites within the UK that may be suitable for constructing and operating new nuclear power stations.
5. We propose that the SSA would be taken forward in the following three stages:

Stage 1:

Consult on a proposal for draft exclusionary and discretionary criteria to be applied in the SSA.



Stage 2:

Publish the exclusionary and discretionary criteria, and identify those geographical areas that would be likely to be ruled out, either in whole or part, by the exclusionary criteria. Invite nominations for possible sites for new nuclear power stations.

Stage 3:

Consult on a draft list of potential sites selected from those nominated which have been judged to have met the discretionary criteria, and which have not been ruled out by the exclusionary criteria.

6. If the Government concludes that nuclear electricity generation has a role to play in the future UK generating mix, we would aim to produce a decision by late 2007 or early 2008 setting out how the SSA would be conducted, having carefully considered responses to this consultation.

7. Paragraphs 11-18 of this chapter outline historic nuclear power plant siting policy and practice and what we mean by Strategic Siting Assessment. At the end of Section 1 we set out the consultation questions on which views are being sought in relation to the proposed SSA process, and the timetable for this consultation.

8. Section 2 outlines in more detail the objectives of the SSA and how it would impact on the planning consent process in relation to the construction of new nuclear power stations. Section 2 also gives details of environmental legislation relevant to the SSA, and looks at the position of the devolved administrations in relation to the SSA.

9. Section 3 describes in detail the Government's proposed process for developing the SSA, following the three stages listed in paragraph 5. It also outlines how Strategic Environmental Assessment could be integrated into this process.

10. Appendix B sets out, for information purposes only, some indicative criteria for the SSA. The Government would consult on a broader range of criteria, should we proceed with the SSA. Any comments on these indicative criteria are welcome, though the purpose of this consultation is to invite views on the proposed process for carrying out the SSA, as set out in Section 3, not the criteria themselves.

Historic siting policy and practice

11. Since the mid 1950s, successive Governments have made a number of statements of policy relating to nuclear power plant siting, starting with the White Paper, *A programme of Nuclear Power*, in 1955. Initially, criteria centred mainly on demographic issues. It was government policy that the first generation of reactors, whilst considered safe, should not be sited in heavily built up areas. The first generation Magnox stations were therefore built on sites which were then considered remote.

12. In the 1960s, the demographic siting criteria were relaxed for the advanced gas-cooled reactors, in the light of the advances in design and experience in operation, which allowed the siting of two stations (Heysham and Hartlepool) in areas which could then be defined as "semi-urban". When the UK's first light

water reactor was proposed in the 1970s, the Government and the safety regulator agreed that the previous, conservative, “remote” siting policy would be adopted for reactor technology which was new to the UK. The first UK light water reactor was eventually built adjacent to the Magnox site at Sizewell.

13. The most recent experience of site evaluation and selection, in the context of a formal application to build a new nuclear power station, came during the Sizewell B and Hinkley Point C Public Inquiries in the 1980s^{11,12}. The basis for the decision to site new reactors on both sites was considered by the Inspector at each public inquiry. At neither site did the inquiry Inspector reject the siting proposal and planning consent was subsequently granted for each.

14. The approach of the Health and Safety Executive (HSE) to determining the suitability, in safety terms, of a proposed new nuclear site is set out in HSE’s recently revised *Safety Assessment Principles for Nuclear Facilities (SAPs)*¹³. The SAPs set out the principles by which HSE assesses the safety arguments put forward by applicants for a nuclear site licence and by existing licensees and other duty holders, in order to ensure the application of high standards of nuclear safety and radioactive waste management. The SAPs are benchmarked against the standards produced by the International Atomic Energy Agency (IAEA) which reflect internationally agreed good practice.

15. The siting criteria to be developed as part of the SSA would take account of the SAPs to ensure consistency between the two where appropriate. However, as outlined below, the purpose of the SSA would be to look at a broad range of strategic factors which go beyond the technical safety considerations that are the main focus of the SAPs. Equally, the SSA would not replace the need for any proposed new nuclear sites to comply with the rigorous site-specific safety requirements set out in the SAPs.

The Strategic Siting Assessment

16. The SSA would deal with siting matters that are sufficiently generic for them to be sensibly addressed nationally. The Government proposes that objective exclusionary criteria be developed to indicate those parts of the UK which are unlikely to be suitable for new nuclear power stations, and objective discretionary criteria be developed to assess the suitability of any proposed sites not ruled out by the exclusionary criteria. Such criteria could include, for example, over-arching environmental and infrastructure issues. A set of objective exclusionary and discretionary criteria, agreed through public consultation, would enable assessments on the possible location of new nuclear power stations to be carried out at national level. This would provide an objective, strategic justification for any proposed location which, in turn, would inform the planning consent process, such as the process for granting consent under Section 36 of the Electricity Act 1989.

11 The Sizewell B Public Inquiry – The Layfield Report (HMSO ISBN 0118820435).

12 The Hinkley Point Public Inquiries – The Barnes Report (Volumes 4, 6 and 7 ISBN011412955X).

13 HSE (2006) Safety Assessment Principles for Nuclear Facilities.



17. The SSA would not, however, replace mandatory assessments for individual projects, including Environmental Impact Assessment (EIA) under European law¹⁴ or those required by the Environment Agencies, the Health and Safety Executive and other regulatory authorities. These would have to be undertaken as part of any application to build a new nuclear power station. So although a site may satisfy the broad SSA criteria, detailed examination of the site may raise issues which would rule out its suitability.

18. Subject to the outcome of the main nuclear consultation, the SSA would conclude with the publication of a Policy Statement on siting, setting out detailed criteria together with a list of any proposed sites which have been assessed as meeting the criteria. Such a list would be non-exhaustive and would not preclude others from being put forward in future. The Policy Statement would in turn potentially form part of a National Policy Statement (NPS) on new nuclear build.

Consultation Questions

Question 2a: Is the proposed approach to the Strategic Siting Assessment a logical approach to identifying suitable sites? If not, how could it be improved?

Question 2b: Does the proposed incorporation of Strategic Environmental Assessment into the Strategic Siting Assessment represent a reasonable and robust approach to assessing environmental issues that would be raised by the construction and operation of new nuclear power stations? If not, how could such issues be taken into account?

Indicative timetable for this consultation on the SSA Process

23 May 2007	Consultation on this draft SSA process starts.
10 October 2007	Consultation closes.
October – End 2007	Government considers comments. <i>If Government confirms its preliminary view that nuclear generation has a role to play in the future UK generating mix.</i>
Early 2008	Government publishes SSA process, and starts Stage 1 of the process outlined in paragraph 5. A description of the indicative SSA Process beyond the beginning of 2008 is set out in Figure 2 and Table 2.

¹⁴ Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment (O.J. L175, 5.7.1985, p.40).

Section 2: Impact and scope of the Strategic Siting Assessment

19. This section outlines the aims of the policy statement that would emerge from the SSA process, and in particular how this would relate to the planning consent process. It also outlines how the SSA would fit with existing environmental legislation, and with the position of the devolved administrations.

The SSA policy statement

20. On completion of the SSA, it is intended that the Government would issue a Policy Statement, which would fit into the planning regime in place at that time (see paragraphs 23-27 covering the existing planning process and proposed planning reforms). The policy statement would:

- set out agreed exclusionary and discretionary criteria, which would have been established during the SSA, that potential developers of nuclear power stations could apply in order to determine whether a proposed site was compatible with the strategic siting criteria for a new nuclear power station;
- indicate areas of the UK which had not been ruled out through the application of exclusionary criteria, and within which therefore there may be sites that meet the discretionary criteria; and
- provide an input to the prevailing planning regime, in the form of a Policy Statement setting out the criteria which has been arrived at agreed through the SSA process. The Policy Statement would also list those sites proposed during the SSA process which meet the criteria. The local public planning inquiry would then be able to focus on local issues relating to any such site.

21. Potential developers would need to reassure themselves that a site was both viable in commercial terms and suitable at local level, for example in relation to local geological conditions. They would also be responsible for carrying out the site-specific Environmental Impact Assessment (EIA). The EIA would need to address local environmental issues at a detailed level, and would assist in demonstrating the suitability or otherwise of the site, as well as identifying any necessary mitigating measures.

22. The SSA Policy Statement would not aim to provide a comprehensive list of sites suitable for new nuclear power stations, which in doing so ruled out any other potential sites for future-build. Subsequent to the SSA, potential developers would be free to select a site for development not listed in the SSA policy statement. Any site proposed subsequent to the SSA policy statement would need to be assessed by the relevant planning authority, against the SSA criteria. In that instance, it is likely that the scope of any planning inquiry would be wider than if the application was in an area already listed in the SSA policy statement.

The existing planning consent process

23. Section 36 of the Electricity Act 1989 provides that no generation station generating over 50MW of electricity may be constructed in Great Britain unless the Secretary of State consents. The power to consent to the construction of new power stations in Scotland is an executive devolved matter for Scottish Ministers. The process for granting consent to the construction of new power stations in Northern Ireland is covered by separate legislation for Northern Ireland (described further below). For the purposes of consent under



section 36 Electricity Act 1989, the Secretary of State is required to call a public inquiry if a “relevant planning authority” objects to the proposal. Generic guidance on applications under s36 Electricity Act 1989 has been issued for consultation by the Department and is available from the DTI website¹⁵.

24. Additionally, it should be noted that the Government has recently introduced new rules to replace the old ones governing the procedure at inquiries in England and Wales into applications for large generating stations (including any nuclear ones) under section 36, and also overhead lines under section 37, of the Electricity Act 1989.¹⁶ The intention behind the new rules is to improve the efficiency of such inquiries, whilst continuing to ensure that the inquiry is a forum in which all appropriate interests have a voice and all the relevant issues are fully and fairly considered.

Planning Reform

25. The timely delivery of energy infrastructure plays an important role in maintaining the reliability of our energy supplies. Securing the necessary consents can be a major cause of delays for all types of energy projects. Decisions can take a very long time, and public inquiries can become embroiled in debates about national issues, rather than addressing local siting issues raised by the proposed development. In relation to nuclear, for example, Sizewell B took six years to secure Section 36 consent. This creates uncertainty and is very costly. The Sizewell B direct inquiry costs were approximately £30 million, and only 30 of the 340 inquiry days were devoted to local issues.¹⁷

26. The Planning Chapter of the Energy White Paper sets out a series of reforms to the planning system as they relate to Energy projects. Including energy projects in a new system for consenting nationally significant infrastructure projects will mean that new developments in the energy sector will benefit from a number of improvements:

- ensuring that there is a clear policy framework for nationally significant infrastructure;
- helping promoters improve the way that they prepare and consult on applications;
- streamlining the procedures for infrastructure projects of national significance by rationalising the different consent regimes and improving the inquiry procedures for all of them;
- clarifying the decision making process, and achieving a clear separation of policy and decision making, by creating an independent commission to take the decisions on nationally significant infrastructure cases within the framework of the relevant national policy statement; and
- improving public participation across the entire process.

27. It is envisaged that the SSA would form part of a NPS on new nuclear power stations. In the event that the proposed planning reforms do not proceed as currently envisaged, it is intended that the SSA would be a substantive input into the process for granting consent to the construction of

¹⁵ <http://www.dti.gov.uk/consultations/page39308.html>

¹⁶ The Electricity Generating Stations and Overhead Lines (Inquiries Procedure) (England and Wales) Rules 2007 (S.I. 2007/841).

¹⁷ <http://www.dti.gov.uk/files/file32009.pdf>

new nuclear power stations. For a site which satisfied the SSA criteria, a planning inquiry should be able to better focus on the relationship between the proposal, the local plans and local environmental impacts, rather than the rationale for the site's selection. The inquiry would also in that instance examine the local benefits of the development and how specific local impacts of the construction and operation of the plant can be minimised. Thus, the local planning inquiry could make best use of its time and resources to consider only those issues that are appropriately decided at the local level.

Strategic Environmental Assessment and other environmental legislation

28. Preparation of the Environmental Report as required by the Strategic Environment Assessment (SEA) Directive would help to ensure that all relevant environmental considerations were fully taken into account alongside the technical requirements of a site, and that possible mitigating measures were identified. Section 3 of this consultation document indicates how the Government proposes to incorporate the requirements of the SEA Directive into the SSA process.

29. Other European legislation which must be met includes the EC Birds and Habitats Directives¹⁸, where they apply. These two Directives together list habitats and species of European and wider significance and lay down mechanisms to designate a representative set of sites for protection as "European sites", the Natura 2000 (or N2K) network. The protection and management of these sites, which include Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), are regulated in the UK by the Habitats Regulations¹⁹. In the same way the SSA would take account of domestic provisions relating to Sites of Special Scientific Interest (SSSIs)²⁰, where they apply.

30. Any plan or proposal that is likely to have a significant effect on the features of such environmentally important sites must be assessed against the conservation objectives associated with them. The issues raised would not necessarily be dealt with by the SSA but would need to be addressed at the appropriate level in a mix of ways, by the developer, regulators and relevant agencies.

31. The requirement to undertake an EIA²¹ is outside the scope of the SSA. An EIA would need to be conducted on a site specific basis by a prospective developer.

How the Strategic Siting Assessment would relate to the Devolved Administrations

32. While nuclear energy policy is a reserved matter for the UK Government, the statutory planning process to which proposals for new power stations are subject is devolved to varying degrees.

18 Council Directive 79/409/EEC of 2nd April 1979 on the conservation of wild birds of 2nd April 1979 (O.J. L103, 25.4. 1979, p.1) and Council Directive 92/43/EEC of 21st May 1992 on the conservation of natural habitats and of wild fauna and flora (O.J. L206, 22.7.92, p.7).

19 The Conservation(Natural Habitats &c.) Regulations 1994 as amended (S.I. 1994/2716).

20 The key provisions are set out in Section 28 of the Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000 and the Natural Environment and Rural Communities Act 2006.

21 EIA procedures transposed into UK legislation as required by Council Directive 85/337/EEC, as amended.



33. In Scotland, all applications to build power stations over 50 MW in Scotland are considered by Scottish Ministers (applications to build power stations less than 50 MW are considered by Scottish local authorities). Scottish Planning Policy (SPP) 6 sets out the policies that will be taken into account by Scottish Ministers and Local Authorities in determining applications for onshore electricity generation schemes. The Scottish Executive would be fully consulted on the development and extent of an SSA by the Government. It would be for Scottish Ministers to decide how this SSA may be applied or adapted to Scotland.

34. In Northern Ireland, all proposals to build power stations above low water mark currently require planning permission under the Planning (Northern Ireland) Order 1991. Where they have a capacity of greater than 10MW, they also require consent under Article 39 of the Electricity (Northern Ireland) Order 1992, whether on land or offshore. The Electricity Consents (Planning) (Northern Ireland) Order 2006, yet to be brought into operation, provides the basis for an Article 39 consent which can also be deemed to give planning permission. The necessary secondary legislation to bring this into operation is currently being progressed but the decision on whether to proceed with this "single energy consent" system will be a matter for the devolved administration.

35. It will be for the devolved administrations in Scotland and Northern Ireland each to decide their own approach in relation to the SSA consultation exercise. We will therefore discuss with the Devolved Administrations whether, and how, the SSA consultation exercise should extend to Scotland and Northern Ireland.

36. The Welsh Assembly Government does have some devolved planning functions, but these do not include the power to consent to the construction of power stations over 50MW (though Welsh local authorities are responsible for considering applications to build power stations under 50MW in Wales). Accordingly, it is envisaged that Wales would be included in the SSA process as set out in Section 3 of this document. The Welsh Assembly Government would be consulted on this.

37. Despite Scotland, Northern Ireland and Wales having varying autonomy of decision making in planning, all UK stakeholders would be invited to engage in the unfolding SSA process and the Devolved Administrations fully consulted, with aim of developing criteria that *could* have UK-wide coverage, having taken account of UK-wide factors and concerns.

Section 3: The proposed process to be followed for the Strategic Siting Assessment

38. The SSA process would be launched if the Government confirms its preliminary view that nuclear generation has a role to play in the UK future generating mix. In developing its proposals, the Government has taken into previous UK experience with nuclear site selection, as well as approaches adopted overseas. This has led to the proposed staged approach described below. The Government has also identified those key points during the SSA when it considers that public engagement would be particularly important. A three-stage process for taking forward the SSA is shown in Figure 2 and detailed in this section.

39. As outlined earlier, we are also incorporating Strategic Environmental Assessment (SEA) as part of the SSA. The UK "Practical Guide to the SEA Directive"²² sets out the following stages for SEA :

- Stage A: Setting the context and objectives, establishing the baseline and deciding on the scope;
- Stage B: Developing and refining options and assessing effects;
- Stage C: Preparing the Environmental Report;
- Stage D: Consulting on the draft plan/programme and the Environmental Report; and
- Stage E: Monitoring implementation of the plan/programme.

These stages are not intended to form a rigid sequence. SEA is often an iterative process, with particular activities within stages being revisited as plans and programmes are developed, and this is to be expected in the context of SSA. Table 2 below indicates how we propose to incorporate the elements of SEA into the stages of SSA. We may review this in the light of the consultation on the proposals for the scope of the SEA at Stage 1.

40. As an indication of timescale, it is anticipated that the SSA, from the start of Stage 1 to the completion of Stage 3, would take approximately 18 months to two years. Stage 1 would be launched in early 2008, following the response to the main nuclear "in-principle" consultation and if the Government confirms its preliminary view that nuclear generation has a role to play in the UK future generating mix. The dates indicated below might need to change, for example as a result of this consultation.

41. Prior to the possible launch of Stage 1 of the SSA, the Government proposes that work on its environmental aspects will commence on a contingency basis. This will be conducted in parallel with scoping work on the other criteria for assessing suitability of sites, in preparation for a consultation on draft criteria.



FIGURE 2. PROPOSED STRATEGIC SITING ASSESSMENT PROCESS

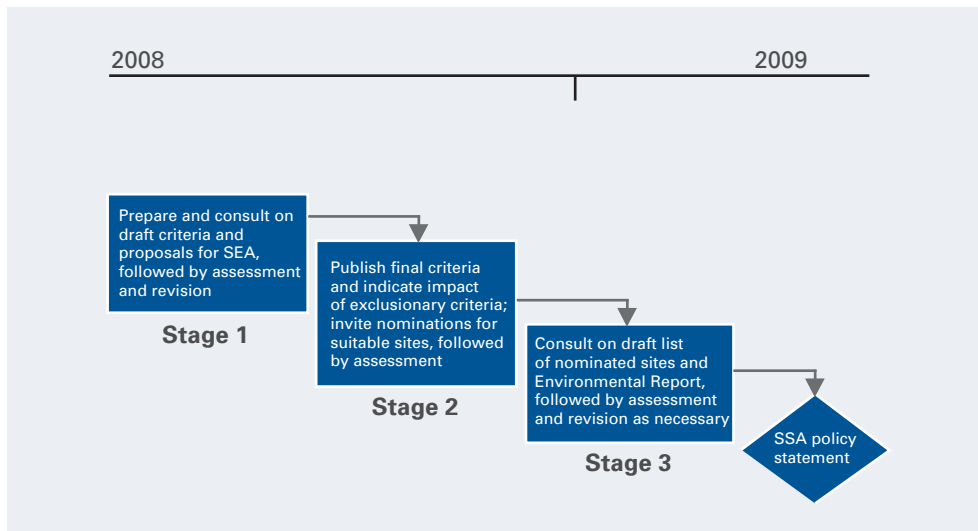


TABLE 2: STAGES AND KEY ACTIVITIES OF THE SSA PROCESS

Stage	Key Activities
1	<p>Consultation on draft criteria</p> <p>Stage 1 would focus on the development of the following two categories of criteria:</p> <ul style="list-style-type: none"> • exclusionary criteria, which would help to rule out those areas unsuitable for new nuclear build and highlight those within which there might be suitable sites. Such criteria may include “population density” criteria, for example; and • discretionary or detailed criteria for assessing the suitability of possible sites. The application of such criteria would highlight sites that it may be more appropriate to avoid where there are better alternatives. <p>Appendix A shows indicative criteria for information purposes only, which we would develop into the criteria for consultation at Stage 1.</p> <p>a. The Stage 1 consultation would be on:</p> <ul style="list-style-type: none"> • draft criteria, including proposed “exclusionary” and “discretionary” criteria, indicating those geographical areas which may be ruled out in whole or part by application of the exclusionary criteria; • Proposals on the Strategic Environmental Assessment element of the SSA, including the process to be followed and matters to be covered in the Environment Report²³. <p>b. After this first consultation closes, we would carefully consider the consultation responses, and prepare publication of the Government’s position on the criteria, indicating those geographical areas which may be ruled out, in whole or in part, by application of the exclusionary criteria; and</p>

²³ This would include consultation on the scope of the SEA with the consultation bodies designated in the Environmental Assessment of Plans and Programmes Regulations 2004 (S.I. 2004/1633).

TABLE 2: STAGES AND KEY ACTIVITIES OF THE SSA PROCESS

	<p>c. Stage 1 would last for about five months and end with a Government statement as referred to at the beginning of Stage 2 below.</p>
2	<p>Publish statement on criteria, invite nominations for potential sites to be considered in the SSA</p> <p>The key objective of Stage 2 would be to invite nominations for sites suitable for new nuclear build.</p> <p>a. At the start of Stage 2 we would publish:</p> <ul style="list-style-type: none"> • the criteria, both exclusionary and discretionary, to be used for the SSA; • an indication of broad geographical areas which have been ruled out, in whole or in part, and those areas within which there might be sites suitable for new nuclear power stations, explaining how environmental considerations have been taken into account; and • the invitation to nominate sites within areas not ruled out by the exclusionary criteria, which may be suitable for new nuclear power stations. <p>b. We envisage that a website would be set up to provide advice on, indicate timescales for, and accept open nominations. We would also set out the information which would be required in support of a nomination. The nomination period would be time-limited but consistent with recommended timescales for public consultation, approximately 12 weeks.</p> <p>c. After the close of the nomination period, we would conduct a robust assessment of the nominated sites, against the criteria. This would be undertaken to identify those sites suitable for new nuclear power stations, and to rule out any judged unsuitable. Those that most effectively meet the criteria would be placed on a “draft list of suitable nominated sites”, which would be accompanied by supporting evidence and rationale based on the assessment undertaken against the criteria. Equally, supporting evidence and rationale would be provided for any decision not to include a nominated site on the “draft list of suitable nominated sites”. We would consult on this “draft list” at Stage 3.</p> <p>d. Stage 2 is expected to last about six months.</p>
3	<p>Proposal on draft list of nominated sites which meet criteria</p> <p>The key objective of this stage would be to refine and confirm the draft list of sites through consultation.</p> <p>a. We would launch Stage 3 of the SSA by publishing:</p> <ul style="list-style-type: none"> • a “draft list of nominated sites” derived from Stage 2, together with supporting evidence. • an Environmental Report on the likely significant effects of these proposals. <p>b. We would seek views on the “draft list of nominated sites” and the Environmental Report, to enable the public to take a considered view of the sites which have been assessed as being suitable for new nuclear power stations.</p>



TABLE 2: STAGES AND KEY ACTIVITIES OF THE SSA PROCESS

- c. Following the close of the consultation period, we would carefully consider the consultation responses, which would feed into the final policy statement as necessary. We would prepare the policy statement on the SSA, which would include:
- the final criteria (as shown in Stage 2);
 - the final, albeit non-exhaustive, list of sites which meet the criteria;
 - the role of the SSA in the planning process, and how it should be used by interested parties; and
 - further information in relation to the SEA, including how environmental issues are being taken into account and proposals for monitoring.
- d. We would close Stage 3 with the publication of this policy statement which would feed into a National Policy Statement or other statements for new Nuclear build.
- Stage 3 is expected to last about six months.

Appendix B: Indicative general criteria for assessing suitability of sites for new nuclear power stations

1. Criteria provide an opportunity to consider the siting and operating requirements of a new nuclear power station and to assist in identifying the areas which meet those requirements. In addition to technical issues, siting may be influenced by economic, political, environmental, societal and technical considerations and these factors are proposed to be considered during the later stages of the SSA process.
2. The indicative criteria below have been drawn from the UK Government's Practical Guide to the SEA Directive (September 2005), HSE's Safety Assessment Principles, and previous UK experience and international experience, such as the USA Electric Power Research Institute's Siting Guide. The criteria below are simply examples of what the criteria might be and not proposals on which we are consulting at this stage. In addition, no distinction has yet been made between what might constitute exclusionary or discretionary criteria.

TABLE 3 – EXPLANATION OF CRITERIA

Consideration	Criterion
Physical Setting Criteria – considered as the “nature” of the surrounding area to the proposed site	Air quality: <i>Examples of specific considerations</i> <ul style="list-style-type: none"> • Air Quality Management Areas (AQMAs); • gaseous emission restrictions; and • issues relating to particulates and fugitive dust.
	Air safety: <ul style="list-style-type: none"> • presence or absence of air exclusion zones including proximity of the site to airports/restricted airspace/military flight routes.
	Meteorology (meteorological hazards and their potential impact on a site): <ul style="list-style-type: none"> • larger scale or regional climate, possible effects on neighbouring countries; • site micro-climate (dust and sand deposition); • plume dispersion; • precipitation (including rainfall); and • extreme weather features and electrical storms.
	Biodiversity (statutory and non-statutory obligations and designations): <ul style="list-style-type: none"> • Natura 2000 sites, SSSIs, National Nature Reserves, designated wildlife sites and wetlands; • non-statutory designations (Local Sites and Local Nature Reserves) and important communities; • rare or protected species and sensitive habitats; • atmospheric based effects upon insects, mammals and birds; • local Biodiversity Action Plans (BAPs); and • water and land based effects upon fauna and flora.



TABLE 3 – EXPLANATION OF CRITERIA

Consideration	Criterion
	<p>Noise and Vibration emanating from the plant:</p> <ul style="list-style-type: none"> • current background levels; • nature of the receptor communities; and • site-specific mitigation eg through landscaping. <p>Visual issues:</p> <ul style="list-style-type: none"> • zone of visual influence; • alignment with the local setting e.g. rural / industrial; • susceptibility to discharge plumes (where this is a feature of the proposals e.g. cooling towers); and • Location with respect to areas covered by principal landscape designations, or within a prescribed distance. <p>Amenity:</p> <ul style="list-style-type: none"> • leisure uses within and adjacent to the site; • others eg National Trust and Green Belt designations; and • commercial interests in the site and its surrounds.
<p>Virtual Setting Criteria – factors influenced by attitudes and demographic context</p>	<p>Resources:</p> <ul style="list-style-type: none"> • regional workforce characteristics eg baseline employment prospects and available skills sets. • construction, operational and maintenance issues workforce availability and to support infrastructure; and • interaction with other major infrastructure demands, such as decommissioning. <p>Emergency planning:</p> <ul style="list-style-type: none"> • demographics eg population density and distribution • Adjacent land use including the presence of existing nuclear facilities; and • Ease of access and exit. <p>Public acceptability (considerations):</p> <ul style="list-style-type: none"> • local community; business and volunteer community perceptions; • advocacy and lobby groups; and • Government (local/regional/national/international). <p><i>Economic criteria: Tax and incentives and insurance issues are considered to be predominantly developer-led issues and do not form part of the Strategic Siting Assessment. These issues which include local development incentives and taxation are not considered to be driving considerations for the SSA.</i></p>
<p>Site Criteria – those factors likely to influence the plant footprint location</p>	<p>Flood risk management:</p> <ul style="list-style-type: none"> • sea or river effects (eg storm surge and erosion); • dams and containment structures; • sea defences, likely flood propensity; • impact of climate and landscape change during possible lifetime of plants (over 100 years); and • interaction with local shoreline management plans.

TABLE 3 – EXPLANATION OF CRITERIA	
Consideration	Criterion
Seismology:	<ul style="list-style-type: none"> • Presence of known active faults; • Level of likely design basis for seismic event; and • Dynamic soil behaviour and liquefaction potential.
	Hydrology: <ul style="list-style-type: none"> • presence of water supply aquifers; • presence of surface water drainage features; and • groundwater.
	Security: <ul style="list-style-type: none"> • consideration of site surroundings, vulnerability.
	Industrial Interactions from adjacent industrial facilities <ul style="list-style-type: none"> • Gas clouds (toxics, asphyxiates, flammables); • Liquid Releases (flammables, toxic, radioactive); • Fires; • Explosions (blast waves); • Transport (road, sea, rail); • Electromagnetic Interference; and • Pipelines (Gas, Oil, Water).
	Land issues: <ul style="list-style-type: none"> • existing and future planned land usage; • presence of contamination and ownership issues; • land requirements for waste facilities; and • historic buildings, archaeological sites and other culturally important features.
	Topography (the relief or surface of an area): <ul style="list-style-type: none"> • available plant footprint and construction laydown; • water capture/hydrology; and • construction access.
	Geotechnics: <ul style="list-style-type: none"> • contamination; • permeability; • susceptibility to degradation; and • foundation requirements.
	Geology: <ul style="list-style-type: none"> • long-term stability of land; • location and impact of faults; and • rock-head profile.
Interface Criteria – those factors which influence supply, services and access to the site	Waste: <ul style="list-style-type: none"> • gaseous, solid and liquid forms; • site discharge restrictions; and • cumulative discharges.
	Marine Off Loading Facilities (MOLF): <ul style="list-style-type: none"> • presence of suitable existing facilities; • capacity of MOLF; and • suitability of marine environment/adjacent facilities to accommodate new MOLF construction.



TABLE 3 – EXPLANATION OF CRITERIA

Consideration	Criterion
	Rail: <ul style="list-style-type: none">• existing rail standards;• position of new site infrastructure relative to rail network; and• comparison of rail over other forms of transport.
	Highways: <ul style="list-style-type: none">• presence of major roads/infrastructure/traffic flows;• minor and access roads (potential need for upgrading); and• heavy haulage and emergency access and exit.
	Cooling water: <ul style="list-style-type: none">• capacity and security of supply;• re-entrainment and multiple discharges;• sea, river or estuary cooling water use including related factors (eg need for cooling towers); and• ancillary marine infrastructure.
	Grid issues: <ul style="list-style-type: none">• existing and predicted generation capacity;• grid connection and use costs;• physical grid connection;• competition for connection capacity/grid reinforcement; and• local electricity needs and predicted future changes in that demand.



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