

**BERR**

Department for Business  
Enterprise & Regulatory Reform

**TOWARDS A NUCLEAR NATIONAL  
POLICY STATEMENT**

Habitats Regulations  
Assessment Screening Report

JULY 2008



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The Habitats Regulations Assessment Screening Report has been prepared with expert input from specialist planning and environmental consultancy Hyder Consulting (UK) Limited.

# 1. Introduction

- 1.1** The Government is preparing a Nuclear National Policy Statement (Nuclear NPS) subject to the Planning Bill. The purpose of this Habitats Regulations Screening Report is to consider whether the Nuclear NPS could have significant impacts on those nature conservation areas protected under the Habitats Directive<sup>1</sup>. If so, it would be necessary to conduct an Appropriate Assessment under the Habitats Directive.

## Summary of conclusions of this Screening Report

- 1.2** This report documents the findings of this screening exercise, and it is referred to as 'Screening Report' throughout this document. In summary, it concludes that since significant effects cannot be ruled out on the basis of current information and particularly in the absence of nominated sites, a further screening exercise should be undertaken once sites have been nominated. Depending on the outcome of that further screening exercise, it may be necessary to conduct an Appropriate Assessment on the draft Nuclear NPS, focussing on those sites for which significant effects cannot be ruled out.

## Consultation on this Screening Report

- 1.3** This Screening Report is being published at the same time as the Strategic Siting Assessment (SSA) criteria consultation<sup>2</sup>. The Government is specifically seeking views on this Screening Report from Natural England, Countryside Council for Wales, the Department of the Environment's Environment and Heritage Service (Northern Ireland) and Scottish Natural Heritage. While this Screening Report is not subject to public consultation, the Government will consider any comments from interested parties or members of the public which are made before 10 November 2008. See Annex A for details of how to make comments.

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<sup>1</sup> Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora as implemented by the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). The regulations are also known as The Habitats Regulations.

<sup>2</sup> BERR, 2008, Towards a Nuclear National Policy Statement – Consultation on the Strategic Siting Assessment Process and Siting Criteria for New Nuclear Power Stations in the UK, URN 08/925 <http://www.berr.gov.uk/energy/nuclear-whitepaper/consultations/page44523.html>

## Background to the Nuclear NPS

- 1.4** The Nuclear NPS is expected to comprise the elements listed below:
- The policy background to the NPS including details of the Government's policy in relation to nuclear power, as set out in the White Paper on Nuclear Power<sup>3</sup>.
  - The SSA criteria, which will comprise exclusionary and discretionary criteria. The Nuclear NPS will describe the SSA criteria and will indicate how they have been applied.
  - A list of sites which, after assessment at a strategic level, meet the SSA criteria and a list of sites which have been excluded.
  - A description of the nominations and assessment process that we have used to arrive at this list of sites.
  - The White Paper on Nuclear Power made clear that it is the Government's policy that, before development consents for new nuclear power stations are granted, it will need to be satisfied that effective arrangements exist or will exist to manage and dispose of the waste the stations will produce. We currently expect the Nuclear NPS to set out whether the Government is satisfied that effective arrangements exist or will exist and we would then expect the SEA for the Nuclear NPS to take the relevant aspects of the new build radioactive waste management into account at the strategic level and provide further details in the Environmental Report.
- 1.5** The Nuclear NPS is still at a very early stage in its development and the Government does not expect to be in a position to publish a draft NPS until 2009.
- 1.6** At this stage, the Government is developing the proposals in relation to siting new nuclear power stations which we expect to include in the Nuclear NPS. In particular, the Government is currently developing siting criteria which will be used to assess whether sites are strategically suitable for new nuclear power stations. The Government will invite third parties to nominate sites later this year and will then assess the nominated sites against the siting criteria. The process of developing the Strategic Siting Criteria and assessing nominated sites against those criteria is referred to as the "Strategic Siting Assessment" (the SSA). The SSA is part of the process for developing the Nuclear NPS.

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<sup>3</sup> BERR, January 2008, Meeting the Energy Challenge, A White Paper on Nuclear Power – Meeting the Energy Challenge, URN 08/525 <http://www.berr.gov.uk/files/file43006.pdf>

- 1.7** Those sites which are assessed through the SSA and which are considered to be strategically suitable for new nuclear power stations, will be listed in the Nuclear NPS. The Government is currently consulting on the proposed SSA process and criteria. The consultation document was published on 21 July and can be found on the BERR website<sup>4</sup>. That consultation document provides more detail in relation to the background and content of the SSA criteria. The SSA consultation is also accompanied by an environmental study of the SSA criteria<sup>5</sup>.
- 1.8 This Screening Report focuses on the SSA criteria which will be used for assessing the suitability of sites for new nuclear power stations.**

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4 BERR, July 2008, Towards a Nuclear National Policy Statement – Consultation on the Strategic Siting Process and Siting Criteria for New Nuclear Power Stations in the UK, URN 08/925 <http://www.berr.gov.uk/files/file45240.pdf>

5 BERR, July 2008, Towards a Nuclear National Policy Statement – Applying the proposed Strategic Siting Assessment criteria: a study of the potential environmental and sustainability effects, URN 08/926 <http://www.berr.gov.uk/energy/nuclear-whitepaper/consultations/page44523.htm>

# 2. The Habitats Directive and Habitats Regulations

## Appropriate Assessment

- 2.1** Under Article 6 of the Habitats Directive, an assessment is required where a plan or project is likely to give rise to significant effects upon a Natura 2000 site. Natura 2000 is a network of areas designated to conserve natural habitats and species that are rare, endangered, vulnerable or endemic within the European Community. This includes Special Areas of Conservation (SAC) designated under the Habitats Directive for their habitats and/or species of European importance and Special Protection Areas (SPA) designated under the Conservation of Wild Birds Directive<sup>6</sup> for rare, vulnerable and regularly occurring migratory bird species and internationally important wetlands. In addition, it is a matter of law that candidate SACs (cSACs) are considered in this process and Government policy that sites designated under the 1971 Ramsar Convention for their internationally important wetlands<sup>7</sup> and potential SPAs (pSPAs) are considered<sup>8</sup>.
- 2.2** The requirements of the Habitats Directive are transposed into UK law out to territorial water limits (12 nautical miles) by means of the Conservation (Natural Habitats, &c.) Regulations 1994 (as amended)<sup>9</sup>, and the Conservation (Natural Habitats, etc) Regulations (Northern Ireland) 1995 (as amended)<sup>10</sup>. The Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007<sup>11</sup> transpose the Habitats Directive in the UK offshore marine area (beyond 12 nautical miles).
- 2.3** The recent amendments<sup>12</sup> to the Habitats Regulations<sup>13</sup> has meant that European offshore marine sites are now included in the Appropriate Assessment process.

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6 Council Directive 79/409/EEC – The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievement are at the discretion of each Member State.

7 These are commonly known as Ramsar sites

8 cSACs, pSPAs and Ramsar sites are not technically a part of the Natura 2000 network. This screening exercise has included them, but has not referred to them separately. References to Natura 2000 sites and the Natura 2000 network should be deemed to include cSACs, pSPAs and Ramsar sites for the purposes of this Screening Report.

9 SI 1994/2716

10 SR 1995/380

11 SI 2007/1842

12 SI 2007/1843, SSI 2007/80 and SR 2007/345

13 For the purposes of this document, references to the “Habitats Regulations” will apply to both the 1994 and 1995 Regulations, although specific provision references may differ in the 1995 Regulations.

**2.4** Paragraph 3, Article 6 of the Habitats Directive states that:

*'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to paragraph 4 (see below), the competent national authority shall agree to the plan or project only having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public.'*

**2.5** Paragraph 4, Article 6 of the Habitats Directive states that:

*'If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.'*

**2.6** These requirements are implemented in the UK through Regulations 48, 49 and 53 of the Habitats Regulations.

## Stages of Habitats Regulations Assessment

**2.7** The Commission Guidance on the Habitats Directive sets out four distinct stages for assessments under the Directive:<sup>14</sup>

**Stage 1: Screening** – the process which initially identifies the likely impacts upon a Natura 2000 site of a plan or project, either alone or in combination with other plans or projects, and considers whether these impacts are likely to be significant.

**Stage 2: Appropriate Assessment** – the detailed consideration of the impact on the integrity of the Natura 2000 site of the plan or project, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function. This is to determine whether there will be adverse effects on the integrity of the site.

**Stage 3: Assessment of alternative solutions** – the process which examines alternative ways of achieving the objectives of the plans or projects that avoid adverse impacts on the integrity of the Natura 2000 site.

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<sup>14</sup> Assessment of plans and projects significantly affecting Natura 2000 sites (European Commission, 2001).

**Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain** – an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the Natura 2000 network.

## Purpose of the Report

- 2.8** The purpose of this report is to undertake Stage 1 of the Habitats Regulations Assessment process (screening) to establish whether or not the proposals included within the Nuclear NPS are likely to have a significant effect on Natura 2000 sites. At this stage, the Government does not have a draft Nuclear NPS and this report therefore focuses on the Strategic Siting Assessment criteria. This screening process is running alongside, but is separate to, the Strategic Environmental Assessment (SEA) process.

## Steps in Screening

- 2.9** The European Commission guidance recommends that screening should fulfil the following steps:
- 1** Determine whether the plan is directly connected with or necessary for the management of Natura 2000 sites.
  - 2** Describe the plan and describe and characterise any other plans or projects which, in combination, have the potential for having significant effects on Natura 2000 sites.
  - 3** Identify the potential effects on Natura 2000 sites.
  - 4** Assess the likely significance of any effects on Natura 2000 sites.
- 2.10** The elements of the Nuclear NPS which could potentially result in significant effects on the Natura 2000 network are the SSA criteria and also the nominated sites. This screening exercise therefore focuses on the SSA criteria only, since the Nuclear NPS is still at an early stage of development and the list of nominated sites has not yet been compiled. Once the list of nominated sites is compiled, this Screening Report will be updated.
- 2.11** Depending upon the updated Screening Report, it may be necessary to conduct an Appropriate Assessment (Stages 2 to 4).

# 3 Screening

**3.1** The following sections present the screening assessment following the steps identified in paragraph 2.9.

## Step 1: The strategy and management of international sites

**3.2** The first part of the screening process considers whether the project or plan is directly connected with or necessary for the management of Natura 2000 sites. 'Directly' in this context means solely conceived for the conservation management of a site<sup>15</sup> and 'management' in this context refers to the management measures required in order to maintain in favourable condition the features for which the Natura 2000 site has been designated.

**3.3** It is clear that the Nuclear NPS, including its SSA criteria, is not directly connected with, or necessary for, the management of international nature conservation sites in the UK which completes Step 1.

## Step 2: Description of the Nuclear NPS

**3.4** The second stage of the screening process requires the identification of all those elements which alone, or in combination with other policies, projects or plans, have the potential to have significant effects on one or more Natura 2000 sites.

**3.5** This screening exercise is being undertaken for the Nuclear NPS, and is thus operating at a high, strategic level. The principal aim of the Nuclear NPS is to facilitate the development of new nuclear power stations by reducing the regulatory and planning risks associated with investing in them. The main elements of the Nuclear NPS which could potentially result in significant effects on the Natura 2000 network are:

- the SSA criteria; and
- the list of nominated sites (these have yet to be defined).

**3.6** The SSA criteria will be used by Government to assess nominations for potential sites for new nuclear power stations made in the SSA process, and so will determine where new stations are broadly located.

**3.7** It is accepted that new nuclear power stations will have impacts on biodiversity, but it is their location which is key to determining whether they will have impacts on Natura 2000 sites. If a new power station is located on

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<sup>15</sup> It is possible to have a plan which contains a mix of conservation management and other objectives. In that case the non-conservation management element of the plan may require assessment.

or close to a Natura 2000 site, it may potentially have significant impacts on the habitats or species on that site, both directly (e.g. land-take and habitat loss) and indirectly (e.g. emissions), including, critically, as far as the Habitats Regulations are concerned, potentially those habitats and species that are the qualifying features of the site.

- 3.8** Two types of SSA criteria are proposed to allow the strategic assessment of site nominations:
- Exclusionary criteria are those criteria that for safety, regulatory, environmental or other reasons will categorically exclude a site from further consideration in the SSA.
  - Discretionary criteria are those criteria that the Government considers, for various reasons, may, at a strategic level, make a site unsuitable for the development of a new nuclear power station.
- 3.9** In developing the SSA criteria, a number of issues have been identified which, largely due to the need for detailed site-specific investigations and data, are more appropriately assessed at the local level. These local issues will be highlighted as important local considerations in the Nuclear NPS and flagged to the Infrastructure Planning Commission (IPC) being created under the Planning Bill.
- 3.10** The proposed SSA criteria and their status are presented in Table 3-1 and local issues are presented in Table 3-2. Further explanation of these criteria is provided in the SSA consultation document<sup>16</sup>.

**Table 3-1 SSA proposed criteria**

Criteria related to nuclear safety		Status
1.1	Seismic risk (vibratory ground motion)	Exclusionary
1.2	Capable faulting	Exclusionary
1.4	Flooding	Discretionary
1.5	Tsunami, storm surge and coastal processes	Discretionary
1.7	Proximity to hazardous industrial facilities and operations	Discretionary
1.8	Proximity to civil aircraft movements	Discretionary
1.10	Demographics	Exclusionary
1.12	Proximity to military activities	Exclusionary and Discretionary

<sup>16</sup> BERR, July 2008, Towards a Nuclear National Policy Statement – Consultation on the Strategic Siting Assessment Process and Siting Criteria for New Nuclear Power Stations in the UK, URN 08/925  
<http://www.berr.gov.uk/energy/nuclear-whitepaper/consultations/page44523.html>

<b>Criteria related to environmental protection</b>		
2.1	Internationally designated sites of ecological importance	Discretionary
2.2	Nationally designated sites of ecological importance	Discretionary
<b>Criteria related to societal issues</b>		
3.1	Areas of amenity, cultural heritage and landscape value	Discretionary
<b>Criteria related to operational requirements</b>		
4.1	Size of site to accommodate construction, operation and decommissioning	Discretionary
4.2	Access to suitable sources of cooling	Discretionary

**Table 3-2 Local Issues**

<b>Issues related to nuclear safety</b>		<b>Status</b>
1.3	Non-seismic ground conditions	Flag for local consideration
1.6	Meteorological conditions	Flag for local consideration
1.8	Proximity to civil aircraft movements	Flag for local consideration
1.9	Proximity to mining, drilling and other underground operations.	Flag for local consideration
1.11	Emergency planning	Flag for local consideration
<b>Issues related to societal issues</b>		
3.2	Significant infrastructure/resources	Flag for local consideration
<b>Issues related to operational requirements</b>		
4.3	Access to transmission infrastructure	Flag for local consideration

**3.11** Whilst the effects of these criteria will be assessed individually when deciding upon a list of nominated sites, given that these are largely discretionary criteria and that potential sites will score favourably against some criteria and less favourably against others, it will be the overall combined performance against the criteria that will determine which sites are selected for new nuclear power stations and which are not.

## Other Plans and Programmes and In-Combination Effects

- 3.12** A large number of plans, programmes and environmental protection objectives have been identified through the SEA. These are presented in a series of tables in Appendix B of the environmental study of the SSA criteria<sup>17</sup> which has been prepared as part of the development of the Nuclear NPS.
- 3.13** Some of the plans and programmes identified may, in combination with the Nuclear NPS, cumulatively add to the impacts on Natura 2000 sites, whereas others may help to reduce impacts. The cumulative effect will be more appropriately assessed when sites have been identified following the nominations process.
- 3.14** Since the review of plans, programmes and environmental protection objectives has been undertaken as part of the SEA, a separate review will not be undertaken as part of this screening exercise. These will be considered further if an Appropriate Assessment is required.

## Step 3: Potential effects of the NPS

- 3.15** The third and fourth stages of the screening process involve setting out the Natura 2000 sites likely to be affected, the likely impacts of the policy on these sites, alone and in combination with other plans, projects or policies, and an assessment of the significance of these impacts.
- 3.16** Until the list of nominated sites is compiled, it is not possible to assess accurately which of the sites in the Natura 2000 network across the UK may be affected by the Nuclear NPS and, specifically, the SSA criteria, and to what extent. There are currently over 600 SACs and over 250 SPAs across the UK and, potentially, any of these could be affected. Historically nuclear power stations have been located in more remote, coastal areas, due to the need for cooling water. Many of these areas are consistent with Natura 2000 sites.
- 3.17** Potential impacts on biodiversity, flora and fauna in general caused by the construction, operation or decommissioning of new nuclear power stations are summarised in Table 3-3.

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<sup>17</sup> BERR, July 2008, Towards a Nuclear National Policy Statement – Applying the proposed Strategic Siting Assessment criteria: a study of the potential environmental and sustainability effects: Appendices, URN 08/926AN

**Table 3-3 Potential Impacts upon Biodiversity, Flora and Fauna in the Absence of Details on Location, Design or Mitigation as a Result of The Construction, Operation and Decommissioning of a New Nuclear Power Station**

Phase of Activity (duration)	Potential Impacts upon Biodiversity, Flora and Fauna in the Absence of Details on Location, Design or Mitigation as a Result of The Construction, Operation and Decommissioning of a New Nuclear Power Station
Construction (5-6 years)	<p><b>Drainage works and use of vehicles</b></p> <p>The use of machinery, vehicles and new drainage systems may mobilise soil particles in surface run-off which can result in adverse impacts on aquatic flora and fauna due to increased sediment loading of streams. The mobilisation of dust particles can also have an adverse effect on sensitive habitats nearby, especially if the dust is of a different acidity to the surrounding habitats.</p> <p><b>General construction site activities</b></p> <p>The potential exists for noise and visual disturbance from the construction site to have an adverse impact on species, in particular sensitive bird species associated with neighbouring SPAs.</p> <p><b>Materials management</b></p> <p>The management of materials may result in accidental contamination of watercourses and soils from oil, fuel, cement or other substances. This may result in harm to flora and fauna although good site environmental management practices should minimise these risks.</p> <p><b>Earthworks and excavations</b></p> <p>Earthworks and excavations may result in direct habitat removal, fragmentation or severance. Similarly, disturbance may occur to individual species (including rare and sensitive species and those which are specifically protected from disturbance under European Law), and the mobilisation of sediment may have adverse impacts on aquatic flora and fauna due to increased sediment loading of streams.</p> <p><b>New electricity transmission infrastructure</b></p> <p>Construction of new over or underground transmission lines could cause direct disturbance and physical loss of terrestrial habitats.</p>

Phase of Activity (duration)	Potential Impacts upon Biodiversity, Flora and Fauna in the Absence of Details on Location, Design or Mitigation as a Result of The Construction, Operation and Decommissioning of a New Nuclear Power Station
Operation (40 years)	<p><b>Routine release of radioactive discharges to water</b></p> <p>The operation of the nuclear reactor would result in the emission of routine radioactive discharges to the aquatic environment which may adversely affect both aquatic and terrestrial ecology. These discharges are identified in Section 7 of the environmental study – the Water Environment. Prior to undertaking the preliminary GDA assessment, vendors were requested to supply information about how radioactive wastes will arise, be managed and disposed of, to provide design basis estimates for monthly discharges of liquid wastes and proposed annual limits with derivation for radioactive discharges<sup>17</sup>. The preliminary findings indicated that all discharges would be within established dose limits. The outputs of the detailed assessment will also be used to set indicative limits for authorisations. Any new nuclear power stations would require authorisation from the relevant environment agency under the Radioactive Substances Act 1993 before making any discharges of radioactivity.</p> <p><b>Release of radioactive materials as a result of accidents</b></p> <p>During the operation of the nuclear power station there would be a very small risk of accident or other incident which could result in the unplanned release of radiation into the environment which could affect aquatic or terrestrial flora and fauna. The overall safety of nuclear installations is dependent upon good design and operation and is driven by a system of regulatory control. The work undertaken to date by the nuclear regulators as part of the GDA has provided an overview of the fundamental acceptability of the proposed reactor design within the overall, UK regulatory regime. For all reactors being considered the key preliminary conclusion from the GDA was that there are no safety or security shortfalls that would be so serious as to rule out at this stage the eventual construction of the reactors in UK licensed sites. The next stage of the GDA will be to review in more detail the submissions of each of the vendors in respect of safety, security and environmental issues. Before granting a nuclear site licence the HSE will also have to be satisfied that the nuclear facility is designed and operated such that several levels of protection and defence are provided against significant faults or failures, that accident management and emergency preparedness strategies are prepared and that all reasonably practicable steps have been taken to minimise the radiological consequences of an accident<sup>18</sup>.</p> <p><b>Water treatment plant</b></p> <p>There is potential for accidental pollution of watercourses by leaks or spillages from water treatment plants. This may in turn affect aquatic and/or terrestrial ecology.</p>

17 Environment Agency (2007) Process and Information Document for Generic Assessment of Candidate Nuclear Power Plant Designs.

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

Phase of Activity (duration)	Potential Impacts upon Biodiversity, Flora and Fauna in the Absence of Details on Location, Design or Mitigation as a Result of The Construction, Operation and Decommissioning of a New Nuclear Power Station
Operation (40 years)	<p><b>Non-radioactive discharges</b></p> <p>The reactor designs assessed through the GDA require cooling water to be abstracted and then discharged into a suitable water body. Discharge may be to the sea, rivers or lakes. The temperature of the discharge will often be above that of the receiving water body (it may be up to 10°C warmer<sup>20</sup>) and may result in changes to the aquatic ecology in that area. This may be negative as oxygen is less soluble at higher temperatures. Reductions in dissolved oxygen can put aquatic life under stress if levels become very low. In contrast, certain species (such as the worm <i>Sabellaria</i> which creates reefs that are designated under the Habitats Directive) thrive in warmer water.</p> <p><b>Water abstractions</b></p> <p>As for all thermal plants (whether coal, gas or nuclear powered), water is needed for cooling purposes and may be abstracted from groundwater, the sea, rivers or lakes. Water intake from surface water bodies can lead to the incidental mortality of fish and other aquatic species, particularly on the intake screens. Fish, larvae and eggs can be sucked into condenser circuits and subject to heat before being returned to the sea. New technologies are designed to eliminate these impacts<sup>21</sup>. Groundwater abstractions may affect groundwater supply to other areas of valuable habitat including rivers and streams, resulting in habitat degradation.</p> <p><b>Site drainage</b></p> <p>The drainage of the site may result in altered run-off rates to watercourses which could in turn affect stream hydrology (especially flow rates) and morphology. This has the potential to adversely affect aquatic flora and fauna.</p> <p><b>Materials management and vehicle movements</b></p> <p>As during the construction phase, the use of vehicles, machinery and management of materials on site gives rise to the risk of accidental pollution to soils and water. This may include oil, fuel or other substances which could adversely affect aquatic and terrestrial ecology. Again, the potential exists for noise and visual disturbance from the site to have an adverse impact on species, in particular sensitive bird species associated with neighbouring SPAs.</p> <p><b>Physical presence of site</b></p> <p>The physical presence of the site buildings may cause direct alteration, disturbance or direct physical loss of terrestrial habitats and species. This may include the severance of wildlife corridors and commuting routes for protected species.</p> <p>It is also feasible that the principle of restricting human access to the sites could be beneficial to flora and fauna by providing buffer zones in which an ecosystem could thrive<sup>22</sup>.</p>

20 Referenced in Sustainable Development Commission (2006) The role of nuclear power in a low carbon economy Paper 3: Landscape, environment and community impacts of nuclear power.

21 Referenced in Sustainable Development Commission (2006) The role of nuclear power in a low carbon economy Paper 3: Landscape, environment and community impacts of nuclear power.

22 IAEA (2002) Non-technical factors impacting on the decision making process in environmental remediation. Page 64. [http://www-pub.iaea.org/MTCD/publications/PDF/re\\_1279\\_prn.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/re_1279_prn.pdf)

Phase of Activity (duration)	Potential Impacts upon Biodiversity, Flora and Fauna in the Absence of Details on Location, Design or Mitigation as a Result of The Construction, Operation and Decommissioning of a New Nuclear Power Station
	<p><b>Interim Radioactive Waste Storage</b></p> <p>Radioactive waste, including higher activity wastes (ILW and spent fuel), will be stored on site in safe, secure, interim storage facilities prior to being transported for final disposal. The main risks to biodiversity, flora and fauna would be through unplanned releases of radioactive materials into the environment via air, water or soil contamination. However, these risks to biodiversity, flora and fauna are considered to be very low as the stores would be designed to the highest levels of containment and would be subject to strict regulatory controls<sup>23</sup>. Safe storage in these facilities would be expected to be available until such time as final disposal facilities become operational.</p>
Decommissioning (including interim waste storage, transport and final disposal) (minimum of 30 years)	<p><b>Decommissioning activities</b></p> <p>During decommissioning there may be risks of continued soil, water and air contamination if radioactive and other hazardous materials are released during decommissioning activities. The risk of this is considered very low given the strict regulatory requirements that would need to be adhered to during decommissioning. A stringent decommissioning strategy would be required together with full EIA prior to decommissioning.</p> <p><b>Restoration design</b></p> <p>Following decommissioning, the site will be restored, and this presents an opportunity for habitat creation and thus the enhancement of nature conservation value.</p> <p><b>Interim Radioactive Waste Storage</b></p> <p>Impacts during decommissioning would be the same as those identified during operation above. However, once geological disposal facilities are constructed and operational, the waste store and its contents will be dismantled and removed. There is the potential for some degree of ground contamination to remain on site in the long-term, which could affect biodiversity, flora and fauna although this would be addressed on a site specific basis through the decommissioning strategy.</p> <p><b>Transport of Radioactive Waste for Final Disposal</b></p> <p>Once final disposal facilities are constructed and operational, radioactive waste from new nuclear power station sites would be transported for final disposal. Because the design of packages is robust and meets international and European regulations, the main risks to biodiversity, flora and fauna would be through unplanned releases of radioactive materials into the environment as a result of accidents which could lead to radioactive releases into the air, water or soil. However, the safety record for the transport of nuclear materials suggests that the risks are very low. Data from RAMTED for the period 1958 to 2006 recorded 850 events associated with the transportation of radioactive materials.</p>

<sup>23</sup> Security of radioactive waste storage and transport is under constant review by the regulators to ensure that facilities and practices remain robust (BERR, January 2008, Meeting the Energy Challenge, A White Paper on Nuclear Power)

Phase of Activity (duration)	Potential Impacts upon Biodiversity, Flora and Fauna in the Absence of Details on Location, Design or Mitigation as a Result of The Construction, Operation and Decommissioning of a New Nuclear Power Station
	<p>As set out in the White Paper on Nuclear Power, the Health Protection Agency has conducted an assessment of all events involving radioactive material during transport since 1958 and found that most of the recorded events during this period had not resulted in any significant health effects for workers or members of the public. All 19 significant dose events involved industrial radiography sources that were transported without the source being properly returned to their container and occurred mainly in the 1970s, only two have occurred since the mid -1980s. None of these significant dose events involved the transport of nuclear materials<sup>24</sup>. The majority of incidents that have occurred have resulted in trivial or no radiological consequences. During interim storage of several decades the initial fission product activity of the waste would decline as more active compounds decay and it may only require a single movement of lower activity material to the final disposal locations. It is not possible to specify which transportation routes will be used as the location of new nuclear power stations and geological disposal facilities is not currently known.</p> <p><b>Final Disposal of Radioactive Waste</b></p> <p>The Government considers that it would be technically possible to dispose of higher activity waste from new nuclear power stations in a geological disposal facility. The risks to biodiversity, flora and fauna of disposal in a geological disposal facility relate to both the impacts of construction of the facility and waste emplacement and disposal within it. Such impacts may relate to direct habitat loss and disturbance during construction and unplanned releases of radioactive materials into the environment. The containment of radioactivity would be central to any safety case presented to the regulators, who would have to be satisfied that such risks would be acceptably small before such a facility could be built and operated.</p> <p>LLW would be disposed of at a low level waste facility such as LLWR in West Cumbria or an alternative future facility. The emerging NDA Strategy is looking at a range of possible alternative LLW disposal options for the future. Each of these options may have different implications for biodiversity, flora and fauna.</p>

- 3.18** The extent to which these impacts may affect a Natura 2000 site is heavily dependent upon the location of a new power station with respect to such a site.
- 3.19** When assessing each criterion, therefore, consideration has been given to the potential for that criterion to result in a new nuclear power station being sited on, or within close enough proximity to, a Natura 2000 site and which results in adverse effects on that site. The overall aim is to determine whether the locations identified by implementing the SSA criteria as a whole are likely to result in significant environmental effects on the Natura 2000 network.

<sup>24</sup> Hughes, J. S, Roberts, D, Watson S.J July (2006) Review of Events Involving the Transport of Radioactive Materials in the UK, from 1958 to 2004 and their Radiological Consequences, HPA-RPD-014 and; Hughes, J.S and Harvey, M. P (2007) Radiological Consequences Resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK – 2006 Review HPA – RPD-034.

- 3.20** The potential effects of the criteria have been identified below according to their category from Tables 2-1 and 2-2.

## Criteria related to nuclear safety

- 3.21** Although listed as exclusionary criteria in the SSA, it is not expected that the Government will exclude any areas of the UK from consideration on the basis of criteria 1.1 and 1.2. These relate to earth movements, and it is considered that the UK's geology is similarly stable across the country, with no areas being particularly prone to such problems. These criteria would not, therefore, contribute to impacts on Natura 2000 sites.
- 3.22** This is also the case for criteria 1.3, 1.6, 1.9 and, for the most part, 1.11. Criterion 1.3 relates to adverse non-seismic ground conditions and criterion 1.9 relates to mining, drilling and other underground activities, both of which can only be practicably assessed at a local level. Potential impacts associated with these issues would therefore not be considered in the SSA when a site is nominated. However, such local issues would be deferred for consideration by the IPC and to the Environmental Impact Assessment (EIA)<sup>25</sup> stage when planning applications are submitted. This is also true of criterion 1.11, which relates to the ability to implement emergency planning obligations. For the purposes of the SSA, the Government does not believe it is possible to determine, at a national level, the suitability of a site to meet emergency planning obligations and so again, this will be an issue for local consideration.
- 3.23** Criterion 1.6 is identified for local consideration and relates to the risks to nuclear power stations caused by adverse meteorological conditions, which are considered generally benign in the UK. Sites are therefore unlikely to be ruled out on this basis, and so this criterion will have no influence on the siting of new nuclear power stations with the associated potential impacts on Natura 2000 sites.
- 3.24** Criterion 1.4 has been included to ensure that risks to a new nuclear power station caused by flooding are avoided by the careful siting of the power station. The criterion follows the guidelines laid out in Planning Policy Statement (PPS) 25 on how flood-risk should be taken into account in planning decisions. In terms of vulnerability to flood-risk, PPS 25 classifies power stations as 'Essential Infrastructure', which means they could be located in places with any level of flood-risk as long as certain tests are met (Sequential and Exception Tests). This means that they could be sited in low flood-risk areas (which would be preferable) or places prone to flood-risk, such as coastal areas and wetlands, where large numbers of Natura 2000 sites may be designated.

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<sup>25</sup> Directive 2001/42/EC of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment (O.J. L197, 21.7.2001, p.30) implemented by the Environmental Assessment of Plans and Programmes regulations 2004 (S.I. 2004/1633).

- 3.25** In addition, PPS 25 sets out Government policy on development and flood risk. It aims to ensure that flood risk is taken into account at all stages in the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk. Where development is necessary in such areas, policy aims to make it safe without increasing flood risk elsewhere, and, where possible, reducing flood-risk overall. Even if they do not directly impact on Natura 2000 sites, new nuclear power stations may affect those in the surrounding area by controlling water in this way, for example with flood barriers or by lowering the groundwater through groundwater abstraction. This, therefore, constitutes an additional potential impact on Natura 2000 sites of criterion 1.4. The avoidance of flood-risk is becoming increasingly important due to the effects of climate change.
- 3.26** Criterion 1.5 is related to 1.4 since it deals with the avoidance of risk of flooding or damage caused by tsunami, storm surge and coastal processes. In a similar way, the construction of new coastal defences to protect new nuclear power station sites could lead to changes to coastal processes which could impact upon Natura 2000 sites downstream.
- 3.27** Criteria 1.7, 1.8, 1.10 and 1.12 are the remaining criteria relating to nuclear safety. Criterion 1.7 relates to existing hazardous industrial facilities and operations, 1.8 relates to civil aircraft movements, 1.10 relates to limiting risks to nearby populations and 1.12 relates to military aircraft movements. All four have the potential to contribute significantly to strategic decisions on where to locate new nuclear power stations, and so, accordingly, could result in impacts on Natura 2000 sites. This suggests that these criteria may generally encourage the preference for remote, undeveloped locations away from centres of population, industry and infrastructure. Natura 2000 sites are often located in such areas. The criteria relate to reducing the risk of accidents which may lead to unplanned releases of radioactive materials. Any such unplanned releases could adversely affect nearby Natura 2000 sites.
- 3.28** Criterion 1.8 and 1.12 relate to civil and military aircraft movements. These criteria include exclusionary and discretionary elements and also issues identified for local consideration. Proposed nuclear sites will be excluded within low flying Tactical Training Areas or Aerodrome Safeguarding Plan areas around military aerodromes. Many military air bases and, in particular, ranges and low flying areas are located in wild, remote areas and could be consistent with Natura 2000 sites.

## Criteria related to environmental protection

- 3.29** Criterion 2.1 seeks to avoid adverse impacts on wildlife sites of international importance, including the Natura 2000 sites, and criterion 2.2 seeks to avoid adverse impacts upon nationally designated sites, including Sites of Special Scientific Interest (SSSI), National Nature Reserves, Marine Nature Reserves,

(in the future) Marine Conservation Zones<sup>26</sup>, Limestone Pavement Orders and Areas of Special Protection / Wildlife Refuges (Northern Ireland). These criteria should lead to more informed judgements about the siting of new nuclear power stations in relation to such sites and should ensure that adverse impacts on the integrity of these sites are avoided during the construction, operation and decommissioning phases. Effects are most likely to be directed at the site level, and largely relate to habitat loss, although indirect effects may occur at considerable distance from the site as a result of, for example, changes in groundwater regimes, coastal processes or abstractions which could be realised over a wide area.

**3.30** Both of these criteria are discretionary. Although it would be seen as undesirable to nominate a site in, or in an area likely to cause adverse impact on, any internationally or nationally protected site, this would not categorically exclude a site from further consideration in the SSA. In relation to criterion 2.1, and in the context of the Habitats Regulations, this means that adverse effects on Natura 2000 sites caused by the development of new nuclear power stations could be permitted, if:

- despite mitigating as far as possible, the risk of an adverse effect on integrity remains;
- IROPI can be demonstrated;
- no feasible alternatives exist; and
- if compensatory measures can be taken to ensure the overall coherence of the Natura 2000 network.

**3.31** The process for undertaking any Appropriate Assessment of nominated sites is described further below. It should be noted, also, that if a site hosting a habitat or species listed as a priority in the Habitats Directive could be affected, then under article 6(4) the Government would need the European Commission's agreement that IROPI exist.

**3.32** For this reason, there is a lower degree of certainty that the potential benefits of criterion 2.1 would be realised, and significant impacts on Natura 2000 sites may still be possible despite the existence of this criterion. However, under the SSA process, nominators will be expected to provide details of how potentially adverse effects could be mitigated, which would help to fulfil the requirements of Appropriate Assessment. As such, potential exists for minimising impacts (possibly to levels that would not affect the 'integrity' of the Natura 2000 sites), even if they cannot be avoided altogether.

**3.33** Criterion 2.2, by offering protection, albeit discretionary, to sites of national importance, may assist in the protection of Natura 2000 sites<sup>27</sup>, especially

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<sup>26</sup> Under the Marine Bill, it is proposed that Marine Conservation Zones may be designated anywhere within English and Welsh territorial seas and UK offshore waters. The landward boundary of the Marine Conservation Zone may extend over the foreshore or cover small islands in limited circumstances.

<sup>27</sup> Designation of Terrestrial Natura 2000 sites is underpinned via dual designation as SSSIs (Areas of Special Scientific Interest (ASSIs in Northern Ireland)). Consent to undertake operations likely to damage (OLD) the features for which the site was notified will be required from the relevant statutory nature conservation body.

where the national site is contiguous with the Natura 2000 site and may therefore act as buffer zone/no-go area beyond the boundaries of the Natura 2000 site.

## Criteria related to societal issues

**3.34** Criterion 3.1 seeks to avoid impacts on areas of amenity, cultural heritage and landscape value. Some of these areas could encompass Natura 2000 sites, especially those related to the wider countryside, such as National Scenic Areas, National Parks, Areas of Outstanding Natural Beauty, Heritage Coast, National Trails and Long Distance Routes. By avoiding siting of new power stations in such areas, impacts on Natura 2000 sites could also be avoided. However, since this criterion is discretionary, it would not, necessarily prevent development in such areas.

## Criteria related to operational requirements

**3.35** The final set of SSA Criteria is designed to ensure that the development of a new nuclear power station at a particular site is practically possible. The two criteria relate to the area of land required for a new station and access to suitable sources of cooling. These are discretionary criteria.

**3.36** Nuclear power stations will require a significant area of land for development and criterion 4.1 establishes a need for land to be available for this. No significant conclusions can be reached at this stage regarding the effects of this criterion upon the Natura 2000 network.

**3.37** Criterion 4.2 relates to the availability of suitable sources of cooling, which nuclear plants need to ensure safe operation. Historically this has led to coastal sites being developed. However, lakes or rivers can be used, and cooling towers and air-based cooling systems are also a possibility. The criterion will ensure that nominators of new nuclear sites have considered the need for cooling systems and have identified how they will implement them. This will allow for the environmental and visual impacts of such systems to be considered once sites are nominated. The criterion may result in power stations being sited on the coast, where direct use of the sea for cooling water can be the most appropriate option, but lakeside and riverside sites may also be nominated. There is, therefore, the potential for this criterion to result in impacts on those Natura 2000 sites and nationally designated sites<sup>28</sup> located in such areas, in particular where the qualifying features are coastal, wetland or river habitats and their associated species. However, many river and lake environments may also be designated as Natura 2000 sites, or otherwise may be hydrologically linked to such sites.

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<sup>28</sup> See criteria related to environmental protection.

## Combined Effects of the Criteria as a Whole

**3.38** It is intended that the criteria are applied as a whole and, therefore, criterion 2.1, which relates to the avoidance of impacts on internationally designated sites of ecological importance, would need to be integral to nominators' considerations and would provide some protection to Natura 2000 sites. However, this criterion is discretionary, and so the extent to which adverse effects would be minimised would be determined on a case-by-case basis. For this reason, there is a lower degree of certainty that the potential benefits of the criteria would be realised. However, nominators will be expected to provide details of how potentially adverse effects in relation to a discretionary criterion could be mitigated.

## Assessment of Significance

**3.39** The SSA criteria, whilst including criteria designed to avoid impacts on European designated sites, are not able to guarantee that there will be no significant effects on sites listed in the Natura 2000 network. Significant effects cannot be ruled out on the basis of objective information, so it is considered that further Habitats Regulation Assessment (screening exercise) should be undertaken once sites have been nominated based upon the SSA criteria.

## Appropriate Assessment

**3.40** It is intended that a further screening exercise should be undertaken once sites have been nominated, to identify those sites which are likely to impact upon the Natura 2000 network and may require Appropriate Assessment. The second screening exercise will update this Screening Report. Depending on the outcome of the further screening exercise, it may be necessary to conduct an Appropriate Assessment on the Nuclear NPS focussing on those nominated sites for which the potential for significant effects cannot be ruled out.

**3.41** Appropriate Assessment would include consideration of impacts the development of a nuclear power station at a nominated site might have, either alone or in combination with other projects or plans, on the integrity of Natura 2000 sites, with respect to their conservation objectives. It will also look at the potential to mitigate any adverse impact. The assessment will include a high level examination of mitigation methods suggested by the nominator and will, if necessary, examine the potential for strategic alternative solutions, with particular reference to the other nominated sites.

**3.42** The Appropriate Assessment may conclude that there are nominated sites at which adverse effects could occur, for which there may be no potential effective mitigation and where strategic alternatives may not be available. In conducting the SSA assessment, the Government will consider for each such site whether there is an imperative reason of overriding public interest to

justify including the site in the Nuclear NPS. The Government will also consider the compensatory measures that would need to be taken if the site is to be developed.

- 3.43** However, the Appropriate Assessment of the Nuclear NPS will be conducted at strategic level and the Government does not expect to include the level of detail or range of alternatives which would be required for an Appropriate Assessment of a specific project as this would be impractical and inappropriate. A more detailed examination will be undertaken at the time of any application for development consent.

# Next Steps

- 3.44** Update Habitats Regulations Assessment Screening Report once Government has received nominations for sites to be assessed as part of the Strategic Siting Assessment.
- 3.45** Depending on the outcome of the updated Screening Report, undertake Appropriate Assessment of the draft Nuclear NPS focusing on the draft list of nominated sites.

# Abbreviations

EIA	Environmental Impact Assessment
GDA	Generic Design Assessment
HSE	Health and Safety Executive
IROPI	Imperative Reasons of Overriding Public Interest
NPS	National Policy Statement
PPS	Planning Policy Statement
CSAC	Candidate Special Area of Conservation
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
PSPA	Potential Special Protection Area
SPA	Special Protection Area
SSA	Strategic Siting Assessment

# Annex A – How to make comments on this Screening Report

- A1** The Government is specifically seeking views on this Screening Report from Natural England, Countryside Council for Wales, the Department of the Environment's Environment and Heritage Service (Northern Ireland) and Scottish Natural Heritage.
- A2** While this Screening Report is not the subject of public consultation, the Government will consider any comments from interested parties or members of the public which are made before **10 November 2008**.
- A3** In parallel with issuing this Screening Report, the Government is also undertaking a public consultation on the Strategic Siting Assessment<sup>29</sup> and an environmental and sustainability study of the effects of the SSA criteria<sup>30</sup>.
- A4** A summary of responses to this Screening Report will be published on the BERR website.

## How to respond

- A5** A response can be submitted by letter, fax or email to:

**Habitats Regulations Assessment Screening Report  
Nuclear Unit  
Bay 135  
Department for Business, Enterprise and Regulatory Reform  
1 Victoria Street  
London  
SW1H 0ET  
Tel. 020 7215 3331  
Fax. 020 7215 2842  
Email: SSACriteria@berr.gsi.gov.uk**

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29 BERR, 2008, Towards a Nuclear National Policy Statement – Consultation on the Strategic Siting Assessment Process and Siting Criteria for New Nuclear Power Stations in the UK, URN 08/925  
<http://www.berr.gov.uk/energy/nuclear-whitepaper/consultations/page44523.html>

30 BERR, 2008, Towards a Nuclear National Policy Statement – Applying the proposed Strategic Siting Assessment criteria: a study of the potential environmental and sustainability effects, URN 08/926  
<http://www.berr.gov.uk/energy/nuclear-whitepaper/consultations/page44523.html>

## Additional points about responding

- A6** 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.

## Confidentiality and data protection

- A7** Your response may be made public by the Department. If you do not want all or part of your response or name made public, please state this clearly in the response. Any confidentiality disclaimer that may be generated by your organisation's IT system or included as a general statement in your fax cover sheet will be taken to apply only to information in your response for which confidentiality has been specifically requested.
- A8** 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.
- A9** 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.
- A10** In view of this it would be helpful if you could explain 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.
- A11** 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

- A12** You may make copies of this document without seeking permission. An electronic version can be found at <http://www.berr.gsi.gov.uk/nuclear-whitepaper/consultations/page44523.html>

## Help with queries

**A13** Please email [SSACriteria@berr.gsi.gov.uk](mailto:SSACriteria@berr.gsi.gov.uk) or call 020 7215 3331

If you have comments or complaints about the way BERR consultations are conducted, these should be sent to:

Vanessa Singhatoh, Consultation Co-ordinator  
Department for Business, Enterprise and Regulatory Reform  
Better Regulation Team  
1 Victoria Street  
London SW1H 0ET

E-mail: [vanessa.singhatoh@berr.gsi.gov.uk](mailto:vanessa.singhatoh@berr.gsi.gov.uk)

Tel: 020 7215 2293

Fax: 020 7215 2235

# Annex B: The Consultation Code of Practice Criteria

The six consultation criteria:

- 1** Consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy.
- 2** Be clear about what your proposals are, who may be affected, what questions are being asked and the timescale for responses.
- 3** Ensure that your consultation is clear, concise and widely accessible.
- 4** Give feedback regarding the responses received and how the consultation process influenced the policy.
- 5** Monitor your department's effectiveness at consultation, including through the use of a designated consultation co-ordinator.
- 6** Ensure your consultation follows better regulation best practice, including carrying out a Regulatory Impact Assessment if appropriate.

The complete code is available on the Cabinet Office's web site <http://www.cabinetoffice.gov.uk/regulation/consultation/index.asp>









