

# Appraisal of Sustainability of the draft Nuclear National Policy Statement: Non-Technical Summary

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# Non-technical Summary

## S.1 Introduction

S.1.1 This is a Non-Technical Summary (NTS) of the Appraisal of Sustainability (AoS) Report<sup>1</sup> undertaken to inform the preparation of the draft Nuclear National Policy Statement (NPS). The AoS Report is provided in three parts: this Non-Technical Summary; the Main AoS Report; and its Annexes (A-J) which report the individual appraisals for each of the potentially suitable sites included in the NPS. This Non-Technical Summary explains the following:

### Background to the draft Nuclear NPS and AoS

- the new planning regime and the role of National Policy Statements;
- the objectives and structure of the draft Nuclear NPS;
- the main options considered for developing the draft Nuclear NPS;
- the overall approach to the AoS, and an outline of the methods and framework used in the appraisal process;
- an outline of the Strategic Siting Assessment (SSA) process;
- the challenges that were addressed in undertaking the appraisal;
- an outline of the consultation that took place during the development of the appraisal;
- an outline of the alternatives that have been considered in relation to 'Needs', 'Processes' and 'Locations';
- a summary of current situation in relation sustainability, and the likely future situation without a Nuclear NPS.

### Key Findings of the AoS

- an overview of the draft Nuclear NPS findings as a whole;
- summaries of findings against the identified sustainable development themes;
- summaries of the appraisal findings for the sites listed in the draft Nuclear NPS;
- a summary of potential interactions and cumulative effects;
- key findings of the appraisal area, stated at the end of this Section.

### Monitoring and Next Steps

- an outline of how the AoS informed the preparation of the draft Nuclear NPS;
- an outline of proposals for monitoring the predicted effects of the draft Nuclear NPS;
- discussion of next steps for the AoS and draft Nuclear NPS.

<sup>1</sup> DECC 2009 EN-6: Appraisal of Sustainability of the draft Nuclear NPS Main report [www.energy-npsconsultation.decc.gov.uk](http://www.energy-npsconsultation.decc.gov.uk)

The Appraisal of Sustainability and the draft Nuclear National Policy Statement are subject to public consultation. For more information on this consultation and how you may give us your views, please see the Consultation Document ([www.energynpsconsultation.decc.gov.uk](http://www.energynpsconsultation.decc.gov.uk))

## S.2 Background to the National Policy Statements and Appraisal of Sustainability

### The Planning Act 2008 and National Policy Statements (NPSs)

- S.2.1 The Planning Act 2008 is intended to provide a more efficient, transparent and accessible planning system for nationally significant infrastructure projects for transport, energy, water, wastewater, and waste. A new independent Infrastructure Planning Commission (IPC) will take responsibility for considering and deciding on major infrastructure applications and, whilst allowing local factors to be taken into account, this will help speed up the planning process. The Government is producing National Policy Statements to provide clarity on the national need for the infrastructure and to set the policy and guidance framework for the IPC to use when making its planning decisions.
- S.2.2 The Department of Energy and Climate Change (DECC) is responsible for preparing the NPSs that relate to energy infrastructure projects. DECC is proposing to publish a suite of six NPSs in relation to energy infrastructure projects. These will comprise an Overarching Energy NPS (EN-1) and five technology-specific NPSs. The Overarching NPS for Energy (EN-1) sets out the high level objectives, policy and regulatory framework for new energy infrastructure consistent with sustainable development and addressing climate change. The five technology specific NPSs are as follows:
- EN-2 Fossil Fuel Electricity Generating Infrastructure;
  - EN-3 Renewable Energy Infrastructure;
  - EN-4 Gas Supply Infrastructure and Gas and Oil Pipelines;
  - EN-5 Electricity Networks Infrastructure;
  - EN-6 Nuclear Power Generation.
- S.2.3 These six NPSs set out Government's energy policy, the national need for energy infrastructure, and guidance to the IPC on how to assess the impacts of such infrastructure. Developers will need to ensure that their applications for development consent are consistent with the requirements of relevant NPSs. The IPC will also take into account local impact reports prepared by local authorities. The draft Nuclear NPS is different from the other energy NPSs because it includes a list of potentially suitable sites for new nuclear power stations. The draft Nuclear NPS with potentially suitable sites is the subject of this AoS.
- S.2.4 Developers may submit applications for development consent on other sites not listed in the draft Nuclear NPS and these will be considered by the Secretary of State with an advisory role from the IPC.

## What is the draft Nuclear NPS?

- S.2.5 The main objective of the draft Nuclear NPS is to provide the primary basis for planning decisions by the IPC on applications for development consent for a new nuclear power station. It sets out the role of nuclear power and the key features of relevant planning policy in which applications for new nuclear power stations should be considered. It describes the nominations and the Strategic Siting Assessment (SSA) process and includes a list of sites that have been assessed to be potentially suitable for new nuclear power stations. This reduces the need for the IPC to consider alternative sites and helps make the decision making more efficient.
- S.2.6 New nuclear power stations may have negative and positive impacts on the environment and local communities. The significance of these impacts depends upon the characteristics of the local area and the detailed design of the nuclear power station. Under the new planning regime, the promoters of new nuclear power stations will still need to provide an Environmental Statement to accompany their application for development consent. Any new nuclear power station will still be subject to a nuclear site licence and environmental discharge authorisations and the operator will have to comply with the safety, security and environmental conditions set by the regulators.
- S.2.7 The draft Nuclear NPS sets out guidance for the IPC, including the general principles that should be applied in the assessment of impacts, and advises on the impacts from new nuclear power stations that are likely to have the most significant effect on sustainable development. It includes generic impacts that are applicable to energy infrastructure and are described in the Overarching Energy NPS (EN-1). Part 5 of the draft Nuclear NPS and sets out an analysis for each site with issues that need to be considered for development consent and site licensing. It indicates what detailed studies might be needed to evaluate their significance, and suggests possibilities for mitigating adverse effects. This will help scope the information that needs to be provided in the Environmental Statement and should speed up the decision-making process for building new nuclear power stations.

## How has the Government developed the draft Nuclear NPS?

- S.2.8 The 2008 Nuclear White Paper<sup>2</sup> set out the Government's belief that *“new nuclear power stations should have a role to play in this country's future energy mix alongside other low-carbon sources; that it would be in the public interest to allow energy companies the option of investing in new nuclear power stations; and that the Government should take active steps to facilitate this”*.
- S.2.9 The Government considered a number of options for developing a draft Nuclear NPS commencing with assessment of high level options including whether we need a Nuclear NPS, and if we do, then how should it be developed. This hierarchy of options for the NPS was subject to consultation and this is described later in Section 6 of this Non-Technical Summary (NTS). The hierarchy of options considered the need for a draft Nuclear NPS, then the processes by which the draft Nuclear NPS should be developed, and finally the location of potentially suitable sites. These options, and the findings identified, are summarised in Section 7 of this NTS.

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2 Meeting the Energy Challenge: A White Paper on Nuclear Power, CM 7296, January 2008 [page 7].

S.2.10 The draft Nuclear NPS sets out the Government policy on the role of new nuclear power in the energy mix, the Government's assessment of the arrangements for managing and disposing of radioactive waste from new nuclear power stations, and a list of sites which the Government considers to be potentially suitable for new nuclear power stations. The list of sites in the draft Nuclear NPS has been developed using a Strategic Siting Assessment (SSA) process with exclusionary and discretionary criteria to identify sites that are potentially suitable for the deployment of one or more new nuclear power stations by the end of 2025. Nominations for sites were invited and eleven nominations were received by the end of March 2009; these were taken forward for the SSA process. Sites that passed the exclusionary criteria were then subject to assessment using the discretionary criteria and were also appraised using the AoS and HRA processes. As a result of these assessments, the draft Nuclear NPS includes a list of ten sites that are considered to be potentially suitable for new nuclear power stations to be in operation by 2025. The following figure shows the location of the ten sites included in the draft Nuclear NPS.



Figure S.2.1 Potentially Suitable Sites



- S.2.11 A key characteristic of nuclear power generation is the requirement to safely manage the radioactive waste that is produced by the nuclear power stations. The Government believes that it is technically possible and desirable to dispose of new higher-activity radioactive waste in a geological disposal facility and this would be a viable solution and the right approach for managing waste from new nuclear power stations. The Government also considers that waste can and should be stored in safe and secure interim storage facilities until a geological disposal facility (GDF) becomes available.
- S.2.12 This AoS has considered the arrangements for the management of radioactive waste. The findings of this appraisal have helped inform DECC's assessment of waste management and disposal arrangements for the draft Nuclear NPS.

### **S.3 Appraisal of Sustainability (AoS) and Other Assessments**

- S.3.1 The Planning Act 2008<sup>3</sup> requires that an AoS must be carried out before a National Policy Statement can be designated. The main purpose of an AoS is to examine the likely social, economic and environmental effects of designing the NPS. If potential significant adverse effects are identified, the AoS recommends options for avoiding or mitigating such effects. In this way the AoS helps inform the preparation of the NPS to promote sustainable development.
- S.3.2 The appraisal of the draft Nuclear NPS incorporates an assessment in accordance with the requirements of the European Directive<sup>4</sup> on Strategic Environmental Assessment (SEA) which aims for a high level of environmental protection and to promote sustainable development. It applies to certain plans that are likely to have a significant effect on the environment and particularly those that set the framework for development consent. The AoS considers socio-economic effects in the same way as environmental effects are required to be assessed by the SEA Directive. The AoS has appraised the draft Nuclear NPS, including those generic impacts of energy infrastructure described in the draft Overarching Energy NPS (EN-1).
- S.3.3 An SEA helps inform strategic decisions to inform the preparation of plans by identifying and assessing their potential significant effects and informing strategic decision-making. The environmental assessment process continues with project level Environmental Impact Assessment<sup>5</sup> (EIA). Under the new planning regime, developers will still have to submit an Environmental Statement reporting the EIA with their application for a new nuclear power station to the IPC for development consent. EIA is a process that provides information to planners, other regulators, and the public about certain proposed developments and their likely effects on the environment. By integrating the EIA process and the emerging design of a development as early as possible, potential adverse impacts can be best mitigated and opportunities for environmental enhancement optimised. An SEA sets the strategic context for future development and this then makes the subsequent project level EIAs more effective.

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3 The Planning Act 2008 [http://www.opsi.gov.uk/acts/acts2008/ukpga\\_20080029\\_en\\_1](http://www.opsi.gov.uk/acts/acts2008/ukpga_20080029_en_1)

4 Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment.

5 Directive 85/337/EEC as amended by 07/11/EC, 03/35/EC the assessment of effects of certain public and private projects on the environment.

- S.3.4 The draft Nuclear NPS has also been assessed in accordance with the European Habitats Directive<sup>6</sup>. The main aim of the Habitats Directive is to promote the maintenance of biodiversity for those habitats and species of European importance. The findings of the Habitats Regulations Assessments (HRAs) are reported separately<sup>7</sup> and have been incorporated into the appraisal of biodiversity within the AoS report.
- S.3.5 In a similar way to SEA, HRA is a process that progresses from strategic to project level assessments. Project level HRA is informed more precisely by the nature, scale or location of a development and thus its potential adverse effects. In order to avoid adverse effects on the integrity of sites of European importance, avoidance and mitigation measures would be proposed and these could be refinements to the nature and/or scale and/or location of the proposed development.

## S.4 Our Approach and Methods for the AoS

### AoS Process

- S.4.1 Our approach to the AoS was modelled on the Government’s guidance<sup>8</sup> for preparing SEAs and Sustainability Appraisals, as there is no guidance yet on preparing an AoS. This is a staged approach as outlined in the following figure:

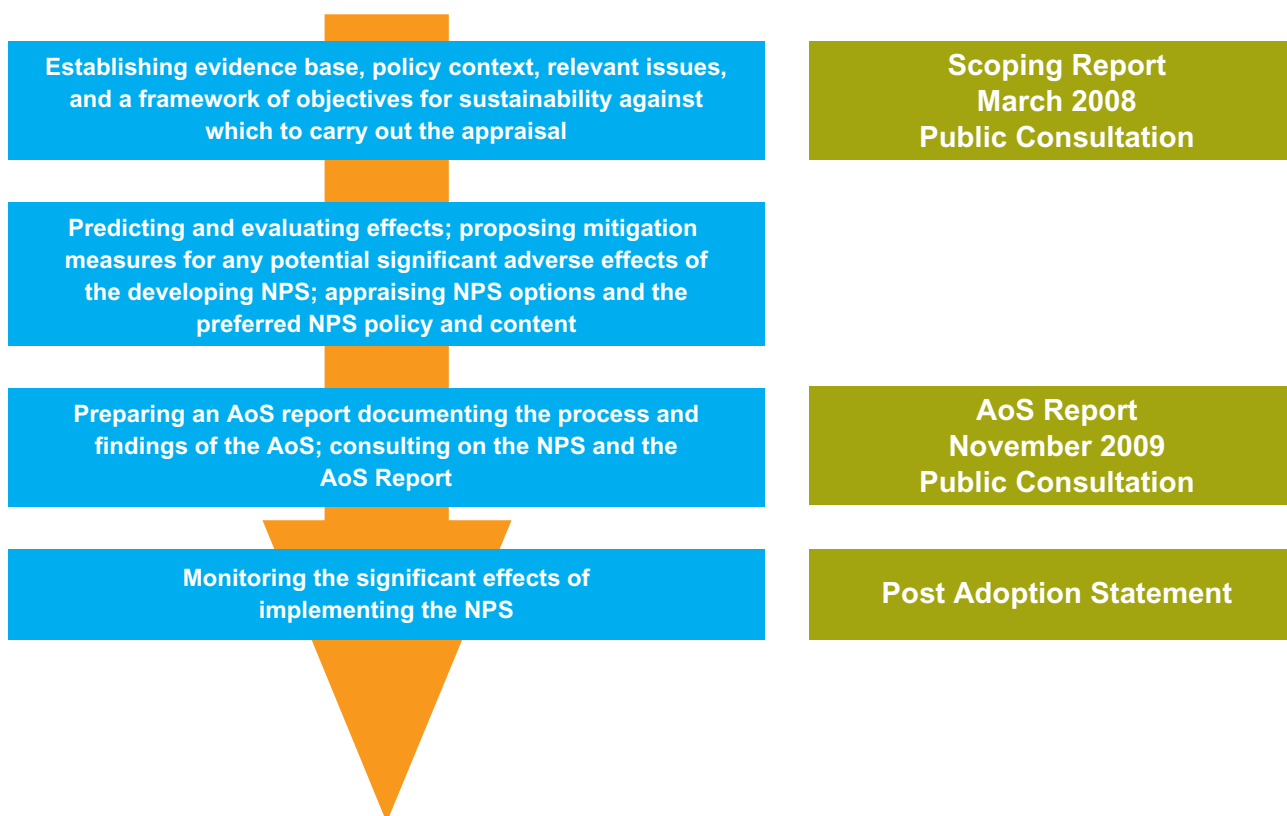


Figure S.4.1 Government’s guidance for preparing SEAs and Sustainability Appraisals

6 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora.  
 7 DECC 2009 EN-6: Habitats Regulations Assessments of the draft Nuclear NPS.  
 8 ODPM 2005 A practical guide to the Strategic Environmental Assessment Directive and ODPM 2005 Sustainability Appraisal of Regional Spatial Strategies and Local Development Documents.

## Appraisal Framework

- S.4.2 The scope of this AoS was identified through analysis of relevant baseline information, the policy context, the relevance to the developing draft Nuclear NPS, and responses to the scoping consultation carried out in March 2008. The appraisal itself was carried out using a set of sustainability objectives as a way of identifying and evaluating the potential significant effects of the draft Nuclear NPS on communities and the environment.
- S.4.3 The SEA Directive suggests a range of topics for assessing a plan including biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage, landscape and the inter-relationships between these factors. All these topics were considered to be variously relevant to appraising the developing draft Nuclear NPS and the AoS objectives for these topics were grouped into Sustainable Development (SD) themes to help with appraising different aspects of the draft NPS.
- S.4.4 The AoS objectives used were as follows:

**Table S.4.1 Sustainable Development Theme and AoS Objectives**

<b>Sustainable Development (SD) Theme and AoS Objectives</b> (numbers in brackets refer to the numbers listed for the AoS Objectives in the Scoping Report March 2008)
<b>SD Theme: Climate Change (Mitigation)</b>
to minimise greenhouse gas emissions (13)
<b>SD Theme: Biodiversity and Ecosystems</b>
to avoid adverse impacts on the integrity of wildlife sites of international and national importance (1)
to avoid adverse impacts on valuable ecological networks and ecosystem functionality (2)
to avoid adverse impacts on Priority Habitats and Species including European Protected Species (3)
<b>SD Theme: Communities – population, employment, and viability</b>
to create employment opportunities (4)
to encourage the development of sustainable communities (5)
to avoid adverse impacts on property and land values and avoid planning blight (10)
<b>SD Theme: Communities – supporting infrastructure</b>
to avoid adverse impacts on the function and efficiency of the strategic transport infrastructure (8)
to avoid disruption to basic services and infrastructure (9)
<b>SD Theme: Human Health and Well-Being</b>
to avoid adverse impacts on physical health (6)
to avoid adverse impacts on mental health (7)
to avoid the loss of access and recreational opportunities, their quality and user convenience (11)

**Sustainable Development (SD) Theme and AoS Objectives**

(numbers in brackets refer to the numbers listed for the AoS Objectives in the Scoping Report March 2008)

**SD Theme: Cultural Heritage**

to avoid adverse impacts on the internationally and nationally important features of the historic environment (22)

to avoid adverse impacts on the setting and quality of built heritage, archaeology and historic landscapes (23)

**SD Theme: Landscape**

to avoid adverse impacts on nationally important landscapes (24)

to avoid adverse impacts on landscape character, quality and tranquillity, diversity and distinctiveness (25)

**SD Theme: Air Quality**

to avoid adverse impacts on air quality (12)

**SD Theme: Soils, Geology, Land Use**

to avoid damage to geological resources (19)

to avoid the use of greenfield land and encourage the re-use of brownfield sites (20)

to avoid the contamination of soils and adverse impacts on soil functions (21)

to avoid damage to geological resources (24)

**SD Theme: Water Quality and Resources**

to avoid adverse impacts on surface water hydrology and channel geomorphology (including coastal geomorphology) (15)

to avoid adverse impacts on surface water quality (including coastal and marine water quality) and assist achievement of Water Framework Directive objectives (16)

to avoid adverse impacts on the supply of water resources (17)

to avoid adverse impacts on groundwater quality, distribution and flow and assist achievement of Water Framework Directive objectives (18)

**SD Theme: Flood Risk**

to avoid increased flood risk (including coastal flood risk) and seek to reduce risks where possible (14)

**Climate Change (Adaptation)** is cross-cutting and has the potential to affect several of the above objectives for sustainable development, in particular biodiversity and flood risk.

**Radioactive and associated hazardous waste** is cross-cutting and has the potential to affect many of the above objectives for sustainable development. As this topic is unique to new nuclear power stations, consideration of the likely significant effects is dealt with as a separate chapter in the AoS.

- S.4.5 Often topics are inter-related, for example, new flood defences may change movements of sediments and thus affect the ecology of a nearby wetland. Therefore, a number of sub-objectives or guide questions were identified through the scoping process for each of the AoS objectives to structure the appraisal.
- S.4.6 The potential effects of the draft Nuclear NPS may be positive or negative and where potential significant adverse effects were identified, mitigation measures have been suggested. Each topic was appraised using the professional judgment of the report contributors and available information. Any gaps in information or uncertainty about the appraisal have been recorded. Outline proposals for monitoring the predicted effects have been suggested for when the draft Nuclear NPS is designated.
- S.4.7 The nature and significance of predicted potential effects were recorded using symbols and colours and a grading system as shown in the following table:

**Table S.4.2 Significance and Categories of Potential Strategic Effects**

Key: Significance and Categories of Potential Strategic Effects		
Major positive	++	Development would resolve an existing sustainability problem; effect considered to be of regional/national/international significance
Minor positive	+	No sustainability constraints and development acceptable; effect considered to be of regional/ national/international significance
Neutral	0	Neutral effect
Minor Negative	-	Potential sustainability issues, mitigation and/or negotiation possible; effect considered to be of regional/national/international significance
Major Negative	--	Problematical because of known sustainability issues; mitigation or negotiation difficult and/or expensive; effect considered to be of regional/national/international significance
Uncertainty ?		Where the significance of an effect is particularly uncertain, for example because insufficient information is available at the plan stage to fully appraise the effects of the development or the potential for successful mitigation, the significance category is qualified by the addition of the symbol?

- S.4.8 The other Energy NPSs have been subject to AoS with a similar approach and the AoS frameworks have been shown to be compatible.

**Geographical and temporal scope of the appraisal**

- S.4.9 The draft Nuclear NPS applies to England and Wales and includes potentially suitable sites that can be in operation by 2025. Therefore the focus of the AoS was on the effects associated with England and Wales, although consideration was given to any significant effects for the rest of the UK and transboundary effects. Relevant member states are being consulted on the draft Nuclear NPS and its accompanying AoS and HRA reports. The designated Nuclear NPS will remain until withdrawn or suspended by the Government and be kept under review to ensure that it remains valid.

- S.4.10 The Nuclear AoS includes appraisal of both the effects of the whole draft NPS and the specific effects of potentially suitable sites. Generic design characteristics for new nuclear power stations were considered for the appraisal since the detailed design will be addressed at the project EIA stage. The timescales for appraisal were as follows:
- Construction: 6 years;
  - Operation: approximately 60 years;
  - Decommissioning: approximately 30 years;
  - Interim Storage of Waste: up to 100 years after operation ceases. It is therefore possible to envisage a scenario in which onsite interim storage might be required for around 160 years from the start of the power station’s operation, to enable an adequate cooling period for fuel discharged following the end of the power station’s operation. However, this is based on some conservative assumptions and there are a number of factors that could reduce or potentially increase, the total duration of onsite spent fuel storage.

## S.5 The AoS and the Strategic Siting Assessment (SSA) Processes

S.5.1 The AoS is an ongoing process that develops as responses to consultation are considered and as the draft Nuclear NPS itself is developed. From the scoping stage in March 2008, the process leading to the preparation of the nuclear NPS proposed an integration of the processes of plan making and appraising sustainability. This includes the SSA process for identifying potentially suitable sites for new nuclear power stations; the SSA criteria were subject to appraisal using the AoS framework of objectives for sustainability<sup>9</sup>. An overview of the interactions of the NPS, SSA and AoS processes are shown in the following diagram:

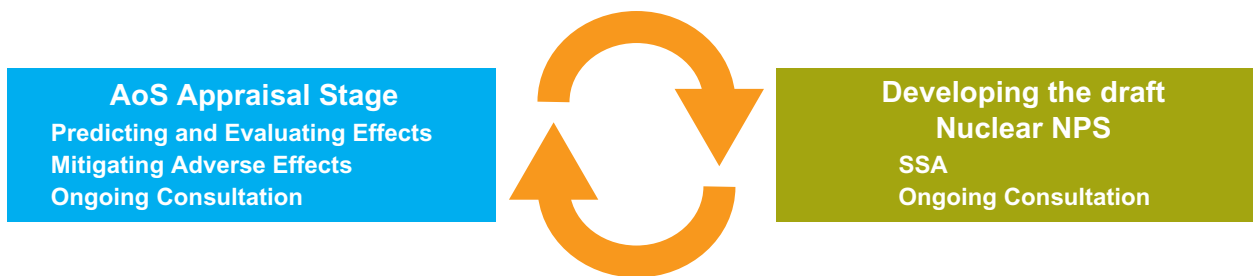


Figure S.5.1 Overview of the interactions of the NPS, SSA and AoS

9 BERR (July 2008) Applying the proposed Strategic Siting Assessment Criteria: a study of the potential environmental and sustainability effects.



## S.6 Addressing Challenges in Undertaking the AoS

S.6.1 The draft Nuclear NPS is a national level policy document and its impacts will be felt overall at the national level but also most particularly at the local levels where new nuclear power stations are built. The draft Nuclear NPS is unusual because it includes both strategic and spatial aspects. In order to address the main difficulty of keeping the appraisal strategic for a national plan and maintaining the appraisal for the sites at a strategic level, the appraisal recognised two levels of significance of likely effects – at the national and at the local levels. It was important not to duplicate the project level assessments (EIA and HRA) that the IPC will consider in their decision making at the development consent application stage. Any uncertainties in the findings of the appraisal or gaps in the information were recorded in the detailed appraisal matrices. Recommendations were made from the AoS to the draft Nuclear NPS to highlight to the IPC where they should consider more detailed studies, such as specific habitat or species surveys, to address uncertainties at the project level stage.

## S.7 How have we consulted on the development of the AoS?

S.7.1 The AoS for the draft Nuclear NPS has been developed through a number of stages that reflect consultation responses and changes in legislation and guidance. A summary of the consultation is set out in the following table:

**Table S.7.1 Summary of consultation**

AoS Development	Consultation
The SEA Scoping Report <sup>10</sup> (March 2008)	Early consultation with the statutory bodies <sup>11</sup> and others on the scope and level of detail proposed for the SEA (now AoS).
The Environmental and Sustainability Study <sup>12</sup> (July 2008)	The potential environmental and sustainability effects of applying the SSA criteria were examined and this was included as part of the public consultation on the proposed SSA criteria.
The Update Report <sup>13</sup> (January 2009)	Reporting changes made to the SSA criteria as a result of consultation; explaining change to AoS as a result of the Planning Act 2008.
(April – June 2009)	Ongoing liaison with statutory environmental bodies, relevant regulators, and other Government departments.
The AoS Report <sup>14</sup> (October 2009)	Formal consultation with statutory bodies and the public on the draft Nuclear NPS and the AoS.

10 BERR (March 2008) Consultation on Strategic Environmental Assessment for proposed National Policy Statement for new nuclear power, URN 08/680QAN, <http://www.berr.gov.uk/files/file45240.pdf>

11 Countryside Council for Wales, Environment Agency, English Heritage, Natural England, Scottish Environment Protection Agency.

12 BERR (July 2008) Applying the Proposed Strategic Siting Assessment Criteria: A study of the potential environmental and sustainability effects, URN08/962, <http://www.berr.gov.uk/files/file47137.pdf>

13 DECC (January 2009) Applying the Strategic Siting Assessment Criteria: an update to the study of the potential environmental and sustainability effects.

14 Incorporating an Environmental Report in accordance with the European SEA Directive 2001/42/EC.

## S.8 What alternatives have we considered?

S.8.1 In line with good policy and plan making objectives, and in accordance with the SEA Directive that requires consideration of reasonable alternatives, a phased approach to the appraisal of realistic alternatives was taken for the draft Nuclear NPS as follows:

- Need – do we need the Nuclear NPS?
- Process – how should the Nuclear NPS be developed?
- Location – where should the new nuclear power stations be built?

S.8.2 The first two phases of assessment for developing the draft Nuclear NPS (covering the 'Need' and 'Process' alternatives) were appraised using the AoS Framework of objectives organised into the headline Sustainable Development topics as follows; climate change, security of energy supply, health and safety, radioactive waste, the natural and the built environments. This was done to reflect the strategic level of the decision making.

S.8.3 The third phase ('Location' alternatives) was appraised using the Sustainable Development themes discussed in section S.3 of this NTS. The sites that passed the exclusionary criteria in the SSA process were appraised in detail using the AoS objectives and decision-aiding questions.

S.8.4 It is noted that the two levels of sustainable development assessment used are compatible with each other. The links between the two sets of criteria are set out in Section 2 of the Main AoS report. The assessment of alternatives is explained further in the following sections:

### Need – do we need the nuclear NPS?

S.8.5 The AoS considered three possible high level options:

- A Nuclear NPS in line with Government policy that includes guidance for the IPC on potentially suitable sites;
- A Nuclear NPS that prohibits the construction of new nuclear power stations (referred to as "NPS that prohibits Nuclear");
- No NPS (business as usual).

S.8.6 The three options were appraised at a high level against the Sustainable Development (SD) themes: climate change; security of energy supply; health and safety; the natural environment, the built environment; and the economy. The AoS findings identified that during construction and decommissioning, short term effects on air quality are likely to be similar for the three options.

S.8.7 The assessment determined that the preferred alternative is the option of a Nuclear NPS in line with Government policy. This is based on the case for nuclear power in relation to other alternatives, and the effect it might have on the long-term ability of the UK to meet its emission reduction targets and maintain its security of supply. If nuclear power proves economically competitive in a low carbon economy, then its contribution to a sustainable future should be viable.



## Process – how should the NPS be developed?

- S.8.8 The format and detail of the NPS can influence the number, location and timing of new nuclear power stations through the policy guidance and framework for decision making that it sets out for the IPC. Four potential process options for the Nuclear NPS were identified in the Scoping Report (2008) as follows:
- A Nuclear NPS with siting criteria;
  - A Nuclear NPS with a list of sites;
  - A Nuclear NPS with siting criteria and a list of sites;
  - A Nuclear NPS with siting criteria and a list of sites restricted to those in the vicinity of existing nuclear power stations.
- S.8.9 The four options were appraised at a high level against the headline Sustainable Development topics that are particularly relevant to nuclear energy: climate change; security of energy supply; health and safety; the natural environment, the built environment; and the economy. The Option for a NPS with siting criteria and a list of sites was appraised as the preferred option since it would be more likely to reduce uncertainty for the IPC and thus reduce the time for a planning application to be determined. This would allow for earlier new nuclear build and better contribute to meeting the Government's climate change, security of energy supply and other sustainability objectives. In addition, the list of sites would have undergone a strategic level assessment which could reduce the likelihood of adverse sustainability effects occurring and provide a means of enabling such effects to be avoided or mitigated.

## Location: Options for the Criteria for the Strategic Siting Assessment (SSA) Process

- S.8.10 The draft NPS uses the Strategic Siting Assessment (SSA) process to identify the location of sites potentially suitable for new nuclear power stations that could be deployed by 2025. The criteria (exclusionary and discretionary) used for the SSA were subject to appraisal in the first half of 2008 using the AoS framework of objectives. This appraisal was reported in the Environmental and Sustainability Report<sup>15</sup>, published in July 2008, and made available alongside the consultation on the SSA process and criteria.
- S.8.11 The 2008 Environmental and Sustainability Study concluded that:
- the proposed SSA criteria were broadly in line with sustainability and environmental objectives;
  - the discretionary nature of some criteria means that adverse environmental effects cannot be ruled out at the strategic level;
  - local level impacts are not addressed by the SSA but it is made clear that these would be addressed by the nuclear regulators and others at the project level assessments.

<sup>15</sup> BERR (July 2008) Applying the proposed Strategic Siting Assessment Criteria: a study of the potential environmental and sustainability effects.

### Location: The Potentially Suitable Sites

- S.8.12 The nomination process closed on 31 March 2009. All eleven nominated sites were subject to a site level AoS. In each case the appraisal identified any likely strategically significant effects, for example, on international or nationally protected nature conservation. The appraisal also identified likely significant effects at the local and regional levels, for example, cumulative effects for community prosperity through long term employment.
- S.8.13 The Government considered the emerging AoS findings, together with other information provided by the nominators, various technical specialists, the regulators and the statutory environmental authorities, in order to inform their assessment of nominated sites and to help inform the development of the draft Nuclear NPS.
- S.8.14 One nominated site, Dungeness, did not pass the discretionary criteria on biodiversity and there were concerns about flood risk and coastal processes. The Government therefore decided that Dungeness would not be included in the draft Nuclear NPS.
- S.8.15 The Government also commissioned an Alternative Sites Study to ensure that potential alternative sites were given due consideration. The study drew on a number of information sources to identify sites that might be “worthy of further consideration” by the Government to determine whether these sites were likely to meet the SSA criteria. Three sites were identified through this process; Druridge Bay in Northumberland, Kingsnorth in Kent, and Owston Ferry in Lincolnshire. A site AoS was undertaken for each of these sites, the findings of which are available separately. After further assessment the Government decided that none of these three sites should be considered as reasonable alternatives to the sites that have been nominated, and therefore should not be included in the draft Nuclear NPS. This is because the Government considers that these sites are not credible for deployment by the end of 2025.

- S.8.16 The individual Site AoS reports set out the sustainability characteristics of the potentially suitable sites and include key issues that were recommended for the draft NPS to include as particular considerations for the IPC to take into account when determining individual planning applications for new nuclear power stations. The findings of the site level AoS are available as Annexes A to J of the Main AoS report (for the ten sites included in the NPS), and a summary of their findings is presented later in this Non Technical Summary. The nominated sites subject to AoS are as follows:
- Bradwell (Annex A to Main AoS report);
  - Braystones (Annex B);
  - Dungeness (report available separately);
  - Hartlepool (Annex C);
  - Heysham (Annex D);
  - Hinkley Point (Annex E);
  - Kirksanton (Annex F);
  - Oldbury (Annex G);
  - Sellafield (Annex H);
  - Sizewell (Annex I);
  - Wylfa (Annex J).

## **S.9 What is the Current Situation and Issues for Sustainability?**

- S.9.1 The climate of the UK is changing and increased emission of green house gases from human activities into the atmosphere is widely recognised as one of the main contributors to global warming. Climate change represents a significant risk to ecosystems, the economy and human populations and could lead to a number of significant changes to environmental conditions. These changes are likely to exacerbate current environmental trends across the UK, such as the continued loss of natural habitats and biodiversity and increased pressure on water resources. Increased development and current lifestyles have also resulted in a growing demand for electricity, which has led to concerns about the future energy security of the UK. Current Government energy policy is set towards meeting its climate change objectives and to become a low carbon economy.

## **S.10 What is the Likely Future Situation without the Nuclear NPS?**

- S.10.1 As set out in the Nuclear White Paper, the Government believes that without nuclear power there is a risk that the UK might not be able to meet its goal to reduce carbon dioxide emissions and to maintain secure energy supplies; or that it would be more expensive to meet the goal without nuclear power. Key sustainability topics relevant to the Nuclear NPS, such as climate change, energy and communities are all closely interrelated with complex interactions.

## S.11 The Key Likely Significant Effects of the Draft Nuclear NPS

### Overview

S.11.1 The draft Nuclear NPS has the potential for effects on communities and the environment nationally and at the regional or local level. Some effects are common to new nuclear power stations, for example, effects associated with the requirement for water for cooling are common to new nuclear power stations but the significance of such effects depends upon the detailed design together with the characteristics and sensitivities of the local communities and environment.

S.11.2 This section summarises the findings of the AoS of the draft Nuclear NPS according to the Sustainable Development themes and objectives for sustainability, and then summarises the key findings of the AoS for each site. The AoS identified certain key recommendations that were generally applicable to the draft NPS as follows:

*The AoS recommends that the draft NPS should guide the IPC to the findings of the site level AoSs to help scope the studies needed for the project level EIAs and any Sustainability Assessments. The AoS recommends that the draft NPS should advise the IPC that the significance of effects can only be determined through site level studies and that a requirement for an Environmental Management Plan as part of the EIA will help ensure that any commitments to mitigating any significant impacts will be implemented.*

### Climate Change (mitigation)

S.11.3 Nuclear power stations are a low carbon energy source and associated with lower greenhouse gas emissions when compared to fossil fuel facilities. The AoS identified that there are likely to be positive effects on this sustainability objective and the significance of these effects will increase with the number of nuclear power stations in operation. Climate change adaptation is cross-cutting and covered where relevant within the following sections on biodiversity and flood risk.

*The AoS made no key recommendations and the AoS identified overall that there are likely to be significant positive effects that will contribute to meeting the UK climate change commitments.*

### Biodiversity and Ecosystems

S.11.4 The AoS identified that all the sites included in the draft Nuclear NPS will have likely significant strategic adverse effects on national and European sites of biodiversity value. The significance of these effects and the effectiveness of mitigation possibilities depend upon the specific sensitivities of the sites together with details of design and site layout. This will be addressed alongside wider effects on local biodiversity during the project level HRA and EIA assessments. There can be possibilities to mitigate certain potential adverse effects on biodiversity, for example, project design to avoid sensitive areas, and habitat retention and species protection measures on site.

- S.11.5 The HRA identified that all the sites have the potential for an adverse effect on European site integrity. The HRA recommends that further project level HRAs should be required and the draft Nuclear NPS requires that for new nuclear power stations any development consent will be required to be supported by a detailed HRA at the project level, including Appropriate Assessment where necessary.
- S.11.6 The AoS identified the common implications for effects on biodiversity (international, national and local importance) and ecosystems from new nuclear power stations and this is set out in the draft Nuclear NPS as follows:
- Water discharge, abstraction and quality;
  - Habitat and species loss and fragmentation;
  - Coastal squeeze;
  - Disturbance events (noise, light and visual);
  - Air quality.
- S.11.7 The AoS identified that there are key inter-relationships between biodiversity and other sustainability effects, most notably flood risk management, health and well-being, and sustainable communities. Significant cumulative effects are also possible in relation to proposed adaptation measures for climate change, and in relation to water quality and resources, flood risk, soils and geology, and air quality. Interactions and cumulative effects are likely where more than one new nuclear power station may be built and for biodiversity this may be significant with the cluster of two sites on the Severn Estuary and the cluster of four sites in the North West region. Consideration will also need to be given to cumulative effects of other major developments and infrastructure projects.

*The AoS recommends that the draft NPS should advise the IPC that the significance of biodiversity effects can only be determined through project level studies and guide the IPC to the findings of the site level AoSs and site HRAs to help agree the scope of the studies needed for the project level EIAs and HRAs. Overall the AoS found that there are likely to be significant adverse effects on national and European sites of biodiversity value and that the effectiveness of mitigation possibilities is uncertain and needs to be evaluated at the project level assessments. The AoS also found that there are likely to be significant adverse effects on the wider biodiversity at the local level and that these need to be evaluated during the project level EIAs.*

### **Communities: population, employment and viability; supporting infrastructure**

- S.11.8 The AoS identified that there are likely to be significant positive effects for employment locally and associated economic benefit through the use of supporting services, particularly during the construction phase and this could be of regional significance. During the operational phase and in the longer term, the Nuclear NPS is likely to contribute significantly to the development of jobs nationally in the nuclear and associated industries, including enhancement of training and skills, and provision of goods and services to the nuclear industry.

- S.11.9 As with any large scale construction project, there is the potential for short term adverse effects during construction if a number of sites were developed at the same time with the risk of a shortage of construction workers, local communities disturbed by an incoming workforce, and additional pressures placed on local services and transport networks. However, there are possibilities for mitigating such effects depending upon local circumstances and needs.
- S.11.10 The opportunities for upskilling, education and supporting industries are likely to be more significant if there were a cluster of new nuclear power stations, particularly for the North West Region and with some similar benefits possible for the South West and the East of England Regions. The effects of the draft Nuclear NPS in combination with other renewable energy projects is likely to contribute positively to objectives for regional economic development. However, there is the potential for adverse cumulative effects on tourism objectives in Cumbria, including the Lakes District National Park, due to visual impacts and the public perception of additional nuclear power stations in the sub-region.

*The AoS recommends that the draft NPS should advise the IPC of the potential enhancement for positive economic development effects. Overall the AoS found that there are likely to be significant beneficial effects on employment and viability for communities.*

### Health and Well-Being

- S.11.11 The AoS identified the common implications for health and well-being from new nuclear power stations and this is set out in the draft Nuclear NPS as follows:
- Radiation from permitted discharges and potential hazards from accidental emissions;
  - Safety and security;
  - Employment;
  - Emissions to water and air
  - Noise;
  - Accessibility to green space and exercise.
- S.11.12 The draft Nuclear NPS sets out how the existing regulatory systems for operation of nuclear power stations will continue to apply to the new build so that potential effects associated with safety, security, and radiation doses to the public and workers will be dealt with through the current nuclear licensing and health protection systems. The Secretary of State and the HPA have concluded that even if 20 more nuclear power stations were built, the radiation dose for any member of the public in the UK would be well within internationally agreed limits<sup>16</sup>.

16 [http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/energy\\_mix/nuclear/new/reg\\_just/reg\\_just.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/new/reg_just/reg_just.aspx)



S.11.13 Overall, there are health benefits to be realised from having a reliable and secure supply of energy. The AoS also identified that there are indirect positive health effects associated with enhanced prosperity and long-term employment opportunities; this will only be significant for local communities if employment is secured for local people. Any indirect effects on supporting services, associated infrastructure, and health inequalities are not significant at the national scale and will be addressed during the project level assessments; this includes the adverse local effects from noise and disturbance associated with the construction of many major infrastructure projects. Nuclear power stations are often located in rural areas on the coast with potential conflicts for recreation and amenity.

*The AoS recommends that the draft NPS should guide the IPC to consider requesting a sustainability statement / assessment for each application to ensure full consideration is given to sustainable communities and interactions between a range of sustainability issues, including the wider determinants of health. The NPS should highlight to the IPC that there may be beneficial effects for health and well-being from secure long term employment and community viability arising from new nuclear power stations. The AoS also recommends that the draft NPS should advise the IPC that nuclear power stations are often located in rural areas on the coast with potential conflicts for recreation and amenity (and their subsequent impacts on health and well-being).*

### Cultural Heritage

S.11.14 The predicted effects of the draft Nuclear NPS on cultural heritage are likely to be negative throughout all phases of development and are associated with the location and scale of development at the potentially suitable sites. The significance of these effects will depend on the importance of the cultural heritage features, their location within the site, and their setting relative to the site. Mitigation measures may be possible, although it may be very difficult to mitigate for adverse effects on the settings of important cultural features. Overall the AoS identified that adverse effects were likely to be at a local scale, except for one site where the importance of the setting of nationally protected features is likely to increase the significance of the effects.

*The AoS recommends that the draft NPS should advise the IPC that significant adverse effects to cultural heritage resources may be difficult to mitigate. Overall the AoS found that there are likely to be minor significant adverse effects on cultural resources except for one site where the effect may be more significant. The significance and effectiveness of mitigation possibilities is uncertain and needs to be evaluated at project EIA level.*

### Landscape

S.11.15 The potentially suitable sites generally share certain landscape and visual characteristics since they are usually in less populated areas in rural and coastal locations that may have value for visual amenity and as landscape resources. The AoS identified that there is potential for long-term irreversible adverse effects on landscape until decommissioning. The significance would be increased if there are proposals for more visually intrusive towers for cooling.

- S.11.16 Some adverse effects on the landscape can be mitigated by changes to the site layout, use of buffer zones, and reinstatement after the short term effects during construction. Many of the proposed power station sites will be seen in the context of existing power stations. Nationally significant adverse effects were identified for the site at Sizewell which is completely within an Area of Outstanding Natural Beauty. If Sellafield is developed with Kirksanton and Braystones, this cluster of sites in Cumbria may have an increased significant negative impact on landscape and associated visual/amenity values due to their cumulative effects on the Lake District National Park.

*The AoS recommends that the draft NPS should advise the IPC that there are likely to be some visual impacts that cannot be mitigated due to the scale of new nuclear power stations; the significance of this is increased if cooling towers are proposed. The significance and effectiveness of mitigation possibilities is uncertain and needs to be evaluated at project EIA level. The AoS recommends that the draft NPS should advise the IPC of the likely adverse effects on landscape value and visual amenity from the three potentially suitable sites in Cumbria and their cumulative effects on the Lake District National Park. Overall the AoS found that there may be neutral or minor negative effects on landscape except for the sites in Cumbria where effects may be of national significance.*

### Air Quality

- S.11.17 Radioactive discharges to air are strictly controlled by the regulatory system and discussed in the section on radioactive waste. Short term air quality impacts during construction will depend upon local site specific factors, such as transport routes and proximity to residential housing and these will be dealt with during the project level EIA. Air quality is unlikely to be a significant issue, principally due to the relatively low level of air pollutant emissions from nuclear power stations during operation and the satisfactory existing air quality at the potentially suitable sites.

*The AoS recommends that the NPS should highlight to the IPC that impacts on air quality are unlikely to be significant but that impacts associated with the construction phase should be considered in the scope of the project level EIAs. Overall, the AoS found that effects on air quality are likely to be neutral.*

### Soils, Geology and Land Use

- S.11.18 None of the potentially suitable sites are located on or adjacent to sites of national or regional geological or geomorphological importance. Some minor adverse effects were identified by the AoS at the local levels and associated with potentially contaminated land adjacent to some sites and impacts on peat superficial deposits at two sites. There is the potential for impacts on soils to affect the soil water regime which then may affect terrestrial habitats and this will be need to be considered as part of the project level EIAs and HRAs. As with any major construction project, there is an increased risk of pollution and potential contamination of soils but this will be dealt with by the appropriate environmental management controls through the EIA process.



*The AoS recommends that the NPS should inform the IPC that impacts on soils may affect the soil water regime which may affect various terrestrial habitats and this will need to be considered in the project level EIAs and HRAs. Overall, the effects of the draft Nuclear NPS are considered to be neutral on soils and geology.*

### Water Quality and Resources

S.11.19 Radioactive discharges to water are strictly controlled by the regulatory system and discussed in the section on radioactive waste. The AoS identified that for all sites minor negative effects may be expected on coastal or estuarial water quality locally where cooling water is to be abstracted and/or discharged. Such effects may compromise the achievement of water quality objectives, for example, the requirements of the Water Framework Directive (WFD) which aims to maintain or achieve good status. The significance of the effects and effectiveness of mitigation possibilities depends on the location and will need to be evaluated during studies as part of the project level EIAs. Interactions from these effects on European and nationally protected habitats and species will also need to be evaluated during project level EIAs and HRAs. These abstraction and discharge activities will also be subject to Environment Agency licensing and consenting processes, though it is noted that these processes may not fully mitigate against all effects. There may be minor negative effects on water supply and waste water treatment capacity in those regions already under stress.

S.11.20 Cumulative effects are likely to occur where there are clusters of nominated sites with increased water requirements and where several sites discharge cooling waters to the same water body. These effects are likely to be significant in the South West region for the Severn Estuary. Generally, the effects of the draft Nuclear NPS on water quality and resources may be minor negative, although this is likely to be able to be mitigated.

*The AoS recommends that the NPS should highlight to the IPC the characteristics of cooling water for new nuclear power stations and the implications for the marine and estuarial environments, including the interactions between discharges from regional clusters of nominated sites. The NPS should also inform the IPC that there could be increased water demand, particularly during the construction phase, which would be of greatest significance in those regions that are already under water stress. Generally, the AoS identified that minor negative effects may be mitigated.*

### Flood Risk

S.11.21 The beneficial effect of power generation from nuclear power stations with regard to climate change mitigation is noted earlier under the climate change topic. As a low carbon source, nuclear power stations are expected to make a positive contribution to achieving carbon reduction targets which, indirectly, should have a beneficial effect on flood risk through moderating changes in rainfall patterns and sea level rise. Climate change adaptation is primarily considered in this section with regard to flood risk management.

- S.11.22 In other respects, the relationship between the draft Nuclear NPS and flood risk is essentially local or possibly sub-regional where a number of potentially suitable sites are in proximity to each other. It also has a number of different effects. The first of these is the local impact that the individual development may have on the risk of flooding to land adjacent to those sites. Secondly the sites themselves, which are all proposed in coastal or estuarine locations, may be vulnerable to the risk of flooding from a number of causes, coastal, storm surge, fluvial, groundwater and pluvial. Finally flood risk management measures put in place to mitigate the impacts of flooding on or from individual sites may impact on coastal processes, hydrodynamics and sediment transport, which in turn may impact on designated habitats. All of these flood risk effects can occur during the construction, operation or decommissioning phases. As a result flood risk assessments need to take a long term view.
- S.11.23 The flood risk effects to areas surrounding development sites could be either negative or positive. Negative impacts could be that flood risk is increased to the surrounding area as a result of any land rising required to protect the power stations or the footprint and layout of the sites which could impact upon floodplain storage and flood flow pathways. Positive impacts could also arise, as flood risk mitigation measures constructed as a result of the power stations could also provide flood risk protection for new and existing developments in the district. Similar negative and positive impacts could affect designated landscapes, for example, sensitive habitats could become more vulnerable to flooding, or as a result of improved defences – less vulnerable.
- S.11.24 Climate change will increase flood risk from all causes. Coastal flood risk is likely to increase as a result of predicted increases in sea level and changes in storm surge. Changes to the seasonal distribution of rainfall and in the intensity of extreme rainfall events are also likely to increase flood risk. Climate change is also likely to result in changes to coastal erosion.
- S.11.25 The mitigation measures that may be required to manage flood risk as a result of the draft Nuclear NPS could have potentially adverse effects on coastal processes and hydrodynamics. These measures have the potential to have secondary impacts on biodiversity and water quality, therefore potentially hindering the objectives and requirements of the EU Water Framework Directive.

*The AoS recommends that the NPS should highlight to the IPC the need for detailed, site-specific investigations, including flood risk assessment, to determine the most appropriate and sustainable methods for protecting sites from flooding through the life cycle of the new nuclear power stations and to assess how these measures may affect flood risk in adjacent areas. Studies should also be undertaken to assess the impacts that any flood control measures may have on coastal processes and, indirectly, on ecology and biodiversity. Overall, the AoS identified that the effect of the draft NPS on flood risk and of flood risk on the sites in the draft NPS is likely to be negative, and the scale of the effects are likely to increase over time as a result of climate change.*

## Radioactive and Hazardous Waste

- S.11.26 Before development consents for new nuclear power stations are granted, the Government will need to be satisfied that effective arrangements exist or will exist to manage and dispose of the waste they will produce<sup>17</sup>. The draft Nuclear NPS sets out the Government's consideration of the management of radioactive wastes, in particular, intermediate level waste and spent fuel. The AoS has considered the sustainability implications of managing the different types of waste associated with the construction, operation and decommissioning of new nuclear power stations in the UK under the following headings:
- Spent Fuel;
  - Intermediate Level Waste (ILW);
  - Low Level Waste (LLW);
  - Gaseous and liquid radioactive discharges;
  - Non-radioactive hazardous waste.
- S.11.27 The AoS has identified that the effects of waste management may arise both at a nuclear power station site and offsite at other locations where packaging, transport and/or disposal of waste is undertaken. Some minor negative effects have been identified at nuclear power station sites. These are principally associated with the management and storage of spent fuel and ILW. Minor negative effects may potentially arise during construction and decommissioning of interim waste storage facilities although some of these effects, for example on soils, cultural heritage and landscape are site specific and will need to be assessed at the project level.
- S.11.28 The most important consideration for offsite waste management facilities is the additional quantity of spent fuel to be disposed of from new nuclear power stations that will require final disposal in a Geological Disposal Facility (GDF) that will be managed by the Nuclear Decommissioning Authority (NDA). The significance of these effects will depend upon the number of new nuclear power stations built. It is estimated that to dispose of the spent fuel produced by a ten GW programme of new nuclear power stations operating for 60 years would increase the underground area of a GDF required for the disposal of spent fuel and High Level Waste by around 50 to 55%.

## S12 The Potentially Suitable Sites with Key Issues for the draft Nuclear NPS

### Introduction

- S.12.1 A site level AoS has been undertaken for each of the nominated sites. These appraisals identified potential impacts and likely effects of a generic design of a new nuclear power station. The significance of potential effects and the effectiveness of possible mitigation will depend upon detailed studies carried out as part of the EIA and other studies for individual applications for development consent. The individual site AoS reports are available as Annexes A to J of the Main AoS report.

<sup>17</sup> Meeting the Energy Challenge: A White Paper on Nuclear Power, CM 7296, January 2008 [page 99].

S.12.2 The site AoS reports identified likely strategically significant effects at the national or international levels and likely locally significant effects at the local or regional level. The significance of local effects and effectiveness of mitigation possibilities for adverse effects is less certain until detailed project level studies have been undertaken. The site AoS reports recommend to the draft Nuclear NPS that this information would be helpful to the IPC when agreeing the scope of Environmental Impact Assessments (EIAs), other detailed project level studies and when considering applications for development consent. Part 5 of the draft Nuclear NPS sets out the findings of the SSA process for each nominated site and includes other issues raised by the site AoS reports.

### Bradwell

S.12.3 The site at Bradwell is located in the east of England, on the northern coast of the Dengie Peninsula. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Adverse effects on the settings of nationally designated cultural heritage sites, which would be difficult to mitigate.
- Adverse effects on three national and internationally protected nature conservation sites; on water quality and fish/shellfish populations in nearby coastal waters and on coastal erosion through upgrading of flood defences. Mitigation opportunities possible.
- Adverse setting effects upon nearby Scheduled Ancient Monuments and listed buildings.
- Positive effects associated with long-term employment and enhanced prosperity for local communities.
- The site is not part of a cluster of nominated sites, therefore regional cumulative effects are not considered relevant.

### Braystones

S.12.4 The site at Braystones is located in the north-west of England. There is no existing nuclear power station in close proximity to the site. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Adverse effects on the settings of four national and internationally protected nature conservation sites, and on water quality in the region. There are mitigation opportunities available.
- Adverse visual impacts on a predominantly rural landscape, potentially visible from Lake District National Park, that would be difficult to mitigate.
- Positive effects associated with long-term employment and enhanced prosperity for local communities.
- The site is in a cluster of three nominated sites in the Cumbria area. Potential regional cumulative effects both positive and adverse have been identified.

## Hartlepool

S.12.5 The site at Hartlepool is located in the north-east of England, in an established industrial area. Key findings recommended to the draft Nuclear NPS to consider include:

- Adverse effects on the settings of four national and internationally protected nature conservation sites; mitigation opportunities possible.
- Adverse visual impact on the landscape, but in the context of an already industrialised area.
- Positive local effects on long-term employment and enhanced prosperity for local communities.
- The site is not part of a cluster of nominated sites, therefore regional cumulative effects are not considered relevant.

## Heysham

S.12.6 The site at Heysham is located in the north-west of England, south of Morecambe Bay and adjacent to the existing Heysham Docks. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Adverse effects on two national and internationally protected conservation sites, and on water quality in the region. Mitigation opportunities are available.
- Adverse visual impacts, potentially visible from Lake District National Park, but seen in the context of an already industrialised area.
- Positive local effects on long-term employment and enhanced prosperity for local communities.
- The site is approximately 30km south of a cluster of three nominated sites in the Cumbria area. Potential regional cumulative effects both positive and adverse may apply if all sites in the region were to be developed.

## Hinkley Point

S.12.7 The site at Hinkley Point is located in the south-west of England, on the Severn Estuary. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Adverse effects on the settings of four national and internationally protected conservation sites; on water quality and fish/shellfish populations in nearby estuarine/coastal waters. Mitigation opportunities are possible.
- Adverse visual impact on views from an AONB, which would be difficult to mitigate.
- Positive cumulative effects associated with long-term employment and enhanced prosperity in the region.
- The site is in a cluster of two nominated sites in the south west region. Potential regional cumulative effects both positive and adverse may apply if both sites in the region were to be developed.

- Further significant adverse cumulative effects if both new power stations were to be developed alongside the Severn Tidal Power scheme; effects of which would be difficult to mitigate.

### Kirksanton

S.12.8 The site at Kirksanton is located on the Cumbrian coast in the north-west of England. There is no existing nuclear power station in close proximity to the site. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Adverse effects on two national and internationally protected conservation sites, and adverse effects on water quality in the region. Mitigation opportunities are available.
- Adverse visual impacts on a predominantly rural landscape, potentially visible from the Lake District National Park, which would be difficult to mitigate.
- Positive effects associated with long-term employment and enhanced prosperity for communities.
- The site is in a cluster of three nominated sites in the Cumbria area. Potential regional cumulative effects both positive and adverse have been identified.

### Oldbury

S.12.9 The site at Oldbury is situated on the southern bank of the Bristol Channel /Severn Estuary in the south-west of England. Potential likely effects and key findings issues recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Cooling towers are anticipated owing to insufficient volume of water for direct cooling systems from the river Severn at this location. There would be associated adverse visual impact on two AONB designated landscapes (within 10km of the site), which would be difficult to mitigate.
- Adverse effects on two national and internationally protected conservation sites, and effects on water quality in the region. Mitigation opportunities are possible.
- Positive effects for long term employment and enhanced prosperity for local communities.
- The site is in a cluster of two nominated sites in the south west region. Potential regional cumulative effects both positive and adverse may apply if both sites in the region were to be developed.
- Further significant adverse cumulative effects if both new power stations were to be developed alongside the Severn Tidal Power scheme; effects of which would be difficult to mitigate.



## Sellafield

S.12.10 The site at Sellafield is located in the north-west of England, in an established area for the nuclear industry. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Adverse effects on three national and internationally protected nature conservation sites, and adverse effects on water quality in the region. Mitigation opportunities are available.
- Low flood risk. Some additional adverse visual impact on the landscape, which may be visible from the Lake District National Park, but this would be in the context of an already industrialised area.
- Positive effects associated with long-term employment and enhanced prosperity for local communities.
- The site is in a cluster of three nominated sites in the Cumbria area. Potential regional cumulative effects both positive and adverse have been identified.

## Sizewell

S.12.11 The site at Sizewell is located predominantly to the north of the existing Sizewell B nuclear power station near Leiston, Suffolk, in the East of England. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Adverse effects on nationally designated landscape areas. The site lies within an AONB and is part of a Heritage Coast. This would be difficult to mitigate.
- Adverse effects on three national and internationally protected nature conservation sites; and effects on water quality, and fish/shellfish populations in nearby coastal waters. Mitigation opportunities are possible.
- Positive effects associated with long-term employment and enhanced prosperity for local communities.
- The site is not part of a cluster of nominated sites, therefore regional cumulative effects are not considered relevant.

## Wylfa

S.12.12 The site at Wylfa is located on the north coast of Anglesey, an island off the coast of North Wales, bounded by the Irish Sea. Potential likely effects and key findings recommended to the draft Nuclear NPS as guidance for the IPC to consider include:

- Favorable conditions in terms of coastal flooding, erosion, and dispersion of cooling water.
- Adverse effects on four nationally and internationally protected nature conservation sites; but with mitigation possibilities available.
- Significant adverse effects on the local landscapes of an AONB and Heritage Coast.
- Significant beneficial effects for long-term employment and enhanced prosperity for local communities.

- The site is not part of a cluster of nominated sites, therefore regional cumulative effects are not considered relevant.

### Interactions and Cumulative Effects

- S.12.13 Many of the potential impacts and likely significant effects of the draft Nuclear NPS for sustainable development are inter-related, particularly between biodiversity, water, climate change, human health, and communities – their social and economic viability including supporting infrastructure and basic services. Cumulative and synergistic effects may arise from the interactions and additions of small insignificant effects and the AoS identified that this was potentially likely where there are clusters of new nuclear power stations. These inter-relationships are considered in the relevant topic sections of the AoS.
- S.12.14 The AoS found that these interactions and cumulative effects were more likely to be significant where there are clusters of proposed new nuclear power stations. The AoS recommended that for some regions the draft NPS should advise the IPC to consider interactions and cumulative effects if more than one station is built as follows:
- North West Region: Braystones, Heysham, Kirksanton and Sellafield. The AoSs identified potential beneficial effects of regional significance on employment and community viability, with additional positive effects on health and well-being from secure employment. However, there are also potential adverse cumulative effects on landscape and visual impacts in relation to the character of the surrounding area including the Lake District National Park, and other development objectives for biodiversity, tourism and recreation/amenity.
  - South West Region: Hinkley and Oldbury. The AoSs identified potential interactions and cumulative effects on important biodiversity sites in the Severn Estuary and River Wye. Potential positive effects on local employment, upskilling, community viability and health/well-being could be more significant if more than one new nuclear power station is built.

### Summary of AoS Findings

- S.12.15 Overall and generally, the AoS identified that the draft Nuclear NPS was likely to have significant beneficial effects for energy security of supply and to contribute positively to the Government's targets for a low carbon economy, reducing emissions of greenhouse gases and mitigating the predicted effects of climate change. Significant adverse effects were indicated for internationally important nature conservation sites; the relative significance and effectiveness of mitigation possibilities will be determined at the subsequent project level EIAs and with individual planning applications to the IPC.
- S.12.16 At local and regional levels, a combination of likely significant adverse and beneficial effects was identified and their significance depends upon further localised investigations; these will be carried out in more detail with project level EIA studies. Generally, likely adverse effects were associated with capacity of supporting infrastructure, water, flood risk and biodiversity; likely beneficial effects were associated with long term employment and community viability.



### **S.13 How did the AoS help the development of the draft Nuclear NPS?**

S.13.1 The AoS was carried out in an iterative and ongoing way with the development of the draft Nuclear NPS. The key recommendations from the AoS were associated with identifying any significant adverse effects and possibilities for mitigation that could help inform the draft NPS and its guidance on impacts for the IPC when considering applications for development consent. The AoS also drew attention to the potential for cumulative effects where there might be clusters of new nuclear power stations, particularly in the North West.

### **S.14 How will we monitor the likely effects of the draft Nuclear NPS?**

S.14.1 Monitoring helps to examine the effects predicted through the AoS process against the actual effects of the draft Nuclear NPS when it is implemented. It is not necessary to monitor everything or monitor a predicted effect indefinitely but rather to monitor the significant predicted and actual effects. The key sustainability effects of the Nuclear NPS could be monitored through the monitoring frameworks already carried out by the environmental and nuclear regulators, and the planning and health authorities, for example, as follows:

- the extent of nuclear generating activities will be monitored through the nuclear licensing procedures;
- pollution control and environmental management monitoring is carried out by the environmental authorities;
- human health protection is carried out by the health authorities;
- employment and access to community facilities and services are monitored by Regional Planning Bodies and Local Planning Authorities.

S.14.2 The Government will agree a list of indicators to monitor the performance of the NPS and include details of this monitoring in the AoS Post Adoption Statement which will be published at the same time the Nuclear NPS is designated.

### **S.15 Next Steps**

S.15.1 The draft Nuclear NPS, the AoS and the HRA Reports will be available for review and public comment. The documents are made available on the DECC website ([www.energynpsconsultation.decc.gov.uk](http://www.energynpsconsultation.decc.gov.uk)) and details of how to comment are set out in the Consultation Document<sup>18</sup>. If you have any comments on issues raised in the AoS or HRA, please respond as part of the consultation on the draft Nuclear NPS.

S.15.2 The Government will consider comments received during the public consultation in their decision making on finalising the NPS. On designation of the NPS, an AoS Statement will be published and this will outline how the findings of the AoS and the responses to consultation have been taken into account. It will also provide further information on how monitoring will be carried out during the implementation of the Nuclear NPS.

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Office for Nuclear Development  
Department of Energy and Climate Change  
Area 3D  
3 Whitehall Place  
London SW1A 2HD  
[www.decc.gov.uk](http://www.decc.gov.uk)