DEPARTMENT OF ENERGY & CLIMATE CHANGE

# The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure

**Planning for new energy infrastructure**

**October 2010**

# Contents

# Introduction

## What are the energy National Policy Statements (NPSs)?

i. The Government wants a planning system for major infrastructure which is rapid, predictable and accountable. Planning decisions should be taken within a clear policy framework, making these decisions as transparent and predictable as possible. The energy NPSs will be a blueprint for decision-making on individual applications for development consent for the relevant types of infrastructure. They will clearly set out Government's policy in so far as it relates to planning applications for major energy infrastructure and will give investors the certainty they need to bring forward proposals to maintain security of supply and ensure progress towards decarbonisation.

ii. Between 9 November 2009 and 22 February 2010, the previous Government consulted on the following documents:

Draft Overarching NPS for Energy (EN-1);

Draft NPS for Fossil Fuel Electricity Generating Infrastructure (EN-2);

Draft NPS for Renewable Energy Infrastructure (EN-3);

Draft NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4);

Draft NPS for Electricity Networks Infrastructure (EN-5);

Draft NPS for Nuclear Power Generation (EN-6);

Appraisals of Sustainability (AoSs) of the drafts of EN-1 to 6;

Habitats Regulations Assessments (HRAs) of the drafts of EN-1 to 6; and

Draft Impact Assessment for the drafts of EN-1 to 6.

iii. This document (the Government Response) sets out the key themes which arose from the consultation and the Government's response to those themes. A complete list of the consultation questions is provided at Annex A.

iv. NPSs need to undergo both public consultation and Parliamentary scrutiny before they can be designated (i.e. finalised). The draft energy NPSs were laid before Parliament on 9 November 2009.

v. A separate Government Response to Parliament has been issued alongside this document, to respond to the Parliamentary scrutiny that the draft energy NPSs underwent.

## About the consultation

vi. Over 3,000 responses were received to the consultation. These came from a wide range of respondents including individual members of the public, companies involved in the energy industry, Non-Governmental Organisations (NGOs) including local campaigning groups, regulators such as the Environment Agency (EA) and local authorities.

vii. During the consultation six national events covering all draft energy NPSs were held in Peterborough, York, London, Cardiff, Exeter and Manchester, in order to encourage the public to respond to the consultation. Eleven local events were also held close to the sites judged potentially suitable for new nuclear development in EN-6. Additional stakeholder events were held in London on the AoSs and HRAs. Points raised at these events have been considered alongside written consultation responses.

viii. Copies of responses to the consultation and transcripts of discussion at local events are available on the energy NPS consultation website[1]. Where respondents have requested confidentiality we have not published their responses. The home addresses of individuals who responded to the consultation have been redacted for reasons of privacy.

ix. Whilst all responses (both formal written responses and those received at the stakeholder engagement events) have been considered, this document does not attempt to set out the Government's response to every single point raised in response to the consultation. Instead, it concentrates on the key themes which arose from the consultation and explains how they have been taken into account in shaping the revised draft NPSs and associated documents.

## Next steps:

x. Having considered the responses received to consultation and the outputs of the Parliamentary scrutiny process[2] the Government has decided to re-visit the draft energy NPSs and the AoSs that underpin them. Given the changes that have been made, the Government is now consulting on revised draft NPSs and associated documents (including the AoSs) (referred to in this document as "revised drafts" to distinguish them from the drafts previously consulted on). A separate consultation document has been issued for this second consultation[3].

xi. Subject to this new consultation and further Parliamentary scrutiny, the Government intends to finalise and then formally designate (i.e. adopt) the

1 https://www.energynpsconsultation.decc.gov.uk

2 Alongside the original public consultation, the NPSs also underwent Parliamentary scrutiny. The NPSs were scrutinised by the ECC Select Committee in the House of Commons, by Grand Committee in the House of Lords and during a debate in the full House of Lords. A debate in the full House of Commons was recommended by the ECC Select Committee and was still outstanding at the time of the announced re-consultation. The Government will therefore re-lay the revised draft NPSs before Parliament for any further scrutiny that Parliament decides to undertake.

3 Details of the 2010/2011 consultation are also available on the NPS consultation website: https://www.energynpsconsultation.decc.gov.uk

revised draft energy NPSs in 2011. Before energy NPSs are designated the Government intends that they will be ratified (i.e. voted on) by Parliament.

xii. In line with the Planning Act 2008, the draft energy NPSs were drafted on the basis that once they are designated the Infrastructure Planning Commission (IPC) will be the decision making body. The Government announced in June 2010 its intention to amend the Planning Act 2008 and abolish the IPC. In its place, the Government envisages that a Major Infrastructure Planning Unit (MIPU) will be established within the Planning Inspectorate. Once established, the MIPU would undertake examinations for development consent and would then make a recommendation to the Secretary of State. The Secretary of State would take the decision on the application based upon the MIPU recommendation.

xiii. These proposed reforms require primary legislation. Until such time as the Planning Act 2008 is amended, the IPC will continue as set out in that Act. As a result, the revised draft NPSs (once designated) will provide the framework for decisions by the IPC on applications for development consent for nationally significant infrastructure projects, and under the new arrangements will provide the policy framework for recommendations by the MIPU to the Secretary of State.

## Format of the Government Response

xiv. This Government Response is organised into sections following the numbering of the consultation questions. We set out the questions asked, a summary of the key themes identified, and the Government's response to these.

xv. Occasionally, where it is appropriate to do so, responses are treated under a different question from the one under which they were made. This may mean that a respondent raised a point under, for instance, the Nuclear NPS (EN-6), but it was more relevant to the Overarching NPS (EN-1) and so it has been dealt with in the response to EN-1.

xvi. There were also a number of key issues that were raised across all the NPSs. These have been dealt with in the responses to questions on EN-1.

xvii. For a summary of the key changes which have been made in each NPS (as a result of the consultation and to create the revised drafts), see the table at the beginning of each chapter.

xviii. Chapter 1 responds to key themes related to questions 1-7 on EN-1, including generic issues raised across all of the energy NPSs.

xix. Chapters 2-5 respond to key issues raised in relation to the non-nuclear technology-specific energy NPSs (EN-2 to 5).

xx. Chapter 6 responds to questions 12-14 on the AoSs and HRAs for EN-1 to EN-5.

xxi. Chapter 7 responds to the key issues raised in relation to the Nuclear NPS (questions 16 – 22 and 26). This chapter is significantly longer than the other technology-specific energy NPS chapters. This is a reflection of the much greater number of responses that were received on the Nuclear NPS during the consultation (nearly 2,000 of the approximately 3,000 responses received in total) and the site-specific aspects of the Nuclear NPS.

xxii. Chapter 8 responds to issues raised in relation to the AoS and HRA for the Nuclear NPS (questions 23 – 25).

xxiii. Chapter 9 responds to issues raised in relation to the Impact Assessment (question 27).

xxiv. Chapter 10 responds to questions 28 and 29 on any other issues raised during the consultation.

xxv. It is not the aim of the Government Response to provide a statistical breakdown of the consultation responses received. Information on the specific numbers of respondents to each question is therefore not included in the Government Response. A separate statistical report has been produced for the Government by the Office for Public Management. This has been published and is available to view on the energy NPS Consultation website[4].

xxvi. Annex A contains the list of consultation questions for ease of reference.

[4] https://www.energynpsconsultation.decc.gov.uk

# The Overarching National Policy Statement for Energy (EN-1)

## Background

1.1 EN-1 is an umbrella document, under which all of the remaining draft energy NPSs sit. Its role is:

- to set out how the suite of energy NPSs will work;
- to explain the framework of existing Government policy for energy infrastructure; and
- to establish the need for new nationally significant energy infrastructure.

1.2 As a result of these roles, and of the wide range of questions asked in the consultation, we have found that a number of themes have emerged from across the questions which related to EN-1 and all of the other draft energy NPSs. To avoid lengthy repetition in this document, we have responded to these themes under the consultation questions to EN-1. This chapter is therefore likely to be of interest to all respondents.

## How has EN-1 changed?

1.3 The table below summarises the key changes to EN-1 following the consultation. It does not aim to capture every point. The remainder of this chapter discusses in more detail the key themes raised under each question of the consultation relating to EN-1, as well as any generic issues relating to all the energy NPSs, the Government's response and resulting changes that were made to EN-1.

| What are the key changes? | Where is the change in the revised draft? |
|---|---|
| **Clarity and repetition**<br>Repetition of the content of EN-1 within each of the other NPSs has been removed because EN-1 applies to all the technology areas. | Whilst this has not significantly changed EN-1, it has clarified and simplified the technology-specific NPSs |

| | |
|---|---|
| **Need**<br>This section sets out the need for new energy infrastructure and has been updated to take account of the latest modelling and Pathways to 2050 analysis[5]. | Section 3.7 pages 6-8;<br>Section 3.9 page 13 |
| **Carbon Capture and Storage (CCS)**<br>This section has been revised. It requires CCS to be demonstrated on at least 300MW new of the proposed generating capacity. The purpose of the CCS requirement in the NPS to is specify a minimum requirement for the purposes of consent and to ensure that no consent is given to proposals to build coal-fired power stations which do not include commercial-scale demonstration of CCS. The Government has said it will establish an emissions performance standard (EPS) that will prevent coal-fired power stations being built unless they are equipped with sufficient CCS to meet the EPS. An Autumn consultation will consider further the introduction of an EPS alongside wider reform of the electricity market. | Section 3.6.5 to 3.6.7 page 25<br>Part 4.7, pages 42-44 |
| **Air emissions**<br>This section has been revised to include details on exhaust stacks, moved from EN-2 and EN-3. | Section 5.2.3, page 54 |
| **Historic environment**<br>This section has been updated to reflect the revised Planning Policy Statement PPS5[6]. | Section 5.8, page 80 |
| **Landscape and visual impact**<br>This section includes guidance on how the IPC should consider cooling towers, which has been moved from EN-2 and EN-3. | Section 5.9, page 84 |

5 http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/2050/2050.aspx

6 http://www.communities.gov.uk/publications/planningandbuilding/pps5

## Question 1: Should the Government approve the NPS?

1.4 The consultation document posed the question:

***Do you think that the Government should formally approve ('designate') the draft Overarching Energy National Policy Statement?***

1.5 Of the respondents who replied to this question, roughly an equal number either agreed or disagreed that EN-1 should be approved.

1.6 Some of the respondents who agreed that EN-1 should be approved commented that they welcomed the new streamlined planning system.

1.7 Many of the respondents who thought that EN-1 should not be approved disagreed with a specific Government policy set out in EN-1. For example, some people disagreed with Government's policy on fossil fuel electricity generation stating that no new stations should be built.

1.8 Some respondents stated that EN-1 should be not be approved unless a specific drafting amendment was made.

### The Government's response

1.9 This was a consultation on the appropriateness of the energy NPSs as a framework for decision making by the IPC. Comments about, or suggested changes to, aspects of Government energy policy which are not part of the framework for development consent set out in the NPSs have been published and examined by the Government but are not responded to in this document.

1.10 The numerous comments in this section relating to the need case, energy and climate change policies and impacts of infrastructure set out in this NPS are answered under the appropriate question in this section.

1.11 Where detailed drafting amendments have been suggested, the Government has considered these carefully. As these are so numerous the Government cannot specifically state its reasoning as to whether it has adopted all of these changes or not, although significant changes are set out in this document.

## Question 2: Information for decision making

1.12 The consultation document posed the following question:

***Does the draft Overarching Energy NPS provide the IPC with the information it needs to reach a decision on whether or not to grant development consent?***

1.13 Of the respondents answering this question slightly more disagreed than agreed that sufficient information was provided.

1.14 Many respondents commented on whether they thought EN-1 gave adequate information on Government policy, as well as information on local and environmental impacts that the IPC will have to take account of when considering applications. Points made are split into themes below.

### Comments on the future energy mix

1.15 Many respondents wanted EN-1 to give more information on how the UK was going to deliver the future low carbon energy mix that will be required for the UK to meet its climate change targets. Respondents felt that the planning system, through the NPSs for energy, could be used to deliver the transition to a low carbon energy future.

1.16 Additionally, some respondents thought that the NPSs should spell out more specifically what types of infrastructure the IPC should consent and include a hierarchy of preferred technologies, whether that was to reach our renewables or climate change targets or in order to avoid “carbon lock-in”.

### The Government’s response

1.17 The planning regime for nationally significant infrastructure projects established in the Planning Act 2008 does not provide an appropriate mechanism for delivering a particular mix of energy infrastructure in the UK. The Government believes that the UK’s liberalised, competitive electricity market, subject to Government interventions, will bring forward the most cost effective route to low carbon infrastructure. The Government sets the framework, and broad objectives (such as decarbonisation, secure supplies and fairness) but it is up to the private sector to decide what to build within that framework. It is not the Government’s intention to set targets or limits on all or any new generating infrastructure in the energy NPSs.

1.18 The Government understands that the scale and pace of the decarbonisation challenge will test the UK’s market during the transition to a low carbon economy. Accordingly, the Government is currently conducting a detailed appraisal of the way the electricity market should be designed. The Electricity Market Reform project will assess the role that a carbon price, emissions performance standard, revised renewables obligation, Feed-in Tariffs, capacity mechanisms and other interventions could play in delivering a system that supports the delivery of a secure, low carbon, affordable electricity mix for the 2020’s and beyond.

1.19 The Government will issue a consultation document on Electricity Market Reform in the Autumn and a White Paper in Spring 2011. Additionally, in view of the policy of issuing an Annual Energy Statement and of the requirements in the Planning Act 2008 to keep NPSs under review, the Secretary of State will watch both the flow of applications for consent to the IPC and the outcome of those cases to determine whether they are in line with the expectations about future infrastructure development on which the policies in the NPS are based.

### Comments on information provided on Carbon Budgets

1.20 A number of respondents felt that the IPC should be required to consider the potential carbon emissions of proposals in relation to UK emission reduction targets and carbon budgets, and to assess proposals as to the likelihood of the development being low or zero carbon by 2050 in line with the requirements of the Climate Change Act 2008.

1.21 However, some respondents felt that setting targets for the IPC would not be helpful, as it is for the market to bring forward proposals and the for IPC to consider them from a planning perspective.

### The Government's response

1.22 The Government does not believe that the IPC needs to take into account the potential contribution that a proposed new plant would make to meeting carbon budgets. The Government agrees that it is important to track carbon emissions and ensure that we are meeting our carbon budgets but this is a matter for wider Government intervention in energy markets, not a planning issue. The IPC should assess applications that are submitted to it against planning criteria only.

1.23 There are also practical issues; even when consented, not all projects may be built. Setting a limit on consents purely on the potential contribution to carbon budgets if all projects were completed and came into operation could well lead to later applicants' chances of being granted consent being unfairly prejudiced by earlier applicants who choose not to build after receiving consent. Further, although the IPC could collect information on the major projects it consents, it will not have detailed information on any smaller projects that will continue to be consented by local authorities. The IPC would not therefore necessarily be in a position know how a particular project might affect the achievement of the carbon budget.

1.24 The Government is also required, under the Energy Act 2010, to regularly report on progress towards reducing carbon emissions from the electricity sector, and on progress made in the development and use of CCS technology. The reports must also include a review of whether, in the light of its other findings, Government policies should be revised and in preparing the reports the Government will need to take into account any relevant points raised by the Committee on Climate Change's progress reports towards the reduction targets set out under the Climate Change Act 2008.

## Comments on weighting applied to types of energy infrastructure

1.25 Many respondents felt that the suite of draft NPSs did not give enough information on the weighting the IPC gives to different types of energy infrastructure and each of the impacts in order to inform it's decision making.

## The Government's response

1.26 EN-1 does not try to differentiate which types of energy infrastructure should be preferentially consented. As explained above, the Government believes that the UK's liberalised, competitive electricity market, will determine the most cost effective mix of low carbon infrastructure within the policy framework set by Government.

1.27 The Planning Act allows (and indeed requires) the IPC to use its own judgement on many points when considering and weighing up the various factors before making a decision. It is for the IPC to determine, having regard to the need for infrastructure as expressed in the need case, the assessment principles and policies set out in the NPSs and the evidence before it in each case, whether consent should be granted: it will not always follow from the fact that there is a need for a type of infrastructure that a particular example of that type should be built as and where proposed by an applicant for development consent.

## Comments on technology-specific issues

1.28 A number of respondents questioned why the energy NPSs do not include information on wave and tidal, solar, geothermal and micro-generation technologies.

1.29 Additionally, although the infrastructure for CCS is mentioned in the NPSs, a number of respondents questioned why the current suite does not cover $CO_2$ pipelines.

1.30 Some respondents requested further information on the requirements for carbon capture readiness (CCR).

## The Government's response

1.31 As far as generating infrastructure is concerned, the NPSs only cover large energy infrastructure that meets the thresholds set out in Part 3 of the Planning Act 2008[7]. Many renewable technologies, such as solar and Microgeneration, provide smaller distributed sources of electricity and so it is unlikely that any proposals will come forward that could exceed the thresholds in the Act.

1.32 The Government agrees that the NPSs should set out how tidal and wave technologies will be dealt with when they become commercially viable at

[7] The Planning Act 2008 is available at: http://www.opsi.gov.uk/acts/acts2008/pdf/ukpga_20080029_en.pdf

greater than 50MW "onshore" (i.e. in estuaries such as the Severn or Mersey) and greater than 100MW offshore. We will issue an NPS for this technology when the necessary information is available to provide a framework for consideration of marine energy projects in the UK.

1.33 Government agrees that the development of a future carbon dioxide transportation network will be integral to the future deployment of CCS. The Government's intention is to create a framework that facilitates this development whilst recognising that the extent and scale of this wider deployment is uncertain at the moment and is likely to remain so until the cost and effectiveness of CCS is better understood. Through the Government demonstration programme, we expect up to four pipelines to be built to support the proposed demonstration projects. Beyond the demonstrations, we are currently considering how we build the right infrastructure for CCS.

1.34 The Government agrees that the NPS specific to fossil fuel technologies, EN-2, should provide more explicit information on how applicants should assess the technical and economic feasibility of CCS technologies. There is detailed advice in the guidance note *Carbon Capture Readiness: A guidance note for Section 36 Electricity Act 1989 consent applications* published by the Department in November 2009[8]. We have amended section 4.7 of EN-1 and section 2.3 of EN-2 to include more information from the guidance. However the Government expects that applicants and the IPC will refer to the original guidance when preparing or considering a development consent application.

### Comments on spatial information

1.35 Many respondents commented that it would be preferable for the non-nuclear NPSs to contain more spatial information, with regards to the best locations for bringing forward energy infrastructure. Respondents were concerned that without this information, the IPC may consent infrastructure in a way that means that it imposes too much in one area.

1.36 Some respondents felt that the NPSs should include an overall national spatial strategy for energy infrastructure covering all technologies.

### The Government's response

1.37 The Government does not believe that the non-nuclear NPSs (EN-1 to EN-5) could be more spatially specific for a number of reasons:

- identifying potentially suitable locations for all types of major energy infrastructure would be hugely complex and time-consuming, defeating the objective of a more efficient process;

8 Available on the Department's web site at: http://www.decc.gov.uk/publications/basket.aspx?FilePath=What+we+do%5cUK+energy+supply%5cDevelopment+consents+and+planning+reform%5celectricity%5c1_20091106164611_e_%40%40_ccrguidance.pdf&filetype=4

- unless very specific boundaries are suggested, as has been the case for EN-6, the set aside area could be too large and could deter investment in other infrastructure such as housing; and

- there could be environmental damage if there is a large concentration of infrastructure in a single area.

1.38 Most energy infrastructure does have clearly identifiable locational criteria: for example, a wind farm would not be located somewhere where wind speeds are not sufficient or reliable enough for generation; nor would a thermal generating station be sited where there wasn't an adequate water resource for steam and cooling purposes. These locational criteria are set out in the relevant NPSs.

1.39 The Government does, however, recognise the special character relating to the location of new nuclear power stations, which is why EN-6 is location specific. The process of assessing sites has provided an opportunity for the Government to assess the suitability of nominated sites at the national level and for that to be subjected to public consultation. The list of sites within the revised draft Nuclear NPS should bring some certainty to communities, avoiding the unhelpful speculation that has existed in the past about where new nuclear power stations may be built and identifying specific boundaries for development over a relatively short timeframe to minimise planning blight.

### Comments on the cost of energy infrastructure

1.40 Some respondents felt that information should be provided to the IPC on the lifetime costs of different types of energy infrastructure, for example the lifetime cost of a nuclear power station or wind farm compared to types of conventional fossil fuel power stations.

### The Government's response

1.41 The cost of a power station is dependent on a large range of factors including location, technology and its expected lifetime. Ultimately, it is up to the developer and not the IPC to decide whether a project is financially viable, when consideration of the development, running and decommission costs of a project are taken into account.

1.42 The Government does, however, carry out analysis on generation costs in order to inform its policy decisions. The recent Mott McDonald study has estimated the lifetime levelised costs of different types of generation technology (expressed per MWh supplied, all discounted) and considered how these may develop over time as factors such as carbon and fuel prices evolve. The study can be viewed on the Department of Energy and Climate Change's website[9].

[9] http://www.decc.gov.uk/assets/decc/statistics/projections/71-uk-electricity-generation-costs-update-.pdf

1.43 It should be noted that such studies are normally only suitable to be used as a guide. This is because there are some uncertainties on the ranges relating to these figures for different types of electricity generation.

## Question 3: Information on the Government's energy and climate change policy

1.44 The consultation document posed the question:

***Does the draft Overarching Energy NPS provide suitable information to the IPC on the Government's energy and climate policy?***

1.45 Of the respondents answering this question, roughly as many agreed as disagreed.

1.46 A large number of responses to this question were comments on, or suggestions for changes to, the Government's energy and climate change policy, such as whether climate change is being caused by human activity. Again, the points made have been split into themes below.

### Comments on the European Union Emissions Trading Scheme

1.47 Some respondents were concerned over the existing policy of allowing market-led delivery of climate and energy targets. Specifically many felt that the European Union's Emissions Trading Scheme (EU ETS) could not be relied on to bring forward the decarbonisation required, especially if the price of carbon remained low.

1.48 Alternatively some respondents felt that only the market led approach, with the appropriate policy levers, could bring forward the most cost effective route to low carbon infrastructure.

### The Government's response

1.49 The EU ETS is the cornerstone of Government's climate change policy. The Government is pushing for an EU agreement to move from a 20% to a 30% reduction target by 2020, which will strengthen the carbon price signal. In addition, the creation of a carbon price floor is an important commitment in the Programme for Government and, as announced in the emergency Budget, the Government will publish proposals this autumn to reform the climate change levy to provide more certainty and support to the carbon price.

1.50 The Government agrees, however, that existing market mechanisms, such as the EU ETS, alone are not sufficient to deliver our low carbon objectives. This is one of the reasons why the Government is taking forward work, through the Electricity Market Reform project, to ensure the electricity market framework can cost effectively deliver the low-carbon investment needed in the long term whilst maintaining security of supply.

1.51 The Government, in the coalition agreement, has also committed to the establishment of an emissions performance standard that will prevent coal fired power stations being built unless they are equipped with sufficient CCS to meet this standard.

## Comments on the timescale of policy

1.52 Many comments were received requesting the suite of energy NPSs to take a longer term view up to 2050 and that the policy should be updated regularly.

## The Government's response

1.53 EN-1 is intended to set out the Government's current policy for the delivery of major energy infrastructure. The draft EN-1 reflected the "UK Low Carbon Transition Plan – National Strategy for Climate and Energy" which set out a detailed low carbon transition plan to 2020.

1.54 Since publication of the draft EN-1, the Government has published its *2050 Pathways Analysis*[10] which looks at different pathways to meeting our target of reducing emissions by 80% by 2050. The revised draft EN-1 takes this work into account.

1.55 In addition, once designated the suite of NPSs will remain subject to review by the Secretary of State.

## Comments relating to environmental and climate change policies

1.56 Many respondents from both industry and environmental groups expressed a desire to see some of Government's environmental and climate change policies, such as $CO_2$ emission reduction and renewables targets, more clearly laid out and emphasised in the NPS.

1.57 Some thought that more should have been included on Government's policies outside of those directly relating to nationally significant energy infrastructure, such as policies on energy efficiency and distributed energy generation, because these documents may be used as material consideration for smaller projects.

## The Government's response

1.58 The Government agrees that it is important that EN-1 clearly states the Government's climate change and renewable energy targets. Part 2 of EN-1 sets out the Government's commitment to tackling climate change and renewables targets, and the Government has given a great deal of thought to the expression of key policies in the revised draft NPSs.

1.59 While the revised draft energy NPSs contain background material on a variety of relevant aspects of energy policy, it is important to remember that the particular policies on the consenting of major energy infrastructure which it is their function to set out are only one of a number of ways by which Government seeks to bring about the construction of secure, safe and affordable low carbon energy infrastructure. Thus, the revised draft NPSs make clear:

10 http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/2050/2050.aspx

- that the key goal of energy policy to which they relate is that of maintaining safe, secure and affordable supplies of energy to GB consumers (individuals or businesses) in the shorter and longer term without jeopardising the target of an 80% reduction in UK green house gas emissions by 2050 set in the Climate Change Act 2008;

- what kinds of new infrastructure will be needed to achieve this target; and

- how the NPSs, as a policy framework for assessment of applications for development consent, will facilitate the construction of infrastructure in a way which ensures that the need for new infrastructure can be satisfied in line with the principles of sustainable development.

## Question 4: Need and urgency for new energy infrastructure

1.60 The consultation document posed the question:

***Does the draft Overarching Energy NPS provide suitable direction to the IPC on the need and urgency for new energy infrastructure?***

1.61 Respondents answering this question offered divided views, with slightly more agreeing with the question than disagreeing.

1.62 Of those respondents who agreed strongly that EN-1 gave suitable direction on need and urgency for new energy infrastructure, some commented that they felt the need statement should be strengthened further due to security of supply being at risk if new infrastructure is not built. They expressed concern at the perceived energy gap that could arise over the next few years, when a number of power stations are due to reach the end of their operational life. Some were also concerned that the demand for electricity could rise more than expected and that this may not be met due to the long lead times for new power stations, especially nuclear power, to be built.

1.63 However a number of other respondents made comments that the need had been overestimated and that the need statement in EN-1 established an unqualified and unlimited need for new energy infrastructure. Some respondents felt that the need would not be as urgent if demand for energy were reduced through Government incentives and legislation, and that energy efficiency and a move to distributed small scale renewables should be a priority for Government instead of building new large scale infrastructure.

### The Government's response

1.64 The Government believes that there is an urgent need for a diverse range of new nationally significant energy infrastructure. The UK faces a major challenge in moving to a low carbon economy and industry needs to be able to deliver significant amounts of new energy infrastructure over the coming decades and beyond to 2050.

1.65 New infrastructure is needed to replace closing power stations, to switch to low carbon forms (including renewables, nuclear and fossil fuels with CCS), and to ensure security of supply in the light of uncertain demand projections (see Part 3 of EN-1 for more details). New electricity networks are also needed as well as new oil and gas infrastructure to maintain security of energy supply.

1.66 The Government has revised the energy need statement in response to respondents' suggestions to look further ahead than 2025. DECC's analysis for pathways to 2050, published in July alongside the Annual Energy Statement, shows the need for even greater amounts of electricity in the run up to 2050. It shows that reductions in electricity consumption resulting from improvements in energy efficiency will be far outweighed by increases in electricity demand, potentially leading to a doubling of electricity demand

between now and 2050. Generation capacity will need at least to double to meet this demand and, if a significant proportion of our electricity is supplied from intermittent sources, such as wind, solar, or tidal, then the total installed capacity might need to triple. This is because the intermittent nature of many renewables and the UK's likely reliance on wind energy means that these plants need to be 'backed up' with highly flexible generation stations, which will lead to an overall increase in generation capacity.

1.67 The Government recognises, however, that reducing the amount of energy we use is the cheapest way of meeting our climate change and energy security objectives. This is why we have introduced the Government's Green Deal, where every participating householder can save money by insulating their home and participating energy companies and high street stores help guide customers through a simplified process and pay for the work upfront. Householders will then pay back the money over time on their energy bills, through the savings they make (Part 3 of EN-1 has more details on reducing demand).

1.68 However, while these policies will reduce electricity demand in certain areas, the savings are likely to be limited and offset by increases in other areas (such as electrification of transport and domestic heating). Whilst the Government believes that these measures have an important part to play in meeting our energy and climate change objectives, they will not enable us to meet these objectives on their own.

### Comments on need for certain technologies

1.69 Many comments were received relating to the need for a specific technology either agreeing or disagreeing that particular technologies should be favoured, or avoided, in the UK.

1.70 Specifically, the types of infrastructure that respondents generally objected to included nuclear power stations, fossil fuel power stations without CCS and wind farms.

### The Government's response

1.71 Meeting the Government's objectives for tackling climate change and improving the UK's energy security will require a broad mix of all energy technologies. The UK has well developed electricity and gas markets, where industry competes to deliver energy infrastructure within a framework of strategic Government interventions and effective regulation.

1.72 It is not the Government's intention to set targets or limits on all or any new generating infrastructure in the NPSs. The Government believes that renewables, nuclear and fossil fuels with CCS will all have a part to play in delivering the UK's decarbonisation objectives.

1.73 With regards to fossil fuel stations, the Government committed, in the coalition agreement, to the establishment of an emissions performance standard (EPS) that will prevent coal-fired power stations being built unless

they are equipped with sufficient CCS to meet the EPS. The consultation in Autumn 2010 on Electricity Market Reform will consider the introduction of an EPS alongside wider reform of the electricity market.

1.74 We are clear that without CCS it would be impossible for new coal power stations to meet such a standard. Both now and in the future, the Government will not consent any coal-fired powers stations that do not have CCS equipped to a proportion of their capacity, with a view to retrofitting to full capacity once the technology becomes economically and technologically proven.

1.75 In addition, the Government is also giving careful consideration as to whether a demonstration project on gas would prove beneficial and add value to the programme of four CCS demonstration projects, as recommended by the Committee on Climate Change .

### Balancing the need case against local impacts

1.76 Some respondents expressed concern that the need case was biased in favour of development such that the negative local impacts of projects may not outweigh the need for new development.

### The Government's response

1.77 The Government recognises that the right balance must be struck between consenting and building new energy infrastructure and protecting our environment and the quality of life of those who live in the communities where this important infrastructure is located. The decision as to whether the need for new infrastructure outweighs the adverse impacts will depend very much on the individual circumstances of an application, each of which will need to be judged on its own merits. Since the Government is unable to take account of every permutation, the energy NPS states that when considering applications the IPC should give substantial weight to the contribution which a project will make towards satisfying the need for new infrastructure, but requires the IPC to use its own judgement when considering applications. The IPC must balance the benefits of a proposal against the adverse impacts before making a decision. It is quite possible for the IPC to refuse consent for a project if the IPC considers that detrimental effects outweigh the contribution the project makes to satisfying need.

1.78 The types of impacts that the IPC will need to take into account when considering an application are set out in Part 5 of EN-1 – Generic Impacts section, and also in each technology-specific NPS, which provide further detail on impacts particular to that technology.

## Question 5: Assessment principles and direction for decision making

1.79 The consultation document posed the question:

***Do the assessment principles in the draft Overarching Energy National Policy Statement provide suitable direction to the Infrastructure Planning Commission to inform its decision-making?***

1.80 Respondents to this question were relatively evenly split between those who thought that the assessment principles did not provide suitable direction to the IPC, those that thought that they did and those who were unclear.

1.81 Some respondents to this question made comments about generic impacts. These have been dealt with in the response to Question 6. There were also a number of respondents who commented on overarching themes such as the weighting of impacts versus need, whether the energy NPSs should be spatial and the relationship with Welsh planning policies, all of which have been covered elsewhere in this response.

1.82 It was apparent that there was some discrepancy between what the Government expected this question to cover and how respondents answered it. The Government's intention was that it would cover sections 4.1 to 4.15 of EN-1 on the assessment principles; however many respondents also commented on the generic impacts which are set out in EN-1 sections 4.16 to 4.30 and which are the subject of question 6 of this consultation. The Government felt that this highlighted a presentational problem with the draft EN-1. As a result, in the revised draft, Part 4 has been split into two parts: Part 4 'Assessment Principles'; and Part 5 'Generic Impacts'.

### Comments on cumulative impacts

1.83 Several responses suggested that the suite of energy NPSs did not give sufficient detail on how the IPC should consider cumulative impacts of a number of projects.

### The Government's response

1.84 Section 4.2 of EN-1 directs that the IPC should consider cumulative impacts of projects as part of the environmental statement associated with that project. The IPC is directed to consider not only the cumulative impacts of each application on the environment, but also the added cumulative impact of any existing development. This includes development for which consent has been granted but which has not yet been built.

1.85 In addition, we have also expanded the analysis in the AoS to include a more detailed discussion on cumulative effects. Although identification of likely significant cumulative effects was difficult due to the non-spatial nature of the non-nuclear NPSs, those characteristics of the different energy technologies that might give rise to likely significant effects have been identified (see the revised AoS for EN-1).

### Comments on alternatives

1.86 A number of respondents made comments on section 4.4 of EN-1 relating to "alternatives". Some respondents thought that the requirements outlined were reasonable, while others felt that it made life too difficult for objectors to specific schemes and did not take sufficient account of legal requirements to consider alternatives. There were also a number of comments on the final bullet of paragraph 4.4.3, which suggests that the third party may be required to provide evidence of a suggested alternative.

### The Government's response

1.87 Applicants are required to assess alternatives. There is a legal requirement in some cases to do so, and the contents of the NPS will not affect this requirement. There is guidance already available on EIAs and alternatives, produced by those responsible for the policy, that applicants will be expected to use. The applicant will also be expected to consider reasonable alternatives that are brought up during the pre-consultation stage, and say why they were not considered further. Given the extensive pre-application process however, it is not expected that potential alternatives will be raised during the examination stage of an application. If they are, there could be a suspicion of deliberate obstruction, and at this stage the IPC "may" require evidence from the third party.

### Comments on criteria for good design

1.88 A number of respondents thought that the section on good design was not rigorous enough, was too subjective, and focused too much on aesthetic design. Respondents also felt that reference to the Commission for Architecture and the Built Environment should be made along with greater use of existing guidance such as Planning Policy Statement 1.

### The Government's response

1.89 The Government agrees with these comments and has revised section 4.5 of EN-1 to strengthen the advice on good design in line with Planning Policy Statement 1 as far as possible. However, our review of good design did highlight the fact that there is a shortage of real guidance for such major infrastructure projects to refer to, as the existing guidance is primarily aimed at town planning in an urban setting, although some of the principles are the same. Government will consider this, with a view to developing more suitable guidance that stands outside the NPS.

### Comments on combined heat and power (CHP)

1.90 Many respondents felt that CHP should be a pre-requisite for planning consent to be given to thermal power plants.

## The Government's response

1.91 The Government agrees that CHP should be considered wherever possible, but believe that it is for developers to consider where a generating station should be located. EN-1 sets out details on CHP and requires applicants to follow the Government guidance issued to accompany power station consents applications[11]. This sets out the specific steps developers must undertake in order to fully consider CHP. This guidance will continue to be relevant to the planning process, and the Government hopes to consult on revised guidance later this year.

1.92 Making CHP a planning requirement could, however, adversely affect security of supply as it would effectively restrict developers to locations where they are not only close enough to customers for substantial amounts of heat to produce a "good quality" CHP scheme, but also actually able to reach agreement with those customers on a sufficiently long-term basis to justify investment in the CHP infrastructure. The consenting process cannot force third parties to enter into such arrangements.

1.93 Projects could also suffer from "planning blight", where investment in other forms of development (e.g. housing) would not be forthcoming in anticipation of development of major energy infrastructure projects – whether or not such development was planned or materialised.

1.94 Requiring CHP could also be more environmentally damaging than the benefits it would bring. The requirement for CHP should therefore continue to be considered on a case by case basis.

1.95 With regards to the requirement for CHP to be applied to nuclear power stations, both the draft EN-1 and the draft Nuclear NPS (EN-6) note that applications for thermal generating stations, including nuclear, must either include CHP or evidence that the possibilities for CHP have been fully explored. The potential for delivering CHP from a nuclear power station is constrained by the need to minimise the radiological consequences to the public in the unlikely event of a serious nuclear accident. Consistent with the SSA demographic criterion applied to the siting of new nuclear power stations sites are likely to be located away from major population centres, which may limit the viability of CHP schemes. The Government does not consider that the limited opportunities for CHP from nuclear overrides the need for a varied energy mix that includes nuclear.

## Comments on Carbon Capture Readiness (CCR) and Carbon Capture and Storage (CCS)

1.96 Quite a few respondents raised concerns over the CCR requirements set out in EN-1, particularly with regards to showing the economic feasibility of a

[11] This is available at: http://www.decc.gov.uk/assets/decc/what%20we%20do/uk%20energy%20supply/development%20consents%20and%20planning%20reform/guidance/file35728.pdf

project that incorporates CCS technologies, given that they are not commercially proven at this time.

### The Government's response

1.97 An assessment of technical and economic feasibility of CCS technologies is explicitly required under Article 33 of EU Directive 2009/31/EC. The Government recognises that the Directive's requirement to assess economic feasibility is particularly challenging because it requires the making of a judgment about whether it will be economically feasible (itself an imprecise concept) to retrofit and operate a technology which has yet to be demonstrated at commercial scale at some point in the next 30 or so years, against a background of assumptions which all involve significant uncertainty (as to future carbon prices, equipment costs etc).

1.98 However, on the basis of the Department's experience in dealing with CCR cases under the Electricity Act regime, we believe that the detailed guidance we have published in the note *Carbon Capture Readiness: A guidance note for Section 36 Electricity Act 1989 consent applications*, in November 2009[12], provides a workable framework for applicants and decision-makers.

1.99 We have amended section 4.7 of EN-1 and section 2.3 of EN-2 to include more information from the guidance, although we expect that applicants and the IPC will refer to the guidance when preparing or considering a development consent application for a combustion generating station of 300 MW or more.

### Comments on grid connection

1.100 A number of respondents commented on the ability to submit applications for electricity lines separately from the generating station. The comments were split evenly with some respondents welcoming the fact that it would be possible to submit applications, while others felt that applications for new generating stations and their associated development, such as electricity lines, should always be considered together.

### The Government's response

1.101 The intension of the Planning Act 2008 was to create a holistic planning regime with all elements of a project being considered together, including associated development and electricity lines. The IPC will only be able to consider associated development if it is submitted at the same time as the main project. However, electricity lines are somewhat different. Lines of 132kV and above are considered to be nationally significant infrastructure projects in their own right and, legally, they can be considered as projects on their own. The Government prefers that lines and generators are considered

12 Available on the Department's web site at:

http://www.decc.gov.uk/publications/basket.aspx?FilePath=What+we+do%5cUK+energy+supply%5cDevelopment+consents+and+planning+reform%5celectricity%5c1_20091106164611_e_%40%40_ccrguidance.pdf&filetype=4

together in one application, where possible, and this is encouraged. However, the Government recognises that this will not always be possible, and could indeed jeopardise the achievement of the UK's climate change obligations and energy security requirements. For example, some investment in network infrastructure may be needed to connect more than one generator, and if developers were required to submit synchronised applications, it would be necessary to wait for the slowest applicant to be ready, and in the process some generation investment could be lost.

1.102 Having considered the comments, the text in EN-1 and Government objectives, the Government does not believe that it is necessary to change the wording of this section. While we encourage synchronised applications, we recognise that this will not always be possible, so we have left the way open for individual applications, while pointing out that more risk will be involved in the absence of full information on the second element of a project.

## Question 6: Generic Impacts of new energy infrastructure and potential mitigation options

1.103 The consultation document posed the question:

***Does the draft Overarching Energy National Policy Statement appropriately cover the generic impacts of new energy infrastructure and potential options to mitigate those impacts?***

1.104 Of the respondents answering this question, nearly twice as many disagreed than agreed that generic impacts were covered appropriately. From those who commented specifically on the impacts, there was a broad view that they gave insufficient detail. However, the details that respondents suggested should be included were largely specific to their own concerns and interests. There were, therefore, instances where respondents suggested changes that were in direct opposition to changes proposed by other respondents.

### Comments on the management of radioactive waste

1.105 Several respondents believed that specific impacts relating to nuclear power, and in particular the handling of radioactive waste, should be set out in EN-) as well as the Nuclear NPS.

### The Government's response

1.106 EN-1 sets out how the IPC should consider impacts that are generic and which affect all types (or at least more than one type) of energy infrastructure. The consideration of issues relating to the management of radioactive waste is specific to only nuclear power and is therefore set out in EN-6. It is not therefore necessary to address it in EN-1 as well. Please refer to Question 19 of this Response document for a full consideration of comments received regarding the management of radioactive waste.

### Comments on 'biodiversity and geological conservation'

1.107 A number of respondents commented that the section on Sites of Special Scientific Interest (SSSIs) within the 'Biodiversity and Geological Conservation' impact section of EN-1 went beyond the requirements set out in previous Government planning guidelines, in particular those set out Planning Policy Statement on Biodiversity and Geological Conservation (PPS9) (now incorporated into a draft PPS on Planning for a Natural and Healthy Environment).

### The Government's response

1.108 The Government agrees that the additional requirements on SSSIs in the biodiversity and geological conservation section of EN-1 was not appropriate, and Section 5.3 of the revised NPS has been revised to more closely match with the PPS9.

## Comments on flood risk and climate change adaptation

1.109 A number of respondents made comments that the impact section describing flood risk should also take into account the longer term risk of climate change.

## The Government's response

1.110 EN-1 has separate sections on climate change adaptation, with additional information in each technology-specific NPS, and on flood risk. The assessment principles for climate change adaptation require applicants to use a range of scenarios, based on the latest research at the time of the application. The flood risk impact section is based on Planning Policy Statement 25, although there are slight variations because it is recognised that energy infrastructure, such as generating stations and electricity networks, are likely to be located in or close to a Flood Zone. This is because of the requirement of some generating stations to be located close to accessible sources of cooling water.

1.111 These sections of EN-1 have been updated to take into account new information and legislation since the draft issued for consultation, including provisions of the Flood and Water Management Act 2010.

## Comments on landscape and visual impacts

1.112 Some local authorities and local environmental groups suggested that the impacts on landscape relating to AONBs and designated areas should be extended to consideration of views towards designated areas as well as the impact on views in relation to them.

1.113 It was also proposed that the landscape and visual impact section of EN-1 should adopt the wording from Planning Policy Statement 7, with respondents suggesting detailed drafting changes to more closely reflect PPS7.

1.114 A number of respondents suggested that the text should introduce the concept of "tranquillity" into the impact assessment.

## The Government's response

1.115 The paragraphs on development outside of designated areas, but affecting them, has been revised to clarify what the IPC should consider. The text on impacts of cooling towers for thermal generating stations (including nuclear) has been moved from the technology-specific NPSs EN-2, 3 and 6 to EN-1 as it is considered that the impacts are "generic"; i.e. that there are no different considerations for the technologies.

1.116 The Government has considered the drafting suggestions for landscape impacts. Some text has had minor amendments to ensure that it is clear. The Government believes that this revised section now appropriately sets out the impacts that the IPC should consider with respect to landscape and visual amenity.

1.117 The Government has considered the comments relating the concept of "tranquillity" and reviewed the NPSs accordingly. The Government believes that the revised draft NPSs now provide adequate policy guidance for the IPC to consider all potential impacts and do not believe it is necessary to specifically include the concept of "tranquillity" in the NPSs.

### Comments on socio-economic impacts

1.118 A number of respondents, principally local authorities, suggested applicants must identify positive socio-economic benefits of a development and that delivery of the identified benefits should be a condition of consent.

### The Government's response

1.119 Section 4.2 of EN-1 directs that applicants should set out socio-economic impacts in an application. This should include positive benefits as well as adverse effects. It would not, however, be appropriate to specify in the NPS that consents should be dependent upon conditions that required developers to deliver specific positive benefits. Any such benefits should be assessed by the IPC with respect to individual applications.

### Comments on traffic and transport impacts

1.120 Some respondents proposed that new generating stations should be required to use only rail or water transport for delivery of fuel and removal of waste. They also suggested that the potential impacts and mitigation of transport should be described in specific detail, including design criteria and traffic management plans.

### The Government's response

1.121 The traffic and transport impact section of EN-1 has been amended to clarify that applicants should provide an appropriate traffic management plan. It also indicates more clearly that the preferred location for some types of infrastructure, e.g. generating stations, should be on or near to existing transport infrastructure and that, where possible, water-borne or rail transport should be used instead of road transport.

## Question 7: Aspects of EN-1 not covered by the previous questions

1.122 The consultation document posed the question:

***Do you have any comments on any aspect of the draft Overarching Energy National Policy Statement not covered by the previous questions?***

1.123 Many of the responses received to this question related to topics of need or policy which have been covered in the response to questions 1-6. However some comments were received to other questions which did not fit the topic of the question being asked. Where these were relevant to the issue of the energy NPSs, we have collated these and answered them below.

### Comments on the relationship of the new planning regime with the local planning system

1.124 Many respondents questioned what weighting the energy NPSs should have within the Town and Country Planning Act regime. They felt it was unclear how local planning authorities should use the energy NPSs in their decision making, and what relationship the energy NPSs have with other Government statements of planning policy, such as Planning Policy Statements (PPSs) and Planning Policy Guidance (PPGs).

1.125 It was felt that, in places, the draft energy NPSs lacked references to Welsh documentation such as Planning Policy Wales (PPWs), Technical Advice Notes (TANs) and Ministerial Interim PPSs.

### The Government's response

1.126 The energy NPSs are aimed primarily at providing a framework for the IPC to consider applications on nationally significant infrastructure projects. Decisions by the IPC have to be taken in accordance with the energy NPSs – it is therefore clear that the energy NPSs take precedence over any other guidance or statements of planning policy for decisions by the IPC.

1.127 A close interaction is envisaged between the energy NPSs and the town and country planning regime however. Under existing Town and Country Planning Act legislation, decisions on local development applications must be taken in accordance with the development plan unless material considerations indicate otherwise. There is a statutory requirement for local planning authorities to have regard to national policies and guidance when preparing development plans[13].

1.128 Local planning authorities should treat the NPSs in the same way as other statements of Government policy. Where local planning authorities take decisions on applications for smaller-scale infrastructure they will continue to have to make their decisions in accordance with the development plan unless there are material considerations which indicate otherwise. Government policy, (including policy issued in draft for consultation) may,

[13] See section 19(2)(a) of the Planning and Compulsory Purchase Act 2004.

where relevant, be such a material consideration. However, the degree to which Government policy, including the policy in the energy NPSs, is relevant to any particular planning application and the weight to be attached to it is a matter for the decision maker according to the circumstances of the particular case. It is not for Government to prescribe. This is a principle with which local authorities are already familiar.

1.129 Once a NPS is established it should therefore be reflected as appropriate in relevant development plans. In cases where development plans have not yet been updated to take account of a particular NPS, any relevant new policy in the NPS should be taken into account by the local planning authority as a material consideration in decisions on development applications. For example, the renewables NPS would be likely to be a material consideration for small scale projects under 50 MW (which are decided by local authorities).

1.130 The policies set out in the energy NPSs are, for the most part, intended to reflect and clarify existing policy and practice of the Secretary of State in consenting nationally significant energy infrastructure. This includes relevant planning policy. In revising the draft energy NPSs we have sought to address any apparent inconsistencies of wording.

1.131 The Government is, in parallel, considering how best to take forward its plans for a simple and consolidated national planning framework covering all forms of development.

1.132 Whilst any relevant NPSs will be the primary consideration for the IPC when considering applications, the IPC must also have regard to any other matters which the IPC thinks are both important and relevant to the decision. This may include relevant guidance in Wales.

### Comments on the role of local authorities in the new planning regime

1.133 Some respondents questioned what role local authorities will have in the new planning regime. They were concerned that should a local authority have a bias towards an application, they may not provide enough detail in the Local Impact Report to the IPC. Additionally some respondents raised the question of adequate funding for local authorities to manage the additional administrative burden of producing impact reports.

### The Government's response

1.134 The Government recognises the important role that local government has in the development and consideration of proposed nationally significant infrastructure projects.

1.135 The Planning Act 2008 sets out the role of local authorities in nationally significant infrastructure development. Local authorities are involved at three main stages:

- the consultation on NPSs allows any local authority to influence the Government's national policy;

- relevant local authorities (not only the authority in whose area the project is located, but also surrounding authorities) are statutory consultees at the project development stage for all nationally significant infrastructure projects. Promoters also need to liaise with the relevant local authorities when drawing up their plans to consult the local community more generally. Local authorities can make representations to the IPC if they believe that pre-application consultation has not been adequate, and the IPC must have regard to this; and

- local authorities have an important role in ensuring that the IPC takes full and proper account of relevant local and regional factors and considerations – the IPC will invite affected local authorities to produce a Local Impact Report, and it must have regard to this report in its decision.

1.136 The new planning regime gives local government statutory rights in the process to ensure their views are considered as part of the IPC's examination. In addition, the new system should provide potential savings to local government, rather than imposing additional costs, as shorter hearings and quicker decisions should mean that local authorities do not incur the level of costs experienced previously (such as the costs of legal representation).

### Comments on the length and technical nature of the consultation documents

1.137 Some respondents criticised the consultation process for the draft energy NPSs on the basis that the documents were too long and not enough time was given to respond.

1.138 Some respondents felt that the material they were being asked to assess was too technical for members of the public without specific technical expertise.

### The Government's response

1.139 The Government appreciates that the draft energy NPSs and associated documents are long and cover a wide range of information. However there is a need to strike a balance between making them accessible and also fit for purpose. They are intended to be of primary consideration for the IPC in its decision making and as such must set out the technical requirements for each technology so that the IPC can make its decisions.

1.140 As the draft energy NPSs are interrelated, it was necessary to consult on all of these documents together. A consultation document was produced in order to help guide respondents through the process and to help signpost areas where the respondent may wish to comment. Alongside the AoS and the HRA we published non-technical summaries in order to make it easier for consultees to digest the material.

1.141 In addition, in order to raise awareness of the draft energy NPSs, aid understanding, answer questions and encourage the public to respond to the consultation, the Government ran six national events covering all the draft energy NPSs in Peterborough, York, London, Cardiff, Exeter and Manchester (the Manchester event was included upon the recommendation of Parliament). The Government also held eleven local events close to the sites judged potentially suitable for new nuclear development in EN-6. Local exhibitions guided people through information on sites.

1.142 The Government set up a dedicated phone line and email address so that members of the public could contact members of the consultation team for further advice. The Government also ran an online consultation which was designed to make it as easy as possible to submit responses to the consultation questions.

1.143 The Government also worked with Planning Aid, who provided advice on the use of language in the consultation document (so that general members of the public could easily understand the document despite its technical nature) and the format of the national events. Planning Aid also issued their own summary leaflets on each of the draft energy NPSs.

1.144 There were over 21,000 visitors to the draft energy NPS web site and over 3,000 responses to the consultation.

### Comments on publicity of the consultation events

1.145 Some responses felt that the publicity and awareness raising around the consultation events was not sufficient or, in some cases, did not give enough notice.

### The Government's response

1.146 A number of mechanisms were used to raise awareness of the NPS consultation and also to advertise the local nuclear NPS events.

1.147 The Government issued national and regional press statements to media outlets about the consultation and the local exhibitions and public discussions. Ministers and DECC officials also gave interviews to radio and television stations.

1.148 In the local areas near to the nuclear NPS events, a half page advert was placed in local press for two consecutive weeks prior to the week of the exhibition/discussion for each location. The titles were chosen to gain the maximum coverage and reach for the geographical area of the site. Exceptions were Hartlepool and Hinkley Point, which took place in November and could not therefore be advertised prior to the launch date of 9th November . In recognition that these two areas did not have much notice, Government officials returned later in the consultation period to address local communities at a public meeting. For Wylfa, adverts were brought forward to pre-Christmas to ensure maximum visibility.

1.149 A total of 75,744 leaflets were distributed to households and businesses across the country within a 6-mile radius of the potential sites and their venues, although some respondents expressed concern that they did not receive a leaflet. These were distributed the week prior to, and week of, the exhibition or discussion for each location.

1.150 Email invitations were sent to local schools, businesses, parish and town councils, local environmental and pressure groups, and national site stakeholder groups. These were targeted by geographical proximity to a site. They were sourced primarily through the Publicity Register, a database of individuals in organisations who have registered their interest in distributing government materials. In addition, key environmental/pressure group email addresses were sourced through online searches.

### Comments on engagement of the public

1.151 There were some responses that the consultation process did not engage with the public and local communities and that the public meetings and the exhibitions were not well attended and were not innovative enough to engage with the public. Some respondents were concerned that the wrong locations or venues had been chosen for events.

### The Government's response

1.152 The consultation process was carefully designed to ensure that the public, including stakeholders and local communities, were fully informed and engaged in the process. The purpose of the consultation events was to raise awareness of the consultation, give attendees the opportunity to make comments, and encourage attendees to respond to the consultation.

1.153 The local exhibitions on the draft Nuclear NPS were designed to introduce the NPS and the Government's assessment of sites in an engaging, interactive and understandable way. This was done through the interactive touch screens and graphic panels giving information on the draft Nuclear NPS, the consultation process and local site information. DECC staff were also on hand to help explain and guide members of the public through the exhibition and consultation process. The public meetings provided the public with an opportunity to ask questions, respond to the consultation and engage in a lively debate on the draft nuclear NPS.

1.154 The Government listened to people's comments on the forum, location and timing of the events and offered additional events and meetings to ensure we have provided every opportunity for people to engage in the process and have their say. For instance, on request the following were arranged:

- A specific exhibition and an additional public meeting for the people of Mersea Island on the Bradwell potential site;
- An additional public meeting at Hinkley Point and attendance at a panel discussion at Hartlepool in response to criticism that the local

nuclear events for these two sites were held too soon after the publication of the nuclear NPS;

- An extra national event in Manchester in response to the views of the Energy and Climate Change Select Committee.

1.155 Venues for the local nuclear NPS events were chosen to be as close to the proposed new nuclear power station site and accessible whilst facilitating the participation by as many people as possible. In helping us choose the locations we took into account the journey time in minutes to the proposed site, historic evidence of attendance levels to similar consultations in the area and the existence of multiple proposed sites in one area.

1.156 The total combined attendance at both the national events, local nuclear events and stakeholder meetings has been 3471 (comprising 3086 for the nuclear events and 385 for the national events). More than 800 individuals/organisations have formally responded to the consultation either online or via mail and email.

### Comments on the accountability/legitimacy of decisions made by the IPC

1.157 Some respondents objected to the IPC being the decision maker for applications on nationally significant infrastructure projects. They wondered how the IPC would be accountable for the decisions they made.

### The Government's response

1.158 Detail on the proposed reform of the planning system for major infrastructure projects that has been announced since the publication of the draft NPSs is set out earlier in this Government Response. The Government intends to abolish the IPC and decisions on major infrastructure projects will be taken by Ministers in accordance with the clear policy framework provided by the NPSs, and on the basis of recommendations by the new examining body - MIPU.

1.159 Returning decision making power to Ministers will ensure that decisions taken on major infrastructure projects will have stronger democratic legitimacy.

### Comments on monitoring of consents by the IPC

1.160 Some respondents were concerned as to how projects that are consented by the IPC will be monitored to ensure that development conditions are properly adhered to.

### The Government's response

1.161 Should a decision be made to approve development consent for a major energy infrastructure project an accompanying Development Consent Order will be issued. The Development Consent Order sets out the conditions that the developer must follow during the construction, operation and decommissioning of the energy project. It would be the responsibility of the

relevant local authority to ensure that the conditions of the Development Consent Order are fulfilled by the developer.

# The National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)

## Background

2.1 EN-2, taken together with EN-1, will provide the primary basis for decisions by the IPC on applications it receives for fossil fuel generating stations with over 50 MW generating capacity.

## How has EN-2 changed?

2.2 The table below summarises the key changes to EN-2 following the consultation. It does not aim to capture every change, but will help readers to focus on those elements of EN-2 that are significantly different from the last consultation. The remainder of this chapter discusses the key themes raised under each question of the consultation relating to EN-2, the Government's response and any resulting changes made to EN-2 in more detail.

| What are the key changes? | Where is the change in the revised draft? |
|---|---|
| **Clarification**<br>Where this NPS repeated EN-1, repetition has been removed. This NPS should be read in conjunction with EN-1. The "need case" for new fossil fuel electricity generating infrastructure is now in EN-1. | Throughout |
| **Transport infrastructure**<br>This section has been revised to clarify that transport for fuel and residues is multi-modal but there is a preference for water-borne transport where available. It also clarifies that sites should be located near existing transport infrastructure where possible. The text has been further edited to be consistent with EN-1 and EN-3. | Paragraph 2.2.4, page 6 |
| **Carbon Capture and Storage**<br>This section has been edited to remove duplicate policy text from EN-1 and for consistency with EN-1. | Paragraph 2.3.6, page 9 |

| | |
|---|---|
| **Landscape and visual impact**<br>Impacts on landscape from cooling towers is now in EN-1. The description of cooling towers has been deleted and a reference made to EN-1. | Paragraph 2.6.1, page 11 |

## Question 8 a): Should the Government approve the NPS?

2.3 The consultation document posed the question:

***Do you think the Government should formally approve (designate) the draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?***

2.4 Of the respondents who answered this question, significantly more agreed that the draft NPS for Fossil Fuel Electricity Generating Infrastructure (EN-2) should be approved than disagreed. A few responses were unclear as to whether or not they thought EN-2 should be approved. Comments are reflected below.

### Comments on viability of Carbon Capture and Storage (CCS)

2.5 Some respondents did not want any new fossil fuel power stations approved for development consent as they were sceptical that CCS would deliver the reductions of $CO_2$ emissions necessary to meet climate change targets.

### The Government's response

2.6 The Government recognises that whilst the discrete items that make up the technology underpinning CCS are understood, they have not yet been demonstrated anywhere in the world at a commercial scale, in a fully integrated manner for electricity production. As such, there remains considerable uncertainty over the cost of implementing CCS at commercial scale. It is for this reason that the Government has committed to funding the demonstration of CCS on 4 power stations.

2.7 The Government's policy on the application of CCS to thermal combustion generating stations is set out in Section 4.7 of the revised draft of EN-1. EN-2 describes how the policy should be applied to consideration of individual applications for coal-fired generating stations. In particular, it makes clear that the IPC should not consent any coal-fired generating station that does not have CCS on at least 300MW net of the proposed

### Comments on Combined Heat and Power (CHP)

2.8 Some respondents commented specifically on the requirement for applicants to consider the possibilities for CHP in applications. The comments were that "district heating" should be considered, that the EA was imposing additional reporting requirements on operators; that the NPS should specify locational criteria for CHP and that there should be more detail on CHP schemes for applicants to tailor their designs to include CHP.

### The Government's response

2.9 The comments on CHP have been considered, However, requirements for developers to consider CHP (which would include district heating where possible) are set out in detail in Section 4.6 of EN-1. These include making provision for CHP if possible, but it would not be reasonable for the NPSs to

specify that proposals for fossil fuel generating stations should only be located where potential future development that might provide customers for heat.

## Question 9 a): Information for decision making

2.10 The consultation document posed the question:

***Do the following draft National Policy Statements provide the Infrastructure Planning Commission with the information it needs to reach a decision on whether or not to grant development:***

***The draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?***

2.11 Of the respondents who answered this question, slightly more agreed that the NPS provided sufficient information than disagreed. A significant number of respondents to the question were unclear but instead gave comments or drafting amendments which have been considered.

### Carbon Capture and Storage requirements to apply to Gas Power Stations

2.12 A number of respondents commented on the explanation of CCS policy in EN-2. There was a general view that the NPS should state more clearly that CCS would also apply to gas.

2.13 However some respondents disagreed that CCS requirements should be applied any further in the UK. They stated that the existing CCS requirements already exceeded the requirements of the EU Directive 2009/31/EC on CCS

### The Government's response

2.14 Part 2 of EN-2 states that any gas-fired generating station with a net capacity greater than 300MW must be carbon capture ready. It remains the Government's expectation that CCS will be fitted to gas-fired generating stations when proven and economically viable.

2.15 The Government is also giving careful consideration as to whether a demonstration project on gas would prove beneficial and add value to the programme of four CCS demonstration projects, as recommended by the Committee on Climate Change[14].

[14] Committee on Climate Change letter advising Government on the approach to fossil fuel generation: http://www.theccc.org.uk/news/press-releases/610--committee-advises-government-on-approach-to-fossil-fuel-generation

## Question 10 a): Impacts and potential mitigation

2.16 The consultation document posed the question:

***Do the following draft National Policy Statements appropriately cover the impacts of the specific types of new energy infrastructure covered in them, and potential options to mitigate those impacts:***

***The draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?***

2.17 Of the respondents who answered this question, slightly more disagreed than agreed that the NPS covered impacts appropriately. A significant number of responses to the question were unclear.

### Comments on landscape and visual impact

2.18 A number of comments were received on the visual impacts of building new fossil fuel infrastructure and also the impact on landscape. In particular, several local authorities and NGOs thought that the NPS should set out in detail that building any fossil fuel generating stations in areas of outstanding natural beauty or designated landscapes would be unacceptable. There were also comments that the principal consideration for the IPC should be on how the fossil fuel generating station was designed to fit into the landscape.

### The Government's response

2.19 Section 4.2 of EN-1 has been amended to clarify that the assessment of impacts should apply equally to all project stages. EN-2 makes clear that the principles set out in EN-1 apply to assessments of the impacts relating to fossil fuel generating stations. It is not intended to impose more stringent requirements for energy infrastructure than already exist in planning regulations.

## Question 11 a): Aspects of the NPS not covered by the previous questions

2.20 The consultation document posed the question:

***Do you have any comments on any aspect of the following NPSs not covered by the previous questions:***

***The draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?***

2.21 The majority of respondents to this question repeated responses to earlier questions, rather than giving specific additional comments on EN-2. For example, several respondents re-iterated that the NPSs should specify locations for particular types of infrastructure and set out the mix of electricity generating infrastructure required. Other issues raised are set out below.

### Comments on sourcing of coal

2.22 Some respondents argued that the NPS should set out a preference for indigenous coal over imported coal as a source of fuel for power stations in the UK.

### The Government's response

2.23 The Government recognises that different types of coal may have different environmental impacts, for example there may be differences in the amount of dust created or the amount of sulphur emitted. However, it would be for an applicant to assess the potential impact of its fuel in an Environmental Statement. It would not be appropriate for the IPC to give or refuse consent on the grounds that an application did not show preference for UK sourced coal, over coal from another origin.

### Comments on supporting infrastructure for Carbon Capture and Storage

2.24 Some respondents suggested that the NPS should set out criteria for construction of a $CO_2$ pipeline network and adopt a "clustering" approach to CCS infrastructure.

### The Government's response

2.25 EN-2 does not set out detailed design criteria for CCS and CCR because this will be different for each individual application. DECC's guidance on CCR, published on 9th November 2009, sets out the basic criteria. The Government is currently working on detailed guidelines on application of CCS to fossil fuel generating stations.

## Comments on grid connections

2.26 A number of respondents thought that grid connection should be considered and its impacts assessed at the same time as an application for a fossil fuel generating station.

## The Government's response

2.27 EN-1 and EN-5 set out the required details needed for grid connection assessments. While the Government regards it desirable for any grid connection project application to be submitted alongside an application for an electricity generating station, as set out in EN-1, this is not always possible. Applications for new transmission lines would be assessed by the IPC using EN-5 and taking account of detailed project level information such as the proposed route for any new transmission network infrastructure. Applications for fossil fuel generating stations would be assessed by the IPC independently of this and it would therefore be possible for them to gain development consent without a grid connection being in place.

# The National Policy Statement for Renewable Energy Infrastructure (EN-3)

## Background

3.1 EN-3, taken together with EN-1, will provide the primary basis for decisions by the IPC on applications it receives for renewable energy infrastructure. This covers all energy infrastructure for biomass and/or energy from waste generating above 50 megawatts (MW), offshore wind generating above 100MW, and onshore wind generating more than 50MW. EN-3 does not cover other types of renewable energy generation, such as schemes that generate electricity from tidal or wave power, at this present time.

## How has EN-3 changed?

3.2 The table below summarises the key changes to EN-3 following the consultation. It does not aim to capture every change, but will help readers of the document to focus on those elements that are significantly different from the last consultation. The remainder of the chapter discusses the key themes raised under each question of the consultation relating to EN-3, the Government's response and the resulting changes to EN-3 in more detail.

| What are the key changes? | Where is the change in the revised draft? |
|---|---|
| **Clarification**<br>Where this NPS repeated EN-1, that repetition has been removed. This NPS should be read in conjunction with EN-1.<br><br>The "need case" for new renewable electricity infrastructure is now in the revised draft EN-1. | Throughout |
| **Biomass sustainability**<br>The text has been revised to take account of the latest position on Renewables Obligation Certificates (ROCs), but may need to be further revised if the proposed policy on ROCs referred to there, as having been subject to consultation, is not adopted. | Section 2.5 |

| | |
|---|---|
| **Green belts for Offshore Wind**<br>New text has been substituted for the original (generic) text to explain the circumstances in which Green Belt provisions might be applicable when considering offshore applications. | Section 2.6 |
| **Noise and Vibration Impacts for Biomass / Waste**<br>New section included to reflect AoS findings. | Section 2.5 |

## Question 8 b): Should the Government approve the NPS?

3.3 The consultation document posed the question:

***Do you think the Government should formally approve (designate):***

***The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?***

3.4 Of the respondents answering this question, just under half agreed that the NPS should be designated. Fewer respondents did not agree that the NPS should be designated. The remainder of respondents were unclear as to whether it should be designated.

### Comments on other forms of technology not covered in EN-3

3.5 A large number of respondents made comments that EN-3 should take account of other forms of renewable energy generation, particularly tidal and wave and hydro-electric power.

### The Government's response

3.6 As stated under question 2 of this response, EN-1 and EN-3 have been revised slightly to clarify the position on tidal and wave, solar and hydro-electric power. As the IPC is concerned only with consents for infrastructure generating 50 MW and over, and it is not anticipated that applications for other forms of renewable generation at or above the threshold are likely to be put forward in the short or medium term, they have been omitted. When it is likely that applications for such types of generation at or over 50MW will be submitted, the NPS will be revised or another NPS drafted to cover this additional infrastructure.

### Comments on Energy from Waste

3.7 Some respondents argued that energy from the incineration of waste (energy from waste or EfW) should not be regarded as a "renewable" source of electricity. They argued that not all waste can be classed as renewable and therefore EfW plants will release net carbon dioxide emissions, and should be classified as a "fossil fuel". There were further arguments that no waste should be incinerated at all, that the IPC should not grant development consent to any waste incineration plants, and that waste strategies and movement of waste for incineration should be examined in greater depth. Additionally, several respondents suggested that sustainability of the source biomass used for electricity generation should be assessed for each development consent.

### The Government's response

3.8 As set out in the Coalition's Programme for Government, the Government believes that there is a need to protect the environment for future generations, make our economy more environmentally sustainable, and improve our quality of life and well-being. On 27 July, DECC published a

consultation on the Renewable Obligations Order[15]. This includes proposals for the introduction of sustainability criteria for biomass and bioliquids used for electricity generation. The consultation closes on 19 October 2010.

3.9 We are proposing these criteria include a minimum Green House Gas (GHG) emissions saving, assessed across the lifecycle, relative to fossil fuel, and general restrictions on the use of materials from land important on carbon or biodiversity grounds. We intend to introduce these criteria under the Renewables Obligation from April 2011, and to apply the criteria to both existing and new power plants..

3.10 The appropriate sections of EN-3 has been revised to reflect this.

3.11 The EU's revised Waste Framework Directive (rWFD) (2008/98/EC) aims to ensure that waste is managed in a way that protects human health and the environment, and reduces the overall impact of resource use. The rWFD establishes a five step waste hierarchy that Member States are required to apply as a priority order in waste prevention and management legislation and policy. The priority order is:

- waste prevention;
- preparing for re-use;
- recycling; other recovery (e.g. energy recovery); and
- disposal.

3.12 The rWFD allows for departure from the hierarchy where that would deliver a better overall environmental outcome. Government is currently working to transpose the rWFD, including the waste hierarchy provisions, into national law. A second consultation on this in England and Wales was held between 8 July 2010 and 16 September 2010[16]. The consultation included draft guidance on the practical application of the waste hierarchy in England; it is proposed that businesses and local authorities have regard to it when making decisions on waste management. The guidance reflects the best available scientific evidence on the relative environmental benefits of various management options. It stresses that, in environmental terms, recycling is better than other types of recovery for most waste materials. We are planning to update the waste hierarchy guidance annually to take account of scientific and technological developments.

## Comments on wind power

3.13 A number of individuals thought that wind power is not efficient and too expensive and should not, therefore, be consented, although other respondents considered that the NPS should direct the IPC to consent wind farms in preference to other forms of generation.

15 The consultation is available at: http://www.decc.gov.uk/en/content/cms/consultations/ro/ro.aspx

16 http://www.defra.gov.uk/corporate/consult/waste-framework-revised/index.htm

## The Government's response

3.14 The Government's policy on renewables energy and the need for it is set out in Part 3 of EN-1. EN-3 gives directions to the IPC on how they should implement the policy when considering applications for energy infrastructure. It would be for the developers to determine whether, with due consideration to any Government policy on renewables, it was an economical proposition to build a new wind farm and therefore submit an application.

## Question 9 b): Information for decision making

3.15 The consultation document posed the question:

***Do the following draft National Policy Statements provide the Infrastructure Planning Commission with the information it needs to reach a decision on whether or not to grant development:***

***The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?***

3.16 Of the respondents answering this question, there were slightly more that disagreed than agreed that the NPS provided sufficient information to the IPC. A number of responses were unclear as to whether the NPS provided sufficient information to the IPC.

### Overview of Responses

3.17 A large number of respondents did not specifically address the question, but repeated answers given to earlier (or indeed later) questions. In particular, several respondents repeated comments made in response to Question 8 with respect to energy from waste.

## Question 10 b): Impacts and potential mitigation

3.18 The consultation document posed the question:

***Do the following draft National Policy Statements appropriately cover the impacts of the specific types of new energy infrastructure covered in them, and potential options to mitigate those impacts:***

***The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?***

3.19 Most of the respondents to this question disagreed that the impacts and mitigation were appropriately covered. The remainder of respondents either agreed with the question or were unclear. The main impacts that respondents considered were not appropriately covered were for landscape and visual impacts, sustainability of biomass and noise and shadow flicker from wind turbines.

### Comments on the term "temporary" used for onshore wind farms

3.20 A number of respondents objected to the description of consents for onshore wind farms as "temporary" in the landscape impact section, arguing potential impacts for a period of up to 25 years should be treated as permanent.

### The Government's response

3.21 The description of wind farms as "temporary structures" in planning terms refers to the fact that development consent orders are time-limited unlike, for example, planning consent for a permanent building, which would not set a date on which the building's consent expired and after which it must be demolished.

3.22 At the end of the specified period (usually 25 years) the development consent order expires and the wind farm ceases to have consent and must therefore be decommissioned and removed. Should the developer or operator wish to re-power the site, a new development consent order would be required. In terms of the impact on landscape, this temporary nature must be given consideration when determining consent, but each application will be judged on its own merits.

### Comments on landscape effects of wind farms

3.23 Comments were received that onshore wind farms would have a significant impact on landscape and visual amenity and that photo-montage visualisations did not always show a true representation of the impact of a proposed development. Some respondents claimed that wind farms "ruined" the landscape.

### The Government's response

3.24 Potential impacts on landscape of energy infrastructure are set out in part 5 of EN-1. Section 2.7 of EN-3 sets out specific additional considerations in

respect of onshore wind farms. The IPC will consider significant adverse impacts of proposals for onshore wind farms on a case-by-case basis.

### Comments on noise measurement methodology

3.25 Several respondents commented that the standard noise measurement methodology for onshore wind farms, ETSU-R-97, was out-dated and should not be used until it had been revised by independent experts. Two responses cited a French study[17] into the impacts of wind farm noise and claimed that Scottish regulations banned construction of wind farms within 2km of human habitation. They suggested that the IPC should also refuse to accept applications for any onshore wind farm within this distance of human habitation.

### The Government's response

3.26 The Government recognises that noise is a key issue to be considered when assessing plans for onshore windfarm development and acknowledges the importance of ensuring that the noise assessment guidelines set out in ETSU-R-97 are sound. There is no substantive evidence to demonstrate that the fundamental guidelines are unsound and the Government therefore has no plans to revise them. The NPS requires applicants to make assessments with due regard to good practice in applying ETSU-R-97.

3.27 The Government wishes to ensure that planning authorities and developers have clarity about best practice, to provide greater certainty and consistency within the planning system. The Government has therefore commissioned a research project to investigate the matters arising in the consideration of noise impacts in the determination of wind farm planning applications in England. The project will seek to establish best practice in assessing and rating wind turbine noise as applied by specialist acoustics consultants by investigating previous planning inspectorate decisions, to ensure that the ETSU-R-97 is applied in a consistent and effective manner.

3.28 The Government notes the suggestion that wind farms should be banned within 2km of human habitation. However, this suggestion is not supported by the French study cited, which found that impacts of wind farms at distances greater than 2km were negligible, but did not propose an outright ban on building infrastructure within this distance. Further the allegation that Scottish planning guidance bans construction within 2 km of any human habitation is unfounded. Scottish Planning Policy 6 (Renewable Energy) states:

"*PAN 45 confirms that development up to 2km is likely to be a prominent feature in an open landscape. The Scottish Ministers would support this as a separation distance between turbines and the edge of cities, towns and villages so long as policies recognise that this approach is being adopted solely as a mechanism for steering proposals to broad areas of search and,*

[17] Claude-Henri Chouard, *Le retentissement du fonctionnement des éoliennes sur la santé de l'homme*, Acadamie Nationale de Médecine, 14 March 2006

*within this distance, proposals will continue to be judged on a case-by-case basis"*[18].

3.29 There is, therefore, no rationale for imposing a ban as suggested. Indeed, such a ban would, for most purposes, be impractical in England as suitable sites are likely to be within 2km of some form of human habitation.

### Comments on shadow flicker impacts

3.30 Some respondents stated that there was no evidence to support the statement that it had been proven that there were no shadow flicker impacts at a distance greater than 10 rotor diameters.

### The Government's response

3.31 The Government notes concerns raised by some respondents that current government guidance on shadow flicker outlined in the Planning Policy Statement 22 (PPS 22) Companion Guide and referenced in EN-3 is based on research that has been overtaken by best practice applied by industry and should not, therefore state that that there are no impacts at distances greater than 10 rotor diameters from a wind turbine.

3.32 Assessments of shadow flicker in EIAs for onshore wind farms are usually based on industry standard computer modelling, which takes into account the specific topography and location of sensitive receptors to estimate whether shadow flicker would affect them, in what conditions and for how long each year. These demonstrate that shadow flicker is unlikely to have significant impacts at distances greater than 10 rotor diameters.

3.33 The Government recognises that shadow flicker has the capacity to be perceived as a nuisance. Further research on the phenomenon has therefore been commissioned, in order to provide a firm evidential base for guidance on the impact.

3.34 The section on shadow flicker in EN-3 has been revised to reflect more accurately the current state of knowledge. When the research commissioned by the Government is complete, the guidance on shadow flicker in relation to development consents will be reviewed in light of this.

### Comments on cumulative impacts of multiple developments

3.35 Some respondents also considered that the NPS gave insufficient consideration to cumulative impacts arising from a number of separate developments, particularly for onshore wind farms. Similarly some respondents noted that although aviation impacts are extensively covered in EN-1, there is no reference to such impacts in EN-3.

18 Scottish Executive, SPP6 Renewable Energy, http://www.scotland.gov.uk/Resource/Doc/171491/0047957.pdf, March 2007, P18

## The Government's response

3.36 The assessment principles, including assessment of cumulative impacts, are set out in Part 4.2 of EN-1.

## Question 11 b): Aspects of the NPS not covered by the previous questions

3.37 The consultation document posed the question:

***Do you have any comments on any aspect of the following NPSs not covered by the previous questions:***

***The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?***

3.38 There were a relatively small number of responses to this question and most of the topics have been covered elsewhere in this response.

### Comments on relation of impacts between EN-1 and EN-3

3.39 There were also a number of comments that, although EN-1 set out details of impacts that should be considered for all energy infrastructure, these should be repeated in EN-3.

### The Government's response

3.40 The text of EN-1 and the technology-specific NPSs has been revised to make it clear that each technology-specific must be read in conjunction with EN-1. It also clarifies that, where no reference is made to an impact in a technology-specific NPS, this does not mean that there is no impact; the text in EN-1 will apply.

# The National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)

## Background

4.1 The NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4), taken together with EN-1 will provide the primary basis for decisions by the IPC on applications it receives for gas supply infrastructure and gas and oil pipelines.

## How has EN-4 changed?

4.2 The table below summarises the key changes to EN-4 as a result of the consultation. It does not aim to capture every change, but will help readers to focus on those elements of the document that are significantly different from the last consultation. The remainder of this chapter discusses the key themes raised under each question of the consultation relating to EN-4, the Government's response and any resulting changes to EN-4 in more detail.

| What are the key changes? | Where is the change in the revised draft? |
|---|---|
| **Clarification**<br>Where this NPS repeated EN-1, that repetition has been removed. This NPS should be read in conjunction with EN-1. The "need case" for new gas supply infrastructure and gas and oil pipelines is now in the revised draft EN-1. | Throughout |
| **$CO_2$ pipelines**<br>The NPS has been amended to clarify that the NPS is only intended to cover pipelines carrying natural gas or oil rather than covering $CO_2$ pipelines as well. | Section 1.7 |
| **Hazardous substances**<br>The NPS has changed to include suitable references to explain which regulatory controls apply to ensure the safety of shipping of LNG (liquefied natural gas). | Section 2.4 |
| **Geological assessment for salt cavern storage**<br>More information has been included about what this assessment should contain. | Section 2.6 |

| | |
|---|---|
| **Assessment and technology-specific information** Relevant additional advice has been included to applicants about what to include in their applications. Various revisions have also been made to the guidance on impacts, for example the specification of assessing the noise impact of a pipeline within a 300m corridor has been changed. There is a new section relating to the impact on gas emissions due to the flaring or venting of gas. | Part 2 |

## Question 8 c): Should the Government approve the NPS?

4.3 The consultation document posed the question:

***Do you think the Government should formally approve (designate) the draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?***

4.4 The majority of respondents who commented on this question agreed that the NPS should be formally approved.

### Comments on coverage of the NPS

4.5 A number of respondents requested clarity on what types of infrastructure is covered in the draft NPS and made comments regarding perceived inconsistencies between England and Wales.

### The Government's response

4.6 The NPS can only provide guidance on consents for the infrastructure covered in the Planning Act 2008. The devolution settlement meant that only a limited subset of gas supply infrastructure in Wales was included in the Planning Act 2008. The subset comprises the development by Gas Transporter license holders of underground gas storage facilities in porous strata and cross-border pipelines that were formerly consented under the Act 1962 Pipelines.

### Comments on the downstream oil industry

4.7 Some respondents expressed concerns that the NPSs did not address the need for all downstream oil infrastructure. These respondents suggested that this could be remedied by a Planning Policy Statement.

### The Government's response

4.8 The Government recognises the concerns of the downstream oil sector and that there needs to be a careful balance drawn between local decision making and nationally significant infrastructure. The Government will look at these issues as it takes forward its proposals for the National Planning Framework. Although EN-4 is intended to primarily give guidance to the IPC, the NPSs may also be of material consideration for applications decided under the town and country planning regime, and treated in the same way as other statements of government policy.

## Question 9 c): Information for decision making

4.9 The consultation document posed the question:

***Do the following draft National Policy Statements provide the Infrastructure Planning Commission with the information it needs to reach a decision on whether or not to grant development:***

***The draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?***

4.10 The majority of respondents thought the NPS provided enough information to reach a decision on granting development consent.

### Comments on pipelines

4.11 Some respondents were concerned that short pipelines which connect a gas-fired power station to the national grid were not explicitly covered by the NPS.

### The Government's response

4.12 The Planning Act 2008 sets out the thresholds for nationally significant infrastructure projects that can be considered by the IPC. EN-4 covers pipelines which carry oil or natural gas. Pipelines which fall below the Planning Act 2008 thresholds, such as those which connect up gas-fired power stations to the grid, would be determined by the local planning authority. However a developer can include a pipeline that falls below the Planning Act 2008 threshold as associated development, with an application for a nationally significant infrastructure project to the IPC. Section 1.7 of EN-4 has been amended to make clear that small connecting pipelines could be considered as associated development.

### Comments on the need case and linking supply and demand

4.13 A number of respondents stated that they would like to see decisions on development consent for gas storage linked to supply and demand. There were suggestions that the IPC should monitor National Grid's projections. There were a number of suggestions from industry that the need case should be strengthened and that the balance between long, medium and short range storage (which was seen as very important), needs to be kept under review.

### The Government's response

4.14 The need case for gas supply infrastructure has been strengthened and is fully set out in Part 3 of EN-1. The relevant section recognises the need for a mix of long, medium and short range storage to meet the seasonal fluctuations in demand. Paragraph 2.6.10 of the draft EN-4 (published as part of the November 2009 consultation) has been deleted. This reflects the

need for consistency between the NPSs and the decision to cover the need case in EN-1.

### Comments on targets for gas storage

4.15 Some respondents stated that they would like to see a more prescriptive approach in EN-4, with an upper limit target for gas storage including a split between salt cavity and porous rock storage provision.

### The Government's response

4.16 The Government believes that it is for the market to respond to the need for gas by bringing forward new infrastructure proposals. EN-4 facilitates this by setting out the case for new infrastructure without attempting to be prescriptive or set targets. The market will be able to interpret the case for new infrastructure in the light of progress on the transition to renewable sources of energy and the trend in demand for gas in the light of energy efficiency measures.

### Comments on geological constraints affecting the location of underground gas storage

4.17 Some respondents commented on possible significant geological constraints affecting the location of underground gas storage and felt that it was important for the IPC to consider this. These respondents wanted to see changes to some of the locational considerations and further clarification for applicants about how to demonstrate the suitability of the geology for underground gas storage.

### The Government's response

4.18 EN-4 has been amended to reflect the advice received about locational considerations and to provide some more information about what to include in a geological assessment. EN-4 makes clear that for gas storage the geological factors are important and limited to certain areas. This is included in Section 2.6 of EN-4, which also describes, in broad terms, the areas where depleted gas fields and suitable salt strata can be found. The Government does not think it would be helpful to be more specific about the areas where suitable geology exists at this stage because EN-4 is not intended to provide specific advice about suitable geology. In addition the Government wants the NPS to be as robust as possible into the future and recognises that a new technology may become available that is more suited to a wider geological area. The market will want to determine where to invest and different geological characteristics can be a factor in these decisions.

### Comments on safety

4.19 Some respondents felt that EN-4 should include more information on safety, or at least more comprehensive cross referencing with EN-1 on safety.

### The Government's response

4.20 EN-1 set out the safety framework for all energy infrastructure. EN-4 has been revised to ensure that technology-specific information on safety is included but does not repeat what is already set out in EN-1.

## Question 10 c): Impacts and potential mitigation

4.21 The consultation document posed the question:

***Do the following draft National Policy Statements appropriately cover the impacts of the specific types of new energy infrastructure covered in them, and potential options to mitigate those impacts:***

***The draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?***

4.22 Just over half of the respondents to this question confirmed that EN-4 covered the appropriate impacts, with the remainder stating that it did not. There were suggestions for including new impacts and for amending the impacts included in the consultation document.

### Comments on various other impacts

4.23 Some respondents made comments on specific impacts of possible new infrastructure. The impact areas which caused most comment in respect of EN-4 were related to brine disposal, noise and vibration, landscape and visual, water quality and resources and soil geology. There were a limited number of comments about impacts on archaeological deposits and historic landscapes. Air emissions were also raised.

### The Government's response

4.24 Relevant comments about individual impact assessments have been considered by the Government and some amendments have been made to Section 2 of EN-4 to incorporate some of the advice received. Some of the issues raised by respondents are covered in EN-1. The revised draft of EN-4 makes clearer reference to the importance of reading EN-1 alongside EN-4. Respondents may find that where EN-1 covers the impact adequately, repetition has been cut out of EN-4. The Government has now included the flaring and venting of gas as an impact in EN-4.

## Question 11 c): Aspects of the NPS not covered by the previous questions

4.25 The consultation document posed the question:

***Do you have any comments on any aspect of the following NPSs not covered by the previous questions:***

***The draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?***

4.26 This question elicited a number of key issues, some of which are generic to the suite of NPSs and have therefore been covered elsewhere in this document.

### Clarification on carbon dioxide ($CO_2$) pipelines

4.27 Some respondents wanted clarification about the gas pipelines covered in EN-4 and asked whether $CO_2$ pipelines would be designated as part of EN-4.

### The Government's response

4.28 Section 1.7 of EN-4 has been amended to clarify that it is intended to only cover pipelines carrying natural gas or oil and not $CO_2$ pipelines.

4.29 The Government believes however that the development of a future $CO_2$ network will be integral to the future deployment of CCS. The Government's intention is to create a framework that facilitates this development whilst recognising that the extent and scale of this wider deployment is uncertain at present and is likely to remain so until the cost and effectiveness of CCS is better understood. Through the Government demonstration programme, the Government expects up to four pipelines being built. Beyond the demonstrations, we are currently scoping a CCS roadmap which will consider how we build the right infrastructure for CCS.

4.30 The Planning Act 2008 development consents have replaced authorisations under the Pipelines Act 1962 which includes carbon dioxide pipelines. Pipeline developers will therefore benefit from measures in the Planning Act.

4.31 For pipelines conveying carbon dioxide, an EU Directive on the geological storage of carbon dioxide requires the UK to implement arrangements to facilitate third party access to both pipelines and storage sites on and offshore, which will support the development of $CO_2$ transportation networks.

# The National Policy Statement for Electricity Networks Infrastructure (EN-5)

## Background

5.1 EN-5, taken together with EN-1, will provide the primary basis for decisions by the IPC on applications it receives for electricity networks infrastructure, covering above ground electricity lines of 132kV and above, and other infrastructure for electricity networks that is associated with a nationally significant infrastructure project, such as substations and converter stations.

## How has EN-5 changed?

5.2 The table below summarises the key changes to the draft of EN-5 as a result of the consultation. It does not aim to capture every change, but will help readers of the document to focus on those elements that are significantly different from the last consultation. The remainder of this chapter discusses the key themes raised under each question of the consultation relating to EN-5, the Government's response and the resulting changes to EN-5 in more detail.

| What are the key changes? | Where is the change in the revised draft? |
|---|---|
| **Clarification**<br>Where this NPS repeated EN-1, that repetition has been removed. This NPS should be read in conjunction with EN-1. The "need case" for new electricity networks infrastructure is now in the revised draft EN-1. | Throughout |
| **Biodiversity - Bird strike**<br>Amended to reflect AoS findings. | Section 2.7 |
| **Undergrounding**<br>Clarification of policy in this area. | Section 2.8 |

## Questions 8 d), 9 d), 10 d), 11 d): The draft NPS for Electricity Networks Infrastructure

5.3 The consultation document posed the following questions:

***8d) Do you think the Government should formally approve (designate) the draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?***

***9d) Does the draft National Policy Statement for Electricity Networks Infrastructure provide the Infrastructure Planning Commission with the information it needs to reach a decision on whether or not to grant development?***

***10d) Does the draft National Policy Statement for Electricity Networks Infrastructure appropriately cover the impacts of the specific types of new energy infrastructure covered in them, and potential options to mitigate those impacts?***

***11d) Does the draft National Policy Statement for Electricity Networks Infrastructure appropriately cover the impacts of the specific types of new energy infrastructure covered in them, and potential options to mitigate those impacts?***

### Overview of responses

5.4 Many of the respondents to these questions looked at them as a whole, sometimes making the same or similar comments in response to each of the questions 8d) to 11d). The Government therefore felt it was appropriate to discuss and respond to issues raised on these questions together.

5.5 There were just over 150 responses to both questions 8d and 9d with a majority responding “yes”, with the remainder split fairly evenly between “no” and “unclear”. Question 10d attracted responses from the group ‘Campaign for Rural England (CPRE)’ on undergrounding electricity lines. Of the 1,100 responses to this part of the question, over 600 stated that they were part of the CPRE campaign. The clear majority of respondents including all the CPRE campaigners answered “no” to this question. Question 11d did not raise any new issues that had not been raised in the preceding questions.

5.6 Some responses dealt with more overarching themes, such as the need case and weighting of impacts. These have therefore been answered under the most appropriate question at the beginning of this consultation response (see responses to questions 1-7).

5.7 There were also comments that some things were not covered in detail in EN-5, although they were covered in EN-1. As all of the technology-specific NPSs must be read in conjunction with EN-1 the material is not repeated in EN-5.

## Comments on the visual impacts of overhead lines

5.8 The majority of responses dealt in some way with the visual impact of overhead lines, including the CPRE campaign for undergrounding all new electricity lines and a call to underground existing lines. The main comments were that pylons spoilt the countryside and should not be allowed especially in National Parks and areas of outstanding natural beauty, but also in site of special scientific interest, green belt and any other area that local people saw as important.

5.9 Many people felt that the costs of undergrounding lines were exaggerated in the NPS and that these costs should be revised.

5.10 A number of respondents thought that the development of local and micro-generation, roll out of smart meters and encouragement of energy saving measures could reduce/remove the need for more large power stations and the associated networks.

## The Government's response

5.11 The visual impact of overhead lines is recognised as the most serious impact of electricity networks infrastructure, and given the depth of feeling on this issue the Government has considered this section very carefully. Revisions have been made to emphasise current Government policy that each case needs to be assessed on its own merits.

5.12 There is no general policy to place electricity lines underground. While it is understandable that people may not welcome the presence of overhead lines, and particularly the visual impacts that lines have, the fact remains that transmission lines supported by towers provide a proven, efficient and cost-effective way of transferring power to consumers over long distances.

5.13 There are other methods and technologies for transmission such as undergrounding or undersea cabling, but while these mitigate visual impacts they are generally much more costly and have their own environmental impacts, which was not generally acknowledged amongst those who wished to underground all lines. Many respondents did not appear to recognise that the technologies for undergrounding the biggest 400kV lines (which are also the most visually intrusive) over longer distances were still not fully proven, and seemed to think that it would be similar to undergrounding the smaller distribution lines, which is not the case.

5.14 Maintenance and repair costs of overhead lines are significantly lower than for undergrounded lines as are the costs associated with any later uprating.

5.15 The Government recognises that there is no independent calculation of the additional costs involved in undergrounding high voltage cables, with a breakdown of what is included in that calculation, so National Grid, with Government support, has commissioned an independent report on the costs of undergrounding. The report will provide indicative whole life costs for

overhead, underground and subsea cables, quantifying expected variations in these costs according to changes in specified parameters such as terrain, geology, length, line rating, network operating characteristics and voltage. The Government believes that this report can be used as a general reference document.

5.16 In July the Government announced that Smart meters will be rolled out progressively to all homes. It also set out how it will encourage energy saving (through the Green Deal) and give support to vulnerable consumers. However, the 2050 Pathways Analysis and Calculator[19] shows that energy saving measures alone will not deliver the amount of low carbon energy we need to meet our goal of reducing carbon emissions by 80% by 2050. As new sources of low carbon energy generation, such as wind power, tend to be located in areas that have not traditionally supported energy generation, the construction of overhead lines is still necessary to connect infrastructure to the grid.

5.17 Finally, it should be noted that there are a number of ways of mitigating the extent of the visual intrusion of overhead lines (for example, 132kV lines, often formerly supported by steel towers, can now be supported on wooden poles) and that it is open to the IPC to require undergrounding where it considers that such an approach is justified.

### Comments on the status of the Energy Networks Strategy Group (ENSG) Report

5.18 Comments were received concerning the reference in the Section 2.3.2 of EN-5 to the Energy Networks Strategy Group Report (ENSG) "Our Electricity Transmission Network: A Vision for 2020" [20]. Generally the reference was welcomed, but a number of respondents commented on the status of the report and whether it should have been subject to a Strategic Environmental Assessment (SEA).

### The Government's response

5.19 The ENSG Report sets out the network companies' view of the potential electricity transmission network investments that would be needed to accommodate the change in the generation mix to 2020. The report provides a useful sense of the likely scale of need for new network infrastructure if the new power stations (particularly wind farms and nuclear power stations) are constructed in locations not currently served by the network leading to reinforcement or expansion of overhead lines. The SEA Directive applies to plans or programmes which set the framework for development consent. That is why, at the strategic level, the AoSs for the draft NPSs under the Planning Act 2008 have been designed to comply with the requirements of the Directive, as the NPSs will set the framework for consenting future large-scale electricity infrastructure projects. The ENSG report is not a plan or

19 http://decc.gov.uk/en/content/cms/what_we_do/lc_uk/2050/2050.aspx

20 http://www.ensg.gov.uk/assets/1696-01-ensg_vision2020.pdf

programme which sets the framework for development consent and it does not require SEA. There is no sense, for example, in which the projects referred to in the report constrain what can be consented under EN-5 in the way that the list of sites in EN-6 constrains what can be consented under that NPS.

5.20 The draft NPSs refer to the work done by ENSG, but the Government does not intend that they should be read as assuming that any individual project referred to by ENSG will be constructed, either at all or in the way that the report suggests as that would pre-empt the planning process. Rather, the NPSs are informed by ENSG's work as an important indicator of the scale of new transmission infrastructure that will be required over the coming years; and in particular, to connect new sources of low carbon energy which are not likely to be located very close to existing transmission lines.

5.21 Routes for specific transmission lines are subject to planning approval, and the planning system allows all stakeholders to have their views considered when decisions are made. As part of the process of preparing an application for a transmission line, National Grid will undertake routeing and siting studies in accordance with guidelines that take into account amenity issues including visual and other environmental impacts of the proposed lines.

## Comments on Electromagnetic Fields

5.22 Comments from respondents regarding electromagnetic fields were mixed, with some welcoming the way this issue was dealt with and others putting forward their belief that overhead lines were a health hazard, and therefore should not be allowed to be built anywhere near houses or schools, for example. Where respondents welcomed the Government's approach, they did comment that it would be useful to reference the SAGE "Interim Assessment on Power Lines and Property, Wiring in Homes, and Electrical Equipment in Homes" [21] report in EN-5.

## The Government's response

5.23 The Government has now included a reference to the SAGE Interim Assessment and the Government's response to it in the revised NPS, EN-5. This sets out in more detail the Government's policy on electromagnetic fields.

5.24 The Health Protection Agency's Centre for Radiation, Chemical and Environmental Hazards (CRCE) has advised the Government that the association between electromagnetic fields from overhead lines and childhood leukaemia is weak and unproven, which supports the no cost/low cost options to reduce electromagnetic field exposure supported by the World Health Organisation.

21 http://www.rkpartnership.co.uk/sage/Public/SAGE%20first%20interim%20assessment.pdf

5.25 Since 2004, the UK has adopted the 1998 International Commission on Non-ionising radiation protection (ICNIRP) guidelines for exposure levels, as also set out in the 1999 EU Recommendation. The Government Response to the SAGE Interim Assessment reaffirms this and sets out that the ICNIRP guidelines remain relevant where exposure is potentially for a "significant period of time". It states that: "in this regard, the UK Government considers that exposure for potentially significant periods of time might reasonably be regarded as referring to residential properties, and to properties where members of the public spend an appreciable proportion of their time."

5.26 Optimal phasing of overhead power lines is a technical matter related to the design of power lines that can help reduce the magnetic field. The Government encourages industry to implement this wherever reasonable and possible. The Government has developed a voluntary Code of Practice that defines the circumstances where industry can and will optimally phase lines with a voltage of 132kV and above. This is now referenced in EN-5 alongside another voluntary Code on how industry will demonstrate compliance with ICNIRP guidelines is also referenced.

5.27 A key proposal in the SAGE Interim Assessment was whether planning "corridors", i.e. restrictions on buildings close to power lines, should be introduced. However, SAGE's own cost benefit analysis of the proposal did not support the high cost option of creating corridors around power lines on health grounds. The Government therefore considered that option to be disproportionate in the light of the scientific evidence base on the potential health risks arising from exposure to extremely low frequency electromagnetic fields and decided not to take forward this action.

# The revised Appraisals of Sustainability (AoSs) and Habitats Regulations Assessment (HRA) for EN-1 to EN-5

## Background

6.1 AoSs are required by the Planning Act 2008 and are intended to ensure that NPSs take account of environmental, social and economic considerations, with the objective of contributing to the achievement of sustainable development. They are also designed to ensure that the NPSs comply with the EU Strategic Environmental Assessment Directive (2001/42/EC), which requires that any "plan or programme" (such as an NPS) must have an environmental report outlining the likely significant environmental effect, and that these must be consulted on before they are adopted. The aim of the HRAs is to assess the implications of NPSs for protected habitats.

## How have the revised AoSs and HRA for EN-1 to EN-5 changed?

6.2 This section summarises the key changes to the AoSs and HRA for the drafts of EN-1 to EN-5. It does not aim to capture every change, but will help respondents to focus on those elements that are significantly different from the last consultation. The remainder of this chapter discusses the key themes raised during the consultation, the Government's response and the resulting changes to the AoSs and HRA in more detail.

### Table of changes to AoSs for EN-1 to EN-5

| What are the key changes? | Where is the change in the revised documents? |
|---|---|
| **Effects of policies**<br>The effect of the policies have been reappraised and includes short, medium and long term appraisal, as well as discussion on potential cumulative effects. The "baseline" against which the effects of implementing the NPS policies have been compared has been that of the environment as it stands now, so that the assessment is answering the question, "what difference would it make to build a new generation of energy infrastructure in accordance with the NPSs?", rather than making a comparison between implementing the same policies with and without an NPS as the previous draft AoSs did. | Throughout, but especially in the appraisal sections |

| | |
|---|---|
| **Alternatives**<br>The selection and appraisal of policy alternatives for each AoS report (AoS1, 2, 3, 4 and 5) has been reconsidered. New alternatives have been developed and appraised, so that the appraisal considers the possible advantages and disadvantages of different policies which could be adopted in the NPSs as alternative ways of trying to fulfil the overall energy policy objectives which lie behind them, rather than different ways of drafting the NPSs, as the previous draft AoSs did. | Section on assessment of alternatives (separate section in AoS1, combined with appraisal of policies in AoS2-5) |

## Table of changes to Revised HRAs for EN-1 to EN-5

| What are the key changes? | Where is the change? |
|---|---|
| **Updates and alternatives**<br>Minor updates where needed, and amendments to the HRA alternatives to reflect those in the AoS for EN-1 TO EN-5. | Throughout |
| Clarification that the Imperative Reason of Overriding Public Interest (IROPI) case for the HRA applies to the NPSs, not to individual infrastructure applications; the latter will still need to go through the full HRA process. | Noted in the introduction and raised in the IROPI section of the revised HRA |

## Questions 12 to 14: AoSs for EN-1 to EN-5

6.3 The consultation document posed the following questions:

***12. Do you agree with the findings from the Appraisal of Sustainability reports below:***

***13. Do you think that any findings from the Appraisal of Sustainability reports below have not been taken account of properly in the relevant draft National Policy Statements:***

***14. Do you have any comments on any aspect of the Appraisal of Sustainability reports not covered by the previous questions:***

- ***a) Appraisal of Sustainability report for the draft Overarching Energy National Policy Statement (EN-1)?***
- ***b) Appraisal of Sustainability report for the draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?***
- ***c) Appraisal of Sustainability report for the draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?***
- ***d) Appraisal of Sustainability report for the draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?***
- ***e) Appraisal of Sustainability report for the draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?***

6.4 Questions 12 to 14 on the AoSs are closely linked. In addition, individual respondents often linked the questions and their subsequent answers together. The Government therefore thought it was appropriate to discuss and respond to issues raised on these questions together. In doing so, the focus is therefore on the key methodological concerns about the AoS in general.

### Comments on the approach to the AoSs including the consideration of Alternatives

6.5 Several respondents suggested that the approach used in the AoS to appraise the environmental effect of the NPSs was flawed. They argued that only appraising the effect of having an “NPS” or “no NPS” against the baseline of “business as usual” was not adequate and did not fulfil the requirements of the Strategic Environmental Assessment Directive. These respondents thought that the AoSs should have appraised the likely effects of the policies in the NPSs, not the difference between having the policy in an NPS or not having it in an NPS. This was felt to be focusing on the

process only and not on the substantive impacts of the policies set out in the NPSs.

6.6 They thought that the environmental effects of the policies set out in the NPSs, should have been examined from a sustainability perspective and compared to the environmental effects of other policies, such as not building the infrastructure at all.

6.7 In particular, these respondents were seeking substantive consideration of alternatives and were concerned that a range of eight strategic alternatives proposed by the consultants had been too simply dismissed.

6.8 Respondents also stated that alternatives set out the AoSs for EN-2 to EN-5 were similarly inadequate as they did not include any technology-specific alternatives and only reiterated the alternatives set out in AoS for EN-1.

### The Government's response

6.9 The Government acknowledges the concerns raised about the draft AoSs. The Government has revised the AoSs for EN-1 to EN-5.

6.10 The Government reconsidered the selection of alternatives in light of the consultation and proposed a number of new alternatives for both the overarching AoS for EN-1 and AoSs for EN-2 to EN-5. The Government gave particular consideration to how the effects of alternatives should be analysed and presented in the light of revisions to the original analysis of the effects of the NPSs.

6.11 The Government included a more detailed evaluation of the alternatives, which involved an assessment of the environmental impacts of the chosen development policy and a comparison of these with the environmental impacts of the reasonable alternative development policies.

6.12 Alternatives were considered unreasonable if it was assessed that they were unlawful, impossible to achieve, or if ran a serious risk of not achieving underlying energy policy objectives not achieve their objective

6.13 The Government has also undertaken further work on the AoSs, with particular reference to:

- ensuring that the policy alternatives are clearly set out for the reader;
- clarifying the impacts of constructing the kinds of development which the NPSs envisage being consented;
- improving overall consistency across the AoSs and between the AoSs and NPSs;
- making the Non-Technical Summaries for the AoSs more user-friendly so that consultees are better informed about the background to the NPS policies and the AoS assessments are clearly summarised.

### Comments on the real impacts of policies appraised

6.14 Some respondents felt the AoSs failed to consider the real impacts of the policies proposed within the NPSs, for example the impact of new generating capacity on air quality. These respondents felt that findings of "no overall effect" in the NPSs were misleading.

6.15 It was also felt that there were no short, medium, or long term effects of the policies appraised for the AoS.

### The Government's response

6.16 The revised AoSs appraise the impact of the policy set out in NPS on the environment throughout the AoSs to ensure that it is compliant with legislation and clarifies the impacts of constructing the kinds of development which the NPSs envisage being consented.

6.17 The revised AoSs include a short, medium and long term appraisal of the policies in the NPS.

### Comments on spatial information and cumulative impacts

6.18 Several respondents felt that sustainability was difficult to assess without adequate spatial information and that more could have been done to identify a selection of sites and exclusionary criteria in EN-1 and the non-nuclear technology-specific NPSs (EN-2 to EN-5).

6.19 Respondents thought that the lack of spatial information resulted in limitations and uncertainties arising in the AoS on significant environmental effects.

6.20 Some respondents thought that the issue of cumulative impacts had been dealt with inadequately, or not at all, in the AoSs.

### The Government's response

6.21 The reasons why the Government believes that the non-nuclear energy NPSs (EN-1 to EN-5) should not specify specific geographical locations has been set out in question 2 of this response document.

6.22 AoSs for the NPSs EN-1 to EN-5 appraise the environmental impacts of the policies set out in those NPSs and the cumulative impacts of those policies. A separate monitoring strategy for the energy NPSs has also been developed, which sets out how the overall effects of the NPSs will be monitored .

6.23 The Government acknowledges concerns that a lack of spatial specificity could limit the assessment of cumulative impacts from a geographical perspective. The purpose of the energy NPSs however, was to provide a strategic appraisal of policy. The Government considers that more localised impacts resulting from development, are best handled at the detailed project

assessment stage. This is because of the uncertainties as to when and if such impacts will arise, prior to this stage.

6.24 The Government has expanded its analysis in the revised AoS to include a more detailed discussion on cumulative effects including an overall summary of cumulative effects of the policies.

6.25 In the revised AoS, the Government set out whether additional guidance would help the IPC to consider cumulative effects if further assessment was required at EIA project level assessments. Where this was the case, it was also set out what this should contain. This included analysis of potential cumulative effects with tidal power, new nuclear and other major infrastructure projects where applicable.

### Comments on findings for individual sustainability topics

6.26 Detailed responses were received on the individual sustainability topics for across the AoSs for EN-1 to EN-5, where the respondent either agreed or disagreed with the findings, or felt the analysis was not detailed enough. For example, one respondent disagreed with the positive impact of gas power stations in the climate change assessment, as combusting gas releases $CO_2$ and so the assessment should have this as negative until such time as CCS is implemented for gas.

6.27 Some respondents disagreed with the findings of the sustainability topics in order to support their disagreement with a Government policy on specific technologies.

### The Government's response

6.28 The Government has considered all of the points raised with regards to individual sustainability topics. The Government has revised the AoSs for EN-1 to EN-5. This includes a re-appraisal of all the individual sustainability topics.

6.29 Where comments were received relating to the Government's policy with regards to a specific technology or its expression of them in the NPS, these have been answered under the technology-specific questions earlier in this response (see questions 1 to 11).

## Question 15: Habitats Regulations Assessments for EN-1 to EN-5

6.30 The consultation document posed the following questions:

***15 Do you have any comments on the Habitats Regulations Assessment reports for the following draft National Policy Statements:***

***a) Habitats Regulations Assessment report for the draft Overarching Energy National Policy Statement (EN-1)?***

***b) Habitats Regulations Assessment report for the draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?***

***c) Habitats Regulations Assessment report for the draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?***

***d) Habitats Regulations Assessment report for the draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)***

***e) Habitats Regulations Assessment report for the draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?***

### Comments on the HRA

6.31 Respondents raised similar concerns to the HRA for EN1 to EN5 as they had with the AoSs (see questions 12 to 14 for detail). Respondents stated that they thought the HRA did not properly apply the requirements of the Directive; that the treatment of alternatives was wrong, focusing as it did on the process; and that the lack of spatial information meant it was difficult to reach a view on the impacts.

6.32 Other respondents did not understand why a HRA had even been carried out for the NPSs as they thought that the adoption a policy document, in itself, would not increase the likelihood of significant impacts on the integrity of European sites. One suggestion was that in the light of the lack of certainty and detail in the NPSs it might have been better to abandon the HRA.

### The Government's response

6.33 As outlined in its response to issues raised on the AoS, the Government has recognised the need to reconsider its appraisal of the NPSs. The Government has therefore adopted the reasonable alternatives approach in the AoSs and examined them in terms of the HRA. With regard to the limitations because of lack of spatial information and certainty over energy projects, the Government recognises these but considers it appropriate to provide some degree of strategic assessment.

### Comments on need

6.34 Respondents were concerned that the steer being given to the IPC meant that need was taken for granted, assessment of alternatives effectively closed, and a presumption created that the tests in the Habitats Regulations would automatically be met. There was also concern at the use of the Imperative Reasons of Overriding Public Interest (IROPI) test in the Assessment prejudicing the project level assessment.

### The Government's response

6.35 The Government is satisfied that appraisal has not prejudiced the need for individual projects to be assessed individually under the tests in the Habitats Regulations.

# The National Policy Statement for Nuclear Power Generation (EN-6)

7.1 The Nuclear NPS will be used to take decisions on applications for development consent for new nuclear power stations in England and Wales. It will include a list of the sites that are considered by the Government to be potentially suitable for the deployment of new nuclear power stations before the end of 2025, which were identified through the Strategic Siting Assessment (SSA).

7.2 The draft Nuclear NPS attracted a large number of responses and many themes have been identified. These include themes on the need for nuclear power, wider safety and security concerns about nuclear power, concerns regarding waste from nuclear power and responses on individual sites and their suitability.

7.3 Some of the responses on the draft Nuclear NPS dealt with issues which were applicable to all energy NPSs. These are dealt with earlier in this Government Response (particularly in response to questions 1 to 7). The Government has grouped themes under the question where they were most relevant. This is not always the question to which individual respondents made a particular response.

7.4 Following on from consideration of the responses to the consultation some key changes have been made to the draft Nuclear NPS. We have been working to make the document more concise, to make it more consistent with the other energy NPSs and better integrated with EN-1. The key changes are set out in the table below to aid review of the revised draft:

| What are the key changes? | Where is the change in the revised draft? |
|---|---|
| **Clarity and repetition**<br>Repetition of the content of EN-1 has been removed. The revised draft Nuclear NPS should be read in conjunction with EN-1. | Throughout, including: moving the need for nuclear text (which formed Part 2 of the draft of EN-6) to EN-1; and streamlining some of the assessment principles in Part 2 of the revised draft (for example climate change adaptation (2.10) and good design (2.8)). |
| | |

| | |
|---|---|
| **The management and disposal of radioactive waste**<br>There are three points on which the Government has concluded that the wording in the draft Nuclear NPS should be revised. These changes are intended to:<br><br>• demonstrate the Government's confidence that geological disposal will be implemented;<br><br>• clarify the Government's expectations in relation to the likely duration of the on-site storage of higher activity waste; and<br><br>• clarify the role of the IPC in relation to arrangements for the management and disposal of wastes from new nuclear power stations. | Section 2.11 and Annex B |
| **Applications for nuclear development on a site not listed in the NPS**<br>Revised to more clearly set out how such an application would be handled should it come forward. | Section 2.3 |
| **The need for all of the listed sites**<br>Clarification that the need for the sites refers to the need for the sites to be listed in the NPS, rather than that a nuclear power station is necessarily needed at all of the sites. Given the limited number of potentially suitable sites, all eight are needed on the list to allow sufficient flexibility for developers to be able to meet the need for new nuclear power whilst recognising that the IPC may refuse consent at any of the sites once it has considered the detailed applications in accordance with the NPS. | Paragraph 2.4.4 |
| **The consideration of alternatives**<br>This text has been revised and condensed. | Sections 2.3 to 2.6 |
| **Regulatory Justification**<br>New text to explain the interaction with Regulatory Justification. | Section 2.6 |
| **Relationship between the planning regime and the regulators**<br>The text scoping the role of the IPC and that of the regulators has been revised and condensed. The draft NPS included a table which has now been | Section 2.7 and Part 3 |

| | |
|---|---|
| removed. Detailed text on Nuclear Impacts or Flags for Local Consideration are only included in the revised draft where these are issues for the IPC to consider (rather than the regulators). | |
| **Siting considerations**<br>General siting policy has been moved from the site assessments to Part 3 so that all of the general impacts and considerations are in one place. Specific siting considerations are set out in the site assessments (see below). | Sections 3.2 to 3.4 |
| **List of potentially suitable sites**<br>Part 4 of the revised draft lists the sites determined by the Government as being potentially suitable for the deployment of new nuclear power stations before the end of 2025. The revised draft lists a total of eight sites.<br><br>Site assessments have been updated since the consultation for the sites listed within the revised draft NPS. Details regarding Braystones, Kirksanton and Dungeness (which are not on the list in the revised draft) are set out within this Government Response. Key changes within the site assessments for those sites that are within the revised draft Nuclear NPS are set out in the table below. | Part 4<br><br>Annex C<br>(The site assessments previously comprised Part 5 of the draft Nuclear NPS.) |
| **Imperative Reasons of Overriding Public Interest (IROPI)**<br>Annex A has been revised in light of the changes to the "need case" for new nuclear power stations. | Annex A |

## Site assessments within the Nuclear NPS

7.5 The site assessments within Annex C of the revised draft Nuclear NPS have been updated to reflect key points made during the consultation that are relevant to the NPS. The site assessments do not reflect every comment or response made, which can be viewed on the consultation website[22].

7.6 The site summaries also now reflect the findings of the updated AoSs and HRAs. Where this has lead to key changes they are highlighted within these tables.

7.7 Within all the site summaries, the direction given to the IPC has been clarified. Where policy or guidance repeated what EN-1 or EN-6 would have

22 http://energynpsconsultation.decc.gov.uk

required anyway, this has been removed and replaced with a reference to the relevant part of EN-1 or EN-6.

7.8 The tables below highlight key factual changes that respondents may be interested in, but do not attempt to reflect all the updates that have been made.

### Bradwell

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Deployability by 2025**<br>The grid connection agreement between EDF and the National Grid has been modified from 2016 to 2021. | Deployability by the end of 2025 |
| **Demographics and emergency planning**<br>Further detail has been included in response to consultation comments. | C1 |
| **Flood risk**<br>Discussion of interim storage of waste on site and the implications of Flood Zone 3 status; discussion of climate change studies and projections. | D1 |
| **Coastal Processes**<br>Updated to reflect consultation comments on the Shoreline Management Plan and impacts on habitats. | D2 |
| **Outer Thames Estuary Special Protection Area (SPA)**<br>Updated to reflect the recently designated Outer Thames Estuary SPA; and the potential for cumulative effects if both Bradwell and Sizewell were developed. | D6; AoS and HRA for Bradwell (key findings). |
| **Nationally designated sites**<br>Clarification that Sandbeach Meadows and the Colne Estuary SSSI were considered within the assessment. | D6 |
| **Footpaths**<br>Reference to guidance within EN-1 on footpaths and coastal access. | D9 |
| **Cooling**<br>New detail on restrictions on the application of | D10 |

| | |
|---|---|
| natural draft cooling towers; Further discussion of the impact of direct cooling. | |
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. Also updated to reflect health studies raised during the consultation. | Health |
| **Tourism and transport**<br>Updated to reflect comments made during the consultation. | Other issues |

## Hartlepool

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Demographics**<br>Further detail on the assessment in response to consultation comments. | C1 |
| **Flood risk**<br>Discussion of the relevance of the Shoreline Management Plan in response to consultation comments; Discussion of interim storage of waste on site and the implications of Flood Zone 3. | D1 |
| **COMAH sites (regulated by the Control of Major Accident Hazards Regulations 1999)**<br>An additional COMAH site, Fine Organics Ltd, has been identified; discussion of comments raised on the nearby recycling of vessels and ships. | D3 |
| **Ecologically designated sites of international and national importance**<br>Updated to reflect consultation comments on habitat loss, impacts on birds and Hartlepool Power Station local wildlife site.<br><br>Assessment updated to clarify that it reflected Cowpen Marsh and Coatham Sands SSSIs.<br><br>The number of nationally and internationally designated sites where there is the potential for negative effects has been corrected to read seven rather than four (this section previously only reflected internationally designated sites). | D6<br><br>D7<br><br>AoS and HRA for Hartlepool - key findings |

| | |
|---|---|
| **Historic wreck**<br>Updated to reflect the historic wreck at Seaton Carew. | D8 |
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. Also updated to reflect health studies raised during the consultation. | Health |

### Heysham

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Demographics**<br>Summary updated to reflect comments made during the consultation. | C1 |
| **Flood risk**<br>Updated to reflect consultation comments on the interim storage of waste on site. | D1 |
| **Proximity to military activities**<br>An erroneous reference to historic munitions within the assessment section has been removed | C2 and D5 |
| **Coastal processes**<br>Updated to reflect consultation comments on the impact of coastal defences on designated habitats. | D2 |
| **Proximity to hazardous facilities**<br>Updated to reflect consultation comments on an alleged incident involving the transit of Ammonium Nitrate at Heysham Harbour. | D3 |
| **Nationally and internationally designated ecological sites**<br>Leighton Moss SPA added to the key findings (it was already featured under the assessment of D6 in the draft NPS).<br><br>Updated to reflect consultation comments on Heysham Golf Course reedbed and Heysham Nature Reserve, which are not designated at national level. | AoS and HRA for Heysham – key findings<br><br>D7 |
| **Areas of amenity, cultural heritage and landscape value**<br>Discussion of concerns raised on Heysham Head including St Patrick's Chapel. | D8 |

| | |
|---|---|
| **Cumulative effects**<br>Updated assessment reflects the relationship with the nominated site at Sellafield (Kirksanton and Braystones are not included on the revised draft NPS). | AoS and HRA for Heysham – key findings |
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. | Health |

## Hinkley Point

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Recent developments**<br>Updated to reflect progress towards deployment, and to reflect comments made on EDF's preferred proposals. | Deployability by 2025<br><br>Other issues - Detailed proposals and local effects |
| **Flood risk**<br>Updated to reflect consultation comments on the interim storage of waste on site. | D1 |
| **Footpaths**<br>Updated to reflect guidance within EN-1 on coastal access. | D8 |
| **Size of site to accommodate operation**<br>Map references updated. | D9 |
| **Cooling**<br>Updated to reflect consultation comments on cooling. | D10 |
| **Cumulative effects**<br>How cumulative effects are considered by the IPC has been clarified to reflect EN-1. | Cumulative effects |
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. Also updated to reflect comments made during the consultation. | Health |

## Oldbury

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Recent developments**<br>Updated to reflect progress towards deployment by Horizon Nuclear Power. | Deployability by the end of 2025 |
| **Demographics**<br>Updated to reflect comments made during the consultation. | C1 |
| **Flood risk**<br>Updated to reflect the assessment of sites within Flood Zone 3. | D1 |
| **Internationally and nationally designated sites**<br>Updated to reflect consultation comments on potential impacts on birds, the microclimate effects of cooling towers, and comments on sites that are not nationally designated. | D6 and D7 |
| **Cooling towers**<br>Updates reflect Horizon's stated preference of hybrid (shorter) towers and changes made to EN-1 on guidance for the IPC's consideration of types of cooling towers.<br><br>Consideration of comments on the size of reactors. | D8<br><br>D10 |
| **Footpaths**<br>Updated to reflect guidance within EN-1 on coastal access. | D9 |
| **Cumulative effects**<br>How cumulative effects are considered by the IPC has been clarified to reflect EN-1. | Cumulative effects |
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. Also updated to reflect consultation comments. | Health |
| **Other issues**<br>Updated to reflect comments made during the consultation on transport, socio-economic effects and geology. | Other issues |

## Sellafield

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Silecroft range**<br>Assessment and guidance clarified to reflect that consideration of on and off site hazards is undertaken by the Health and Safety Executive. | C2 and D5 |
| **November 2009 floods**<br>Assessment updated to reflect the flooding events and how Sellafield was affected. | D1 |
| **Coastal processes**<br>Updated to reflect consultation comments on the impact of coastal defences. | D2 |
| **Sellafield existing facilities**<br>Updated to reflect consultation comments regarding the proximity of existing facilities to any potential new build. | D3 |
| **Nationally and internationally designated sites**<br>Updated to reflect consultation comments on the natterjack toad, Wast Water, and additional sites that are beyond 20km of the site boundary; and concerns over Church Moss SSSI and Sellafield Tarn. | D6, D7 |
| **Lake District National Park**<br>Updated to reflect comments received during the consultation on potential impacts. | D8 |
| **Cooling**<br>Updated to reflect consultation comments on whether there would be impacts on the Irish Sea. | D10 |
| **Cumulative effects**<br>Updated assessment reflects the relationship with the nominated site at Heysham (Kirksanton and Braystones are not included on the revised draft NPS). | AoS and HRA for Sellafield – key findings. |
| **Other issues**<br>Updated to reflect consultation comments on cumulative radiation doses and transport. | Other issues |

| | |
|---|---|
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. Also updated to reflect health studies raised during the consultation. | Health |

## Sizewell

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Transmission**<br>Updated to reflect a revised grid connection agreement date and recent developments by the National Grid on consultation. | Deployability by 2025 |
| **Demographics**<br>Updated to reflect consultation comments on the impacts on development in the area. | C1 |
| **Flood risk**<br>Discussion of interim storage of waste on site, and consultation comments on the risks of fluvial flooding. | D1 |
| **Coastal processes**<br>Updated to reflect consultation comments including on offshore dredging. | D2 |
| **Nationally and internationally designated ecological sites**<br>Assessment updated to reflect comments on a number of sites and species including the recently designated Outer Thames Estuary SPA. | D6 and D7; AoS and HRA for Sizewell – key findings. |
| **Area of Outstanding Natural Beauty (AONB)**<br>Updated to reflect concerns regarding impacts on the Suffolk Coast and Heaths AONB, the impacts of a potential access road, and impacts on footpaths. | D8; D9; Detailed planning proposals for Sizewell |
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. | Health |
| **Other issues**<br>Updated to reflect consultation comments on socio-economic effects and transport. | Socio-economic effects<br><br>Transport |

## Wylfa

| What are the key changes? | Where is the change? (criterion or heading within Annex C) |
|---|---|
| **Recent developments**<br>Updated to reflect progress towards deployment by Horizon Nuclear Power. | Deployability by the end of 2025 |
| **Demographics**<br>Updated to reflect consultation comments regarding emergency planning. | C1 |
| **Internationally designated ecological sites**<br>Updated to reflect an assessment of Llyn Dam SAC and impacts on water quality. | D6 |
| **Anglesey Area of Outstanding Natural Beauty (AONB)**<br>Updated to reflect consultation comments on potential impacts. | D8 |
| **Footpaths**<br>Updated to reflect guidance within EN-1 on coastal access. | D9 |
| **Health**<br>Updated to reflect 2008 radioactive monitoring findings. | Health |
| **Other issues**<br>Updated to reflect comments received on socio-economic effects and seismic risk. | Other issues |

## Question 16: Should the Government approve the Nuclear NPS?

7.9 The consultation document posed the question:

***Do you think that the Government should formally approve (designate) the draft Nuclear National Policy Statement?***

7.10 This question prompted a wide range of responses. Many of the themes identified are dealt with elsewhere in this document as there was a lot of overlap, particularly with questions 17, 18, 19 and 20. Some themes raised in response to this question were also raised in respect of other NPSs (particularly EN-1) and are therefore addressed in response to questions 1 to 7. This includes comments on the consultation on the draft energy NPSs (including the draft Nuclear NPS).

7.11 The key themes identified from the responses to this question that are not addressed elsewhere are set out below.

### Comments relating to the principle of nuclear power generation

7.12 Some respondents supported the designation of the draft Nuclear NPS because they believe there is a need for nuclear power to contribute to the UK's energy mix. However, others did not want the draft Nuclear NPS to be designated because they opposed the development of any new nuclear power stations.

### The Government's response

7.13 If the Nuclear NPS was not designated this would not necessarily prevent new nuclear infrastructure from being consented. What it would mean is that the Secretary of State, after a recommendation from the IPC based on the results of the examination, would make the decision as to whether or not to grant development consent for any particular project application, rather than the IPC making this decision itself.

7.14 The Government believes that new nuclear power stations have a role to play in this country's future energy mix alongside other low-carbon sources; and energy companies should have the option of investing in new nuclear power stations. The Government is therefore working to complete the facilitative actions identified in the Nuclear White Paper, removing unnecessary obstacles to the deployment of nuclear power[23].

7.15 The purpose of the consultation was not to re-open discussion of whether nuclear power should form part of our future energy mix (which was itself the subject of a separate consultation in 2007 before publication of the Nuclear White Paper). Many such comments are, however, relevant to the question of the need and urgency for new nuclear power stations, the environmental impacts of nuclear power stations and/or the arrangements for radioactive

23 *Meeting the Energy Challenge: A White Paper on Nuclear Power*, January 2008, http://www.berr.gov.uk/files/file43006.pdf

waste management. The range of key themes identified as the basis for support/opposition to nuclear power are therefore reflected as appropriate in the summary of responses to questions 18, 19 and 20.

### Comments on the timing of designation of the Nuclear NPS

7.16 A number of respondents urged designation of the Nuclear NPS as quickly as possible, stating that the lead time for constructing and commissioning new nuclear power stations requires positive action now. Others questioned whether the Nuclear NPS should be designated before other processes are complete, in particular the Regulatory Justification process, the Funded Decommissioning Programme and the Generic Design Assessment.

### The Government's response

7.17 We recognise the concern expressed regarding the long lead times for constructing and commissioning new nuclear power stations. After we have considered any comments received during the consultation of the revised drafts, the Nuclear NPS will be put before Parliament and, if ratified and designated, will allow planning applications to come forward for new nuclear. It is the Government's policy to designate the suite of energy NPSs as soon as possible.

7.18 As noted above, the Government is committed to taking active steps to enable energy companies to invest in new nuclear power stations from the earliest possible date should they choose to do so. The facilitative actions being undertaken include development of the Nuclear NPS, the Generic Design Assessment, Funded Decommissioning Programme and Regulatory Justification processes.

7.19 Each of the facilitative actions is separate and will be considered on its own merits. A decision on any one action will not pre-determine decisions taken on any of the others. An indicative timetable is available showing when all these decisions are intended to be taken and how they relate to each other[24].

[24] http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/new/new.aspx

## Question 17: Information for decision making

7.20 The consultation document posed the question:

***Does the draft Nuclear National Policy Statement provide the IPC with the information it needs to reach a decision on whether or not to grant development consent?***

7.21 A mix of positive and negative responses were received to this question. Where appropriate, comments have been addressed under other questions (particularly questions 18, 19 and 20) or in response to the questions on EN-1.

### Comments on the ability of the IPC to determine an application for development consent based solely on the Nuclear NPS

7.22 Many respondents pointed out that the IPC will not be able to reach a decision on whether or not to grant development consent without detailed consideration of the application documentation (including the project level environmental assessments and HRAs) and, where provided, the local impacts report prepared by the local authority.

### The Government's response

7.23 The consultation question was not intended to suggest that the Nuclear NPS alone would provide sufficient information for a decision to be reached by the IPC or the Secretary of State in respect of an application for development consent. Indeed, all technology-specific NPSs will need to be read in conjunction with EN-1.

7.24 The Planning Act 2008 states that the IPC must also have regard to any local impact report submitted before the specified deadline, any relevant matters prescribed in regulations and any other matters that the IPC thinks are both important and relevant[25]. The same considerations are set out in the Planning Act in respect of decisions to be taken by the Secretary of State.

### Comments on the relationship between the regulatory framework and the planning process in assessing nuclear proposals

7.25 A number of respondents suggested that further clarification should be provided to explain and distinguish the responsibilities of the IPC and the regulatory bodies responsible for issuing nuclear operating consents, licences and authorisations. In particular, respondents questioned the exact purpose and status of any "letter of comfort" that might be provided by a regulator (as provided for in the draft Nuclear NPS).

7.26 It was suggested by some respondents that a parallel track should be adopted by applicants in respect of their applications to the IPC and to other

[25] Section 104, Planning Act 2008

regulators. Others supported the approach taken in the draft Nuclear NPS that development consent should not be delayed until completion of the licensing or permitting process.

### The Government's response

7.27 The UK has a strong independent regulatory framework. It is therefore appropriate for the IPC to be able to rely on this and not itself consider matters that fall within the remit of the regulators. The text in the revised draft Nuclear NPS has been amended to further clarify this (see in particular Section 2.7).

7.28 The reference to a "letter of comfort" has been removed from the revised draft Nuclear NPS, but the IPC is still required to liaise with regulators to ensure that it is satisfied that the necessary licence, authorisation or permit is likely to be issued in due course. This may of course take the form of a letter or any such other information as may be appropriate for the issue in question. Further, liaison with the regulators may be necessary over any conditions the IPC is considering attaching to a development consent to ensure they are consistent with the regulatory approvals process.

7.29 Policy set out in EN-1, for example with respect to pollution control and other environmental consenting regimes (Section 4.10 of EN-1), safety (4.11), hazardous substances (4.12) and security (4.15), provides further detail of how the IPC should work with regulators when determining applications for development consent for nuclear power stations.

## Comments on how the IPC should consider the resilience of proposals for new nuclear power stations to the impact of climate change, rising sea level, flood risk and/or coastal erosion

7.30 A number of responses were received regarding the need for the IPC to consider the impacts of climate change, rising sea levels, flooding and coastal erosion when determining applications for new nuclear power stations.

7.31 Some respondents were of the opinion that as the proposals are by definition nationally significant, they should be exemplars of sustainable design, leading the way in terms of climate change mitigation and adaptation. Others expressed strong support for the concept that the IPC can require an applicant to ensure that adaptation measures can be implemented should the need arise, rather than at the outset of the development.

### The Government's response

7.32 Given that the sites specified as potentially suitable for the deployment of new nuclear power stations are located in coastal or estuarine areas, there is some overlap in these responses with those responding to question 21 (on the potential suitability of individual sites) and question 19 (regarding on-site storage of spent fuel).

7.33 EN-1 sets out how applicants and the IPC should take the effects of climate change into account when developing and consenting infrastructure (Section 4.8). Further, Sections 5.5 and 5.7 of EN-1 address coastal change and flood risk respectively. Additional policy that is specific to applications for new nuclear power stations is set out in the revised draft Nuclear NPS (see Sections 2.10, 3.7 and 3.9 of the revised draft). This policy has been amended in light of the comments received during the consultation to enhance consistency across the energy NPSs and to reduce repetition between the final versions of EN-1 and EN-6.

7.34 Having considered the concerns raised, the Government is of the view that the IPC is provided with sufficient detail regarding the Government's policies on climate change mitigation and adaptation to be able to determine an application for development consent for a nuclear power station.

### Comments on sustainable development

7.35 A number of respondents considered that a nuclear new build programme would not be in line with the aims of sustainable development.

### The Government's response

7.36 Nuclear power is a proven, low carbon technology. The Government believes that new nuclear power stations will make an important and positive contribution to energy security and reducing carbon emissions. This will help the UK reach its goal of reducing greenhouse gas emissions by 80% by 2050 (relative to 1990 levels) and move towards a secure low carbon economy. The energy NPSs take account of the objective of contributing to the achievement of sustainable development and an AoS has been undertaken for each NPS. The development of the Nuclear NPS has been informed by the AoS of EN-1 and the AoS of the Nuclear NPS. Summaries of the main findings of the AoSs for EN-1 and the Nuclear NPS are set out in Part 1 of the respective NPSs.

## Question 18: Need and urgency for new nuclear power stations

7.37 The consultation document posed the question:

***Does the draft Nuclear National Policy Statement provide suitable direction to the IPC on the need and urgency for new nuclear power stations?***

7.38 Many respondents agreed that the draft Nuclear NPS did provide suitable direction to the IPC on the question of need and urgency. Some, however, felt that further emphasis should be given; whilst others who responded to this question did so because they oppose the construction of new nuclear power stations in the UK. As noted previously, this consultation was not intended to re-open the discussion of whether nuclear power should be included within the UK's energy mix. We have, however, identified the key issues raised and address these below.

7.39 Respondents to this question also raised related issues that apply across the suite of energy NPSs. To avoid repetition these are dealt with in our responses to EN-1. This is particularly the case given that the revised draft Nuclear NPS no longer includes its own chapter on need. This is now included in the need case for all technologies, which is set out in Part 3 of the revised draft of EN-1 (see the Government's response on need set out below).

### Comments on the emphasis given in the draft Nuclear NPS to the need and urgency for new nuclear power stations

7.40 A number of respondents felt that the draft Nuclear NPS did not go far enough to emphasise the need for new nuclear power stations and particularly the urgency of the situation. Respondents noted the significant lead times required to construct the infrastructure and the urgency to start constructing new facilities as quickly as possible. Further, respondents noted that the wording in the NPS should be strengthened to ensure that the IPC does not itself consider the issue of need because this is a matter for the Government.

7.41 Others felt that the draft Nuclear NPS went too far in terms of stating the need and urgency for new nuclear power stations, seeing it as a strong presumption in favour of nuclear development, which could tie the hands of the IPC. Many of these respondents were critical of the direction given to the IPC as to how they should balance the need and urgency for new nuclear power stations against the impacts of such development.

### The Government's response

7.42 The Government has revised the need case for all forms of energy technology, including the need for new nuclear power. This is set out in Part 3 of the revised draft of EN-1 and further explanation (including in respect of balancing need against impacts) is set out in this Government Response at Question 4.

7.43 The draft Nuclear NPS repeated much of the text from Part 3 of the draft EN-1 in order to contain its own chapter on the need for nuclear. In the light of consultation comments, we have worked to more closely integrate the revised draft Nuclear NPS with EN-1, which now contains the need case for all technologies, including new nuclear. As with all of the technology-specific energy NPSs, the Nuclear NPS should always be read in conjunction with EN-1.

7.44 For the UK to meet its energy and climate change objectives, the Government believes that there is an urgent need for all types of nationally significant energy infrastructure, including new nuclear power. Nuclear power generation is a low carbon, proven technology, which is anticipated to play an increasingly important role as we move to diversify and decarbonise our sources of electricity. New nuclear power stations will help to ensure a diverse mix of technology and fuel sources, which will increase the resilience of the UK's energy system. It is Government policy that new nuclear power should be able to contribute as much as possible to the UK's need for new non-renewable capacity.

### Comments on issues of energy security and security of supply

7.45 Some respondents were concerned that nuclear power generation would not add to security of supply. They noted that it is reliant on a single fuel source and expressed concern about the availability of adequate supplies of uranium.

7.46 Others stated that nuclear power has a significant role to play to enhance energy security in the UK. Comments included that it is a proven technology, enhances the UK's energy diversity and provides a source of fuel from a range of stable exporting countries. It was noted by a number of respondents that not only would energy security benefits be seen as a result of increased fuel diversity, but also as a result of the ability of nuclear power stations to continue generating electricity for long periods of time without refuelling.

### The Government's response

7.47 It is critical that the UK continues to have secure and reliable supplies of electricity as we make the transition to a low carbon economy. The Government believes that the best way to achieve secure energy supplies is to ensure energy companies have the opportunity to invest in the widest choice of technologies and sources of supply.

7.48 Reliability in the fuel supply chain is a key element in achieving secure energy supplies. Uranium deposits are predicted to last much longer than oil and gas reserves. Moreover, exploration of uranium has been minimal in recent years because few new nuclear power stations have been built.

7.49 The Government keeps under review the situation regarding uranium resources and includes the review in the annual Security of Supply Report[26].

26 http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/markets/outlook/outlook.aspx

Following the review of publications from the OECD/IAEA[27] and the Euratom Supply Agency (ESA)[28] the Government believes that adequate uranium resources exist to fuel a global expansion of nuclear power, including any new nuclear power stations constructed in the UK.

7.50 Part 3 of the revised draft of EN-1 provides further explanation as to why the Government believes that the development of new nuclear power stations will further enhance energy security in the UK.

### Comments on the ability of other measures to reduce or remove the need for nuclear

7.51 A number of respondents stated that nuclear was not the answer to meet the UK's energy demands and that other technologies could produce enough power to meet demand whilst also reducing emissions. Many such respondents thought that the UK should increase focus and resource on energy efficiency measures, renewable technologies and reducing demand. The concern was expressed that the introduction of new nuclear power may divert attention away from these measures.

7.52 Some questioned the need for nuclear generation capacity given the amount of non-renewable capacity already permitted or currently passing through the planning system. It was also suggested in responses that new nuclear power will come online too late to be of benefit for the UK in meeting its emissions targets or filling the predicted energy gap.

7.53 A number of responses stated that nuclear energy should only be deployed as a "bridging technology" rather than a permanent solution and that the NPS should note that the proportion of nuclear within the UK's energy mix should be reduced with the growing deployment of renewable technologies.

### The Government's response

7.54 The Government believes that there is a need for all forms of nationally significant energy infrastructure projects, including nuclear power. New nuclear power stations form one element of the Government's strategy to decarbonise the UK's electricity sector, together with energy efficiency and demand reduction measures, renewables and fossil fuel generation with carbon capture and storage (CCS).

7.55 As noted by a number of respondents, a key element to ensure sufficient energy capacity is to address future energy demand. Energy efficiency and demand management measures, however, are not anticipated to be sufficient on their own. The Government's response to Question 4 and Part 3 of the revised draft of EN-1 provides further information in this respect.

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27 OECD, International Atomic Energy Agency (IAEA). *Uranium 2009: Resources, Production and Demand*. July 2010. http://www.nea.fr/press/2010/2010-03.html

28 Euratom Supply Agency, *Annual Report 2009*, July 2010, http://ec.europa.eu/euratom/ar/ar2009.pdf

7.56 Part 3 of the revised draft of EN-1 sets out the Government's rationale for why it believes it is appropriate for the IPC to act on the basis that that there is a proven urgent need for all forms of new nationally significant energy infrastructure projects, including new nuclear power stations.

7.57 In developing the need case the Government has considered the amount of energy capacity that is currently in the planning system and also that which is in the process of being built. The Government does not consider that this negates the need for new infrastructure. The challenge we face in terms of energy security and emissions reductions as we move towards 2050 must not be underestimated and the Government has a responsibility to ensure that the planning system is able to consent, where appropriate to do so, the amount of new infrastructure we need.

7.58 With respect to the timing of new nuclear development, we recognise the urgency of the need to act now, which is why the selection process for the sites listed in the Nuclear NPS required the sites to be shown to be capable of deployment before the end of 2025. The Government remains confident that new nuclear power stations can start to be deployed from 2018; and France has already demonstrated that it is technically feasible to build nuclear power stations at the rate that would be needed in the UK if new nuclear power stations were to be constructed on all of the sites listed in the revised draft Nuclear NPS before the end of 2025.

7.59 The Government does not at this stage see nuclear power as a bridging technology, but will review the energy NPSs as necessary to ensure they remain appropriate. This will include the need case set out in EN-1.

### Comments on the carbon lifecycle of nuclear power

7.60 Some respondents stated that nuclear is not a low carbon solution, and in particular that in assessing the carbon impact of nuclear power stations consideration should be given to the whole lifecycle of a nuclear project.

### The Government's response

7.61 The Government has considered a range of independent life cycle analyses (LCAs) which assess $CO_2$ emissions from the entire nuclear lifecycle. The most recent LCA conducted in the UK was undertaken by British Energy in 2009, which analysed carbon emissions from their Torness nuclear power station. The results of this report (in units of CO2g/kWh) show emissions of 7 for nuclear, compared to 400 for gas and 900 for coal[29].

7.62 The Government continues to monitor the results of published LCAs conducted throughout the world to ensure we keep abreast of developments. We are satisfied that the range quoted in the revised draft Nuclear NPS remains accurate.

[29] British Energy / AEA (2009). *Environmental Product Declaration of Electricity from Torness Nuclear Power Station: Technical Report.* pp. 1, http://www.british-energy.com/documents/Torness_EPD_Report_Final.pdf

## Comments on the cost of nuclear power stations

7.63 Some respondents questioned the economics of nuclear power generation, particularly in respect of decommissioning and long term waste management. Some questioned whether the owners/operators of new nuclear power stations would be able to meet the total costs without subsidy. Further, the cost of mitigation proposals and potential compensation to overcome what they believed to be the adverse affects of nuclear development was thought by some to be prohibitive.

7.64 Some respondents noted the problems in terms of delays and cost overruns at other nuclear new builds, for example Finland's Olkiluoto 3 reactor or Flamanville in France. A few also stated that the UK's nuclear industry had a history of failing to deliver projects on time and to budget.

7.65 Some respondents were concerned about the insurance regime for new nuclear power stations, questioning the need for increased financial liability and expanded coverage for a nuclear accident. There were concerns that liability levels were not high enough and that the Government would face even higher costs in the event of an accident.

## The Government's response

7.66 The Government believes that nuclear power is economically competitive with other forms of generating technology (including the lowest cost renewable technologies) and new nuclear will become the least expensive form of low carbon electricity generation[30].

*Costs of decommissioning and waste management*

7.67 The majority of costs of decommissioning and waste management will not be incurred until the power station ceases to operate. The costs of waste management are discussed in detail in our summary of responses to question 19 and therefore we do not repeat this analysis here.

*Subsidy for new nuclear*

7.68 The Government is taking a series of facilitative actions to remove potential barriers to new nuclear. The Secretary of State confirmed his policy on no public subsidy for new nuclear in a statement to Parliament on 18 October 2010.

*Costs of mitigation and compensation measures*

7.69 An analysis of the likely costs of mitigation and compensation measures would have to be undertaken by developers in relation to their specific

30 Mott MacDonald, *UK Electricity Generation Costs Update*, June 2010: http://www.decc.gov.uk/assets/decc/statistics/projections/71-uk-electricity-generation-costs-update-.pdf

Parsons Brinckerhoff (trading as PB Power), Powering the Nation Update 2010, March 2010, http://www.pbworld.co.uk/index.php?doc=528

proposals and the impacts that such proposals may have on the environment. It will be for industry to determine whether their proposals are viable taking into account all costs, including those of mitigation and compensation.

7.70 Some adverse effects may not be capable of adequate mitigation/compensation and the IPC would therefore refuse an application for development consent.

*Construction costs and the risks of delays and overruns*

7.71 All major capital projects entail financial risk. Whether new nuclear provides sufficiently attractive returns given its financing characteristics is a matter that investors will determine. It is ultimately for energy companies to make a judgement about the economics of nuclear power and to minimise the risk of delay and cost overruns to their project.

7.72 While there have been cost overruns and delays in constructing nuclear power stations, such as at Olkiluoto in Finland, experience elsewhere in Europe is different. For example, plants have been built to schedule in France and Romania. Part of the additional costs (and delay) which have arisen at Olkiluoto in Finland are due to changes made to the design during construction. Having a Generic Design Assessment process in the UK allows regulators to identify and tackle significant issues at an early stage of their design. As a result, it is more likely that such issues can be resolved or "designed out" early in the process, rather than having to address them during construction, where resolution may be more complex, costly and time consuming.

*Insurance*

7.73 At present, under the Nuclear Installations Act 1965, nuclear operators are liable for £140m for third party liability. The Nuclear Installations Act implements the UK's obligations under the Paris Convention on nuclear third party liability and the supplementary Brussels Convention, which we have been parties to since the 1960s.

7.74 In 2004 the Paris and Brussels Conventions were significantly upgraded to ensure that, in the unlikely event of a nuclear accident, an increased amount of compensation would be available to a larger number of victims in respect of a broader range of damage than is currently the case. The amended Conventions raised the limit on nuclear operator's liability to a minimum of €700m.

7.75 The UK is in the process of amending the Nuclear Installations Act 1965 to give effect to the revised Conventions. We intend to consult on our proposals, including the liability levels, later this year.

## Comments on the need for all of the sites specified in the draft Nuclear NPS

7.76 A number of respondents felt that the statement in the draft Nuclear NPS that all of the listed sites were needed could not be reconciled with the fact that it is as yet unknown how many reactors might be built at each site. Further, the statement that all of the sites were needed was questioned if they are only "potentially suitable" and would be subject to detailed site assessments at the project stage and could then be rejected.

7.77 Some respondents felt that the inclusion of ten sites was insufficient and that more sites should have been set aside for nuclear development. In particular, a number of respondents disagreed with the exclusion of Dungeness. However, others felt that excessive land area was nominated and that the stated need for nuclear generation could be met using fewer sites.

7.78 Some respondents would prefer to see the Nuclear NPS specify how much nuclear generating capacity is required to meet the Government's policy objectives rather than a specified number of sites.

## The Government's response

*How can there be a need for all sites if they are only potentially suitable?*

7.79 Section 2.5 of the draft Nuclear NPS made clear that there was a need for all the sites identified as potentially suitable for the deployment of new nuclear power stations by 2025 to be included on the list within the NPS. It did not mean that the IPC had to grant consent at each site if it was not considered appropriate to do so.

7.80 We have reviewed the drafting and have revised the text to clarify the Government's position in this respect (see Part 2 of the revised draft Nuclear NPS and in particular paragraph 2.4.4).

7.81 The Government believes that only the listed sites are suitable for the deployment of new nuclear power stations before the end of 2025. Given that there are so few sites available, and it is unknown at this stage how many of the sites will obtain development consent and how many reactors will be consented at any one site, it is important that the Nuclear NPS lists enough sites so that the IPC has the flexibility to be able to consider the impacts of specific proposals in light of the need for new nuclear power.

*Exclusion of Dungeness and/or requirement for more sites*

7.82 The Government believes that the eight listed sites will allow sufficient flexibility for developers to meet the urgent need for new nuclear power stations whilst enabling the IPC to refuse consent should it consider it appropriate to do so. Further information in respect of the decision to exclude Dungeness from the list of potentially suitable sites is set out in the section of this Government Response responding to comments raised on Questions 21l).

*Nuclear target or cap rather than specified number of sites*

7.83 Please refer to the Government's response to Question 2 in this respect.

### Comments on the consideration of alternative sites

7.84 Whether or not the listed sites should be considered as alternatives to each other was a topic that raised questions during the consultation, with a few respondents unsure how the text in the draft NPS was to be interpreted.

### The Government's response

7.85 The text set out in the draft Nuclear NPS has been revised in this respect. Sections 2.3 to 2.5 of the revised draft, together with Section 4.4 of the revised draft of EN-1 address this issue.

7.86 Given the limited number of sites that have been determined to be potentially suitable for the deployment of new nuclear power before the end of 2025 (following an extensive assessment of alternatives by the Government), the Government believes that it should be reasonable for the IPC to judge an application on a listed site on its own merits and to conclude that a comparison with any other listed site is not important or relevant to its decision.

### Comments on ranking of sites

7.87 Some respondents suggested that the listed sites should be ranked in terms of preference, whilst others felt a ranking would not be appropriate.

### The Government's response

7.88 The Government takes the view that the identified sites should not be ranked. Detailed site specific analyses will be conducted at the project level and until then the full impacts of the proposals together with the proposed mitigation measures cannot be entirely understood. The revised draft NPS makes clear that there can be no certainty that development consent on all sites listed in the NPS will be granted as issues may emerge once they are analysed in detail by the IPC.

### Comments on consideration of proposals on sites not listed in the Nuclear NPS

7.89 Some respondents questioned what would happen if an application was made for a site that is not listed as potentially suitable in the Nuclear NPS.

### The Government's response

7.90 In the event that an application is submitted to the IPC for a site that is not listed in the Nuclear NPS, the IPC will examine the proposal and make a recommendation to the Secretary of State. The Secretary of State would be the decision maker for any such application.

7.91 The revised draft Nuclear NPS (Section 2.3) clarifies this position and provides further information.

### Comments on timing of development of nuclear sites

7.92 A number of responses said that the draft Nuclear NPS did not contain sufficient information about the timing of development of nuclear sites. Questions were asked as to whether nuclear developments should be staged so as to manage pressure on the supply chain and avoid simultaneous construction and decommissioning. Consideration was also given by some respondents to the deployment of sites after 2025.

7.93 Many respondents welcomed the focus on early deployment of sites. However, a few respondents suggested that stating that the IPC should consent schemes at a rate that energy companies may wish to build failed to acknowledge that the IPC may refuse development consent if the adverse effects of a scheme outweigh the benefits.

### The Government's response

7.94 For the reasons set out in the Government Response to the SSA Consultation[31], the Government's assessment of sites potentially suitable for new nuclear development only included sites that were shown to be capable of deployment by the end of 2025. This date was chosen to provide sufficient focus to facilitate the achievement of the Government's climate change and energy security goals as well as representing a realistic timeframe for the construction of new nuclear power stations, and avoiding an unnecessarily long list of potential sites which may not come on stream for some years. 2025 is not, however, the end goal, but is an interim milestone along the path to a decarbonised electricity sector by 2050.

7.95 Given the urgent need to decarbonise the power sector, it is the Government's view that new nuclear power stations need to be developed significantly earlier than the end of 2025 (see Part 2 of the revised draft Nuclear NPS and Part 3 of the revised draft of EN-1). One of the key reasons for this is to prevent unnecessary lock-in to higher carbon forms of electricity generation.

7.96 The policy in the revised draft Nuclear NPS (Section 2.2) is that the IPC should give substantial weight to the benefits of applications for new nuclear power stations that are capable of deployment significantly earlier than the end of 2025, including the benefit of displacing carbon dioxide emissions. The Government does not, however, consider it necessary to be prescriptive as to the timing of development or phasing of the specified nuclear sites. Industry will determine when is the right time for them to put forward proposals for development consent.

31 *Government response to the consultation on the SSA process and* criteria, January 2009, http://webarchive.nationalarchives.gov.uk/20100216092443/http:/www.berr.gov.uk/files/file49865.pdf

7.97 Having considered the comments received, the text that directed that the IPC should consent schemes at a rate that energy companies wish to build has been deleted from the revised draft. The Planning Act 2008 prescribes a statutory timetable for decision making and we are confident that this will ensure that projects are determined in a timely manner.

### Comments on lack of skills capacity

7.98 Concerns were raised by some respondents as to whether the UK has sufficient skills and knowledge to run and decommission nuclear power stations.

7.99 Others felt that the Nuclear NPS was important to provide greater certainty to developers and investors in the skills sector in order to provide specialist construction skills for new nuclear build, and to improve the efficiency of delivery of projects through the early involvement of suppliers.

### The Government's response

7.100 The Government is confident that the UK's skills sector will be able to provide the specialist skills required for any new nuclear power stations that are consented. The Government has taken a range of actions to date to address potential skills shortfalls in the future. By way of example, the National Skills Academy for Nuclear[32] works with existing training providers across the UK to develop training and qualifications.

7.101 Further, Cogent Sector Skills Council and The National Skills Academy for Nuclear in the Nuclear Energy Skills Alliance (NESA) produced a report[33] identifying risk areas and recommending mitigating actions. DECC now co-ordinates the NESA which meets regularly to track progress against the report.

7.102 The Nuclear Decommissioning Authority (NDA) also launched its Skills and Capability Strategy in November 2008[34]. The NDA has allocated a budget of £43.5 million to developing skills in the nuclear industry, which includes supporting National Skills Academy for Nuclear initiatives such as the 'community apprenticeship' scheme and the 'nuclear graduates' programme.

32 National Skills Academy for Nuclear: http://www.nuclear.nsacademy.co.uk/

33 *Renaissance 2 – Next Generation: Skills for New Build Nuclear,* March 2010, http://www.cogent-ssc.com/research/Publications/Renaissance2.pdf

34 http://www.nda.gov.uk/strategy/criticalenablers/skills/

## Question 19: Radioactive waste management arrangements

7.103 The consultation document posed the question:

***Do you agree with the Government's preliminary conclusion that effective arrangements will exist to manage and dispose of the waste that will be produced by new nuclear power stations in the UK?***

7.104 Part 3 of the draft Nuclear NPS provided that before development consents for new nuclear power stations are granted, the Government needs to be satisfied that effective arrangements exist, or will exist, to manage and dispose of the waste they will produce; and it set out the preliminary conclusion that effective arrangements will exist. In light of comments received during the consultation for the planning policy set out in the draft Nuclear NPS to be clarified, this text has been moved to Annex B of the revised draft Nuclear NPS. The text in respect of waste that remains in the main body of the revised draft (at Section 2.11) highlights the planning policy for the IPC.

7.105 A description of how this preliminary conclusion was reached was provided in Annex G of the consultation document[35]. Further background information on the evidence that the Government considered was set out in the paper *The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence*[36].

7.106 Annex G of the consultation document stated that geological disposal is the way higher activity waste will be managed in the long term. This will be preceded by safe and secure interim storage until a Geological Disposal Facility (GDF) can receive waste. The consultation said that there are three issues to be resolved for the successful implementation of geological disposal:

7.107 Whether geological disposal of higher activity radioactive waste, including waste from new nuclear power stations, is technically achievable;

7.108 Whether a suitable site can be identified for the geological disposal of higher activity radioactive waste; and

7.109 Whether safe, secure and environmentally acceptable interim storage arrangements will be available until a geological disposal facility can accept the wastes.

7.110 The consultation also considered other waste categories and the transport of radioactive waste. Responses received on these points are discussed below,

35 http://data.energynpsconsultation.decc.gov.uk/documents/condoc.pdf

36 DECC, *The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence*. November 2009, http://data.energynpsconsultation.decc.gov.uk/documents/wasteassessment.pdf

together with other issues which were not covered in Annex G but were raised in the consultation.

7.111 There was a high level of interest in this issue. The Government takes the issue of waste very seriously and understands that the public are concerned about it. A significant number of respondents were broadly supportive of the Government's preliminary conclusion, but many respondents disagreed with the conclusion and raised a variety of concerns. The main points raised are set out here, together with the Government's response.

### Summary of overall conclusion

7.112 Having considered carefully the responses to this question, the Government has concluded that it is satisfied with the preliminary conclusion set out in the draft NPS. Therefore the revised draft Nuclear NPS confirms that the Government is satisfied that effective arrangements will exist to manage and dispose of the waste that will be produced by new nuclear power stations in the UK.

7.113 However, in light of the responses to this consultation there are three points on which the Government has concluded that the wording in the draft Nuclear NPS should be revised. These changes are intended to:

- demonstrate the Government's confidence that geological disposal will be implemented;
- clarify the Government's expectations in relation to the likely duration of the on-site storage of higher activity waste; and
- clarify the role of the IPC in relation to arrangements for the management and disposal of wastes from new nuclear power stations.

### Comments on whether geological disposal is technically achievable

7.114 Many comments were received on whether geological disposal is technically achievable. Although some responses supported the Government's view, noting for example the scientific and engineering capabilities available in the UK, many respondents expressed doubts that a GDF could be built that would safely contain wastes for the very long time periods required. Some of these concluded therefore that the management of waste from new nuclear power stations would be a burden on future generations.

7.115 Some responses drew attention to gaps in technical knowledge, as evidenced by ongoing programmes of research, while others raised specific questions around the evidence base used in the NPS.

7.116 A number of respondents raised issues regarding the evidence that the Government had considered in reaching its conclusion. For example several responses related to the disposability reports prepared by the Nuclear Decommissioning Authority (NDA) for the Generic Design Assessment process. The conclusions reached by NDA in the Disposability Reports were

considered in the consultation to support the view that it would be technically possible and desirable to dispose of both new and legacy waste in the same geological disposal facilities. Some concerns were expressed that the EA had not yet reviewed these reports and would not do so until after the conclusion of this consultation. Others raised issues about the Disposability Reports themselves.

7.117 One detailed response highlighted reports by the European Commission's Joint Research Centre (JRC), the EA and the NDA. It argued that issues raised by these reports highlighted major knowledge deficiencies with regard to technical issues, which called into question whether geological disposal would prove technically feasible.

7.118 A number of responses commented on the extent to which the Government's view draws on experience overseas, notably progress towards geological disposal in Sweden and Finland. While a few respondents commented favourably on the way in which experience overseas had been drawn upon in devising the Managing Radioactive Waste Safely (MRWS) process, others were more critical. In particular a number of comments were made in relation to Finland; several respondents referred to delays in the Finnish GDF, and some suggested that the safety case work being carried out by Posiva in Finland was deficient. One response suggested that the draft NPS did not accurately represent the views of the Finnish regulator STUK in relation to progress in Finland.

## The Government's response

7.119 With regard to the current level of technical knowledge the Government considers that the scientific progress made with respect to geological disposal is such that it is feasible and is the safest form of long-term waste management. However, the Government recognises that further research is required into radioactive waste management systems to refine storage and disposal concepts.

7.120 The Nuclear Energy Agency (NEA) supports this view. In 2008 the NEA published a statement[37] which said "*The overwhelming scientific consensus world-wide is that geological disposal is technically feasible. This is supported by the extensive experimental data accumulated for different geological formations and engineered materials from surface investigations, underground research facilities and demonstration equipment and facilities; by the current state-of-the-art in modelling techniques; by the experience in operating underground repositories for other classes of waste; and by the advances in best practice for performing safety assessments of potential disposal systems.*"

7.121 The Committee on Radioactive Waste Management (CoRWM) examined the options for the long-term management of legacy radioactive wastes and expressed their confidence in geological disposal as a means of managing

[37] OECD Nuclear Energy Agency. *Moving Forward with Geological Disposal of Radioactive Waste: An NEA RWMC Collective Statement,* June 2008. http://www.nea.fr/rwm/docs/2008/rwm2008-5-rev2.pdf

these wastes with a reduced burden on future generations. CoRWM stated in their 2006 Report to Government that: "*A large majority of CoRWM members have sufficient confidence in the long-term safety of geological disposal, and its ability to reduce the burden on future generations, to recommend it as the preferred end-point*." The Government's policy is that higher activity legacy and new build wastes will both be disposed of by geological disposal.

7.122 The NDA has statutory responsibility under the Energy Act 2004 for carrying out research to support the activities for which it is responsible. The Government believes, in the light of CoRWM's work and wider international experience, that there is already sufficient research work available to be confident that geological disposal is technically achievable. In line with CoRWM's recommendations[38] the NDA will undertake further research during the GDF development process in order to refine concepts, improve understanding of chemical and physical interactions in a disposal facility, address specific issues raised by regulators, support development of site-specific safety cases and to optimise facility design and delivery.

7.123 With regard to the evidence considered in reaching the preliminary conclusion in the draft NPS, the Government has considered the points raised and examined fresh evidence where it has been suggested.

7.124 The Government has confidence in the Disposability Reports prepared by the NDA for Areva[39] and Westinghouse[40]. These were conducted by the NDA in line with a protocol[41] agreed beforehand with regulators. The NDA is the organisation that is tasked with implementing geological disposal in the UK; it is also the organisation responsible for issuing Letters of Compliance[42] that determine whether wastes arising can be disposed of in the GDF. As such, the NDA is expert in the field of radioactive waste management and the Government accepts their conclusions as being the most thorough and up-to-date analysis regarding waste from new nuclear power stations in the UK. However, the Government recognises that the regulators will need to be satisfied on this issue and notes that they have yet to provide a written report

38 Committee on Radioactive Waste Management (CoRWM), July 2006.

39 NDA. *Generic Design Assessment: Summary of Disposability Assessment for Wastes and Spent Fuel arising from Operation of the UK EPR*. October 2009, http://www.nda.gov.uk/documents/upload/TN-17548-Generic-Design-Assessment-Summary-of-Disposability-Assessment-for-Wastes-and-Spent-Fuel-arising-from-Operation-of-the-EPWR.pdf

40 NDA. *Generic Design Assessment: Summary of Disposability Assessment for Wastes and Spent Fuel arising from Operation of the Westinghouse AP1000*. October 2009. http://www.nda.gov.uk/documents/upload/TN-17548-Generic-Design-Assessment-Summary-of-DA-for-Wastes-and-SF-arising-from-Operation-of-APPWR-October-2009.pdf

41 Radioactive Waste Management Directorate, *Disposability Assessment of Solid Waste Arisings from New Build*, 25 April, 2008, http://www.nda.gov.uk/documents/upload/Disposability-Assessment-of-Solid-Waste-Arisings-from-New-Build-April-2008.pdf

42 The Letter of Compliance assessment process was established in the late 1980s to give confidence to site operators, regulators and stakeholders, that wastes being conditioned into passively safe forms would also be compatible with plans for the development of a GDF: www.nda.gov.uk/documents/upload/WNM-PP-011-Letters-of-Compliance-LoC-Assessment-Process-1-January-2008.pdf

on the Disposability Assessments[43]. The Government will take the regulators' comments into account when they publish these assessments.

7.125 The Government has examined recent reports from the JRC and the EA. It has found that neither the JRC nor the EA have stated that the technical issues they have identified cannot be resolved. The Government is encouraged by the identification of technical issues, the advice they provide and the acknowledgement of the major advances being made to take forward the implementation of geological disposal.

7.126 The JRC Report[44] acknowledges that some processes will require better quantification and that various coupled processes require further development. However, the report concludes that "…*our scientific understanding of the processes relevant for geological disposal is developed well enough to proceed with step-wise implementation"* and further states that "*This study did not identify major conceptual and research gaps for the host rocks and repository systems currently envisaged, namely* those *in (indurate) clays, fractured hard rocks and salt."* The Government is further encouraged by the JRC statement that "…*the forthcoming results are not likely to change the principal conclusions on the feasibility of geological disposal."*

7.127 The EA published a report[45] in 2009 which reviewed the technical issues related to the development of a deep geological facility for higher activity radioactive wastes in England and Wales. The report finds that the UK programme potentially faces a wide range of technical issues and this arises from the current lack of an identified site and the great variety of potentially suitable geological environments. The EA also states that the final inventory of radioactive wastes will be a significant consideration in the design and implementation of geological disposal. The report goes on to state that "*Work has been carried out to address the majority of the technical issues within the UK or within other disposal programmes. However, additional work may be required to apply the results of work in other countries to UK conditions, especially if the final UK repository site has different characteristics to the Sellafield site investigated by Nirex during the 1990s."* NDA has a research and development programme to meet its information needs[46].

7.128 The EA review and provide advice on the ongoing and proposed work on geological disposal by the NDA's Radioactive Waste Management

43 https://consult.environment-agency.gov.uk/portal/ho/nuclear/gda

44 JRC European Commission, 2009. *Geological Disposal of Radioactive Waste: Moving Towards Implementation.*

The European Commission's Joint Research Centre (JRC) is a department (Directorate-General, DG) of the European Commission providing independent scientific and technological support for EU policy-making: http://ie.jrc.ec.europa.eu/publications/scientific_publications/2009/LR-JRC_Reference_Report_IE_Geological%20Disposal.pdf

45 Environment Agency, *Science Report – Technical issues associated with deep repositories for radioactive waste in different geological environments,* August 2009, http://www.environment-agency.gov.uk/static/documents/Business/e.pdf

46 http://www.nda.gov.uk/research/index.cfm

Directorate (RWMD). The Government welcomes this engagement and the involvement of regulators at an early stage in the process. The Annual Reports provided by the Agency will assist in the early identification of issues that the regulator will want to see addressed. The Annual Report[47] for 2008/09 identified several issues which are being addressed by the RWMD.

7.129 With regard to evidence from overseas, the consultation considered, in particular, evidence from Finland and Sweden because their programmes are furthest advanced. The Government has reviewed the evidence it examined in relation to progress in Finland and Sweden. In relation to the evidence of the Finnish Regulator, STUK, the Government does not accept that the statement made in the draft NPS that "*STUK did not identify any reason why the project could not move forward"* misrepresents the position.

7.130 However, the Government does accept that one point made in Annex G of the Consultation document was incorrect, and an erratum was issued when this became clear. Paragraph 14 of Annex G said: *"…In particular they show that, under the conditions relevant to the Finnish GDF, the long-term safety of the facility is robust to an extreme scenario of simultaneous failure of all disposal containers and instantaneous release of all the readily releasable radionuclides in the spent fuel."*

7.131 Having reviewed with NDA during the consultation period the primary references used for this statement, it was concluded that this sentence was not accurate and it was amended as below:

*"…Under the conditions relevant to the Finnish GDF, the long-term safety of the facility is shown to be robust to pessimistic cases that were studied, for example where a number of failures of disposal canisters occur due to seismically induced rock movement. The disposability assessments carried out by NDA-RWMD for the requesting parties under the Generic Design Assessment similarly show that existing engineered barrier technologies can be applied to achieve the safe* disposal *of high burn-up fuel discharged from EPR or AP-1000 reactors even using what are expected to be conservative calculations of disposal canister integrity."*

7.132 The Government's view is that this revision does not provide grounds to modify the preliminary conclusion set out in the draft NPS on the basis that the above analysis provides confidence in effective containment even in pessimistic scenarios.

7.133 As well as Sweden and Finland, many other countries are looking to geological disposal for their high level wastes[48], these include Belgium, Canada, France, Japan and Switzerland. The government has further looked

47 Environment Agency, January 2010, *Environment Agency scrutiny of RWMD's work relating to the geological disposal facility - Annual review 2008/09,* http://publications.environment-agency.gov.uk/pdf/GEHO0210BRWU-e-e.pdf

48 World Nuclear Association. *National Policies: Radioactive Waste Management,* http://www.world-nuclear.org/info/inf04ap3.html, Appendix 3

at the Canadian and Swiss proposals as additional examples of how geological disposal for higher activity wastes is being taken forward.

7.134 The Canadian Nuclear Waste Management Organisation[49] (NWMO) spent around three years, from 2003 to 2005, looking at ways to take forward the management of Canada's spent nuclear fuel. In 2005 the NWMO recommended to the Government of Canada an Adaptive Phased Management approach for managing spent nuclear fuel. The recommendation is for centralized containment and isolation of the used fuel in a deep geological repository in a suitable rock formation, such as the crystalline rock of the Canadian Shield or Ordovician sedimentary rock. In June 2007, the Government of Canada selected the NWMO's recommendation for Adaptive Phased Management (APM)[50].

7.135 In Switzerland, following around 30 years of work by Nagra (The Swiss National Cooperative for the Disposal of Radioactive Waste) to produce scientific evidence that safe repositories could be developed to dispose of higher activity radioactive wastes, the Swiss Federal Government accepted, in June 2006, that Nagra had successfully shown through "Project Entsorgungsnachweis" that disposal of HLW in Switzerland is technically feasible[51]. Opalinus Clay has been confirmed as the preferred host rock option with the crystalline basement of northern Switzerland and the Lower Freshwater Molasse being reserve options.

7.136 These assessments further reinforce our decision that geological disposal is feasible and is the safest option currently available to manage the UK's radioactive waste in the long-term.

7.137 The Government is aware of one operating facility for higher activity radioactive wastes which is the Waste Isolation Pilot Plant (WIPP) located at Carlsbad, New Mexico, USA. WIPP has operated since 1998; the facility is for trans-uranic wastes, some of which are broadly equivalent to long-lived ILW[52]. The WIPP disposal facility is located in a deep salt bed[53] 2150ft beneath the Chihuahuan Desert[54].

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49 Nuclear Waste Management Organisation of Canada, November 2005, *Choosing a Way Forward: The Future Management of Canada's Used Nuclear Fuel. Final Study,* http://www.nwmo.ca/uploads_managed/MediaFiles/341_NWMO_Final_Study_Nov_2005_E.pdf

50 Nuclear Waste Management Organisation of Canada, March 2010, *About the NWMO web page,* http://www.nwmo.ca/about

51 NAGRA The Swiss National Cooperative for the Disposal of Radioactive Waste, November 2009, *Technical Report 09-06: The Nagra Research, Development and Demonstration (RD&D) Plan for the Disposal of Radioactive Waste in Switzerland,* http://www.nagra.ch/documents/database/dokumente/%24default/Default%20Folder/Publikationen/NTBs%202001%2D2010/e%5Fntb09%2D06.pdf

52 OECD Nuclear Energy Agency, April 2010, *Partnering for Long-Term Management of Radioactive Waste - Evolution and Current Practice in Thirteen Countries*

53 US Department of Energy (WIPP), February 2007, *Fact Sheet: Why WIPP?*, http://www.wipp.energy.gov/fctshts/Why_WIPP.pdf

54 US Department of Energy (WIPP), January 2003, *Fact Sheet: Why Salt Was Selected As a Disposal Medium,* http://www.wipp.energy.gov/fctshts/salt.pdf

## Comments received on identifying a suitable site

7.138 A number of respondents argued that there has been insufficient progress on the implementation of geological disposal to give confidence that a disposal route would be found. Some respondents expressed concern around whether a suitable site for a GDF would ever by identified and whether a GDF would, ultimately, be built. Some argued that a much clearer statement of intent from Government was needed, while others argued that new nuclear power stations should not be built until a GDF had been built, or was at least under construction.

7.139 In general respondents who commented on it were supportive of the voluntarist approach to site selection that is being followed in the MRWS process. However, several respondents noted that the only potential volunteer communities that had so far made a formal Expression of Interest were all in West Cumbria, and argued that it was possible either that this area might not prove suitable, or that the local communities might ultimately decide not to participate. Some respondents referred to the unsuccessful application by Nirex to build a rock characterisation facility in Cumbria in the 1990s. Others asked what the fall-back position would be in the event that a volunteer community in West Cumbria proved not to have suitable geology.

7.140 It was also argued by some respondents that even if a site for a GDF for the disposal of legacy wastes were found, it should not be assumed that the volunteer community would consent to the disposal of new build wastes.

## The Government's response

7.141 The Government's policy is that geological disposal is the way that higher activity wastes will be managed in the long term, coupled with safe and secure interim storage and ongoing research and development. This policy has been established following extensive consultation with experts, stakeholders and the public. A framework to implement that policy has been consulted on and then published, with a site selection process based on voluntarism and partnership. The Government notes the general support shown in the consultation for this approach.

7.142 The Government recognises the importance of its commitment to the implementation of geological disposal. The Government accepts that the site selection process under the MRWS programme is in its early stages, but orderly progress is being made, with Expressions of Interest from three local authorities in Cumbria[55]. The Government continues to discuss the opportunities associated with the MRWS programme with local authorities in England and Wales and remains open to further Expressions of Interest.

7.143 The Government also recognises the concern expressed in some responses around the pace of progress in this area. The Government is committed to

55 Two Borough Councils, Copeland and Allerdale in West Cumbria, have made "Expressions of Interest" in the MRWS site selection process. In addition Cumbria County Council has made an expression of interest covering the areas of Copeland and Allerdale, which lie within Cumbria County. These three Councils are now working together in partnership to take forward this process.

making the voluntarist and partnership approach to site selection work through the MRWS process. To deliver geological disposal it is necessary to have effective programme management, leadership from Government, clear responsibilities and accountabilities and a timeline and milestones against which progress can be measured. However, this must be reconciled with an approach based on voluntarism. The programme, particularly the early stages, relies on progress made in partnership with local communities and will move forward at a pace consistent with maintaining public confidence.

7.144 In light of comments received during this consultation the Government has reviewed arrangements for the delivery of geological disposal. It is establishing a reconfigured Geological Disposal Implementation Board to be a high profile oversight group, chaired by DECC Ministers and involving key stakeholders. An executive steering group has also been established, chaired by the Chief Executive of the Office for Nuclear Development, to provide leadership and oversight of geological disposal and hold NDA to account as the implementation body responsible for delivery.

7.145 To improve visibility of progress on the MRWS programme, the Government is developing a high-level timeline. This will describe the key steps achieved since the programme was launched as well as setting out indicative timescales and milestones in the programme of work leading to the first consignment of waste to a facility in 2040. This will be based on planning assumptions developed by the NDA and will initially be indicative given that the approach to siting is based on voluntarism and partnership with local communities and a preferred site has yet to be identified.

7.146 The Government has also committed to produce an annual report that will be published, with copies made specifically available to CoRWM and to Parliament as well as to other key stakeholders. The report will include progress towards meeting the commitments given by Government as a result of CoRWM's recommendations as well as indications of progress towards milestones. The Government has amended the NPS in Annex B to reflect these commitments.

7.147 On the question of whether there is a fallback in the event that a volunteer community proves unsuitable, as stated in Annex G of the consultation document the Government is committed to making the voluntarist and partnership approach to site selection work through the MRWS process. If there are difficulties in implementing this approach the Government will look at what can be done to address these so that an approach based on voluntarism will succeed. However, with or without the construction of new nuclear power stations the Government has a responsibility to deal with long-term higher activity waste and considers geological disposal to be the best available approach for the long-term management of this waste. In the event that at some point in the future voluntarism and partnership does not look likely to work, the Government reserves the right to explore other approaches. It is expected that if the Government determined at any point in the future that alternative approaches to that set out in the MRWS programme needed to be explored then this would be the subject of further public consultation.

## Comments received on the interim storage of higher activity wastes

7.148 The draft NPS set out that progress towards geological disposal should be coupled with a robust programme of safe and secure interim storage. Many comments were received on the subject of the interim storage of higher activity wastes pending final disposal in a GDF.

7.149 A number of responses argued that there was insufficient detail on how waste would be stored and packaged for disposal. It was argued that much more detail and certainty would be required before an assessment could be made, both in relation to the NPS and in relation to a site-specific planning application. Other responses stressed the importance of optimising the arrangements for the management and disposal of new build wastes.

7.150 Many comments concerned the assumption that higher activity wastes will be stored on the site of the nuclear power station until a GDF is available. Some respondents argued that it was highly undesirable to create a series of long term waste stores around the UK. It was argued that the consent of local communities to such stores was needed, with comparisons made to the voluntarist approach adopted to find the location for a GDF. Concerns were raised around the safety of interim storage, in particular risks to health and also security risks relating to, for example, terrorism.

7.151 There were many comments on the statement in the draft NPS that it is possible "*to envisage a scenario in which on-site interim storage of some spent fuel 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"*. Some respondents argued that 160 years could not be considered an "interim" solution and equated to indefinite storage. Some respondents also queried whether the Government should rely on the financial solvency of companies over this length of time and argued that this presented a risk to the taxpayer.

7.152 Several respondents expressed concern relating to the possible impact of climate change and extreme weather events over such a long time period. It was also noted in some responses that current flood risk projections run to 100 years into the future, and argued that therefore on-site storage of up to 160 years would pose unquantifiable risks in relation to future climate changes.

7.153 There were some respondents, however, who noted that waste is already managed effectively in the UK and abroad, and argued that the volumes of new build wastes produced are likely to be small relative to the quantities of legacy waste.

## The Government's response

7.154 The Government acknowledges that prolonged on-site storage of spent fuel is a matter of concern for local communities and that more detail might allay that concern. The Government expects the operators of new nuclear power stations to optimise the interim storage requirements for radioactive waste,

taking account of safety, security and environmental considerations and the availability of a GDF. It should also ensure that the duration of interim storage is minimised and the waste should be disposed of at the earliest opportunity.

7.155 The scenario referred to in the draft NPS, that on-site interim storage might be required for around 160 years from the start of the power station's operation, was based on an assumed station electricity generating life of 60 years, and the finding in NDA's Disposability Assessments that up to 100 years cooling might be required before spent fuel could be disposed of in a GDF. In light of the responses to the consultation, the Government has reviewed the assumptions which underpinned the scenario that on-site storage for 160 years might be required.

7.156 The NDA's Disposability Assessments were based on conservative assumptions. They assumed that each disposal canister is filled to its maximum capacity of four fuel assemblies and that each assembly is irradiated to the maximum burn-up of 65GWd/tU. As a result the reports concluded that a cooling period of approximately 100 years would be required. The reports highlighted that this is an extreme scenario; and furthermore flagged that at this stage this was a reference position and there had been no attempt to optimise disposal arrangements in a GDF, which would enable earlier emplacement, or earlier transport off-site.

7.157 Hence this figure of 160 years was underpinned by some conservative assumptions. Alternative assumptions reduce the expected period of on-site storage considerably[56].

7.158 Firstly, the storage periods prior to disposal estimated by NDA are not firm requirements. They will depend crucially on the actual level of burn-up achieved in the fuel. In their calculation, NDA had conservatively assumed that all fuel assemblies had achieved maximum burn-up. In reality fuel assemblies will experience a range of burn-ups with an average considerably lower than the maximum, and lower burn-up fuel will require shorter periods of cooling before reaching a suitable state ready for disposal.

7.159 The actual cooling time required will also depend in practice upon the designs of the disposal package, the final disposal concept and design and its geological setting, which will all offer scope for potential optimisation and which could shorten the required storage time. As set out in the MRWS White Paper, the NDA will undertake further research during the GDF design process. This will include optimising facility design and delivery.

7.160 The storage period may also be shortened by mitigating actions which could reduce the heat load on each disposal canister. These include putting fewer fuel assembles, or a combination of lower and higher burn-up fuel assemblies, into each canister. In particular, further analysis conducted by

56 Some of these alternative assumptions were discussed in *The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence*. November 2009, http://data.energynpsconsultation.decc.gov.uk/documents/wasteassessment.pdf

NDA since the publication of its disposability assessments has estimated that the duration of storage of spent fuel after the end of power station operation could in principle be reduced to the order of 50 years through combining in disposal canisters fuel from the earlier years of operation with fuel from the later years of operation[57]. This assumes three fuel assemblies per canister at the maximum burn-up considered of 65GWd/tU or four assemblies per canister in the alternative case where the average burn-up is 50 GWd/tU.

7.161 The Government notes that, in agreeing to take title to and liability for an operator's waste for subsequent disposal in a GDF, the Government will also agree an expected disposal date for that operator's waste. The operator will then be required to set out in their Funded Decommissioning Programme how they intend to ensure that their waste can be suitable for disposal on the expected disposal date.

7.162 On the basis of the NDA's current indicative timetable, and on the assumption that disposal of new build wastes will begin once disposal of legacy wastes is completed, a GDF is expected to be available to take spent fuel from new nuclear power stations from around 2130. This is approximately 50 years after the likely end of electricity generation for the first new nuclear power station (on the basis that it begins operation in around 2018 and has an operational lifetime of 60 years). The Government will expect operators to ensure their waste is disposable when a GDF is anticipated to be available to accept the waste and notes that NDA has identified steps that operators can take to meet that requirement.

7.163 In making its assessment that on-site interim storage might be needed for 160 years, the Government took a conservative approach, to ensure that local communities are aware that it is possible that on-site interim storage might be required for this length of time. However in light of the above, the Government has revised its position. The Government recognises that on-site interim storage might be required beyond 2130, particularly in the event that a GDF is not available to take the waste, but the Government does not expect on-site interim storage to be required for as long as 160 years.

7.164 Moreover it is not necessarily the case that the whole interim storage period for the spent fuel and ILW produced by a new nuclear power station will be on-site. The Government's base case assumption is that spent fuel will be stored on the site of the new nuclear power station until it is disposed of in a GDF. This is a prudent assumption in the absence of any firm proposals for alternative arrangements, such as regional or central stores, where ILW and spent fuel could be stored prior to disposal. However, the Government does not wish to preclude alternative arrangements, for example a central storage

[57] This information is extracted from a yet to be published report undertaken by the Nuclear Decommissioning Authority and commissioned by the Nuclear Industry Association. The report is expected to be published in late October or early November 2010 and will be available on the NDA web site at http://www.nda.gov.uk. The report title will be *Feasibility studies exploring options for storage, transport and disposal of spent fuel from potential new nuclear power stations*.

facility, if a site can be identified and the necessary regulatory and planning permissions obtained.

7.165 The Government has therefore revised the draft NPS accordingly at Annex B.

7.166 The Government acknowledges that the way in which waste is expected to be managed on-site is also a matter of concern for local communities and that more detail might allay that concern. The Government's approach to this assessment is not to specify how a prospective operator of a new nuclear power station must manage its waste, but rather to establish that there are appropriate means by which waste can be managed through its lifecycle. The basis for the preliminary conclusion in the NPS was presented in Annex G of the consultation document and the evidence considered in reaching the preliminary conclusion is summarised in *The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence,* which was published alongside the NPS consultation.

7.167 There are several options for the safe and secure management of radioactive waste, including spent fuel, that will be produced from new nuclear power stations. It is for the operators to provide safe and secure interim storage that satisfies the requirements of the independent regulators. In order for the construction of the power station to proceed, the nuclear regulators will need to be satisfied with the operator's proposal for the interim storage of predicted wastes, taking into account the security of the facility, health of workers and the general public, and the protection of the environment. The regulatory oversight process will operate throughout the lifetime of the station, ensuring that operators manage their waste materials in a way that is safe, secure and environmentally acceptable. The Government's response on issues raised around health and security risks can be found in the section on Question 16. The Government does not consider a voluntarism approach to be appropriate for the siting of new nuclear power stations. Instead, we have taken forward an open and transparent SSA process, establishing objective criteria for assessing the suitability of sites.

7.168 The Government expects the operator of a new nuclear power stations to optimise the interim storage requirements for radioactive waste, taking account of safety, security, environmental and cost considerations and the availability of a GDF. It should also ensure that the duration of interim storage is minimised and the waste should be disposed of at the earliest opportunity.

7.169 Prospective new build operators and the NDA are considering methods to optimise the arrangements for managing the spent fuel that will arise from new nuclear power stations[58]. The Government expects that systems and methods for both legacy and new build waste streams will be considered in parallel, not in isolation to each other. This will enable best practice to be shared across the legacy and new build estates to deliver the optimum

58 http://www.nda.gov.uk/news/spent-fuel-feasibility-study.cfm

management process and exploit synergies that may exist. Discussions are underway to examine methods that could be employed to rationalise storage, transport and disposal of radioactive waste.

7.170 With regard to costs, it is the Government's policy that operators of new nuclear power stations must set aside funds over the generating life of the power station to cover the full costs of decommissioning and their full share of waste management and disposal costs. The Energy Act 2008 creates a framework for the implementation of this policy and requires operators of new nuclear power stations to have a Funded Decommissioning Programme (Funded Decommissioning Programme) approved by the Secretary of State before construction can begin. This framework will protect the taxpayer by ensuring that funds are available to pay decommissioning and waste management costs even in the event of the insolvency of the operator.

7.171 With regard to concerns around climate change and flood risk, the Government has been advised by the EA and the Nuclear Installations Inspectorate (NII). This advice was based on a consideration of the capacity of nominated sites to withstand flood risk and coastal erosion including the potential effects of climate change using modelling data that looks ahead to 2100. Predictions of potential climate change effects become increasingly less certain the further into the future that they extend. However, climate change projections will continue to be refined and, as time passes, will project further into the future. As such, should greater future impact be predicted, this should be identified well in advance giving time for appropriate actions to be taken to address those impacts.

7.172 As discussed above, the duration on on-site interim storage of spent fuel is uncertain. The regulators have examined the adaptability of the sites to potential changes in flood hazard and are satisfied that additional safeguards are in place to ensure that only suitable sites achieve development and ongoing operational consent. This will also be reviewed in more detail as part of the planning and licensing stage and as part of the Flood Risk Assessment that applicants must undertake in conjunction with their applications to the IPC.

7.173 Should sites achieve development consent, their capacity to withstand potential climate change will remain under consideration throughout the life of the nuclear power station. Once licensed, as part of the site licensing conditions, the licensee must review their safety case at regular intervals (typically on a ten yearly basis). This review will take the most recent climate change projections into account and allow the necessary modifications to flood defences and/or operating arrangements to be undertaken. The objective of the review is to compare the safety case of the site against modern standards to see if there are reasonably practicable improvements that could be made, to ensure that the plant is safe to continue to operate, including spent fuel and radioactive waste storage for the next defined period.

## Comments received on other waste categories

7.174 As noted in the Draft NPS, new nuclear power stations will also produce waste streams other than higher activity wastes: low level waste (LLW), liquid and gaseous discharges, and non-radioactive wastes.

7.175 Several respondents commented on the future arrangements for managing low level radioactive wastes. It was commented that little was said about LLW in the draft NPS, but it was noted that the disposal of LLW is an essential consideration for new nuclear power stations. A number of responses commented on the challenges of devising new disposal routes for LLW and the importance of public acceptability.

## The Government's response

7.176 New build LLW waste will, like legacy LLW, be managed in accordance with the UK's LLW policy. Under this, the NDA has published a UK strategy for Nuclear Industry LLW which promotes the application of the waste management hierarchy, the best use of existing facilities and the development and use of new, fit for purpose disposal routes[59].

7.177 Following application of the waste management hierarchy to minimise waste arisings and make use of risk based treatment and disposal routes, new LLW disposal of waste not suited for other management options will be at the facility currently operating in West Cumbria or a successor facility.

7.178 The quantity of LLW produced by new nuclear power stations is expected to be small when compared to the existing and committed volumes of LLW that need to be managed. The small impact that new build LLW will have on LLW disposal capacity management plans is being addressed by the NDA's UK strategy for Nuclear Industry LLW.

## Comments received on the transport of radioactive waste

7.179 Some responses questioned the safety of transporting radioactive wastes, including spent fuel. Some concerns were expressed about the lack of information provided in the NPS about the way in which wastes would be transported away from the site of a new nuclear power station. Others were concerned about the impact of new waste movements on transport infrastructure.

## The Government's response

7.180 The Government is satisfied that radioactive waste, including spent fuel, from new nuclear power stations will be transported safely and securely.

7.181 The Government recognises that the transportation of radioactive wastes was not addressed in any detail in the draft NPS. However, the evidence the Government considered in reaching its view in relation to this question was

59 http://www.nda.gov.uk/news/llw-strategy.cfm

summarised in *The arrangements for the management and disposal of waste from new nuclear power stations: a summary of evidence*.

7.182 In particular the Government notes that experience in the UK and overseas shows that spent fuel can be, and is currently, transported safely and securely. The UK has decades of experience of transporting radioactive wastes in a safe and secure fashion. Any radiological consequences resulting from accidents or incidents during the transport of irradiated nuclear fuel have been categorised by the HPA as none or extremely low[60].

## Comments received on other issues

7.183 A large number of responses commented on the statement in paragraph 3.8.20 of the draft NPS that gave the preliminary conclusion and then stated that "*As a result the IPC need not consider this question*". Many respondents interpreted this to mean that IPC would be prevented from considering any matters relating to radioactive waste. It was argued that the IPC should consider such issues and in particular that the IPC should be able to consider plans for radioactive waste management in relation to an application at a specific site.

7.184 There were also some comments that questioned whether alternative methods of waste disposal would be preferable to geological disposal. In particular, a number of respondents supported the reprocessing of spent fuel, on the basis that it enables material of value to be recovered and reused, and substantially reduces the volume of waste for disposal. A few responses also noted the possibility that the UK's radioactive waste could be disposed of overseas, removing the need for a GDF in the UK.

7.185 A number of responses suggested that Government's policy was not consistent with the recommendation of the independent Committee on Radioactive Waste (CoRWM) in 2006, arguing in particular that the Government had disregarded the recommendation that a separate process was required in relation to new build wastes. Some respondents referred to the view expressed by four ex-members of CoRWM that the Government had misrepresented CoRWM's conclusions.

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60 Harvey, M.P., *HPA-RPD-056 - Radiological Consequences Resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK – 2008 Review*, p19, July 2009, http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1248766807377

Harvey, M.P. and Hughes, J.S., *HPA-RPD-048 - Radiological Consequences Resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK – 2007 Review,* p25, January 2009, http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1232436508409

Hughes, J.S. and Harvey, M.P., *HPA-RPD-034 - Radiological Consequences Resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK - 2006 Review,* p26, December 2007, http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1204286185596

Hesketh, N., *et al*, *HPA-RPD-021 - Radiological Consequences Resulting from Accidents and Incidents Involving the Transport of Radioactive Materials in the UK - 2005 Review,* p22, April 2007, http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1194947393377

Hughes, J.S. *et al, HPA-RPD-014 - Review of Events Involving the Transport of Radioactive Materials in the UK, from 1958 to 2004, and their Radiological Consequences,* p23, July 2006, http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1194947346295

## The Government response

7.186 The Government agrees that the IPC's role in relation to how radioactive waste is managed should be clarified. It is for this reason that Annex B of the revised draft Nuclear NPS has been created and new text included at Section 2.11.

7.187 The Government draws a distinction between two separate issues. Firstly the issue of whether, in principle, waste can be managed and disposed of in a satisfactory manner. The Government's view on this question is made clear in Annex B of the revised draft Nuclear NPS - this is not a point that the IPC should consider.

7.188 The second issue is the nature of the on-site facilities proposed for the management of radioactive waste produced on that site and the associated operational activities. The Government agrees that there are planning issues relating to this which it may be appropriate for the IPC to consider. Section 2.11 of the revised draft Nuclear NPS has therefore been revised accordingly.

7.189 With regard to alternatives to geological disposal, the Government's view is that, in the absence of any proposals from industry, any new nuclear power stations that might be built in the UK should proceed on the basis that spent fuel will not be reprocessed. The Government does not currently expect any proposals to reprocess spent fuel from new nuclear power stations. Should such proposals come forward in the future, they would need to be considered on their merits at the time and the Government would expect to consult on them.

7.190 No overseas disposal facilities for spent fuel are yet operational, and the exporting of radioactive waste would be contrary to Government policy. The Government's general policy is that radioactive wastes should not be imported to or exported from the UK, although there are some exceptions. The policy, including exceptions, is presented in the Government's Review of Radioactive Waste Policy[61]. The Government's policy is consistent with the International Atomic Energy Agency's (IAEA) Code of Practice on the International Transboundary Movement of Radioactive Waste[62], which states *inter alia* that it is the sovereign right of every state to prohibit the movement of radioactive waste into, from or through its territory.

7.191 The Government view remains as set out in the Managing Radioactive Waste Safely White Paper[63], "*Whilst Government policy is to pursue the geological disposal of higher activity radioactive waste, Government recognises the need to take account of developments in storage and disposal options, as well as possible new technologies and solutions*." The

61 Defra. *Command Paper 2919, Review of Radioactive Waste Policy: Final Conclusions*, July 1995

62 International Atomic Energy Agency, *Code of Practice on the International Transboundary Movement of Radioactive Waste*, September 1990, http://www.iaea.org/Publications/Documents/Infcircs/Others/inf386.shtml

63 Defra. *Managing Radioactive Waste Safely: A Framework for Implementing Geological Disposal*. June 2008. http://mrws.decc.gov.uk/

Government, through the NDA, will keep other waste management options under review.

7.192 CoRWM's 2006 recommendations, were made in relation to the existing and committed inventory of higher activity wastes. The recommendation was made that a separate process was needed in relation to new build. This was carried out through the 2007 Consultation on the Future of Nuclear Power, the associated public stakeholder and deliberative events and the subsequent Nuclear White Paper in January 2008, all of which considered the ethical and technical issues around the creation of new nuclear waste. CoRWM's recommendations have not been misrepresented.

## Question 20: Impacts of new nuclear power stations

7.193 The consultation document posed the question:

***Does the draft Nuclear NPS appropriately cover the impacts of new nuclear power stations and potential options to mitigate those impacts?***

7.194 There was significant overlap between responses to this question and other questions (particularly 17, 19 and 21). Comments were also raised that were not specific to nuclear power (see in particular the Government's response to questions on EN-1, which addresses these themes).

7.195 The intention of this consultation question was to examine whether impacts were appropriately covered in the Nuclear NPS rather than whether the impacts meant that nuclear power should/should not form part of the UK's energy mix. However, where key themes emerged we have reflected these wider comments.

### Comments on inconsistent consideration of impacts

7.196 Some respondents noted what they saw as inconsistency between the level of detail contained within the Nuclear NPS as compared with other NPSs in respect of the range of impacts to be considered and how the IPC should consider them.

### The Government's response

7.197 The policy set out in EN-1 (including the assessment principles and generic impacts in Parts 4 and 5) applies to applications for nuclear development. The information provided in the Nuclear NPS is therefore not the only policy for the IPC when assessing impacts. It is also worth noting that the energy NPSs are not intended to be exhaustive - applicants should assess all impacts of their proposals and the IPC will consider everything it considers to be important and relevant to its decisions.

7.198 The revised draft Nuclear NPS has been drafted to work very closely with the revised draft of EN-1.

### Comments on safety, security, health and non-proliferation risks of new nuclear power stations

7.199 Some respondents noted that the current regulatory regime governing nuclear activities in the UK provides for adequate protection of human health. However, many respondents expressed concerns about the impacts which could be associated with a new nuclear build programme. Potential incidents that caused concern ranged from issues of technical malfunction, to human error or natural hazards such as seismic movements or flooding. A number of respondents commented on the Generic Design Assessment process and specifically criticism made by the Health and Safety Executive (HSE) in its Stage 3 Report that the Westinghouse AP1000 design was

inadequately designed for external hazards. Others stated that everyday operations can themselves have significant impacts on health.

7.200 Some respondents were also opposed to an increase in uranium mining overseas due to the potential health impacts of mining activities.

7.201 Reference was made in a number of responses to various studies in respect of the impacts of nuclear development on human health. The most frequently cited study was the KiKK study that identified an increased risk of leukaemia amongst children less than 5 years of age living within 5km of nuclear power plants in Germany[64]. Concern was raised that a further review of this study being carried out by COMARE would not be available until after the draft NPS consultation closed[65].

7.202 The potential cumulative effects of sites within close proximity of each other was also highlighted as a concern – not only in respect of potential cumulative radiation dosages, but also in terms of evacuation procedures and emergency planning. Some respondents believed that in general the draft Nuclear NPS provided insufficient guidance on emergency planning and that such an important issue should not be left for determination on a site by site basis.

7.203 In respect of security and non-proliferation risks, a number of respondents stated that the draft Nuclear NPS failed to adequately consider the role of the IPC in respect of such issues. Respondents expressed concern about the risk of nuclear power stations being the target of terrorist attacks – whether by infiltration of the site, bombing or aircraft attacks. Comments were also received about the effect that a new nuclear programme may have on the proliferation of nuclear weapons. Comments were also made regarding the need for additional resources within the Office to Civil Nuclear Security (OCNS) to carry out security checks to minimise the risk of terrorist infiltration of the workforce of a new nuclear site.

## The Government's response

7.204 The Government acknowledges the safety, security, health and non-proliferation concerns raised by respondents. However, taking all the evidence into account[66], the Government believes that the risks associated with nuclear power are small and that the existing regulatory regime is such that those risks can be effectively managed. Further, the Government remains satisfied that the drafting of the revised draft Nuclear NPS appropriately covers these impacts.

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64 *Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants* (KiKK Study). http://www.bfs.de/en/bfs/druck/Ufoplan/4334_KIKK.html. English translation starts after page xi of http://www.bfs.de/de/bfs/druck/Ufoplan/4334_KIKK_Zusamm.pdf

65 See http://www.comare.org.uk/comare_docs.htm for details of the work and reports of the Committee on Medical Aspects of Radiation in the Environment (COMARE).

66 For example, see the Nuclear White Paper: http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file43006.pdf

*Security*

7.205 The security of civil nuclear material and sites in the UK is regulated by the OCNS in accordance with relevant national legislation, which fully reflects international obligations and guidelines. The OCNS places strict obligations on site operators and requires site security plans to be approved and regularly reviewed.

7.206 The threat of infiltration is taken very seriously. Site operators are required to ensure that anyone accessing nuclear materials is properly vetted. OCNS provides a security vetting service for all permanent employees and all contractors working in the civil nuclear industry. Clearances are granted only after the applicant's request has been investigated and has satisfied the criteria appropriate to the level of access required.

7.207 Any new licensed nuclear sites would need to satisfy the requirements of the Nuclear Industries Security Regulations 2003, which make provision for the protection of nuclear material, both on sites and in transit, against the risks of theft and sabotage, and for the protection of sensitive nuclear information. The Government is confident that this approach will ensure that security measures will continue to be robust and effective.

*Generic Design Assessment and resilience to external hazards*

7.208 The HSE and the EA are currently undertaking a process of Generic Design Assessment of new nuclear reactor designs. Generic Design Assessment allows the generic safety, security and environmental implications of new nuclear reactor designs to be assessed up front. The Generic Design Assessment process takes into account all reasonably foreseeable external threats. This includes meteorological phenomena, the effects of climate and landscape change, geological disturbance, seismic activity, flooding and aircraft impact.

7.209 The Generic Design Assessment process allows the regulators to identify any potential issues at the design stage, when a solution can be identified and implemented more effectively and efficiently. As such, issues raised during the process (such as the comments quoted from the HSE's Stage 3 Report) should not be seen as matters for concern, but should provide confidence that, once approved, the reactors will be safe and fit for purpose. It is anticipated that the Generic Design Assessment process will shorten the subsequent site licensing and authorisation processes and provide greater certainty to the public and industry at an earlier stage. The regulators have stated that they expect to report their Generic Design Assessment findings in June 2011.

*Non-proliferation*

7.210 All civil nuclear material in the UK is subject to "Euratom Safeguards", which are designed to detect the diversion of nuclear material to weapons or any other undeclared use. Existing nuclear operators are required to provide the European Commission with design information on installations and

accountancy reports for nuclear materials. The Euratom Treaty[67] also requires that the Commission's inspectors have access at all times to all places, data and personnel in order to verify the safeguards information submitted and provide assurance about the non-diversion of nuclear material. Euratom Safeguards will apply to any new nuclear power station in the UK, and the stations will also be subject to International Atomic Energy Agency inspections.

*Emergency Planning*

7.211 Applicants must consult the NII and the local Emergency Planning Authority (usually the local authority) on the details of their proposals for new nuclear power stations. The final emergency planning and assessment arrangements must meet the requirements of the NII and the Emergency Planning Authority. This can only be done at project stage as the development of emergency plans requires a detailed understanding of the nature of the local area and its population, and the specific proposals for development at the site.

7.212 The revised draft Nuclear NPS clarifies that emergency planning is an issue for the NII and the Emergency Planning Authority rather than the IPC. As a result, detailed text is no longer included in the NPS as it does not constitute planning policy for the IPC.

*Health*

7.213 Releases of radioactivity from nuclear power stations is strictly regulated. By law the radiation to which members of the public are exposed from all sources, excluding natural sources and medical procedures, is limited to 1mSv[68] per year[69]. This ensures that cumulative impacts of multiple sources are strictly controlled.

7.214 The regulatory regime goes further than the legal 1mSv limit. It requires operators to use Best Available Techniques[70] and ensure that the resulting exposures are below the statutory limits and as low as reasonably achievable. The regulators in the UK run a number of monitoring programmes to provide an independent check on the impacts of radioactive

67 http://ec.europa.eu/energy/nuclear/euratom/euratom_en.htm

68 The amount of radiation - the `dose' received by people is measured in millisieverts (mSv). This unit belongs to the same family as the litre and kilogram, the most commonly accepted, international system of units. See http://www.iaea.org/Publications/Booklets/Radiation/radsafe.html for more information.

69 This is through the Ionising Radiations Regulations 1999, Statutory Instrument 1999 No. 3232 (which includes all activities carried out under a nuclear site licence granted by the Nuclear Installations Inspectorate under the Nuclear Installations Act 1965); the Radioactive Substances (Basic Safety Standards) (England and Wales) Direction 2000: and the Radioactive Substances (Basic Safety Standards) (Scotland) Regulations 2000.

70 Best Available Techniques are required to be considered (under European law) in order to avoid or reduce emissions resulting from certain installations and to reduce the impact on the environment as a whole.

discharges. In 2008, radiation doses to adults and children living around nuclear sites remained well below the 1mSv per year limit[71].

7.215 At all of the sites listed in the revised draft Nuclear NPS there is historical data (from existing or previous nuclear facilities) to enable a comparative study between the incidence of cancer in the areas near the facilities and the average incidence of cancer in the UK population as a whole.

7.216 The findings of some studies, in particular the KiKK study[72], have suggested a link between nuclear power stations and a higher incidence of cancer. The Government has sought advice from the Committee on Medical Aspects of Radiation in the Environment (COMARE), a scientific advisory committee providing independent authoritative expert advice on all aspects of health risk to humans exposed to natural and man-made radiation. COMARE has published a series of reports on topics related to exposure to radiation. Its view is that there is no evidence for unusual aggregations of childhood cancers in populations living near nuclear power stations in the UK.

7.217 COMARE's 10th report[73] considered the incidence of childhood cancer around nuclear installations. These were divided into nuclear power stations and other nuclear sites. The results for the nuclear power stations supported the conclusion that "*there is no evidence from this very large study that living within 25 km of a nuclear generating site in Britain is associated with an increased risk of childhood cancer*".

7.218 COMARE's 10th report did, however, state that for other (non-generating) nuclear sites the situation was more complicated. Studies confirmed previous COMARE findings of excess childhood cancers in Seascale near Sellafield, in Thurso near Dounreay and around Aldermaston, Burghfield and Harwell. Historically, Sellafield is the UK nuclear site with the largest of all radioactive discharges. COMARE's fourth report[74], which concentrated on Sellafield and childhood leukaemia in Seascale, concluded that "*on current knowledge, environmental radiation exposure from authorised or unplanned releases could not account for the excess [of leukaemia and other cancers]*".

7.219 In its 11th report[75] COMARE examined the general pattern of childhood leukaemia within Great Britain and concluded that "*the search for increased risk levels near to nuclear power generation sites shows no pattern of excess cases of childhood cancer*". Amongst its recommendations, the report said that the incidence of childhood leukaemia and other cancers in

71 FSA, EA, SEPA & EHSNI, 2008, *Radioactivity in Food and the Environment* (RIFE), http://www.food.gov.uk/multimedia/pdfs/publication/rife2008.pdf

72 *Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants* (KiKK Study). http://www.bfs.de/en/bfs/druck/Ufoplan/4334_KIKK.html. English translation starts after page xi of http://www.bfs.de/de/bfs/druck/Ufoplan/4334_KIKK_Zusamm.pdf

73 COMARE, 10th Report, June 2005, *The incidence of childhood cancer around nuclear installations in Great Britain*, http://www.comare.org.uk/comare_docs.htm

74 http://www.comare.org.uk/documents/COMARE1-6reports.pdf

75 COMARE, 11th Report, July 2006, *The distribution of childhood leukaemia and other childhood cancers in Great Britain 1969–1993*, http://www.comare.org.uk/comare_docs.htm#statements

the vicinity of Sellafield and Dounreay (nuclear facilities, but not power stations) should be kept under surveillance and periodic review.

7.220 The KiKK Study[76] of childhood cancer in the vicinity of German nuclear power plants was published in 2008. It found that there was a correlation between the distance of the home from the nearest nuclear power station at the time of diagnosis and the risk of developing leukaemia before the fifth birthday. However, it also noted that the exposure to ionising radiation in the vicinity of German nuclear power stations was lower by a factor of 1,000 to 100,000 than the exposure to natural background and medical radiation, and that therefore the findings of the study could not be explained in the present state of radiobiologic and epidemiologic knowledge.

7.221 An analysis by the German Commission on Radiological Protection concluded that the design of the KiKK study was suitable for analysing risks according to distance but not for establishing a correlation with exposure to radiation from nuclear power plants. It pointed out that the natural radiation exposure within the study area, and its fluctuations, were both greater, by several orders of magnitude, than the additional radiation exposure from the nuclear power plants. The analysis concluded: "*If one assumes that the low radiation exposures caused by the nuclear power plants are responsible for the increased leukaemia risk for children, then, in light of current knowledge, one must calculate that leukaemias due to natural radiation exposure would be more common, by several orders of magnitude, than they are actually observed to be in Germany and elsewhere*"[77].

7.222 Following the KiKK study, COMARE requested that a re-analysis of the UK childhood cancer data used in COMARE's 10th report be carried out using the same methodology as the KiKK study as far as possible. This reanalysis – the Bithell paper[78] – was published in December 2008. It showed that, for the UK, the conclusions of the COMARE 10th report remained valid when applying methodology closer to that of the KiKK study on the same dataset.

7.223 The KiKK study gave the results on childhood cancer in the vicinity of 16 German nuclear power plants from a dataset established by the German Childhood Cancer Registry, which included over 1,500 childhood cancer cases from 1980 to 2003. In comparison, the dataset used for COMARE's 10th report and the subsequent Bithell paper contained over 32,000 cases of childhood cancer from 1969 to 1993. This is a verified national database and is believed to be the largest national database on childhood cancer in the world. The size of the database used by COMARE therefore gives considerable confidence in the results of the 10th report.

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76 *Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants* (KiKK Study). http://www.bfs.de/en/bfs/druck/Ufoplan/4334_KIKK.html. English translation starts after page xi of http://www.bfs.de/de/bfs/druck/Ufoplan/4334_KIKK_Zusamm.pdf

77 Commission on Radiological Protection (SSK), 2008, *Assessment of the Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants (KiKK Study)* - Position of the Commission on Radiological Protection, http://www.ssk.de/en/werke/2008/volltext/ssk0806e.pdf

78 Bithell et al, Radiation Protection Dosimetry, 2008, *Childhood leukaemia near British nuclear installations: methodological issues and recent results*, 132(2): pp. 191-197: http://rpd.oxfordjournals.org/cgi/content/abstract/132/2/191

7.224 COMARE is currently undertaking a further review of the incidence of childhood cancer around nuclear power stations, with particular reference to the KiKK study and COMARE's 10th and 11th reports. This will be published as COMARE's 14th report later this year. COMARE is also keeping the incidence of childhood leukaemia and other cancers in the vicinity of Sellafield and Dounreay under surveillance and periodic review.

*Health impacts of mining uranium*

7.225 The Nuclear NPS sets out planning policy for the IPC when considering applications for new nuclear power stations. It does not cover activities that take place overseas, such as the mining or milling of uranium.

7.226 However, the Secretary of State for Energy and Climate Change, in his decisions on the Regulatory Justification of the AP1000 and EPR nuclear power station designs[79], although not bound to take practices outside the UK into account, set out his views on the subject. In summary, the Secretary of State found that evidence presented in reports by the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR), the OECD and a Committee of the Australian Parliament was that the radiation exposure caused by uranium mining is high compared with other stages of the fuel cycle, but low in terms of impact on employees and members of the public and, with some exceptions, well below regulatory dose limits.

## Comments on the socio-economic impacts of new nuclear power stations

7.227 Some respondents expressed concern as to how small communities in rural areas would cope with an influx of large numbers of workers, putting pressure on the local infrastructure and services. Concerns were also expressed as to the potential impact on the tourism industry of an area, whether because of the visual impact of the development or as a result of the perceived risks of being in close proximity to a nuclear power station. Whilst it was occasionally pointed out that tourism and nuclear had successfully co-existed in the region, there was concern about the impact of potential new stations at Kirksanton and Braystones.

7.228 Some respondents were concerned about employment more generally. At some sites, responses said that "promises of jobs" were inflated because in fact employment on site would be largely skilled labour from outside the area. Others felt that where there were decommissioning facilities, new build would ensure continued employment.

7.229 For other respondents, this was an area where they felt that the draft Nuclear NPS focused more on the adverse effects of nuclear development and failed to adequately address the range of benefits.

79 http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/new/reg_just/reg_just.aspx

## The Government's response

7.230 It is recognised that the development of a nuclear power station could have effects on communities and supporting infrastructure in the local area. Such impacts could arise from the influx of a large number of workers and quite likely different workers for different stages of construction, operation and decommissioning. The Nuclear AoS has identified that this may place additional pressures on the demand for services and facilities in the areas surrounding the proposed development. This is a concern with any large scale construction project and there are possibilities for mitigating such effects depending upon local circumstances and needs. For example, transport management plans could be put in place to mitigate the pressures on local road networks. There will also be benefits to the local economy through the use of local support services, such as accommodation, local shops and leisure facilities.

7.231 Any impact on tourism will be dependent on a number of factors including the nature of the tourism business and the distance of the power station from it, as well as the specifics of the development consent application. The Government notes that there are tourism industries in the surrounding area of some existing nuclear facilities. However, it is not possible at this stage to accurately assess whether a new nuclear power station would impact on tourism in the area bearing in mind that this is a strategic assessment being conducted at an early point in the planning process. The IPC will consider these issues with reference to the proposals and site specific impact assessments.

7.232 New nuclear development would result in the creation of a significant number of jobs and would have a very positive effect on the local economy. The last nuclear new build project in the UK (Sizewell B) saw approximately 70,000 man years of work expended directly on the build, with a peak of around 5,000 workers on site. In addition, approximately 700 local suppliers were involved[80].

7.233 An application for development consent will have to consider all socio-economic impacts – both positive and negative. The IPC will then have regard to the potential impacts that have been identified by the applicant as well as from any other sources that the IPC considers to be both relevant and important to its decision.

[80] Nuclear Electric, May 1994, *Sizewell B Power Station – A Successful Partnership With Industry*

## Question 21a): Strategic Siting Assessment: general

7.234 Question 21 asked:

***Do you agree with the Government's preliminary conclusion on the potential suitability of sites nominated into the Strategic Siting Assessment…You can respond in general terms on the assessment as a whole, or against one or more specific sites.***

7.235 This section responds to comments that were applicable to the assessment as a whole. Key themes were identified on the nature of the assessment, the process of the assessment, the criteria used and the nature of the results produced. Some themes also emerged where the same point was made at a number of sites. Where the answer is applicable across all the sites, these have also been reflected here rather than against each site.

7.236 There were also a number of similar comments on the four sites in the North West region that were considered potentially suitable as a result of the initial assessment - Braystones, Kirksanton, Sellafield and Heysham. Again, where the response is applicable to all the sites in the North West these are also considered here. This section is then followed by the Government response to comments on the assessment of specific sites. That section sets out that Braystones, Kirksanton and Dungeness were found to be unsuitable sites.

7.237 The site assessments for potentially suitable sites have been updated to reflect relevant points raised during the consultation. They are within Annex C of the revised draft Nuclear NPS.

### Comments considered elsewhere in the Government Response

7.238 Some of the comments which were made on the assessment have been dealt with in other areas of the Government Response in particular and are listed here for clarity:

i) Comments on the storage of radioactive waste on site in relation to flood risk, and in particular concern about the long time scales involved and the potential impacts of climate change, are considered under Question 19 on radioactive waste management arrangements.

ii) At every site, responses were received which raised the impact of nuclear power stations on the health of the population. Because these comments are not simply site specific, they are discussed under Question 20: Impacts of new nuclear power stations. Where site specific points are raised (such as local studies) they are dealt with in relation to the specific site in the next section of this Government Response.

iii) At some sites respondents were concerned that the site could become a terrorist target. Particular concern was expressed about the risk of deliberate aircraft crash. Safety and security is also considered under Question 20.

iv) Some responses felt the SSA had tied the hands of the IPC in saying that sites are potentially suitable and in giving an Imperative Reason of Overriding Public Interest (IROPI). Comments on IROPI are considered under Question 25.

v) At many sites, there were concerns about impacts on local industry. These focused on the fishing industry due to concerns regarding the impacts of cooling technology, and the tourist industry, due to concerns about either the visual impact of a new nuclear power station, or perceived risks about being in proximity to a nuclear power station. Socio-economic impact, including on tourism, is considered further Question 20. Generally applicable comments on the impact of cooling technology are considered below under "comments on the impacts of cooling". More specific site concerns are reflected in the site sections.

### Changes to the format of the site section of the NPS

7.239 Some comments were made during the consultation about how the clarity and fitness of purpose of the NPSs could be improved. General siting policy has been moved earlier in the NPS. The site assessments have been moved to Annex C of the NPS. They are important and relevant background to the IPC when considering a particular site. The site assessments have been updated to reflect evidence brought forward during the consultation, and therefore repeat some of the points made in this Government Response. New site assessments have not been produced for sites which have been found not to be potentially suitable. Those are discussed only within this Government Response.

### Comments on the SSA process

### Comments on the process to identify sites

7.240 Some responses raised questions about how sites had been identified. There were concerns that the assessment had not considered the country as a whole, and had failed to create a national spatial plan. There were also concerns that the Government had only considered sites that had been nominated and not properly considered whether there were any viable alternatives. Some responses felt it was unfair to have established criteria before sites were nominated, arguing that it meant that people in the vicinity of sites had not had a chance to influence the criteria.

### The Government's response

7.241 The SSA is a process to identify and assess sites which are strategically suitable for the deployment of new nuclear power stations by the end of 2025. In addition to calling for nominations, a study was commissioned to

identify any alternative sites across England and Wales[81]. Comments on the assessment of alternative sites are considered under Question 22 a).

7.242 Establishing the SSA criteria first, after public consultation but before nominations, allowed nominators to identify sites that they thought could meet those criteria. Setting criteria after the sites had been nominated would arguably not have been a transparent or fair process and would have made it much harder for nominators to identify potentially suitable sites.

7.243 It is understandable that interest in the process of assessment has been forthcoming since the sites were nominated particularly from the vicinity of those sites. However, the Government had run a number of previous consultations to reach the SSA process and criteria, including a 22 week consultation in May 2007 on the principle and indicative criteria, which included a series of national events around the country, and a more detailed consultation in July 2008[82].

### Comments on the level of detail of the assessment in general and in the HRA and AoS

7.244 Some responses asked for more detailed information on specific proposals to be made available at this stage as part of the assessment - this tended to be either requests for more detail about technical matters such as the type of reactors that may be used or where within the boundary they may be sited, or for more detail about associated plans such as where construction workers may be housed or where marine offloading facilities may go. Some responses felt that this was needed before the local population could judge the merits of any proposed nuclear power station. It was raised that, having assessed against a baseline of one reactor, a judgement of potential suitability could not be made at sites where nominators have made statements that they would develop more than one reactor.

### The Government's response

7.245 The SSA has assessed whether a site is potentially suitable for a new nuclear power station rather than assessing a detailed application for development consent. It is possible, in theory, that different developers could bring forward different detailed proposals which may not affect the site's overall strategic suitability, which is the remit of the SSA. The SSA criteria represent those issues which Government is capable of assessing at a national level and at an early stage in the planning process.

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81 Atkins, prepared for DECC, 2009, *A consideration of alternative sites to those nominated as part of the government's strategic siting assessment process for new nuclear power stations*, http://www.energynpsconsultation.decc.gov.uk

82 There was a 22 week consultation in May 2007 on the principle of an SSA and indicative criteria which included a series of national events around the country: BERR, 2007, *Consultation on the proposed processes for Justification and Strategic Siting Assessment,* http://www.bis.gov.uk/files/file39199.pdf

There was a further consultation in July 2008: 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*, http://www.berr.gov.uk/files/ file47136.pdf

7.246 Detailed plans will continue to emerge for individual planning applications. A conclusion that a site is potentially suitable does not mean that an individual application for development consent at that site will be granted by the IPC. The IPC will have to carefully consider what is proposed in the application, and at a level of site specific detail which is beyond what was achievable in a national level assessment.

7.247 The SSA did not require nominators to specify how many reactors may be developed at a site. For the majority of the criteria, the assessment considered the area within the nominated boundary rather than the number of reactors that would be on it, which was less relevant at the level that the assessment was conducted. For instance, the flood risk assessment of the area within the boundary would apply regardless of the number of reactors that were on a site. For those criteria where it was more relevant at this stage, size of site (D9) and cooling (D10), a baseline of one reactor was used. The AoS has also used a base case of one reactor, apart from at Hinkley Point and Sizewell where the AoS took note of nominator statements that they plan to develop twin reactors at the site.

7.248 This does not mean that more than one reactor could not be built at any site, but it does mean that the differing impacts of a second station such as increased need for cooling water would need to be taken into account by the IPC as part of the EIA, and by the regulators as part of their consenting regime, should such an application come forward.

### Comments on the assessment of cumulative effects

7.249 Many responses raised the general question of how cumulative effects had been considered in the assessment. There were a number of comments on the cumulative effects that may rise from more than one potential nuclear power station in a particular region, in particular in the South West and North West. Concerns on particular cumulative impacts such as radiation are dealt with separately.

7.250 Some responses to consultation said that given the potential for cumulative impacts in a particular region, the number of sites should be limited. In Cumbria, it was commented that a detailed cumulative impact study should be undertaken now to identify the maximum number of sites that could be developed in a region. Other responses felt that the cumulative impact of all potential sites in a region should be considered when the first comes forward and that certain sites should be prioritised.

### The Government's response

7.251 The draft Nuclear NPS identified potential cumulative effects of more than one nuclear development at a strategic level. It identified both potential cumulative impacts in particular regions, for instance on biodiversity or visual impact on landscape, and opportunities, for instance on employment and supporting industries.

7.252 The assessment found that there was scope for mitigation of some impacts, but in some cases total mitigation is unlikely. However, not all cumulative impacts can be adequately assessed at this stage. For instance when assessing the cumulative impact on transport, factors such as the potential timing of the development and the number of employees will make a significant difference to the cumulative impact of more than one power station. This sort of information is not currently available. Ruling sites out now purely on the basis of cumulative effects risks prematurely precluding a site from development before an adequately detailed proposal could come forward with potential mitigating actions.

7.253 There can be no certainty that development consent on all sites listed in the revised draft Nuclear NPS will be sought or granted. This could result in removing sites now on the basis of cumulative effects which may not in practice materialise. Given this, and as it is for the private sector to build and operate new nuclear power stations, if sites are considered potentially suitable then the Government does not think it appropriate to stipulate which application should come forward first.

7.254 The IPC is best placed to consider cumulative effects, as it can do so at the point at which it is clear what other proposals have come forward and are relevant to the assessment. The IPC would not be expected to pre-empt what proposals may come forward in the future or second guess their effects - those proposals will be assessed for cumulative effects should they also apply for planning consent.

### Comments on the Strategic Siting Assessment criteria

### Comments on the assessment against the environmental criteria (D6 and D7) and the HRA and AoS

7.255 A number of respondents were concerned that the assessments of environmental impacts were too vague, particularly as they were unable to rule out adverse effects on sites of national or international importance. Some responses felt that the potential for adverse effects should have ruled sites out, and it was commented that a maximum level of environmental impact or mitigation should have been set over which a site would be ruled out of the NPS.

7.256 Some responses felt that the site assessments should have stipulated necessary mitigation measures, which would then have been consulted on. However, others felt that mitigation should be refined over time, as part of the EIA process.

### The Government's response

7.257 The assessment of environmental impacts was drawn from the AoS and HRA for each site. The HRAs for the sites which are in the NPS concluded that it could not rule out adverse effects on the integrity of European-designated ecological sites. However, the assessment proposed a suite of avoidance and mitigation measures which could be considered as part of a

project level HRA. It was assessed that the effective implementation of these measures may help to avoid or mitigate adverse effects.

7.258 Given the scope for avoidance and mitigation, and the need for sites, the Government does not think that sites should be ruled out from the revised draft Nuclear NPS where adverse effects cannot be ruled out at this stage (Dungeness is the only nominated site which overlaps with a European protected site to such an extent that the avoidance of adverse effects is not considered possible and mitigation of the effects of direct land take is assessed as unlikely to be successful).

7.259 Section 1.7 of the revised draft Nuclear NPS stipulates that any individual consent applications will be required to be supported by more detailed project level HRA, including Appropriate Assessment where necessary[83]. If adverse effects on European Sites[84] cannot be ruled out in relation to the project at that stage, then the IPC will need to make an assessment in line with the requirements of article 6(4) of the Habitats Directive. Annex A of the revised draft NPS sets out that the finding of IROPI for this NPS does not automatically transfer to individual projects.

7.260 The assessment has considered sites, rather than specific applications, and has been undertaken at a strategic level where specific project level information is not yet available, including in some cases information about the choice of reactor, the location of the finalised boundaries of the development site, the location and extent of ancillary infrastructure (such as marine off loading facilities, transport infrastructure, housing/community facilities) and the location of flood defences. These factors will all affect the scale of impacts and affect the avoidance and mitigation measures which might be feasible. At this strategic level, detailed suggestions for mitigation have been considered in the absence of project specific detail. Mitigation measures have not therefore been stipulated for each site. This avoids the risk mitigation measures which would have been appropriate for a particular development are missed, or stipulated where they are not necessary.

7.261 A threshold of potential mitigation has not been set as this may mean ruling sites out against effects which do not arise. Methods to avoid or reduce impacts will be explored in more detail at the project level when the developer has detailed information to design a bespoke package of mitigation measures tailored to suit local conditions.

### Comments on D10: Impact of cooling

7.262 At all the sites comments were received about whether the site was suitable because of the impact of cooling water intake and outfall. Whilst site specific comments are reflected in the site assessments, many responses were more

83 Appropriate Assessment is an assessment required under the Habitats Directive when a plan or project is likely to have a significant effect, either individually or in combination with other plans or projects, on a European Site.

84 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of 'European Sites'.

general in their concerns about cooling outfall raising either the temperature of surrounding waters or the chemical composition of the water to the extent that marine life would be severely affected. Responses were also concerned about how this would be considered at the licensing stage.

7.263 Many respondents were concerned about the potential cumulative impact of sites nominated in the North West (and occasionally also at Wylfa) on the Irish Sea. Concerns focused on the impact on water quality. Comments were received that discharges could form a significant proportion of the total flows along the coast and that these would not be sufficiently diluted, affecting wildlife both at designated sites of ecological importance such as Morecambe Bay, and the overall biodiversity of the Irish Sea. Concerns were also raised about the effect of cooling infrastructure on sediment flows and erosion on the North West coast. It was commented that these concerns limited the number of reactors that could be built on the coast and that this should have precluded sites at this stage.

7.264 Some respondents were concerned that impacts would be felt more widely possibly affecting the Isle of Man or the Irish Republic, posing a direct threat to the fishing and tourism industries.

### The Government's response

7.265 The assessment considered whether it is reasonable to conclude that there are suitable sources of cooling for a new nuclear power station at the nominated site. Nominators were expected to offer information about cooling technologies that are feasible. This was considered in conjunction with advice from the NII and the EA and the findings of the AoS which considered both the biodiversity and visual impacts of potential cooling technologies.

7.266 However, the precise design, including aspects of the cooling technology, will be brought forward in due course. Key elements such as the number of reactors, the design of the cooling technology, the location of infall and outfall, and the application of mitigations such as tunnelling techniques will be considered as part of the individual application for development consent and environmental permitting regimes rather than as part of the site's suitability at this stage.

7.267 An operator needs an Environmental Permit issued by the EA for the discharge of cooling water to controlled waters. The EA will consider the acceptability of any environmental impacts before deciding if a permit should be granted. The permit will require operators to meet the discharge limits that are set by the EA. In setting the discharge limits, the EA will be mindful of both the existing water quality and environmental standards, for example, statutory environmental quality standards (EQS). Operators will need to satisfy the Agency that they can meet the limits set and compliance with discharge limits will be monitored during operation. The location of the point of abstraction of any cooling water and type of source of supply from which it is taken will determine whether consideration is needed for an abstraction and or impoundment licence. If a licence is required and granted it will be subject to conditions to protect both the environment and existing protected

water rights and legal water interests. Abstractors would need to comply with such conditions and will be monitored. In addition the NPS stipulates that there must be a project level HRA which would consider the impact of the abstraction and discharge of cooling water on any sites of international ecological importance. The Government currently expects that developers will use the Best Available Techniques in their proposals for cooling water infrastructure.

7.268 Although Kirksanton and Braystones are no longer considered suitable, this is not because of the potential impact of cooling water. Whilst the AoS and HRA has identified potential adverse effects on water quality and quantity due to abstraction and discharge of sea water from more than one potential nuclear power stations in the area, the EA has advised that to assess the impact fully will require detailed proposals, detailed environmental and physical surveys and modelling of impacts. These assessments would need to take account of interactions with other plans and projects in the area which would include the development of other nuclear power stations should applications for those stations have been sought or granted.

7.269 In relation to routine radioactive discharges from new nuclear power stations, these will need to be within authorised limits. The EA works with operators to ensure that routine radioactive discharges are not only within statutory limits but as low as reasonably practicable. The UK is also a contracting party to the OSPAR Convention on the Protection of the Marine Environment of the North East Atlantic. The revised radioactive discharges strategy published in 2009 demonstrates how the UK is continuing to meet the objectives of the Convention's Radioactive Substances Strategy. This includes the objective of progressive and substantive reductions in concentration of radionuclides in the marine environment resulting from discharges, so that by 2020 they add close to zero to historic levels.

7.270 The focus of the AoS was on the effects associated with England and Wales. However, consideration was given to any significant effects for the rest of the UK and transboundary effects. It was concluded that significant transboundary effects are unlikely[85].

7.271 The Government notes that there are tourism industries in the surrounding area of some existing nuclear facilities. However, the SSA has not considered in detail the potential impacts on the tourism industry. Socio-economic impacts are discussed in more detail under Question 20 ("Comments on the socio-economic impacts of new nuclear power stations").

### Comments on cumulative radiation doses

7.272 Some respondents were concerned about the cumulative impact on health and radiation of more than one potential nuclear power station in an area.

85 *Appraisal of Sustainability for the revised draft Nuclear National Policy Statement: Main Report*, October 2010, http://www.energynpsconsultation.decc.gsi.gov.uk

Particular concern was raised in Cumbria about existing radiation from Sellafield, and the potential for construction to disturb radioactive particles that could blow over Cumbria. Some responses asked what the cumulative dose would be in Cumbria if all the sites were developed or further afield in the Isle of Man.

## The Government's response

7.273 By law the radiation to which members of the public are exposed from all sources, excluding natural sources and medical procedures, is limited to 1mSv per year[86]. This limit applies to the cumulative effects of planned exposures and therefore the radiation to which people living near a new nuclear power station are exposed is legally limited to 1 mSv per year, taking into account exposures from any other nearby sites and any past controlled releases. The regulatory regime therefore takes into account the cumulative impact of having more than one source of radiation in a particular area.

7.274 The ongoing assessment of dose to members of the public are supported by a programme of environmental sampling and monitoring reported in the annual Radioactivity in Food and the Environment (RIFE) reports[87]. Future discharges from any new nuclear power station would be assessed on the basis of the detailed proposals as and when they are formally submitted for assessment. However, the EA has advised that their preliminary assessments of the reactor designs (for Generic Design Assessment) indicate that doses arising from potential discharges from these reactors are well within dose limits and constraints.

7.275 The EA advises that discharges from the existing Sellafield site meet all relevant national and international requirements in terms of impact and doses to members of the public and the environment. The 2008 RIFE report confirms that doses to critical groups on the Isle of Man are less than 2% of the statutory dose limit of 1000uSv/y (i.e. <20uSv) (this for exposure to all artificial radionuclides in the environment, not just those from Sellafield discharges).

7.276 The presence of radioactive particles in offshore sediments, and the consequences in terms of risks to the public, are currently subject to assessment as part of a formal programme of work on Sellafield Radioactive Particles in the Environment[88]. The EA has advised that characterisation of the distribution of radioactive particles in beach sediments is well advanced in this area, and the current level of understanding indicates that risks to the public are very low, due to a combination of relatively low hazards associated with the particles found to date, and the very low probability of

86 This is through the Ionising Radiations Regulations 1999, Statutory Instrument 1999 No. 3232 (which includes all activities carried out under a nuclear site licence granted by the Nuclear Installations Inspectorate under the Nuclear Installations Act 1965); the Radioactive Substances (Basic Safety Standards) (England and Wales)Direction 2000; and the Radioactive Substances (Basic Safety Standards) (Scotland) Regulations 2000.

87 http://www.food.gov.uk/science/surveillance/radiosurv/rife/

88 http://www.environment-agency.gov.uk/homeandleisure/110563.aspx

members of the public ingesting or inhaling these particles which are very sparsely distributed.

7.277 On the basis of current information on the finding of radioactive particles on beaches near the existing Sellafield site, the HPA considers that no special precautionary actions are necessary at this time regarding access to or use of these beaches. However, HPA will continue to work with relevant authorities to keep the situation under investigation.

7.278 If relevant the consequences of a new build sea discharge disturbing contaminated sediments will be assessed as part of the EA's assessment of any specific proposals for Sellafield if made as part of a formal application.

### Comments on a criterion on transmission

7.279 Some responses said that there should have been a criterion on transmission, commenting that it was unfair that rural sites would be "powering the South East". There were some concerns that the cost of transmission losses would be passed on to the customer.

7.280 Other responses felt that the impact of routes for transmission should have been considered by the SSA and there were particular concerns about the additional impacts on the landscape that these may have at certain sites, such as the Lake District National Park.

### The Government's response

7.281 There are important safety and operational factors which affect the siting of nuclear power stations, for example demographics and access to cooling water, which could lead nuclear power stations to be sited further away from centres of demand. From a technical perspective, however, there is no reason why power stations need to be near centres of demand provided they can still be connected to the grid.

7.282 The charges paid by generators to meet the capital costs of the transmission network will vary by location to reflect the fact that those at the further reaches of network impose greater costs. In the UK, the biggest centres of demand are the Midlands and the South East of England (including London) so generators that are further away from those regions will generally pay more to connect. This is an economic decision for an operator to take. It is true that more energy will be lost where electricity has further to travel through the system, due to physical processes such as resistive heating of transmission lines and magnetic and resistive losses in transformers. This loss is typically of the order of 2% of the energy transferred across the entire transmission network.

7.283 A separate NPS (EN-5) covers electricity networks (transmission lines and associated infrastructure). Applications for new transmission lines would be assessed by the IPC using that NPS, and taking account of detailed project level information such as the proposed route for any new transmission infrastructure.

## Comments on the assessment of rural or greenfield sites

7.284 Some responses felt that assessment should have precluded greenfield sites (Braystones and Kirksanton). Others felt that a lack of existing nuclear facilities should not disallow sites. There were also concerns that the parameters of the assessment had been changed to allow greenfield sites to be nominated at the behest of energy companies. There were concerns that energy companies were able to buy land and commence tests on it before it was nominated, without residents being aware of the forthcoming nomination.

7.285 Particularly in relation to greenfield sites, some responses asked whether the policy had been rural-proofed. There were concerns that the differing impact on rural sites had not been considered.

7.286 A few respondents suggested that the Nuclear NPS should provide further guidance as to the distinction the IPC should draw between greenfield and brownfield sites.

## The Government's response

7.287 Whilst the majority of concerns about the impact on rural communities arose at greenfield sites, the majority of nominated sites are rural. This is because of technical limitations on siting such as access to cooling water and demographic restrictions. Rural proofing involves assessing how policies will work for rural people and places and ensuring that the policies are implemented fairly and effectively. As the Nuclear NPS is site specific, it has included an assessment of each site which considers the nature of its setting. This has in turn informed wider decisions such as how the local consultation on the draft NPS was taken forward at the sites.

7.288 The consultation on the SSA process and criteria in July 2008[89] did not propose a restriction on where could be nominated. The nominations of Braystones and Kirksanton were received at the end of March 2009 - no change was introduced to remove a restriction to allow these sites to be nominated. The SSA did not introduce new restrictions on the purchase of land and what a landowner can do with that land. Therefore energy companies (or any other party) would be free to purchase land in the normal way, although a precondition of the nomination process itself was awareness raising.

7.289 As it is for the private sector to build and operate new nuclear power stations, there can be no certainty that development consent on all sites listed in the NPS will be sought or granted. Therefore, if sites are considered potentially suitable then the Government does not think it appropriate to stipulate which application should come forward first.

89 BERR, *Towards a Nuclear National Policy Statement: Consultation on the Strategic Siting Assessment Process and Siting Criteria for New nuclear Power Stations in the UK,* July 2008, http://webarchive.nationalarchives.gov.uk/20100216092443/http://www.berr.gov.uk/consultations/page47143.html

7.290 Section 4.25 of EN-1 noted that "although the re-use of previously developed land for new development can make a major contribution to sustainable development by reducing the amount of countryside and undeveloped greenfield land that needs to be used, it may not be possible for many forms of energy infrastructure." Further, at paragraph 4.25.14 the IPC is directed to ensure that applicants have prioritised the reuse of previously developed land and buildings and, where this is not possible, have made efficient use of any greenfield application site.

### Comments on the assessment of demographics

7.291 Some responses felt that the demographics criterion should be changed to allow nuclear power stations to be built closer to centres of demand and in urban locations. Others felt that the demographics criterion should limit nuclear power stations to the most remote areas.

7.292 Some respondents asked for more guidance on demographics. There were comments that the criterion should indicate what levels of population within specific zones are deemed to be acceptable, and that the assessment should have incorporated transient populations such as holiday makers, given that in areas such as Bradwell in Essex, this can increase the population density.

### The Government's response

7.293 Whilst the likelihood of an accident with off-site consequences is extremely low it is important that in the event of such an accident, emergency response plans can be put into effect. The efficacy of emergency arrangements is related to the density of population around a nuclear site. The Government has applied a policy of siting new nuclear power plants in areas where the population density does not exceed certain thresholds and during the SSA an assessment has taken place to see whether a proposed site should be excluded because population density. The HSE advised that the "semi-urban criterion" is appropriate for setting this threshold. A worked example of how this scan took place is provided within the HSE's guidance on the demographics assessment[90].

7.294 The assessment considers cumulative weighted populations present in a given area. The population density (number of people per square kilometre) is measured out to various radial distances around the nominated site, and in any 30 degree sector, then compared to constraint limits. Weighting factors are attached to take account of the reduction in radiation dose, with distance from a possible accident situation. For the SSA, the analysis was carried out to a radius of 30km from a proposed site.

7.295 The HSE has advised that at the national level that the SSA was carried out it would not have been practical to assess transient holiday populations

90 Health and Safety Executive Nuclear Directorate, *Land use planning and the siting of nuclear installations in the United Kingdom*, 2009, http://www.hse.gov.uk/landuseplanning/land-use-planning.pdf

because data is not readily available through the census and ordnance survey data that was used during the assessment. Should an application for development consent come forward, the HSE would consider the full range of transient populations, both short and long term and in addition to workplaces, as part of the detailed regulatory assessment of the site's suitability and the consequences for effective emergency planning. Although a site may meet the semi-urban criterion at this stage, this does not guarantee that the demographic features of a site will be acceptable following detailed regulatory assessment at the time of an application for development consent**.**

### Comments on emergency planning

7.296 A number of responses said that emergency planning should have been assessed as part of the SSA. There were concerns that sites may be found potentially suitable in areas where an effective emergency plan could not be deployed. There was also a concern that emergency plans only consider the results of an accident, and not of terrorist attack.

7.297 Some respondents were concerned about emergency planning in Cumbria in particular because of the proximity of potential sites. Some mentioned that siren warnings at Sellafield and Braystones would need to be sufficiently differentiated in order that the public can identify the location of a potential emergency and implement advice about protective measures. In Cumbria there was a particular concern that the routes out for evacuation would also need to be used for emergency services coming in to the area and that existing roads were already inadequate. Many responses called for improved transport in the area to deal with emergencies. At Bradwell specific concerns were made regarding emergency planning zones which are dealt with in the response on that site.

### The Government's response

7.298 Under the Radiation (Emergency Preparedness and Public Information) Regulations 2001 (REPPIR), local authorities are responsible for preparing off-site plans for sites in their areas. Plans made under REPPIR would provide for a response to a range of radiation emergencies regardless of how they might be initiated.

7.299 Emergency planning zones are designated by the NII after an application for development consent and licensing has been made and a Report of Assessment required under REPPIR has been received. They are designated by the NII taking account of the input of the Emergency Planning Authority (usually the local authority) and the emergency services. It would not therefore be appropriate for the Government to pre-empt the decision of where a new emergency planning zone would be. This is because development of appropriate emergency plans requires a detailed understanding of the nature of the local residential and working population, capability and redundancy of local infrastructure and capability of local emergency services. These factors cannot, in general, be assessed at a strategic level and were therefore not assessed as part of the SSA.

### Comments on coastal access and footpaths

7.300 Some responses felt that access and footpaths should have been considered as an SSA criterion given that, due to security concerns, footpaths may have to be moved. Responses felt that safeguarding access to the coast should be an integral part of proposals and many asked how proposals could be allowed given the emphasis on a continuous coastal path in the Marine and Coastal Access Act 2009.

### The Government's response

7.301 EN-1 sets out that in considering the impact of a proposed development on maintaining coastal recreation sites and features, the IPC will expect applicants to have taken advantage of opportunities to maintain and enhance access to the coast. In doing so the IPC will consider the implications of development for the creation of a continuous signed and managed route around the coast, as set out in the Marine and Coastal Access Act 2009. If any potential adverse effects to coastal access, national trails or other rights of way are identified, the IPC will expect applicants to take appropriate mitigation measures. Where this has not taken place, the IPC will consider what appropriate mitigation conditions should be attached prior to granting development consent. Possible mitigation measures might include siting certain elements of a station away from public footpaths and/or the provision of realignments to existing or planned rights of way.

7.302 The provisions on coastal access in Part 9 of the Marine and Coastal Access Act 2009 are designed to be flexible to meet changing circumstances such as where coastal land is affected by development. The line of the coastal route and the associated coastal margin is not fixed permanently. Where development is planned and would have an impact on a coastal route for a particular stretch of coast, Natural England will take this into account in proposing a route at the outset or, where necessary, will propose a revised route if such development is planned after a route is in place.

### Comments on blight from new nuclear power stations

7.303 Many respondents were concerned that either the existence of a new nuclear power station, or proposals for a new nuclear power station, may cause blight and reduce property values in an area. Concerns ranged from property either within or very close to the nominated site (with particular focus on the impacts of construction), to responses from further away where there was concern that perception of risk, or impacts on views, may blight property. This concern was particularly pronounced at Oldbury, where there were concerns about highly visible cooling towers.

7.304 There were also a number of responses on blight from Kirksanton and Braystones. These seemed related to two factors - that there was no existing facility so that a nuclear power station would be entirely new and there was a resulting feeling that it would render a greater change on the area, and that many responses felt that it was unlikely that an application for development consent would come forward within the timescale of the NPS, leaving greater

uncertainty and decreasing the likelihood of more positive impacts such as an increase in trade or upswing in qualified professionals seeking housing. At Kirksanton, there was a pronounced concern that local tourism businesses would be blighted by a changing perception of the area and at Braystones, key concerns came from residents on Braystones beach, who felt that they were likely to be affected by the construction of cooling infrastructure or marine landing facilities.

### The Government's response

7.305 The NPS identifies the areas in which an application could come forward for consideration by the IPC. It sets out a boundary at the 1:10,000 scale which delineates the area being considered by developers (and by extension, where is not being considered) to provide more certainty for local residents. The assessment has also been designed to consider sites which can be deployed over a relatively short timescale, avoiding an open-ended timeframe. Cases of blight would therefore be arising out of the context of trying to provide more certainty and clarification to local residents.

7.306 The IPC must consider the benefits and impacts of development, and in doing so can set enforceable planning conditions upon which development is contingent. These can range from limiting hours of construction to changing site layout to reduce impacts on views or altering the design of artificial illumination. It is therefore important that there is ongoing engagement on detailed proposals.

7.307 Statutory protection exists in some circumstances for cases of hardship, and more generally the Government does not propose additional arrangements over and above these provisions. It is worth noting that the statutory provisions and case law that govern the eligibility for and assessment of compensation are complex. Anyone who believes that they may qualify should consider seeking advice from a professionally qualified person such as a solicitor. Those who believe they may be eligible for compulsory purchase should refer to the available guidance[91].

7.308 The majority of land which has been nominated into the SSA is owned by the respective nominator. Where it is not owned by the nominator, it is not likely that land values would decrease as a result of the NPS, where the NPS has described it as potentially suitable for a new nuclear power station, given the relatively small number of suitable sites and the premiums on land which have been sold for nuclear development. Nonetheless under the Town and Country Planning Act 1990, for any land within the nominated boundary which is affected by the designation of the NPS (resulting in an inability to sell except at a significantly lower price than the market value prior to designation), the Government can be required to buy that land if landowners have made reasonable attempts to sell the property and been unsuccessful.

91 http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyimplementation/compulsorypurchase/compulsorypurchasebooklets/

7.309 The planning process ensures that as potential developers move towards applications for development consent, they must provide more detailed plans to the public through pre-consultation procedures which will enable discussion with the IPC on the planning obligations that should be imposed to mitigate potential impacts. This will enable the public to raise concerns with the developer or the IPC. The IPC can make a development consent subject to enforceable planning conditions to limit nuisance caused by construction and operation. Should construction activity result in loss of value, in some circumstances there is a statutory right to compensation that may be available where properties are physically affected (or lose some special right) either by the construction or by the operation of a nuclear power station. It is the developer rather than Government that is liable to pay this compensation[92].

7.310 At Oldbury, concern about blight was related to the potential for 200m cooling towers. The discussion under question 21h) on Oldbury (particularly criterion D8) sets out the changes made to the revised draft NPS which reduce the potential for such development (and Horizon has recently expressed a preference for shorter, hybrid towers). At the majority of sites, there are existing nuclear facilities within which physical context any new station would be seen. Although in some locations existing facilities are being decommissioned, infrastructure is likely to be in situ for many years. EN-1 has set out that a visual assessment has to be made by the IPC, and has also iterated the principles of good design that should be followed in any application for development consent.

7.311 Whilst the Government recognises concerns that the impairment of views or the perception of risk may have a negative effect on values, compensation for these would be hard to quantify, and could set a precedent for infrastructure development which risks rendering it too complex and costly to allow. The Government does not believe that compensation should be available in cases not covered by the statutory protection detailed above.

7.312 The Government recognises concerns about the likelihood of deployability of Braystones and Kirksanton within the timeframe required by the NPS (by 2025). Deployability was a key concern which, in conjunction with concerns regarding the effect of development of the sites on the Lake District National Park, has resulted in the sites being removed from the revised draft Nuclear NPS.

### Comments on transport

7.313 At every site concerns about the capacity of the local transport network were raised. These tended to focus on the transport of large components and

92 Section 10 of the Compulsory Purchase Act 1965 allows compensation for injurious affection caused by the execution of works, which would include the construction of a power station, where a drop in the value of land has occurred Part 1 of the Land Compensation Act 1973 provides protection from drops in the value of land caused by the operation of the power station. Claims can be paid a year after the first use of the station, to allow proper assessment of the effects of the station. This would cover physical factors such as noise, vibration, smell, fumes, smoke and artificial lighting, although the IPC has the ability to set planning conditions which should reduce the likelihood of these eventualities occurring.

workforce during construction; transport routes for workforce during operation; and also the need for adequate transport links in the unlikely event of an emergency which required evacuation. There were various concerns that sites were not potentially suitable unless there were improvements to the transport network, and responses asked how upgrades to the transport system would happen. In Cumbria, a number of respondents referred to the adequacy of the Cumbrian road network to cope with any new nuclear power station. Comments focused on the problems faced in the floods of November 2009, and the impact of the Sellafield facility on the existing transport network.

### The Government's response

7.314 The Government recognises that a new nuclear power station, both in construction and operation, may have significant impacts on both local and national transport infrastructure. The AoS identified that there may be adverse effects during the construction and decommissioning phases on regional transport networks that may already be under stress, particularly where there are clusters of potentially suitable sites for new nuclear power stations. However, the Government believes that, in general, to understand the potential impact of a new development on infrastructure will require detailed project specific assessments. The level of impact will differ depending on factors such as the number of employees, when a power station may be developed, or the scope for different transport methods such as transporting components by sea.

7.315 Transport access arrangements can be included as associated development and therefore submitted to the IPC for consideration along with an application for development consent for a new nuclear power station. EN-1 sets out how this would be considered. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the IPC should normally expect applicants to accept conditions and/or obligations for funding infrastructure and otherwise mitigating adverse effects on transport networks arising from the development. These are known as planning conditions or planning obligations which can be used to make acceptable development proposals which might otherwise be unacceptable.

7.316 Local Planning Authorities will be able to seek "Section 106" agreements for developments in the new regime (using Section 174 of Planning Act 2008). This allows planning obligations to be entered into with respect to individual applications for development consent and contain provisions for the enforcement of the planning obligations. These agreements are to provide for the developer funding improvements to mitigate the impacts of the development.

7.317 In Cumbria, the EA has advised that the A595 was affected in a number of places during the November 2009 floods. Water was across the road to the North at Egremont followed by Holmrook and Duddon Bridge moving South. This could affect ingress and egress to all of the sites. Many other smaller roads were also affected, and further consideration would be expected at the

detailed planning stage if specific proposals were to come forward. The HSE has advised that the bridge at Holmrook, 5 miles south of the Sellafield site, was closed for five days and effectively cut off the southern route for evacuation should that have needed to be necessary for an off-site emergency at Sellafield. However, the northern route from Sellafield along the A595 was unaffected by the flooding and remained available for evacuation under the emergency plan, such that throughout the period of the extreme weather an evacuation route for Sellafield existed. This can be read across to Braystones. The efficacy of evacuation routes is a factor that would be taken into account by the local emergency planning authorities and by HSE in the event that a proposal was brought forward for development of the site. In drawing up the off-site emergency plan, the capacity of local roads will be a factor in considering the feasibility of evacuation from the emergency planning zone.

7.318 The policy within EN-1 will lead to consideration of issues in regard to transport impacts, and the revised draft Nuclear NPS entry for Sellafield references the need for the applicant to also consider transport in relation to emergency planning.

## Question 21 b) – k) Strategic Siting Assessment: specific sites

7.319 The consultation document asked:

***Do you agree with the Government's preliminary conclusion on the potential suitability of sites nominated into the Strategic Siting Assessment, as set out below?***

7.320 The response to general comments on the assessment is above. This section deals with comments on the sites considered to be potentially suitable for the deployment of new nuclear power stations by the end of 2025:

a) Bradwell

b) Braystones

c) Hartlepool

d) Heysham

e) Hinkley Point

f) Kirksanton

g) Oldbury

h) Sellafield

i) Sizewell

j) Wylfa

7.321 Site l), Dungeness, was not considered potentially suitable by 2025 in the draft NPS. It is also discussed in this section.

7.322 The following section highlights key themes identified through the consultation on individual sites. Where themes arose which were applicable more generally or across all the sites, they have been considered in the previous section.

7.323 As discussed earlier the format of the revised draft Nuclear NPS has been changed. The site assessments have been updated to reflect relevant evidence received during the consultation and therefore repeat some of the points discussed below. They are now in Annex C of the Nuclear NPS.

### Overview

7.324 Following public consultation and Parliamentary scrutiny, the conclusion of the assessment is that eight sites are potentially suitable for the deployment of new nuclear power stations by 2025. These sites are listed in the revised draft Nuclear NPS. Three sites have been found to be unsuitable for the

deployment of new nuclear power stations by 2025, and do not appear in the revised draft Nuclear NPS. In addition, the Government has confirmed the conclusion that the three alternative sites that were identified in the Alternative Sites Study[93] are not credible for deployment by 2025, and should not be in the revised draft Nuclear NPS.

| **Potentially suitable sites that are in the NPS** | | **Unsuitable sites** | |
|---|---|---|---|
| Bradwell | Oldbury | *Nominated sites* | *Alternative sites* |
| Hartlepool | Sizewell | Braystones | Kingsnorth |
| Heysham | Sellafield | Dungeness | Owston Ferry |
| Hinkley Point | Wylfa | Kirksanton | Druridge Bay |

93 Atkins, prepared for DECC, November 2009, *A consideration of alternative sites to those nominated as part of the Government's Strategic Siting Assessment process for new nuclear power stations,* http://www.energynpsconsultation.decc.gov.uk

## Question 21b) Bradwell

### Introduction and overall conclusion

7.325 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.326 The assessment considers that there are a number of areas which will require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things flood risk, seismic risk, the impact on biodiversity and the potential impacts of cooling technology.

7.327 Key themes raised during the consultation included demographics and emergency planning for the area surrounding the site, flood risk (the site is in Flood Zone 3), and the impact of cooling water discharges on marine ecology.

### Comments on C1: Demographics

7.328 Some comments were received about how the demographics criterion is assessed. This is discussed under Question 21a) ("comments on the assessment of demographics").

7.329 Responses were received regarding the proximity of the nominated site to urban population centres in the area, including Southend, Chelmsford, Colchester and Clacton. Some responses stated that local populations had increased substantially since the original power station was developed. Several respondents were concerned that the nominated site was upwind of several large population centres and that this might have implications in the event of a radiological release. Some responses asked whether this had been taken into account during the assessment.

7.330 Some respondents commented that the demographics assessment failed to take account of transient holiday populations such as those who use caravan and camping sites on Mersea Island.

### The Government's response

7.331 The HSE's assessment is based on data from the National Population Database 2, updated in 2008, and therefore takes into account changes in populations since development of the existing power station at Bradwell. In determining the site population factors the HSE's demographic analysis was carried out to a radius of 30km from the proposed site - this would therefore have taken account of population centres out to that distance.

7.332 The HSE has advised that the determination of off-site radiological risk does not assume a single prevailing wind direction but that all wind directions are

considered and this is also the case for the on and off-site Emergency Plans. In the event of an emergency, the prevailing wind direction would be likely to be a factor in the determination of which of the prepared responses, based on different wind directions, would be most appropriate. In drawing up the off-site emergency plan, the capacity of local roads will be a factor in considering the feasibility of evacuation from the emergency planning zone.

7.333 The demographics assessment covers permanent night time residents, as identified in census data. Transient holiday populations would be assessed by the HSE before any licence was granted should an application come forward. They do not feature as part of this assessment.

### Comments on C2 and D5: Proximity to military activities

7.334 Some respondents were concerned that firing ranges at Shoeburyness and Fingringhoe and the presence of a nuclear weapons research facility at Foulness could create a risk to the site.

### The Government's response

7.335 The firing ranges at Shoeburyness and Fingringhoe were taken into account during the SSA and the advice of the NII and the Ministry of Defence was reflected in the draft NPS and has been included in the revised draft NPS. The Government does not believe that Shoeburyness and Fingringhoe pose any direct risk to the site and no new evidence came forward to change this conclusion.

7.336 The presence of the former Atomic Weapons Research Establishment at Foulness was raised during the opportunity for public comments on the nomination. The Ministry of Defence advised that the facility was closed some years ago and that the site is now run by QinetiQ for Ministry of Defence testing of conventional munitions which do not pose a risk to the nominated site. The revised draft NPS has been updated to reflect this.

### Comments on D1: Flooding, storm surge and tsunami

7.337 Responses under this criterion covered a number of themes and therefore appear under separate sub-headings below.

### Comments on the majority of the site being in Flood Zone 3

7.338 Some responses commented that as the majority of the nominated site is within Flood Zone 3 it is unsuitable for development.

### The Government's response

7.339 It is Government policy to avoid inappropriate development in areas at risk of flooding through the use of a sequential approach which involves giving priority to areas at lower risk of flooding.

7.340 The Government has undertaken a sequential approach to the SSA, considering whether or not the objectives of this NPS can be met through

reasonably available alternative sites in lower Flood Zones. The Government has determined that all of the listed sites are required to be listed in this NPS as being potentially suitable for new nuclear development in spite of some being located in higher flood risk zones because of the lack of alternative sites and the need for new nuclear development.

7.341 The IPC will need to be satisfied that a sequential approach has been applied at the site level to ensure that where possible critical infrastructure is located in the lowest flood risk areas within the site.

7.342 The Nuclear NPS contains more detail on the other measures that will be considered by the IPC. For instance, the Exception Test provides a method of managing flood risk while still allowing necessary development to occur. Within the Exception Test is a requirement for a Flood Risk Assessment which must demonstrate that the project will be safe, without increasing flood risk elsewhere and where possible, will reduce flood risk overall, although the IPC is not precluded from granting consent on these grounds. Please see Part 5.7 of EN-1 and Part 3.7 of EN-6 for further detail.

### Comments on flood risk, climate change projections and the interim storage of waste on site

7.343 Some responses commented that as waste might have to remain on site for up to 160 years and that climate change projections were used only up to 2100, the site could not be considered suitable for deployment. These comments are considered under Question 19 (“Comments received on the interim storage of higher activity wastes”).

7.344 Some responses made particular reference to a report from the Middlesex University Flood Hazard Research Centre published in March 2007[94], which was said to have concluded that the Bradwell site would be at risk of flooding from rising sea levels and increased frequency of storm surges arising from global warming. Comments were also received stating that the Government should publish the implications of the most pessimistic scenarios from the latest available forecasts.

### The Government’s response

7.345 Details on the flood risk assessments required are included in EN-1 and the Nuclear NPS[95].

7.346 The EA has advised that the report referenced considers four factors: changes in sea-level to 2080, increase in storm surge height to 2080, changes in sea-level after 2100 and additional sea-level change due to ice sheet melt. The EA has advised that they used Planning Policy Statement

94 Middlesex University Flood Hazard Research Centre, 2007, *The impacts of climate change on nuclear power sites,* http://www.greenpeace.org.uk/files/pdfs/nuclear/8179.pdf

95 http://data.energynpsconsultation.decc.gov.uk/documents/npss/EN-1.pdf

25[96] for their considerations during the SSA and there is no significant difference between the assessments of sea level rise up to 2080.

7.347 With regard to storm surges, the EA has advised that the Middlesex University/ Greenpeace report used UKCIP02 predictions, whilst EDF's nomination report for Bradwell used storm surge predictions from UKCIP06 predictions. The EA considers that for a strategic assessment there was no significant differences between the considerations. The EA has advised that the Middlesex University/Greenpeace report contains a "worst case scenario" for ice sheet melt as described in the section headed "Climate Surprise". This scenario is based upon a 2004 report and predicts a 5–6 metre sea level rise, which is significantly higher than the H++ ice melt scenario in UKCP09 which predicts a rise of approximately 2 metres. The EA consider that UKCIP09 is a better source for a "worst case scenario".

7.348 In addition to meeting the requirements of Part 5 of EN-1, the revised draft NPS sets out that applicants should identify the potential effects of the credible maximum scenario in the most recent projections of marine and coastal flooding. Applicants must then be able to demonstrate that, where necessary, they could achieve future measures for adaptation and flood management at the site.

7.349 Should future climate change projections suggest that sites were at an increased risk there would be time for action to be taken to increase sites' protection or take other actions to deal with this increased risk. The EA's advice was based upon a strategic assessment. Any applicant would have to make detailed site-specific Flood Risk Assessment for both the development consent order and nuclear site licence applications.

### Comments on D2: Coastal processes

### Comments on wider impact of coastal defences

7.350 Several respondents were concerned about the wider impact of any coastal defences required at the site. These concerns centred on coastal processes and squeeze on two internationally designated sites, the Dengie SPA and Ramsar site and Essex Estuaries SAC and mitigation was not thought to be possible.

7.351 The forthcoming Shore Line Management Plan for Essex was also referenced. It was stated that as this will only consider a period up to 2100 more detailed modelling and scenario building for the next 200 years was required.

### The Government's response

7.352 The HRA report for Bradwell identified that development, particularly proposals for upgraded coastal protection and a marine landing facility,

96 Middlesex University Flood Hazard Research Centre, 2007, *The impacts of climate change on nuclear power sites,* http://www.greenpeace.org.uk/files/pdfs/nuclear/8179.pdf

would encroach directly on the margins of the Essex Estuaries SAC and the Dengie Estuary SPA/Ramsar sites. These designations are currently under threat from the effects of coastal squeeze which has been identified as a significant problem in the area.

7.353 The AoS Site Report for Bradwell stated that the extent of the loss and/or fragmentation of marine, intertidal and terrestrial habitats likely to be attributable to the construction of nuclear reactors, construction areas and other infrastructure and facilities relating to the operation of the nuclear power station is currently unknown. This is because the project design and exact scope of the development and the requirements for coastal or sea defence infrastructure remain undetermined at this stage.

7.354 As referenced in the draft Nuclear NPS, the potential impacts of development on these habitats will therefore be taken into account in the project level assessments (including a further project level HRA and an Environmental Statement reporting the findings of a detailed EIA) and considered by the IPC as part of the application for development consent. The HRA report has set out a number of suggested avoidance and mitigation measures. This could include avoiding or minimising losses of habitat through sensitively designed sea defences such as soft engineering for any upgraded coastal protection. It will ultimately be the responsibility of the nominator to suggest appropriate mitigation measures and these would be assessed at the project level. The points raised in the public consultation have therefore not changed the original conclusions of the SSA.

7.355 The second generation of Shoreline Management Plans (SMP2) will be designed to provide a 'route map' for local authorities and other decision makers to move from the present situation towards meeting future needs of the coastline. SMP2s will identify the most sustainable approaches to managing the risks to the coast in the short term (0-20 years), medium term (20-50 years) and long term (50-100 years). Within these timeframes SMP2s will also include an action plan that prioritises what work is needed to manage coastal processes into the future, and where it will happen.

7.356 With regard to concerns around climate change and flood risk, the Government has been advised by the EA and the NII. This advice was based on a consideration of the capacity of nominated sites to withstand flood risk and coastal erosion including the potential effects of climate change using modelling data that looks ahead to 2100. Predictions of potential climate change effects become increasingly less certain the further into the future that they extend. However, climate change projections will continue to be refined and, as time passes, will project further into the future. As such, should greater future impact be predicted, this should be identified well in advance giving time for appropriate actions to be taken to address those impacts. The assessment of interim waste storage on site and the impacts of climate change is discussed under Question 19 ("Comments received on the interim storage of higher activity wastes").

### Comments on D4: Proximity to civil aircraft movements

7.357 Some responses raised concerns over the proximity of the Bradwell site to Southend Airport saying that if planned regeneration of the airport went ahead the number of flights in the vicinity would increase and there would be a greater risk of aircraft crashes.

### The Government's response

7.358 As set out in the draft Nuclear NPS, nuclear power stations in the UK are afforded an element of protection from aviation activity through the establishment of a Restricted Area (RA) at each station. Typically, such Restricted Areas have a radius of two nautical miles and extend vertically to 2000 feet above the surface. If regeneration were to take place at Southend Airport, aviation activity would still need to observe any Restricted Area, including a new (or amended) area established in association with a new nuclear development.

### Comments on D6: Internationally designated sites of ecological importance

7.359 There were a number of responses regarding the impacts that a new nuclear power station may have on nearby designated sites, including the Dengie Estuary SPA and Ramsar site and the Essex Estuaries SAC. Some responses said that as these sites are designated under European law Bradwell should not be included in the revised draft Nuclear NPS, due to potential adverse effects that may occur to the designated sites.

7.360 There was concern about whether the AoS and HRA omitted the Outer Thames Estuary SPA. There was also concern about impacts on land functionally linked to the Blackwater Estuary SPA and the possible effect on Brent Geese from this SPA, which use the agricultural fields on the Dengie Peninsular for grazing.

### The Government's response

7.361 The HRA on Bradwell assesses whether European Sites[97] would be directly or indirectly affected by the deployment of a new nuclear power station on the site, the likely level of impact and whether it was reasonable to conclude, at a strategic level, that the plan would not have an adverse effect on the integrity of such sites (including a consideration of whether it should be possible to avoid or mitigate any effects) in line with the standards set by the Habitats Directive.

7.362 The project level EIA, to be undertaken by the developer and considered by the IPC at the planning application stage, should take account of the potential effects that the development may have on qualifying species of interest such as the Brent Goose. This is the case even if they use habitats outside of designated sites, as set out in paragraph 2.29 of the HRA for

97 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

Bradwell[98]. The implementation of mitigation options for significant adverse effects on wildlife can be more certain at the project level stage if the developer's Environmental Statement includes an Environmental Management Plan.

7.363 The Outer Thames Estuary SPA is considered within the HRA for Bradwell published alongside the revised draft Nuclear NPS. Part of the Outer Thames Estuary SPA falls immediately adjacent to the nominated site at Bradwell and the SPA contains internationally important numbers of wintering Red-Throated Diver. The HRA finds that there is a likely significant effect on water quality and resources; that significant effects on habitat loss and fragmentation and disturbance (noise light and visual) are uncertain; and that effects on air quality are not considered likely.

7.364 The assessment indicates that the potential for significant effects on the Outer Thames SPA should be considered through further assessment at the project level when detailed plans are available. The NPS sets out that further HRA at the project level is required.

### Comments on D7: Nationally designated sites of ecological importance

7.365 Responses questioned whether the Colne SSSI and Sandbeach Meadows SSSI were considered by the assessment, and how the assessment had taken into account Biodiversity Action Plan (BAP) habitats.

### The Government's response

7.366 The Colne Estuary SSSI and Sandbeach Meadows SSSI were both considered in the AoS although the conclusions in respect of these sites are not set out in detail in the main body of the AoS site report. This is because the Colne Estuary SSSI overlaps with a number of European designated sites of nature conservation interest. The conclusions for the European Sites are also applicable to the Colne Estuary SSSI. Specifically, the Colne Estuary SSSI lies within the Colne Estuary (Mid-Essex Coast Phase 2) SPA and Ramsar sites and most of the SSSI also falls within the Essex Estuaries SAC. The SSSI shares the same nature conservation interests as the overlapping European designated sites. The European designated sites in the vicinity of Bradwell have been assessed in the Bradwell HRA Report which concludes that adverse effects cannot be ruled out at several of the European Sites, including the Colne Estuary SPA and Ramsar sites and the Essex Estuaries SAC. Given the complex nature of the Mid-Essex SPA/Ramsar designations, the HRA notes that impacts need to be considered in the wider context which would include the effects on the component SSSIs.

7.367 Sandbeach Meadows SSSI was also considered by the assessment[99]. Sandbeach Meadows is a terrestrial site and lies on the Dengie Peninsula

98 http://data.energynpsconsultation.decc.gov.uk/documents/hra/bradwell/report.pdf

99 See the Appendices of the *Appraisal of Sustainability Site Report for* Sizewell, October 2010, http://www.energynpsconsultation.decc.gov.uk

approximately 4 km to the South East of the nominated site. The grassland within the site supports nationally important numbers of Brent geese in winter. However, the assessment did not identify any strategically significant effects on Sandbeach Meadows SSSI.

7.368 The AoS Site Report for Bradwell states that: "biodiversity could also be affected at a more local level if important habitats/species (for example, UK Biodiversity Action Plan habitats/ species or legally protected species) are present within, or in close proximity to, the site." A list of BAP species/habitats is included in the appendix to Bradwell Site AoS[100].

### Comments on D8: Areas of amenity, cultural heritage and landscape value

7.369 A number of responses commented on the visual impact of the site in general and on the Saxon Shore Fort and St Peter's Chapel as described above. Some responses expressed concerns about the effects that an adverse visual impact to the area could have on local tourism. Socio-economic impacts are discussed under Question 20 ("Comments on the socio-economic impacts of new nuclear power stations"). There was also concern that a proposed development at the site might require cooling towers. This is discussed under the criterion on cooling.

### The Government's response

7.370 Whilst the AoS Site Report for Bradwell states that the new power station would be seen in the context of the existing power station facilities (prior to complete decommissioning), it recognises that further development is likely to lead to a perceptible deterioration in some local views, which would not be able to be mitigated given the scale of possible new buildings.

7.371 The draft Nuclear NPS had set out that effects on the setting of Othona Roman fort and St. Peter's Chapel had been identified. These would be particularly significant if development occurs on the eastern side of the site. The AoS states, however, that mitigation could be applied by siting the proposed facility close to the existing power station on the western side of the site. The AoS goes on to state that detailed assessment, including consultation of the Essex Historic Landscape Characterisation, consideration of Conservation Areas and other heritage assets will be required at the project level EIA stage, should an application for development consent come forward.

7.372 The AoS notes that a new nuclear power station would be set in the context of the existing power station at Bradwell which is being decommissioned. However, the landscape around the nominated site is predominantly undeveloped, and is also flat and open meaning that residual visual impact is likely. The Government considers that the guidance within EN-1 on visual impact and EN-6 on good design should ensure that consideration is given to these key issues. Socio-economic impacts including tourism are

[100] See the Appendices of the *Appraisal of Sustainability Site Report for* Sizewell, October 2010, http://www.energynpsconsultation.decc.gov.uk

discussed under Question 20 ("Comments on the socio-economic impacts of new nuclear power stations").

### Comments on D9: Size of site to accommodate operation

7.373 Some responses questioned whether the size of the site was large enough to accommodate the proposed developments including the interim storage of waste.

### The Government's response

7.374 To reduce the likelihood of further land being needed, and increase the usability of their site, nominators were encouraged to ensure that the area nominated included within it all likely actual site plans and all reasonable variations to those plans. It is therefore possible that the nominated area is in fact larger than the actual site plan that will be put forward, in due course, for development consent.

7.375 Nominators have indicated that in their view the size of site required for the operation of a permanent site of a single nuclear power unit (allowing for operation, maintenance, storage of spent fuel and intermediate level waste) would be between 30 to 50 hectares. The NII concur with industry's estimate. In addition, considerations of the space needed to provide for security defence in depth show that there should be enough land available at this site.

### Comments on D10: Access to suitable sources of cooling

7.376 Comments under this criterion covered more than one theme and therefore appear under separate sub-headings below.

### Comment on possibility of cooling towers being required

7.377 There were some concerns that a proposed development at the site might require cooling towers.

### The Government's response

7.378 The Nuclear Decommissioning Authority stated within their Site Nomination Report (supported by EDF Energy) that direct cooling was the preferred option for the cooling load within the nominated site, depending on the final output.

7.379 If any proposals for cooling towers came forward, they would be considered by the IPC using the guidance in EN-1 including that on visual impact assessment. This has been amended to set out that, when considering towers, the IPC should be satisfied that application of modern hybrid cooling technology is not reasonably practicable before giving consent to any development. Modern hybrid towers are typically smaller than natural draught towers. EN-1 sets out that the IPC would have to judge whether the visual effects on sensitive receptors, such as local residents and visitors to the local area, outweigh the benefits of the project. The draft Nuclear NPS

had noted that this area is flat and predominantly undeveloped. The IPC would consider the nature of the existing landscape.

### Comments on effect of cooling water discharges on Blackwater Estuary

7.380 A large number of responses to the public consultation raised concerns about the effects of cooling water discharges and chlorination of water in the Blackwater estuary. It was felt that the potentially much larger requirements for cooling water at a new power station could have a damaging effect on oyster populations and other marine life and in turn on the local fishing industry.

### The Government's response

7.381 The revised draft NPS states that the AoS had identified potential effects on water quality and quantity and fish/shellfish populations in nearby coastal waters due to the abstraction and release of sea water for cooling. The AoS advises that a more detailed appraisal would be required as part of the project level EIA level to assess the implications of this thermal discharge. This process will include an assessment of the impacts of any discharges to the aquatic environment, including impacts on specific designated sites under both the Habitats and Shellfish Directives[141].

7.382 The Shellfish Waters Directive applies to coastal waters designated as needing protection or improvement in order to support shellfish life and growth. The Blackwater Estuary is one such area that the Directive applies to. The Directive sets a temperature standard that a discharge must not cause an increase in water temperature of more than 2°C above ambient temperatures in the Shellfish Waters. In addition various substances which can be produced in chlorinated discharges must not reach or exceed levels which are harmful to the shellfish and their larvae.

7.383 The EA has also advised that it is unable to make detailed considerations of the impact of cooling water at this stage. This would only be possible at the licence application stage when a detailed proposal, accurately stating discharge locations and volumes, could be analysed and suitable modelling of cooling water discharges performed.

7.384 The EA has recently reported on the cooling technology options for new nuclear power stations. The report considers past studies on the ecological effects of direct cooling options, although the study notes the danger of generalizing from these studies. The studies reveal past negative and positive effects on different species of oyster mortality, looking at the effect of, for instance, entrainment and chlorination, and also at examples such as of that in the Blackwater Estuary in the winter of 1962-3, where oyster survival was aided by the proximity to thermal discharge.

7.385 The study concludes that direct cooling can still be the Best Available Technology (BAT) for estuarine and coastal sites, provided that best practice in planning, design, mitigation and compensation are followed. The potential BAT-status of direct cooling has essentially been preserved owing to

improved understanding of survivability of the entrainment process, and substantial developments in impingement mitigation techniques. There may remain cases where, even with the application of best practice, residual impacts would be unacceptable. Each case would need to be considered individually[101].

### Comment on location of cooling water outfall pipes

7.386 Comments referenced simulations from studies by the University of Essex and the Centre for Environment, Fisheries and Aquaculture Science, an executive agency of the Government, and submitted as evidence to Colchester Borough Council's Bradwell Task and Finish Group (25 March, 2009). It was said that these have shown that a new outflow pipe would have least environmental impact on the estuary were it to be located where the current one is, and that the optimum environmental results were for water intake to come from the deep estuary channel and for outflow to happen south of the deep channel to the east of the inlet.

### The Government's response

7.387 The EA has considered the studies carried out by the University of Essex and CEFAS. An operator would need an Environmental Permit issued by the EA for the cooling water discharges. If proposals come forward, the EA would consider the acceptability of the environmental impacts before deciding whether a permit can be issued. The EA will consider these matters in detail if specific proposals come forward together with relevant impact modelling studies and detailed local surveys.

7.388 The EA has advised that it is unable to make detailed considerations at this stage because suitable modelling of cooling water discharges cannot be done until there is a detailed proposal accurately stating discharge locations and volumes.

## Other Issues

### Comments on emergency planning

7.389 A number of responses commented that Mersea Island was located outside the Detailed Emergency Planning Zone (DEPZ) for the existing power station. They were concerned that no emergency evacuation plans would be in place for Mersea Island if a new power station were built and also about how intermittent flooding of the Strood (the road causeway connecting Mersea Island with the mainland) would be accounted for if emergency plans were drawn up. Some responses were also concerned about how they would be alerted in the event of an incident, and there was a comment that these matters should be resolved through the SSA.

101 Environment Agency, *Cooling water options for the new generation of nuclear power stations in the UK,* 2010, http://publications.environment-agency.gov.uk/epages/eapublications.storefront

## The Government's response

7.390 Emergency planning zones are designated by the NII after an application for development consent and licensing has been made and a Report of Assessment required under REPPIR has been received. It would not therefore be appropriate for the Government to pre-empt the decision of where a new emergency planning zone would be. General points about emergency planning are considered at paragraphs 6.206 and 6.290. Comments about the assessment of the demographic criterion are discussed under Question 21a) ("Comments on the assessment of demographics").

7.391 Under guidance issued by the Nuclear Emergency Planning Liaison Group (NEPLG), the "extendibility scenario" of emergency planning requires the consideration of various emergency arrangements out to approximately 15km from a site and evacuation out to 4km, both of which would include Mersea Island. The Emergency Planning Authority which would be responsible for the generation of the off-site emergency plan for a new power station at Bradwell is Essex County Council.

7.392 The NII has advised that the purpose of the "extendibility scenario" for any future emergency plan is to make the local authority and others involved in emergency planning aware of factors which may influence the choice and timing of emergency countermeasures. It is not necessarily to determine a particular course of action in advance. Any known factors such as periodic road flooding would be one factor which would feed into such outline planning.

7.393 The operator of a nuclear facility will be required to include, within their emergency plan, arrangements for providing notification of an incident to the local authority responsible for implementing the off-site emergency plan. This will include the type of information which should be contained in an initial warning and the arrangements for the provision of more detailed information as it becomes available.

7.394 The off-site emergency plan will be required to include arrangements for providing the public with specific information relating to any incident and the behaviour which members of the public should adopt. The current approach of local authorities is typically that people within the Detailed Emergency Planning Zone will be alerted to an incident by an automated telephone messaging system. People in the extendibility zone will be alerted by local media. Both the operator's emergency plan and the Emergency Planning Authority's off-site emergency plan will be subject to review by the HSE as part of the licensing process and in order to comply with REPPIR.

## Comment on seismic risk

7.395 A concern was raised that while assurances had been provided that the reactors themselves would be resistant to an earthquake, no assurance had been received about cooling systems, such as pipe-work on the seabed or cooling towers or facilities for storage of radioactive waste.

### The Government's response

7.396 The NII has advised that as part of the licensing process for the site, the safety categorisation and classification of the structures, systems and components will be reviewed. This will identify all items which require seismic resistance, either because of the safety function they perform or because their failure may directly or indirectly challenge safety of the facility. As part of the emergency arrangements for the site, adequate on-site resources will be available following a seismic event to deal with the anticipated safety requirements.

### Comments on decommissioning of existing power station

7.397 Some respondents were concerned about the effect of a new station on decommissioning plans of the existing station. Responses were also received about the timetable for this decommissioning and whether a commitment had been made to accelerate it.

### The Government's response

7.398 The NDA's strategy, published in 2006, stated that the NDA had an aspiration to examine the business cases for accelerated decommissioning at all of their Magnox sites. Bradwell was not specifically earmarked for accelerated decommissioning. Decommissioning of the existing power station at Bradwell is underway and the station was officially considered defueled in 2006. The current estimated completion date for the decommissioning process is 2104[102].

7.399 The NDA has a strategy for the decommissioning of all the redundant nuclear sites that fall under their responsibility, including Bradwell. As it gains experience in the decommissioning process there is scope for an accelerated clean-up programme, but safety, security and environmental integrity must be paramount in the decommissioning process.

### Comments on health

7.400 A number of responses received as part of the public consultation included concern on the health impacts to the local community from radioactive discharges arising from the nuclear power station. Some of these responses expressed concern over links between nuclear power and leukaemia.

7.401 Some responses also referred to local studies undertaken around the current Bradwell Power Station relating to cancer mortality. A study by Busby and Bramhall (2002) was cited. It was said that this study had suggested there were excess levels of cancer and higher levels of breast cancer mortality in the Blackwater area arising from the Bradwell power station.

102 http://www.nda.gov.uk/sites/bradwell/

7.402 Some responses referenced the KIKK study[103] and COMARE reports[104] in relation to health impacts in communities living around nuclear power stations. Particular reference was made to leukaemia and cancer occurrences in the local populations being elevated, as well as the effects to children. These comments were made across the sites and are considered under Question 20 ("Comments on the safety, security, health and non proliferation risks of new nuclear power stations").

### The Government's response

7.403 COMARE has commented on the report by Busby and Bramhall (2002) and related reports and concluded that "Analyses using correct mortality figures and the most appropriate expected values do not indicate any significant excess of cancer mortality around Bradwell, nor do they indicate any substantial or statistically significant risk of breast cancer mortality in groups of wards bordering the Blackwater estuary"[105].

7.404 The HPA has advised the Government that it is not aware of any reworking of data on childhood leukaemia in the Blackwater area following the publication of the KiKK study. The HPA stated that COMARE in its 10th report did not find associations between the incidence of childhood leukaemia and residence near nuclear power plants in the UK, including Bradwell.

## Comments on the exclusion of Dungeness

7.405 Responses questioned whether the fact that Dungeness was not found to be potentially suitable in the NPS set a precedent for Bradwell because the site had similar potential for environmental damage and flood risk given that it was in a higher Flood Risk Zone than Dungeness was reason for it to be removed from the NPS.

### The Government's response

7.406 Dungeness was not included in the draft NPS because it was considered that the development would result in adverse effects on the integrity of the Dungeness SAC and that it was not considered likely that all of these could be mitigated. There were also some concerns about coastal erosion, although the site did not fail on this criterion. The exclusion of Dungeness is discussed further at Question 21l). The HRA Report for the other sites suggest that, at this stage, development at these sites, including Bradwell, would better respect the integrity of the Natura 2000 network of European protected sites. This is because it is considered that there is greater scope for mitigation of adverse effects at these sites. Dungeness is the only nominated site which overlaps with a European protected site to such an

103 *Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants* (KiKK Study). http://www.bfs.de/en/bfs/druck/Ufoplan/4334_KIKK.html. English translation starts after page xi of http://www.bfs.de/de/bfs/druck/Ufoplan/4334_KIKK_Zusamm.pdf

104 See http://www.comare.org.uk/comare_docs.htm for details of the work of COMARE.

105 http://www.comare.org.uk/statements/comare_statement_bradwell.htm

extent that the avoidance of adverse effects is not possible and mitigation of the effects of direct land take is assessed as unlikely to be successful.

### Comments on the public consultation

7.407 Comments were received stating that few members of the local population were aware of the public consultation events that took place in the Bradwell area, that the distribution of leaflets advertising the events had been insufficient and that residents at Bradwell had complained that they had been denied a consultation meeting. Question 7 considers comments on the consultation on the draft energy NPSs. Due to the geography of the region at Bradwell events were held in three locations in the vicinity of the nominated site, at Mersea Island, Maldon and Bradwell itself.

## Question 21c) Braystones

### Introduction and overall conclusion

7.408 In the draft Nuclear NPS, Braystones was considered to be a potentially suitable site, although the assessment considered that there were areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things the impact on the Lake District National Park. The consultation document also set out that although the preliminary conclusion was reached that the site was potentially suitable, there were reservations about the practicability of deployment by the end of 2025[106].

7.409 **The Government has considered evidence from, inter alia, the Spring 2009 opportunity for public comments, the regulators, the Appraisal of Sustainability and Habitats Regulations reports. The Government has concluded that the site should not be included in the NPS in the list of sites that are potentially suitable for the deployment of a new nuclear power station by 2025. This assessment has in particular taken into account the assessment of credibility of deployment by 2025, the impact on the Lake District National Park (considered in criterion D8) and the need for sites in the revised Nuclear NPS.**

7.410 Key themes raised during the consultation included whether the site was deployable by 2025, emergency planning for the area surrounding the site, concerns about the impact on the Lake District National Park, and the cumulative effect with Sellafield and other sites in the North West. Key themes are considered in more detail below.

### Deployability by 2025

7.411 The preliminary conclusion of the draft Nuclear NPS was that Braystones was potentially suitable although given challenges such as the lack of pre-existing infrastructure and less qualified information about site characteristics, there were reservations about the practicability of deployment by the end of 2025. A number of responses were received on deployability. Key themes and the Government's responses are set out below.

### Comments on strategic support

7.412 The draft Nuclear NPS noted that there was a level of strategic support for development of new nuclear within the region given that the sub-regional regeneration plan, Britain's Energy Coast, supports new nuclear power development in the region (this pre-dated the nomination of sites). In its response to consultation, Copeland Borough Council supported the nomination of Braystones on the condition of the assessment that the SSA criteria were met. However, some responses questioned the level of

106 See *Consultation on draft energy National Policy Statements,* November 2009, http://data.energynpsconsultation.decc.gov.uk/documents/condoc.pdf.

strategic support for the site, noting that Cumbria County Council had stated that "it is minded not to" support development at Braystones in its response citing key concerns about the effect on the Lake District National Park, the cumulative effects of more than one site in Cumbria, and a preference for development at Sellafield. Cumulative effects with other new nuclear power stations and the prioritisation of sites are not part of the assessment of this site. These issues are discussed in more detail elsewhere in this Government Response[107].

7.413 Britain's Energy Coast responded to the consultation stating that in its view sites are only deployable by 2025 where land had been made available to a known developer, where there is a clear public agreement to develop, and where a grid connection agreement is in place. Because it felt that Braystones did not meet all these criteria, it did not believe that Braystones was deployable in the given timeframe.

### The Government's response

7.414 Whilst it is clear that strategic support for new nuclear within the wider region remains, the consultation has identified concern about individual proposals. Should the site have been in the revised draft Nuclear NPS, it would be for the developer to work with strategic authorities on these concerns ahead of submitting a proposal for development consent. At Braystones, a lack of grid connection agreement and clear development proposals may affect this process. However, given the scope to continue working with strategic authorities, strategic support on its own is not considered a barrier to deployment at this stage although the Government notes that some of the individual issues, such as concerns about the effects on the Lake District National Park, may remain challenging to work through.

7.415 Grid connection, one of the issues raised by Britain's Energy Coast, is discussed below.

### Comments on infrastructure – grid connection

7.416 The draft Nuclear NPS noted that a grid connection agreement was in place to connect Braystones from late 2021. A number of responses highlighted that during the consultation RWE Npower (the nominator of the site) withdrew from its grid connection agreement with the National Grid at Braystones. Responses felt this made deployment of any new nuclear station very unlikely before 2025 and that the site should therefore be removed from the NPS.

7.417 In its response to consultation RWE said there was scope to renegotiate a grid connection agreement which would deliver capacity by 2025. RWE acknowledged the delivery challenges including those of associated infrastructure but felt that they were achievable, and pointed to progress in having carried out a number of technical assessments on the site.

[107] The response of Cumbria County Council sets out its reasons in full: http://www.energynpsconsultation.decc.gsi.gov.uk

### The Government's response

7.418 Whilst there has been progress on deployability at the Braystones site (including for instance on ownership of the site), the loss of a grid connection agreement is a significant factor. National Grid has advised that work is progressing to connect 3.2GW of additional generation in Cumbria. This would accommodate two reactors at Sellafield where there are grid connection agreements for 3.2GW by 2025, with the first connection from October 2023.

7.419 The National Grid advise that the connection of additional stations such as Braystones and Kirksanton would, whilst not as significant as the initial infrastructure needed in Cumbria, necessitate major reinforcement and new infrastructure. Such projects have considerable lead in times. There is presently no requirement to progress construction of this infrastructure. Once National Grid has a generation agreement in place which requires them to progress construction it currently anticipates that it would take approximately 4-6 years to obtain consents then a minimum of a further two years to construct. However, the integration and coordination of additional works alongside existing contracted requirements (and maintenance commitments in this area) to gain the necessary system access could extend this programme significantly. There is also considerable uncertainty attached to the estimate of time taken to obtain consents given the sensitivity of the geographical area and the scale of the proposed generation and consequent transmission reinforcement works. Given the construction programme already required to accommodate generation in this area, National Grid estimate that at present the earliest possible connection date would be by late 2025.

7.420 This means that whilst connection by 2025 may still be possible work will not commence on the additional infrastructure required until such grid agreements are in place. Connection by 2025 is therefore less certain now that no grid connection agreements are in place. In addition, the more time elapses before grid agreements are secured, the greater this uncertainty becomes and the later in the timeframe eventual agreement will be.

### Comments on transport infrastructure

7.421 Responses raised concerns that the infrastructure improvements aside from transmission infrastructure, including improved transport arrangements, that may be necessary for a new nuclear power station could not be completed in time.

### The Government's response

7.422 The Government recognises that a new nuclear power station, both in construction and operation, may have significant impacts on both local and national transport infrastructure through the transport of workers and materials, which can include large components. Depending on the local infrastructure, these impacts may be significant. However, many of the sites

are likely to require proposals for upgraded road, rail or marine docking facilities to manage the flow of workers and materials.

7.423 Under the planning system for nationally significant infrastructure projects applications for development of transport access arrangements can be included as associated development and therefore submitted to the IPC for consideration along with an application for development consent for a new nuclear power station. With a process in place for timely consideration of proposals it is not inconceivable that improvements could occur – however, the consultation has indicated the public view of the potential scale of improvement in West Cumbria, which in the case of transport is discussed under Question 21a) ("Comments on transport").

### The Government's conclusion

7.424 Whilst recognising that deployability by 2025 may in theory still be a possibility, the Government considers that the likelihood of deployability within that timeframe is significantly weaker than it was.

7.425 The Government has considered this in conjunction with the assessment of criterion D8 including the potential impacts on the Lake District National Park and the need for sites in the revised draft Nuclear NPS, and concluded that the site is not potentially suitable.

### Comments on D1 : Flooding, storm surge and tsunami

7.426 Some respondents were concerned about the impact of flooding on the surrounding area in case this affected access and egress at the site, or the ability to evacuate during the activation of an emergency plan. The floods of November 2009 were referenced.

### The Government's response

7.427 The effect of the November 2009 floods on Cumbria and the area surrounding Sellafield and Braystones is discussed under comments on transport in Question 21a). Whilst there were severe problems in the wider area, throughout the period an evacuation route for Sellafield did exist. In drawing up the off-site emergency plan, the capacity of local roads will be a factor in considering the feasibility of evacuation from the emergency planning zone. This is considered as part of licensing and is not a criterion for the SSA. Emergency planning is also discussed further under Question 21a) ("Comments on emergency planning").

7.428 On the nominated site itself, the EA has advised that a Royal Haskoning report[108] on the flooding at Braystones village indicates that the River Ehen stayed within bank just north of village itself. They therefore believe that the site may not have been affected by fluvial flooding and have noted that since the site is on relatively high ground pooling of surface waters is less likely.

108 http://www.royalhaskoning.co.uk/

### Comments on D2: coastal processes

7.429 There was some concern about the impact of associated infrastructure such as cooling water culverts, sea defences and marine off-loading facilities and whether this could affect sediment flows along the coastline, potentially changing erosion deposit patterns leading to habitat loss and impact on Drigg Coast SAC and larval forms of all species.

7.430 The nominator has responded to the consultation stating that associated offshore infrastructure would be developed with due regards to the effects of coastal processes at the site[109]. They have stated that any marine landing facility would be temporary, and that the preferred option would be tunnelled pipework not exposed to or affecting coastal processes, and extending offshore according to the required environmental and dispersion characteristics of the marine environment. The nominator has also noted that there is capacity within the nominated area to be flexible over siting if this would aid mitigation of the impacts of coastal defences.

### The Government's response

7.431 Whilst the AoS identified that the risk to the site from coastal erosion is low, it also considered potential infrastructure at the site which is identified in the nomination, including a marine landing station and possible cooling inlet and outfall pipe work extending up to 3km. The AoS identified that this could impact on coastal processes including in marine protected areas in the vicinity of the site.

7.432 The site assessment in the draft Nuclear NPS noted that mitigation of the effects upon coastal processes may be possible through the appropriate design and construction of defences. This conclusion has not changed in the light of comments received. Mitigations would have to be carefully considered should an application come forward, in line with the guidance provided within the NPSs. Consideration of comments on the impacts of cooling including impacts on the Irish Sea is under Question 21a) ("Comments on the impacts of cooling").

### Comments on emergency planning

7.433 Some responses reflected concerns that the village school at Beckermet may have to close due to the emergency plans that would be in place should a new nuclear power station come forward. It was noted that the site stretches to within 300m of Beckermet village. Some respondents were concerned about the proximity to Tarnside Caravan Park.

### The Government's response

7.434 Emergency planning was not an SSA criterion. This is discussed under Question 21a) ("Comments on emergency planning").

109 http://www.energynpsconsultation.decc.gov.uk

7.435 Emergency planning zones are designated by the NII after an application for development consent and licensing has been made and a Report of Assessment required under REPPIR has been received. It would not be appropriate for the Government to pre-empt the decision of where a new emergency planning zone would be.

7.436 Even if the risks posed to people off site are very low the HSE advise that they may, as a matter of prudence, specify a Detailed Emergency Planning Zone which extends for a reasonable distance around the site (e.g. 1km from the reactor centre point) for which the HSE would expect to see off-site emergency plans.

7.437 The HSE has advised that the first line of emergency protection is that people stay indoors (i.e. shelter). Evacuation of a school while a radiation emergency persisted would only be considered in extreme circumstances. Shelter within the controlled environment of a school would not prevent the application of the recommended countermeasures, although the needs and sensitivities of the children concerned would have to be carefully considered.

### Comments on D6: sites of international importance and D10: cooling

7.438 Some respondents were concerned about the potential impact on internationally designated sites from cooling due to changes in water temperature and the use of biocides. There was a concern that this could affect species which are features of designated sites (such as river, sea and brook lamprey, atlantic salmon and many bird species). The sites of particular concern include Morecambe Bay SAC/SPA/Ramsar, Duddon Estuary SPA/Ramsar, Drigg Coast SAC, Upper Solway Flats and Marshes SPA/Ramsar, River Derwent and Bassenthwaite Lake SAC, River Ehen SAC. It was commented that some of these sites have not been included in the HRA despite related species using the coastline by the Braystones site. Concerns were also expressed about the effect of construction of additional infrastructure on natterjack toad habitat and movement.

7.439 Some respondents were concerned that there would be additional water abstraction from adjacent freshwater courses or lakes (including the River Ehen SAC) which would cause significant harm to the ecology of the area. Some responses felt that the assessment was not detailed enough to ensure that there would be no negative impact on internationally protected sites and species, and that this argued against the inclusion of the site in the NPS. This point was made across the sites and is considered in Question 21a) ("Comments on environmental criteria D6 and D7").

### The Government's response

7.440 The HRA could not rule out the potential for adverse effects on four European Sites[110]: the Drigg Coast SAC, the River Ehen SAC, Wast Water

110 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

SAC and Bassenthwaite Lake SAC. However, the report has proposed a suite of avoidance and mitigation measures to be considered as part of the project level HRA. At this stage it is assessed that the effective implementation of these strategic mitigation measures may help to address adverse effects on European Site integrity, but that more detailed project level HRA is required in order to draw conclusions on their efficacy. Further assessment supported by detailed data at project level would be required to determine whether nuclear power development at this nominated site could be undertaken without adversely affecting the integrity of European Sites near Braystones.

7.441 The HRA has not scoped European designated sites beyond 20km of the site boundary on Natural England's Nature map[111] unless it is considered that effects may arise through, for example, hydrological connectivity. Therefore some of the sites that respondents suggested have been excluded from the assessment, although several of them fall within the 20km radius for other nominated sites and so are considered in other HRA reports as appropriate. This area of search reflects guidance recommendations[112] and this approach was agreed with the Government's statutory advisors on nature conservation matters, Natural England, and the Countryside Council for Wales.

7.442 The AoS has noted that legally protected species within the area include great crested newts, with records for natterjack toad, otter, red squirrel and common species of reptile falling within 10km. If natterjack toads are likely to be affected they should be considered by the Environmental Statement on the site.

7.443 The draft Nuclear NPS set out that the nominator of the site had stated that "While indirect cooling could use either water from the Irish Sea or freshwater, it is unlikely that flows within the River Ehen would be sufficient to provide top-up water without significant ecological impact, and abstraction from the Irish Sea would be utilised." Question 21a) ("Comments on the impacts of cooling") discusses cooling water and the regulatory regime which governs the impact of cooling water intake and outfall.

### Comments on D7: sites of national ecological importance

7.444 Some responses thought that water abstraction may affect groundwater supply to other areas hydrologically linked to the nominated site and that this could result in habitat degradation further afield affecting Silver tarn, Hollas and Harnsey Mosses SSSIs. They felt that there are insufficient details at present on how these effects would be addressed.

7.445 Respondents were also concerned that new drainage systems could result in adverse effects on habitats during construction and operation, through

111 http://www.natureonthemap.org.uk

112 Communities and Local Government, 2006, *Planning for the Protection of European Sites: Appropriate Assessment – Guidance for Regional Spatial Strategies and Local Development Documents*

physical loss of habitats and sediment loading of watercourses and estuarine habitats, and altered run off rates.

7.446 It was also noted that the Braystones site boundary is directly adjacent to Gibb Tarn County Wildlife Site, and 100m from the Braystones Coast County Wildlife Site. There were concerns that these sites could be damaged through changes to hydrology and sediment entrainment.

### The Government's response

7.447 Avoiding adverse effects on surface, ground and estuarine waters is the responsibility of the developer subject to stringent management and regulatory frameworks of the Water Companies (resource planning) and the EA (abstraction licensing and discharge regulation). The HRA for Braystones noted the need for suitable design to avoid or mitigate against adverse effects - including use of Sustainable Drainage Systems (SuDS).

7.448 The SSA, as a strategic level assessment, considered impacts on internationally and nationally designated sites of ecological importance, such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIAs are undertaken and project level information is available.

## Comments on D8 : Areas of amenity, cultural heritage and landscape value

7.449 There were comments against this criterion on key themes. These are reflected under the sub-headings below.

### Comments on the nature of the local landscape

7.450 The key concern raised in relation to this criterion was the impact on the setting, tranquillity and special qualities of the Lake District National Park. Respondents were concerned that development of the site in close proximity to the existing facility at Sellafield will lead to a perceived visual spread of the existing Sellafield facility, exacerbating existing impacts and leading to a perceptible deterioration in important views.

7.451 There were concerns that this would change the landscape character of the site and impose large structures within the seascape as viewed from the National Park. Some responses noted that opportunities for mitigation are likely to be limited to some local ground level views of the site given the potential scale of new buildings. It was felt that visual mitigation from higher level views including public highways within the Lake District National Park was not realistic.

7.452 Concerns were also expressed regarding the visual impact of additional transmission and transport infrastructure at the site and the potential cumulative impacts on the Lake District National Park should new nuclear power stations also be developed at Sellafield and Kirksanton. These factors

have not formed part of the assessment of this site against this criterion. The approach of the assessment to cumulative impacts in relation to other nuclear new build is discussed at Question 21a) ("Comments on the assessment of cumulative effects"). The visual impacts of transmission are not assessed in detail as part of the SSA. This would be considered by the IPC using the Electricity Networks NPS. This is discussed under "Comments on a criterion on transmission".

## The Government's response

7.453 Braystones is around 3.5km from the National Park. The draft NPS recognised that the development could have adverse effects on the Lake District National Park. However, it was considered the need for sites and lack of alternatives outweighed this potential impact. The draft Nuclear NPS noted that until detailed proposals come forward, the precise nature, scope and scale of any effect is uncertain, leaving some scope to explore minimisation, avoidance and mitigation of adverse effects. In light of the concerns raised during the consultation that any new nuclear power station could create a perceived visual spread from the Sellafield site, the Government has further considered the potential impact of the site on the Lake District National Park.

7.454 The AoS notes that the Braystones site is situated within the West Cumbria Coastal Plain National Character Area, which is characterised by open agricultural landscapes with extensive views to the higher fells in the east. The site is in a more open part of the coastal plain. The coastal belt area as a whole has an industrial history and the Sellafield facility and its associated infrastructure is a dominant feature of this area of coastline, visible from the surrounding hills and from the Isle of Man. However, the Sellafield complex is approximately 3km away and at a local level, the site sits within the low farmland landscape character area and is rural and undeveloped.

7.455 The AoS found that the existing nuclear facilities at nearby Sellafield already make a prominent feature in views from western areas of the National Park and more distant high fells, such as Scafell Pike. It therefore found it highly likely that development at Braystones would lead to a perceptible deterioration in some views, which could not be mitigated, given the scale of possible new buildings. The nominator of the site has proposed potential actions to minimise the impacts on the National Park[113]. Whilst there may be some possibilities for mitigation, such as the sympathetic alignment described by the nominator, the AoS found that visual impacts will be highly likely given the existing undeveloped nature of the nominated site, the scale of new development and the potential need for associated infrastructure.

7.456 At Braystones the Government is concerned that the development of a new nuclear power station would increase the visual spread of the Sellafield complex and, given the significance of the existing impact, this is highly likely to have an adverse impact on the setting of the National Park. The

[113] See the site nomination available on the Braystones page at http://www.energynpsconsultation.decc.gsi.gov.uk

Government believes that the potential adverse effect on the setting of the National Park is not outweighed by the need for sites. This also takes into account the high status and value of the Lake District National Park, which is one of only 10 National Parks in England.

7.457 Development that is outside a National Park but which might affect it is not prohibited in planning policy terms (including within the suite of NPSs). However, as part of the SSA the Government has carefully considered the suitability of sites against a range of criteria at a national level and come to a view on whether or not the criterion is passed. In the specific circumstances at Braystones, the Government has, having reviewed the evidence including the outputs of the public consultation and considered the need for sites to be in the revised draft Nuclear NPS, concluded that the site is not potentially suitable against this criterion. When weighed up against the need for sites, the likelihood and extent of the potential impact is too great.

### Comments on the effects on heritage assets

7.458 There were some concerns about the impact on the setting of the two high cross shafts in St. Bridget's Churchyard which lies approximately 750m from the site, and Braystones Tower, a Grade II Listed Building, located approx 500m from the site.

### The Government's response

7.459 The AoS noted that impacts on cultural heritage features could arise because, depending on the distance and sight lines, a new nuclear power station could detrimentally impact the setting of any scheduled monuments in the region. St Bridgets churchyard is approximately 750m from the site, and Braystones Tower is approximately 500m from the site. Whilst these features are close to the nominated site, the Government does not find that on their own they represent sufficient grounds for excluding the site. However, should the site have been in the NPS and proposals have come forward, further detailed assessment at project level would have been required.

### Comments on D9: size of site

7.460 Concerns were raised that the nominated site is large, and that it should be made clear as early as possible which parts of the site are to be used for the power station to be clear on the impact that this would have on nearby residents. The nominator has responded to the consultation to note that there is significant room within the nominated site to consider siting options in the mitigation of effects that may be identified as a result of assessment.

### The Government's response

7.461 To reduce the likelihood of further land being needed, and increase the usability of their site, nominators were encouraged to ensure that the area nominated included within it all likely actual site plans and all reasonable variations to those plans. It is therefore possible that the nominated area will

be larger than the area that would be put forward for development consent. In the response below to “comments on transport” it is noted that the nominator has indicated that the current land availability exceeds the estimated requirement for land for operation of a nuclear power station, although additional land may be required for construction.

7.462 Under the planning system developers must come forward with more detailed plans which would clarify which property holders are likely to be affected, although ongoing discussions concerning mitigating impacts of development could result in changes to the site layout. This process enables residents to identify key issues on which to engage with developers and the IPC, which has the capacity to consider mitigation of construction and operation effects by using planning conditions.

### Comments on transport

7.463 Many responses noted that there were existing traffic problems which were caused by Sellafield and could result in traffic jams in the area. The A595 was raised as a particular concern. The impact transport could have on emergency planning and evacuation was raised. Concerns on transport including in the Cumbria region are discussed under Question 21a) (“Comments on transport”).

7.464 Many respondents were concerned about the Braystones to Nethertown road which transects the nominated site. Responses noted that during the floods of November 2009 residents would have been isolated without this road (the November 2009 floods are also considered under Question 21a)). The nominator responded to the consultation to set out that the current land availability exceeds the estimated requirement for land for operation of a nuclear power station and that this allows further opportunity for mitigation of possible effects identified against the various SSA criteria discussed, including realignment of the public road running between Braystones and Thornhill.

### The Government’s response

7.465 It is a security requirement that the licence applicant has exclusive rights of access to and control of a civil nuclear licensed nuclear site and that it is not therefore bisected by any public rights of way. The initial assessment by OCNS confirmed that without realignment there would still be sufficient land to house a nuclear power station with sufficient defence in depth, athough not to the South West of the site. It is therefore not clear at present whether or not realignment of the road would be necessary. EN-1 gives guidance on socio-economic and transport impacts and sets out that the application should have taken into account the location of public rights of way. Possible mitigation measures might include siting certain elements of a station away from public footpaths and/or the provision of realignments to existing or planned rights of way. Given the size of the site it is reasonable to conclude that there is the potential to mitigate these concerns.

## Other comments received

### Comments on the impact of proposals on local residents

7.466 In some cases, responses said there had not been enough emphasis of the potential impact of proposals on local residents, and in particular those that live very close to the nominated site. Some responses also expressed concern about the impact of development both at Braystones and at Sellafield on Beckermet village which would be between the sites. Some requested that a full impact study be undertaken before both sites are listed.

7.467 Responses were also concerned about property blight as a result of the proposals. Key concerns were around the effect on cottages on the beach at Braystones, suggesting that they were likely to be affected by associated development such as cooling water technology or a marine landing facility, and the effect that this would have on the value of their property.

### The Government's response

7.468 The Government acknowledges the potential for the construction of a new nuclear power station to have a significant impact on the surrounding population. The AoS also acknowledged that "it is possible that the presence of a nuclear power plant may lead to increased stress levels in certain individuals, due to potential perception of risk associated with living or working near a power station" although there is little literature available on this potential impact. This underlines the importance of continuing community involvement with any proposal and particularly in regard to the role of the IPC who can consider both socio-economic issues, and mitigation of construction and operation effects. Planning blight is discussed under Question 21a) ("Comments on blight from new nuclear power stations").

### Health

7.469 Some responses thought that there could be a particular impact on the health of Braystones residents as they would be between two nuclear facilities (Braystones and existing and / or new operations at Sellafield). Concerns over cumulative radiation are considered under Question 21a) ("Comments on cumulative radiation doses").

## Question 21d) Hartlepool

### Introduction and overall conclusion

7.470 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.471 The assessment considers that there are a number of areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including the effects of any proposals on biodiversity including on the Tees Estuary, and consideration of existing land use.

7.472 Key themes identified during the consultation include on demographics, flood risk, proximity to hazardous industrial facilities and the potential impact on designated sites of ecological importance. There were also a number of comments about health impacts. Where those are site specific they are dealt with below. General comments on health are dealt with under Question 20 ("Comments on the safety, security, health and non proliferation risks of new nuclear power stations").

### Comments on C1: Demographics

7.473 Several responses received during the public consultation commented on the proximity of the nominated site to population centres including Hartlepool itself, Middlesbrough, Redcar and Stockton and questioned the suitability of its location. It was questioned whether the original demographic data used to assess the suitability of the site was used as it was suggested that it was flawed.

### The Government's response

7.474 In determining the site population factors for advising the Government with regard to the demographics criterion in the SSA the HSE's generic demographic analysis was carried out to a radius of 30km from the proposed site and this would have therefore taken account of the influence of population centres out to that distance. The HSE's assessment is based on data from the National Population Database 2, updated in 2008, and therefore takes into account changes in populations since development of the existing power station. The criterion is discussed in more detail under Question 21a) ("Comments on the assessment of demographics").

### Comments on D1: Flooding, storm surge and tsunami

7.475 Some responses commented that the site would be inundated by sea level rise in the future and that the nominator (EDF) had not taken sea level rises into account in its assessment. It was also stated that it is current policy on coastal protection to let the sea engulf the land and that this could mean that

sand dunes would be washed away exposing the power station to the sea. It is believed that this is a reference to the Shoreline Management Plan.

### The Government's response

7.476 In assessing both flooding (criterion D1) and coastal processes (criterion D2) the Government has been advised by the EA and the NII. Sea level rises have been taken into account using data looking forward to 2100. These comments are considered under Question 19 ("Comments received on the interim storage of higher activity wastes").

7.477 The EA has advised that the current policies for the site, under the Shoreline Management Plan 2, are a combination of hold the line and retreat or 'natural roll back'. The EA have also stated that if the coastline is protected against erosion to the site this would be contrary to the sections where retreat has been identified as the preferred policy. However, if as stated in the nomination report the roll back of the dunes is not expected to impact on the site within its lifetime then there may not be a conflict with the current policies.

7.478 Links to each Shoreline Management Plan 2, and details of the relevant lead authority, are available through the EA website. As referenced in EN-1, should an application for development consent come forward, the applicant will need to demonstrate that they have assessed the implications of the proposed project on strategies for managing the coast set out in the latest Shoreline Management Plan.

### Comments on D2: Coastal processes

7.479 There was a concern about the effects that coastal defences may have on adjacent and nearby designated sites. It was asked why there were neither projections nor modelling were presented in the AoS relating to sediment deposition or erosion on the designated sites or the estuary despite existing historical knowledge**.**

### The Government's response

7.480 The AoS Site Report for Hartlepool acknowledges that as the nominated site will likely require upgraded defences to counteract coastal retreat. It is recognised that these defences have the potential to modify existing estuarine hydrodynamics and associated movement of sediment, which may have secondary effects on estuary and marine ecosystem structures and functioning. As the nominated site is situated next to several ecologically designated areas (in particular the Teesmouth and Cleveland Coast SPA/Ramsar, Seal Sands and the Seaton Dunes and Common SSSI and the Teesmouth NNR site), mitigation measures will need to recognise these designations.

7.481 The AoS also states that a full understanding of the hydrodynamics and sediment transport within the estuary and the use of sensitively designed sea defences (for example using soft engineering designs) could minimise

potential effects. However, as set out at in the SSA – general section, the assessment being carried out at this stage is at a strategic level and does not therefore go into the level of detail that would be required for an application for development consent.

7.482 As referenced in the draft Nuclear NPS, further investigation during the detailed design stage of the project will take place to inform the requirement for, and impacts of, mitigation from new or upgraded coastal defences.

### Comments on D3: Proximity to hazardous industrial facilities and operations

7.483 Several responses commented on the nominated site's proximity to a number of industrial facilities, in particular the two neighbouring 'upper tier' COMAH establishments, Huntsman Pigments and Norsea Pipeline Ltd.

7.484 Some responses made reference to the 'ghost ships' located at the Teesside Environmental Recycling and Reclamation Centre, close to the site boundary, with concerns raised that any explosive materials associated with demolition work on these could present a hazard to the nominated site.

### The Government's response

7.485 As referenced in the draft Nuclear NPS, the site passed this criterion in the SSA, however given this proximity to neighbouring 'upper tier' COMAH establishments, the applicant would need to demonstrate to the HSE that the facility could be protected against risk from adjacent hazardous facilities throughout its lifetime. The HSE has identified a further neighbouring COMAH site, Fine Organics Ltd, which has been referenced in the revised draft NPS and accompanying maps.

7.486 The HSE has advised that there is no regulatory stipulation that new nuclear plants cannot be built near to any hazardous industrial processes. There is, however, a requirement that the implications of siting a new nuclear plant adjacent to any potentially hazardous industrial plants are understood, and that at the strategic siting stage it is not seen as likely that the potential threats from such a plant would preclude deployment of a new nuclear power station.

7.487 The HSE's assessment of the site concluded that at a strategic level there were no concerns sufficient to rule out the future use of the site for nuclear development. During any site licensing phase, external hazards would be examined in considerably more detail, and appropriate arrangements and safety justifications developed to take account of any potential threats.

7.488 The HSE has advised that the present enforcement activity relating to the 'ghost ships' is centred around asbestos removal. This is not considered a relevant hazardous facility that would pose a risk to a nuclear development.

## Comments on D6: Internationally designated sites of ecological importance and D7: Nationally designated sites of ecological importance

7.489 A number of responses expressed concern that despite the findings of the AoS that there was potential for adverse effects on four European Sites[114], the site could progress to the application stage. This was raised across the sites and comments are discussed under Question 21a) ("Comments on the assessment against the environmental criterion D6 and D7").

7.490 There was a concern about whether the HRA fully appreciated the importance for SPA species of the remaining undeveloped areas adjacent to the estuary and it was felt that further consideration of the loss of functional land (used by SPA species in particular as high tide roosts) needed to be considered further. While not a nationally designated site, it was highlighted that the AoS omits mention of the Hartlepool Power Station Local Wildlife Site, located within the site boundary.

## The Government's response

7.491 The HRA report for Hartlepool identified that habitat loss as a result of construction of the power station and associated infrastructure (such as the cooling water intake and outfall structures and the possible construction of marine off-loading facilities) within Teesmouth and Cleveland Coast SPA/Ramsar could result in the direct loss, albeit temporarily, of designated and supporting habitats.

7.492 The HRA report has set out a number of suggested avoidance and mitigation measures for the IPC to consider such as avoiding or minimising losses of habitat through site layout and design (for example using tunnelling techniques for cooling water infrastructure to minimise impacts on habitats at the surface). The HRA report also sets out that connectivity of important wildlife corridors around the nominated site should be maintained and opportunities for habitat creation, restoration and enhancement should be sought where possible.

7.493 Regarding Hartlepool Power Station local wildlife site, the assessment has considered impacts on internationally and nationally designated sites of ecological importance, such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIAs are undertaken and project level information is available as potential impacts to them will be locally rather than strategically significant.

114 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

### Comments on D8: Areas of amenity, cultural heritage and landscape value

7.494 There was a concern that the AoS failed to mention an historic restricted wreck (UKHO-WO-58963) at Seaton Carew which is one of 63 designated wrecks under the Protection of Wrecks Act (1973) in the UK.

### The Government's response

7.495 The historic wreck was referenced in the Appendix to the AoS and within the baseline information in the AoS site report. The cultural heritage section of the revised draft AoS has been updated to reflect that there are possible effects on the wreck site from flood defence works, but these could be avoided through the appropriate siting of flood defence infrastructure. This is not considered of strategic significance at this stage.

## Other Issues

### Comments on Health

7.496 A number of respondents were concerned about the health impacts to the local community from radioactive discharges arising from the nuclear power station. Many of these responses expressed concern over links between nuclear power and leukaemia. A number of people referenced the KIKK study[115] and COMARE reports[116] in relation to health impacts in communities living around nuclear power stations and were concerned about the impacts on children. These comments were made across the sites and are considered under Question 20 ("Comments on the safety, security, health and non proliferation risks of new nuclear power stations"). Respondents also raised concerns that there were high incidences of thyroid cancer in the Hartlepool area which could be linked to the existing power station.

### The Government's response

7.497 The HPA has advised that in COMARE's 10th report no evidence was found of excesses of childhood leukaemia or other childhood cancers around British nuclear power plants. Furthermore, in its 11th report (2006), COMARE examined the childhood cancer throughout Great Britain and concluded that many types of childhood cancers do not to occur in a random fashion; in other words clustering is a general feature of childhood leukaemia or other childhood cancers.

7.498 Local primary care trusts and public health observatories currently have responsibilities for maintaining surveillance of cancer rates and investigating reports of clusters, including those of adult cancers. COMARE has advised that they are not aware of any reports from either the local primary care

115 *Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants* (KiKK Study). http://www.bfs.de/en/bfs/druck/Ufoplan/4334_KIKK.html. English translation starts after page xi of http://www.bfs.de/de/bfs/druck/Ufoplan/4334_KIKK_Zusamm.pdf

116 See http://www.comare.org.uk/comare_docs.htm for details of the work and reports of the Committee on Medical Aspects of Radiation in the Environment (COMARE).

trusts or public health observatories that have shown evidence of cancer clusters, including thyroid cancer, in populations around Hartlepool.

### Comments on seismic risk

7.499 Some responses commented that there was a known geographical fault in the area and one respondent stated that this ran underneath the Seaton Meadows landfill site.

### The Government's response

7.500 During the establishment of the SSA criteria, the NII has advised that seismic hazard required detailed site investigation and was best assessed as part of licensing. In order to ascertain the presence and status of any capable faults on a site, there would need to be extensive geological investigations and associated laboratory testing. The Government's view is that at a strategic level it is not practical to ascertain, with a high degree of confidence, the status of faults on a site. The licensing and therefore operation of the station is still contingent on these issues being satisfactorily resolved. This issue is, however, recorded in the revised draft Nuclear NPS.

# Question 21e) Heysham

## Introduction and overall conclusion

7.501 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.502 The assessment considers that there are a number of areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things the demographic profile of the area and the effects on biodiversity including the impact of cooling.

7.503 Key themes identified during the consultation were on demographics, flood risk, coastal processes and the potential impact on Morecambe Bay and possible impacts on existing land uses. Concerns were raised about the cumulative impacts of any potential power station in conjunction with other potential developments in the North West region. Two sites in the North West, at Kirksanton and Braystones, are not included in the revised draft Nuclear NPS. The approach to cumulative effects within the assessment is discussed under Question 21a) ("Comments on the assessment of cumulative effects").

## Comments on C1: Demographics

7.504 A number of responses to the public consultation commented that a population of 100,000 lived within a 10 mile radius of the site and questioned the suitability of its location for this reason. Some responses expressed concerns that parts of the nominated site failed the semi-urban criterion.

## The Government's response

7.505 In determining the site population factors for advising the Government with regard to the demographics criterion in the SSA the HSE's demographic analysis[117] was carried out to a radius of 30km from the proposed site (this would thus have taken account of the influence of the population within the 10 mile radius mentioned by responses. The assessment of demographics is discussed further under Question 21a).

7.506 During the SSA, if areas of a nominated site exceeded the semi-urban criterion the Government considered further advice from the regulators to see whether the site remained viable. The HSE (including the Office for Civil Nuclear Security) has advised that there is sufficient space within the nominated site to place those areas that have the direct potential to cause radiological hazard in the area which does not exceed the semi-urban criterion. The siting of elements of a power station which do not have the

117 http://www.hse.gov.uk/landuseplanning/land-use-planning.pdf

direct potential to cause radiological hazard, such as offices and car parks, in the areas which exceed the semi-urban criterion does not add to the risk of radiological consequences for the public.

7.507 The revised draft NPS sets out that an application at the nominated site should only be approved if the elements which have the direct potential to cause radiological hazard are located in the area which does not exceed the semi-urban criterion, subject to the HSE's advice.

7.508 Although the site has not been excluded on the demographics criterion at this stage, this does not guarantee that its demographic features of a site will be acceptable following detailed regulatory assessment at the site licensing stage. Whilst the 'semi-urban' criterion was used to provide an indicative measure for comparing sites, and an initial assessment for the SSA stage, it should be noted that the actual risks associated with any particular station will be site specific. These will therefore depend on the extent to which a nuclear installation meets the relevant targets in the NII's Safety Assessment Principles. As specific designs for possible nuclear installations have not yet been finalised, any risks will therefore be more appropriately considered by the NII during the site licensing stage.

### Comments on D1: Flooding, storm surge and tsunami and D2: Coastal processes

7.509 Some responses questioned the suitability of any coastal site due to the possible impacts from future sea level rise including higher end projections. Comments were often related to the storage of nuclear waste on site. This is discussed under Question 19 ("Comments on flood risk, climate change projections and the interim storage of waste").

7.510 Some responses commented that if either improvements to the existing coastal defences needed to be made or new coastal defences needed to be constructed, this could have an impact on Morecambe Bay SAC, SPA and Ramsar site adjacent to the nominated site. It was suggested that changes to the configuration of the current coastal form could potentially affect Morecambe Bay.

### The Government's response

7.511 The HRA report for Heysham identified that physical loss of habitat through coastal squeeze, which can arise through the development of flood defences and reinforced coastal margins, is a recorded vulnerability of Morecambe Bay SAC and that any loss of SAC designated habitats or SPA/Ramsar supporting habitats could be considered significant.

7.512 The extent of the loss and/or fragmentation of marine, intertidal and terrestrial habitats from the construction of nuclear reactors, construction areas and other infrastructure and facilities relating to the operation of the nuclear power station is currently unknown because the project design and exact scope of the development and the requirements for coastal or sea defence infrastructure remain undetermined at this stage.

7.513 The potential impacts of development on these habitats will be taken into account in the project level assessments (including a further project level HRA and an Environmental Statement reporting the findings of a detailed EIA) and considered by the IPC as part of the application for development consent.

7.514 The HRA report has set out a number of suggested avoidance and mitigation measures for the IPC to consider such as avoiding or minimising losses of habitat through sensitively designed sea defences for example soft engineering for any upgraded coastal protection. The HRA Report also noted that Morecambe Bay SAC is recorded as being relatively robust to its current pressures and over 90% of each of its six component SSSIs are assessed by Natural England as being in favourable condition.

7.515 As referenced in the draft Nuclear NPS, further investigation during the detailed design stage of the project will take place to inform the requirement for, and impacts of, mitigation from new or upgraded coastal defences. The points raised in the public consultation have therefore not changed the original conclusions of the SSA.

### Comment received on D3: Proximity to hazardous industrial facilities and operations

7.516 Concern was raised during the consultation event at Heysham about a specific incident in which ammonia nitrate was stored on the quayside, and the risk this could have caused the power stations.

### The Government's response

7.517 The HSE has advised that the presence of Ammonium Nitrate is controlled under the Planning (Hazardous Substances) Act 1990 and the Regulations made under that Act. The Act requires hazardous substances consent (HSC) to be obtained for the presence of hazardous substances at or above specific amounts. With regard to the existing station at Heysham and Heysham Harbour, it is the responsibility of Lancaster City Council to regulate planning controls.

7.518 Lancaster City Council has advised that whilst there is no evidence that a hazardous situation occurred as described, the position regarding substances which would normally be controllable under the regulations, being classified as in transit, is explained in the DCLG's guide for industry to Hazardous Substances Consent[118]. When in transit by road or sea a specific hazardous substances consent is not required for temporary storage on a dock or quay whilst awaiting transfer to a ship of rail. This position would be different if regular and lengthy storage on site occurred, and the harbour or other terminal had hazardous materials covered by the consents regime regularly being stored in the vicinity.

118 ODPM, 2000, *Hazardous substances consent: a guide for industry,* http://www.communities.gov.uk/documents/planningandbuilding/pdf/hazardoussubstancesguide.pdf

7.519 Although in the case described it is likely that "in transit" provisions would have applied, the City Council have advised that there are strict security regimes for monitoring and controlling hazardous materials in transit through the port at all times and there is considerable on site security to ensure that all risks are managed appropriately in the vicinity of the power station.

### Comments on D6: Internationally designated sites of ecological importance and D7: Nationally designated sites of ecological importance

7.520 Some responses to the public consultation were concerned about the impact on Morecambe Bay SAC/SPA/Ramsar site. It was commented that it appeared that impacts on biodiversity and ecology from development had been accepted in advance of knowing whether adverse effects can be mitigated or adequately compensated for. This was raised across the sites and the nature of the assessment is considered under Question 21a) ("Comments on the assessment against the environmental criterion D6 and D7").

7.521 Some responses to both the public consultation and at the public discussion highlighted that, whilst not nationally designated sites, the Strategic Site Assessment had not captured the presence of Heysham Nature Reserve, a County Wildlife Site, and Heysham Golf Course Reedbed.

### The Government's response

7.522 The SSA, as a strategic level assessment, has considered impacts on internationally and nationally designated sites of ecological importance, such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIA are undertaken and project level information is available. The status of County Wildlife Sites, such as Heysham Reedbed, is not a statutory designation and these sites should therefore be assessed in detail at project EIA level.

### Comments on D8: Areas of amenity, cultural heritage and landscape value

7.523 Concern was raised about the coastline around Heysham Head, a rare example in the North West of England of a coastal cliff, and the National Trust's provision of public access to this part of the coastline. There was also concern that there had been no consideration of potential impacts upon the Scheduled Ancient Monument located at Heysham Head (St Patrick's early Christian chapel) and its wider setting.

### The Government's response

7.524 EN-1 sets out that in considering the impact of a proposed development on maintaining coastal recreation sites and features, the IPC will expect applicants to have taken advantage of opportunities to maintain and enhance access to the coast.

7.525 Coastal access was raised across the sites and is discussed under Question 21a) ("Comments on coastal access and footpaths"). Should the National Trust be affected, it would be expected that the developer discussed proposals with them.

7.526 With regard to the Scheduled Ancient Monument at Heysham Head, this was identified in the appendices to the AoS site report for Heysham and was referenced in the draft Nuclear NPS. The AoS site report for Heysham and the draft Nuclear NPS recognised that there is potential for adverse effects on the setting of the Scheduled Ancient Monument, although it is approximately 2km away. These were considered unlikely to be of national strategic significance and as the exact nature of any potential effects is unknown at this stage, they would be more appropriately considered during detailed assessment at project level and would be seen in the context of the existing power station.

### Comments on Existing Land Use

7.527 A number of responses commented on the inclusion of areas of Heysham Golf Course and Ocean Edge Caravan Park within the nominated site boundary and were concerned about possible effects on existing land users. It was questioned whether Heysham Golf Course should be included within the definition of amenities used in the SSA. It is assumed that this refers to Criterion D8.

7.528 There were also concerns on the impact on business at Ocean Edge Leisure Park, which sells caravans and lodges as holiday homes to private owners and letting of caravans for holiday accommodation.

### The Government's response

7.529 The SSA asked for nominators to supply site boundaries rather than a general location. This was to reduce uncertainty within communities about exactly where a new power station might go. However, following on from nomination, dialogue between nominators and residents remains important.

7.530 Existing land use and ownership was not a direct consideration in the SSA. This was because it is possible, although not inevitable, that land use and ownership could change over the timescales to 2025. However if nominators were considering nominating land that they did not own, they had to notify the landowner so that the nomination did not come as a surprise and they could feed in their views. Actual requirements for land-use will depend on the eventual choice of technology, and the approach to construction, and will only be determined once much more work has been done by any developer. Planning blight is discussed under Question 21a) ("Comments on blight from new nuclear power stations"). Socio-economic impacts, including on tourism, are discussed under Question 20 ("Comments on the socio-economic impacts of new nuclear power stations").

## Question 21f) Hinkley Point

### Introduction and overall conclusion

7.531 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.532 The assessment considers that there are a number of areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things amongst other things the impact of this proposal in combination with any other relevant nuclear power stations and in particular the effect of this on the biodiversity of the area including the Severn Estuary.

7.533 Key themes which were raised during the consultation include concerns about the health impacts of new nuclear power stations, cumulative impacts when development is considered in combination with other developments in the Severn Estuary, visual impacts of a new nuclear power station and ancillary infrastructure, and impacts upon internationally and nationally designated sites of ecological importance. Perhaps because detailed proposals have been published by EDF at Hinkley Point, there were also a number of comments about issues that would be associated with an application for development consent including transmission, jobs and transport.

### Comments on deployability by the end of 2025

7.534 The SSA is limited to considering sites which are credible for deployment by the end of 2025[119]. No key themes came through on this from the consultation, although the Government is aware that EDF has recently completed a consultation on their preferred proposals.

7.535 The Government notes that National Grid has completed a consultation on two possible route corridors for a new overhead power line between Hinkley Point in Somerset and Seabank, Avonmouth. The revised draft NPS has been updated to reflect more recent developments.

### Comments on C1: Demographics

7.536 A number of responses commented that the nominated site was close to large centres of population such as Taunton, Bridgwater, Bristol, Burnham on Sea and Weston-super-Mare and therefore not suitable against this criterion. There was interest in how the demographics criterion was assessed.

119 For the purposes of the SSA and NPS, “deployment of new nuclear power stations” means commencing operation of one or more new nuclear power stations on the site.

### The Government's response

7.537 Assessment against the demographics criterion is considered under Question 21a) ("Comments on the assessment of demographics"). The assessment considered population centres within 30km of the nominated site, and found the site to be potentially suitable.

### Comments on C2 and D5: Proximity to military activities

7.538 There were some concerns that military aircraft could be used by terrorists to attack a nuclear power station and that the proximity of Lilstock could exacerbate this.

### The Government's response

7.539 The potential for terrorist threat was raised across the sites and is discussed under Question 20 ("Comments on the safety, security, health and non-proliferation risks of new nuclear power stations"). The Government does not believe that the proximity of Lilstock, which is part of the Bridgwater Bay Firing Area, creates an unacceptable risk in terms of terrorist threat. Lilstock was discussed in the draft NPS. The Ministry of Defence has advised that whilst military aircraft conduct air to surface gunnery practise offshore in Bridgewater Bay to the north west of the site identified, the offshore area in which firing is contained is remote from the shore and as such there is no direct hazard from this military activity. Against this criterion the Ministry of Defence considered action of the proximity of Lilstock which is part of the Bridgwater Bay Firing Area. This was reflected within the original draft NPS.

### Comments on D1: Flooding, storm surge and tsunami

7.540 Some responses raised concerns about the flooding events of 1607 around the Bristol Channel which was sometimes described as a "tsunami". Some responses raised concerns about part of the site being in Flood Zone 3 and that climate change could cause more intense storm surges and increased risk of flooding in the future. Some responses raised concerns about the interim storage of radioactive waste on site. This was raised across the sites. It is discussed under Question 19 ("Comments on flood risk, climate change projections and the interim storage of waste").

### The Government's response

7.541 The flooding in the areas surrounding the Bristol Channel in January 1607 was more likely to have been a combination of high tide and storm surge, as explained in the 2005 Defra report: *The threat posed by tsunami to the UK*[120]. Whether a tsunami or not, it seems likely that this was a severe flooding event.

120 DEFRA, June 2005, *The threat posed by tsunami to the UK*, http://www.defra.gov.uk/environment/flooding/documents/risk/tsunami05.pdf

7.542 The Defra report suggests that, for most credible scenarios, wave heights produced at the coast by tsunami-type events are unlikely to exceed those anticipated for major storm surges. All major centres of development on coasts and estuaries have defences that are designed to withstand such surge waves.

7.543 The Nuclear NPS sets out that in the application for development consent, the applicant will need to satisfy the regulators that its application has taken account of the potential effects of the credible maximum scenario in the most recent projections of marine and coastal flooding. They must then be able to demonstrate that they can achieve future measures for adaptation and flood management at the site. Before a site licence is granted, the regulators will need to be satisfied that the power station can be defended against external hazards including flooding, for the lifetime of the site. This includes the time that radioactive waste may be stored on site.

7.544 Whilst there are areas of Flood Zone 3 within the nominated boundary, the majority of the site is in Flood Zone 1. The revised draft Nuclear NPS sets out that the IPC will need to be satisfied that critical infrastructure is situated within the lowest flood risk areas within the site.

7.545 It is Government policy to avoid inappropriate development in areas at risk of flooding through the use of a sequential approach which involves giving priority to areas at lower risk of flooding. The Government has undertaken a sequential approach to the SSA, considering whether or not the objectives of this NPS can be met through reasonably available alternative sites in lower Flood Zones. The Government has determined that all of the listed sites are required to be listed in this NPS as being potentially suitable for new nuclear development in spite of some being located in higher flood risk zones because of the lack of alternative sites and the need for new nuclear development.

7.546 The IPC will need to be satisfied that a sequential approach has been applied at the site level to ensure that where possible critical infrastructure is located in the lowest flood risk areas within the site.

7.547 The Nuclear NPS contains more detail on the other measures that will be considered by the IPC. For instance, the Exception Test provides a method of managing flood risk while still allowing necessary development to occur. Within the Exception Test is a requirement for a Flood Risk Assessment which must demonstrate that the project will be safe, without increasing flood risk elsewhere and where possible, will reduce flood risk overall, although the IPC is not precluded from granting consent on these grounds. Please see Part 5.7 of EN-1 and Part 3.7 of EN-6 for further detail.

### Comments on D2: Coastal processes

7.548 There were concerns that coastal squeeze as a conservation issue had not been assessed in the AoS.

### The Government's response

7.549 Coastal squeeze has been considered although it was set out in the HRA rather than the AoS. The HRA report identified that coastal squeeze impacts could occur on the Severn Estuary SAC, SPA and Ramsar site. The Severn Estuary Coastal Habitat Management Plan, produced by the EA, indicates that the Estuary is changing progressively. In particular sea level rise is resulting in coastal squeeze and a net loss of intertidal habitat. The HRA notes that all supporting habitats with SPA designation are sensitive to removal by land reclamation and construction activity and that consideration should be given to site layout and land-take at an early stage.

### Comments on D3: Proximity to hazardous industrial facilities and operations

7.550 Respondents commented that the new reactor would be built next to existing reactors - Hinkley A is being decommissioned and Hinkley B is still operational - and a serious accident at Hinkley B would require evacuation of any Hinkley C power station.

### The Government's response

7.551 As part of any site licensing activity, the applicant would be required to demonstrate that a hazard from an adjacent facility would not pose an unacceptable risk. In the case of adjacent (or close by) nuclear power stations – there are a number of examples in the UK where this is or has been the case for many years. As part of the site licensing process, HSE has advised that they would need to be satisfied that appropriate emergency arrangements can be put in place, and that it is routine for them to ensure that the emergency arrangements for adjacent nuclear sites are such that they work in a coordinated fashion.

### Comments on D4: Proximity to civil aircraft movements

7.552 There were concerns about the risk of malicious aircraft crash by terrorists at a new power station. This was raised across the sites and is considered at Question 20 ("Comments on the safety, security, health and non-proliferation risks of new nuclear power stations"). There was also concern that there are examples where restricted areas have been breached at nuclear power stations.

### The Government's response

7.553 The CAA are the policing authority for air exclusion zones. If there were a perceived aviation breach of the SI (Statutory Instrument 2007 No 1929 (The Air Navigation (Restriction of Flying) (Nuclear Installations) Regulation 2007)) it would fall to the CAA (and in particular Aviation Regulation Enforcement (ARE)) to investigate although the police are also able to investigate. It would be for the site operator to report perceived breaches.

## Comments on D6: Internationally designated sites of ecological importance

7.554 A number of responses raised concerns about the impact which development at Hinkley Point might have on European protected sites, and the impact development at Hinkley Point may have in combination with other developments in the Severn Estuary.

## The Government's response

7.555 The HRA concludes that at this strategic level it cannot rule out the potential for adverse effects on the integrity of five European Sites[121], the Severn Estuary SAC, SPA, Ramsar and the River Wye SAC and the River Usk SAC through potential impacts on water resources and quality, habitat and species loss and fragmentation/ coastal squeeze and disturbance (noise, light and visual). The draft Nuclear NPS set out that the HRA has proposed a suite of avoidance and mitigation measures and, at this stage, it is assessed that the effective implementation of these mitigation measures may help to address adverse effects on European Site integrity, but that more detailed project level HRA is required in order to draw conclusions on their effectiveness. Comments on the assessment of sites and why sites may be considered suitable despite the potential for adverse effects on European designated sites are considered under Question 21a) ("Comments on the assessment against the environmental criteria D6 and D7").

7.556 The HRA report for Hinkley identified potential adverse effects in combination with a number of other plans and projects. For example, in relation to water resources and water quality, the HRA report identified potential impacts in combination with the proposed Bristol Deep Sea Container Terminal, in particular from dredging which could modify local hydrodynamics and sediment transport. There could also be impacts in combination with a Severn Tidal Power project on the Severn Estuary SAC, SPA, Ramsar and River Wye and Usk SACs. Additionally, the decommissioning of the existing Hinkley nuclear power stations could have in-combination effects upon the Severn Estuary SAC, SPA and Ramsar site and within the River Ey and Usk SACs. Potential impacts include increases in pollution and sedimentation of surface waters[122].

7.557 Cumulative effects could differ depending on what proposals come forward and at what time. For instance, a number of different options were considered as part of the Severn Tidal project, with differing environmental impacts. Given the uncertainty about the cumulative effects identified by the AoS, the scope for mitigation, that this is a strategic level assessment and having reviewed the evidence of the consultation, the Government does not at this stage, bearing in mind that this is a strategic assessment, think those effects are sufficient in themselves to justify excluding Hinkley Point from this NPS.

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121 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

122 For more detail see the *Habitats Regulations Assessment Report* for Hinkley

7.558 Question 21a) considers comments on the assessment of cumulative effects.

### Comments on D7: Nationally designated sites of ecological importance

7.559 A number of responses raised concerns about the impact of development on wildlife and habitats near Hinkley Point. Some responses commented on the impact of abstraction of cooling water - this is discussed under D10. Other respondents were concerned that the impact on local conservation sites had not been assessed.

### The Government's response

7.560 As set out in the draft Nuclear NPS, the AoS site report identified that the potential for adverse effects on sites and species considered to be of national ecological importance (including the Bridgwater Bay National Nature Reserve) means that significant strategic effects on biodiversity cannot be ruled out at this stage of appraisal.

7.561 The AoS has found that there is, however, potential for the mitigation of biodiversity effects on sites of UK wide conservation importance, including the creation of replacement habitat. Detailed baseline studies will be required to inform the ecological assessment of the proposal.

7.562 The SSA, as a strategic level assessment, has considered impacts on internationally and nationally designated sites of ecological importance, such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIA are undertaken and project level information is available.

### Comments on D8: Areas of amenity, cultural heritage and landscape value

7.563 A number of responses commented upon the visual impact of transmission infrastructure which might be required by the development at Hinkley Point. However, the impacts of transmission are not assessed in detail as part of the SSA. This is discussed under Question 21a) ("Comments on a criterion on transmission").

7.564 Other responses commented that there would be an adverse impact upon Pixies Mound and the Quantock Hills and also raised concerns that activities such as horse riding, rambling or walking along the coastal path would have to be curtailed. This is discussed under Question 21a) ("Comments on coastal access and footpaths").

### The Government's response

7.565 The draft Nuclear NPS had set out that the AoS identified potential adverse effects on the Wick Barrow Pixies Mound Scheduled Ancient Monument (SAM), which is of national heritage significance, however, the AoS identifies that there is a likelihood this can be mitigated or impacts can be restricted,

although concern is expressed about the setting of the monument. The AoS finds that further detailed assessment at project level to consider this and the setting of other above ground cultural assets will be required. Effects arise depending on the distance and sight lines to any new nuclear power station, and any mitigation applied.

7.566 The AoS has identified potential adverse effects on the surrounding elevated local landscape and associated distant views. These include potentially some lasting adverse effects on the setting and views from within the Quantock AONB to the west (the AONB is within 5km of the nominated site). The AoS considers that the main form of mitigation potential is the clustering of new and proposed reactor buildings to avoid broadening of the potential visual impact, but even so the AoS notes that a new nuclear power station on the nominated site is still likely to lead to perceptible deterioration in some of these views.

7.567 The AoS finds that there appear to be opportunities for mitigating the impacts arising from the new power station on near views given the "potential for strengthening the positive wooded characteristics of the lowland". However, it finds that a new power station would have additional adverse visual impact on views from the Quantock Hills AONB at a sub-regional level, which could not be fully mitigated.

### Comments on D10: Access to suitable sources of cooling

7.568 There were concerns about the discharge of heated water and the potential use of biocides and the impact this could have on fish and other organisms in the Bristol Channel.

### The Government's response

7.569 The AoS concluded that the abstraction of cooling water may impact upon important fish species and that it may be possible to mitigate this by including fish deterrent schemes within cooling water intakes and adapting system design accordingly.

7.570 The AoS also concluded that the discharge of heated water into the Severn Estuary and Bridgwater Bay may affect aquatic ecology by raising temperatures and reducing oxygen available to aquatic species. Any thermal discharge will require consent from the EA and will need to meet existing regulatory standards.

7.571 The AoS notes that cooling water may contain low doses of biocide at certain times of the year to prevent fouling of the cooling water pipelines by molluscs and vegetation and that biocides can change aquatic ecology through the death of non-target organisms. However, there is a regulatory framework in place to minimise the adverse effects of water abstraction and discharge upon the environment.

7.572 The advice of the EA indicates that there appears to be access to potentially suitable sources of cooling at the site. The nominator has proposed a range

of potential cooling technologies and stated a preference for direct cooling from the sea[123]. Cooling was raised across the sites and the regulatory regime in place is discussed further under Question 21a) ("Comments on the impacts of cooling").

## Other issues raised during the public consultation

### Health

7.573 A number of concerns were raised about cancer and leukaemia in communities near nuclear power stations, with concern that there were elevated cases in the communities near Hinkley which were caused by the existing nuclear power stations.

7.574 Some responses cited studies which they said supported evidence of elevated incidences of cancers in areas near nuclear power stations. These included local studies, such as the Green Audit study which responses commented showed an excess of breast cancer deaths in Burnham on Sea over a four year period and elevated incidences of leukaemia. International studies were also cited, such as the KiKK study[124] which responses said showed elevated incidences of childhood leukaemia near nuclear power stations in Germany. Responses also said that research by COMARE was flawed[125]. Some of these comments were made across the sites and are considered under Question 20 ("Comments on the safety, security, health and non proliferation risks of new nuclear power stations").

### The Government's response

7.575 COMARE has advised that the COMARE 10th report considered the incidence of myeloid leukaemia at ages 0-4 within 25km of nuclear power plants. The COMARE 10th report concluded there was no evidence of a statistically significant increase of childhood leukaemia in the vicinity of Hinkley Point, consistent with all nuclear power plants in the UK.

7.576 The HPA has advised that in COMARE's 10th report no evidence was found of excesses of childhood leukaemia or other childhood cancers around British nuclear power plants. Furthermore, in its 11th report (2006), COMARE examined the childhood cancer throughout Great Britain and concluded that many types of childhood cancers do not to occur in a random fashion; in other words clustering is a general feature of childhood leukaemia or other childhood cancers.

7.577 Local primary care trusts and public health observatories currently have responsibilities for maintaining surveillance of cancer rates and investigating

123 See http://www.energynpsconsultation.decc.gov.uk for the nomination documents for Hinkley Point, and in particular the nomination report for information on cooling.

124 *Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants* (KiKK Study). http://www.bfs.de/en/bfs/druck/Ufoplan/4334_KIKK.html. English translation starts after page xi of http://www.bfs.de/de/bfs/druck/Ufoplan/4334_KIKK_Zusamm.pdf

125 See http://www.comare.org.uk/comare_docs.htm for details of the work and reports of the Committee on Medical Aspects of Radiation in the Environment (COMARE).

reports of clusters, including those of adult cancers. COMARE has also investigated reports of cancer clusters in adults around Hinkley and these reports were not substantiated[126].

### Comments on meteorological conditions

7.578 A comment was raised about the ability to effect an emergency plan in this area in adverse weather conditions, and how operation of the site would be maintained if nearby roads flooded. As set out in Part 4 of this NPS emergency planning is assessed as part of the site licensing process in conjunction with the advice of the NII. The NII has advised that there are acceptable procedures in place at the site for the existing nuclear power station, so it is not currently foreseen that this would be an issue which would affect the suitability of the site subject to the applicant putting adequate plans in place.

### Comments on detailed proposals and local effects

7.579 Some comments were received about the detailed effects of proposed development on local infrastructure given the rural location of Hinkley Point, and the burden they felt that this may place on local towns. For some people the detailed proposals that may come forward were the cause of concern, including about the impact and route of new roads that might be required and the impact of temporary housing.

7.580 The application procedure requires that applicants come forward with detail on their proposals for consultation prior to submitting an application for development consent to the IPC. EDF Energy began a second round of consultation on detailed proposals including many of the above areas, on 9th July 2010. This continues to be of key interest to local residents and the Government recognises that a new nuclear power station, both in construction and operation, can have significant impacts. The SSA is a decision on the suitability of the site at a national and strategic level. The assessment does not therefore consider detailed developer plans, which could be different depending on who developed the site, and do not necessarily affect the decision over whether the site itself is suitable.

7.581 The SSA has not assessed detailed proposals such as for associated works. Such details could change without affecting the overall strategic suitability of the site. The Government believes that this type of proposal is more appropriately considered by the IPC. The IPC will need to consider detailed plans using the guidance provided within EN-1 and EN-6 including consideration of points made in any local authority impact report. Local authorities are a statutory consultee at the project development stage.

126 Further details of COMARE statements and reports can be found at http://www.comare.org.uk.

## Question 21g) Kirksanton

### Introduction and overall conclusion

7.582 In the draft Nuclear NPS, Kirksanton was considered to be a potentially suitable site, although the assessment considered that there were areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things the impact on the Lake District National Park. The consultation document also set out that although the preliminary conclusion was reached that the site was potentially suitable, there were reservations about the practicability of its deployment by the end of 2025[127].

7.583 **The Government has considered evidence from the public consultation, in addition to evidence from, inter alia, the Spring 2009 opportunity for public comments, the regulators, the AoS and HRA. The Government has concluded that the site should not be included in the NPS in the list of sites that are potentially suitable for the deployment of a new nuclear power station by 2025. This assessment has in particular taken into account the assessment of credibility of deployment by 2025 and the impact on the Lake District National Park (considered in criterion D8) and the need for sites within the revised draft Nuclear NPS.**

7.584 Key themes which were raised during the consultation include whether the site was deployable by 2025, flood risk, impact on sites of international importance, emergency planning for the area surrounding the site, concerns about the impact on the Lake District National Park, and the cumulative effect with Sellafield and other sites in the North West. Key themes are considered in more detail below.

### Deployability by 2025

7.585 The preliminary conclusion of the draft Nuclear NPS was that Kirksanton was potentially suitable although given challenges such as lack of pre-existing infrastructure and less qualified information about site characteristics, there were reservations about the practicability of deployment by the end of 2025. A number of responses were received on deployability particularly focussing on concerns over infrastructure including for transport and transmission of electricity. Key themes and the Government's responses are set out below.

### Comments on strategic support

7.586 The draft Nuclear NPS noted that there was a level of strategic support for development of new nuclear within the region given that the sub-regional regeneration plan, Britain's Energy Coast, supports new nuclear power development in the region (this pre-dated the nomination of sites). In its

127 See *Consultation on draft energy National Policy Statements,* November 2009, http://data.energynpsconsultation.decc.gov.uk/documents/condoc.pdf.

response to consultation, Copeland Borough Council supported the nomination of Kirksanton on the condition of the assessment that the SSA criteria were met.

7.587 However, some responses questioned the level of strategic support for the site, noting that Cumbria County Council had stated that "it is minded not to" support development at Kirksanton in its consultation response citing key concerns about the effect on the Lake District National Park, the cumulative effects of more than one site in Cumbria, and a preference for development at Sellafield[128].

7.588 Britain's Energy Coast responded to the consultation stating that in its view sites are only deployable by 2025 where land had been made available to a known developer, where there is a clear public agreement to develop, and where a grid connection agreement is in place. Because it felt that Kirksanton did not meet all these criteria, it did not believe that Kirksanton was deployable in the given timeframe.

### The Government's response

7.589 Whilst it is clear that strategic support for new nuclear within the wider region remains, the consultation has identified concern from strategic bodies about the Kirksanton proposal. It would be for the developer to work with strategic bodies on these concerns ahead of submitting a proposal for development consent. At Kirksanton, a lack of grid connection agreement, clear development proposals and total site ownership may affect this process.

7.590 However, given the scope to continue working with strategic authorities, strategic support on its own is not considered a barrier to deployment at this stage, although the Government notes that some of the individual issues, such as concerns about the effects on the Lake District National Park, may remain challenging to work through.

7.591 Grid connection, one of the issues raised by Britain's Energy Coast, is discussed below.

### Comments on infrastructure – grid connection

7.592 The draft Nuclear NPS noted that a grid connection agreement was in place to connect Kirksanton from late 2023. A number of responses highlighted that during the consultation RWE Npower withdrew from its grid connection agreement with National Grid at Kirksanton. Responses felt this made deployment of any new nuclear station very unlikely before 2025 and that the site should therefore be removed from the NPS.

7.593 In its response to consultation RWE said there was scope to renegotiate a grid connection agreement which would deliver capacity by 2025. RWE acknowledged the delivery challenges including those of associated

128 These issues are discussed elsewhere in the Government Response. Cumbria County Council's consultation response sets out its reasoning in full: http://www.energynpsconsultation.decc.gsi.gov.uk.

infrastructure but felt that they were achievable, and pointed to progress in having carried out a number of technical assessments on the site.

### The Government's response

7.594 Whilst there has been progress on deployability at the Kirksanton site including further work to characterise the site by the nominator the loss of a grid connection agreement is a significant factor. National Grid advise that work is progressing to connect 3.2GW of additional generation in Cumbria. This would accommodate two reactors at Sellafield where there are grid connection agreements in place for 3.2GW by 2025, with the first connection by 2023.

7.595 The National Grid advise that the connection of additional stations such as Kirksanton would, whilst not as significant as the initial infrastructure needed in Cumbria, necessitate major reinforcement and new infrastructure. Such projects have considerable lead in times. There is presently no requirement to progress construction of this infrastructure. Once National Grid has a generation agreement in place which requires them to progress construction it currently anticipates that it would take approximately 4-6 years to obtain consents then a minimum of a further two years to construct. However, the integration and coordination of additional works alongside existing contracted requirements (and maintenance commitments in this area) to gain the necessary system access could extend this programme significantly. There is also considerable uncertainty attached to the estimate of time taken to obtain consents given the sensitivity of the geographical area and the scale of the proposed generation and consequent transmission reinforcement works. Given the construction programme already required to accommodate generation in this area, National Grid estimate that at present the earliest possible connection date would be by late 2025.

7.596 This means that whilst connection by 2025 may still be possible work will not commence on the additional infrastructure required until such grid agreements are in place. Connection by 2025 is therefore less certain now that no grid connection agreements are in place. In addition, the more time elapses before grid agreements are secured, the greater this uncertainty becomes and the later in the timeframe eventual agreement will be.

### Comments on site characterisation

7.597 Some responses felt that the fact that the site was greenfield meant that less was known about it than other sites, which would impact on its deployability. There was a concern that the IPC would have less information (for instance on emergency planning or flooding) on which to take a decision, which respondents felt would prevent it from granting development consent. RWE responded to the consultation setting out the studies that they had undertaken as part of a preliminary assessment of Kirksanton including on the implications of geological faulting, on flood risk and a preliminary ground investigation.

### The Government's response

7.598 It is possible that at sites where there is an existing station potential applicants will have greater access to historic site information and experience of operating a nuclear power station on that site, which may be helpful in bringing forward an application for development consent.

7.599 However, the NPSs set out guidance for the IPC on the information that it needs to consider an application for development consent. This applies across all sites including greenfield sites. In a similar way, the regulators' safety case will demand a level of information from any site, regardless of whether it is greenfield. The nominator has made some progress in characterising the site.

### Comments on infrastructure including transport

7.600 A number of responses questioned whether necessary infrastructure improvements could be carried out within the timescale to deploy the site by 2025, citing lack of access to mains sewerage and poor transport infrastructure as examples. Many responses commented that the road network was below the standard needed to accommodate the flow of materials and workers and what would be needed for emergency planning. Particular concern was expressed about the capacity of the A595. Some of these comments were about the transport in the region more generally, and are considered under Question 21a) ("Comments on transport").

7.601 However, other concerns were specific to this site. Responses noted that the Duddon Valley is well away from major roads. It was also noted by some responses that the road through Kirksanton is very narrow. Some noted that the need for new road infrastructure could have further landscape effects, and that the challenge that would be faced in mitigating transport impacts was underplayed in the site assessment. Responses were also concerned that the AoS referenced a rail stop in Kirksanton which does not exist, and that the distance to the M6 is greater than was represented in the draft AoS.

### The Government's response

7.602 The EA has advised that most, if not all, of the existing nuclear power stations have their own sewage treatment plants, and they would expect new developments to include a new treatment works. They are therefore not reliant on local sewerage networks. Introduction of first time sewerage may be achievable within the timescale for construction of a nuclear power station, but detailed plans would need to come forward to understand the extent of the project.

7.603 The Government recognises that a new nuclear power station, both in construction and operation, may have significant impacts on both local and national transport infrastructure through the transport of workers and materials, which can include large components. Depending on the local infrastructure, these may be particularly significant at a site which has not experienced such traffic movements previously. However, many of the sites,

including those that are near to existing facilities, are likely to require proposals for upgraded road, rail or marine docking facilities to manage the flow of workers and materials.

7.604 Under the planning system for nationally significant infrastructure projects applications for development of transport access arrangements can be included as associated development and therefore submitted to the IPC for consideration along with an application for development consent for a new nuclear power station. With a process in place for timely consideration of proposals it is not inconceivable that improvements could occur – however, the consultation has indicated the public's view of the potential scale of improvement needed in West Cumbria. Comments on transport are considered under Question 21a). At Kirksanton, the distance from existing adequate transport infrastructure exacerbates these issues. Clarifications have been made to the AoS setting out that there is not a rail stop in Kirksanton and that the junction to the M6 is approximately 64km away. This does not affect the result of the appraisal - the possibility of using rail for transport of construction workers and materials would be a possibility.

### The Government's conclusion on deployability by 2025

7.605 Whilst recognising that deployability by 2025 may in theory still be a possibility, the Government considers that the likelihood of deployability within that timeframe is significantly weaker than it was.

7.606 The Government has considered this in conjunction with the assessment of criterion D8 including the potential impacts on the Lake District National Park and considered the need for sites within the revised draft Nuclear NPS, and concluded that the site is not potentially suitable.

### Comments on C1: Demographics

7.607 Some respondents were concerned that the demographics criterion was reliant a) on the 2001 National Census, and b) may have missed populations who were on holiday on the day that the census took place, and would not have taken into account the influx of summer visitors to the region.

### The Government's response

7.608 The HSE's assessment is based on data from the National Population Database 2, updated in 2008. The HSE has advised that at the national level that the SSA was carried out, it would not have been practical to assess transient holiday populations because the information is not readily available through the data that was used during the assessment. Should an application for development consent come forward, the HSE would consider the full range of transient populations, both short and long term and in addition to workplaces, as part of the detailed regulatory assessment of the site's suitability and the consequences for effective emergency planning.

### Comments on criterion D1: Flooding, storm surge and tsunami

7.609 There were a number of different comments on the assessment of this criterion. They have been grouped by theme under the headings below.

### Comments about the level of on-site flood risk

7.610 Many respondents were concerned about flood risk at the nominated site, with frequent reference to the impact of the floods of November 2009. Some said that approximately 20% of the nominated site was flooded, with the areas that are Flood Zones 2 and 3 totally inundated and flooding extending into Flood Zone 1. There were concerns that flood risk at the site had been under-represented in the draft Nuclear NPS and that there is no guarantee that areas in Flood Zone 3 would not be developed.

### The Government's response

7.611 Whilst there are areas of Flood Zone 2 and 3 within the nominated boundary, the majority of the site is in Flood Zone 1. The NPS sets out that the IPC will need to be satisfied that critical infrastructure is situated within the lowest flood risk areas within the site.

7.612 The EA has noted reports and observations from members of the public that sections of the proposed site predicted to be at fluvial risk were affected by surface water running off from high ground, although the defended watercourse is not reported to have exceeded its capacity during the November 2009 floods. The HSE has reported that there was not a significant problem with flooding in the immediate vicinity of the site during the November 2009 floods. The floods and their impact on the region is discussed under comments on transport in Question 21a).

### Comments on the impact of flooding and drainage on the surrounding area

7.613 Some detailed comments were made about the effect of the new site on flood risk on the surrounding area due to the hard surface required and the effect of land raising removing land which currently soaks up excess water. Respondents were concerned that, given that the land is essentially flat and low lying, a satisfactory drainage system could not be designed and a scenario could emerge where holding tanks at any new power station become full and cause overtopping of flood defences nearby.

### The Government's response

7.614 The nomination by RWE Npower reflected that surface water management infrastructure would be required to accommodate temporary storage of significant volumes of surface water. However, it noted that as detailed layout has not yet been determined for the site it is not yet possible to derive a surface water drainage strategy to manage surface water flow.

7.615 The EA has commented that, whilst the nomination mentioned the need for storage of water, there is no detailed proposal for drainage at this time. This is reasonable given the early stage in the planning process that the SSA is

being carried out at. However, it is important that the need for careful design and the risk of potential impact is highlighted.

7.616 The draft site assessment reflected that there is a potential for any defences required to protect the site to affect downstream communities and that run off could increase flood risk to Haverigg if not designed correctly. It is clear that there would be a need for careful design of the drainage of this site to avoid impact downstream. Under the policy set out in EN-1 the IPC would consider flood risk arising elsewhere from the project as well as flood risk to the project itself.

### Comments on D2: Coastal processes

7.617 Many responses stressed that there are no coastal defences in place at present, in contrast to statements in the draft NPS and AoS that a coastal defence scheme exists[129]. Responses also said that, in contrast to the AoS, there are no cliffs adjacent to the nominated site[130].

7.618 Whilst some concerns were about the visual impact of coastal defences, particularly from the Lake District National Park, many were concerned about the impact on sediment flows and habitats in the Duddon Estuary. The nominator responded to the consultation to say that the size of site meant that there should be flexibility in terms of optimising site layout to ensure flood resilience. The nominator has noted that much of the nominated site lies above maximum projected flood levels, and that the majority of the frontage lies at a height which could put the site beyond the effects of erosion and provide opportunity to accommodate the effects of coastal processes - therefore the preference would be to develop without the need for further coastal defences. Comments on sediment movement are considered in more detail under criterion D6, although it is noted that the nominator's preference is for no additional defences to be in place.

7.619 Some respondents were concerned that the current Shoreline Management Plan position for the area was "do nothing" and that this conflicted with the prospect of coastal defences. It was noted that erosion is actively taking place in the vicinity, at the end of Layriggs Lane, as well as along part of the shoreline adjacent to the proposed power plant**.**

129 See the *draft NPS*, p173, para 5.11.39 and also *Appraisal of Sustainability*: http://www.energynpsconsultation.decc.gov.uk

130 P52 of the Appendix to the *Appraisal of Sustainability*: "*The site is shown to be defended by a combination of a coastal defence scheme consisting of armoured protection and natural flood defences comprising of a sand and shingle beach backed by dunes and cliffs*." P31, para 4.75: "*the site is defended by a coastal defence scheme comprising of armoured protection and constructed in 1993*"; and p102: "*Varied open coastline of mudflats, shingle and pebble beaches, with localised sections of dunes, sandy beaches and sandstone cliffs".* http://data.energynpsconsultation.decc.gov.uk/documents/aos/kirksanton/appendices.pdf

### The Government's response

7.620 The AoS has been revised to reflect that there are no cliffs at the nominated site and that that there is no flood defence scheme currently in place at the nominated site.

7.621 The draft Shoreline Management Plan for the shores of the Duddon Estuary contains some lengths where the policy is "No Active Intervention" and other lengths where the policy is "Hold The Line". For those lengths where the policy is "Hold The Line", the Shoreline Management Plan has justified the policy on social, environmental and economic grounds taking account of local land use and environmental factors. As referenced in EN-1, should an application for development consent come forward, the applicant will need to demonstrate that they have assessed the implications of the proposed project on strategies for managing the coast set out in the latest Shoreline Management Plan.

### Comments on D4: Civil aircraft movement

7.622 Responses were received concerning the Lakes Gliding Club, which operates from the Barrow/Walney Island Aerodrome, approximately 7-8km from the site. They requested early consideration of the centre and diameter of the restricted airspace as there were concerns that gliders could encroach when soaring Black Combe.

### The Government's response

7.623 The draft Nuclear NPS had set out that the Civil Aviation Authority advised that there is potential to institute a restricted area at this site that could mitigate impacts on air traffic. This is because it is possible in theory to alter the Restricted Area around a nuclear power station to mitigate on local aviation, by allowing specific operations to take place within the Restricted Area. Some variation at nuclear power station sites has been allowed to accommodate local circumstances in the past, but only after consideration of the risk and impact on both parties, the nuclear power station and the aviation activities. Had Kirksanton been a potentially suitable site, the revised draft Nuclear NPS would have been updated to reflect that in addition to the Barrow / Walney Island Aerodrome, the Lakes Gliding Club should be consulted should an application for development consent come forward. The particular circumstances at Kirksanton would need to be examined, including site layout, to determine the size and nature of any restricted area at that site.

### Comments on criterion D6: Internationally designated sites of ecological importance

### Comments on the construction of associated infrastructure

7.624 Many respondents were concerned that local habitats are dependent on sediment movements through the Duddon Estuary, which could be disturbed by, for instance, the construction of sea defences, cooling culverts or marine

offloading facilities. Some responses said that, given that the coastline is shallow and gently shelving, facilities such as these would have to extend some way offshore to be effective.

7.625 There were also a number of concerns about the effects of construction of associated infrastructure, for instance that the construction of a marine offloading facility would necessitate dredging in an area which is internationally protected.

### The Government's response

7.626 The HRA considered the impact of a marine offloading facility and other associated infrastructure on internationally designated sites. It noted the potential for extensive dredging prior to construction and during operation to meet the required depths necessary, and potential impacts on sediment movement as the jetty would have to be accessible from water deep enough to allow vessels to berth and could require dredging to maintain access.

7.627 It is possible that alternatives to marine offloading facilities would have been proposed, although it is noted that given the concerns that have been expressed regarding transport by road in the area, in principle it is likely that transport by sea, with the appropriate offloading facilities, may be an attractive option particularly for transporting large components. The HRA also noted that the nominator had said that there are opportunities to avoid direct habitat loss / fragmentation effects on the adjacent Morecambe Bay SAC given that the south-western site boundary extends beyond the limits of the SAC boundary and marine access to the nominated site can therefore be achieved without the need to pass through designated areas. In some cases, there may also be the potential for mitigation. The HRA site report also noted that establishing culverts by tunnelling would also reduce or prevent long term effects on sediment flows in the estuary. This is not to minimise the potential effects of development, but it makes clear that there is potential for avoidance and mitigation.

### Comments about the natterjack toad

7.628 Many respondents were concerned about the potential impact on the natterjack toad for which the Duddon Estuary is an important site. Specific concerns were that development would damage and fragment much of the natterjack toad habitat.

7.629 Concerns were also raised that the bird assemblages for which the Natura 2000 sites are designated will suffer from disturbance during construction and operation for which mitigation is unlikely.

### The Government's response.

7.630 As set out above, it is possible that proposals will come forward which avoid certain impacts, for instance through maximising site layout to avoid the need for sea defences at the site - such measures could limit impacts on species such as the natterjack toad. However, it is not known at present if

this will be the case. If, following detailed site surveys, natterjack toads are confirmed as being present within the nominated site, the HRA has set out that a detailed mitigation strategy would be required. It would be necessary to avoid, where possible, any direct impacts on this species through alterations to site design and layout. If mitigation through avoidance had not been feasible (for example, due to widespread distribution across the nominated site) measures to reduce the impacts would be necessary. The latter could involve a combination of in-situ mitigation to ensure a viable on-site population is maintained with connections to other populations in and around Duddon Estuary as well as possibly translocation of individuals outside of the working area into adjacent suitable habitats as well as creation of new habitat. The effectiveness of any mitigation strategy is dependent upon the specific circumstances such as the size and nature of the population, the extent of habitat loss or damage and the nature of the threat.

7.631 The biodiversity interest around the site is high and includes a number of European and nationally designated sites, which are primarily designated for their valuable coastal and estuarine habitats, which support important bird assemblages. Disturbance to bird assemblages is therefore considered in detail within the HRA. This notes that disturbance events in relation to bird species are most significant when they are irregular/sudden and unpredictable, and that there is some potential for mitigation. Noise, light and visual impacts may be managed at a site level through phasing and timing that takes account of breeding and feeding cycles and should be supported by information on flight lines and migration routes as well as feeding and roosting areas. These measures should be included within a construction environmental management plan, which would help to minimise disturbance.

### Comments on replacement habitat

7.632 Some responses felt it was unclear how habitats such as the coastal dune network could be replaced given their complexity and the length of time they have taken to form. There were concerns that habitat loss in the Duddon Estuary could not be compensated for elsewhere. Because some responses felt that the integrity of the Natura 2000 suite of sites could not be ensured it was not possible to comply with the Habitats Directive.

7.633 There were also particular concerns about the coastal strip at Kirksanton and whether development will directly affect two UKBAP (Biodiversity Action Plan) priority habitats, Coastal and Floodplain Grazing Marsh and Coastal Habitats Above High Water.

### The Government's response

7.634 The conclusion of the HRA is that further assessment supported by detailed data at project level is required to determine whether development at the nominated site could be undertaken without adversely affecting the integrity of European Sites[131]. Detailed mitigation measures are more appropriate at

131 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

site-level assessment. It is noted that the nominated site boundary does not include direct land take from Duddon Estuary /Morecambe Bay sites and mitigation suggested in the AoS does not state that any loss from these sites could be directly compensated. More detailed recommendations contained in the HRA (and referred to in the AoS) include the design of the site layout to avoid direct habitat loss, reinstatement of affected habitats (for example through retention of seed bank and subsequent monitoring of vegetation communities, wildlife corridors etc).

7.635 It is only through the detailed project level HRA that the specific nature of the impacts and effects identified in the HRA Report for Kirksanton, could be considered and appropriate avoidance and mitigation measures be developed to protect European Site integrity. Comments on the assessment of sites and why sites may be considered suitable despite the potential for adverse effects on European designated sites are considered under Question 21a) ("Comments on the assessment against the environmental criteria D6 and D7").

7.636 Whilst there is some overlap with the nominated site boundary and coastal sand dunes, there is not expected to be direct land take of grazing marsh[132]. The UKBAP priority habitats are referred to in the Appendix to the Kirksanton AoS site report. Potential significant impacts on UKBAP priority habitats are identified, with suggestions for further investigation at the site level. Impacts on UKBAP priority habitats are nationally significant, however, it would be difficult to find an area of land in the UK where no UKBAP priority habitat exists, thus it is not appropriate that the site be ruled out on this basis alone.

### Comments about the impact of cooling water

7.637 Many respondents were concerned about the impact of cooling water on the Duddon Estuary, fearing that cooling water intake and outflow at large volume and raised temperatures near the site will affect the behaviour and distribution of marine species including key UK Priority Habitats such as blue mussel beds, Sabelleria reefs, tideswept channels and mud and sand flats. Responses also were concerned that the discharge of large volumes of warm water in to the Duddon Estuary would inevitably have ecological effects, possibly including the creation of conditions favourable to invasive species not native to the Cumbrian coast.

7.638 The effects of chlorine as a biocide were also of concern with some responses feeling that the chlorination process would cause harm to the ecosystem of the Duddon Estuary SPA/Ramsar and Morecambe Bay SAC. Concern was expressed that if cooling had a detrimental effect on the organisms at the bottom of the food chain, species higher up the food chain which depend on these marine species would suffer. Wider concerns about the impact of cooling on the Irish Sea and the cumulative impact of nuclear power stations in the area are considered in Question 21a) ("Comments on

[132] "Grazing marsh" refers to coastal habitats above high water – it is not a UKBAP priority habitat, but a term applied to the Cumbrian coast which includes sand dunes and shingle.

the effects of cooling" and "Comments on the assessment of cumulative effects").

### The Government's response

7.639 Mussel beds are noted features of the large, shallow inlets and bays of the Morecambe Bay SAC (and a qualifying feature of the SAC). The Appendix to the AoS for Kirksanton noted that the UKBAP indicates that Sabellaria alveolata reefs have recently developed off the coast close to the site. This habitat is also an Annex I Habitat type and is currently dominating two hectares of boulder scar where it had been absent for 30 years[133].

7.640 Sabellaria alveolata are sensitive to changes in sediment regime and to physical damage, but may benefit from warmer water and can tolerate poor water quality. There is evidence, for instance, of increased winter growth of Sabellaria alveolata in the vicinity of the discharge of warmed cooling water from Hinkley Point power station on the River Severn.

7.641 Whilst mussel beds and Sabellaria reefs were not mentioned specifically in the HRA report for Kirksanton they do not affect its overall conclusions. This concludes that adverse effects cannot be ruled out for several European Sites[134] in the vicinity, including Morecambe Bay SAC/SPA/Ramsar and Duddon Estuary SPA/Ramsar for reasons such as water quality changes and habitat and species loss.

### Comments on the accuracy of the assessment.

7.642 Some responses commented that RSPB Hodbarrow (and/or the Hodbarrow SSSI) is an internationally designated site and that this was missed from the assessment[135]. Other responses highlighted what they felt were mistakes in the assessment which they were concerned had lead to an "uncertain" conclusion at Kirksanton. For instance, they felt that a lack of information about the new flood defences that would be required could have affected the conclusion on international sites of ecological importance through a lack of awareness that new facilities would have to be built.

### The Government's response

7.643 Hodbarrow RSPB reserve is not designated in its own right, but is covered by the European designations of the Duddon Estuary SPA and Morecambe Bay SAC within which it lies. These have been considered as part of the HRA, and RSPB Hodbarrow has been considered explicitly as part of the AoS for Kirksanton.

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133 See *UK Biodiversity Action Plan* - Priority Habitat Description at: http://www.ukbap.org.uk/library/UKBAPPriorityHabitatDescriptionsfinalAllhabitats20081022.pdf#SAR

134 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

135 5.11.69 stated that "*this is not a designated site so is not considered against this criteria but has been considered by the Appraisal of Sustainability for Kirksanton given its local significance*".

7.644 The Government has considered the inaccuracies that have been reported as part of the consultation, and reflected them in this Government Response where they are relevant to the assessment, and in the updated AoS reports published alongside the revised draft NPS. In some cases mistakes arose during the study. In other cases, whilst the data within the AoS was not inaccurate, clearer expression was needed or additional data that responses have provided is more pertinent. This consideration has not changed the conclusions of the assessment.

### Comments on D7 : sites of national ecological importance

7.645 Some responses raised concern about the Kirksanton Moss County Wildlife Site which is within the nominated boundary. It was commented that this is a wildlife site of county importance which would be lost due to direct land take, land raising and changes to drainage.

### The Government's response

7.646 The SSA, as a strategic level assessment, has considered impacts on internationally and nationally designated sites of ecological importance, such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIA are undertaken and project level information is available.

7.647 To reduce the likelihood of further land being needed, and increase the usability of their site, nominators were encouraged to ensure that the area nominated included within it all likely actual site plans and all reasonable variations to those plans. It is therefore possible that the nominated area will be larger than the actual site plan that will be put forward, in due course, for development consent. The AoS noted that direct impacts to Low Church Moss SSSI may occur as this ecological site is partially within the nomination site boundary, but that they could be easily avoided, through careful siting of the development.

### Comments on D8: Areas of amenity, cultural heritage and landscape value

7.648 Different themes arose which are reflected under the subheadings below.

### Comments on the nature of the local landscape

7.649 A number of responses stressed the undeveloped nature of the current landscape which some felt had been under represented in the assessment through the AoS for the site when it described existing industrial features such as Sellafield nuclear facilities and Barrow-in-Furness[136]. Some respondents were concerned that the AoS stated that the site was not in the most tranquil part of the region. Responses noted that the coastal plain is relatively sparsely settled with the small villages of Silecroft and Kirksanton

136 See p28, paragraph 4.52 of the *Appraisal of Sustainability* for Kirksanton

representing the largest built features in the area. Others noted that the landscape is defined by the landform (the stark contrast between the flat coastal plain and the dramatic profile of Black Combe), as well as the open, panoramic views and the relative lack of development.

### The Government's response

7.650 The reference within the AoS is to the county Campaign for Rural England tranquillity map, which shows that the area around Kirksanton is not one of the most tranquil areas in the county[137]. It is not intended to represent the area as being less tranquil than it is. Whilst there is a prison and a disused airfield in the immediate vicinity, the area local to the nominated site is described within the AoS as rural, with farmland and open views, and very limited existing development. References to Sellafield and Barrow are in the context of describing the landscape character of the wider Cumbria area.

### Comments on the visual impact on the Lake District National Park

7.651 A large number of respondents were concerned about the impacts of development on the Lake District National Park, the boundary of which adjoins the nominated site, due to concerns regarding the setting and landscape of the nominated site and its immediate area as well as the impact on views from the National Park. Responses said that the coastal plain is relatively sparsely settled with the small villages of Silecroft and Kirksanton representing the largest built features in the area, and that landscape character is defined by the contrast between the flat coastal plain and the profile of Black Combe and its outlier Low Scales, the open views and the relative lack of development.

7.652 A large number of responses were concerned the views from the Lake District National Park and in particular from Black Combe. There was concern that proximity to the National Park boundary and the inter-visibility between the uplands, the coastal plain and the sea would compromise the special qualities of the National Park. Many responses said that given that the boundary of the nominated site abutted the Lake District National Park opportunities for screening would be unlikely to be effective. Other responses said that landscaping would not be possible given the hostile environmental conditions around the site, noting that strong winds and a rising water table have an effect on the existing trees in the area.

7.653 Some responses were also concerned about the related transmission infrastructure associated with the development and whether it would have a significant impact on views and on landscape quality. There were also a number of responses which were concerned about the cumulative effect on the Lake District National Park in combination with other potential new nuclear power stations at Sellafield and Braystones. These factors have not formed part of the assessment of this site against this criterion. The approach of the assessment to cumulative impacts in relation to other nuclear new build is discussed at Question 21a) ("Comments on the

137 http://www.cpre.org.uk/campaigns/landscape/tranquillity/national-and-regional-tranquillity-maps

assessment of cumulative effects"). The visual impacts of transmission are not assessed in detail as part of the SSA. This would be considered by the IPC using the electricity Networks NPS. This is discussed under "Comments on a criterion on transmission".

## The Government's response

7.654 The draft Nuclear NPS noted that it was necessary to carefully consider whether the nominated site was suitable and it noted that "*fully effective mitigation of adverse visual effects…is highly unlikely*". However, the site was provisionally considered potentially suitable given consideration of the potential impact, the need for sites, the limited number of potential sites, the scope (albeit very limited) to explore in detail minimisation and mitigation, and the fact that there would be a further detailed assessment of any proposal at the project level. In light of the concerns raised during the consultation the Government has further considered the potential impact of the site on the Lake District National Park.

7.655 Whilst the AoS notes that overall, the new power station would be assessed in the context of the existing wind farm, prison and disused airfield, it finds that development of the site is likely to lead to a perceptible deterioration in views, which would not be able to be fully mitigated.

7.656 Development that is outside a National Park but which might affect it is not prohibited in planning policy terms (including within the suite of NPSs). However, as part of the SSA the Government has carefully considered the suitability of sites against a range of criteria at a national level and come to a view on whether or not the criterion is passed. In the specific circumstances at Kirksanton the Government has, having reviewed the evidence including the outputs of the public consultation and the need for sites in the revised draft Nuclear NPS, concluded that the site is not potentially suitable against this criterion. When weighed up against the need for sites the likelihood and extent of the potential impact is too great.

7.657 This also takes into account the high status and value of the Lake District National Park, which is one of only ten National Parks in England. It particularly reflects the nature of the surrounding landscape at Kirksanton, which was highlighted by a number of responses to consultation including that by the Lake District National Park Authority and Cumbria County Council[138]. Whilst HMP Haverigg, a disused airfield, and Haverigg windfarm are nearby, there is little industrial development in the immediate vicinity of the nominated site. The nature of the flat and open coastal plain, which is bordered by the sea on one side and the incline to the fells of the Lake District National Park on the other, could mean the impact of development is intensified here. This deepens the concern, expressed within the draft Nuclear NPS, that the opportunities for mitigation are limited. The nomination set out that the views from the National Park would afforded due consideration during scheme design, and proposed mitigating actions such as the use of screening and landscaping, and scale and orientation of the

138 See http://www.energynpsconsultation.decc.gov.uk for responses

facility. Whilst some mitigation, such as landscaping and screening, may be possible, there appears to be limited potential to mitigate impacts, and mitigations could affect the open nature of the local landscape.

### Comments on the effects on heritage assets

7.658 Some respondents were concerned about the potential effect on nearby heritage assets such as the Giant's Grave standing stones which are located within 1.5 km of the site. There were also a number of responses referring to potential Neolithic axes and a Bronze Age habitation site, which have been found either within or very close to the site.

### The Government's response

7.659 The AoS noted that there are eight scheduled monuments, one Conservation Area and around 21 listed buildings within a distance of 5km of the site. The site also partially incorporates RAF Millom, a World War II airfield and potential historic landscape. Neolithic axes and a Bronze Age habitation have been found in the immediate vicinity of the site, and it is therefore reasonable to assume that prehistoric archaeology may also be present.

7.660 The AoS site report concluded that the significance of impact would depend on the distance, topography and ability to mitigate. It noted that it may be possible to mitigate against potential adverse setting effects on heritage assets through appropriate landscaping or planting, although the difficulties associated with this are discussed above. However, the Government does not consider that on their own the potential impact on these assets is of sufficient seriousness to rule the site out given the importance of the assets, the distance from them, and the opportunities for some mitigation. However, should the site have been in the revised draft Nuclear NPS and proposals have come forward, further detailed assessment at project level would have been required.

### Comments on the size of site

7.661 Some respondents were concerned that the site is not large enough to allow meaningful flexibility over site layout to mitigate potential adverse effects. Conversely RWE responded to the consultation to say that "the nominated land at the Kirksanton site exceeds our estimated requirement for the operation of a nuclear power station" and that this therefore allows a degree of flexibility in terms of optimising plant layout.

### The Government's response

7.662 The most recent nuclear power station to be built in this country (Sizewell B) occupies a footprint of 26 hectares. Given that the nominated site at Kirksanton is approximately 131 hectares there would be some potential for flexibility of site layout as a mitigating action should it be needed. It is accepted that within this there would be constraints, such as the effect on

the Lake District National Park or the internationally designated areas of the Duddon Estuary.

### Comments on D10: Cooling

7.663 Some respondents were concerned that there would be a necessity for cooling towers at the site with one respondent saying that this was “stated categorically” in the nomination. The nominator has responded to the consultation to restate that they do not expect cooling towers to be a component of development.

7.664 There were some concerns about the impact of cooling on species including sea bass and sand eels in the estuary. Further concerns were expressed about the use of biocides and their impact on small fish and larvae.

### The Government’s response

7.665 In the nomination of the site the nominator stated that the ”proximity of the site with the Irish Sea provides an abundance of seawater suitable both for abstraction of cooling water, and for dispersion of discharged cooling water.” This preference is underlined by the consultation response by RWE.

7.666 Any more detailed potential impacts of cooling water abstraction and discharge would be assessed during detailed design and considered in any application. Anticipated discharges would be required to meet regulatory standards. This is discussed further under Question 21a) (“Comments on the impacts of cooling”).

7.667 The EA noted the important nursery grounds for bass on this coast. It would work with any developer to use the latest best practice methodologies to minimise the environmental impacts of water abstraction and the thermal discharge of the cooling system. This includes consideration of screening for fish.

### Comments on awareness raising by the nominator

7.668 A number of responses at Kirksanton were concerned about the level of awareness raising that the nominator had undertaken before nominating the site. For instance, responses reported that at Kirksanton only a small number of letters had been delivered, and not to residents of nearby Haverigg and Silecroft. It was also reported that initial communications from RWE inaccurately stated that the site was 180 acres.

### The Government’s response

7.669 One of the conditions of nominating was raising awareness of the nomination. Nominators must have taken steps to raise awareness among the local community that a site is being nominated. As a minimum, this should have included notifying the relevant local authority, Regional Development Agency and land owners, and taking steps to publicise their nomination to the wider community through advertising in local newspapers.

7.670 RWE have shown that they took steps to raise awareness of the nomination, including issuing a press release on 25th February 2009, issuing a letter to some residents, attending meetings and advertising in the Whitehaven News, North West Evening Mail and Workington Times and Star. From the responses received by the Government this left some people surprised and concerned by the news of the nomination although it does not seem that this meant that respondents did not hear of the nomination until after it was submitted. The Government then advertised the nomination itself and received a good response to the subsequent opportunity for public comment. Given the level of awareness raising undertaken by RWE and subsequently by the Government, it does not appear that people were unable to give the Government their views on the nomination because of a lack of awareness raising activity, but it does emphasise the importance of engagement, and in this case of direct engagement with local residents.

7.671 RWE has confirmed that an erroneous reference to 180 acres appeared in materials at events and on the RWE website (subsequently corrected). The nomination received by DECC, which was published in April 2009 and on which we asked for views as part of the public comment window, and the other material produced by Government including the draft NPS correctly list the site as approximately 131 hectares. Respondents have therefore had an opportunity to give their views to the Government whilst informed of the size of site.

### Comments on health

7.672 Some concerns were raised about links between nuclear power stations and cancer. One respondent said that the 1984 report of the Independent Advisory Group (the Black Report)[139], which investigated the increased incidence of cancer in West Cumbria, concluded that a majority of the cases of childhood cancer discovered and investigated by the Group were located in the Millom Rural District, with Kirksanton lying in the centre of this District. The respondent said that subsequent investigations discovered further childhood cancer cases – a majority of which again were located in the same District. The cases included childhood leukaemia and non-Hodgkins lymphoma.

7.673 Some responses felt there had not been enough emphasis on the potential impact of proposals on local residents, and in particular those that live very close to the nominated sites. They cited the statement within the AoS and draft Nuclear NPS that “in the case of the nominated site people living and working nearby have had a long time to get used to there being an adjacent nuclear plant so this [increased stress levels in certain individuals due to a potential perception of risk] is unlikely to be a problem at this location.”

7.674 Some responses noted that the distance to hospital given in the AoS was too short, and that distance by road (and travelling time) would be much longer.

139 Independent Advisory Group, 1984, *Investigation of the Possible Increased Incidence of Cancer in West Cumbria*. (This is known as The Black Report as it is the report of the Independent Advisory Group chaired by Sir Douglas Black).

This was also of concern in some responses in the context of emergency planning, in case a bottleneck was created. Further concerns were raised about the potential of a bottleneck at Duddon Bridge.

### The Government's response

7.675 The HPA has advised that the 1984 Black Report considered possible enhanced levels of childhood cancer at Millom which were investigated together with the greater incidence of childhood cancers found at Seascale. Later work by COMARE found that there was still an increased incidence of childhood cancer at Seascale but that this did not extend to other regions around Sellafield (COMARE fourth report)[140].

7.676 COMARE has advised that its fourth report gave an update on the incidence of childhood cancer and leukaemia in the vicinity of Sellafield and confirmed the excess of leukaemia in the village of Seascale originally reported in the Black report in 1984. The analyses gave no evidence that the raised incidence of childhood leukaemia in Seascale extends to the two county districts nearest to Sellafield (which include Millom). COMARE has established a subgroup to review and update the incidence of childhood leukaemia and other cancers in the vicinity of Sellafield and of Dounreay up to the present time, in accordance with recommendation 5 of the 11th report. COMARE's findings on health and nuclear power stations are discussed under Question 20.

7.677 The statement raised that the nominated site is adjacent to a nuclear plant is inaccurate. The nearest nuclear facility is at Sellafield some 16 miles away. The revised AoS has been updated to reflect this. Whilst nuclear has a strong history in the West Cumbria area, and the workforce for Sellafield are drawn from the surrounding district, people around the nominated site will not have experienced an adjacent nuclear facility.

7.678 The draft AoS for Kirksanton stated that the nearest hospital with an accident and emergency department is Furness General at Barrow-in-Furness 11.6km away. Responses have pointed out that it is further by road at around 40km. This has been reflected in the updated AoS report. As discussed under Question 21a) ("Comments on emergency planning"), emergency planning is considered as part of site licensing. This would also consider access to health facilities. Primary Care Trusts (PCTs) are currently responsible for making appropriate arrangements for the treatment and care of any casualties arising from a nuclear accident both on and off site. Emergency planning includes a consideration of access routes.

### Comments on Haverigg windfarm

7.679 Many respondents were concerned about the potential impact on Haverigg windfarm. Some responses felt that there should have been a criterion which excluded sites which would impact on existing sustainable energy projects.

140 See http://www.comare.org.uk/comare_docs.htm for details of the work and reports of the Committee on Medical Aspects of Radiation in the Environment (COMARE).

Some responses disagreed with the statement within the draft Nuclear NPS that it is too early to say how many wind turbines would be affected as it would depend on the final layout of the facility. They felt that there is no scope for the coexistence of the wind turbines and a nuclear power station, even in the commissioning period, as the connections for the turbines run directly across the site and the wind flow would be seriously affected by new development. There were also concerns about the viability of wind turbines outside the nominated boundary in case they were viewed as a hazard. Responses also noted the difficulty of finding wind energy sites which are as suitable meteorologically and which have as high a level of public support as they felt that Haverigg has.

7.680 Some responses also noted that Haverigg Prison has launched a new initiative in conjunction with Partnership for Renewables to use a plot of land to the south of the Haverigg Prison to position 7 wind turbines.

### The Government's response

7.681 The nomination includes 6 of the 8 turbines comprising Haverigg Windfarm. Haverigg is an eight turbine wind farm (3.5MW output) split between two sites: Haverigg II and III. Six of its turbines fall within the footprint of the nominated site at Kirksanton. The turbines are variously owned by Windcluster Ltd, and Triodos Renewables and Baywind Energy Cooperative Ltd. It is noted that Baywind operates under a cooperative model which includes a high level of local community ownership.

7.682 As set out in the draft Nuclear NPS the NII would consider the presence of a wind farm as part of the licensing process and would expect the potential licensee to examine potential risks to the installation. Bearing in mind that this is a strategic assessment conducted at an early stage in the planning process, the draft assessment felt it was too early at this stage to say how many of the turbines would be directly affected as this would depend on the final layout of the facility. However, we have considered the further evidence received on this during the consultation period. It is recognised that the turbines could be affected by the route of their connection, wind flow changes and by regulatory considerations around co-siting the facilities.

7.683 The Government thinks that a diverse secure and low carbon energy mix is needed. Nuclear and wind both have an important role to play alongside other sources. No single source can meet all our energy needs. The UK has a commitment in law to get 15% of all our energy – for electricity, heat and transport – from renewable sources by 2020. Onshore wind is the most well-established and economically viable source of renewable electricity available for future large-scale deployment in the UK. The lead in time for new nuclear power stations means that operation of the windfarm at Haverigg could be unaffected for a number of years. Nonetheless, the Government notes the risks that have been outlined by respondents regarding the operation of the windfarm, which would need to be considered both by any applicant and by the IPC.

## Comments on emergency planning

7.684 Some respondents were concerned that if emissions were carried on the prevailing wind, evacuation routes would be affected. Concern was also expressed about the adequacy of evacuation routes, which had suffered during the flooding of November 2009 and snowfall of January 2010. The A595 was frequently mentioned as a cause of concern due to repeated traffic obstruction and delays in the area. Concerns focused on the congestion that could result from evacuation (which could impact on the emergency services), and the fact that evacuation routes could overlap with those used for Sellafield. Responses also asked where local populations would be evacuated to, and some responses felt that this should have been addressed as an SSA criterion and that this indicates that the criteria were not compiled to take into account issues of particular importance to a greenfield site.

7.685 Many responses raised concern regarding the effect on Haverigg Prison, noting that if the detailed emergency planning zone around the proposed reactor site extended to 2km then the Haverigg Prison would lie within that area and would have to close as evacuation of a prison would present considerable challenges. Some responses referenced a quote by DECC reported in a local newspaper that the prison could be moved.

## The Government's response

7.686 Emergency planning is not an SSA criterion. Discussion of this is under Question 21a) ("Comments on emergency planning").

7.687 The HSE has advised that under REPPIR[141], weather considerations concentrate on a weather type that leads to a conservative (i.e. more rather than less severe) dose estimate, generally based on relatively light winds without precipitation. The HSE has advised that the determination of off-site radiological risk does not assume a single prevailing wind direction: all wind directions are considered. However, in the event of an emergency, the prevailing wind direction would be likely to be a factor in determining the response (i.e. where sheltering/evacuation might be advised). In drawing up the off-site emergency plan, the capacity of local roads will be a factor in considering the feasibility of evacuation from the emergency planning zone.

7.688 Emergency planning zones are designated by the HSE after an application for development consent and licensing has been made and a Report of Assessment required under REPPIR has been received. It would not therefore be appropriate for the Government to pre-empt the decision of where a new emergency planning zone would be.

7.689 The HSE has advised that the first line of emergency protection is that people stay indoors (i.e. shelter). Evacuation of a prison while a radiation emergency persisted would only be considered in extreme circumstances

141 Legal obligations under the Radiation (Emergency Preparedness and Public Information Regulations 2001) (REPPIR).

where there is a significant risk to the health of people sheltering. Shelter within the controlled environment of a prison would not prevent the application of the recommended countermeasures.

### Comments on mining and geology

7.690 Concerns were raised that iron ore mining that had previously taken place in the vicinity could render the site unsuitable. This was variously because respondents were concerned that there could be mines beneath the site itself, or because they were concerned that the flow of underground water through the mines could result in widespread contamination, and furthermore that these were along fault lines which were mapped in the 1850s[142]. Some responses referred to an earthquake tremor that occurred in Ulverston in 2009, and questioned what impact this might have on a new nuclear power station.

7.691 In its response to the consultation, the nominator said that as part of its preliminary assessment of the Kirksanton site they had commissioned independent technical consultants and a specialist ground investigation company who assessed various aspects of the site including a ground investigation and the implications of faulting.

### The Government's response

7.692 Mining, drilling and other underground activities can pose risks to nearby nuclear power stations. However, full and proper assessment of these risks and whether there are appropriate engineering solutions will require site and design specific investigations. For instance, In order to ascertain the presence and status of any capable faults on a site, there would need to be extensive geological investigations and associated laboratory testing. Our view is that at a strategic level it is not practical to ascertain, with a high degree of confidence, the status of faults on a site.

7.693 As part of the site licensing activities, the NII would review the site investigations undertaken by the prospective licensees. This would include reviews of previous activity on and under the site. Any consequences of previous activities would be expected to be accounted for by the licensees in the design of the plant.

7.694 During the establishment of the SSA criteria, the NII advised that seismic hazard required detailed site investigation and was best assessed as part of licensing. In order to ascertain the presence and status of any capable faults on a site, there would need to be extensive geological investigations and associated laboratory testing. The Government's view is that at a strategic level it is not practical to ascertain, with a high degree of confidence, the status of faults on a site. The licensing and therefore operation of the station is still contingent on these issues being satisfactorily resolved.

142 A respondent referenced "A map of the counties of Cumbria and Westmoreland, geologically covered", drawn by Mr Sedgewick, published by William Whelan and Co., 1858.

7.695 It is noted that seismic activity levels across the UK are generally low and the reactor designs being considered under the Generic Design Assessment process are intended for worldwide application, with baseline seismic resistance designs in the area of 0.25g-0.5g peak ground acceleration.

### Comments on beach access

7.696 A number of respondents were concerned about the impact of the nominated site on access to the beach at Kirksanton. Some responses highlighted that the area is to be connected by a new National Coastal Path under the Marine and Coastal Access Act 2009 and were concerned about the impact that development would have.

7.697 Some respondents were concerned that the nominated site was not big enough, stating that there was little room within the nominated site to accommodate mitigations, or to re-route footpaths, given that there were other designations nearby (including Kirksanton Moss County Wildlife Site, and the Lake District National Park) which would restrict re-routes.

### The Government's response

7.698 Local access to the beach is an issue which could impact on the local community in particular. It was raised across the sites, and is discussed at Question 21a) ("Comments on coastal access and footpaths").

### Comments on water quality and resources

7.699 There was a concern that there was no source of fresh water identified in the nomination, and that fresh, demineralised water would be needed for cooling ponds. A respondent felt that using water from the mains would put stress on local water supply, and suggested that cooling towers would therefore be needed.

### The Government's response

7.700 The EA has advised that they would expect the operator to produce demineralised water on-site using either fresh or sea water. The operator will need to secure a suitable source of fresh water for the site. If abstraction from the River Ehen was proposed it would be likely to require a licence and fall within the licensing regime of the EA.

### Comments on socio-economic effects including tourism

7.701 Some respondents felt that a new nuclear power station would provide a welcome source of skilled employment to the area. Other respondents were concerned that there would be an adverse impact on local tourist businesses. It was noted that there are three caravan parks close to the site of the proposed nuclear power generating station (Silecroft Holiday Park, Port Haverigg Holiday Village and Butterflowers Holiday Homes). One response to the consultation included responses to a questionnaire circulated to tourist businesses in the area. The majority of these businesses

were concerned that a nuclear power station would see a decrease in visitor numbers.

7.702 Comments were also received on the value of the tourist industry to the local economy. The British Holiday Homes and Parks Association set out that that the average family spends approximately £52 per weekend in local businesses near to their parks and that over the year their sites generate around £4 million to £5 million annually within the local economy of Millom, Kirksanton, Silecroft and other local villages.

7.703 Socio-economic impacts, including those on tourism, are considered under Question 20 (“Comments on socio-economic impacts of new nuclear power stations”). Comments on planning blight are discussed under Question 21a) under “Comments on blight from new nuclear power stations”.

## Question 21h) Oldbury

### Introduction and overall conclusion

7.704 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.705 The assessment considers that there are a number of areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things the mitigation of flood risk, the eventual nature of any new cooling towers, the impact of this proposal in combination with any other relevant nuclear power stations in the region, and the effect of this on the biodiversity of the Severn Estuary.

7.706 Key themes raised during the consultation include on demographics, proximity to civil aviation, flood risk, and the visual impact of potential cooling towers at the site. Concerns were raised about the cumulative impacts of any potential power station in conjunction with other potential development in the area including Hinkley Point or any potential Severn Tidal Power project. There were also a number of comments about health impacts.

### Deployability by the end of 2025

7.707 Deployability was not a key theme during the consultation. However since the public consultation closed on the 22nd February 2010, Horizon Nuclear Power, has announced that a planning application for a nuclear power station will be submitted once it has begun construction at its other nominated site at Wylfa[143].

7.708 In addition the nominator has continued to make progress towards eventually submitting an application for development consent. This has included submitting an EIA Scoping Report to the IPC. An EIA Scoping Report sets out, amongst other things, a description of the proposed project, a summary of the key environmental issues and key impacts. In response, the IPC has issued a Scoping Opinion[144] setting out what they expect the eventual EIA (which will accompany the application for development consent for Oldbury) to cover. This process demonstrates further progress towards deployability by 2025.

143 Given the right conditions, Horizon expect a planning application for Wylfa to be submitted in 2012 and that the site could be commissioned as early as 2020: http://www.horizonnuclearpower.com/downloads/Horizon_Nuclear_Power_announces_development_programme.pdf

144 For more details see the IPC website: http://infrastructure.independent.gov.uk/?page_id=202.

### Comments on C1: Demographics

7.709 Responses questioned the suitability of the nominated site given its proximity to a range of settlements from the nearby town of Thornbury (3 miles), the city of Bristol (c.15 miles) and settlements on the opposite side of the Severn such as Chepstow and Lydney. Some responses highlighted that populations in these settlements had increased since the original Oldbury power station was developed.

### The Government's response

7.710 The Government has taken advice from the HSE on this criterion. The HSE's demographic analysis was carried out to a radius of 30km (18.6 miles) from the nominated site. This takes into account population centres out to that distance, including Thornbury, Chepstow, Lydney and Bristol. The HSE's assessment is based on data from the National Population Database 2, updated in 2008, and therefore takes into account changes in populations since development of the existing power station. Comments on the criterion itself is discussed under Question 21a) ("Comments on the demographics assessment").

### Comments on D1: Flooding, storm surge and tsunami.

7.711 Comments under this criterion covered a number of themes and therefore appear under separate sub-headings below. Comments regarding concerns about the storage of interim waste on the site were made at a number of sites. It is discussed under Question 19 ("Comments on flood risk, climate change projections and the interim storage of waste").

### Comments on the nominated site being in Flood Zone 3

7.712 Respondents were concerned that the nominated site boundary is wholly within Flood Zone 3. Some responses queried whether the development of a new nuclear power station should therefore go ahead, noting that this can be a reason for planning applications being declined.

### The Government's response

7.713 The Government has taken a sequential approach to the SSA which aims to avoid inappropriate development in areas at risk of flooding. It has considered whether or not the objectives of this NPS can be met through reasonably available alternative sites in lower Flood Zones. The Government has determined that all of the listed sites are required to be listed in this NPS as being potentially suitable for new nuclear development in spite of some being located in higher flood risk zones because of the lack of alternative sites and the need for new nuclear development.

7.714 The IPC will need to be satisfied that a sequential approach has been applied at the site level to ensure that where possible critical infrastructure is located in the lowest flood risk areas within the site.

7.715 The Nuclear NPS contains more detail on the other measures that will be considered by the IPC. For instance, the Exception Test provides a method of managing flood risk while still allowing necessary development to occur. Within the Exception Test is a requirement for a Flood Risk Assessment which must demonstrate that the project will be safe, without increasing flood risk elsewhere and, where possible, will reduce flood risk overall, although the IPC is not precluded from granting consent on these grounds. Please see Part 5.7 of EN-1 and Part 3.7 of EN-6 for further detail.

### Comments on flooding events of 1607

7.716 Some responses continued to raise concerns about the flooding events of 1607 around the Bristol Channel, sometimes described as a "tsunami".

### The Government's response

7.717 The flooding in the areas surrounding the Bristol Channel in January 1607 was more likely to have been a combination of high tide and storm surge, as explained in the 2005 Defra report[145]. Whether a tsunami or not, it seems likely that this was a severe flooding event.

7.718 The Defra report suggests that, for most credible scenarios, wave heights produced at the coast by tsunami-type events are unlikely to exceed those anticipated for major storm surges. The revised Nuclear NPS sets out that IPC should be satisfied that the applicant is able to demonstrate suitable flood risk mitigation measures and that these should take account of the potential effects of the credible maximum scenario in the most recent marine and coastal flood projections.

### Comments on ground raising

7.719 A number of responses commented on the suggestion within the nomination to import material to raise the site to alleviate flooding risk and how this may affect flood risk in areas around the site[146]. Some responses questioned who would pay for the development and maintenance of flood defences at the site.

### The Government's response

7.720 Although the nominator has stated that it does not consider that raising flood defences would result in increased risk of flooding elsewhere, construction of flood defences would require removing an area of land from the existing flood plain, and the EA advised that mitigation of flood risk to the site could have an adverse impact on flood risk in the surrounding area by reducing the capability of area to absorb and disperse flood water. However, they felt that a suitable approach could be developed that would improve the protection of the surrounding area. The EA noted that the impact of flood mitigation

145 Defra, *The threat posed by tsunami to the UK*, June 2005, http://www.defra.gov.uk/environment/flooding/documents/risk/tsunami05.pdf

146 http://data.energynpsconsultation.decc.gov.uk/documents/old/oldbury/flood_risk.pdf

measures on the surrounding area is predicated on the scale of the flood mitigation proposed and that a strategic 'tidal cell' flood mitigation approach could reduce tidal flood risk to the whole area[147].

7.721 The SSA has assessed whether a site is potentially suitable for a new nuclear power station rather than assessing a detailed application for development consent. It is possible, in theory, that different developers could bring forward different detailed proposals including those for mitigation of flood risk. However, given that there is scope to mitigate the impacts on the surrounding area, the site has not failed the assessment on this criterion. This will be considered further by the IPC - one of the requirements of flood risk assessments as set out in EN-1 is that they should consider the risk of flooding arising from the project in addition to the risk of flooding to the project.

7.722 The EA has advised the developer would pay for the development and maintenance of flood defences at their site.

### Comments on D2: Coastal processes

7.723 Although one respondent referenced erosion on the Forest of Dean side of the river, no new evidence was received above the information that had been reflected in the draft Nuclear NPS regarding Plusterwyne Farm. There was a concern that there had not been an assessment of coastal squeeze. Some respondents queried the relationship between the NPS and the Shoreline Management Plan.

### The Government's response

7.724 Coastal squeeze was considered within the HRA at the site. Adverse effects on site integrity arising from habitat loss and coastal squeeze from the proposed development and from in-combination effects of other plans and projects are considered likely for designated sites including the Severn Estuary SAC, SPA and Ramsar site, however, the HRA also sets out suggested avoidance and mitigation measures which could be implemented at the site.

7.725 As referenced in EN-1, should an application for development consent come forward, the applicant will need to demonstrate that they have assessed the implications of the proposed project on strategies for managing the coast set out in the latest Shoreline Management Plan.

### Comments on D4: Proximity to civil aircraft movements

7.726 During the consultation, concerns were repeated about the proximity of Bristol Filton Aerodrome.

147 https://www.energynpsconsultation.decc.gov.uk/nuclear/ssa/oldbury/criteria/

### The Government's response

7.727 It is not anticipated that any new Restricted Area would impact on Bristol Filton aerodrome, and a new Restricted Area is expected to provide a similar level of protection from civil aircraft movements as that at the existing station. Some respondents were concerned about terrorist threat and the impact of aircraft crash. This was raised across the sites and is considered under Question 20 ("Comments on the safety, security, health and non-proliferation risks of new nuclear power stations").

### Comments on D6: Internationally designated sites of ecological importance

7.728 Some responses commented on how the construction of temporary wharf facilities may affect the Severn Estuary SAC, SPA and Ramsar site. There were also concerns over the disturbance to wildlife during both the construction and operational period. In particular responses referred to the impacts to the local bird species (including Bewick's swans and white fronted geese) in relation to noise, the presence of cooling towers and potential associated plumes from the cooling towers. There were concerns that the plumes from cooling towers would lead contribute to microclimate change in a vulnerable wetland habitat.

### The Government's response

7.729 The HRA report for Oldbury identified that habitat loss as a result of construction of the power station and associated infrastructure (such as a marine offloading facility) could result in potential adverse effects on the Severn Estuary SAC, SPA and Ramsar site. The HRA report has set out a number of suggested avoidance and mitigation measures for the IPC to consider such as requiring site layout to avoid areas of known importance or sensitivity. The potential impacts of development on the SAC, SPA and Ramsar site will be taken into account in the project level assessments (including a further project level HRA) and considered by the IPC as part of the application for development consent. Methods to avoid or reduce significant ecological impacts will also be explored at the project level when the developer has detailed information.

7.730 The HRA report for Oldbury identified that disturbance from noise during construction and operation could have impacts on bird species in the SPA (Bewick's swans, white fronted goose, Gadwall, Dunlin, Shelduck, Redshank, Curlew, Pintail, Ringed Plover) and in the Ramsar (waterfowl species). Disturbance could come from construction activity, movement of materials, intermittent sounds from machinery, vehicles and parts of the plant (such as sirens) or movement of the workforce. The HRA report has suggested avoidance and mitigation measures for the IPC to consider, for example, phasing of development works to take account of breeding or feeding cycles and habitats, and flight lines and migration routes of sensitive species.

7.731 The potential impacts of construction and operation on sensitive species will be taken into account with the project level assessments and considered by

the IPC as part of the application for development consent. Methods to avoid or reduce disturbance impacts will be explored at the project level when the developer has detailed information.

7.732 The EA has advised that there might be some micro-climate effects local to the cooling towers. It is not possible to say at this strategic stage whether these effects would be significant to local wetland habitats and whether or not the effects would be adverse or beneficial. However, the discussion under D8 makes clear that natural draught cooling towers at this site are now unlikely. Hybrid cooling towers are shorter and do not exhibit significant steam plumes except in adverse weather conditions. If there were likely to be further impacts these would need to be considered under the EIA when the precise nature and location of the cooling towers is known.

### Comments on D7: Nationally designated sites of ecological importance

7.733 Some respondents were concerned about Slimbridge Wildfowl and Wetlands Trust's Slimbridge Reserve and the Severn Estuary SSSI, Upper Severn Estuary SSSI, and River Wye (Lower Wye) SSSI and the impact that the development may have on this reserve in relation to the feeding grounds for the birds, for instance through the construction being disruptive to the bird populations and the potential impacts from vapour plumes from the cooling towers - this is discussed in the criterion above.

### The Government's response

7.734 The SSA, as a strategic level assessment, has considered impacts on internationally and nationally designated sites of ecological importance, such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIAs are undertaken and project level information is available.

7.735 In relation to the impacts upon nationally designated sites of ecological importance, the AoS concluded that there could be potential adverse effects on bird populations arising from noise, visual impact and light disturbance. The AoS suggested possible mitigation measures including a Construction Environmental Management Plan to minimise disturbance, for example through timing of construction programmes and visual/noise screening.

7.736 The project level EIA, to be undertaken by the developer and considered by the IPC at the planning application stage, should take account of the potential affects that the development may have on the local bird populations and impacts on sites of national and local ecological importance, including impacts from disturbance and habitat loss. The implementation of mitigation options for significant adverse effects on the wildlife can be more certain at the project level stage where more detailed information is available to assess impacts and avoidance and mitigation measures.

## Comments on D8: Areas of amenity, cultural heritage and landscape value

7.737 The nomination for Oldbury stated that development of a new nuclear power station on the nominated site would utilise cooling towers. At that point, in the absence of a final choice of technology, the nominator[148] stated that the cooling towers would be between 70 metres and 200 metres in height, with forced draught towers at the lower end of this range and natural draught towers at the upper end[149]. In September 2010 Horizon Nuclear Power announced that, based on current information, a 'hybrid' cooling tower design was its preferred option for the proposed new nuclear power station at Oldbury on Severn[150].

7.738 However, this was after the consultation and a large number of responses received during the public consultation commented on the visual impact of cooling towers of 200 metres in height. Concerns were also raised that the potential plumes from the cooling towers would cause further visual impacts. Responses stated that the impacts of natural draught towers could not be mitigated to an acceptable level, particularly in regard to visual impact on the surrounding AONBs and other protected areas, and the effect that cooling towers of this height would have on the rural character of the general area and buildings of cultural and heritage importance. Specific mention was made of Thornbury and Berkeley Castles, St Mary's Church Thornbury and Acton Court, St Mary's Church in Shepperdine, and Chapel House in Shepperdine.

7.739 Some consultation responses included comments on what new transmission lines would be needed, with regards to visual impact and comments on the potential for undergrounding. Whilst the impact of transmission was considered at a strategic level by the AoS, it is not an SSA criterion. This is considered further under Question 21a ("Comments on a criterion on transmission").

## The Government's response

7.740 The assessment of the nominated site at Oldbury within the draft NPS gave careful consideration to the effect of the visual impact of cooling towers on the site's suitability. The AoS concluded that "*…further development at Oldbury is highly likely to lead to a perceptible deterioration in some views, (including from within AONBs), which would not be able to be mitigated given the scale of possible new buildings*". However, the site was found to be potentially suitable[151].

7.741 The Government has carefully considered responses to the consultation in this area. The draft Fossil Fuels NPS set out that when considering

148 At the time of nomination, the nominator was E.ON. This site is now taken forward by Horizon Nuclear Power.

149 Horizon environmental Scoping Report for Oldbury: http://www.horizonnuclearpower.com/downloads/horizon-env-ecoping-report.pdf

150 http://www.horizonnuclearpower.com/oldbury.php

151 See pp198-200 of the Draft Nuclear NPS: https://www.energynpsconsultation.decc.gov.uk

applications for development consent for the relevant infrastructure, the IPC should be satisfied that application of (shorter) modern hybrid cooling technology is *not reasonably practicable* before giving consent to any development proposing natural draught towers. The Government has amended EN-1 so that this policy applies to other generating stations including nuclear power stations. This would therefore now apply to any new nuclear power station at Oldbury.

7.742 In addition, the Government notes the announcement of Horizon Nuclear Power that, based on current information, a 'hybrid' cooling tower design was its preferred option for the proposed new nuclear power station at Oldbury on Severn[152]. Modern hybrid cooling systems (e.g. mechanical or forced draught ) have a lesser visual impact than natural draught cooling systems because the cooling towers are shorter. Furthermore, they do not exhibit significant steam plumes, except in adverse weather conditions. There is an efficiency penalty for using mechanical towers, as they require electricity to run.

7.743 Whilst it is not possible to completely eliminate the visual impacts associated with a generating station, developments with hybrid cooling towers would reduce visual impact to the surrounding areas and would mean that a new power station would be more in keeping with the height of the existing power station.

7.744 These developments reduce the likelihood of natural draught cooling towers being proposed at Oldbury. In the unlikely event that an application for development consent came forward for natural draught cooling towers and the developer could show that hybrid towers were not reasonably practicable, the IPC would assess the visual impact in line with guidance in EN-1. If the IPC considers that the local adverse effects of a project outweigh the need it may refuse development consent, as set out in the Planning Act.

7.745 The Government has not stipulated that natural cooling towers are not acceptable at this stage, because if modern hybrid cooling towers prove to be impracticable, the Government believes that developers should be allowed to present other options and the IPC should be able to consider them. The strategic level assessment suggests that mechanical draught towers would appear to be practicable at the site.

7.746 On the variety of buildings mentioned, EN-1[153] recognises that the historic environment includes all aspects of the environment resulting from the interaction between people and places through time. Whilst some of the buildings which were of concern to respondents are not listed and not recognised 'Heritage Assets', the Government does acknowledge that they can be of local importance. EN-1 states that advice and information about the significance of known, but non-designated heritage assets with

152 http://www.horizonnuclearpower.com/oldbury.php

153 http://data.energynpsconsultation.decc.gov.uk/documents/npss/EN-1.pdf

archaeological interest may be obtained from County Archaeologists in England and, where appropriate, the developer should seek to do this.

### Comments on D10: Access to suitable sources of cooling

7.747 There were a number of responses of the view that there is insufficient cooling water availability to support a new nuclear power station at the site and therefore that the site was not suitable. Some responses commented that smaller reactors should be developed at the site, that would not need cooling towers. Others commented that there would be an unreliable cooling water source due to the river being tidal, as well as concerns with using reservoirs for water storage and the silting problems that arise with this. The responses relating to insufficient cooling water were often linked to concerns about the visual impact of cooling towers located at the site (discussed previously in relation to Criterion D8: Areas of amenity, cultural heritage and landscape value where appropriate).

7.748 Some responses also commented that the current nuclear power station has had problems with cooling water availability and said that this had impacts on the current station's ability to operate efficiently.

### The Government's response

7.749 The SSA is focused upon sites which can be deployed by 2025 and the Generic Design Assessment process is currently assessing reactors which might be used by new nuclear power stations deployed by 2025. Designs must be approved by the Generic Design Assessment before they can be deployed. Currently industry has submitted two designs to be assessed – the 1650MW capacity EPR and the 1100MW capacity AP1000. Because these reactors have a significantly greater output than the existing station at Oldbury, they have a need for greater cooling capacity. No smaller reactors have been submitted for assessment in Generic Design Assessment.

7.750 The Government has sought specialist advice to support the SSA in relation to cooling water availability and the cooling water technologies proposed by the developer at Oldbury from the EA and the NII[154].

7.751 The nomination for the site at Oldbury stated that "Direct cooling for the proposed station is not felt to be appropriate at this site as the required water amounts would be considerably larger than those required for the existing Magnox power station and would be expected to give rise to unacceptable environmental impacts by virtue of the size of thermal plume discharged in the Severn Estuary." For these reasons the nominator has proposed the use of cooling towers. These would still require some use of water although this would be a much smaller amount than if direct cooling was used. The advice received from the EA has confirmed that the nominator's assessment of the cooling technologies proposed are feasible for a new nuclear power station within the nominated site at Oldbury.

154 http://data.energynpsconsultation.decc.gov.uk/documents/ssacriteria/oldbury.pdf

## Comments on cumulative effects

7.752 A number of responses were received with regard to the cumulative effects of development when taken alongside other major infrastructure projects in the area, including any potential Severn Tidal Power Project, potential development of a new nuclear power station at Hinkley Point and the Bristol Deep Sea Container Terminal (Avonmouth) and there was a mention of a proposed incinerator at Pilning (Avonmouth). Respondents were particularly concerned about ecological effects on internationally designated sites. Impacts to the shad and lamprey were particularly referenced, as well as salmon and non-migratory species such as otter.

7.753 A number of responses commented on the potential cumulative visual impacts to the area if the Oldbury nuclear power station was developed, along with the existing industrial infrastructure buildings at Avonmouth.

## The Government's response

7.754 The HRA and the AoS for Oldbury identified potential adverse effects in combination with a number of other plans and projects, which were summarised within the draft Nuclear NPS.

7.755 The potential new build at Hinkley, and the decommissioning of the existing Oldbury power station is highlighted as having the potential for in-combination effects.

7.756 The HRA also set out that the Environmental Statement for the proposed Bristol Deep Sea Container Terminal[39] at Avonmouth and the estuary approach channel identifies a number of impacts which are likely to have in-combination effects with a nuclear development on the Severn Estuary European Sites[155] and the River Wye SAC in relation to water resources and quality[156].

7.757 The AoS finds that it is possible to avoid or reduce the potential cumulative adverse effects that are typical of major infrastructure projects, such as nuisance, noise and dust; and impacts on the local transport network - through the timing and phasing if more than one power station in the region is developed, for example by arranging that peak levels of construction activity do not coincide and that mitigation commitments are implemented through adherence to an agreed Environmental/Sustainability Management Plan.

7.758 Having reviewed the evidence of the consultation, the Government does not at this stage think that potential cumulative effects are sufficient in themselves to justify excluding Oldbury from the Nuclear NPS, particularly given the uncertainty about the cumulative effects identified by the AoS, the

155 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

156 http://data.energynpsconsultation.decc.gov.uk/documents/hra/oldbury/report.pdf, p26

scope for mitigation, and the fact that the SSA is a strategic level assessment.

7.759 Question 21a) considers further comments on the assessment of cumulative effects.

### Comments on the impact on local populations

7.760 A number of responses to the public consultation expressed concern on the effects of the construction and operation of the proposed power station in relation to the local community. Concerns included the affect on house prices in the area (which was often linked to concern regarding the visual impact of cooling towers), employment availability to local people, the security that may be required if there were protests and increased levels of crime and the strain put on the local councils and health authorities as a result of increases in the local populations. In addition, the cumulative effects associated with these impacts if a number of large developments went ahead concurrently in the area were a concern to a few respondents.

### The Government's response

7.761 The potential for impact on population dynamics is highlighted in Part 5.12 of EN-1. The NPS directs the IPC to consider potential socio-economic effects of development when assessing development consent applications and the IPC will be able to do this at a point when it is clearer how many workers would be required for a development and at what point. The extent of some impacts could be affected by factors such as the timing and extent of any application for development consent that may come forward. How socio-economic impacts will be considered is discussed under Question 20 ("Comments on the socio-economic impacts of new nuclear power stations"). In addition, local authorities are a statutory consultee at the project development stage. The IPC will invite affected local authorities to produce a local impact report, and it must have regard to this report in its decision.

### Comments on transport effects

7.762 A number of responses from the public consultation commented on the affects a power station development may have on the local road infrastructure. Amongst a range of roads and junctions that were mentioned, in particular Junction 14 on the M5 and the A38, as well as roads in the areas of Falfield, Rockhampton, Hill, Whitfield, Grovesend, there was also concern about how the project could interact with predicted traffic levels in the area.

7.763 It was commented that a working farm on the B4061 has to stop traffic four times a day to move cattle, which can cause delays of up to 15 minutes on what it was commented is currently the main route for vehicles travelling to the current Oldbury power station.

### The Government's response

7.764 The Government recognises that a new nuclear power station would have impacts on local transport infrastructure. Detailed transport assessments of transport impacts were not made as part of the SSA, but a discussion of the consideration of transport including by the IPC is under Question 21a) ("Comments on transport"). The developer would also be expected to come forward with detailed plans that would clarify the main access route for the potential power station and the likely level of usage. It is possible that effective transport plans could help to mitigate the effects of increased levels of traffic.

### Comments on health

7.765 A number of responses to the consultation were concerned about the health impacts of a new nuclear power station at Oldbury from routine and accidental radioactive discharges. Many of these responses also expressed concern over whether there are links between nuclear power and leukaemia and other cancers, particularly in children. These comments are considered further under Question 20 ("Comments on the safety, security, health and non-proliferation risks of a new nuclear power station"). Particular reference was made to leukaemia and cancer clusters in the local populations being elevated. Some responses referred to local studies undertaken around the current Oldbury Power Station which looked at incidences of cancer.

### The Government's response

7.766 COMARE has advised that following the report by Busby on an excess of myeloid leukaemia in 0-4 year olds in Chepstow[157], the COMARE 10th report[158] considered the incidence of myeloid leukaemia at ages 0-4 within 25km of nuclear power plants. The report concluded that the result for Oldbury is found not to be significant and the analysis included 14 cases in the 25-year period 1969–1993 as compared with the 3 found by Busby in the 17-year period 1974–1990. The COMARE 10th report concluded there was no evidence of a statistically significant increase of childhood leukaemia in the vicinity of Oldbury, consistent with all nuclear power plants in the UK.

7.767 Local primary care trusts and public health observatories currently have responsibilities for maintaining surveillance of cancer rates and investigating reports of clusters, including those of adult cancers. COMARE has also investigated reports of cancer clusters in adults around Oldbury and these reports were not substantiated[159].

157 Busby, 2001, *Childhood leukaemia and cancer in Chepstow, opposite Oldbury nuclear power station*, http://www.llrc.org/health/subtopic/chepstow.htm

158 See http://www.comare.org.uk/comare_docs.htm for details of the work and reports of the Committee on Medical Aspects of Radiation in the Environment (COMARE).

159 Further details of COMARE statements and reports can be found at http://www.comare.org.uk.

### Comments on noise

7.768 A number of responses were also received in the public consultation which referenced noise impacts from the proposed cooling towers and the impacts that the noise may have on both local residents and wildlife.

### The Government's response

7.769 EN-1 specifically states that the IPC should expect a noise assessment to have been undertaken by the developer, where appropriate, which considers noise impacts during the construction and operational phases of the development, as well as from any associated transportation infrastructure. Section 5.11 of EN-1 contains further detail on the assessments that would be made and how these would be considered by the IPC.

## Other issues

### Comments on the geological stability of the site

7.770 Some responses said that the ground conditions at the Oldbury nominated site are not suitable for a large development, such as a nuclear power station, as a result of issues with subsistence at the existing power station.

### The Government's response

7.771 Geological and geotechnical conditions in the UK are generally benign when compared with some other parts of the world. The UK does not have deep tropically weathered soils, permanently frozen ground, volcanoes or high mountains, for example. However the UK has a very varied geology and earth-surface processes that create some particular (non seismic) hazards that need to be considered in assessing the relative merits of nuclear power station sites, such as river or coastal alluvium or cavernous bedrock.

7.772 Although the list of geological and geotechnical hazards relevant to nuclear power stations is long, they are common considerations in the siting of a wide range of structures in the UK, and are generally amenable to resolution by appropriate design and construction works, with some sites costing more to develop than others. Indeed, some of the UK's existing nuclear power stations are on sites where it was necessary to engineer solutions to mitigate certain geological and geotechnical hazards.

7.773 Section 3.6.3 of this NPS sets out that non-seismic ground conditions will be considered by the NII during licensing.

## Question 21i) Sellafield

### Introduction and overall conclusion

7.774 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.775 The assessment considers that there are a number of areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things the impact on the Lake District National Park.

7.776 Key themes which were raised during the consultation include the cumulative effect with Sellafield and other sites in the North West. This Government Response sets out that Braystones and Kirksanton are not in the revised draft Nuclear NPS. Comments on the assessment of cumulative effects are considered under Question 21a).

### Comments on deployability by 2025

7.777 Some responses felt there was progress towards deployability by 2025 including the purchase in October 2009 of land for deployment by Iberdrola, GDF Suez and Scottish and Southern Energy, and discussions with local stakeholders on access to the National Grid and options for routing. The consultation also demonstrated County Council support for the nomination at Sellafield.

### The Government's response

7.778 The Government continues to believe that the site is deployable by 2025. This is in contrast to Braystones and Kirksanton where the Government has concerns about deployability by 2025. All sites share the need for significant new connection infrastructure. At this site a grid connection agreement remains in place and responses demonstrate that work is continuing on routing options. National Grid have also advised that work is progressing to connect 3.2GW of additional generation in Cumbria via a new 400kv double circuit overhead line. This would accommodate two reactors at Sellafield, where there are grid connection agreements for 3.2GW by 2025, with the first connection from October 2023.

### Comments on D1: flooding, storm surge and tsunami and D2: coastal processes

7.779 Some responses queried whether the flooding events of November 2009 had altered the assessment, and whether this also impacted on emergency planning, noting that a bridge to the south of the site was closed. The EA did not receive any reports of on-site flooding at the site. Question 21a) includes a consideration of the impacts of the floods on transport in the wider area

("Comments on transport"). The efficacy of evacuation routes is a factor that would be taken into account by the local emergency planning authorities and by HSE in the event that a proposal was brought forward for development of the site.

7.780 There was a concern about the impact on the local coastal environment from coastal defences, although the presence of existing infrastructure at this site was also noted.

### The Government's response

7.781 The AoS noted that if upgraded defences were required these may have the potential to modify existing coastal hydrodynamics and associated movement of sediment, which may have secondary effects on marine ecosystem structure and functioning. However, the AoS also found that the use of an appropriate design, construction and management techniques and a full understanding of the hydrodynamics of the coastal zone could minimise potential effects.

## Comments on D3: Proximity to hazardous industrial facilities and operations

7.782 The proximity of the existing Sellafield nuclear facilities was raised, particularly with regard to the risk of accident and the knock on effect this could have for maintaining operational safety at a new power station.

### The Government's response

7.783 The Government notes the existence of a lower tier COMAH establishment on the adjacent Sellafield licensed nuclear site. Any new power station nearby would be required to take into account reasonably foreseeable accidents at a neighbouring site in the on-site emergency plan. Although risks are posed by legacy nuclear facilities at Sellafield, the NII is satisfied that Sellafield Limited is taking reasonably practicable steps to reduce these risks. These facilities have not been judged by the HSE to pose an unacceptable risk to other operating nuclear facilities on that site. As any nuclear power station on the nominated site would be at a greater distance it would thus be at an even lower risk from these facilities.

## Comments on criterion D6: proximity to sites of international ecological importance

7.784 There was some concern that cooling could have an impact on designated sites in the vicinity due to changes in water temperature and the use of biocides. Responses cited possible effects on river, sea and brook lamprey and other species, and the Duddon Estuary, Drigg Coast, Upper Solway Floats and Marshes, Solway Firth SAC, River Derwent and Bassentwaite Lake SAC, and Rivers Ehen and Eden SAC. There was concern that these sites had not been considered in the HRA despite species which are an interest feature of the designated sites using the coastline near Sellafield.

7.785 Some concern was cited that abstraction of cooling water from Wast Water and the River Ehen would have adverse effects on the internationally designated sites and species including on pearl mussels. There were also concerns about the effect on the natterjack toad, particularly from the construction of associated development such as a marine landing facility. It was felt that there was not enough information to conclude that there will be no negative impact on internationally protected sites. The assessment did not conclude that there was no negative impact. Points raised on the level of detail and conclusion of the HRAs in general are discussed under Question 21a) ("Comments on the level of detail of the assessment" and "Comments on the assessment against the environmental criterion D6 and D7").

## The Government's response

7.786 The HRA could not rule out the potential for adverse effects on four European Sites[160]: the Drigg Coast SAC, the River Ehen SAC, Wast Water SAC and the River Derwent and Bassenthwaite Lake SAC. However, it identified a suite of avoidance and mitigation measures to be considered as part of the project level HRA. At this stage it is assessed that the effective implementation of these strategic mitigation measures may help to address adverse effects on European Site integrity, but that more detailed project level HRA is required in order to draw conclusions on their efficacy. Further assessment supported by detailed data at project level would be required to determine whether nuclear power development at this nominated site could be undertaken without adversely affecting the integrity of European Sites near Sellafield.

7.787 The HRA has not scoped in European designated sites beyond 20km of the site boundary on Natural England's Nature map[161] unless it is considered that effects may arise through, for example, hydrological connectivity. Therefore some of the sites that respondents suggested have been excluded from the assessment (although several of them fall within the 20km radius for other nominated sites and so are considered in other HRA reports as appropriate). This area of search reflects guidance recommendations[162] and this approach was agreed with the Government's statutory advisors on nature conservation matters, Natural England, and the Countryside Council for Wales. Morecambe Bay SAC/SPA/Ramsar, Duddon Estuary SPA/Ramsar, Upper Solway Flats and Marshes SPA/Ramsar, Solway Firth SAC, River Derwent and Bassenthwaite Lake SAC and River Eden SAC all lie further than 20km from the nominated site.

7.788 The Sellafield AoS states that there are records of the presence of natterjack toad falling within 10km of the nominated site. If, following detailed site surveys, natterjack toads are confirmed as being present within the

160 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

161 http://www.natureonthemap.org.uk

162 Communities and Local Government, 2006, *Planning for the Protection of European Sites: Appropriate Assessment – Guidance for Regional Spatial Strategies and Local Development Documents*

nominated site, a detailed mitigation strategy will be required. It would be necessary to avoid, where possible, any direct impacts on this species through alterations to site design and layout. If mitigation through avoidance is not feasible (for example, due to widespread distribution across the nominated site) measures to reduce the impacts would be necessary.

7.789 The draft Nuclear NPS set out that any proposal for freshwater indirect cooling would need to be carefully considered, due to a variety of concerns including the high nature conservation designations and the potential effect upon wildlife including pearl mussels. This is included as guidance to the IPC.

### Comments on criterion D7 : sites of national ecological importance

7.790 It was asked why the Church Moss SSSI had been included within the nomination given that the site was so large, and it was flagged that the site includes Sellafield Tarn which is a County Wildlife Site. Again, there was concern that natterjack toads are present here.

### The Government's response

7.791 The SSA, as a strategic level assessment, has considered impacts on nationally designated sites of ecological importance such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIAs are undertaken and project level information is available.

7.792 To reduce the likelihood of further land being needed, and increase the usability of their site, nominators were encouraged to ensure that the area nominated included within it all likely actual site plans and all reasonable variations to those plans. It is therefore possible that the nominated area will be larger than the actual site plan that will be put forward, in due course, for development consent. The AoS noted that direct impacts to Low Church Moss Site of SSSI may occur as this ecological site is partially within the nomination site boundary, but that they could be easily avoided, through careful siting of the development.

### Comments on criterion D8 : areas of amenity, cultural heritage and landscape value

7.793 The visual impact of Sellafield, including the existing facilities, was raised by respondents. A concern was noted that the existing facility at Sellafield is a noticeable and incongruous feature when viewed from various points within the National Park and these impacts would be exacerbated by extension of infrastructure development at the site. However, other responses felt that as the nominated site lies adjacent to the existing nuclear facilities it should be more readily assimilated in the wider landscape, and there should be potential to concentrate the build closer to existing visual disturbance in the landscape. It was felt that there would be opportunities for new build to be

seen as part of the wider existing nuclear site, although this may change as decommissioning progresses.

### The Government's response

7.794 The nominated site is, at its closest point, within 1.5km of the Lake District National Park. During the initial assessment, it was recognised that the development could have adverse effects on the Lake District National Park. However, it was considered that the need for sites and lack of alternatives outweighed this potential impact. The assessment also noted that until detailed proposals come forward, the precise nature, scope and scale of any effect is uncertain, leaving some scope to explore minimisation, avoidance and mitigation of adverse effects.

7.795 The AoS found that the existing nuclear facilities at nearby Sellafield already make a prominent feature in views from western areas of the National Park and more distant high fells, such as Scafell Pike. However, the dominance of Sellafield does mean that additional setting effects are likely to be read within that context, and as such are unlikely to be excessively detrimental. Concerns were raised at Braystones about development there increasing the visual spread of Sellafield – but should development take place on the Sellafield complex itself it would be much closer to the existing industrial structures and therefore less likely to increase the visual spread of the development, retaining its relatively compact nature.

7.796 The Government therefore finds that whilst impacts upon the Lake District National Park will need to be carefully considered, any new nuclear power station at Sellafield, if carefully designed and sited, could be seen as an extension to existing development given the proximity of the nominated site to the existing Sellafield facilities. In the specific circumstances at Sellafield, the Government has, having reviewed the evidence including the outputs of the public consultation, concluded that the site is potentially suitable against this criterion.

7.797 The Government agrees that associated infrastructure must be carefully considered. Whilst the AoS identified impacts from additional transmission infrastructure, the potential impact of associated transmission infrastructure has not been assessed in detail as part of the SSA. This is discussed further under Question 21a) ("Comments on a criterion on transmission").

### Comments on D9:Size of site

7.798 Some responses commented that this is a large site. They requested that it was quickly specified where development would take place to bring more certainty.

### The Government's response

7.799 As set out under criterion D6, to reduce the likelihood of further land being needed, and increase the usability of their site, nominators were encouraged to ensure that the area nominated included within it all likely actual site plans

and all reasonable variations to those plans. It is therefore possible that the nominated area will be larger than the actual site plan that will be put forward, in due course, for development consent.

7.800 The planning system encourages developers to come forward with gradually more detailed plans which would clarify which property holders are likely to be affected. This will enable energy companies to provide increasing reassurance to some residents, and engage on the issues with others. It also means that residents can begin to express their concerns to the IPC, who could impose mitigation measures to control construction and operation effects, for example by using planning conditions (such as imposing limits on times of construction or noise and precautions to limit dust) as well as considering the design of the station, for example in relation to levels of lighting. However, ongoing discussions concerning mitigating impacts of development could result in changes to the site layout.

### Transport

7.801 Many responses noted traffic problems associated with the existing Sellafield site, which responses said creates significant strain on the road network to the site. The A595 was frequently referred to as problematic. It was commented that there were delays on this route when there was a trial run of the evacuation plan. Other responses made specific suggestions for improvements including a trunk road link (most usefully dual carriageway) to connect the site to the main routes further across the county (A66/M6 etc). It was said that permission for the development of new reactors should be conditional on improvements in transport and in particular the Cumbrian Coastal rail line.

### The Government's response

7.802 The Government recognises that a new nuclear power station, both in construction and operation, may have significant impacts on both local and national transport infrastructure. At Sellafield impacts may be complicated by the operation of the existing facilities which currently have an impact at certain times of the day.

7.803 Under the planning system for nationally significant infrastructure projects applications for development of transport access arrangements can be included as associated development and therefore submitted to the IPC for consideration along with an application for development consent for a new nuclear power station. With a process in place for timely consideration of proposals it is not inconceivable that improvements could occur – however, the consultation has indicated possible challenges. Comments on transport are considered under Question 21a).

## Question 21j) Sizewell

### Introduction and overall conclusion

7.804 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.805 The assessment considers that there are a number of areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things coastal erosion, impacts on nationally designated areas of ecological importance including the Sizewell Belts SSSI and the Suffolk Coast and Heaths AONB.

7.806 Key themes raised during the consultation include flood risk and coastal erosion, and impacts on the AONB including of an access road through the Goose and Kenton Hills.

### Deployability by the end of 2025

7.807 Deployability was not a key theme during the consultation. The Government notes that in October 2009, National Grid began a programme of public consultation on proposals for a new overhead line from Bramford near Ipswich to Twinstead near Sudbury. The new line is to support the connection of a number of new generators to the system in East Anglia and Suffolk, including a potential new nuclear power station at Sizewell (Sizewell C), two potential gas fired power stations and potential offshore wind farm development[163].

### Comments on C1: Demographics

7.808 Some concerns were raised over the effect that a new nuclear power station could have on limiting future development of housing in the Leiston area through restrictions on population density around nuclear power stations.

### The Government's response

7.809 The HSE has advised that the extent of the Emergency Planning Zone and the concomitant constraints on population growth in the nuclear safeguarding zones of the Sizewell site are likely to be determined principally by the radiological hazards that remain on the Sizewell A Magnox reactor site, which still holds spent fuel and radioactive waste. The HSE has advised that the nominated site does not exceed the semi-urban criterion. Comments on how the demographic assessment was carried out are considered under Question 21a).

163 Further information can be found at: http://www.nationalgrid.com/uk/Electricity/MajorProjects/BramfordTwinstead/RouteCorridor.htm

### Comments on D1: Flooding, storm surge and tsunami

7.810 A number of responses commented on the effects of potential sea level rise on the existing station and the nominated site, especially given the time periods that waste could be on site. This was raised across the sites. It is discussed under Question 19 ("Comments on flood risk, climate change projections and the interim storage of waste").

7.811 Some respondents said that the effect of storm surge should be taken into account during the design of the site. A number of responses also highlighted the risk of fluvial flooding and its impact on sea defences, with particular reference to an instance where there is high fluvial run off combined with a tidal surge and the impacts that this may have on the potential development. There was concern that the nominated site is partially within Flood Zone 3.

### The Government's response

7.812 The EA has advised that, based on the current understanding of the flood risk in this area it is reasonable to conclude that any new nuclear power station on the site could potentially be protected against flood risk throughout its operational lifetime, including the potential effects of climate change, storm surge and tsunami, taking into account possible countermeasures.

7.813 The EA noted that there is a fluvial risk to part of the site from drainage channels connected to Minsmere Sluice, but this fluvial risk does not affect the EA's overall conclusion that the site can be protected. It has also noted that flooding could impede access and egress to the site. However, this could be mitigated in the design of such routes to ensure they remain open. The routes will need to be designed to ensure they do not increase the flooding risk impact elsewhere.

7.814 The EA has also noted that sea level rise and land raising of the development will need to be taken into account when considering flood storage loss due to the development, because mitigation of flood risk to the site could have an adverse impact on flood risk in the surrounding area by reducing the capability of area to absorb and disperse flood water. The EA has noted that at this strategic stage it is not possible to assess the impact on flood risk in the surrounding area from development and that this will need to be considered as part of the flood risk assessment submitted to the IPC as part of the application for development consent. It has confirmed that it would expect the developer to take storm surge into account in its proposals. Part 2.10 of EN-6 sets out that, as the sites listed in this NPS are either coastal or estuarine, applicants should provide the IPC with information as to how the development incorporates adaptation measures to take account of the effects of climate change including the increased likelihood of storm surge and rising sea levels.

7.815 It is Government policy to avoid inappropriate development in areas at risk of flooding through the use of a sequential approach which involves giving priority to areas at lower risk of flooding. The Government has taken a

sequential approach in the SSA and concluded that this site has demonstrated and passed the sequential test as there are no reasonably available alternatives to this site in a lower Flood Zone or at a lower flood risk and that all sites are needed in order for the Government to meet its objectives. Please see Part 4 of the revised draft Nuclear NPS (Flood risk including tsunami and storm surge) for more detail. The IPC will need to be satisfied that a sequential approach has been applied at the site level to ensure that where possible critical infrastructure is located in the lowest flood risk areas within the site.

7.816 The revised Nuclear NPS contains more detail on the other measures that will be considered by the IPC. For instance, the Exception Test provides a method of managing flood risk while still allowing necessary development to occur. Within the Exception Test is a requirement for a Flood Risk Assessment, which must demonstrate that the project will be safe, without increasing flood risk and, where possible, will reduce flood risk overall. However, the IPC is not precluded from granting consent on these grounds. Please see Part 5.7 of EN-1 and Part 3.7 of EN-6 for further detail.

### Comments on D2: Coastal processes

7.817 It was commented that the coast line in this area is extremely vulnerable. A reference was made to the evidence of the Marinet Group of Friends of the Earth[164] with particular concerns about the effects of offshore dredging and erosion of the coast of Sizewell. Many respondents were concerned that both the potential impacts of coastal erosion and the potential impacts of increased defences on this area of coast were uncertain and the need for further studies was highlighted.

7.818 Some respondents were concerned over the impacts that potential new sea defences for a new power station may have along the coast to the north and south of the site including the coastline that fronts the Minsmere Levels to the north, and to the surrounding AONB. It was raised that erosion may not just be caused by coastal defences but could be caused by other construction related to the power station. There were concerns that impacts of coastal defences on the surrounding area were not taken into account in the assessment.

### The Government's response

7.819 The AoS notes that combined with the current management of the shingle beach and dunes fronting the power station at Sizewell the current inundation and erosion threat at the station is relatively low and the revised draft NPS reflects that erosion in front of the existing Sizewell station has not yet become an issue. However, this is not intended to understate the complex nature of coastal processes around this site. The AoS describes the "continuous cycle of change" to the beach at Sizewell, where waves and sediment combine and lend themselves to the physical resilience of the

164 http://www.marinet.org.uk/

region. The AoS notes that although the coast at Sizewell is generally stable, rising sea levels could bring differing effects.

7.820 With regards to the effects of offshore dredging, the EA has advised that to obtain a licence, companies who have been successful in a tender round run by the Crown Estate must obtain a Dredging Permission from the Government, a procedure which includes the submission of an EIA. If a favourable Dredging Permission is granted, the Crown Estate will issue the applicant with a production licence. Stringent studies are required to ascertain whether there is any possibility of negative impacts upon the coastline. These are through EIAs and Coastal Impact Studies. Throughout the production of these studies consultation is undertaken with statutory agencies and the public. It is only after this process has been undertaken that licences are granted. Licences are not granted where a credible objection remains unresolved. The EA are a consultees in the EIA and permission process.

7.821 The EA are aware of the dredging in an area (area 430) which is located 15 miles off shore of Southwold. The licence for this area was last considered in 2007 which was before the EA advised DECC on the suitability of the Sizewell nomination and it was taken into account in their assessment of the potential suitability of the site. Although previous studies show that there is no evidence that aggregate dredging could have an impact upon the shoreline, the EA would expect any developer of the Sizewell site to consider the dredging activity in their assessment of coastline behaviour when applying for a Development Consent Order.

7.822 The site assessment within the NPS specifically asks that the effects of erosion and potential outflanking need to be assessed along with the development of the near shore banks (Dunwich and Sizewell) because of the effect that those banks can have on the nominated site. However, the AoS recognised that new defences at the Sizewell site could affect erosion on the wider coastline identifying possible impacts on coastal processes, hydrodynamics and sediment transport from any necessary or upgraded coastal defences. This has been reflected in the revised draft NPS. The AoS also noted that mitigations may be possible through appropriate design and construction of defences, and the draft Nuclear NPS set out that the EA advise that positioning of the site will be important.

7.823 EN-1 sets out how the construction of an onshore energy project on the coast may involve processes from dredging, to culvert positioning, which could result in direct effects on the coastline, seabed and marine ecology and biodiversity, and that the hydrodynamic response to such changes could lead to differing patterns of erosion or accretion. For this reason Part 5.5 of EN-1 is concerned both with the impacts which energy infrastructure can have as a driver of coastal change and with how to ensure that developments are resilient to ongoing and potential future coastal change.

7.824 The EA has underlined the importance of understanding the long term trends regarding erosion which are occurring at this site, where patterns are complex and interrelated. In EN-1, applicants are asked, amongst other

things, to demonstrate how impacts will be managed to minimise adverse impacts on other parts of the coast. This should include the effects of the proposed project on maintaining coastal recreation sites and features.

7.825 The HRA for Sizewell has noted that there are no European Sites[165] which lie directly in front of the nominated site, i.e. between the nominated site itself and the high water mark, and therefore has not assessed coastal squeeze impacts on European Sites.

7.826 When considering an application, the IPC will need to be satisfied that the proposed development will be resilient to coastal erosion and deposition, taking account of climate change, for the lifetime of the site.

### Comments on D6: Internationally designated sites of ecological importance

7.827 A number of responses expressed concern over the impacts that a new nuclear power station may have on European protected sites which are situated near the nominated site. These concerns include impacts on protected bird populations including nightjar, woodlark and little tern, water quality, fish and shellfish populations and the effects of cooling water abstraction and discharge. There was a particular concern that the Outer Thames Estuary SPA should be considered as part of the assessment.

### The Government's response

7.828 The HRA for Sizewell has identified potential adverse effects upon the integrity of eight European Sites which could arise from development of a power station and ancillary infrastructure through potential impacts on water resources and quality, habitat and species loss and fragmentation and disturbance (noise, light and visual)[166]: Alde-Ore and Butley Estuaries SAC, Alde-Ore Estuary SPA/Ramsar, Minsmere to Walberswick Heaths and Marshes SAC, Minsmere to Walberswick SPA/Ramsar, Orfordness-Shingle Street SAC, Sandlings SPA. For example, it has identified that development could result in habitat loss which could affect breeding populations of woodlark and nightjar in Sandlings SPA or cause disturbance to little terns in the Minsmere to Walberswicke SPA and Ramsar. The HRA concludes that, in line with a precautionary approach and in the absence of greater site specific detail (including on technology and mitigations), adverse effects at the eight European Sites cannot be ruled out.

7.829 The HRA has suggested a suite of avoidance and mitigation measures which the IPC could consider when assessing an application at Sizewell. For example, to mitigate effects on water quality, the IPC could ensure that cooling water culverts apply modern tunnelling techniques and discharge to reduce the impact of thermal plumes. Or to mitigate direct and indirect

165 The term European Site is used throughout and incorporates Special Areas of Conservation (SACs), SPAs (SPAs), European Offshore Marine Sites (EOMS) and Ramsar sites. Though they do not form a part of the Natura 2000 network, Ramsar sites are included within the definition of European Sites.

166 See entry D6 in the table "The SSA criteria and how the sites were assessed" at the beginning of this section for details of European Sites and what they cover.

habitat loss, the IPC could require site layout/design to avoid areas of known importance/sensitivity. Comments on the level of detail and conclusions of the HRA in general are discussed under Question 21a) ("Comments on the level of detail of the assessment" and "Comments on the assessment against the environmental criterion D6 and D7").

7.830 The Outer Thames SPA has now been designated. Taking a precautionary approach within the draft HRA, the Government had scoped the Outer Thames Estuary pSPA into the screening process to identify likely significant effects from development at Sizewell. The HRA has now been updated to reflect the designated nature of the Outer Thames Estuary SPA. The assessment concludes that adverse effects on water resource and quality, habitat loss and fragmentation, and disturbance (noise, light and visual) cannot be ruled out until further site specific detail including on technology and mitigation measures, and processes such as the extent and location of coastal defences, dredging, or marine offloading facilities) are known. Air quality impacts are ruled out through the HRA.

7.831 The assessment indicates that the potential for significant effects on the Outer Thames SPA should be considered through further assessment at the project level when available. The NPS sets out that project level Habitats Assessments will be required. When an application for development consent is submitted to the IPC, the project level HRA will consider impacts on Natura 2000 sites using the most current list.

### Comments on D7: Nationally designated sites of ecological importance

7.832 Responses were also received about adverse effects on the Minsmere to Walberswick Heaths and Marshes. Respondents were particularly concerned that an access road could result in the loss of woodland and heathland habitat at Kenton Hills, Goose Hills and Sizewell belts. Some respondents noted that planning permission had been refused in this area in the past. Others wished to see planning conditions attached to the development consent to protect certain areas and species, as was the case when Sizewell B was approved.

7.833 Respondents were also concerned that development could have an adverse impact upon the SSSIs in the area such as the Minsmere to Walberswick Heaths SSSI and the Sizewell Marshes SSSI, from which the site boundary includes some land-take. Some respondents questioned how direct land take could be mitigated.

### The Government's response

7.834 There is a high concentration of designated sites and a wide range of biodiversity interest surrounding the nominated site. The AoS notes that Sizewell Marshes SSSI is an area of grazing marsh (including Sizewell Belts nature reserve) with important assemblages of invertebrates and breeding and winter bird populations, situated adjacent to and partially within the nominated site boundary, and that there are three other SSSIs that could be affected by the nominated site; Leiston-Aldeburgh SSSI, which supports

important breeding bird populations; Minsmere-Walberswich Heaths and Marshes SSSI; and the Alde-Ore Estuary SSSI.

7.835 The AoS also notes that the above designated sites include RSPB reserves adjacent to the nominated site (Minsmere) and within 1.5km to the north (North Warren). The AoS finds that construction and the presence of development are likely to lead to direct loss and fragmentation of habitats within the Sizewell Marshes SSSI.

7.836 There is however, potential for mitigation or compensation for biodiversity effects. The AoS notes that developers could avoid or minimise losses and disturbance to protected species through careful site layout, design, routing, location of the development, associated infrastructure, and construction management and timings. There is potential for habitat creation within the wider area in order to replace lost 'wet meadows' habitats of the Sizewell Marshes SSSI, but it may not be possible to fully compensate for losses of this habitat.

7.837 Despite the possibility of impacts which could not be fully mitigated, the Government has found this site potentially suitable. This is because when considering the need to ensure sufficient sites are available for development to meet the Government's energy policy objectives, the limited number of potentially suitable sites and the potential for further assessment of any proposal for the site at project level, the Government does not think the issues in relation to this criterion are sufficient to justify not including the site in this NPS.

7.838 This does not mean that the Government thinks that the impacts on nationally designated sites do not matter. Part 5.3 of EN-1 sets out the importance of such sites and considerations in assessing impacts on them. This also notes that the IPC should use conditions and/or planning obligations to mitigate the harmful aspects of the development and, where possible, to ensure the conservation and enhancement of the site's biodiversity or geological interest. It would not be appropriate to set such conditions at this stage before more detailed proposals are known, as the wrong effects or conditions may be specified.

7.839 It was raised that the NPS should refer to the access road as temporary to ensure that it should be removed after the building phase of any potential station at the site. The NPS sets out that it does not presume that access road development will take place in the area nominated in the Goose and Kenton Hills. It sets out that the IPC should in particular seek evidence that the applicant has consulted the local authority and the AONB on the proposals for a road.

### Comments on D8: Areas of amenity, cultural heritage and landscape value

7.840 A number of responses commented upon the visual impact of a new nuclear power station development and ancillary infrastructure, such as transmission lines and access roads, in the context of the AONB and areas of local amenity value. The impacts of transmission infrastructure are not considered

in detail as part of this assessment. This is considered further under Question 21a) ("Comments on a criterion on transmission").

7.841 Responses raised concerns about the adverse effects which development of an access road to the site could have on the Kenton and Goose Hills and the AONB. In particular respondents were concerned that an access road could run through the whole of the AONB and the visual impact that this would have on the character of the area. Whilst some respondents felt that impacts had been reflected appropriately, there was a suggestion that the NPS should set out the need for mitigation within the wider AONB to compensate for the impacts. There were also concerns about the visual impact that flood defences could have.

7.842 A concern was raised regarding the possible loss of access to the heritage coastal path and the effect this would have on the local tourist industry, particularly during the construction of the new nuclear power station. Coastal access was raised across the sites and is considered at Question 21a) ("Comments on coastal access and footpaths"). Socio-economic impacts including on tourism are considered at Question 20 ("Comments on the socio-economic impacts of new nuclear power stations").

### The Government's response

7.843 The nominated site is entirely within the Suffolk Coast and Heaths AONB. The draft Nuclear NPS summarised some of the mitigation proposed by the nominator and identified within the AoS. The AoS notes that the existing power station structures are already prominent features within the AONB from local viewpoints and are visible from some longer-distance viewpoints, including from higher ground inland and from Southwold on the coast to the north. However, it has found that overall there is the potential for adverse direct and indirect effects on landscape character and visual impacts on the AONB, with limited potential for mitigation. This is because of the likely scale of the development, although a new power station is seen in the context of the existing power stations.

7.844 The AoS notes that in-combination adverse effects on landscape are likely to arise from new raised roadways and access connections to the rail head and potentially new associated transmission lines/grid connectivity, and of particular note at this site is the portion of the site which the nomination identifies as for an access route. This crosses the AONB. However, precise land take is not yet known. It is noted above that there is no presumption for development in the area of the access road but that the IPC should in particular seek evidence that the applicant has consulted the local authority and the AONB on the proposals for a road.

7.845 To further understand these effects and the effectiveness of the mitigations proposed by the nominator of the site, further detailed assessment at project level is required – the AoS suggests through the provision of an integrated landscape, heritage and architectural plan.

7.846 Part 5.9 of EN-1 sets out landscape and visual impact considerations for the applicant and the IPC, setting out, amongst other things, the need to consider how highly the local landscape is valued and its capacity to accommodate change. Part 5 of EN-1 should be referred to for more detail. It includes policy that applications should set out any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated, and that appropriate planning conditions should be applied where necessary.

### Comments on D9: Size of site

7.847 The size of the nominated site and the potential impact this could have on the AONB remained of concern to some respondents.

### The Government's response

7.848 To reduce the likelihood of further land being needed, and increase the usability of their site, nominators were encouraged to ensure that the area nominated included within it all likely actual site plans and all reasonable variations to those plans. It is therefore possible that the nominated area is in fact larger than the actual site plan that will be put forward, in due course, for development consent. Nominators have indicated that in their view the size of site required for the operation of a permanent site of a single nuclear power unit allowing for operation, maintenance, storage of spent fuel and intermediate level waste would be between 30 to 50 hectares. The NII concurs with industry's estimate. In addition, consideration of the space needed to provide for security defence in depth show that, whilst there were some areas which would not be sufficient room for defence in depth of a nuclear reactor, overall there was sufficient land at this site.

### Comments on health

7.849 Some responses said that the COMARE reports[167] were flawed and should not be used in the Governments assessment for site suitability. Some responses referred to the findings of the KIKK study which found elevated incidents of cancer in the vicinity of nuclear power stations in Germany[168]. These comments were made across the sites and are considered under Question 20 ("Comments on the safety, security, health and non proliferation risks of new nuclear power stations").

### Comments on the effects on communities

7.850 A few responses to the public consultation expressed concern on the effects of the construction and operation of the proposed power station in relation to the local community. Concerns included the affect of the influx of

167 See http://www.comare.org.uk/comare_docs.htm for details of the work and reports of the Committee on Medical Aspects of Radiation in the Environment (COMARE).

168 *Epidemiological Study on Childhood Cancer in the Vicinity of Nuclear Power Plants* (KiKK Study). http://www.bfs.de/en/bfs/druck/Ufoplan/4334_KIKK.html. English translation starts after page xi of http://www.bfs.de/de/bfs/druck/Ufoplan/4334_KIKK_Zusamm.pdf

construction workers to the area, with particular reference to local traffic problems and social issues.

### The Government's response

7.851 The AoS report notes that potential development at the Sizewell site is appraised as having positive effects of regional economic significance on employment and community viability. The site AoS report notes that there may be negative short term effects, during the construction of any new power stations, if the development results in a local shortage of specialist construction labour. It also noted that the influx of a large number of workers could bring pressure on basic services, housing and traffic routes.

7.852 The potential for impact on population dynamics is noted in Section 5.12 of EN-1. The NPS directs the IPC to consider potential socio-economic effects of development when assessing development consent applications and they will be able to do this at a point when it is clearer how many workers would be required for a development, at what point, or what proportion of these would have to come from outside the local area. Local authorities are a statutory consultee at the project development stage and may submit an impact report to the IPC.

### Comments on transport

7.853 Some responses referred to existing traffic issues on the A12 and a requirement for a bypass at Stratford/Farnham. It was mentioned that in previous Sizewell developments it was agreed that heavy traffic would not use the A1094. There was some concern about the route of the construction vehicles which it was felt may affect people who live locally.

7.854 Some responses stated that use of a railway would be beneficial for transporting construction material, rather than using the local roads**.**

### The Government's response

7.855 Development at the Sizewell site is assessed by the AoS as having the potential for some adverse effects locally from additional traffic generated during construction and wider negative effects on regional road infrastructure.

7.856 The strategic level assessment undertaken by the Government did not include detailed traffic assessments as the impacts will depend on a number of factors which aren't yet known such as detailed proposals themselves, and the timing and phasing of development. These factors could change from developer to developer and may not affect the strategic suitability of the site. Comments on transport are considered further under Question 21a).

## Question 21k) Wylfa

### Introduction and overall conclusion

7.857 Given that the site meets the SSA criteria, and having considered evidence from, inter alia, the public consultation, the Spring 2009 opportunity for public comments, regulators, the revised AoS and HRA, the Government has concluded that the site is potentially suitable and it is included in the revised draft Nuclear NPS.

7.858 The assessment considers that there are areas which would require further consideration by the applicant, the IPC and/or the regulators should an application for development consent come forward, including amongst other things the effect of this on the AONB and Heritage Coast and on Tre'r Gof SSSI.

7.859 Key themes identified during the consultation include the effects on designated sites of ecological importance; effects on areas of amenity, cultural heritage and landscape value; emergency planning; and seismic risk.

### Deployability by the end of 2025

7.860 Deployability was not a key theme during consultation, since the public consultation closed Horizon Nuclear Power has announced plans to develop its first reactor at Wylfa, which would be commissioned "as early as 2020".

7.861 In addition Horizon has continued to progress towards more detailed plans, including submitting an EIA Scoping Report to the IPC in support of a request for a formal Scoping Opinion. An EIA Scoping Report is an early stage in the planning process and sets out, amongst other things, a description of the proposed project, a summary of the key environmental issues and key impacts. In response, the IPC has issued a Scoping Opinion setting out what they expect the eventual EIA (which will accompany the application for development consent for Wylfa) to cover. This process demonstrates further progress towards deployability by 2025.

### Comments on C2 and D5: Proximity to military activities

7.862 Some responses commented on whether there is a potential conflict between activities at RAF Valley and a potential new power station. These concerns were also raised during the public comment window on the nomination and were reflected in the draft Nuclear NPS.

### The Government's response

7.863 As referenced in the draft Nuclear NPS, the Ministry of Defence have confirmed that the site identified does not occupy the Military Air Traffic Zones that surround RAF Mona and RAF Valley or other types of airspace managed by the Ministry of Defence. This means that military air traffic does not fly in the immediate vicinity of the station.

7.864 The Ministry of Defence also advised that it was reasonable to conclude that at a strategic level, any likely power station development will not adversely affect the capabilities of the armed forces to carry out essential training and operations, throughout its lifetime.

7.865 Any new nuclear power station built on the site would also be afforded some protection from any aviation activity by the establishment of a new or amended Restricted Area.

### Comments on D2: Coastal processes

7.866 It was commented that ideally Shoreline Management Plans (SMP2) would be included in the final assessment of the site.

### The Government's response

7.867 The EA has advised that the latest available Shoreline Management Plan for the West of Wales was used at the time of the SSA of Wylfa. New Shoreline Management Plans (SMP2s) are currently still in development to replace existing SMP1s and a programme for completion of this is available on the EA website[169].

7.868 SMP2s will be designed to provide a 'route map' for local authorities and other decision makers to move from the present situation towards meeting future needs of the coastline. SMP2s will identify the most sustainable approaches to managing the risks to the coast in the short term (0-20 years), medium term (20-50 years) and long term (50-100 years).Within these timeframes, SMP2s will also include an action plan that prioritises what work is needed to manage coastal processes into the future, and where it will happen.

7.869 As referenced in EN-1, should an application for development consent come forward, the applicant will need to demonstrate that they have assessed the implications of the proposed project on strategies for managing the coast set out in the latest Shoreline Management Plan. Links to each Shoreline Management Plan and details of the relevant lead authority, are also available through the EA website.

7.870 The latest Shoreline Management Plan (May 2001) describes the area around Wylfa Head as "Hard Rock Shore" and the EA has advised that it is therefore at minimal erosion risk.

### Comments D6: Internationally designated sites of ecological importance and D7: Nationally designated sites of ecological importance

7.871 There was a concern regarding the assessment within the HRA that no adverse effects would result from water resources and quality impacts on the Llyn Dinam SAC. It was stated that this site should be taken forward for more detailed assessment at the project stage to both confirm underlying

169 http://www.environment-agency.gov.uk/research/planning/105014.aspx

trends of ground water quality improvement and to ensure that potential pathways between the proposed development and the site are unlikely to transfer any negative impacts in relation to groundwater quantity or quality.

### The Government's response

7.872 Llyn Dinam SAC has been considered in the Wylfa HRA Site Report which has been published alongside the revised draft Nuclear NPS. This confirms the results of the assessment that there would be no impact on water quality. The HRA concurs that "a detailed assessment of the groundwater connections between Llyn Dinam SAC and Wylfa should be considered at the detailed project stage" – paragraph 3.17 of the report has been clarified in this respect.

7.873 The potential impacts of development on SAC sites will be taken into account in the project level assessments (including a further project level HRA and an Environmental Statement reporting the findings of a detailed EIA) as part of the application for development consent. Methods to avoid or reduce significant ecological impacts will also be explored at the project level when the developer has detailed information.

7.874 In the nomination report, the nominator stated that it is anticipated sufficient land is available within the site for the development of a new nuclear power station without permanently affecting any designated area. The nominator also stated that Tre'r Gof SSSI could be protected through a variety of engineered drainage mitigation measures to preserve surface and groundwater quality including protection of the mineral rich waters, and hence protect the overall ecology of the SSSI.

7.875 As set out in the Part 5.3 of EN-1, the IPC should use conditions and/or planning obligations to mitigate the harmful aspects of the development on SSSIs and, where possible, to ensure the conservation and enhancement such sites.

## Comments on D8: Areas of amenity, cultural heritage and landscape value

7.876 Some responses expressed concern regarding the Anglesey AONB and North Anglesey Heritage Coast given the possible visual and landscape impact from a new development.

7.877 Some respondents were concerned that the requirements for upgraded electricity transmission lines associated with a new development could have a detrimental effect on the landscape in the area and in particular, the potential impact on Snowdonia National Park, the Clwydian Range AONB and the Menai Straits. Transmission, whilst considered at a strategic level within the AoS, has not been considered in detail as part of the SSA. This is considered further under Question 21a) ("Comments on transmission").

### The Government's response

7.878 The Government carefully considered whether the site was suitable against criterion D8 given that small parts of the AONB are within the nominated site and the Heritage Coast extends to within 125m of the site. The AoS anticipated that, whilst the exact placing of the power station is unknown, some adverse impact, which may not be fully mitigatable, is anticipated. However, the Government has concluded that, when the ability to partially minimise effects is considered, alongside the scope for further assessment, against the need for the site, it should be on the NPS. EN-1 sets out detailed guidance on visual impact assessment and also on development affecting AONBs.

### Comments on D9: Size of site

7.879 Some respondents were concerned about the possible impact of development on existing and future footpaths within the nominated site boundaries. This was a concern at a number of the sites and is considered in more detail under Question 21a) ("Comments on coastal access and footpaths").

### Comments on socio-economic effects

7.880 Some respondents expressed concerns that an influx of workers into the area could be damaging to its language, culture and welfare.

7.881 The potential for impact on population dynamics is highlighted in Part 5.12 of EN-1. The NPS directs the IPC to consider potential socio-economic effects of development when assessing development consent applications and the IPC will be able to do this at a point when it is clearer how many workers would be required for a development and at what point. The extent of some impacts could be affected by factors such as the timing and extent of any application for development consent that may come forward. How socio-economic impacts will be considered is discussed under Question 20 ("Comments on the socio-economic impacts of new nuclear power stations"). In addition, local authorities are a statutory consultee at the project development stage. The IPC will invite affected local authorities to produce a local impact report, and it must have regard to this report in its decision.

### Comments on emergency planning

7.882 Some respondents were concerned about the evacuation plans for the island of Anglesey in the event of a radiation emergency.

### The Government's response

7.883 This was also a concern during the public comment window, and more information was set out in the site assessment in the draft Nuclear NPS. Emergency planning is not an SSA criterion. This is discussed under Question 21a) ("Comments on emergency planning").

### Comments on seismic risk

7.884 Responses referred to an earthquake which occurred on the 19 July 1984 with its epicentre reportedly near the village of Llanaelhaearn on the Llêyn Peninsula. The respondent stated that this generated a main shock measuring 5.4 on the Richter scale.

7.885 Given this information, the respondent was concerned about the potential impact of a similar magnitude event occurring near enough to affect any potential new build at Wylfa.

### The Government's response

7.886 During the establishment of the SSA criteria, the NII has advised that seismic hazard required detailed site investigation and was best assessed as part of licensing. In order to ascertain the presence and status of any capable faults on a site, there would need to be extensive geological investigations and associated laboratory testing. The Government's view is that at a strategic level it is not practical to ascertain, with a high degree of confidence, the status of faults on a site. The licensing and therefore operation of the station is still contingent on these issues being satisfactorily resolved.

7.887 It is noted that seismic activity levels across the UK are generally low and the reactor designs being considered under the Generic Design Assessment process are intended for worldwide application, with baseline seismic resistance designs in the area of 0.25g-0.5g peak ground acceleration.

## Question 21l) Dungeness

### Introduction to response

7.888 The preliminary conclusion of the SSA was that Dungeness was not a potentially suitable site. The nominated site did not meet discretionary criterion D6: Internationally designated sites of ecological importance. There were also concerns regarding coastal processes at the site although the site did not fail on this criterion[170].

7.889 During the public consultation, key themes emerged on the scale and impact of the potential development on Natura 2000 sites and whether this impact is important enough to render the site unsuitable (there were responses arguing for and against); whether it is premature to rule Dungeness out at this stage; the socio-economic impact of not having a new nuclear power station at Dungeness; and whether there are other factors which might make Dungeness a potentially suitable site such as proximity to demand in the South East. These themes are discussed in further detail in the response below.

7.890 Having reviewed the evidence the Government is not satisfied that Dungeness is potentially suitable for the deployment of a new nuclear power station by 2025 because the site did not meet discretionary criterion D6: Internationally designated sites of ecological importance. The Government is of the view that a new nuclear power station cannot be built at Dungeness without causing an adverse effect on the integrity of the Dungeness SAC (i.e. that any impacts could not be avoided or mitigated). Given the particular adverse effects that would occur at Dungeness, and the availability of the other 8 alternative sites (at each of which there is potential for avoidance or full mitigation of adverse impacts on internationally protected nature sites) to contribute to meeting the need for nuclear generating stations, the Government does not consider that listing Dungeness in the revised draft Nuclear NPS at this stage is justified.

7.891 The responses to the consultation on the draft Nuclear NPS have illustrated the strength of feeling regarding the importance of Dungeness to local people and the local economy in particular. However, the SAC is protected by law and the Government does not think the required tests can be met for Dungeness at this stage. Should evidence come forward that satisfies the Government that there is potential for development to take place at Dungeness without adversely affecting the integrity of the SAC, the Government will consider whether Dungeness should be in the Nuclear NPS.

7.892 A developer is not precluded from bringing an application forward but would need to satisfy the IPC and the Secretary of State that they have satisfactorily addressed the requirements of the Habitats Directive. The revised draft Nuclear NPS sets out that should the IPC receive a

170 See *Consultation on draft energy National Policy Statements,* November 2009, http://data.energynpsconsultation.decc.gov.uk/documents/condoc.pdf Annex F.

development consent application for a new nuclear power station on a site that is not listed in this NPS it will not decide the application, but will make a recommendation to the Secretary of State. The Secretary of State would be the decision maker for any such application.

7.893 Given the nature of the issues at Dungeness, it may be easier to ascertain that there will not be adverse effects on the integrity of the SAC at the detailed project level of an application for development consent. The assessment would be made at a point when detailed proposals and more specific information about the adverse impacts and the likely success of particular mitigation were available.

7.894 The evidence considered in reaching this decision includes consultation responses from the public, local authorities and EDF (the nominator), points made at a meeting organised by Lydd Town Council and attended by officials from DECC on 13 February 2010, and the revised AoS and HRA. The Government has considered carefully the evidence submitted to the Energy and Climate Change Committee by Shepway District Council alongside any other evidence submitted during the consultation[171].

### Comments on deployability by 2025

7.895 A number of respondents supported the view that Dungeness could be deployed early in this timeframe and suggested that this meant the site should be in the Nuclear NPS despite impacts on the Dungeness SAC.

### The Government's response

7.896 The Government remains satisfied that Dungeness is credible for deployment by 2025[172], although this is assuming that issues highlighted under D6: Proximity to internationally designated sites of ecological importance could be resolved and notwithstanding the issues highlighted under criteria D2: Coastal Processes.

7.897 Whilst the ability to deploy the site before 2025 could mean that the site could make an early contribution to achieving the objectives of the Nuclear NPS, that does not in itself outweigh the assessment of the site against the other criteria, particularly D6. This is discussed further under criterion D6.

### Comments received on D1: Flooding, storm surge and tsunami, and D2: coastal processes

7.898 At Dungeness, coastal processes and flooding are particularly closely linked and responses are therefore discussed together.

171 This is in accordance with the recommendation of the Energy and Climate Change Committee. See: T*he proposals for NPSs on energy:* http://www.publications.parliament.uk/pa/cm200910/cmselect/cmenergy/231/231i.pdf

172 See p72 of the original consultation document: Consultation on the draft energy National Policy Statements, November 2009: http://www.energynpsconsultation.decc.gov.uk

7.899 A number of respondents commented that Dungeness could be protected against flooding because Dungeness A and B are currently protected. Some respondents commented that coastal defences will need to be in place for around 100 years to protect the existing Dungeness power station through to the end of decommissioning, regardless of whether a new nuclear power station is developed at Dungeness, and therefore a new power station should be capable of being protected too. It was also raised that flood defences at a new station could protect the Dungeness SAC.

7.900 Other respondents were concerned that flood defences would not be able to protect Dungeness over its lifetime including the time radioactive waste would be stored on site, taking into account the effects of climate change. Some respondents were concerned about the erosion of the shingle at Dungeness that is currently occurring, and that the shingle recharge necessary to maintain current defences is not sustainable.

## The Government's response

7.901 The nomination set out that "the existing nuclear power station site is protected against coastal erosion and flooding by a shingle embankment…This structure is fronted by a relatively steep shingle beach and was designed to provide protection against a 1 in 10,000 year flood event associated with a tsunami wave. The shingle structure in front of the site erodes, but this is artificially replenished. using shingle from Lydd-on-Sea. This shingle recycling process will continue in order to defend the existing power stations and this operation will therefore also defend the nominated site."[173]

7.902 However, the EA has advised that climate change could bring increased wave heights and more wave energy impacting upon the shingle defence. The defence itself is complex to maintain. The embankment requires continual maintenance to minimise impacts of coastal erosion and flooding and sourcing shingle for recharge can be complex.

7.903 The HRA for Dungeness notes that it is understood that beach feeding associated with the coastal defences for the Dungeness 'A' power station, currently being decommissioned, could be required for a timescale beyond that of the proposed development, and the maintenance of the shingle ridge on the immediate foreshore would continue with or without the new development. However, this ongoing disturbance of the shingle is considered to be preventing natural successional processes occurring. Developing a new power station at Dungeness would add to the need for protection although it may not increase the physical extent of protection (this would depend on the detailed proposals that came forward).

7.904 The Government acknowledges that protection measures would be in place into the future to protect the existing Dungeness power station for its lifetime, including any waste stored on the site. However, there are concerns about both the difficulty of maintaining adequate protection, the sustainability of

[173] The original nomination can be viewed at http://www/energynpsconsultation.decc.gov.uk

any measures and the impact that they may have on the designated sites at Dungeness, and the flood risk that could emerge from increased wave heights and energy. The EA has advised that there is potential to protect the site, albeit with significant difficulties. This site therefore has passed this criterion, but this would be an area which would require particular scrutiny by the regulators and the IPC should any application for development consent be forthcoming.

### Comments received on D4: Proximity to civil aircraft movements

7.905 A number of respondents raised the issue of safety at the existing Dungeness sites if the expansion of Lydd Airport went ahead and commented that this meant planning permission for the expansion of Lydd Airport should be refused. Some respondents claimed that an expansion of Lydd Airport might preclude the future development of a new nuclear power station at Dungeness. Other respondents called for a public inquiry into the expansion of Lydd Airport.

### The Government's response

7.906 The issue of whether planning permission for the expansion of Lydd Airport should be granted is outside the scope of the SSA and the Nuclear NPS. This is a matter for the planning authority who will seek advice from the appropriate regulators concerning safety and security issues. The issue of whether or not there should be a public inquiry into the expansion of Lydd Airport is also outside the scope of the SSA and the Nuclear NPS.

7.907 In relation to the criterion on civil aircraft movements, the Civil Aviation Authority has advised that there is potential for an exclusion zone which mitigates impacts on the existing airport. The NII has advised that the risks to the existing Dungeness power stations from the proposed expansion of Lydd Airport have been considered to be acceptable and it has given advice to the planning authority.

7.908 The NII has also advised that consideration of the risks posed to any new nuclear power station from airport operations would be assessed as part of the licensing process and take account of the prevailing conditions at Lydd Airport and any proposed developments. This would include a review of the implications of any new Restricted Areas on the risks from accidental aircraft impact.

7.909 In addition to the reduction of risk provided by a Restricted Area around a site the Government has ensured that before any reactor designs are given permission to be constructed they must first undergo a robust, independent assessment of their safety and security in line with the UK's regulatory regime which includes consideration of aircraft crash. This is considered under Question 20 ("Comments on the safety, security, health and non-proliferation risks of new nuclear power stations").

### Comments received on D6: Internationally designated sites of ecological importance

7.910 A large number of comments were received against this criterion, reflecting that the site failed against it in the assessment that accompanied the draft NPS. Responses were received from Kent County Council and Shepway District Council, amongst others, who thought the site should be in the Nuclear NPS. The nominator, EDF Energy, provided further environmental studies.

### Comments on process of assessment

7.911 A number of respondents felt that Dungeness should be considered a potentially suitable site. Some commented that it was premature or unreasonable to exclude Dungeness before a project level assessment with detailed design information and detailed mitigation measures had been carried out to ascertain whether adverse effects could be mitigated successfully. Some respondents questioned why the assessment had accepted other sites which were close to European designated areas but not Dungeness.

7.912 Some respondents thought Natural England's advice had been given too much weight or that Natural England had vetoed the inclusion of Dungeness.

### The Government's response

7.913 Dungeness SAC is a Natura 2000 site[174]. It is a requirement under the legislation which protects such sites that plans (such as the NPS) which are likely to have significant effects on Natura 2000 sites can only be adopted where the relevant authority (in this case, the Secretary of State) has ascertained that there will be no adverse effects on the integrity of the protected site. Following consideration of the responses received during the consultation, the Secretary of State is of the view that a new nuclear power station cannot be built at Dungeness without having an adverse effect on the integrity of the Dungeness SAC.

7.914 Where such adverse effects cannot be ruled out the NPS can only be consented if there are no alternative solutions; there are Imperative Reasons of Over-riding Public Interest (IROPI); and effective habitat compensatory measures can be secured and implemented.

7.915 The HRA found that at the eight sites on the revised Draft Nuclear NPS it is likely that adverse effects on the integrity of Natura 2000 sites can be avoided or mitigated. Therefore the other sites listed in the revised draft Nuclear NPS are alternatives that meet the requirements of the Habitats Directive (as they better respect the integrity of Natura 2000 sites). Dungeness is the only nominated site which overlaps with a European

174 Conservation of Habitats and Species Regulations 2010 (SI 2010/490) and European Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

protected site to such an extent that the avoidance of adverse effects is not considered possible, and where the avoidance and mitigation of impacts related to habitat loss would not be possible.

7.916 Given the particular adverse effect that is shown by the HRA in relation to Dungeness, and the availability of the other 8 sites to contribute to meeting the need for nuclear generating stations, Government does not consider that listing Dungeness at this stage is justified. Moreover, the final HRA for Dungeness also confirms that there would be inherent difficulties in providing compensation for adverse effects such as direct habitat loss.

7.917 Should evidence come forward that satisfies the Government that there is potential for development to take place at Dungeness without adversely affecting the integrity of the SAC or that the other tests of the Habitats Directive could be met, the Government would consider whether Dungeness should be included on the Nuclear NPS. A developer is not precluded from bringing an application forward but would need to satisfy the IPC and the Secretary of State that they have satisfactorily addressed the requirements of the Habitats Directive. Guidance on how the IPC would consider non-listed sites is within the revised draft NPS.

7.918 The decision on the suitability of sites has been taken on the basis of an assessment against criteria which were agreed following public consultation. The Government does not consider that in making this assessment it has given too much weight to the advice of Natural England. Environmental assessments have been undertaken for each of the sites with expert input from environmental consultants. The Government has also taken advice on all sites from Natural England who are the Government's statutory adviser on biodiversity, a statutory consultee for the purposes of NPSs and a statutory consultee for the purposes of the Appropriate Assessment under the Habitats Directive. The range of evidence which was considered alongside this includes discussions with the nominator, EDF Energy, and submissions from the relevant local authorities[175].

### Comments on the impact on the SAC

7.919 Some responses commented that Dungeness was an important international and national site with a unique ecosystem, and supported the decision to exclude the site.

7.920 Some responses questioned whether the ecological impact of development would be as serious as set out in the site AoS and HRA reports. Some responses said that the nominated area, if developed, would only take up about 1 per cent of the Dungeness Romney Marsh and Rye Bay SSSI, and that the actual footprint of the station could be smaller than the 50ha indicated in the nomination. Others commented that the shingle recharge to maintain the tidal surge barrier protecting the existing stations had a positive effect on the Dungeness SAC and that the shingle would disappear without human intervention. Some responses set out that the existing nuclear power

175 http://www.energynpsconsultation.decc.gov.uk

stations at Dungeness had not had an adverse impact upon the European protected sites and therefore development of a new nuclear power should be possible.

## The Government's response

7.921 Shingle beaches are typically dynamic environments subject to disturbance by wind and waves, and therefore, shingle structures that are sufficiently stable to support perennial[176] vegetation are comparatively rare. The shingle beach at Dungeness is made up of Ice Age Flint deposits. The pattern of shingle ridges there has built up over 5000 years and comprises buried and exposed shingle ridges which are exceptional for the succession of unique shingle habitats they support as they demonstrate the evolution of the habitats over time. The site is designated for its annual vegetation of drift lines habitats[177] and perennial vegetation of stony banks habitats (scrub species, broom and blackthorn) and is considered to be one of the best areas in the UK and the most diverse and extensive examples of stable vegetated shingle in Europe[178].

7.922 The nominated site would require direct land take from the Dungeness SAC which is a European protected site. The Dungeness SAC measures 3,223 hectares and sits wholly within the Dungeness Romney Marsh and Rye Bay SSSI which has an area of 9,090 hectares and is a national site of nature conservation importance. When compared against the land area of the SSSI, the percentage of land take required by the nominated site is smaller than when compared against the land area of the Dungeness SAC. Criterion D6 assesses impacts on sites of international nature conservation importance. In addition, it does not follow that a small amount of land take will result in impacts which are not significant. The significance of impacts can depend upon a range of factors including the sensitivity of the receiving environment.

7.923 The HRA report for Dungeness has also noted that the nominated site does not include land for temporary construction works. Additional land outside the nominated site (not necessarily adjacent) may also be required for coastal protection measures, highway and rail improvements, and a construction-phase Marine Off-Loading Facility. Therefore the actual land required for construction might be larger than the nominated area.

7.924 The movement of shingle to protect the existing stations focuses on stabilising the habitat at the front of the existing Dungeness power station. However, the managed movement of shingle can have a wider adverse effect on shingle migration and habitats elsewhere in the Dungeness SAC.

176 Perennial vegetation re-occurs on a yearly or continual basis.

177 This habitat type occurs on deposits of shingle lying at or above the mean high-water spring tides. The distinctive vegetation, which may form only sparse cover, is ephemeral and composed of annual or short-lived perennial species.

178 Babington's orache *Atriplex glabriuscula* a coastal plant of the goosefoot family adapted to brackish/alkaline environments. Broom *Cytisus scoparius* a perennial, leguminous shrub native to western and central Europe. Blackthorn *Prunus spinosa.* a deciduous large shrub or small tree native to Europe.

7.925 The Government does not consider that the environmental assessments have overstated potential impacts and notes that the existing Dungeness power stations do not overlap with European Sites[179], unlike the nominated site which overlaps to such a degree the effects of direct land take are not considered to be capable of mitigation.

179 A network of internationally important sites designated for their ecological status, comprising Sites of Community Importance (SCI), Special Protection Areas(SPAs), Special Areas of Conservation (SACs), candidate Special Areas of Conservation (cSACs) and European Offshore Marine Sites (EOMS). For the purposes of the Nuclear NPS this term also includes Ramsar sites and potential SPAs.

**Summary : What are the concerns against criterion D6?**

1. The final HRA report for Dungeness confirms that adverse effects on the integrity of three European Sites cannot be ruled out (Dungeness SAC, Dungeness to Pett Level SPA and the Dungeness, Romney Marsh and Rye Bay proposed Ramsar site) with regards to impacts on water resources and quality, air quality, habitat and species loss and fragmentation/coastal squeeze and disturbance (noise, light and visual). If the mitigation measures proposed in the HRA site report were implemented as an integral part of development (including any refinements developed as part of the more detailed project level HRA and Appropriate Assessment), there is potential to mitigate adverse effects in relation to air quality and water quality on the integrity of the European Sites. It is less certain that adverse effects relating to disturbance could be mitigated.

2. Development at Dungeness would require direct land take from the SAC. It is still considered that adverse effects related to habitat loss (at the Dungeness SAC) could not be mitigated.

3. The final HRA for Dungeness confirms that there would be inherent difficulties in providing compensation for adverse effects such as compensation for habitat loss. This is because of there is a lack of suitable alternative shingle in the vicinity where it would be more likely that compensation could be successful, the active role that coastal processes play in maintaining shingle habitats and the time successional shingle vegetation communities take to establish. Natural England has advised that the risks around securing suitable mitigation and compensatory habitat for vegetated shingle habitats should not be underestimated, and that the habitat at Dungeness is unique and unlikely to be replicated elsewhere.

4. The nominator of the site, EDF Energy submitted three environmental studies to support their response. These documents have been reviewed in updating the HRA report for Dungeness and the Government has also held further discussions with Natural England on the information contained in the reports submitted by the nominator. The environmental studies have not changed the conclusions of the HRA on Dungeness (further details are within the HRA report).

### Comments on other relevant factors

7.926 A number of respondents commented that protection of European Sites of nature conservation importance should not take precedence over the economic benefits that a new nuclear power station would bring to the area.

### The Government's response

7.927 The Government acknowledges that the development of a new nuclear power station would bring economic benefits to the Dungeness area which would be particularly pertinent when the current station is decommissioned. However, the Government is obliged by law to consider adverse effects on the integrity of European protected sites which might be caused by development and to consider alternative sites if these impacts cannot be mitigated. This is because European protected sites have been given the highest level of protection because of their importance to nature conservation. The Dungeness SAC is the most important shingle site in the UK and Europe and is one of the largest shingle expanses in the world.

### Comments on D7: Nationally designated sites of ecological importance

7.928 Respondents to the consultation who made comments on this criterion made many of the same comments to criterion 6: Internationally designated sites of ecological importance.

7.929 A number of respondents commented that rare wildlife had co-existed with the existing stations for decades and that ecological impacts of development could be mitigated. Other respondents commented that development would take up a small area of the SSSI.

### The Government's response

7.930 As explained in the Government's response to comments on D6, the nominated site would require direct land take from the European protected site which sits wholly within the Dungeness Romney Marsh and Rye Bay SSSI. The HRA report for Dungeness has noted that the nominated site does not include land for temporary construction works. Additional land outside the nominated site (not necessarily adjacent) may also be required for coastal protection measures, highway and rail improvements, and a construction-phase Marine Off-Loading Facility. Therefore the actual land required for construction might be larger than the nominated area.

7.931 There is a strict regulatory regime governing internationally designated sites and a high threshold given the significance of the designations, and to the extent that the nationally designated sites are covered by international designations, criterion D6 should be referred to.

7.932 The overlap between national and international sites and the similarities in effects makes this criterion difficult to judge in isolation. Government has reservations about this site given the unique nature of the habitat and that in some respects the assessment of D6 and D7 are intrinsically linked.

However, although the level of impact in parts of the nationally designated sites is potentially significant, and mitigation may not be complete, the Government considers that the scope for mitigation is sufficient to meet this criterion given that the sites are not designated at a European level.

### Comments received on D8: Areas of amenity, cultural heritage and landscape value

7.933 Some respondents raised concerns about the visual impact of transmission infrastructure on the South Downs National Park which might be required if a new power station was developed at Dungeness

### The Government's response

7.934 The Government accepts that transmission infrastructure can have a visual impact although there may be possible mitigations. The visual impacts of transmission infrastructure are considered in more detail in EN-5. The IPC will use EN-5 to consider an application for development consent for transmission lines. Transmission was not on SSA criterion - this is discussed in under Question 21a) ("Comments on a criterion on transmission").

### Other issues raised during the assessment and public consultation

### Comments received on other siting considerations, including socio-economic factors

7.935 A number of respondents argued that socio-economic considerations should be a factor in deciding whether a site was potentially suitable and said that Government had not given sufficient weight to this. Some respondents argued that the area was economically deprived and would suffer if a new power station was not developed at Dungeness. Some respondents commented that the AoS had not properly considered socio-economic effects and that the economic well being of the area was in fact negative. Respondents said that Lydd had a high unemployment rate which was twice the national average.

7.936 Some respondents argued that the Government should give weight to local support when considering whether Dungeness is potentially suitable, and pointed to the Managing Radioactive Waste Safely Programme as a precedent.

7.937 Some respondents commented that the proximity of Dungeness to the largest area of demand in the country - the South East of England - should be a factor which merited consideration and makes Dungeness a potentially suitable site. Proximity to demand was not one of the SSA criteria used to determine whether a site is potentially suitable. This is discussed further under Question 21a) ("Comments on a criterion on transmission).

### The Government's response

7.938 The SSA criteria were consulted on. They did not include siting new nuclear power stations in areas of economic deprivation. There are important

regulatory and technical factors in the siting of nuclear power stations such as demographics and access to cooling water, which mean that there are a very limited number of places which are potentially suitable for the deployment of new nuclear power stations by 2025. Given the energy need set out within the NPS, the Government does not believe that a further criteria of economic deprivation should be added.

7.939 However, the AoS did consider, at a strategic level, the socio economic impacts of new nuclear power stations at the nominated sites. The AoS concluded that a new nuclear power station at Dungeness would be likely to have long term positive impacts on employment, the economy and communities at the local level, provided that opportunities were met from the local population. The AoS also concluded that job losses from the closure of Dungeness B (when it reaches the end of its operational lifetime) could be offset by labour demands from construction and operation at a new nuclear power station.

7.940 The AoS is a strategic level assessment and has not looked in detail at unemployment or employment figures at the level of wards. The AoS noted that for the period July 2007-June 2008, 79.4% of the population of the Shepway District Council Area was employed. This was higher than for the South East Region (78.6%) and England as a whole (74.5%). On that basis it concluded that the economic well being of the area was “positive”. The Government does recognise that the figures for smaller areas within the Shepway District Council area do vary and some would have shown lower employment figures, and that the current economic conditions mean that the picture is likely to have worsened.

7.941 This does not underestimate the importance of the economy to the region. There has been investment and development in the South East region including at the University Centre Folkestone and to work to remediate brownfield land and creating the infrastructure for the 25 acre Shearway Business Park. Other recent initiatives include the High Speed 1 train service which was launched in December 2009, running from St Pancras International to Kent and is part of a fully integrated timetable in the South East. The Government is committed to renewing and strengthening local economies and will do this by enabling local authorities located in natural economic areas, in conjunction with business, to form Local Enterprise Partnerships[180].

7.942 The Government does not consider a voluntarism approach to be appropriate for the siting of new nuclear power stations. Instead we took forward an open and transparent process which established objective criteria for assessing the suitability of sites and public consultation for interested stakeholders to comment on whether nominated sites were suitable. We consider that this is a robust way of identifying suitable sites and taking account of all the relevant issues, including the important regulatory, technical and environmental factors which will impact on whether a site is

180 http://www.communities.gov.uk/news/corporate/1708630

suitable. Even if this was taken into account, the Government would still have to consider the issues outlined against criterion D6, which have been of critical importance when deciding whether Dungeness is a potentially suitable site.

### Comments on proximity to demand

### Comments on other studies

7.943 Some respondents commented that other studies or bodies had suggested that Dungeness is a potentially suitable site, in particular noting that the Jackson Report[181] on siting nuclear power stations had ranked Dungeness as one of the top four sites for new build, and that the European Commission required EDF to divest either Dungeness or Heysham to a competitor as a condition of its purchase of British Energy signalled that the Commission consider Dungeness to be a potentially suitable site.

7.944 Some respondents commented that energy companies had paid higher prices for sites in the South East and South West of England, and that this indicated that energy companies considered Dungeness to be a viable site.

### The Government's response

7.945 The Jackson Report was commissioned to inform discussion and looked at many generic issues which would need to be considered in the siting of nuclear power stations. It was published for information and not as part of the Government's consultation on the future of nuclear power. It was not a Government report and its views were those of the author alone and did not reflect the policy or views of the Government or the Devolved Administrations.

7.946 As a condition of approving EDF's acquisition of British Energy in 2008, the European Commission required EDF to unconditionally divest either Heysham or Dungeness to a competitor[182]. In its decision, the Commission noted that it "considers that Heysham and Dungeness can be considered as viable options for new nuclear build". However, the Commission did not differentiate between the two sites nor did it carry out a SSA or HRA.

7.947 When bidding for sites, energy companies will have taken into account a number of factors including the availability of grid connection agreements. The Government has assessed sites against criteria which were publicly consulted upon and the price which was paid for the site was not one of the criteria.

181 http://www.jacksonconsult.com

182 The European Commission's decision on the acquisition of British Energy by EDF can be found at http://ec.europa.eu/competition/mergers/cases/decisions/m5224_20081222_20212_en.pdf.

### Comments on future development

7.948 Responses commented that modular reactors, which require a smaller site footprint, could be deployed at Dungeness in the future. The smaller site footprint might mean that adverse effects on the integrity of European protected sites might be capable of avoidance or mitigation.

### The Government's response

7.949 The Nuclear NPS is focused upon sites which can be deployed by 2025. The Generic Design Assessment is currently considering two reactor designs – Westinghouse's AP-1000 and Areva's UK EPR. Neither are modular reactors.

7.950 A developer is not precluded from applying for development consent to build a new nuclear power station at Dungeness even though it is not listed in the Nuclear NPS. However, a developer would need to overcome the potential difficulties and concerns which the SSA has flagged around coastal erosion and adverse effects on internationally designated sites of nature conservation importance. A project level HRA would also be required and if the developer could not demonstrate that adverse effects on the integrity of European protected sites could be avoided or mitigated the IPC would need to consider whether there are better alternative sites.

## Question 22a): Alternative Sites Study - general

### Introduction and overall conclusion

7.951 The Alternative Sites Study (the Study)[183] recommended 3 sites as worthy of further consideration by the Government: Druridge Bay in Northumberland, Kingsnorth in Kent and Owston Ferry in Lincolnshire. The consultation document included summaries of the assessment of the sites against the SSA criteria, and set out the preliminary conclusion that these sites were not credible candidates for deployment by 2025, and should not therefore be included in the Nuclear NPS. Some comments concerned the Study as a whole, and others were regarding one or more of the individual sites[184].

7.952 Key themes which were raised were the purpose of the Study, the deployability of the sites identified by the end of 2025, the relationship between decisions reached on the alternative sites compared to sites that are considered potentially suitable, the possibility of future applications for development of the sites, and concerns that as many sites as possible are needed.

7.953 Having considered evidence from the public consultation, in addition to evidence from, inter alia, the Spring 2009 opportunity for public comments, regulators, the AoS and HRA, the Government has concluded that the sites identified by the Alternative Sites Study are not potentially suitable. This is because they are not credible candidates for the deployment of new nuclear power stations by 2025.

### Comments on the Purpose of the Alternative Sites Study

7.954 Some respondents questioned the purpose of the Study. Some respondents commented that the Study was constrained and therefore resulted in no alternative deployable sites to the ten listed sites. Some respondents felt it was unreasonable that there could be no other sites than those nominated.

### The Government's response

7.955 The SSA was designed to ensure that, as far as possible, sites which might be considered to be potential alternative sites to those listed in the Nuclear NPS have been identified and assessed at a strategic level.

7.956 The purpose of the study was to help Government meet its obligations under environmental law by establishing whether there are sites which are less harmful to European designated habitats (i.e. sites that can properly be considered "alternatives" for the purposes of the Habitats Directive).

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183 Atkins, prepared for DECC, November 2009, *A consideration of alternative sites to those nominated as part of the Government's Strategic Siting Assessment process for new nuclear power stations,* http://www.energynpsconsultation.decc.gov.uk

184 See *Consultation on draft energy National Policy Statements,* November 2009, http://data.energynpsconsultation.decc.gov.uk/documents/condoc.pdf

7.957 The resulting Study screened the whole of England and Wales. Whilst the Study was designed to be consistent with the SSA criteria the Study itself notes that there are areas where the SSA assessment was able to draw on a greater level of detail, for instance in using the public comments on nominations.

7.958 Although the Study found that it may be theoretically possible to build, operate and decommission a nuclear power station almost anywhere, it was not looking to rule out sites as impossible from the perspective of siting, but was trying to identify those which Atkins thought may meet the SSA criteria. The results of the Study may reflect a difficulty in finding such sites. It should also be noted that nominators carried out thorough studies to identify the most suitable potential sites for new nuclear power stations.

7.959 As well considering these sites as not potentially suitable for the deployment of nuclear power stations by 2025, the Government also notes that the HRA for each of the three sites showed that effects of the development on the Natura 2000 network could not be ruled out (though in line with the sites listed in the draft Nuclear NPS it may be possible to mitigate the effects). At a strategic level it is not possible to determine whether these effects would be better or worse than the potential effects for the eight sites that are listed in the revised draft Nuclear NPS.

### Comments on deployability by the end of 2025

7.960 A number of responses questioned why the fact that the nominated sites were not considered to be deployable by 2025 ruled them out of inclusion in the draft Nuclear NPS and some stated that there was a need to include all of the Alternative Sites in the list of nominated sites given the need for new generation.

### The Government's response

7.961 As set out in the Government Response to the SSA consultation[185] the Government's assessment of sites potentially suitable for new nuclear development only included sites that were shown to be capable of deployment by the end of 2025. This date was chosen to provide sufficient focus to facilitate the achievement of the Government's climate change and energy security goals as well as representing a realistic timeframe for the construction of new nuclear power stations, and avoiding an unnecessarily long list of potential sites which may not come on stream for some years. The primary purpose of the Nuclear NPS is to help address these climate change and energy security goals. Therefore both nominated and alternative sites were assessed against their deployability by 2025. Listing sites which cannot be deployed until after 2025 would not help meet the urgent need for new capacity.

185 BERR, January 2009, *Towards a nuclear national policy statement: Government response to the consultation on the Strategic Siting Assessment process and criteria,* http://webarchive.nationalarchives.gov.uk/20100216092443/http://www.berr.gov.uk/consultations/page47143.html

7.962 The Government has concluded that the inclusion of the sites that are listed in the draft Nuclear NPS will allow energy companies to fill a significant proportion of the need for new non-renewable capacity even if a number of sites fail at the project level. The Government does not consider it appropriate to include more sites in the Nuclear NPS at this stage when balanced against the potential harm to Natura 2000 sites (and other factors such as planning blight).

### Comments on future applications for development of alternative sites

7.963 Some respondents to the public consultation asked whether the alternative sites could be developed at some point in the future despite not being considered deployable by 2025.

### The Government's response

7.964 There can be no certainty that development consent on all the sites listed in the NPS will be granted as issues may emerge once they are analysed by the IPC, so there is a need to provide sufficient sites to allow sufficient flexibility for developers to meet the urgent need for new nuclear power stations whilst enabling the IPC to refuse consent should it consider it appropriate to do so. The Government has therefore concluded that, in relation to the designation of the NPS it is necessary to include all of the eight sites that were found to be potentially suitable by the SSA in the NPS to ensure that sufficient sites are available. This should ensure that there are sufficient sites available to meet a proportion of the potential need for new non-renewable capacity.

7.965 Comments for applications for non listed sites are discussed under Question 20 ("Comments on consideration of proposals on sites not listed in the Nuclear NPS").

7.966 If the need arose, the Government may consider conducting a further SSA in the future. This would depend on a consideration of future energy needs.

## Question 22 b) Druridge Bay

7.967 The majority of respondents to the consultation agreed with the Government's assessment that the site at Druridge Bay was not credible for deployment by the end of 2025. Key themes which were raised were concerns regarding the possible impacts of development on designated sites and areas of amenity, cultural heritage and landscape value, and why the site was excluded whilst other sites which had not previously hosted nuclear facilities appeared in the draft Nuclear NPS. The key themes and the Government's response to those key themes are below.

### Comments on why the site is not suitable

7.968 Whilst many respondents said that that the site was not suitable, some questioned whether issues faced by Druridge Bay, in that it had not hosted nuclear previously and may have problems implementing transmission infrastructure, were significantly different to issues faced at Braystones and Kirksanton. There was concern that the only reason why Druridge Bay is designated 'unsuitable' is because no private sector power company is interested in the site.

### The Government's response

7.969 In reaching its assessment of Druridge Bay the Government has considered the problems inherent with deploying a site which has not previously hosted nuclear facilities, potential difficulties implementing transmission and distribution infrastructure at the site, and the difficulties (and potential delay) that the high amenity value and land ownership of the site are likely to pose for planning and licensing. In addition, the Government also notes the decision by energy companies not to nominate the site. The Government has reached its decision that Druridge Bay is not potentially suitable as a result of all these factors. Whilst some may be capable of mitigation, when considered in combination they considerably impair the credibility of deployment of the site by the end of 2025.

### Comments on impact on designated sites

7.970 Some responses noted that there was limited scope in the area for mitigation/compensation for any intertidal losses that might arise if development was to take place at the site and some respondents felt that that had there been a more extensive consultation on the site at Druridge Bay, more detail would have emerged on aspects of the site that would make it unsuitable for development.

### The Government's response

7.971 As set out in the HRA a key factor to maintain site integrity is to ensure that there is no decrease in extent of habitats for key species such as foraging and breeding sites.

7.972 In relation to the identified issues at Druridge Bay this would mean avoiding or minimising losses of habitats and species through careful site layout and design cooling water infrastructure to minimise impacts. The HRA states that connectivity of important wildlife corridors around the site should be maintained and opportunities for habitat creation, restoration and enhancement should be sought where possible and incorporated into the overall mitigation package.

7.973 While the Government did consult on the inclusion of the site at Druridge Bay in the Alternative Sites Study, an event was not held at the site due to it not being deemed credible for deployment by 2025 and therefore not included in the Nuclear NPS.

7.974 A strategic level AoS was conducted at the site and any potential impacts on Nationally Designated Sites would be considered in more detail at the site licensing stage if an application for development were to come forward.

### Comments on impact on areas of amenity, cultural heritage and landscape

7.975 Comments were received regarding the potential adverse impact development of a new nuclear power station could have on the established and increasing recreational value of the area. There was a particular concern that any plans to extend the Northumberland Coast AONB to include Druridge Bay might be affected by development at the site.

### The Government's response

7.976 Should the site have been included in the NPS, and an application for development consent have come forward, under the guidance within the NPS the impact on existing and planned extensions to AONBs would be weighed against the potential benefits of development of the site and the availability of mitigation measures for any impacts identified.

## Question 22 c) Kingsnorth

7.977 The majority of respondents to the public consultation agreed with the Government's assessment that the site at Kingsnorth was not credible for deployment by the end of 2025, but always gave details of why they agreed. Other key themes which were raised were the site's proximity to population centres; the assessment of the site against the Proximity to Civil Aviation criterion; possible impacts of development on designated sites; possible conflicts with the Thames Gateway Delivery Plan; proximity of the site to areas of high electricity demand.

7.978 The key themes and the Government's response to those key themes are below.

### Comments received on demographics and proximity to demand

7.979 Some respondents to the public consultation expressed concerns that the site was too close to population centres with one respondent commenting that potential and consented housing developments in the area had not been incorporated into the analysis. Some respondents to the public consultation were concerned that development at the site would conflict with the Thames Gateway Development, the South East Plan and the adopted Local Plan, in particular with regard to housing delivery. Other respondents felt the proximity of Kingsnorth to the largest area of demand in the South East of England should be a factor which merited consideration due to shorter distances for transmission of electricity.

### The Government's response

7.980 The assessment noted that the inclusion of this site in the Nuclear NPS would conflict with separate objectives of the then Government on plans for the Thames Gateway Development[186], although this was not the grounds on which the site was not included in the draft Nuclear NPS.

7.981 The site assessment for Kingsnorth reflected the issues that may arise due to population density around the site. The Alternative Site Study had found that the demographic profile of the area may present significant difficulties regarding the extendibility of emergency planning.

7.982 The Government has assessed sites against objective criteria which were the subject of public consultation. Proximity to demand was not one of the SSA criteria - this is discussed further under Question 21a) ("Comments on a criterion on transmission").

186 The Government has set out that, in future, strategic leadership will come from local authorities and the Mayor of London. See http://www.communities.gov.uk/regeneration/thamesgateway/ for further details.

### Comments on proximity to civil aviation activity

7.983 Some respondents to the public consultation commented that the conclusions reached in the original assessment of the site at Kingsnorth (that it was potentially suitable against this criterion) were incorrect due to the fact that the wrong area had been assessed in relation to this criterion only.

### The Government's response

7.984 This error in the assessment was identified during the consultation. The criterion was reassessed. The results of this new assessment were subsequently published and were subject to consultation for the remainder of the consultation period. The site was still found to be potentially suitable against this criterion.

### Comments on designated sites of ecological importance

7.985 There were a limited number of concerns about whether particular sites (such as the Nor Marsh and Motney Hill reserve) or species (such as the marsh harrier) had been considered during the assessment.

### The Government's response

7.986 The marsh harrier is an Annex I species under the EC Birds Directive and is protected in Kent in The Swale SPA and impacts upon this SPA have been fully assessed within the AoS. The section of the AoS appendix[187] covering The Swale SPA notes "*In summer, the site is of importance for Marsh Harrier Circus aeruginosus*". It is not mentioned by name in the site report, but impacts on The Swale SPA (and thus, by association, the species that depend upon it) have therefore been considered.

7.987 Whilst Nor Marsh and Motney Hill Reserve was not referenced by name in the assessment, it was considered in the AoS appendix as one of the four RSPB Reserves within 20km of the Kingsnorth site. The SSA, as a strategic level assessment, has considered impacts on internationally and nationally designated sites of ecological importance, such as SSSIs. Nature and wildlife reserves in local areas may not have statutory status but the Government recognises they can be sites of local importance. The Government considers that impacts upon local sites are more appropriately addressed by the IPC at the development consent stage when EIAs are undertaken and project level information is available.

187 *Appraisal of Sustainability: Site report for Kingsnorth:* http://data.energynpsconsultation.decc.gov.uk/documents/aos/kingsnorth/appendices.pdf

## Question 22 d) Owston Ferry

7.988 Owston Ferry is in Lincolnshire on the Trent. The majority of respondents to the public consultation agreed with the Government's assessment that the site at Owston Ferry was not suitable for deployment by the end of 2025. However, there was a lack of further detail in responses, resulting in no further key themes coming through from the consultation.

# Other issues raised on EN-6

## Question 26: Other issues

7.989 The consultation posed the question:

***Do you have any comments on any aspect of the draft Nuclear National Policy Statement or its associated documents not covered by the previous questions?***

7.990 All of the detailed comments raised in response to this question were more appropriately covered elsewhere in this document and were therefore treated as responses to other questions. These included comments on the applicability of CHP, emergency planning for new nuclear power stations, and comments on the consultation on the Nuclear NPS.

# The revised Appraisal of Sustainability (AoS) and Habitats Regulations Assessment (HRA) for EN-6

## Background

8.1 AoSs are required by the Planning Act 2008 and are intended to ensure that NPSs take account of environmental, social and economic considerations, with the objective of contributing to the achievement of sustainable development. They are also designed to ensure that the NPSs comply with the EU Strategic Environmental Assessment Directive (2001/42/EC), which requires that any "plan or programme" (such as an NPS) must have an environmental report outlining the likely significant environmental effect, and that these must be consulted on before they are adopted. The aim of the HRAs is to assess the implications of NPSs for protected habitats.

## How has the AoS and HRA for EN-6 changed?

8.2 This section summarises the key changes to the AoS and HRA for the draft of EN-6. It does not aim to capture every change, but will help respondents to focus on those elements that are significantly different from the last consultation. The main AoS and HRA reports appraise the revised draft EN-6 as a whole. There are also AoS and HRA reports for each site. The remainder of this chapter discusses the key themes raised during the consultation, the Government's response and the resulting changes to the AoS and HRA in more detail.

### Table of changes for the Revised AoS for EN-6

| What are the key changes? | Where is the change in the revised documents? |
|---|---|
| **AoS main report**<br><br>The assessment has been updated to take account of the removal of Kirksanton and Braystones from the revised draft Nuclear NPS. This includes an update of the assessment of cumulative effects of sites.<br><br>For clarity, existing material on the conclusion that there are no transboundary effects from the NPS has been consolidated in one section. It was | Chapter 7 |

| | |
|---|---|
| previously set out in several different annexes. | |
| **AoS site reports and appendices**<br>Updated site reports and appendices have been published for the 11 nominated sites including those that have not been listed in the revised draft NPS (Braystones, Kirksanton and Dungeness). They take into account relevant comments from the public consultation which mainly focused on the characterisation of the area around the nominated site and relate to factual accuracy. | AoS site reports for each potentially suitable site |

## Table of changes for the revised HRA for EN-6

| What are the key changes? | Where is the change in the revised documents? |
|---|---|
| **HRA main report**<br>The assessment has been updated to take account of the removal of Kirksanton and Braystones from the Nuclear NPS. This includes an update of the assessment of cumulative effects. | Chapters 4, 5 and 6 |
| The case for IROPI has been updated to reflect the changes on the revised need case in EN-1, and changes on the sites that are considered potentially suitable. | Chapter 7 |
| **HRA site reports**<br>Updated site reports and appendices have been published to take account of comments from statutory consultees and other relevant comments from the public consultation. The changes consist of factual clarifications and the conclusions in the reports have not changed. | Throughout |
| The site reports for Sizewell, Bradwell and Heysham have been updated to account for new Natura 2000 sites. | Relevant site reports |
| The site report for Dungeness has been updated to consider further environmental studies submitted by the nominator and comments from the public consultation. The environmental studies submitted by the nominator have also been published for information. | Sections 2 and 3 of Dungeness site report |

## Questions 23 and 24: The AoS for EN-6

8.3 The consultation posed the questions:

***Do you agree with the findings from the Appraisal of Sustainability reports for the draft Nuclear National Policy Statement?***

***Do you think that any findings from the Appraisal of Sustainability have not been taken account of properly in the draft Nuclear National Policy Statement?***

8.4 Many of the responses to these questions related specifically to the site AoS reports. For example, some respondents commented upon what they considered to be factual inaccuracies in the characterisation of the area around the nominated site and some commented that they disagreed with the assessment and conclusions. The Government has considered the comments on the site AoS reports and site reports for the eleven nominated sites have been updated and republished alongside the revised draft Nuclear NPS. Comments on individual sites are not reflected in this chapter.

8.5 The sections below address the key themes emerging from the consultation comments on the AoS.

### Comments on uranium mining

8.6 A number of respondents commented that the AoS should have assessed the impacts of uranium mining because the uranium will be used by new nuclear power stations and there were concerns that it causes harmful effects in the countries where it takes place.

### The Government's response

8.7 The AoS is intended to assess the environmental and sustainability impacts of the Nuclear NPS and therefore focuses on those impacts which arise from the Nuclear NPS itself. The Nuclear NPS provides guidance to the IPC on the construction and operation of new nuclear power stations. It does not cover mining or milling of uranium.

8.8 Conventional uranium mining does not differ significantly from mining of other metalliferous ores or coal for other types of power stations. Furthermore, an increasing proportion of the world's uranium now comes from in-situ leaching. This is a process that does not require the ore to be mined and generates much less waste, though it can have a negative impact on the water table and is not suitable for all types of uranium deposits. There are established environmental constraints, such as the regulations governing uranium mining in Australia which cover, amongst other things, environmental protection and the requirement to meet environmental approvals before mining proceeds. Additionally, most uranium mining companies in Australia and Canada, which supply much of the world's uranium, have achieved certification from the International Organisation for Standardisation. This body sets the standard for, and undertakes audits of, environmental management systems. These environmental constraints minimise the environmental impacts of mining operations.

### Comments on the level of the assessment

8.9 A number of respondents commented that the AoS had downplayed the seriousness of impacts of development, that assessments and suggestions for mitigations were not detailed and that the aim should be to avoid adverse effects before mitigating them. They were also concerned that the assessment had only assessed one reactor when more could be built. These comments are considered in Question 21a) ("Comments on the assessment against the environmental criteria D6 and D7" and "Comments on the level of detail of the assessment in general and in the HRA and AoS").

8.10 A number of respondents commented that the AoS should have taken account of local sites of nature conservation importance.

### The Government's response

8.11 The AoS has been undertaken at a strategic level and has considered impacts on national and international sites of nature conservation importance. These criteria were considered appropriate to a strategic level assessment and were consulted upon. Local sites can have nature conservation importance even when there is no statutory designation. It is considered that the impacts on these sites is more appropriately assessed at the project level when detailed site specific information such as site layout and location of ancillary structures are known.

### Comments on carbon lifecycle emissions

8.12 Several respondents to the consultation questioned whether nuclear really is really a low carbon technology. Conversely other respondents said that the carbon lifecycle emissions for nuclear which were cited in the AoS are high compared to other studies.

### The Government's response

8.13 The Government's response is set out in the response to Question 18 where respondents also raised this issue.

## Question 25: HRA for EN-6

8.14 The consultation posed the question:

***Q25. Do you have any comments on the Habitats Regulations Assessment reports for the draft Nuclear NPS?***

8.15 A number of respondents also made specific comments on the site HRA reports. The Government has considered those comments and the HRA reports for the nominated sites have been updated and published alongside the revised draft Nuclear NPS. The key themes emerging from the consultation on the HRA are set out below.

### Comments on Imperative Reasons of Overriding Public Interest (IROPI)

8.16 Some respondents commented that they agreed with the case for IROPI whilst others disagreed. A number of respondents commented that the Government should have sought an opinion on the Imperative Reasons of Over-riding Public Interest from the European Commission because priority habitats are present at some of the sites listed in the Nuclear NPS.

8.17 A number of respondents commented that the IROPI case meant that the IPC had to grant consent for new nuclear power stations at the sites listed on the Nuclear NPS. Other respondents commented that the Government should clarify that the case for IROPI applied to the Nuclear NPS and not to the project level application.

### The Government's response

8.18 The Government acknowledges that the Nuclear NPS has the potential to have adverse effects upon the integrity of Natura 2000 sites including priority habitats (coastal dune, heathland, dune grassland and lagoons). An opinion from the Commission has not been sought because the grounds for IROPI relate to the protection of human health and public safety and to beneficial consequences of primary importance for the environment. This approach is in accordance with the requirements of the Habitats Directive. Further details of the case for IROPI is set out in the main HRA report.

8.19 An HRA has been undertaken of the Nuclear NPS and the sites which are listed. Based upon HRA experience, professional judgement and the advice of the statutory consultees, the Government believes it is reasonable to conclude that mitigation measures identified at this strategic level should be sufficient to avoid or mitigate the adverse effects on the integrity of European Sites identified. However, when an application for development consent comes forward at a site, a project level HRA, including Appropriate Assessment, will be undertaken and the developer will be required to follow all the requirements of the Habitats Directive. If the Appropriate Assessment concludes that adverse effects cannot be mitigated, then alternatives, IROPI and compensatory measures will need to be considered at the project level.

### Comments on ranking sites

8.20 Some respondents commented that the HRA should have looked in more detail at site specific issues. A number of respondents commented that the HRA should rank sites in order of least damaging first which could be consented in sequence to better protect Natura 2000 sites. However, other respondents commented that there should not be ranking of sites.

### The Government's response

8.21 The Government does not consider it is feasible to rank sites at a strategic level. The HRA of the Nuclear NPS has been undertaken at a strategic level where data sources are limited and there are inherent uncertainties relating to the footprint and magnitude of development. Specific technologies and detailed design of the proposed power station has yet to be finalised and the boundary of the proposed site might be subject to change. Whilst it is acknowledged that the scope and scale of impacts and mitigations will vary from site to site, it is not feasible to conduct the level of information gathering and assessment associated with a project level HRA, and therefore it is not realistic to rank sites in a robust way. It is also possible that different developers could come forward with different detailed proposals at a project level, which may not affect the overall suitability of the site itself.

### Comments on evidence and conclusions

8.22 Some respondents commented that the HRAs relied upon evidence from the nominators whilst others commented that the HRAs relied upon the statutory consultees, and as a result questioned the conclusions reached.

8.23 A number of respondents commented that sites should have been excluded from the Nuclear NPS where the HRA could not rule out adverse effects.

### The Government's response

8.24 The Government does not consider that evidence from either nominators or statutory consultees has been too heavily relied upon. A HRA has been produced based upon technical assessment undertaken by environmental consultants. This assessment has taken account of the information supplied by the nominator and taken account of the comments of Natural England and Countryside Council for Wales in their capacity as statutory consultees for the purposes of HRA, as well as responses from the public consultation and Parliamentary scrutiny.

8.25 The precautionary approach has been followed as required by the Habitats Directive. The assessment has concluded that it is unable to rule out adverse effects at each of the sites listed in the revised draft Nuclear NPS. However, the Habitats Directive does not preclude development when adverse effects cannot be ruled out and, as stated above, this HRA has been undertaken at a strategic level where project level detailed information is not available. The project level HRA will consider whether adverse effects

can be ruled out, and if necessary the other steps required by the Habitats Directive.

# Impact Assessment

## Background

9.1 The Impact Assessment analyses the administrative costs and benefits of proposed Government interventions to business, the public sector and the third sector (voluntary organisations).

9.2 A combined Impact Assessment was prepared on the costs and benefits associated with the six draft energy NPSs, and is being published as part of this consultation.

## How has the Impact Assessment changed?

9.3 This section summarises the key changes to the draft Impact Assessment. The remainder of this chapter discusses the key themes raised during the consultation, the Government's response and the resulting changes to the Impact Assessment in detail.

| What are the key changes? | Where is the change in the revised Impact Assessment? |
|---|---|
| Details of the first consultation and Parliamentary Scrutiny have been added. | Page 9 |
| Data on the costs and benefits of the NPSs have been updated to take account of actual spend and revised benefit estimates | Summary and Page 10 |
| New paragraphs have been added under the heading "Equality Impact Assessment" to expand on the statement in the original consultation version that the NPSs had been screened and it had been determined that a full Equality Impact Assessment is not required. The screening document is annexed to the Impact Assessment. | Page 11 |

## Question 27: Comments on the Impact Assessment

9.4 The consultation document posed the question:

***Do you have any comments on the Impact Assessment report for the draft energy National Policy Statements?***

9.5 Over half of the respondents to this question referred to impacts set out in EN-1 rather than the draft regulatory Impact Assessment. For example, some respondents thought that the Impact Assessment was unsatisfactory because it did not set out specific costs and impacts of new nuclear power stations.

9.6 Of the substantive responses, half agreed that the Impact Assessment was satisfactory, while less than half did not consider it satisfactory and the remainder noted that it should be revised in the light of the consultation.

### The Government's response

9.7 The purpose of a regulatory Impact Assessment is to set out the administrative burdens, costs and benefits that arise from any proposed Government regulation or guidance to the private, public and voluntary sectors. This Impact Assessment relates to the impact of implementing the NPSs, not to the implementation of the energy policies which are contained in the NPSs, i.e. the building of a new nuclear power station. The responses that discussed impacts set out in the NPSs instead of the Impact Assessment have been considered as responses to the questions to which they properly apply.

9.8 Regulatory Impact Assessments consider the options that the Government has for implementing policy to determine whether the proposed regulatory measures are the most cost-effective and will deliver the proposed benefits. This Impact Assessment therefore drew upon the examination of alternative policies in the AoSs, which have since been revised. Additionally, as set out in greater detail earlier in this response, the Government has announced that it will abolish the IPC and introduce legislation such that decisions on major infrastructure projects are made by Ministers. We have therefore revised the Impact Assessment to take the new AoSs and policies into account.

# Other Questions

## Question 28: Are the energy NPSs a useful reference for those wishing to engage in the process for development consent?

10.1 The consultation document posed the question:

***Does this package of draft energy National Policy Statements provide a useful reference for those wishing to engage in the process for development consent for nationally significant energy infrastructure, particularly for applicants?***

10.2 The majority of respondents to this question agreed that the package of draft energy NPS did provide a useful reference for those wishing to engage in the process for development consent. This question did not however generate a large number of substantive consultation responses, with most respondents answering either ‘yes’ or ‘no’.

10.3 Many of the detailed comments raised in response to this question related more appropriately to topics covered elsewhere in this document and were therefore treated as responses to those questions.

## Question 29: Any other comments on the energy NPSs or associated documents

10.4 The consultation posed the question:

***Do you have any comments on any aspect of the draft energy National Policy Statements or their associated documents not covered by the previous questions?***

10.5 Many of the detailed comments raised in response to this question related more appropriately to topics covered elsewhere in this document and were therefore treated as responses to those questions.

# Annex A: Complete list of consultation questions

## Draft Overarching NPS (EN-1)

1. Do you think that the Government should formally approve ('designate') the draft Overarching Energy National Policy Statement?

2. Does the draft Overarching Energy National Policy Statement provide the Infrastructure Planning Commission with the information it needs to reach a decision on whether or not to grant development consent?

3. Does the draft Overarching Energy National Policy Statement provide suitable background information to the Infrastructure Planning Commission on Government policy on energy, climate change and planning?

4. Does the draft Overarching Energy National Policy Statement provide suitable direction to the Infrastructure Planning Commission on the need and urgency for new energy infrastructure?

5. Do the assessment principles in the draft Overarching Energy National Policy Statement provide suitable direction to the Infrastructure Planning Commission to inform its decision-making?

6. Does the draft Overarching Energy National Policy Statement appropriately cover the generic impacts of new energy infrastructure and potential options to mitigate those impacts?

7. Do you have any comments on any aspect of the draft Overarching Energy National Policy Statement not covered by the previous questions?

## Draft NPSs for Fossil Fuels, Renewables, Gas Supply and Gas and Oil Pipelines, and Electricity Networks (EN 2-5)

8. Do you think that the Government should formally approve ('designate'):

    a) The draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

    b) The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

    c) The draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

    d) The draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

9. Do the following draft National Policy Statements provide the Infrastructure Planning Commission with the information it needs to reach a decision on whether or not to grant development consent:

    a) The draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

    b) The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

    c) The draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

    d) The draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

10. Do the following draft National Policy Statements appropriately cover the impacts of the specific types of new energy infrastructure covered in them, and potential options to mitigate those impacts:

    a) The draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

    b) The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

    c) The draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

    d) The draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

11. Do you have any comments on any aspect of the following draft National Policy Statements not covered by the previous questions:

    a) The draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

    b) The draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

    c) The draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

    d) The draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

## Appraisals of Sustainability and Habitats Regulations Assessment for EN-1 to EN-5

12. Do you agree with the findings from the following Appraisal of Sustainability reports:

    a) Appraisal of Sustainability report for the draft Overarching Energy National Policy Statement (EN-1)?

    b) Appraisal of Sustainability report for the draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

    c) Appraisal of Sustainability report for the draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

    d) Appraisal of Sustainability report for the draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

    e) Appraisal of Sustainability report for the draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

13. Do you think that any findings from the following AoS reports have not been taken account of properly in the relevant draft National Policy Statements:

    a) Appraisal of Sustainability report for the draft Overarching Energy National Policy Statement (EN-1)?

    b) Appraisal of Sustainability report for the draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

    c) Appraisal of Sustainability report for the draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

    d) Appraisal of Sustainability report for the draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

    e) Appraisal of Sustainability report for the draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

14. Do you have any comments on any aspect of the following AoS reports not covered by the previous questions:

    a) Appraisal of Sustainability report for the draft Overarching Energy National Policy Statement (EN-1)?

    b) Appraisal of Sustainability report for the draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

    c) Appraisal of Sustainability report for the draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

d) Appraisal of Sustainability report for the draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

e) Appraisal of Sustainability report for the draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

15. Do you have any comments on the Habitats Regulations Assessment reports for the following draft National Policy Statements:

a) Habitats Regulations Assessment report for the draft Overarching Energy National Policy Statement (EN-1)?

b) Habitats Regulations Assessment report for the draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

c) Habitats Regulations Assessment report for the draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

d) Habitats Regulations Assessment report for the draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

e) Habitats Regulations Assessment report for the draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

## Draft Nuclear NPS (EN-6) and associated documents

16. Do you think that the Government should formally approve ('designate') the draft Nuclear National Policy Statement?

17. Does the draft Nuclear National Policy Statement provide the Infrastructure Planning Commission with the information it needs to reach a decision on whether or not to grant development consent?

18. Does the draft Nuclear National Policy Statement provide suitable direction to the Infrastructure Planning Commission on the need and urgency for new nuclear power stations?

19. Do you agree with the Government's preliminary conclusion that it is satisfied that effective arrangements will exist to manage and dispose of the waste that will be produced by new nuclear power stations in the UK?

20. Does the draft Nuclear National Policy Statement appropriately cover the impacts of new nuclear power stations and potential options to mitigate those impacts?

21. Do you agree with the Government's preliminary conclusion on the potential suitability of sites nominated into the Strategic Siting Assessment, as set out below? You can respond in general terms on the assessment as a whole, or against one or more specific sites.

a) General comments

*The Government considers the following sites to be potentially suitable for the deployment of new nuclear power stations by the end of 2025:*

b) Bradwell

c) Braystones

d) Hartlepool

e) Heysham

f) Hinkley Point

g) Kirksanton

h) Oldbury

i) Sellafield

j) Sizewell

k) Wylfa

*The Government does not consider the following site to be potentially suitable for the deployment of new nuclear power stations by the end of 2025:*

l) Dungeness

22. Do you agree with the Government's preliminary conclusion that the three sites identified in the Alternative Sites Study, as listed below, are not potentially suitable for the deployment of new nuclear power stations by the end of 2025? You can respond in general terms on the sites identified in the Study as a whole, or against one or more specific sites.

a) General comments

b) Druridge Bay

c) Kingsnorth

d) Owston Ferry

23. Do you agree with the findings from the Appraisal of Sustainability reports for the draft Nuclear National Policy Statement?

24. Do you think that any findings from the Appraisal of Sustainability reports for the draft Nuclear National Policy Statement have not been taken account of properly in the draft Nuclear National Policy Statement?

25. Do you have any comments on the Habitats Regulations Assessment reports for the draft Nuclear National Policy Statement?

26. Do you have any comments on any aspect of the draft Nuclear National Policy Statement or its associated documents not covered by the previous questions?

## Impact Assessment and other questions

27. Do you have any comments on the Impact Assessment report for the draft energy National Policy Statements?

28. Does this package of draft energy National Policy Statements provide a useful reference for those wishing to engage in the process for development consent for nationally significant energy infrastructure, particularly for applicants?

29. Do you have any comments on any aspect of the draft energy National Policy Statements or their associated documents not covered by the previous questions?

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