DEPARTMENT OF ENERGY & CLIMATE CHANGE

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

Planning for new energy infrastructure

June 2011

Contents

Introduction

What are the energy National Policy Statements (NPSs)?

1.1 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 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.

1.2 Between 9th November 2009 and 22th February 2010, the previous Government consulted on the draft energy NPSs. Following a consideration of consultation responses and the outputs of the Parliamentary scrutiny process the Government decided to re-visit the draft energy NPSs and the Appraisals of Sustainability (AoSs) that underpin them[1]. Given the changes that were made, the Government consulted on the 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) from 18th October 2010 to 24th January 2011. The revised draft energy NPSs and associated documents are:

- Revised draft Overarching NPS for Energy (EN-1);
- Revised draft Fossil Fuel Electricity Generating Infrastructure NPS (EN-2);
- Revised draft Renewable Energy Infrastructure NPS (EN-3);
- Revised draft Gas Supply Infrastructure and Gas and Oil Pipelines NPS (EN-4);
- Revised draft Electricity Networks Infrastructure NPS (EN-5);
- Revised draft Nuclear Power Generation NPS (EN-6);
- Appraisals of Sustainability (AoSs) for the revised draft NPSs, EN-1 to 6 (AoS-1 to AoS-6);
- Habitats Regulations Assessments (HRAs) for the revised draft NPSs, EN-1 to 6; and

1 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. As the Government decided it would re-visit the draft NPSs, it was agreed that the debate in the House of Commons would be on the revised drafts and form part of the new scrutiny process.

- Revised draft Impact Assessment for the revised draft NPSs, EN-1 to 6.
- An AoS Monitoring strategy was also published.

1.3 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 B.

1.4 The revised draft NPSs also underwent Parliamentary scrutiny[2]. A separate Government Response to Parliament has been issued alongside this document, to respond to the Parliamentary scrutiny of the draft energy NPSs.

You will see references to different versions of the documents throughout this Government response. For ease, they are summarised below:

- Draft energy NPSs / draft AoSs – subject to consultation in 2009/10
- Revised draft energy NPSs / Revised draft AoSs – subject to consultation in 2010/11
- NPSs for approval: the version of the NPSs which have been published alongside this response.

About the consultation

1.5 In total, 2554 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.

1.6 During the consultation three national events covering all draft energy NPSs were held in Bristol, Manchester and London. DECC also attended local events organised by local authorities or interest groups to discuss the revised draft EN-6 and the relevant site assessment. Five local events were held close to the sites judged potentially suitable for new nuclear development in EN-6 and one event was attended at Dungeness. In addition, a stakeholder event was held in London. Points raised at events have been considered alongside written consultation responses.

1.7 Where respondents have asked us to consider their response to the previous consultation on the NPSs alongside points they have raised on the revised NPSs then we have done so. Whilst all responses have been considered, this document does not attempt to set out the Government's response to every

2 The revised draft NPSs were again scrutinised by the ECC Select Committee in the House of Commons, and by Grand Committee in the House of Lords. There was also a debate in the full House of Commons on the revised draft NPSs, which was recommended by the ECC Select Committee during scrutiny of the previous draft NPSs.

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 NPSs for approval and associated documents.

Next steps:

1.8 Having considered the responses to the consultation and the outputs of the Parliamentary scrutiny process the Government has produced energy NPSs for approval, alongside this response to consultation.

1.9 Before the energy NPSs are designated the Government intends that NPSs should be approved by Parliament (i.e. voted on).

1.10 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 on applications for development consent. However, following the election in May 2010, the Government announced that it intended to abolish the IPC and replace it with a Major Infrastructure Planning Unit (MIPU) based in the Planning Inspectorate, with decision making returning to Ministers.

1.11 Legislation to enact the abolition of the IPC is proposed in the Localism Bill currently before Parliament.

1.12 If these provisions are enacted, then once they enter into force, examination of applications would be carried out by the new MIPU, which would make recommendations to Ministers, who would take final decisions on applications. Both MIPU and Ministers would need to follow the policy framework provided in NPSs, subject to limited exceptions set out in the Planning Act 2008.

Format of the Government response

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

1.14 Occasionally, where it has been 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.

1.15 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.

1.16 Where points were raised that were not directly relevant to the consultation questions listed, but we have felt it appropriate to answer, these have been dealt with under "Other Issues".

1.17 Where detailed drafting amendments have been suggested, the Government has considered these carefully but has not tried in this document to specifically state its reasoning as to whether it has adopted all of these changes or not, although significant changes are set out where appropriate.

1.18 Annex A contains a summary of the key changes which have been made in each NPS as a result of the consultation.

1.19 Annex B contains the full list of consultation questions for reference.

Consultation Questions and Government Response

Question 1: Revised Appraisals of Sustainability

The consultation document posed the question:

Do you have any comments on the appraisal of policy alternatives within the Appraisals of Sustainability for EN-1 to EN-5?

Of those respondents who answered this question, some would have preferred one of the alternatives to the chosen plan (i.e. the NPSs), such as cheaper electricity or lower carbon. Some felt that the revised AoS answered the criticisms levelled at the version published for consultation in November 2009 but others felt that the AoS was still lacking in some respects and, in particular, did not fulfil the legal requirements of the Strategic Environmental Assessment (SEA) Directive. These points area addressed below.

Alternatives not addressed in same way and to equivalent level of detail

Some respondents thought that the way the alternatives were dealt with meant that the Government had failed to assess the alternatives in an equivalent way to the plan, partly owing to the use of broader headings in the AoS sections on alternatives. At least one respondent felt that the alternatives were too loosely defined without a clear illustration of how policies within the alternatives would differ from those of the plan, and that the alternatives chosen were restricted by the focus on the objectives of the plan; were the objectives of the plan to be defined more widely, the alternatives would have been different.

Some respondents thought that it would have been better to evaluate each specific alternative, including those rejected in the initial AoS. It was suggested that contrary to guidance, alternatives had been ruled out within the AoS, which did not allow public consultation on all options. Others thought they understood why we had grouped the 14 sustainability objectives into 6 themes, but felt that it might have been more transparent to consider each alternative against each of the 14 objectives individually. There were also comments that the alternatives should also have been assessed against short, medium and long term timescales as the preferred plan was.

The Government's response

For the purposes of the SEA Directive, a reasonable alternative to a plan or programme can, in broad terms, be defined as a different way of fulfilling the objectives of the plan or programme. Policies which would not achieve those objectives are therefore not included. The alternatives do, however, cover different policies that could be pursued in pursuit of the given objective. We do not believe therefore that it is a valid criticism of the AoS alternatives to say that other alternatives could have been chosen if the objective had been different.

While it is true that the AoS reasonable alternatives (in particular, for the AoS for EN-1(AoS-1)), are described in broad, strategic terms, the Government considers this approach is appropriate given the high-level and broad-brush nature of the NPSs which are being appraised (again, in particular, EN-1). In addition Annex G of the AoS-1 shows how the strategic alternatives A1, A3, A4 fairly represent the individual elements of policy that could have been different in the NPSs (indeed, when work began on revising the AoSs, and before it was decided that the more strategic approach eventually adopted was the most appropriate way to proceed, some of the reasonable alternatives posited resembled some of the policy elements in Annex G). In the interests of presenting an accurate picture of the Government's decision-making, it also explains why those policies have not been pursued. However, Annex G is only an adjunct to the reasonable alternatives analysis and should not be read as if it were in some way a substitute for it.

The AoS shows how different possible approaches are encompassed within the broad framework of alternatives analysed. In the Government's view, the strategic alternatives in the revised AoS-1 also cover the essential points of the rejected policy options in the previous AoS-1. However, there is no obligation to consider every alternative that might be reasonable, particularly if implementing them could mean changes to the Planning Act 2008 framework, as well as NPSs.

Because of the large number of policies in the AoS and its strategic nature, we believe that the highly strategic approach that we took to selecting alternatives is the most appropriate one.

The Directive does not require the alternatives to be worked up in the same level of detail as the plan. Illustrations of the kinds of policies that would be involved in the alternatives are given in the AoS. All the alternatives are defined in ways which makes it clear how they differ from the plan in strategic terms. Alternatives are "ruled out" either because they are rejected as unreasonable or because the reasonable alternatives are generally explicitly not preferred to the plan (with reasons given for why this is the case). Both are legitimate, given the context in which the appraisal is being conducted.

However, we believe that the level of detail is equivalent, because the treatment of alternatives is done explicitly by comparison with the plan and the plan itself is only appraised in very general terms at a strategic level. This means that the assessment relating to the alternatives only shows where it differs materially to the assessment of the plan. The assessments of the plan and of the alternatives include the same range of issues, but have been packaged differently by consolidating the 14 points from Annex I into "SD [Sustainable development] themes". The consolidation of topics into SD themes is a matter of presentation designed to make the document more user-friendly and does not indicate any difference of approach in the way the impacts of reasonable alternatives and the plan were evaluated.

The alternatives were assessed against the different timescales, short, medium and long term, but because of the strategic nature of the assessment and the fact that the assessment was done against the plan assessment, the differences were similar against all timescales and were therefore presented as a single result. Any

noticeable differences in the short, medium and long term effects, were covered in the text, such as Security of Supply, alternative A4, or Health and Well-being, alternatives A1 and A3.

Retrospective exercise

Some respondents felt that the revised AoS had been imposed on the NPSs retrospectively, which meant there was no iterative evolution of policy.

The Government's response

The fact that the Government felt that the NPSs did not need major amendments as a result of the revision of the AoSs or the recent consultation does not show that the AoS process was not properly conducted. The AoSs were revised in response to consultation responses and the NPS were considered carefully against the revised AoSs. For example a new biodiversity section was added to EN-5 to deal with the specific problem of bird strike on overhead lines.

Preferred some/one of the alternatives to the actual plan

Some respondents felt that one or more of the reasonable alternatives that Government decided against adopting in favour of the plan, would have been preferable.

The Government's response

The SEA Directive does not require adoption of a reasonable alternative rather than the plan, even if it may seem preferable in terms of its environmental impacts. Instead, it requires an explanation of why the Plan is preferred, notwithstanding the identified difference in impacts, and this is done in, for example, paragraph 3.8.6 of the revised draft AoS for EN-1.

Insufficient consideration of cumulative effects

Some respondents felt that there was not sufficient assessment of the cumulative effects in the AoS.

The Government's response

This was an issue raised in the 2009 consultation, which we took on board. The cumulative effects were addressed within the overall appraisal, and a separate section was added (paragraph 4.16) to restate those considerations. As the overall assessment has been done at a strategic level, the same applies to the assessment of cumulative effects, which means there cannot be a great amount of detail. The cumulative effects will always need to be considered in the Environmental Statement for individual projects.

Question 2: Revised Need Case in EN-1

The consultation document posed the following question:

Do you have any comments on the revised "need case" (the need for new energy infrastructure) in the Overarching National Policy Statement (EN-1)?

Respondents answering this question offered divided views, with some agreeing with the need case and some disagreeing with the messages given.

Of those respondents who thought strongly that EN-1 gave suitable direction on need and urgency for new energy infrastructure, some commented that they felt the need case in Part 3 of EN-1 had been strengthened with the inclusion of the Government's 2050 pathways analysis. Some thought the need case now reflected the Government's decarbonisation targets as well as security of supply concerns, as a number of power stations are due to reach the end of their operational life in the next decade or so.

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 bigger priority for the Government instead of building new large scale infrastructure. Some respondents were concerned that the need case would mean a high carbon lock in, which would crowd out renewables.

The Government's response

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.

New infrastructure is needed to replace closing power stations, to switch to low carbon forms (including renewables, nuclear and fossil fuels with carbon capture and storage), 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. We need fossil fuel power stations as the UK makes the transition to a low carbon economy and gas in particular will be needed to provide vital flexibility to support an increasing amount of low-carbon generation and to maintain security of supply. But we recognise that, over the longer term, gas plant will need to reduce their emissions if we are to largely decarbonise the electricity sector and meet our climate change targets.

The Government is proposing significant reform of the electricity market aimed at ensuring the UK can attract the investment in electricity generation needed to meet its renewable and carbon emission reductions targets in the most cost-effective way, and ensure we have a secure, affordable supply of electricity towards the end of this

decade and in the longer-term. Whilst gas will continue to play an important role in the electricity sector, achieving the UK's decarbonisation objectives will require investors to increasingly rely on low-carbon technologies such as renewables, carbon capture and storage (CCS) and nuclear power.

The Government recognises 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 are launching 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).

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).

On small scale renewables, the Government has put in place financial rewards as it would like to see decentralised and community energy systems make a much greater contribution to our targets. Whilst the Government believes that these measures have a very 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

Many comments were received relating to the need for a specific technology either agreeing or disagreeing that Government policy should be to favour, or avoid, particular technologies.

Specifically, the types of infrastructure that respondents generally objected to included nuclear power stations, fossil fuel power stations without CCS and wind farms. Conversely, some respondents favoured these technologies.

The Government's response

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.

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 and the need case has been reviewed again to ensure that this has been reflected appropriately. The 2050 Pathways Analysis shows that there are many different possible combinations of infrastructure which could deliver our objectives – there is no one single (or best) way to do so.

With regards to fossil fuel power stations, the Electricity Market Reform is considering amongst other measures the introduction 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. An EMR White Paper will be published in the summer.

In response to the comments received, we have clarified the urgency of the need for electricity technologies, particularly on renewable and fossil fuel generation (see Part 3 of EN-1 for the need for a mix of energy technologies). Nuclear power is also discussed at Question 3f of this response.

Balancing the need case against local impacts

Some respondents expressed concern that the need case was too heavily weighted in favour of development such that the negative local impacts of projects may not outweigh the need for new development in those cases where it should.

The Government's response

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. Within the framework set by the NPSs, 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. 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.

However, it will not be possible to develop the necessary amounts of such infrastructure without some adverse impacts, given the level of need for such infrastructure. The IPC should give substantial weight to considerations of need, but the weight which is attributed in any given case should be proportionate to the anticipated extent of a project's actual contribution to satisfying the need for a particular type of infrastructure. It is, of course, right that the IPC should refuse consent for a project if it considers that detrimental effects outweigh the contribution the project makes to satisfying need.

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 3 a): Revised draft NPS EN-1

3.1 The consultation document posed the question:

Do you have any comments on the revised draft Overarching National Policy Statement for Energy (EN-1)?

3.2 Respondents who answered this question were divided between those who commented on the Government policy set out in Part 2 of EN-1 and those who commented on the criteria by which the IPC is to assess applications for development consent in Parts 4 and 5. These comments have been dealt with separately in the sections below.

3.3 Where comments were received which related to the need case set out in Part 3 of EN-1, these have been dealt with under question 2 above.

Carbon Budgets

3.4 Some 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.

3.5 Some respondents also interpreted the NPS to say that the IPC should not consider carbon emissions at all.

The Government's response

3.6 This was also an issue that was raised in the 2009/2010 consultation on the draft energy NPSs.

3.7 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 the UK's overall carbon budget. 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.

3.8 There are also practical reasons why the IPC should not have the task of assessing the carbon impact of the projects it consents; in particular, 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 or on those carbon emitting sectors outside of electricity generation such as transport and manufacturing. The IPC would not therefore necessarily be in a position to know how a particular project might affect the achievement of the carbon budget.

3.9 The Government is already 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.

3.10 Section 5.2 of EN-1 sets out air emissions impacts in relation to energy infrastructure. It states that the IPC should not take into account carbon emissions as they affect carbon budgets. It does not, however, instruct the IPC to disregard carbon emissions totally, noting that such emissions and mitigation would be included in the Environmental Statement for a project and that there are regulatory mechanisms, for example the European Union Emissions Trading Scheme (EU ETS), that control carbon emissions.

3.11 In addition, the Secretary of State will monitor both the flow of applications into the planning system and the amount of infrastructure that consequently starts to be constructed and comes into operation, to determine whether the types of projects which come forward are in line with the expectations about future infrastructure development, on which the policies in the NPS are based.

Spatial Criteria

3.12 Some 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.

The Government's response

3.13 This was also an issue that was raised in the 2009/2010 consultation on the draft energy NPSs.

3.14 The Government does not believe that the non-nuclear NPSs (EN-1 to EN-5) should be more spatially specific as:

- identifying potentially suitable locations for all types of major energy infrastructure would be a hugely complex and time-consuming exercise, defeating the objective of a more efficient process;
- unless very specific boundaries are suggested, as has been the case for EN-6 (but may well not be practicable for all technologies), the set aside area could be too large and could deter investment in other infrastructure such as housing; and

3.15 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.

Assessment Principles and Environmental Statement

3.16 A number of respondents suggested that the NPS misinterpreted the requirements of the environmental protection legislation. In particular, it was thought that the NPS instructed the IPC to ignore requirements for alternatives when considering applications in protected or designated areas.

3.17 It was also considered that there was insufficient detailed guidance for applicants on the details that should be covered in an Environmental Statement.

The Government's response

3.18 The Government does not agree with the interpretation of EN-1 as instructing the IPC to ignore legislative requirements for consideration of applications in protected areas. The revised draft of EN-1 makes clear that applicants and the IPC must comply with any legal requirements for assessment of alternatives in designated areas and provides outline information on the nature of such areas, e.g. SSSIs. Nor does the Government agree that, in describing the requirements, the protection for such areas is weakened.

3.19 However, it became apparent that a number of respondents had not fully understood the sections on assessment principles, environmental statements and alternatives. These sections have been revised to clarify how applicants and the IPC should consider these issues.

Question 3 b): Revised draft NPS EN-2

3.20 The consultation document posed the question:

Do you have any comments on the revised draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)?

3.21 There were relatively few responses relating to the revised draft NPS for Fossil Fuel Electricity Generating Infrastructure (EN-2). Of those who did respond, most commented on carbon capture and storage (CCS) and underground coal gasification technologies. These are dealt with separately below.

Carbon capture and storage (CCS)

3.22 A few respondents suggested that because CCS is as yet unproven it should not be required on fossil fuel generating stations. A few respondents also suggested that it should be applied equally to gas-fired generating stations as to coal-fired generating stations.

The Government's response

3.23 The Government does not agree that the NPSs are deficient in describing how the IPC should consider CCS. Sections 3.4 and 4.7 of EN-1 set out the Government's policy on CCS. This makes clear that CCS is not yet proven at the scale necessary for commercial application to fossil fuel generating stations and therefore the Government will fund 4 demonstration projects. It also sets out the policy that, because coal-fired generating stations have the highest CO_2 emissions, the priority is to tackle these first and therefore all new coal-fired generating stations must have CCS on at least 300 MW of their net generating capacity. If a coal-fired generating station is less than 300 MW, this means that CCS must be fitted to its whole capacity.

3.24 Further EN-1 states that all fossil fuel generating stations (and biomass-fuelled generating stations) over 300 MW capacity should be "Carbon Capture Ready" (CCR), so as to be able to retrofit CCS in due course.

3.25 EN-2 sets out the practical information that the IPC should assess when considering an application for a fossil fuel generating station. EN-3 notes that the same assessments apply to biomass-fuelled generating stations and refers to the guidance given in EN-1 and EN-2.

Underground Coal Gasification

3.26 Some respondents proposed that EN-2 should refer specifically to underground coal gasification as an electricity generation technology and encourage its use.

The Government's response

3.27 The IPC is responsible for determining development consents in respect of energy infrastructure that meets the thresholds set out in the Planning Act 2008. Underground coal gasification is not one of the energy infrastructures described in the Planning Act and the IPC therefore has no powers to consider development consent for this technology as a separate infrastructure.

3.28 However, paragraph 1.7.1 of EN-2 states clearly that integrated coal gasification combined cycle generating stations do fall within the threshold for fossil fuel generating stations to be considered by the IPC, where the capacity is greater than 50 MW. This means that a coal gasification plant which meets the criteria set out in the Planning Act to be considered as "associated development" may be consented on that basis.

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Question 3 c): Revised draft NPS EN-3

3.29 The consultation document posed the question:

Do you have any comments on the revised draft National Policy Statement for Renewable Energy Infrastructure (EN-3)?

3.30 Some respondents to this question commented on the suggestions for Government policy that had not been accepted by Government after the first consultation. These were either on issues such as whether Government should adopt a spatial strategy for designating sites for non-nuclear energy infrastructure or were more general disagreement with Government energy policy, and are dealt with elsewhere in this Government response.

3.31 Some respondents to this question focussed on issues specific to a type of infrastructure covered by this NPS and these are dealt with separately below.

Other forms of technology not covered in EN-3

3.32 A number of respondents commented 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

3.33 This was an issue that was also raised in the 2009/2010 consultation on the draft energy NPSs.

3.34 The IPC is concerned only with consents for infrastructure generating 50 MW and over on land and 100MW and over off shore, and it is not anticipated that applications for forms of renewable generation technologies not covered by the NPS, at or above the threshold, are likely to be put forward in the short or medium term. 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.

Energy from Waste

3.35 Some respondents felt 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".

3.36 Further, some respondents felt 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.

The Government's response

3.37 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.

3.38 The rWFD allows for departure from the hierarchy where that would deliver a better overall environmental outcome. The Government is currently working to transpose the rWFD, including the waste hierarchy provisions, into national law. 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.

Sustainability of biomass

3.39 Several respondents said that the IPC should not be directed to have no regard for sustainability of biomass. In particular, the view was that there should be an assessment of sustainability not only for the direct impacts, but also for indirect impacts in foreign biomass producing countries.

The Government's response

3.40 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. The Government has introduced new provisions into the Renewables Obligation Order (RO) 2009, which came into effect on 1 April. These include mandatory sustainability criteria for bioliquids used for electricity generation and reporting requirements on sustainability for solid and gaseous biomass.

3.41 These criteria include a minimum greenhouse 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. The criteria apply to both existing and new power plants.

3.42 Having considered the comments on this issue, and in the light of the decision by the Secretary of State for Communities and Local Government on an appeal for consent of a bioliquid-fuelled generating station in March 2011, the Government has substantially revised the text on biomass sustainability in EN-3. The IPC is directed that biomass sustainability will be a material consideration for applications using biomass (whether liquid, solid or gaseous).

3.43 Paragraph 2.5.6 of EN-3 set out the reasons for considering sustainability of biomass and outlines the main provisions of the RO. It distinguishes between the mandatory regime that currently applies to bioliquids, implementing the Renewable Energy Directive (RED) and the regime applying to solid and gaseous biomass, which currently sets out reporting requirements for operators claiming Renewables Obligation Certificates (ROCs), but which it is expected will move to a mandatory regime similar to that now in place for bioliquids in due course.

3.44 The subsequent paragraph sets out how the IPC should take account of the sustainability criteria when considering an application for a biomass-fuelled generating station. In general, it should be an adequate control for an applicant to meet sustainability criteria through the process of claiming for ROCs. However, there is a possibility that in some circumstances a generating station could be operated profitably without incentivisation through ROCs. The IPC is therefore advised to be satisfied that the operator will (so far as it can reasonably be expected to do so) ensure that the biomass or bioliquid fuel they burn meets applicable RO or successor incentive regime mandatory sustainability criteria, whether or not ROCs (or successor incentives) are being claimed.

Efficiency of Wind power

3.45 A number of individuals commented that they believe 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.

The Government's response

3.46 The Government's policy on the need for renewables energy 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 wind power development. 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.

Comments on Wind Farm Noise Impacts and ETSU-R-97

3.47 Some respondents disagreed with the 2009/2010 response to consultation and repeated previous statements that ETSU-R-97 should be revised because it is alleged to be out-of-date. Others stated that the previous response to consultation was wrong to assert that there was "no substantive evidence" to demonstrate that the fundamental guidelines were unsound. The responses cited a research paper on wind turbine noise on the German/Dutch border by G.D. van den Berg[3] which stated that, at hub height, immission noise could be 2.6 times higher than predicted in high wind speeds. Some respondents also cited Amplitude Modulation (AM) as a source of noise nuisance.

The Government's response

3.48 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.

3.49 In view of public concern about the noise impacts of wind turbines, DECC commissioned consultants Hayes McKenzie to analyse and report how noise impacts are considered in the determination of wind farm planning applications in England. The report was published on10th May 2011[4].

3.50 The report recommends that best practice guidance is required to confirm, and where necessary, clarify and add to the way ETSU-R-97 should be implemented in practice. In particular, best practice guidance could usefully consider, amongst other things: the approach to background noise measurements; an appropriate way to deal with wind shear; advice on the structure of planning conditions; the value of the day-time hours fixed limit; further clarification on financially involved properties; a way of factoring in any modulation in noise; a clarified approach to cumulative impacts; a simplified assessment procedure of limiting turbine noise to a fixed level; and changes that have been made to some of the documents referred to in ETSU-R-97.

3.51 There is no substantive evidence to demonstrate that the fundamental guidelines are unsound, however, and the Government therefore has no plans to revise them. As recommended by the report, the Government will explore ways of producing best practice guidance on the implementation of ETSU R-97. The NPS requires applicants to make assessments with due regard to good practice in applying ETSU-R-97. Further, the guidance to the IPC sets out that, where noise is close to ETSU-R-97 noise limits, the IPC

3 Paper is available at: http://www.nowap.co.uk/docs/windnoise.pdf

4 The report is available at: http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/planning/on_off_wind/noise/noise.aspx

may impose requirements that limit noise from wind turbines to specified levels.

3.52 A report on Amplitude Modulation (AM) by Salford University for BERR in 2007 considered, inter alia, six papers by G. D van den Berg as well as a large body of other research and studies of complaints about wind turbine noise in the UK from 1991 to the date of the Report. It concluded that in terms of the number of people affected, wind farm noise is a small-scale problem compared with other types of noise and that the incidence of windfarm noise and AM in the UK is low.

Question 3 d): Revised draft NPS EN-4

3.53 The consultation document posed the question:

Do you have any comments on the revised draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)?

3.54 There were very few responses relating to the revised draft NPS for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4). Of those who did choose to respond, many were supportive of the amendments that had been made to the NPS. A few suggested additional minor textual amendments.

CO_2 Pipelines

3.55 Most respondents were grateful for the clarity provided in paragraph 1.7.2 of the revised draft NPS, that EN-4 only covers pipelines transporting natural gas or oil.

3.56 However some respondents urged the Government to include CO_2 pipelines in a new NPS or revision to EN-4 as soon as possible, so as to not cause problems and slow down applications when CCS demonstration projects reach the planning stage.

The Government's response

3.57 As we mentioned in our previous response to consultation, we are currently considering how we build the right infrastructure for CCS, including onshore CO_2 pipelines. Once we have a better understanding of the technical requirements of CO_2 pipelines we will include this either in a new NPS, or as a revision to EN-4 at a later date.

3.58 In the meantime, decisions relating to CO_2 pipeline projects can be taken on the basis of the generic energy infrastructure policies in EN-1 having regard, as appropriate, to relevant aspects of EN-4. Pipeline developers will therefore benefit from measures in the Planning Act 2008, such as the timescale for evaluating an application for development consent, but with decision-makers having – appropriately – a slightly greater degree of flexibility in the sense that (because of the lack of experience in the construction and consenting of CO_2 pipelines) there will not be specific NPS policies for them to follow on all matters.

Question 3 e): Revised draft NPS EN-5

3.59 The consultation document posed the question:

Do you have any comments on the revised draft National Policy Statement for Electricity Networks Infrastructure (EN-5)?

General Comments

3.60 There were a large number of responses to this question (about 1500). The majority of these (approximately 1200) were part of a postcard campaign by the Campaign for Rural England (CPRE) calling for the undergrounding of all electricity lines. Of the remainder, the majority responded in the light of specific projects that are currently in the pre-application phase of the Planning Act system. All of the respondents were in favour of electricity lines being undergrounded or sub-sea cabled.

3.61 There were a number of comments about EN-5 "favouring" overhead lines and that EN-5 should cover all technologies equally, even if this required changes to legislation (as subsea cables are covered by the Marine and Coastal Access Act and underground cables are permitted development under the General Permitted Development Order).

3.62 Respondents also commented on the coordination needed between onshore lines that are covered by the NPS, and offshore lines that are not.

The Government's response

3.63 Only overhead lines are included in the Planning Act 2008 (underground cables are permitted developments). Accordingly, the NPS focuses on setting out how the IPC/MIPU will consider applications for such lines. This does not mean that they are necessarily seen as a default technology and it does not rule out other technologies. Rather, it reflects the view that, because of their potential impacts, it is only overhead line projects (and not all of those, since lower voltage lines are not subject to the Act) which go through the very thorough process of consideration under the Act before being allowed to proceed.

3.64 The Government does not take a view in the abstract on the merits of various technologies available, or promote one over any other, but expects developers to use the most appropriate technology for the circumstances in each case. Installation of underground cables is permitted development under the Town and Country Planning Act (General Permitted Development) Order 1995 (as amended). In view of these permitted development rights there is generally no need for proposals for the underground cable elements of a project to be the subject of a development consent order under the Planning Act 2008, although (in England) it would be possible for the developer to include aspects of an underground scheme, other than the cable itself (such as sealing end compounds), as associated development in a Planning Act application for a generating station, for example.

3.65 Applications for sub-sea cables are considered by the Marine Management Organisation under the new marine licensing regime, the Marine and Coastal Access Act 2009. The IPC in England can consent a sub-sea cable as associated development if it forms part of the infrastructure for an offshore generating station by granting a deemed marine licence under section 149 or 149(A) of the Planning Act.

3.66 Because many of the comments made by respondents were made in the light of individual applications, they tended to argue the case for undergrounding particular parts of a specific line, so it was not felt that they presented compelling arguments for changing Government policy expressed in the NPS, which needs to be able to deliver appropriate results in all circumstances. Consideration of arguments about the merits of individual schemes is more appropriate to the relevant National Grid consultation before an application is submitted to the IPC and the examination process itself.

3.67 The Government recognises the importance of developing a coordinated offshore and onshore transmission network and the benefits this can bring. This was a major driver in the decision to create the NETSO (National Electricity Transmission System Operator) by extending National Grid's onshore System Operator responsibilities offshore and placing a licence obligation on the NETSO to develop an Offshore Development Information Statement (ODIS). DECC and Ofgem have set up a working group to undertake further work to consider and advise on whether additional measures will be required to deliver the strategic development of transmission assets within the competitive offshore transmission regime and, if so, what these measures might look like in practice.

Comments on the visual impacts of overhead lines/undergrounding

3.68 The majority of responses dealt in some way with the visual impact of overhead lines, including the CPRE campaign for undergrounding all new and existing electricity 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 (AONBs), but also in sites of special scientific interest (SSSIs), Green Belt and other areas that local people saw as important. There was concern that the Government has a different policy for electricity lines in towns and countryside and a desire to see these policies aligned.

3.69 There were a number of comments on the use of the Holford Rules, saying that they were out of date and inappropriate, particularly in flat landscapes.

The Government's response

3.70 As the Appraisal of Sustainability acknowledges, 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 issue very carefully. Revisions have been made to emphasise current Government policy that, because the impacts

and costs will vary so much between individual projects, each application needs to be assessed on its own merits.

3.71 Network developers have a duty under Schedule 9 of the Electricity Act to have regard to the desirability of preserving natural beauty and do what they reasonably can to mitigate adverse effects on it. 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.

3.72 There are other methods and technologies for transmission such as undergrounding or undersea cabling, but at present 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. Whilst undergrounding and undersea cabling can mitigate the visual impacts of overhead lines they are generally much more costly and have their own environmental impacts. Maintenance and repairs of overhead lines are generally easier and cost significantly less than for undergrounded lines, although there may be less maintenance required for underground cables. The costs associated with any later uprating of overhead lines are also much lower.

3.73 However, the Government would expect that where there is an application for an overhead line, undergrounding will be considered for some areas where there are significant adverse effects that cannot be otherwise mitigated.

3.74 The Government does not have a different policy on overhead/underground cables in towns and countryside. The fact that there is generally more undergrounding in urban areas rather than in the countryside is down to a number of factors. For example, the majority of lines in towns are distribution lines, which are simpler and cheaper to put underground, and because of the difficulties in meeting the required overhead line height clearances in an urban environment, it is more likely that lines will need to go underground. However, the same rules and considerations are applied to lines in rural areas.

3.75 Although the Holford Rules were originally developed in 1959 they have been reviewed subsequently. Since neither pylon design nor the physical character of the countryside has changed fundamentally since that time, they remain a sensible approach to the siting of pylons. They are designed to help developers in the early stages of formulating possible routes for overhead electricity lines with a view to reducing visual impact to an acceptable level.

3.76 However, they are neither a substitute for consideration of the full range of relevant environmental considerations in each case by a developer, nor a basis on which a final decision should be reached as to whether a particular

proposal is acceptable or not on landscape and visual grounds. In re-stating the Rules in the context of the NPS, we did make one change, which was to remove the words “for lines other than the highest voltage” with reference to undergrounding before including them in the NPS. By this we indicate that the Government takes the view that at least some underground technologies are now at a stage where is it never out of the question, in principle, to consider alternatives to overhead lines (e.g. as part of an environmental statement), even if the latter remain the developer’s preferred option and are considered acceptable in planning terms.

3.77 The Government believes the Holford Rules reference to flat and sparsely planted landscapes is still reasonable as far as it goes, although all factors will be weighed when taking a decision on whether an overhead line is acceptable or not. It must be remembered that the landscape and visual section in EN-5 is additional to, rather than instead of the section in EN-1.

Comments on the costs of undergrounding

3.78 Many people felt that the costs of undergrounding lines were exaggerated in the NPS and that these costs should be revised. Some felt that any additional cost of putting transmission lines underground was a price worth paying for, and that it should be treated in a similar way to climate change initiatives such as the development of renewable energy, which increase consumers’ electricity bills.

3.79 Some respondents mentioned a report which aims to compare the costs of underground or sub-sea cables against those of new overhead lines and that Government should delay publication of EN-5 until after the report has been published.

The Government’s response

3.80 The Government believes that one of the most important challenges facing us is climate change. The policies that have been put in place to reduce emissions (by 80% by 2050) require the building of large quantities of low carbon and renewable electricity generation and these can be in places which are at some distance from the centres of electricity demand. This, along with the additional cost for the infrastructure to connect the power stations is a substantial cost we are going to have to pay and will ultimately increase electricity bills. National Grid is required to develop the transmission system efficiently and cost-effectively and so measures that may increase the cost of the connection infrastructure (and therefore increase electricity bills) should only be taken where the additional expense is fully justified, especially since the use of overhead lines will often be appropriate.

3.81 The Government welcomes proposals put forward by Ofgem, as part of its transmission price control framework for 2013-21, to introduce incentives for National Grid and the other transmission companies to reduce the amenity impact of existing overhead lines in National Parks and AONBs, based on customer willingness to pay. In addition, Ofgem has updated its business plan guidance within the price control to include this issue. The guidance

highlights to transmission companies what, and to an extent how, they should assess the case for mitigation of local impacts and engage with Ofgem on funding requests for this mitigation. Ofgem's assessment of the efficient level of funding for network investment proposals is informed by a number of factors, including the way that the transmission companies manage their contribution to the planning process.

3.82 The Government recognises that there has previously been no comprehensive independent calculation of the additional costs involved in undergrounding high voltage cables, or the extent to which different factors contribute to such costs, and so welcomes any independent review into these costs. In the absence of such a calculation, the NPS does not contain any generalised estimate of the additional cost of putting transmission lines underground. However, evidence from individual cases which has been made public clearly supports the proposition that undergrounding any stretch of electric line is almost invariably more expensive than putting it overhead.

3.83 The Government does not believe it is either necessary or desirable to delay the publication of the EN-5 until after an independent review of comparative costs has been completed. In the first place, as the decision on whether or not to underground electricity lines should be assessed at project level on a case by case basis taking account of all relevant factors, one of which will be cost. Secondly, whenever any report into the costs of undergrounding is published, the IPC will be able to use it alongside other evidence as they consider appropriate, in the same way as it can any other information it regards as important and relevant, during its consideration of an application for development consent. Finally, given our existing knowledge of technology costs and the fact that the existing NPS policy does not favour one technology over another, Government considers it unlikely that the results of any such report would present a compelling case for a change in that policy – although clearly there are mechanisms for reviewing NPSs where this proves to be appropriate.

3.84 Comments on the National Grid consultation on undergrounding are an internal matter for National Grid. Any company undergrounding policy will have to be formulated within the framework of Government policy and may therefore change as a result of changes to Government policy, but will not be able to set or change government policy. It is therefore right that National Grid's policy should follow publication of Government policy.

Comments on Electromagnetic Fields (EMFs)

3.85 Many of the comments from respondents regarding electromagnetic fields (EMFs) were put forward in the context of undergrounding. EMFs were cited by respondents as an additional reason why overhead lines should be undergrounded particularly near houses or schools, for example, as respondents felt that the lack of a proven causal link with alleged health impacts does not mean that there is no link. There were also comments

about the revision of International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines.

The Government's response

3.86 The Department of Health is responsible for assessing the risks to human health in this area, and they in turn advise other Departments including DECC, although DECC is responsible for technical issues regarding power lines. Their advice is that the balance of evidence to date suggests that exposure to EMFs below the 1998 ICNIRP guideline levels is not harmful to the health of the general population. Although they acknowledge there have been some scientific studies into health effects and the proximity of overhead power lines which could imply an effect on health at levels lower than the current guideline levels, (these health effects include childhood leukaemia, neurodegenerative diseases, miscarriages and depression), these should be considered in the context of worldwide research on health effects of extremely low frequency electric and magnetic fields (ELF EMFs).

3.87 Overhead lines are not the only source of EMFs. Other sources of these fields also include electricity substations, household wiring and electrical appliances around the home such as TVs and microwave ovens. Mobile phones and industrial and medical electrical devices are also other sources of exposure to EMF ELFs in the environment.

3.88 However both the Department of Health and Health Protection Agency (HPA) support international research in this area and keep emerging science under review whilst maintaining a precautionary approach.

3.89 We have been informed by the Department of Health, that new ICNIRP guidance for 1Hz to 100kHz was published in December 2010. However Government policy remains that we apply the 1998 ICNIRP guidelines in terms of the 1999 EU Recommendation for public exposure levels to EMFs. If the EU decides to revise its Recommendation to Member States at some time in the future based on the new 2010 guidance, then it will be for Member States to consider those changes at that time and decide whether to adopt them. If this policy changes as a result of the 1999 recommendation we will then look to review EN-5 to ensure that it is still relevant. However, for the purposes of EN-5 the application of the 1998 ICNIRP guidelines are current Government policy and the advice contained in EN-5 therefore remains correct.

Comments on security of overhead lines

3.90 Some respondents felt that insufficient consideration had been given to the security threat posed by the use of overhead lines through terrorism, vandalism or severe weather. Some felt that undergrounding was the answer to these perceived threats.

The Government's response

3.91 The Government has considered these issues in formulating its policy. Ofgem and DECC consider that the resilience offered through overhead transmission lines is adequate, so our policy does not require lines to be put underground. There can be benefits in undergrounding in terms of resilience to severe weather. However, underground cables, which are not necessarily that far underground, do require associated structures above ground, such as sealing end compounds and reactive compensation equipment, so from the perspective of terrorism or malicious damage undergrounding by no means completely mitigates the threat. Experience also shows that it takes significantly longer to repair underground cables when there is a problem however it is caused. Overall, this suggests that from a resilience perspective, the benefits and risks are finely balanced.

Question 3 f): Revised draft NPS EN-6

3.92 The consultation posed the questions:

Do you have any comments on the revised draft National Policy Statement for Nuclear Generation (EN-6)including the list of potentially suitable suites for the deployment of new nuclear power stations by 2025?

3.93 EN-6 will be used to take decisions on applications for development consent for new nuclear power stations in England and Wales. It includes 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).

3.94 This question covered Volume I and Volume II of the revised draft EN-6. Volume I covers assessment principles, impacts and general siting considerations. Volume II includes the assessment of each of the listed sites; it also sets out the Government's findings on Imperative Reasons of Overriding Public Interest (IROPI) in relation to the Habitats Directive and the Government's conclusions on the issue of whether effective arrangements exist or will exist to manage the disposal of nuclear waste produced by nuclear power stations. This section of the Government Response is arranged to cover Volume I of EN-6, comments on nuclear waste, then comments on the site assessments.

3.95 Some of the responses on the revised draft EN-6 dealt with issues which were applicable to all energy NPSs, for instance on community benefits in relation with an application, or whether there is a place for nuclear in the energy mix. These are dealt with elsewhere in this Government Response. Some respondents directed the Government to consider their response to the 2010 – 2011 consultation in conjunction with their original response to the 2009 – 2010 consultation. Where this was requested, the responses were considered together.

3.96 Following on from consideration of the responses to the consultation some changes have been made to Volume I and Volume II of EN-6. The key changes are set out in the table at Annex A.

Japanese earthquake and tsunami

3.97 Following events at Japan's Fukushima Dai-chi nuclear plant in March, on 12th March 2011 the Secretary of State asked Dr Mike Weightman, the UK's Chief Nuclear Inspector, to produce an independent report on lessons to be learned from the incident and implications for the UK's nuclear industry[5]. The interim report was published on 18th May 2011. A full report is due in September 2011[6].

5 Letter at http://www.hse.gov.uk/nuclear/news/2011/mar-japan.htm

6 ONR, Japanese earthquake and tsunami: implications for the UK nuclear industry interim report, May2011 ("the interim report"), p94

3.98 Dr Weightman was responsible for determining the scope of his report, and explained that his report would not address nuclear or energy policy issues as these are outside the role and responsibilities of the nuclear regulator. Therefore, submissions made to Office for Nuclear Regulation (ONR) which questioned whether nuclear power should be part of the UK energy mix were outside the scope of Dr Weightman's reports.

3.99 The Government has drawn on the advice of the regulators in developing EN-6 and the SSA, including in the assessment of sites against the SSA criteria. DECC therefore made a submission setting out potential relevancies for EN-6 for Dr Weightman's consideration, so as to ensure that the NPSs reflect the regulator's current expert advice before proceeding with the ratification process[7].

3.100 Dr Weightman has written to DECC confirming that there is no change to the strategic level advice on EN-6 that has already been provided, including advice on the suitability of sites. He writes that whilst the ONR will retain open minds as to what may emerge from their further considerations, he has a high degree of confidence that their current conclusions in relation to the SSA and NPS would not need to be significantly revised.

3.101 The EA, who also provided advice to DECC, have confirmed that the strategic advice they have provided to DECC during the SSA process, that the nominated sites for new nuclear build could potentially be protected from flooding, remains valid[8]. The Government has since confirmed that nuclear power can be part of the future energy mix, as it is today providing that there is no public subsidy[9].

3.102 Amongst other findings, Dr Weightman has recommended that the UK nuclear industry should initiate a review of flooding studies, including from tsunamis, to confirm the design basis and margins for flooding at UK nuclear sites. Outcomes from this review will be reflected within the flooding design basis which the interim report sets out will be subject to detailed regulatory scrutiny by ONR and the EA as part of consideration of the safety case for a site[10]. This does not change the guidance within EN-6, which already reflects at paragraph 3.7.15. that the IPC should consult the advice of the nuclear regulators as part of its consideration of flood risk.

3.103 Following consideration of information provided to the Weightman Report by the EA the Government has amended paragraph 3.7.6. of EN-6 to set out that, in addition to identifying the effects of the credible maximum scenario in

7 Submission from Mark Higson to Dr Mike Weightman, and reply, at http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/

8 P94 of the interim report

9 Written statement by the Secretary of State Chris Huhne to the House of Commons on nuclear safety, 18 May 2011, http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm110518/wmsindx/110518-x.htm

10 Interim report, p67

the most recent projections of marine and coastal flooding, developers should demonstrate that in principle adaptation to such a scenario would be possible.

3.104 Aside from that, the Government does not consider that the interim report results in changes to the planning guidance contained within the NPS. Given this, and that EN-6 aims to avoid duplication of points which are more properly considered in the regulatory regime, the Government has amended EN-6 to set out that the IPC should not concern itself with matters arising from Dr Weightman's reports.

Comments on Nuclear National Policy Statement: Volume I

3.105 Many respondents had views on whether or not nuclear power should be part of the energy mix. A variety of reasons were given, with themes identified on, amongst other things, waste, cost and public subsidy, and safety and security concerns. Whilst 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 the publication of the Nuclear White Paper[11]), such comments may be relevant to the need and urgency for new nuclear power stations, the environmental impacts of nuclear power stations and/or the arrangements for radioactive waste management and are therefore considered here.

3.106 Comments on waste are considered from paragraph 2.231 onwards. Comments on the SSA and individual sites are considered from paragraph 2.284 onwards.

Comments on the need and urgency for new nuclear power stations

3.107 Some respondents supported the need expressed for nuclear power stations in EN-1 although some felt that looking forward to 2050 there would be an even greater need given the UK's legally binding target to deliver an 80% reduction in carbon emissions by 2050, saying that 2025 is not the end goal in itself and is simply a milestone on the path towards longer term climate change mitigation objectives. Some respondents thought that the 16GW of nuclear power that industry has announced that it intends to bring forward was a target or aspiration set by the Government.

3.108 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.

11 *Meeting the energy challenge: A white paper on Nuclear power,* 2008, http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file43006.pdf

3.109 Others felt that the Government was overstating the need to electrify heating, for example, and that decentralised community energy could fulfil need which would negate the need for nuclear.

The Government's response

3.110 To enable 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.

3.111 It is Government policy that new nuclear power should be able to contribute as much as possible to the UK's need for new capacity. However, it does not have a target for the amount of new nuclear power generation there should be. It is for energy companies to bring forward plans for power stations: to date they have announced that they intend to put forward proposals to develop 16GW of new nuclear power generation capacity.

3.112 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 CCS. As was 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. Please see also paragraphs 2.24 – 2.26 of this response.

Comments on issues of energy security and security of supply

3.113 Some respondents were concerned that nuclear power generation would not add to security of supply. They expressed concern that if there was world-wide rising demand there would not be adequate supplies of uranium. Some respondents said that Australia had ceased to mine uranium and were concerned that supplies would come from less stable countries.

The Government's response

3.114 In the fuel supply chain uranium is a key element in achieving secure energy supplies. Uranium deposits are predicted to last much longer than, for instance, oil reserves. However, the exploration of further uranium has been minimal in recent years because few new nuclear power stations have been built.

3.115 The Government keeps the situation regarding uranium resources under review – for instance in the annual Security of Supply Report[12]. Following the review of publications from the Organisation of Economic Cooperation and Development (OECD) / International Atomic Energy Agency (IAEA) and the Euratom Supply Agency (ESA) 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 and that these are part of a stable market. Reactor fuel also forms a low proportion of the cost of generation so the cost of generating electricity from new nuclear power stations is unlikely to fluctuate greatly even if the cost of uranium changes.

Comments on the carbon lifecycle of nuclear power

3.116 Some respondents questioned whether the Government had properly considered whether nuclear power is a low carbon technology. They felt that references in EN-1 to studies by the Sustainable Development Commission and the IAEA were not sufficiently wide-ranging. Others were concerned that the Government response to the consultation on the draft EN-6 only to a study by British Energy. Some pointed towards a review by Dr Sovacool[13].

The Government's response

3.117 The Government has considered a range of independent life cycle analyses (LCAs) which assess CO_2 emissions from the entire nuclear lifecycle. Such reports, known as life cycle analyses, typically examine the emissions for the complete nuclear fuel cycle, from mining of uranium, through processing, electricity generating and finally disposal of the waste.

3.118 Twelve studies are referenced in the Regulatory Justification decisions[14]. These were chosen because they compared nuclear emissions with other methods of generation and because they represent a range of sources. The British Energy study is the most recent that covers UK nuclear generation. EN-6 references independent organisations as examples rather than listing all the studies the Government has considered. The IAEA and the Sustainable Development Commission are not considered by the Government to be unreliable or open to undue influence in the conclusions they come to.

3.119 Dr Sovacool finds that the mean emissions are 66g CO_2/kWh, achieved by averaging the results from a selection of studies already done, with a wide

12 http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/resilience/sec_supply_rep/sec_supply_rep.aspx

13 Sovacool, Benjamin K., *Sovacool life cycle study survey*, 2008

14 DECC, *The Justification of Practices Involving Ionising Radiation Regulations 2004: The reasons for the Secretary of State's Decision as Justifying Authority on the Regulatory Justification of the Class or Type of Practice being: "The generation of electricity from nuclear energy using oxide fuel of low enrichment in fissile content in a light water cooled, light water moderated thermal reactor currently known as the AP1000 designed by Westinghouse Electric Company LLC*", 2010, pp32-33 ("The Justification decision documents").

range of figures from 2.82g to 200g. The average figure of 66g would point to nuclear being higher than wind or hydro, but still very much lower than fossil fuelled generation and comparable with the ISA University of Sydney report which the Government has previously quoted[15].

3.120 The Government continues to monitor the results of published LCAs conducted throughout the world to ensure we keep abreast of developments. The Government is satisfied that the range quoted in the revised draft EN-6 remains accurate and that over the lifecycle, the CO_2 emissions from nuclear power stations are low.

Comments on the cost of nuclear power stations

3.121 Some respondents questioned the economics of nuclear power generation. There was a particular concern that higher global commodity prices had not been taken into account by the Government. Some respondents quoted that construction costs had risen from $2000 per kilowatt hour to $6000. There was concern that a single figure cost estimate could be very misleading. This led to concerns that nuclear power stations would be built using public subsidy. Concern was raised that the capping of liability was a subsidy to new nuclear power operators.

3.122 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.

The Government's response

3.123 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.

3.124 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 GDA 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.

15 Bilek, Marcela, et al., ISA, The University of Sydney, Australia, Life-Cycle Energy Balance and Greenhouse Gas Emissions of Nuclear Energy in Australia: A study undertaken for the Department of Prime Minister and Cabinet of the Australian Government, 2006, p.172. http://www.isa.org.usyd.edu.au/publications/documents/ISA_Nuclear_Report.pdf (as considered in the Justification decision documents referenced above).

3.125 The Government believes that nuclear power is economically competitive with other forms of generating technology (including the lowest cost renewable technologies) and new nuclear is likely to become the least expensive form of low carbon electricity generation. Rising commodity costs will affect other generation technologies- there is no reason to expect a disproportionate effect on new nuclear power stations.

3.126 The Secretary of State for Energy and Climate Change has stated that a cap would be acceptable if it is "set at an appropriate level provided that it is justifiable in the public interest, is the right way of ensuring that risk is appropriately managed, and that overall, any potential cost or risk to the Government can be justified by the corresponding benefits of the Paris/Brussels regime".[16]

3.127 The Government does not believe that imposing an uncapped, rather than capped, liability on operators would be an appropriate or effective management of the risk of a catastrophic accident (which has a very low risk of occurring but would give rise to very high costs). Management of this risk is far better achieved through the imposition on operators of a robust regulatory regime to ensure the risk of a significant incident is kept vanishingly small. In effect, the nuclear industry will pay to protect society from a very low probability but high consequence accident through meeting the exacting requirements of the regulatory authorities.

Comments on the relationship between the regulatory framework and the planning process

3.128 Some respondents welcomed Section 2.7 of EN-6 which they thought had brought clarity to the relationship between the regulators and the IPC, and the principle that the planning regime does not need to duplicate licensing. Others were concerned about how much weight the regulators would give any conditions the IPC may impose and whether the IPC would have the information that it needs from the regulators to take a decision. There was also a concern about the interaction of the planning regime with the Generic Design Assessment, and whose powers will prevail at the point that an interim design acceptance confirmation is issued.

The Government's Response

3.129 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.

3.130 The Generic Design Assessment is designed to consider the generic, rather than site specific, aspects of development. It does not replace site licensing which is compulsory and will be carried out by the regulators.

16 http://www.decc.gov.uk/en/content/cms/consultations/paris_brussels/paris_brussels.aspx .

3.131 The fact that certain aspects of a power station are subject to a permit issued by the regulators does not prevent the IPC from having the information it needs to take a decision and that an application for development consent would not set out the design or impacts of that aspect of the power station. EN-6 has been clarified to emphasise the importance of early discussion between the developer and the regulators, so that they have had the opportunity to incorporate the relevant regulators requirements in proposals where appropriate.

3.132 The IPC may wish 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. 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. On the question of how much weight the regulators may attach to this, regulators are subject to a separate regulatory regime, established in statute. The NPS is guidance for the IPC.

Comments on regulatory justification

3.133 Some respondents made comments about the Secretary of State's decision, taken in October last year, that two nuclear reactor designs, Westinghouse's AP1000 and Areva's EPR, should be Justified, that is, that their benefits outweigh any radiological health detriment they may cause.

3.134 It was questioned whether the IPC would be able to consider whether the whole process, including uranium mining through to waste disposal, had been justified. Some respondents were also opposed to an increase in uranium mining overseas due to the potential health impacts of mining activities.

The Government's Response

3.135 Regulatory Justification is a process required under the Justification of Practices Involving Ionising Radiation Regulations 2004[17], under which the Secretary of State must decide whether a new class or type of practice resulting in exposure to ionising radiation is justified by its economic, social or other benefits in relation to the health detriment it may cause.

3.136 Justification has a specific meaning within law. The Secretary of State is the Justifying Authority by law, rather than the IPC. It would not be for the IPC to consider whether nuclear practices are Justified. The Justification Decisions set out that the call for Regulatory Justification applications asked that any application should take account of the radioactive waste to be produced.[18]

17 The Justification of Practices Involving Ionising Radiation Regulations 2004, Statutory Instrument 2004 No. 1769 http://www.opsi.gov.uk/si/si2004/20041769.htm

18 See p90 of the Justification decision documents referenced in footnote 14.

3.137 The Secretary of State does not consider that practices taking place overseas should be taken into account in a Regulatory Justification assessment. The Government has seen no evidence which would cause it to change the position set out in its response to the first consultation. EN-6 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. See above for further details on uranium mining.

Comments on health and new nuclear power stations

3.138 Many respondents expressed concerns about the impacts which could be associated with a new nuclear build programme. Some respondents were concerned that everyday operations can themselves have significant impacts on health or the environment.

3.139 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. Concern was raised that a further review of this study being carried out by COMARE was not yet available. Concern was also raised that the KiKK study should be reviewed from a point of view other than COMARE's.

The Government's response

3.140 The Government has seen no evidence which would cause it to change the position set out in its response to the first consultation and in its decisions on the Regulatory Justification of the AP1000 and EPR nuclear power station designs, which considered at length the potential health detriment from nuclear power stations.

3.141 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 1milliSievert (mSv) per year. This ensures that cumulative impacts of multiple sources are strictly controlled.

3.142 The regulatory regime goes further than the legal 1mSv limit. It requires operators to use Best Available Techniques 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 discharges. In 2009, radiation doses to adults and children living around nuclear sites remained well below the 1mSv per year limit.

3.143 At all of the sites listed in the revised draft EN-6 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. This is illustrative. The

Regulatory Justification decisions on the new reactor designs currently undergoing a Generic Design Assessment considered commissioned advice on the differing discharges from existing reactors that found that differences are limited and should make no significant difference from the point of view of detriment. It also noted that the same regulatory regime and dose limits would apply.[19]

3.144 The findings of some studies, in particular the KiKK study, 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. Members of COMARE are chosen for their independent medical and scientific expertise. They are recruited from universities, research and medical institutes, and have never been drawn from the nuclear or electrical power supply industries so that COMARE can provide advice on an independent basis.

3.145 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.

3.146 COMARE's 10th report 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".

3.147 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, 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]".

3.148 In its 11th report 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 the vicinity of Sellafield and Dounreay (nuclear facilities, but not power stations) should be kept under surveillance and periodic review.

19 The Justification decision documents, pp62-63 (see footnote 14).

3.149 The KiKK Study 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.

3.150 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”.

3.151 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 – was published in December 2008. It showed that, for the UK, the conclusions of the COMARE 10threport remained valid when applying methodology closer to that of the KiKK study on the same dataset.

3.152 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.

3.153 In May 2011 COMARE published as its 14th report 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. In this 14th report, COMARE found no reason to change its previous advice that there is no evidence to support the view that there is an increased risk of childhood leukaemia and other cancers in the vicinity of NPPs due to radiation effects. COMARE also recommends that the Government keep a watching brief in this area.

Comments on terrorism and non-proliferation

3.154 Respondents expressed concern about the risk of nuclear power stations being the target of terrorist attacks.

3.155 Some respondents asked for assurance that the Government had carried out threat assessments from a range of malevolent acts. There were also concerns about the threats that the Government had identified in recent publications. One respondent called for independent verification of the work of the OCNS.

3.156 Comments were also received about the effect that a new nuclear programme may have on the proliferation of nuclear weapons.

The Government's response

3.157 The Government recognises the need for public assurance on measures to ensure the protection of civil nuclear sites and civil nuclear material in transit. However, for reasons of national security, the Government cannot comment on the detail of security matters at UK civil nuclear sites. The disclosure of such information would be of use to a terrorist organisation or criminals intending on planning a malicious attack on a civil nuclear installation or on nuclear material in transit.

3.158 It is because of the potential risk to public health and safety, and to the environment, that civil nuclear security arrangements are robust. Therefore such arrangements need follow the principle of 'defence in depth' which includes a combination of;

- physical protection features such as fencing, turnstile access, CCTV etc,
- deployment of security guards and/or the Civil Nuclear Constabulary,
- protection of proliferation-sensitive computer held data and other data and technologies, plus
- establishing and ensuring the trustworthiness of individuals working on nuclear sites or with nuclear site contractors, especially those with access to sensitive nuclear information and material.

3.159 These arrangements, which take account of international guidance and best practice, are kept under constant review and are regularly tested to ensure their effectiveness.

3.160 The level of threat from a malicious attack, including a cyber attack, to all UK civil nuclear sites or computer systems is taken very seriously. This is regularly assessed. Not just by the industry's regulator, the Office for Civil Nuclear Security (OCNS), but in consultation with the Security Services including its Joint Terrorism Analysis Centre (JTAC), the Centre for the

Protection of National Infrastructure (CPNI) and other Government Departments and organisations including the Home Office's Office for Security and Counter-Terrorism. Full consideration is given to the available intelligence on the methods, capabilities and intentions of terrorist organisations and potential adversaries plus also potential public health and environmental effects of a wide range of malicious acts. The robust and effective physical protection and other security measures that are in place would be further enhanced in response to any indication of terrorist or criminal activity.

3.161 The ONR and the EA are currently undertaking a process of Generic Design Assessment of new nuclear reactor designs. 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.

3.162 With regards to non-proliferation, 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 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.

Comments on emergency planning

3.163 Some respondents felt that the NPS should have more detail on emergency planning. It was commented that this was because it was of key significance to the local community and therefore not appropriate to defer it until the licensing stage.

3.164 Some felt that the number of reactors on a site and the larger footprint of potential sites would have effects on the emergency plan and felt that this was doubling or tripling the risk which would affect the complexity of the site and it was commented that the impact of flood risk and emergency planning should be considered, with reference to the 2009 Cumbria floods.

3.165 There was also concern about the capacity of the emergency services to deal with emergencies, with some respondents referencing job cuts in the public services. Some respondents were concerned that the revised draft NPS referenced that emergency planning would involve the ONR working together with the local authority or other Emergency Planning Authority and were concerned about whether the IPC would have a role.

3.166 Concern was registered regarding limited access routes to and from stations in predominantly rural areas. Some respondents said that existing

emergency plans were not well enough known. There were also concerns about how the public would know that an emergency was underway should it happen.

3.167 Some respondents were also concerned about the transport of nuclear materials, and stated that this led to an impact on other areas- some were concerned that there were "potential gaps in detail" on such emergency plans for areas which do not contain fixed sites. Others said that it was important given threats from terrorism that emergency plans are in place and people are aware of them.

3.168 There were some calls for a review of the UK nuclear emergency planning response arrangements, and to consider the knowledge of such plans, including areas without fixed nuclear sites.

The Government's response

3.169 Detailed plans are based on the maximum size of accident which can be reasonably foreseen. This defines the extent of the detailed emergency planning zone surrounding each installation. Plans also need to be capable of responding to more improbable accidents, which might affect areas beyond the detailed emergency planning zone. This cannot be precisely planned because the nature and potential of accidents can vary, but the response may make use of local and national plans prepared to deal with a wide range of emergencies.

3.170 Fact sheets have been published by the NEPLG which set out more detail for instance on countermeasures which may be taken under an emergency plan such as sheltering, the distribution of potassium iodate tablets, and evacuation[20].

3.171 Under legislation[21] people living or working within or near to the detailed emergency planning zone for a nuclear installation should receive certain prescribed information. Such information is required to be distributed in advance of any emergency and covers, for example;

- basic facts about radioactivity and its effects;
- the types of reasonably foreseeable nuclear emergency that might occur and their consequences for the public and the environment; and
- arrangements to alert, protect and assist the public in the event of an emergency, including advising on steps that people can take to protect themselves.

20 http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/safety_and_sec/emergency_plan/neplg/facts/facts.aspx

21 The Radiation (Emergency Preparedness and Public Information) Regulations (REPPIR) 2001.

3.172 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.

3.173 Site operators provide such information in a variety of forms at regular intervals not exceeding three years, often in the form of a calendar. Site operators also make the information available to the wider public by placing copies in libraries, civil centres and other public buildings. No single warning system alone is able to completely warn the public- best practice is to use as many different systems as possible simultaneously including:

- Sirens
- Automated telephone warning systems
- Telephone message lines
- Radio/ TV

3.174 With regards to concerns regarding the increasing risk of sites with more than one reactor, a basic design philosophy of all sites where there is more than one reactor is to ensure that as far as possible an accident at one reactor cannot affect another adjacent reactor. ONR will expect the applicant to consider how risks combine for multi-reactor sites as part of the site-specific safety case.

3.175 Emergency planning arrangements are thoroughly tested at every nuclear site on a regular basis. Any reduction in response capability would be picked up through the emergency exercise programme.

3.176 During the Cumbria floods of November 2009, whilst the area affected was restricted to the Cockermouth and Workington areas there was significant disruption over a wider area due to closure of a number of road bridges that required checks to ensure they had not been damaged. One of these bridges was at Holmrook on the A595 – this is located on the main southern evacuation route from Sellafield. A strategic risk assessment was carried out at the time of the incident to consider whether shut down was necessary- however, there were sufficient alternative strategies available to facilitate an evacuation. For instance, the evacuation route to the north of the Site remained unaffected by flooding throughout the course of the emergency.

3.177 The safety record of movement of nuclear materials within the UK is exemplary. Standards of engineering of flasks and other containers are extremely high. Regulation 17 of REPPIR (Radiation (Emergency Planning and Public Information) Regulations) requires all local authorities to have in place arrangements to inform the public of the actions to take in the event of

a radiation emergency occurring within their area, including a transport accident.

3.178 Nuclear emergency planning is subject to continuous testing, improvement and review through the processes of the Nuclear Emergency Planning Liaison Group, chaired by DECC. All off-site nuclear emergency plans are intended to be able to be extended beyond the detailed emergency planning zone should the need arise. The interim report of Dr Mike Weightman[22] recommended that the NEPLG should instigate a review of the UK's national nuclear emergency arrangements in light of the experience of dealing with the prolonged Japanese event. NEPLG will review the capacity and capability of the UK's nuclear emergency response arrangements to effectively manage a prolonged nuclear emergency, caused by a UK or overseas incident.

3.179 The review will evaluate how existing UK nuclear emergency response arrangements and monitoring capability would stand up to a prolonged incident in the UK. It will look closely at what happened in Japan in terms of decisions taken to protect the public and compare the UK approach to the one used in Japan. It will consider in some detail the response required for incidents considered to be reasonably foreseeable and will additionally consider the response required for 'beyond design basis' accidents. It will then make recommendations which will inform Dr Weightman's final report to be published later this year. The recommendations will also be used to update NEPLG's published guidance on dealing with nuclear emergencies, national and international.

Comments on developments in the vicinity of the site

3.180 There were some comments on the fact that nuclear development can have an impact on the development of an area due to the restrictions that may be put in place on subsequent developments.

The Government's response

3.181 Once the site is in operation, ONR must be satisfied that the characteristics of the site are preserved to ensure the continued effectiveness of the emergency plan, and that the general radiological siting criteria continue to be met.

3.182 ONR monitors this through the local authority land use planning controls. This requires ONR to be consulted on developments within a specified radius of the site. This ensures that unacceptable population growth, or industrial development that could cause a hazard, does not occur.

3.183 A local authority can put forward views on this should a site seek consent. Local authorities are statutory consultees. It is noted that where there are

22 ONR, *Japanese earthquake and tsunami: implications for the UK nuclear industry interim report*, May 2011 ("the interim report"), p94

existing stations there are development controls in place that may already limit development.

Comments on thorium

3.184 Some respondents commented that thorium nuclear reactors would be preferable to the designs being considered under GDA due to perceived safety benefits.

3.185 Thorium continues to be a long-term possibility for use as a fuel in nuclear power reactors.

The Government's response

3.186 The National Nuclear Laboratory (NNL) has carried out an assessment of thorium fuel[23], which assesses a number of claims made by proponents of thorium fuel and concludes that the thorium fuel cycle does not have a near-term role to play in the UK context. The Government sees little prospect for deployment of the technology in the UK in the near to mid-term, but would, however, have no objections to UK organisations contributing to further studies of thorium cycles. It will ultimately, however, be a matter for Industry to propose the design for any future nuclear reactors, which would be subject to robust independent regulatory assessment. UK Industry has not, as yet, put forward any such proposals for a commercial thorium fuelled reactor.

Comments on the consultation

3.187 Some respondents felt that there were too many consultations going on at once on nuclear, and that some of those such as that on the Funded Decommissioning Programme (FDP) were of direct relevance to the IPC and therefore the consultation on the NPSs.

3.188 Some respondents felt that there was too much information available on EN-6 which could overwhelm respondents, particularly if they were only interested in sites. Some were concerned about the ease of responding to the consultation. Others said that they felt that the fact that waste could be stored long term onsite was hidden within the consultation.

3.189 Some respondents said that the consultation was poorly advertised. Others were concerned that meetings were not hosted by Government saying that they had only heard of meetings hosted by campaign groups by word of mouth or local press coverage.

The Government's response

3.190 Nuclear policy is wide-ranging and often of high interest to the public and specialists, and the Government recognises the importance of hearing people's views. Whilst this may result in contemporaneous consultations, the

23 http://www.nnl.co.uk/positionpapers

Government does not believe that this results in too many consultations. Under the Energy Act 2008, operators of new nuclear power stations must have an FDP approved by the Secretary of State of Energy and Climate Change in place before construction of a new nuclear power station begins and to comply with this FDP thereafter. The consultation on the FDP Guidance was the second consultation on the Guidance on what an approvable FDP should contain. The Government does not agree that the consultation on the FDP is directly relevant to the IPC and the planning impacts considered within the NPS and therefore should be held in advance of the consultation on the NPS.

3.191 The Government appreciates that the draft energy NPSs and associated documents are, in their totality, long. They 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 guide the IPC when it takes planning decisions on applications for development consent and as such must set out the matters to be considered in relation to each energy technology.

3.192 The consultation on the revised draft NPSs followed on from a previous consultation on the draft NPSs. In order to help people focus on what was new in the revised draft NPSs the Government published a consultation document which highlighted the key changes to the documents, including the site assessments. Responding to some criticisms raised in the last consultation, the Government tried to simplify the response form, reducing it to 3 questions.

3.193 The Department raised awareness on its consultation website, through issuing press notices, and by emailing interested parties including all respondents to the previous consultation (over 3000 people). The Government also generated local press attention by Ministerial visits to areas near to NPS listed sites which were intended to raise further interest in the overall consultation.

3.194 Three national events were held in Manchester, London and Bristol. During the last consultation some respondents criticised the local events that were held which they felt were too “top down”. The Government did not run site events for this consultation, but instead offered to attend local events organised by local authorities or interest groups to discuss the revised draft EN-6 and the relevant site assessments.

3.195 To help raise awareness of these meetings local authorities were asked to inform their community and the Government also emailed all those who attended the public meetings during the last consultation.

Radioactive Waste Management

3.196 Section 2.11 of the revised draft EN-6 contains planning policy for the IPC on the waste produced by new nuclear power stations.

3.197 Annex B of this NPS sets out how the Government has satisfied itself that effective arrangements will exist for the management and disposal of the wastes produced by new nuclear power stations.

3.198 There remains a high level of interest in this issue, which the Government takes seriously. Key themes and the Government's response are set out below.

Comments on interim storage

3.199 Many respondents welcomed the clarification in the NPS regarding the Government's expectations on the duration of storing spent fuel on the site of a new nuclear power station. However given that onsite storage is expected to be required until geological disposal facilities are available, and the NDA's current indicative timeline envisages this being from around 2130 some respondents queried this could reasonably be described as an interim arrangement.

3.200 A number of respondents raised concerns over the safety of the interim storage of radioactive waste. Some asked what evidence there was to support the Government's view. Specific questions were raised around whether waste storage facilities were part of the GDA process and whether they would be resistant to aircraft crash and seismic events. Others were concerned about extended onsite interim storage in the light of the potential effects of climate change and rising sea levels. Some respondents asked who would pay for interim storage to be protected including from sea level rise and terrorist attack. They also asked what would happen if an operator went out of business.

3.201 Some respondents asked why new build waste could not be disposed of sooner given that current estimates are that the GDF will operational from in around 2040. Others were concerned about the level of uncertainty over the duration of interim storage, and some linked this to doubts over whether geological disposal would ever be achieved.

3.202 A number of respondents asked whether long term onsite interim storage of spent fuel pending disposal was the right solution. Some suggested that central or regional interim stores would be preferable and welcomed that the statement (in Annex B) that the Government did not wish to preclude alternative arrangements, for example a central storage facility, if a site could be identified and the necessary regulatory and planning permission obtained.

3.203 Other respondents however raised questions about the location of such a facility, and some were concerned that this could imply that sites listed in the draft NPS could become storage facilities for waste from other nuclear power

stations. A number of respondents asked whether a voluntarist approach would be used for the siting of any centralised storage facility.

3.204 A number of responses questioned the Government's assumption in Annex B of the NPS that spent fuel from new nuclear power stations will not be reprocessed. It was suggested that if spent fuel were to be reprocessed this could greatly reduce the duration of onsite interim storage.

3.205 The issue of whether spent mixed oxide (MOX) nuclear fuel could be managed and disposed of, should this be used in new nuclear power stations, was raised by some respondents.

The Government's response

3.206 The Government recognises that the potential long-term onsite storage of spent fuel is a matter of concern for local communities. Although such storage may be for prolonged periods, it is "interim" storage because the Government's policy is that geological disposal is the way in which spent fuel and intermediate level waste (ILW) from new nuclear power stations will be managed in the long term, and these wastes will need to be held in interim storage until a GDF is available.

3.207 In the absence of alternative proposals, it is a prudent assumption that spent fuel will be held in interim storage onsite until a Geological Disposal Facility is available. However, it is not necessarily the case that the whole interim storage period for waste and spent fuel produced by a new nuclear power station need be on-site. The Government recognises that alternative approaches may have some benefit and therefore the Government does not wish to preclude operators or others proposing alternative arrangements for the management of waste and spent fuel; for example a centralised or shared storage facility, if a site can be identified and the necessary regulatory and planning permissions obtained.

3.208 It is too early to declare what form the siting process for centralised or some other form of offsite storage would take. No such facility has been proposed. However, the Government would expect any proposals to be made through the normal planning route that will engage with local communities and take into consideration their views.

3.209 As part of licensing, the designers of the plant will need to demonstrate that the plant is able to withstand all site specific natural hazards including earthquakes. The safety 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 the safety of the facility.

3.210 With regard to concerns around climate change and flood risk, the Government has been advised by the EA and the ONR on whether sites are potentially suitable. 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.

3.211 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.

3.212 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.

3.213 With regard to paying the costs of interim storage the Energy Act 2008 requires prospective operators of new nuclear power stations to have a Funded Decommissioning Programme (FDP) agreed by the Secretary of State before construction can begin. The FDP must set out the operator's estimates of the costs of decommissioning the site and managing and disposing of the waste arisings. The FDP must also set out the operator's plans to make secure financial provision for those costs. The funding arrangements will be required to be secure even in the event of the insolvency of the operator. The Government has recently consulted on draft FDP Guidance for operators.

3.214 No proposals to use MOX fuel have been made. In February 2011 the Government began a consultation on the options for managing the UK's stock of plutonium, which presented the preliminary view that reuse of plutonium as MOX is the option that is most likely to deliver a successful solution. In that consultation the Government acknowledges that the disposal of irradiated MOX fuel has yet to be demonstrated in practice

3.215 The use of MOX fuel in new nuclear power stations will require regulatory approval, including justification and consideration of the disposability of

spent MOX fuel. It is expected that spent MOX fuel would, as with other spent fuel, require a suitable cooling period, following which it would be disposed of in a geological disposal facility, although, as noted in the current consultation on options for managing the UK's stocks of plutonium, spent MOX fuel will be hotter and may need to be cooled longer before disposal. The technical requirements of spent MOX disposal could be considered and factored into GDF and packaging design decisions as the geological disposal process is implemented.

Comments on Geological Disposal

3.216 Many respondents welcomed the outline timetable and arrangements that the Government set out to progress to geological disposal. Some respondents felt that more urgency was needed.

3.217 Some respondents noted that industry has announced plans for 16GW of new nuclear capacity, and contrasted that with NDA's "Upper Inventory", which has been used to examine the impact of additional wastes on a GDF, which is based on assumption of a 10GW new nuclear fleet. Concern was expressed that a larger new nuclear programme could require a larger GDF, or potentially more than one GDF, with questions raised around how a larger GDF would be licensed by the EA. It was suggested that this might affect the Government's conclusion that it was satisfied that arrangements exist or will exist to manage waste.

3.218 Some respondents expressed doubts around the safety of geological disposal, querying whether there was sufficient evidence, particularly as there is not yet an operating GDF anywhere in the world. One respondent said that a number of phenomena had been identified that could compromise containment barriers potentially leading to significant releases of radioactivity.

3.219 The suitability of the geology in West Cumbria to host a geological disposal facility was questioned by some respondents.

The Government's response

3.220 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.

3.221 The Nuclear Decommissioning Authority (NDA) has been charged with implementing the UK Government's policy for the long-term management of higher activity radioactive waste by planning, building and operating a GDF. The NDA will have to satisfy the independent regulators of the safety and security of all aspects in the development of a GDF before they issue the

appropriate licences. This includes safety during construction, operation and in the long term after the facility has been closed.

3.222 The regulators' licensing process for a GDF will include their close examination of detailed safety cases produced by NDA covering all aspects of the disposal system. It will not be possible to produce a full safety case until there is a site and detailed design for a GDF. At this stage NDA's safety case is based on its understanding of the scientific and engineering principles supporting geological disposal and as it is not specific to a site or geology, it is described as a "generic" safety case.

3.223 In March 2011 NDA published its generic Disposal System Safety Case (DSSC) , comprising of developed an overview report which leads a suite of more detailed documents that together form the generic DSSC. The aim of the DSSC is to provide evidence to show that the geological disposal system will be safe to operate; will remain safe after it is closed and meets all applicable regulatory requirements. The generic DSSC explains why, even at this early stage, [NDA/Government] can have confidence in the safety of a geological disposal facility, based on knowledge of the scientific and engineering principles that underpin geological disposal and existing experience of handling radioactive wastes, both in the UK and overseas.

3.224 Current planning assumptions suggest first waste emplacement in a geological disposal facility in around 2040. Recognising that the early pace is guided by local communities, it is important to be clear that planning assumptions are that later, more technical stages in the MRWS programme will necessarily take several decades.

3.225 Desk based studies of potential candidate sites are estimated to take around 4 years, surface based investigations (seismic surveys and borehole investigation of candidate sites) up to around 10 years and underground operations (research, initial construction and commissioning) about 15 years, prior to the facility beginning to receive wastes

3.226 These timescales, although they do not preclude Government looking for every opportunity to increase the rate of progress (subject to the views of the local community and permitting bodies), are sensible planning estimates based on planning assumptions used by NDA which have been benchmarked with international experience.

3.227 Indeed, international implementation timescales range from 27 to over 40 years with the UK's indicative timeline of 32 years being consistent with the three most advanced programmes in Europe – estimated at 31 years in Sweden, 32 years in France and 37 years in Finland.

3.228 The Government is committed to optimising the process wherever possible, to look for ways to do things in the most efficient, timely way whilst taking account of safety, security and the views of a local community. As the programme moves forward, aspects such as the geology, the design of a facility, the inventory of waste to be disposed and the timing of waste arisings will become more defined and thus the scope for optimisation and

increasing the rate of progress will become clearer. The NDA also considers that there may be significant potential to optimise plans for the operational phase of a geological disposal facility to fit the evolving nuclear landscape and provide earlier capacity to receive waste from new nuclear power stations.

3.229 The NDA's approach to the inventory of materials that might be disposed of in a GDF is discussed in the DSSC. NDA uses the "Baseline Inventory" from the Managing Radioactive Waste Safely White Paper as the basis for developing a geological disposal system specification and facility designs. These designs form the basis for assessing safety, environmental, social and economic impacts and costs. NDA's work needs to recognise that there is uncertainty associated with the information in the UK Radioactive Waste Inventory and also that there may be wastes and materials not recognised in the inventory, including waste and spent fuel from a new nuclear programme. NDA has therefore also compiled a set of data termed the "Upper Inventory", that will allow the implications of these uncertainties to be explored. This Upper Inventory assumes a 10GW new nuclear fleet. However this is not intended to be a maximum inventory and does not set out the largest inventory which could be disposed of in a GDF.

3.230 The Government has not set any target for the amount of electricity it expects to be generated by new nuclear power stations. The NDA has based their initial analysis for geological disposal on an estimated 10GW of generation. But, this does not preclude the actual generation being higher or lower than this.

3.231 The Government has always been clear that it would be possible to build more than one GDF and this could be necessary if the geology at potential sites was not suitable for a "co-located" GDF (i.e. a GDF containing all higher activity wastes). However, the MRWS White Paper also stated that in principle the UK Government sees no case for having separate facilities if one facility can be developed to provide suitable safe containment for the Baseline Inventory. This will be explored through the MRWS process of site selection, through detailed site investigations and through ongoing research and development into disposal concepts.

3.232 Determining definitely the suitability of the geology of any site requires detailed geological and safety assessment as well as detailed geological characterisation which has not been done. Given this we do not believe it is possible to objectively conclude there are no potentially suitable sites in the whole of Allerdale and Copeland.

3.233 The British Geological Society (BGS) have applied the exclusion criteria identified by two independent expert groups across Copeland and Allerdale as they would in any area making an expression of interest and there remain significant areas which have not been excluded. Therefore we see no reason the Partnership cannot continue to consider whether or not to participate in the site selection process.

3.234 Further, increasingly detailed, assessments applying more localised geological and other criteria will only be made if a community decides to participate further.

3.235 Some respondents felt that applications for development consent should contain all the details of waste management facilities for consultation and clarity was sought on whether an operator's plans would include site facilities for the packaging of ILW and encapsulation of spent fuel. Some responses suggested that there should be more detail within the NPS on what interim storage will entail, noting that this was also a recommendation from the House of Commons Energy and Climate Change Committee. However some other respondents argued that, since central facilities for encapsulation and packaging could become available in the future, it would be difficult for the IPC to properly consider an application for development consent and its impacts. Many respondents welcomed the addition of paragraph 2.11.6 which set out that waste management facilities would be considered in accordance with the NPS. Some respondents asked for more clarity on what was for the IPC to consider and what was not, highlighting that there could be aspects for instance of interim storage that should be within the IPC's remit.

3.236 Some respondents asked also asked whether paragraph 2.11.4 precluded the IPC from considering matters that were properly within its remit, such as planning aspects of any interim storage facility, and whether such proposals would be covered by an Environmental Statement. It was asked whether the waste referred to in 2.11.4 was all types of radioactive waste.

Comments on the IPC's consideration of waste

3.237 Some respondents were concerned that extended onsite interim storage of spent fuel would have negative impacts on communities and that the IPC should be able to consider these. They were concerned about safety, security and health risks from extended onsite interim storage and perception of risk, which they felt the IPC should consider. Some respondents were concerned that the public had not been involved in proposals for onsite interim storage of spent fuel. They were concerned that there would not be any further opportunity for debate on the waste aspects of an application. Some respondents asked why, given the duration of waste storage, nuclear power stations were not being sited through a process of voluntarism.

3.238 Some respondents asked whether the IPC would consider aspects of the transport of waste, and why the NPS did not include guidance on this. Some respondents felt that the IPC should not be able to consider planning applications as there was not sufficient certainty that a GDF would exist. Others felt that arrangements should be reviewed again prior to development consents being issued or stations being fuelled.

The Government's response

3.239 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.

3.240 Before spent fuel can be accepted for disposal at a GDF it will need to be loaded and sealed inside a purpose-designed and robust disposal container. There are two basic options for this packaging operation (sometimes for spent fuel referred to as "encapsulation"):

- packaging into disposal containers at the nuclear power station site;
- packaging into disposal containers at a central location, such as at the GDF.

3.241 In the absence of any centrally located facility where packaging of spent fuel could take place, the Government assumes that packaging of spent fuel will take place on the nuclear licensed site. The Government expects that packaging of radioactive waste and spent fuel to make it suitable for disposal will be part of the operators long-term waste management strategy.

3.242 The Energy Act 2008 requires prospective operators of new nuclear power stations to have a Funded Decommissioning Programme (FDP) agreed by the Secretary of State before construction can begin. The operator must demonstrate that the plans set out in the FDP for the decommissioning of the site and the management and disposal of the waste arisings are realistic, clearly defined and achievable plans and are capable of being undertaken in a way which is consistent with the requirements and expectations of the relevant safety, security and environmental regulators. The operators must then regularly review their FDPs to ensure their plans remain up to date.

3.243 The operator will also be expected to demonstrate that their FDP is consistent with the submissions to the planning authorities (including the IPC or its successor bodies) with regard to the application for planning permission or development consent and to the regulators, with regard to the health, safety, security and environmental permits needed to begin generation.

3.244 With regard to the role of IPC in scrutinising proposals for the management of waste onsite, the Government draws a distinction between two separate issues. First on 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 EN-6. This is not a point that the IPC should consider.

3.245 The second issue is the nature of the onsite 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 is appropriate for the IPC to consider. Paragraph 2.11.6. was added to the revised draft EN-6 to clarify this. The Government has sought to further clarify this part of the NPS to state that proposals for waste management facilities that are part of the application for development consent for a power station should be considered by the IPC in the same way as the rest of the power station using the principles and policies set out in EN-1, EN-6 and the provisions of the Planning Act 2008. It is the policy of whether effective arrangements in principle exist which is the preserve of the Government.

3.246 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.

Comments on low level waste

3.247 Some respondents also asked about where low level waste would be stored. One respondent was concerned that low level waste would have to contained and disposed of as close to the site as possible, which they felt the site was unsuitable for. Some respondents asked about the capacity of Drigg.

The Government's response

3.248 New build LLW waste will be managed in accordance with the UK's LLW policy. 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. The UK strategy 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. 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.

Comments on the SSA process and criteria

3.249 This section responds to comments that were applicable to the SSA as a whole. 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.

3.250 This section is then followed by the Government response to comments on the assessment of specific sites.

Comments on the SSA

3.251 Some responses were concerned that there had been no public input into the creation of the SSA criteria. Others 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.

3.252 Some responses were concerned that the SSA criteria had been applied inconsistently across the sites, as not all of the criteria were listed and addressed under each site in the previous Government response.

The Government's response

3.253 The SSA criteria were set by Government after public consultation[24].

3.254 All of the sites were assessed against each of the SSA criteria and this was reflected within the site assessments in EN-6. However, the previous Government responded to key themes that were raised at each site, as this Government response does. Where key themes did not emerge against a criterion at a particular site there was no corresponding Government response.

3.255 Because sites that are found not to be suitable are not included in EN-6, this means that readers who are interested in the past assessment of the unsuitable sites should consider the information in the previous Government

24 A 22 week consultation from May 2007 on the principle of an SSA and indicative criteria which included a series of national events around the country:

BERR, *Consultation on the proposed processes for Justification and Strategic Siting Assessment, 2007,* http://www.bis.gov.uk/files/file39199.pdf.

There was a further consultation in July 2008:

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*, 2008, http://www.berr.gov.uk/files/ file47136.pdf

response as well as in this Government response[25] as well as the original siting assessment[26].

3.256 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 relevant, such as 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.

3.257 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 through the Environmental Impact Assessment process, and by the regulators as part of their consenting regime, should such an application come forward.

Comments on alternative sites

3.258 The purpose of the Alternative Sites Study[27] was to help Government meet its obligations under environmental law by establishing whether there are sites potentially suitable for the deployment of a new nuclear power station by 2025, development of which would be less harmful to European designated habitats than the nominated sites proposed for EN-6.

3.259 The alternative sites study recommended 3 sites as worthy of further consideration by the Government: Druridge Bay in Northumberland, Kingsnorth in Kent and Owston Ferry in Lincolnshire. These were deemed not to be potentially suitable following the public consultation run from November 2009 – February 2010 as they are not credible candidates for the deployment of new nuclear power stations by 2025.

3.260 No responses were received on this during the consultation and the Government's view on these sites has not changed.

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25 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, , Braystones p163, Kirksanton p195, Dungeness p253. www.energynpsconsultation.decc.gov

26 DECC, *Draft National Policy Statement for Nuclear Power Generation* (EN-6), 2009, Braystones, p82, Kirksanton, p167. www.energynpsconsultation.decc.gov

27 Atkins, prepared for DECC, *A consideration of alternative sites to those nominated as part of the Government's Strategic Siting Assessment process for new nuclear power stations*, 2009 http://webarchive.nationalarchives.gov.uk/20110302182042/data.energynpsconsultation.decc.gov.uk/documents/atkins.pdf

Comments on deployability by 2025

3.261 At some sites, changes relevant to credibility for deployment by 2025 have taken place since publication of the draft NPS such as further consultation by developers on more detailed plans, or changes to grid connection agreements. At certain sites, consultation respondents have also raised questions about whether development will be forthcoming and sites will be deployed.

The Government's response

3.262 The Government has set out that it is in the public interest to ensure that nominated sites were credible candidates for new nuclear build by the end of 2025. This is because, given the urgent need for new capacity and the fact that investment decisions will need to be made quickly, it is important to focus attention and resource on the most deployable sites. The NPS lists sites which, at the point of publication, are considered credible for deployment by the end of 2025, recognising that it is energy companies, not the Government, who will build new nuclear power stations and it is therefore up to energy companies to consider whether they will bring an application forward for any of the potentially suitable sites.

Comments on the list of potentially suitable sites

3.263 Some respondents questioned whether the list of eight potentially suitable sites is final, or whether the nominated sites which had been found to be unsuitable (Dungeness, Kirksanton and Braystones) could be reinstated. Particular concern was expressed over the mechanism by which a nominator could appeal. There was concern that this could lead to blight caused by uncertainty.

3.264 Blight was also raised more generally across the sites as responses expressed concern that proposals for or construction of new nuclear power stations may cause blight and reduce property values in an area.

3.265 Some responses asked whether more sites would be needed in the future. The format and decision process for any further identification of sites was also questioned. Responses were received questioning whether Kirksanton and Braystones were excluded because they are greenfield sites.

The Government's response

3.266 EN-6 lists those sites that the Government considers are potentially suitable for the deployment of new nuclear power stations by 2025 given the pressing need for new secure low carbon energy. It would be short-sighted to assume that the energy needs that the UK has today will remain the same forever. Should the need arise, the Government will consider whether to conduct a further SSA for sites which might be suitable for deployment after 2025. The SSA is not therefore intended to identify the only sites that can ever be

developed into the future, and in doing so rule the rest of the country out from any future development.

3.267 Energy companies are free to own and purchase land and make future plans. The NPSs do not change that. However, the Government believes that the eight sites deemed potentially suitable for nuclear new build at the time of publication should allow sufficient flexibility to meet the urgent need for new nuclear power stations by 2025, whilst enabling the IPC or its successor to refuse consent at sites should it consider it appropriate to do so.

3.268 EN-6 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.

3.269 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.

3.270 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[28].

3.271 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 EN-6, where the EN-6 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 NPSs (resulting in an inability to sell except at a significantly lower price than the market value prior to

28 DCLG, *Compulsory Purchase and Compensation Booklet 1: Compulsory Purchase Procedure*, 2004 http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyimplementation/compulsorypurchase/compulsorypurchasebooklets/

designation), the Government can be required to buy that land if landowners have made reasonable attempts to sell the property and been unsuccessful.

3.272 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.

3.273 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.

3.274 Under the Planning Act 2008, the removal of certain sites from the list of potentially suitable sites in EN-6 could be legally challenged within a period of six weeks. However, the Government is satisfied that its decision not to include those sites in this NPS is robust.

3.275 No sites were excluded because of their greenfield status. Nominators were free to nominate any site and the Government considered each site on its own merits. Not all of the sites excluded were greenfield.

Comments on transport

3.276 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 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.

The Government's response

3.277 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 report 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.

3.278 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 “planning 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 (or "section 106 agreements") which can be used to make acceptable development proposals which might otherwise be unacceptable (comments on community benefit are discussed from paragraph 3.735 onwards).

Comments on socio-economic impacts and the siting assessment

3.279 Some respondents expressed concern as to how small communities in rural areas would cope with an influx of large numbers of workers if a power station were developed. They felt this would put pressure on the local infrastructure and services. Concerns were also expressed as to the potential impact on the 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.

3.280 Some respondents were concerned about employment more generally. At some sites, responses said that “promises of jobs” were inflated because, in fact, employment onsite would be largely skilled labour from outside the area. Others felt that where there were decommissioning facilities, new build would ensure continued employment.

The Government’s response

3.281 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 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. Community benefit is considered in more detail from paragraph 3.735.

3.282 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, new nuclear development may also 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 onsite. In addition, approximately 700 local suppliers were involved[29].

3.283 An application for development consent will have to consider all relevant socio-economic impacts – both positive and negative. EN-1 sets out that, where an energy infrastructure project is likely to have socio-economic impacts at a local or regional level, the applicant should undertake and include in their application an assessment of these impacts[30]. Comments on socio-economic impacts and mitigation when making an application for development consent are considered further from paragraph 3.740 onwards.

Comments on the assessment of cumulative effects

3.284 There were a number of responses on the cumulative effects that may arise from more than one potential nuclear power station in a particular region, in particular in the South West in relation to Hinkley and Oldbury and North West in relation to Kirksanton and Braystones. Even though Kirksanton and Braystones are no longer in the NPS. Concerns on the cumulative impacts of radiation are considered separately under the section on health from paragraph 3.138.

The Government's response

3.285 The revised draft EN-6 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.

3.286 The assessment found that there was scope for mitigation of some of the impacts that could arise, 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,

29 Nuclear Electric, *Sizewell B Power Station – A Successful Partnership With Industry*, 1994.

30 Section 5.12

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.

3.287 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 flooding and climate change

3.288 Comments were received across the sites expressing concern over the impacts of climate change creating increased flood risk in the long term given the duration that waste could be stored onsite. This was a particular concern at Bradwell.

3.289 Comments were also received expressing concern about development on sites located in Flood Zone 3.

The Government's response

3.290 The issue of onsite waste storage arose at all of the sites. It is currently anticipated that disposal of new build wastes would begin once disposal of legacy wastes is completed from around 2130[31]. The duration of onsite storage and resilience to climate change are considered further from paragraph 3.199.

3.291 The Government believes that the fact that a site is in Flood Zone 3 should not necessarily preclude it from the NPS if the independent regulator has advised that the site can be potentially protected. At all the sites on the list the regulators have advised that the site can potentially be protected from flood risk, including the effects of climate change, throughout its lifetime. In addition, there is a lack of potentially suitable sites in lower flood zones.

3.292 In order for a site to achieve development consent, the IPC would have to be satisfied that the project is appropriately flood resilient and resistant, including safe access and escape routes where required, and that any residual risk can be safely managed over the lifetime of the development.

31 An indicative timetable is at: http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/nuclear/forums/geo_disposal/geo_disposal.aspx

Comments on tritium discharge

3.293 Some responses said that tritium discharges from power stations are unmonitored and may be harmful to the health of the community. It was asked whether the SSA should have assessed this.

The Government's response

3.294 Tritium occurs naturally in the environment and is also created in nuclear power stations when they generate electricity. At power stations the EA applies annual limits on the tritium activity that can be discharged and require that operators use the best available techniques to minimise discharges. Some of the tritium created in the power stations is discharged into the atmosphere and into the sea via the cooling water outfall. In both cases it will be dispersed into the environment.

3.295 Tritium has a low radiotoxicity compared with many other radionuclides, and as such has a small potential dose impact. Limits on discharge are strictly enforced and monitored by the EA.

Comments on demographics

3.296 Responses were received questioning why demographic analysis extends to 30km from the nominated sites. Some responses were also concerned about how populations be alerted in the event of an incident.

The Government's response

3.297 The demographic analysis to 30km derives from the fact that radiological dose to populations around a site continually reduces exponentially with distance from the point of origin. This means that the effects on populations over 30km away are of an order that it has been judged by the ONR can be excluded in the risk-based calculations.

Comments on Nuclear National Policy Statement Volume II: sites

Bradwell

Introduction and overall conclusion

3.298 The Government has assessed the site against the SSA criteria in light of the evidence from, inter alia, the public[32], regulators and the revised AoS and HRA, and has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and should be included in EN-6.

3.299 There are a number of areas which will require further consideration by the applicant, the IPC or its successor and/or the regulators should an application for development consent come forward, including amongst other things flood risk, and the potential impacts of cooling technology.

3.300 Key themes raised during the consultation included demographics and emergency planning for the area surrounding the site, flood risk, and the impact of cooling water discharges on marine ecology.

Comments on C1: Demographics

3.301 Responses were received regarding the proximity of the nominated site to population centres in the area, including West Mersea, Maldon, Brightlingsea, Colchester, Wivenhoe, Clacton and surrounding villages. Some responses stated that local populations had increased substantially since the original power station was developed.

3.302 Some responses were concerned that the demographics assessment did not take account of transient holiday populations such as those who use caravan and camping sites on Mersea Island. Responses questioned why the demographic analysis extends to 30km from the site. Responses also questioned what the term 'semi-urban' means in the context of demographics and the justification for classifying a site as such. Respondents asked for explicit statements of acceptable population levels in designated areas.

The Government's response

3.303 The ONR 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[33] the Health and Safety Executive's demographic analysis was carried out to a radius of 30km from the proposed

32 Opportunity for public comment in 2009, consultation on the original draft NPS running from November 2009 – February 2010, and consultation on the revised draft Nuclear NPS running from October 2010 – January 2011.

33 Site population factors are the site demographic characteristics and are derived by the Office for Nuclear Regulation using the approach outline here: http://www.hse.gov.uk/aboutus/meetings/iacs/nusac/030708/p12-sittingpaper.pdf.

site - this would therefore have taken account of population centres out to that distance. More detail on the analysis to 30km can be found from paragraph 3.294.

3.304 Bradwell is not being classified as 'semi urban'; this is used as an initial, strategic threshold over which a site may be excluded based on the size and distribution of the surrounding population. In this assessment, where parts of a nominated site exceeded the semi-urban criterion further advice from the regulators was considered to see whether the site as a whole remains viable.

3.305 The site at Bradwell does not exceed the semi urban criterion and sites are monitored throughout their lifetimes to ensure that development is limited to retain this profile.

3.306 The demographics assessment covers permanent night time residents, as identified in census data. Transient holiday populations would be assessed by the ONR before any licence was granted should an application come forward. They do not feature as part of this assessment as it is intended to be a strategic study and at this initial stage it would not be appropriate to carry out a detailed study of non-permanent populations in the area.

Comments on D1: Flood risk, storm surge and tsunami

3.307 Some responses commented that as the majority of the nominated site is within Flood Zone 3 it is unsuitable for development. Comments on development within Flood Zone 3 arose at more than one site, and are considered at paragraph 3.289.

3.308 Respondents also questioned how the Government can be confident that the site can be protected from flooding caused by climate change in the future given the duration that waste could be stored onsite. This was raised at more than one site, and is considered from paragraph 3.199.

Comments on D2: Coastal processes

3.309 Concern was expressed regarding the potential impacts of coastal processes such as coastal squeeze, sediment movement, erosion and flooding caused by the construction and operation of a new nuclear power station.

3.310 It was pointed out that there are Special Protection Area (SPA) and Ramsar designated mudflats, salt marsh, grazing marsh, sand and shingle and reed beds nearby and respondents questioned whether effective mitigation of possible effects on coastal processes would be available.

The Government's response

3.311 The project design and exact scope of the development and the requirements for coastal or sea defence infrastructure remain undetermined

at this stage. The HRA report for Bradwell identified that impacts of new build may remove or change the sensitive designated intertidal habitats that are constituent parts of the Essex Estuaries Special Area of Conservation (SAC) integrity.

3.312 The HRA report has set out a number of suggested avoidance and mitigation measures. These could include avoiding or minimising losses of habitat through sensitively designed sea defences such as soft engineering for any upgraded coastal protection. Other possible mitigation strategies suggested are laying out and designing the site to avoid or mitigate habitat losses within the affected areas, environmentally sensitive designs for coastal defence structures and marine landing facilities, tunnelling techniques for cooling water infrastructure to minimise impacts on habitats at the surface and protective buffer zones around sensitive areas.

3.313 The HRA also advises that there should also be strategies put in place to deal with unforeseen outcomes which may arise as a result of post construction monitoring, for example if mitigation measures appear to be failing. Opportunities should also be sought for habitat creation, enhancement and re-instatement.

3.314 As referenced in the revised draft EN-6, 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 Environmental Impact Assessment) and considered by the IPC as part of the application for development consent.

Comments on D6: Proximity to sites of international ecological importance

3.315 Concern was expressed over potential effects on the Blackwater Estuary SAC caused by coastal processes and the abstraction of cooling water for direct cooling. Concerns regarding the effects of coastal processes on internationally designated sites such as the intertidal mudflats which are, like the Estuary, designated SPA and Ramsar sites are considered within the D2 section.

3.316 A number of responses raised concerns about the warming effects and the chlorination of water in the Blackwater Estuary SAC that may result from direct cooling. 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. Concern was also expressed about impingement and entrainment in any inflow pipe.

3.317 Respondents acknowledged that the Shellfish Waters Directive applies to the Blackwater Estuary and that any ambient temperature increase in the Estuary would be limited to 2 degrees. However, it was stated that even a rise of 2 degrees would have ‘potentially devastating effects’ on the Colchester oyster population.

The Government's response

3.318 The Shellfish Waters 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, as this level of temperature increase is considered by the EA not to cause significant disturbance of water ecology and is a European standard. In addition under this legislation various substances, which can be produced in chlorinated discharges, must not reach or exceed levels which are harmful to the shellfish and their larvae.

3.319 A report from the EA on cooling[34] analysed the issue of entrainment, entrapment and impingement of marine organisms in direct cooling systems in detail. The report made several suggestions for mitigation of this issue which could be deployed by the developer. These include location and design of intake structures and screens and the use of fish deterrent and fish recovery return systems. The EA has advised that each site case will be considered individually. Detailed points on cooling are considered under the section on D10.

Comments on D7: Proximity to sites of national ecological importance

3.320 Detailed comments were received regarding the possible impacts on the internationally designated sites considered in the section on D6 above and the nationally designated Dengie Site of Special Scientific Interest (SSSI) and Colne and Blackwater SSSI sites. Queries included requests for calculations and workings on the hydrodynamics of the Estuary, questions on water depth, questions on the length of possible cooling culverts and forecast water temperature. Possible mitigation strategies were also questioned and concerns raised over impacts on specific species in various development scenarios.

The Government's response

3.321 At this strategic stage of assessment, the AoS for Bradwell considered the potential impacts of development on nationally designated sites in the area and concluded that significant strategic effects on biodiversity cannot be ruled out at this point. However, the AoS has also identified potential for the mitigation or compensation for biodiversity effects, including the creation of replacement habitat for UK designated sites.

3.322 Detailed information about the specific impacts questioned will be provided at the project level as factors such as the location of the power station, specific cooling technology and reactor type are not yet decided. For example, forecast temperature increase in the Estuary would depend on the type and number of reactors and the position of the outflow pipes.

34 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/4d95b71100342058273fc0a802960654/Product/View/SCHO0610BSOT&2DE&2DE

3.323 These concerns will be addressed by the regulators when proposals come forward from developers and the information reported will be assessed by the IPC when deciding whether to approve these proposals.

3.324 Part 5.3 of EN-1 sets out guidance for development that may have an adverse effect on an SSSI.

Comments on D8: Proximity to areas of amenity, cultural heritage and landscape value

3.325 Respondents expressed concern that development on the proposed site would be significantly larger in scope and scale than the current power station. Although the site was nominated by NDA supported by EDF, who expressed a preference for direct cooling, a supporting letter from Iberdrola was quoted which said that 'the land at Bradwell…is sufficient for at least two or three nuclear power generating units (depending on their size), together with any cooling towers which might be required either instead of, or in order to supplement, any direct cooling'[35]. There were responses concerned that large natural draft cooling towers would be constructed at the site which would have a detrimental impact on the character of the area. Responses stated that the nominated site is within the context of a flat, treeless landscape and so any development would be highly visible. It was stated that a model or representation of what the site may look like should have been available.

3.326 Concerns were also raised that the statement from Iberdrola differs from the initial site assessment which assessed for one reactor at each site. Nominators were not required to state the number of reactors they may wish to develop on a site. This issue is discussed from paragraph 3.256.

The Government's response

3.327 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.

3.328 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. When considering visual impacts, the IPC should presume that the adverse impacts would be less if a hybrid or direct cooling system is used. The IPC should therefore expect the applicant to justify use of a cooling system that involves visible steam plumes or has a high visible structure, such as a natural draught cooling tower. It should be satisfied that the application of modern hybrid cooling technology or other technologies are not reasonably practicable before giving consent to a development with natural draught cooling towers.

3.329 Until detailed proposals come forward from a developer including number of reactors and site layout, a model would be unlikely to be accurate. This

35 Ibedrola, *Letter in support of nomination*, 2009. www.energynpsconsultation.decc.gov

information will be considered and assessed by the IPC using the guidance in Part 5.9 of EN-1 on visual impact. This states that the applicant should carry out a landscape and visual assessment which should include the effects during construction of the project and the effects of the completed development and its operation on landscape components and landscape character.

Comments on D10: Access to suitable sources of cooling

3.330 Responses were received expressing concerns about the effects of both direct and indirect cooling at the site. Potential ecological effects on nationally designated sites from direct cooling are considered under D7. Potential visual impacts of cooling towers should such proposals come forward instead of direct cooling are considered under criterion D8.

3.331 Concern was expressed that the Generic Design Assessment (GDA) did not specifically address estuarine sites and associated direct cooling issues when discussing possible impacts of different reactors.

The Government's response

3.332 At this point detailed proposals have not come forward, but any applications will be considered using the guidance on visual impact at Part 5.9 of EN-1 and the guidance on water quality at Part 5.15.

3.333 As described under the section on D8, EDF have expressed a preference for direct cooling at the Bradwell site. However, Iberdrola have stated in their supporting letter that the site is, in their view, suitable for two or three reactors and any necessary cooling towers. At this stage, no formal proposals have come forward but any application would be considered by the IPC using guidance in EN-1.

3.334 Impact of cooling water for individual site was not assessed in the GDA as assessments for individual sites would required detailed proposals for the cooling water system and detailed modelling of the behaviour cooling water of the local environment. These detailed assessments will be required by the EA as part of an application for an Environmental Permit for cooling water discharges. The EA would then consider the whether the environmental impacts were acceptable before deciding if a permit should be issued.

Comments on emergency planning

3.335 A number of responses commented that Mersea Island is 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 was 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.

The Government's response

3.336 DEPZs around nuclear installations are zones in which detailed contingency plans must be produced which allow for a rapid response to an emergency, and are designated by the ONR after an application for development consent and licensing has been made.

3.337 Under guidance from the Nuclear Emergency Planning Liaison Group, 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. Any known factors in the area which may affect emergency planning, such as periodic road flooding, would be fed into outline planning.

3.338 The ONR 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. Emergency planning is also discussed from paragraph 3.169.

Comments on socio-economic impact

3.339 Respondents expressed concern that the development of a new nuclear power station in the area would cause a decline in tourism due to a negative image being created by a new nuclear power station. Concerns over effects on tourism arose at more than one site and are considered from paragraph 3.278. Responses were also received expressing concern over blight due to uncertainty over when, or if, the land will be developed as it is currently for sale by EDF. It was felt that development may never commence as there is currently no developer coming forward. Blight was a concern at more than one site and is considered from paragraph 3.263.

Comments on the need for sites

3.340 Comments were received stating that the eight sites remaining on the list are insufficient to meet the need for nuclear power capacity by 2025 and therefore there is pressure to develop the sites on the NPS regardless of suitability. It was mentioned that the Government's target for nuclear generation is 'unclear'. Comments on the need and urgency for nuclear and a "target" for nuclear are discussed from paragraph 3.107.

The Government's response

3.341 The Government has assessed each of the sites to ensure that only potentially suitable sites are included within the NPS. The Government believes that eight sites should allow sufficient flexibility to meet the urgent need for new nuclear power stations by 2025, whilst enabling the IPC to refuse consent at sites should it consider it appropriate to do so.

3.342 Should the need arise, the Government would consider conducting a further SSA in the future.

Braystones

Summary: Why is the site no longer in EN-6?	
Overall conclusion	The Government has considered evidence from, inter alia, the public[36], regulators, the AoS and HRA and concluded that the site should not be included in the final EN-6. This 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 in EN-6. The Government has concluded that the site is not potentially suitable for deployment by 2025.
Credibility for Deployment by 2025	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 at the time the first draft NPS was published[37]. The discontinuation of a grid connection agreement is a significant factor which has critically impaired the credibility for deployment by 2025.
D8 Areas of amenity, cultural heritage and landscape value	Having reviewed the evidence including the outputs of consultation and the AoS, the Government has concluded that the site is not potentially suitable against this criterion. When weighed up against the need for sites the likelihood and possible extent of the potential impact is too great. This also takes into account the high status and value of the Lake District National Park, and particularly reflects the nature of the surrounding landscape at Braystones.

Introduction

3.343 As stated in the table above, the Government confirms its conclusion[38] that Braystones should not be included in EN-6 in the list of sites that are potentially suitable for the deployment of a new nuclear power station by 2025.

36 Public comment window in 2009, consultation running from November 2009 – February 2010 and the second consultation running from October 2010 – January 2011 prior to which Braystones and Kirksanton were removed from the revised draft Nuclear NPS.

37 It was considered that there was, on balance, reasonable grounds to conclude that the Braystones site was credible for deployment by the end of 2025 when the draft NPS was published in November 2009. See footnote 26.

38 p163

3.344 Because this site has not been found to be potentially suitable, it does not have its own site summary within EN-6. People who are interested in the background to the consideration of evidence for this site may wish to read:

- Site summary from the 2009 draft EN-6[39].
- The Government response to the 2009 - 2010 consultation on the draft EN-6 (the previous Government response)[40].
- The revised AoS report for Braystones[41].
- The revised HRA report for Braystones[42].
- This Government response also refers to the need for sites. The need for sites is set out in Part 3.5 of EN1.

3.345 This section only responds to key themes that were raised on the site during the consultation on the revised draft EN-6.

Background

3.346 In the draft EN-6, it was considered that there was, on balance, reasonable grounds to conclude that the Braystones site was credible for deployment by the end of 2025. The site 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[43]. The consultation document also set out that although the preliminary conclusion was that the site was potentially suitable, there were reservations about the practicability of its deployment by the end of 2025[44].

3.347 When the revised draft EN-6 was published in October 2010, the Government concluded that the site should not be included in the NPS as potentially suitable for the deployment of a new nuclear power station by 2025. The Government response to consultation which was published alongside the NPSs set out that this assessment had 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

39 p82

40 See footnote 38

41 DECC, *Appraisal of Sustainability: Site Report for Braystones* www.energynpsconsultation.decc.gov

42 DECC, *Habitats Regulation Assessment: Site Report for Braystones* www.energynpsconsultation.decc.gov

43 See footnote 26

44 DECC, *Consultation on draft energy National Policy Statements,* 2009, www.energynpsconsultation.decc.gov

sites in EN-6. The Government response sets out in detail the reasons for that decision.

3.348 The consultation on the revised draft EN-6 was therefore on the conclusion that the site was not potentially suitable. A number of responses expressed general approval at the removal of the site from the NPS without giving specific reasons. Others cited reasons the site should not be returned to the NPS. Even though the site was no longer included in the NPS, concerns about cumulative effects with other sites in the North West were expressed, and more detail can be found under the section on cumulative effects beginning at paragraph 3.282. There were also key themes on whether the site was credible for deployment by 2025 and the potential visual impact on the Lake District National Park, two factors which had lead to the site being removed from the revised draft EN-6.

3.349 Concerns regarding perceived uncertainty were also raised. Some respondents asked whether removal of the sites from the NPS meant that the sites could ever be developed, and whether the decision on sites could be appealed. These points are considered from paragraph 3.261 of this response.

Deployability by 2025

3.350 The key themes raised and the Government's responses are set out below.

Comments on infrastructure – grid connection

3.351 The nominator stated in its consultation response that it believes that grid connection may still be possible by 2025, pointing towards the grid connection agreement between the NDA and National Grid for the Sellafield site. The nominator also stated that the decision to withdraw from a National Grid agreement was a commercial issue rather than related to deployability.

The Government's response

3.352 The draft EN-6 noted the lack of pre-existing infrastructure was a complicating factor when seeking to develop new power stations on greenfield sites[45]. The most significant necessary new infrastructure for the Braystones site was found to be grid infrastructure and the draft EN-6 noted that a transmission agreement was in place between National Grid and the nominator of the site; that agreement provided a two stage connection with a final transmission entry capacity of 3600MW by 31st October 2022. The draft EN-6 concluded that on balance there were reasonable grounds to conclude that the site was credible for deployment by the end of 2025 and this took account of the grid connection agreement in place.

3.353 When the revised draft EN-6 was published without Braystones as a potentially suitable site, it was acknowledged that whilst in some respects there had been progress on deployability at the Braystones site (for instance

45 p82

on ownership of the site), the discontinuation of a grid connection agreement was a significant factor in considering whether the site was still credible for deployment by 2025.

3.354 Whilst National Grid estimated that the earliest possible connection date if the agreement were renegotiated would be by late 2025, it noted that the connection of additional stations such as Braystones whilst not as significant as the initial infrastructure needed in Cumbria, would necessitate major reinforcement and new infrastructure within a geographically sensitive area (accommodating a National Park). Such projects have considerable lead in times[46].

3.355 National Grid has since advised that, whilst connection of a nuclear power station at Braystones by 2025 could still be achievable, in practice delivery of a connection by 2025 would depend on the requirements of the generators and interaction with the contracted connection at Sellafield. National Grid also stated that, as the development of the works in Cumbria progress, it will become increasingly difficult to revise these plans.

3.356 Whilst such a connection may still be possible, the Government is of the view that the site's credibility of deployment by 2025 has been critically impaired .

Other comments on deployability

3.357 It was commented that the transport infrastructure providing access to and from the site would be insufficient during the building process and operation of the station.

3.358 The nominator stated in its response that significant desk and site based exercises have been carried out at Braystones to further characterize the site. These include reports on cooling water systems, flood risk and transport and access.

The Government's response

3.359 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. 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.

46 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, p165. www.energynpsconsultation.decc.gov

However, the site at Braystones was not excluded on the basis of the potential transport infrastructure impacts or improvements which may be necessary.

3.360 With regard to the studies referenced by the nominator previous Government response found that whilst there had been progress on deployability at the Braystones site including further work to characterise the site by the nominator the discontinuation of a grid connection agreement is a significant factor[47]. This was not outweighed by the further characterisation of the site.

Comments on D8: Areas of amenity, cultural heritage and landscape value

3.361 The previous Government response concluded that the site was not potentially suitable against this criterion. It set out that the potential adverse effects on the setting of the Lake District National Park was not outweighed by the need for sites. This took into account the high status and value of the National Park. The impact on the Lake District National Park remained the key concern raised by respondents in relation to this criterion. There were concerns that development at Braystones would change the landscape character of the site. The nominator asked what evidence and criteria were used when assessing visual impact on the Lake District National Park, and how this related to the SSA process. Specifically, it was questioned whether visual assessments were made from viewpoints within the park and evidence on landscape character taken into account.

3.362 The nominator also commented that full opportunities for mitigation would only be considered at the development phase and that it was therefore presumptive to form a view at the strategic stage.

The Government's response

3.363 As for all sites, the decision taken against this criterion is based on the site nomination, public comments in March 2009, the AoS carried out by independent consultants, and responses to the consultations on the draft and revised draft NPSs, all of which have been published.

3.364 The SSA criteria were established following public consultation. Details of what is assessed under criterion D8 - Areas of amenity, cultural heritage and landscape value are contained in a table included in EN-6. This table also appeared in the revised draft EN-6[48]. The nomination was considered in conjunction with the AoS reports to consider whether there was an impact on nationally designated sites (including National Parks), the likely level of the impact and whether it was reasonable to conclude, at a strategic level, that it should be possible to avoid or mitigate such impact.

47 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, p197. www.energynpsconsultation.decc.gov

48 DECC, *Revised Draft National Policy Statement for Nuclear Power Generation (EN-6),* 2010. p248 paragraph 7.599. www.energynpsconsultation.decc.gov

3.365 The Government believes that the visual impact assessment undertaken was appropriate for this strategic stage. The appendixes to the AoS list the sources considered when making the assessment including multiple character maps of the area. This assessment was carried out across all of the sites.

3.366 Potential mitigations of the impacts on the Lake District National Park suggested by the nominator[49], such as sympathetic alignment of the structures, were considered. However, the AoS 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 and the landscape the sites are set in. The AoS found that whilst there may be some possibilities for mitigation, 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.

3.367 With regards to whether full opportunities for mitigation are considered, the Government's response to the consultation on the SSA criteria said that "the SSA process … will not involve consideration of detailed site specific data or aim to pre-empt the planning and regulatory considerations that will be undertaken at the development consent stage[50]" and was not therefore designed to consider detailed plans. However, despite being undertaken at a strategic stage, it was intended that the assessment would enable the Government to take a view on what sites are suitable and to be able to exclude sites if necessary. The Government response to consultation on the SSA criteria said that discretionary criteria were those which for various reasons could either singly or in combination make all or part of a site unsuitable for a new nuclear power station. This has happened with the three nominated sites that have not been included in EN-6: Braystones, Kirksanton and Dungeness.

3.368 Nonetheless, 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). 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 criteria are 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 EN-6, concluded that the site is not potentially suitable against this criterion. When weighed up against the need for sites[51], the likelihood and possible extent of the potential impact is too great.

49 See the site nomination available on the Braystones page at www.energynpsconsultation.decc.gov

50 BERR, *Government response to consultations on the Strategic Siting Assessment process and siting criteria for new nuclear power stations in the UK; and to the study on the potential environmental and sustainability effects of applying the criteria*, 2009, http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file49865.pdf

51 The need for sites is discussed at Part 3.5 of EN-1.

Comments on cumulative effects

3.369 Comments were received expressing concern over potential cumulative effects with nominated sites at Kirksanton, which was also found to be unsuitable, and Sellafield. Several respondents made reference to a 'line' of power stations down the North West coast. Possible effects mentioned included damage to the tourism industry in the area and an increase in the likelihood of a terrorist attack.

The Government's response

3.370 Both the sites at Braystones and Kirksanton are no longer included in EN-6 on the list of sites potentially suitable for the deployment of a new nuclear power station by 2025. However, the sites were not excluded on the basis of potential cumulative effects as set out in the Government Response[52].Information on security and terrorism can be found from paragraph 3.155.

Comments on the need for sites

3.371 The nominator queried the role of the need for sites when the Government when assessing the suitability of the nominated site against criterion D8 noting that need is not one of the SSA criteria.

3.372 The nominator also states that the need for sites within EN-6 does not justify the exclusion of potentially suitable sites.

The Government's response

3.373 Although need is not a specified SSA criterion, it is still a consideration when making a decision on whether to include a site in EN-6. In its response to the consultation on the SSA, the previous Government made clear that when assessing the suitability of sites the Government may have regard to the need for new nuclear capacity if relevant, any policy on the role of nuclear power in the energy mix, and also wider energy policy[53].

3.374 The Government believes that the eight sites deemed potentially suitable for nuclear new build at the time of publication should allow sufficient flexibility to meet the urgent need for new nuclear power stations by 2025, whilst enabling the IPC or its successor to refuse consent at sites should it consider it appropriate to do so.

52 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, p131. www.energynpsconsultation.decc.gov

53 See footnote 52, paragraphs 1.9 and 2.15

Dungeness

Introduction to response

3.375 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.

3.376 During the first public consultation, key themes emerged on the scale and impact of the potential development on Natura 2000 sites and whether this impact was important enough to render the site unsuitable (there were responses arguing for and against); whether it was premature to rule Dungeness out at that 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[54].

3.377 Responses to the consultation on the revised draft EN-6 concentrated on the grounds for the exclusion of Dungeness under discretionary criterion D6: Internationally designated sites of ecological importance. Most responses supported the addition of Dungeness to the list of potentially suitable sites, or thought that the exclusion of Dungeness from the list should not rule out consideration of an application for development at a later stage. These themes are discussed in further detail below.

3.378 Having reviewed the evidence and the responses to both consultations the Government remains of the view that Dungeness is not potentially suitable for the deployment of a new nuclear power station by 2025. This is because the site does not meet discretionary criterion D6: Internationally designated sites of ecological importance because 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 (that is, an effect which cannot be avoided or mitigated). Given the particular adverse effects that would occur at Dungeness, and the availability of the other eight alternative sites to contribute to meeting the need for nuclear generating stations (at each of which there is potential for avoidance or full mitigation of adverse impacts on internationally protected nature sites), the Government does not consider that listing Dungeness in EN-6 at this stage is possible.

3.379 The responses to consultation have illustrated the strength of feeling regarding the importance of Dungeness to local people and the local economy. However, the SAC is protected by law and the Government does not think the required tests can be met for Dungeness at this stage.

54 See footnote 25

3.380 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. Such an assessment could 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.

3.381 A developer is not precluded from bringing an application forward for a site which is not on the NPS but would need to satisfy the IPC and the Secretary of State that they have satisfactorily addressed the requirements of the Habitats Directive. EN-6 sets out that should the IPC receive a 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.

3.382 The Dungeness site passed all other criteria except D6- although there were concerns regarding coastal erosion the site did not fail on these grounds. The Government is therefore aware that in other respects, based on the evidence considered so far, the site is potentially suitable. Given this, the Government would be happy to consider the recommendations of the IPC or its successor on such an application if one was made.

3.383 Alternatively, 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 EN-6.

Comments received on D4: Proximity to civil aircraft movements

3.384 A number of respondents to the first consultation 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. A public inquiry held into the expansion of Lydd Airport held at the time of the second consultation has heard evidence that the risks of an aircraft crash on or near a nuclear power station has been underestimated and should prevent any new nuclear power station from being built.

The Government's response

3.385 The issue of whether planning permission for the expansion of Lydd Airport should be granted is outside the scope of the SSA and EN-6. This is a matter for the planning authority who will seek advice from the appropriate regulators concerning safety and security issues.

3.386 In relation to the criterion on civil aircraft movements, the Civil Aviation Authority (CAA) has advised that there is potential for an exclusion zone which mitigates impacts on the existing airport. The ONR 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.

3.387 The ONR 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.

3.388 Following the evidence given to the public inquiry, the ONR has confirmed that it has raised no objection to the expansion of Lydd Airport. ONR conducted an assessment of the increased risk of aircraft crash and commissioned specialist independent analysis which concluded there would be a modest increase in risk, which remained within the appropriate limits set out in the safety assessment principles (SAPs) used by ONR to inform its decisions in nuclear safety regulation.

3.389 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.

Comments received on D6: Internationally designated sites of ecological importance

3.390 A large number of comments were received relating to this criterion, reflecting that the site failed against it in the assessment. Responses were received from Kent County Council, Shepway District Council and Damian Collins MP amongst others, who, like a number of respondents, thought the site should be in EN-6.

3.391 Some responses 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 or compensated successfully and that Dungeness should be left on the NPS until such an assessment was possible at the stage of an application for development consent. Some respondents suggested that the proposal had not been considered in sufficient detail and that a more detailed consideration could be used to arrive at a reconfiguration of the proposed site so that it did not fail against this criterion. Some respondents questioned why the assessment

had accepted other sites which were close to European Sites[55] but not Dungeness.

3.392 Some respondents thought Natural England's advice had been given too much weight or that Natural England had vetoed the inclusion of Dungeness. Others welcomed Natural England's willingness, outlined at a public meeting on Dungeness, to continue to work with developers on areas of concern.

The Government's response

3.393 Dungeness SAC is a Natura 2000 site designated at the international (European) level. It is a requirement under the legislation which Natura 2000 sites that plans (such as the NPS) which are likely to have significant effects on such 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, that is, an effect which cannot be avoided or mitigated.

3.394 Where such adverse effects cannot be ruled out the NPS can only be consented if i) there are no alternative solutions, ii) there are IROPI and iii) effective habitat compensatory measures can be secured and implemented. These tests are sequential, that is, the second test is only considered if the first test is passed, and the third test is only considered if the first and second are passed.

3.395 The issue to be considered in the first test is whether there are alternative ways of achieving the objectives of the NPS which better respect the integrity of Natura 2000 sites. The HRA found that, at the eight sites in the revised draft EN-6, 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 EN-6 are alternative ways of achieving the objectives of the NPS which meet the requirements of the Habitats Directive (because they better respect the integrity of Natura 2000 sites). Dungeness is the only nominated site which overlaps with a European protected site to such an extent that the avoidance and mitigation of impacts related to habitat loss would not be possible.

3.396 Given the particular adverse effect that is shown by the HRA in relation to Dungeness, and the availability of the other eight sites to contribute to meeting the need for nuclear generating stations, the Government does not consider that listing Dungeness at this stage is possible. Moreover, the HRA for Dungeness also confirms that there would be inherent difficulties in providing compensation for adverse effects such as direct habitat loss.

55 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'.

3.397 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. Natural England 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 Government has also undertaken environmental assessments for each of the sites with expert advice from environmental consultants, considered submissions from the nominator, EDF Energy, and local authorities, and organised meetings between Natural England and local authorities so that they can understand each others' concerns.

3.398 As stated above, if issues on internationally designated sites of ecological importance (and any outstanding concerns regarding coastal erosion) were resolved the Government would be happy to consider the recommendations of the IPC or its successor on an application for development consent for the site if such an application was made.

3.399 However, it will be for developers and others, not the Government or Natural England, to bring forward such proposals.

Comments on the impact on the SAC

3.400 Some responses commented that Dungeness was an important international and national site with a unique ecosystem, and supported the decision to exclude the site.

3.401 Others questioned whether the ecological impact of development would be as serious as set out in the site AoS and HRA reports and argued that the construction of a nuclear power station would have a beneficial effect on the habitat. They stated that the existing nuclear power stations at Dungeness had not had an adverse impact upon the European Sites and that, for example, a former building site next to Dungeness B now had an SSSI listing.

3.402 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 50 hectares indicated in the nomination.

3.403 Some responses 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 referred to the work continuing between Natural England, the EA and EDF on a proposal for the extraction of shingle at the site of the existing Dungeness power station. This is intended to meet both the requirements of the Habitats Regulations for the Dungeness SAC and the safety case for the operational life of the existing station, while also meeting the shingle requirements of the EA. Those respondents argued that

agreement on this project meant that agreement should also be possible on the building of a new nuclear power station.

The Government's response

3.404 Shingle beaches are typically dynamic environments subject to disturbance by wind and waves, and therefore shingle structures that are sufficiently stable to support perennial vegetation are comparatively rare.

3.405 The shingle beach at Dungeness is made up of Ice Age Flint deposits. The pattern of shingle ridges there has built up over 5,000 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 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.

3.406 Natural England has advised that although it is possible for some shingle habitats to revive following industrial use, in this particular case if these geomorphological features are disturbed, they will not recover as they have been created as a result of long term natural processes, and that once pristine vegetated shingle is disturbed it will never fully recover to the same quality of vegetation community. The area that was previously disturbed during the construction of Dungeness B in the mid 1980s, in comparison, represents a secondary succession which whilst worthy of SSSI (national) status is a different quality and type.

3.407 The vegetation and invertebrate communities of undisturbed shingle ridges cover a very limited part of the SSSI and SAC. The Dungeness and Pett Levels Coastal Habitat Management Plan states that disturbance including building of infrastructure (including the nuclear power stations) has caused major disruption to the surface ridge structures, which support significant invertebrate populations, and its vegetation amounting to a 50% loss. Today only approximately 30% of the surface retains the original ridge structure, a small proportion of which retains intact vegetation.

3.408 There are currently only very limited examples of areas where attempts to restore shingle vegetation communities have been made. The long timescales required mean that any results to date provide limited indication of the potential outcomes. Projects have generally been on a small scale of just a few hectares and have focused on the more mobile or early successional parts of the vegetation.

3.409 The nominated site would require direct land take from the Dungeness SAC, 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. Criterion D6 assesses impacts on sites of international nature conversation importance and the percentage land take

required by the nominated site from the Dungeness SAC is greater than that from the SSSI. 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.

3.410 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.

3.411 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 designated sites, unlike the nominated site which overlaps to such a degree the effects of direct land take are not considered to be capable of mitigation.

3.412 Although the discussions between Natural England, the EA and EDF on a proposal for the extraction of shingle at the site of the existing Dungeness power station are encouraging evidence of a willingness to find solutions to environmental challenges on an energy infrastructures site, they are not relevant to the potential loss of the irreplaceable shingle as outlined above and therefore not grounds for accepting at this stage that a new nuclear power station would not have an adverse effect on the integrity of the Dungeness SAC.

Summary: What are the concerns against criterion D6?

3.413 The 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[56] (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.

3.414 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.

56 Disturbance to habitats and species can arise from a number of sources. Sources can include traffic, construction activity and intermittent sounds (for example, alarms or sirens). Such impacts upon bird species are particularly significant. See the *Habitats Regulations Site Assessment for Dungeness,* p21.

3.415 The 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 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 replicable elsewhere.

Comments on other relevant factors

3.416 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

3.417 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 Sites which might be caused by development and to consider alternative sites if these impacts cannot be mitigated. This is because European 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 received on other siting considerations, including socio-economic factors

3.418 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.

3.419 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.

The Government's response

3.420 The SSA criteria were consulted on. They did not include siting new nuclear power stations in areas where there may be 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 criterion of economic deprivation should be added.

3.421 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.

3.422 Proximity to demand was not one of the SSA criteria used to determine whether a site is potentially suitable. From a technical perspective there is no reason why power stations need to be near centres of demand provided they can still be connected to the grid.

3.423 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.

Hartlepool

Introduction and overall conclusion

3.425 The Government has assessed the site against the SSA criteria in the light of evidence from, inter alia, the public[57], regulators and the revised AoS and HRA, and has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and that it should be included in EN-6.

3.426 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.

3.427 There were few consultation responses specifically on Hartlepool. Key themes identified included demographics, proximity to hazardous industrial facilities and the potential impact on designated sites of ecological importance.

Comments on C1: Demographics

3.428 Responses were received expressing concern that the site has densely populated communities such as Hartlepool, Middlesbrough and Durham nearby.

The Government's response

3.429 In determining the site population factors[58] for advising the Government with regard to the demographics criterion in the SSA the Health and Safety Executive'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 ONR 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 D6: Proximity to sites of international ecological importance

3.430 Comments expressed concern over the loss of land used by SPA protected bird species, stating that the guidance in the HRA[59] does not go far enough to protect the functional land in stating that 'restoration, enhancement,

57 Public comment window in 2009, consultation running from November 2009 – February 2010, second consultation running from October 2010 – January 2011.

58 Site population factors are the site demographic characteristics and are derived by the Office for Nuclear Regulation using the approach set out here: http://www.hse.gov.uk/aboutus/meetings/iacs/nusac/030708/p12-sittingpaper.pdf

59 DECC, *Habitats Regulations Assessment Site Report for Hartlepool*, 2010. www.energynpsconsultation.decc.gov

management and long term monitoring should be sought where possible and incorporated into the overall mitigation package as good practice'.

3.431 It was questioned whether there are opportunities to deliver mitigation for loss of functionally linked land in the vicinity due to the already developed nature of the area.

3.432 It was also stated that the appraisals do not address the issue of land squeeze in and around the Tees Estuary, and that the HRA should stress and consider avoidance measures for the land squeeze and loss of functional land further and prior to considering potential mitigation.

The Government's response

3.433 The Government recognises the importance of maintaining functional land used by SPA species. The nominated site does not preclude the possibility of maintaining a satisfactory area of functional land as it is large and at present detailed proposals, including exactly where within the site development will take place (or how much open space will be retained) are not being assessed.

3.434 For this reason further consideration of habitat creation and land squeeze can be made at the project level. The Environmental Impact Assessment should help to optimise the site layout so as to avoid or minimise impacts as well as assessing mitigation measures.

Comments on the AoS

3.435 Comment was received stating that the AoS and HRA both omit the Able Teesside Environmental Reclamation & Recycling Centre (TERRC) shipyard which is adjacent to the site boundary and that this indicates that the assessments of cumulative effects need further consideration.

The Government's response

3.436 The Able TERRC shipyard is listed in paragraph 5.89 of the AoS report for Hartlepool[60] as one of the 'key projects and developments that might have significant interactions with a new power station'. The assessment of cumulative effects has included consideration of the Able TERRC shipyard and identifies potential cumulative effects on landscape.

3.437 The site HRA report also considers the Able TERRC shipyard (referred to as the Able Seaton Port) and identifies potential cumulative effects due to light, noise and visual disturbance.

60 DECC, *Appraisal of Sustainability Site Report for Hartlepool,* 2010. www.energynpsconsultation.decc.gov.

Heysham

Introduction and overall conclusion

3.438 The Government has assessed the site against the SSA criteria in light of the evidence from, inter alia, the public[61], regulators and the revised AoS and HRA, and has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and that it be included in EN-6.

3.439 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.

3.440 Few responses to the consultation were received regarding Heysham. Key themes identified include possible visual effects and possible effects on designated sites of ecological importance.

Comments on D6: Proximity to sites of international ecological importance

3.441 There was concern that the AoS for Heysham could not rule out adverse effects on Leighton Moss SPA and Ramsar and Morecambe Bay SAC, SPA and Ramsar sites. It was stated that Heysham should not be listed in EN-6 until detailed studies have been carried out to determine the precise impacts on these sites.

3.442 Concern was expressed that mitigation of all the potential effects from the development of a nuclear power station at Heysham, such as the direct loss of designated land, may not be possible. It was felt that compensation for impacts may be necessary, and it was stated that it is not clear from the HRA whether it is considered possible to compensate for the loss of designated land, if loss of designated site cannot be avoided.

The Government's response

3.443 The SSA is a strategic assessment and did not consider detailed issues such as information on the number of reactors that may be deployed at a site, the site layout or necessary infrastructure location. All of these factors will affect the level of impact on designated European Sites and the extent of any mitigation or compensation measures available.

3.444 The AoS for Heysham[62] concluded that adequate mitigation or compensation for effects on the designated sites mentioned is potentially

61 Public comment window in 2009, consultation running from November 2009 – February 2010, second consultation running from October 2010 – January 2011.

62 DECC, *Appraisal of Sustainability for Heysham,* 2010. www.energynpsconsultation.decc.gov.

possible, and therefore it would be inappropriate to rule the site out on this basis at this point.

3.445 The HRA site report for Heysham recommends avoidance of any potential direct loss of designation, for example, by tunnelling to reach cooling water. It cannot be determined at this strategic level whether following the consideration of avoidance and mitigation measures, compensation will be required. Volume I of EN-6 sets out the requirement for more detailed project level HRAs and if necessary the main HRA report for EN-6 sets out a framework for compensation measures[63].

Comments on D8: Proximity to areas of amenity, cultural heritage and landscape value

3.446 It was raised that seascape should be considered when making the visual assessment of the site, given the prominence of the location within the Morecambe Bay seascape.

3.447 Responses also expressed concern that the proposed site includes part of the current Ocean Edge Leisure Park. A particular concern was raised that Ocean Edge Leisure Park may close and the effect this would have on the area in relation to jobs and tourism. Respondents were also concerned about blight caused by uncertainty over when and if the site will be developed.

The Government's response

3.448 Seascape is considered as an intrinsic part of the landscape assessment that is required to be undertaken by the applicant as set out in paragraph 5.9.1 of EN-1. This is also stated at footnote 130 on page 61 of the AoS for EN-6[64].

3.449 Comments on socio-economic impact and tourism arose at more than one site and are considered from paragraph 3.278. Comments on blight are considered from paragraph 3.263. As stated in the previous Government response[65], dialogue between nominators and landowners remains important as 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.

63 DECC, *Habitats Regulations Assessment Site Report for Heysham*, 2010. www.energynpsconsultation.decc.gov.

64 See footnote 67

65 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, p185. www.energynpsconsultation.decc.gov

Comments on waste

3.450 Comments were received stating that the IPC should be able to consider onsite storage of waste when making a judgement on an application.

3.451 Responses also expressed concern that waste will be stored onsite for over 100 years. These issues are discussed in the section on waste above.

Hinkley Point

Introduction and overall conclusion

3.452 The Government has assessed the site against the SSA criteria in the light of evidence from, inter alia, the public[66], regulators and the revised AoS and HRA, and has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and that it should be included in EN-6.

3.453 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 of this proposal in combination with any other relevant nuclear power stations and in effects on the biodiversity of the area including the Severn Estuary.

3.454 Key themes which were raised during the consultation include concerns about the health impacts of new nuclear power stations and cumulative impacts when development is considered in combination with other developments in the Severn Estuary.

3.455 At Hinkley Point EDF have carried out a series of consultations on their plans at Hinkley Point[67]. Because of this, responses were received to the Government consultation regarding detailed developer proposals discussed in EDF's consultations, including associated infrastructure, worker accommodation and construction arrangements.

3.456 However, the SSA is a strategic assessment of the suitability of a site and it has not considered detailed developer proposals. Such proposals may not affect the site's overall strategic suitability and the Government believes that the IPC or its successor is best placed to consider the detailed proposals that come forward. The IPC will decide the application in accordance with this NPS, which includes guidance on the consideration of the impacts of a development.

3.457 Community benefit arose at this site and at others, and is considered from paragraph 3.735.

66 Public comment window in 2009, consultation running from November 2009 – February 2010, second consultation running from October 2010 – January 2011.

67 15 December 2009 to 18 January 2010 - Stage 1, Consultation on *'Initial Proposals and Options*', 9 July 2010 to 4 October 2010 - Stage 2, *Consultation on 'Preferred Proposals'*, 25 February to 28 March 2011 - Stage 2 Update, Consultation on *'Update on and Proposed Changes to the Preferred Proposals'*.

Comments on D8: Proximity to areas of amenity, cultural heritage and landscape value

3.458 Concern was expressed about cultural heritage assets at the proposed Hinkley Point C site and whether the archaeological deposits on the development site would be destroyed at a stage before an application for development consent is submitted to the IPC.

3.459 It was also stated that there is no mention of the scheduled monument of Wicks Barrow in the EN-6 site assessment for Hinkley Point.

The Government's response

3.460 Developers may choose to apply for the relevant permissions to undertake early site works in advance of any application to the IPC. It would be for the relevant authority (for example the relevant local planning authority) to decide whether to grant any such permission, in accordance with the relevant legal framework and taking advice from the relevant statutory bodies, where appropriate. A joint letter from the Department for Communities and Local Government and DECC in July 2009 set out some more guidance on this issue[68].

3.461 Wicks Barrow was considered in the annexes to the AoS report, which identified that there is potential for adverse effects on the Wicks Barrow Pixies' Mound Scheduled Ancient Monument, but that there is likelihood that these effects can be mitigated. This is now also reflected in the Hinkley Point site assessment in EN-6.

Comments on D10: Access to suitable sources of cooling

3.462 Concern was raised about the potential effects of a thermal plume from Hinkley Point C on the intertidal ecology of Bridgwater Bay. Doubt was expressed about the potential for mitigating any effects. Respondents were also concerned about possible cumulative effects from the thermal plumes of both Hinkley Point B and Hinkley Point C.

3.463 Responses also raised the entrainment of fish in the cooling water intake, and the effect this may have on the marine ecology.

The Government's response

3.464 The AoS for Hinkley Point concludes 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.

68 This can be found at: http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Development%20consents%20and%20planning%20reform/1_20090716112449_e_@@_localauthorityletter.pdf

3.465 The AoS identifies potential, adverse, effects on water including on coastal processes, hydrodynamics and sediment transport. Interactions with development at Hinkley Point could lead to cumulative effects due, for example, to the combined effect of two cooling water discharges. However, the significance of these effects will depend on the type of cooling arrangements adopted. Furthermore, when the remaining operational power station at Hinkley Point shuts down and plants are decommissioned, this will reduce thermal and other water quality impacts in the Severn Estuary. Cumulative effects on water quality may have indirect effects on biodiversity and ecosystems.

3.466 The AoS also concludes 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. A report from the EA on cooling[69] sets out detailed options for mitigation of this issue. These include deployment of a bubble curtain and specially designed screens for the intake pipes.

Comments on coastal processes and the AoS

3.467 Comment was received suggesting that there should be a separate section in the AoS Site Report for coastal processes, which draws out the linkages between coastal processes and conservation sites.

The Government's response

3.468 The structure of the site AoS reports is designed to respond to the AoS and SEA objectives that were proposed in the Scoping Report that was consulted upon in 2008[70]. The objectives agreed at that time included consideration of coastal processes under the headings of 'water quality and resources' and 'flood risk'. The AoS for Hinkley Point has considered coastal processes such as erosion and sediment transport under these headings.

3.469 In addition, effects of development on coastal processes, for example 'coastal squeeze' as a result of new flood defences are considered and it was found that they may adversely affect nature conservation sites.

Comments on health

3.470 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 Point which were caused by the existing nuclear power stations.

3.471 A report was produced in January 2011 by environmental group Green Audit claiming that there is evidence of up to 10 tonnes of enriched Uranium in the

69 See footnote 33

70 BERR, *Consultation of Strategic Environmental Assessment for proposed National Policy Statement for new nuclear power*, 2008, URN08/680

soil at the proposed site. This report was submitted as a consultation response.

The Government's response

3.472 More general points on COMARE are considered from paragraph 2.174.

3.473 In relation to Hinkley Point, In its eleventh report 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 close to the sites of these types of nuclear installations' Among its recommendations, the report said that the incidence of childhood leukaemia and other cancers in the vicinity of Sellafield and Dounreay was raised and should be kept under surveillance and periodic review. COMARE is continuing to undertake this work, which is intended to form the basis of their fifteenth report.

3.474 The EA produced a report[71] in response to the report issued by Green Audit. The EA's initial findings are that the Green Audit conclusions have serious shortcomings as they fail to take into account uncertainties in the measurements that their results are based on. These uncertainties mean that the method used by Green Audit is not appropriate to indicate the presence of enriched uranium. The EA regulates discharges from the site and require the operator to measure and report them. The results of many years of environmental monitoring by the operator and the regulators have shown no evidence to suggest that Green Audit's claims are correct.

3.475 In order to provide more reassurance to the community the EA commissioned more sampling and analysis of soils using mass spectrometry - an analytical method capable of accurately measuring the "isotopes" present in the soil that would show whether or not there is actually enriched uranium present. The results of this sampling were published in March 2011[72] and show that there is no enriched uranium in the soil. Uranium is present naturally in small quantities in all rocks and soils. The levels of uranium found in the soil samples taken both on and off the site are low, and at naturally occurring levels.

71 EA, *Uranium contamination allegations at Hinkley Point,* 2011, http://www.environment-agency.gov.uk/static/documents/Leisure/Uranium_contamination_allegations_at_Hinkley_Point.pdf

72 EA, *Allegations of contamination by enriched uranium at Hinkley Point,* 2011, http://www.environment-agency.gov.uk/static/documents/Leisure/Uranium_contamination_allegations_at_Hinkley_Point_2.pdf

Kirksanton

Summary: Why is the site no longer in EN-6?	
Overall conclusion	The Government has considered evidence from, inter alia, the public[73], regulators, the AoS and HRA and concluded that the site should not be included in the final EN-6. This 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 in EN-6. The Government has concluded that the site is not potentially suitable for deployment by 2025.
Credibility for Deployment by 2025	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 at the time the first draft EN-6 was published[74]. The discontinuation of a grid connection agreement is a significant factor which as critically impaired the credibility for deployment by 2025.
D8 Areas of amenity, cultural heritage and landscape value	Having reviewed the evidence including the outputs of consultation and the AoS, the Government has concluded that the site is not potentially suitable against this criterion. When weighed up against the need for sites the likelihood and possible extent of the potential impact is too great. This also takes into account the high status and value of the Lake District National Park, and particularly reflects the nature of the surrounding landscape at Kirksanton.

73 Public comment window in 2009, consultation running from November 2009 – February 2010 and the second consultation running from October 2010 – January 2011 prior to which Braystones and Kirksanton were removed from the revised draft Nuclear NPS.

74 It was considered that there was, on balance, reasonable grounds to conclude that the Braystones site was credible for deployment by the end of 2025 when the draft NPS was published in November See footnote 26.

Introduction

3.476 As stated in the table above, The Government confirms its conclusion[75] that Kirksanton should not be included in EN-6 in the list of sites that are potentially suitable for the deployment of a new nuclear power station by 2025.

3.477 Because this site has not been found to be potentially suitable, it does not have its own site summary within the NPS. People who are interested in the background to the consideration of evidence for this site may wish to read:

- Site summary from the 2009 draft EN-6[76]
- The Government response to the 2009 - 2010 consultation on the draft EN-6 (the previous Government response)[77]
- The revised AoS report for Kirksanton[78]
- The revised HRA report for Kirksanton[79]
- This Government response also refers to the need for sites. The need for sites is set out in Part 3.5 of EN1

3.478 This section only responds to key themes that were raised on the site during the consultation on the revised draft EN-6.

Background

3.479 In the draft EN-6, it was considered that there was, on balance, reasonable grounds to conclude that the Kirksanton site was credible for deployment by the end of 2025. The site 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[80]. The consultation document also set out that although the preliminary conclusion was that the site was potentially suitable, there were reservations about the practicability of its deployment by the end of 2025[81].

75 See footnote 25

76 See footnote 26

77 See footnote 25

78 DECC, *Appraisal of Sustainability: Site Report for Kirksanton.* www.energynpsconsultation.decc.gov

79 DECC, *Habitats Regulation Assessment: Site Report for Kirksanton.* www.energynpsconsultation.decc.gov

80 See footnote 26

81 See footnote 44

3.480 When the revised draft EN-6 was published in October 2010, the Government concluded that the site should not be included in the NPS as potentially suitable for the deployment of a new nuclear power station by 2025. The Government response to consultation which was published alongside the NPSs set out that this assessment had 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 EN-6. The Government response sets out in detail the reasons for that decision.

3.481 The consultation on the revised draft EN-6 was therefore on the conclusion that the site was not potentially suitable. A number of responses expressed general approval at the removal of the site from EN-6 without giving specific reasons. Others cited reasons the site should not be returned to EN-6. Even though the site was no longer included in the EN-6, concerns about cumulative effects with other sites in the North West were expressed, and more detail can be found under the section on cumulative effects beginning at paragraph 3.282. There were also key themes on whether the site was credible for deployment by 2025 and the potential visual impact on the Lake District National Park, two factors which had lead to the site being removed from the revised draft EN-6.

3.482 Concerns regarding perceived uncertainty were also raised. Some respondents asked whether removal of the sites from the NPS meant that the sites could ever be developed, and whether the decision on sites could be appealed. These points are considered from paragraph 3.261 of this response.

Deployability by 2025

3.483 The key themes raised and the Government's responses are set out below.

Comments on infrastructure – grid connection

3.484 The nominator stated in its consultation response that it believes grid connection may still be possible by 2025, pointing towards the grid connection agreement between the NDA and National Grid for the Sellafield site. The nominator also stated that the decision to withdraw from a National Grid agreement was a commercial issue rather than related to deployability.

The Government's response

3.485 The draft EN-6 noted the lack of pre-existing infrastructure was a complicating factor when seeking to develop new power stations on greenfield sites[82]. The most significant necessary new infrastructure for the Kirksanton site was found to be grid infrastructure and the draft EN-6 noted that a transmission agreement was in place between National Grid and the

82 See footnote 26

nominator of the site; that agreement provided a two stage connection with a final transmission entry capacity of 3600MW by 31st October 2025.The draft EN-6 concluded that on balance there were reasonable grounds to conclude that the site was credible for deployment by the end of 2025 and this took into account the grid connection that was in place.

3.486 When the revised draft EN-6 was published without Kirksanton as a potentially suitable site, it was acknowledged that whilst in some respects there had been progress on deployability at the Kirksanton site (for instance on ownership of the site), the discontinuation of a grid connection agreement was a significant factor in considering whether the site was still credible for deployment by 2025.

3.487 Whilst National Grid estimated that the earliest possible connection date if the agreement were renegotiated would be by late 2025, it noted that the connection of additional stations such as Kirksanton whilst not as significant as the initial infrastructure needed in Cumbria, would necessitate major reinforcement and new infrastructure within a geographically sensitive area (accommodating a National Park). Such projects have considerable lead in times[83].

3.488 National Grid has since advised that, whilst connection of a nuclear power station at Kirksanton by 2025 could still be achievable, in practice delivery of a connection by 2025 would depend on the requirements of the generators and interaction with the contracted connection at Sellafield. National Grid also stated that, as the development of the works in Cumbria progress, it will become increasingly difficult to revise these plans.

3.489 Whilst such a connection may still be possible, the Government is of the view that the site's credibility of deployment by 2025 has been critically impaired.

Other comments on deployability

3.490 It was commented that the transport infrastructure providing access to and from the site would be insufficient during the building process and operation of the station. Respondents particularly mentioned the A595 which is described as potentially dangerous if traffic increased.

3.491 The nominator stated in its response that significant desk and site based exercises have been carried out at Kirksanton to characterize the site. These include reports on cooling water systems, flood risk and transport and access.

83 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, p165. www.energynpsconsultation.decc.gov

The Government's response

3.492 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. 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. However, the site at Kirksanton was not excluded on the basis of the potential transport infrastructure impacts or improvements which may be necessary.

3.493 With regard to the studies referenced by the nominator, the previous Government response found that whilst there had been progress on deployability at the Kirksanton site including further work to characterise the site by the nominator the discontinuation of a grid connection agreement is a significant factor[84]. This was not outweighed by the further characterisation of the site.

Comments on criterion D6 and D7: Proximity to sites of international and national ecological importance

3.494 A number of respondents mentioned potential effects on two nearby national and internationally protected conservation sites, namely the Duddon Estuary SPA and Ramsar sites and Morecambe Bay SAC, SPA and Ramsar sites, but were not specific about their concerns.

3.495 Some respondents were concerned about the potential impact on the natterjack toad for which the Duddon Estuary is an important site.

The Government's response

3.496 The site is no longer included in EN-6. However, this is not because of issues related to this criterion.

3.497 The conclusion of the HRA for Kirksanton was that further assessment supported by detailed data at project level would be required to determine whether development at the nominated site could be undertaken without adversely affecting the integrity of European Sites.

3.498 It is noted that the nominated site boundary does not include direct land take from Duddon Estuary and Morecambe Bay sites. More detailed

84 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, p197. www.energynpsconsultation.decc.gov

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 any affected habitats (for example through retention of seed bank and subsequent monitoring of vegetation communities, wildlife corridors etc).

3.499 If, following detailed site surveys, natterjack toads were confirmed as being present within the nominated site, the HRA has set out that a detailed mitigation strategy would be required if proposals had come forward. 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 was not feasible (for example, due to widespread distribution across the nominated site) measures to reduce the impacts would be necessary.

Comments on D8: Proximity to areas of amenity, cultural heritage and landscape value

3.500 The previous Government response concluded that the site was not potentially suitable against this criterion. It set out that the potential adverse effects on the setting of the Lake District National Park was not outweighed by the need for sites. This took into account the high status and value of the National Park. The impact on the Lake District National Park remained the key concern raised by respondents in relation to this criterion. There were concerns that development at Kirksanton would change the landscape character of the site. The nominator asked what evidence and criteria were used when assessing visual impact on the Lake District National Park, and how this related to the SSA process. Specifically, it was questioned whether visual assessments were made from viewpoints within the park and evidence on landscape character taken into account.

3.501 The nominator also commented that full opportunities for mitigation would only be considered at the development phase that it was therefore presumptive to form a view at the strategic stage.

The Government's response

3.502 As for all sites, the decision taken against this criterion is based on the site nomination, public comments in March 2009, the AoS carried out by independent consultants, and responses to the consultations on the draft and revised draft NPSs, all of which have been published.

3.503 The SSA criteria were established following public consultation. Details of what is assessed under criterion D8: Areas of amenity, cultural heritage and landscape value are contained in a table included in EN-6[85]. It sets out that the nomination was considered in conjunction with the AoS reports to consider whether there was an impact on nationally designated sites (including National Parks), the likely level of the impact and whether it was

85 BERR, *Government response to consultations on the Strategic Siting Assessment process and siting criteria for new nuclear power stations in the UK; and to the study on the potential environmental and sustainability effects of applying the criteria*, 2009, paragraph 7.599 http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file49865.pdf

reasonable to conclude, at a strategic level, that it should be possible to avoid or mitigate such impact.

3.504 The Government believes that the visual impact assessment undertaken was appropriate for this strategic level of the assessment. The appendixes to the AoS list the sources considered when making the assessment including multiple character maps of the area. This assessment was carried out across all of the sites.

3.505 Potential mitigations of the impacts on the Lake District National Park suggested by the nominator[86], such as sympathetic alignment of the structures, were considered. However, the AoS found it highly likely that development at Kirksanton would lead to a perceptible deterioration in some views, which could not be mitigated given the scale of possible new buildings and the landscape the sites are set in. The AoS found that whilst there may be some possibilities for mitigation, 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.

3.506 With regards to whether full opportunities for mitigation are considered, the Government's response to the consultation on the SSA criteria said that "the SSA process … will not involve consideration of detailed site specific data or aim to pre-empt the planning and regulatory considerations that will be undertaken at the development consent stage[87]" and was not therefore designed to consider detailed plans. However, despite being undertaken at a strategic stage, it was intended that the assessment would enable the Government to take a view on what sites are suitable and to be able to exclude sites if necessary. The Government response to consultation on the SSA criteria said that discretionary criteria were those which for various reasons could either singly or in combination make all or part of a site unsuitable for a new nuclear power station. This has happened with the three nominated sites that have not been included in EN-6: Braystones, Kirksanton and Dungeness.

3.507 Nonetheless, 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). 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 criteria are passed. In the specific circumstances at Kirksanton, the Government has, having reviewed the evidence including the outputs of the public consultation and considered the need for sites to be in EN-6, concluded that the site is not potentially suitable against this criterion. When weighed up against the need for sites[88], the likelihood and possible extent of the potential impact is too great.

86 See the site nomination available on the Braystones page at www.energynpsconsultation.decc.gov

87 See footnote 52

88 The need for sites is discussed at Part 3.5 of EN-1.

Comments on Haverigg windfarm

3.508 Many respondents were concerned about the potential impact on Haverigg windfarm if the site were developed. Some responses felt that there should have been a criterion which excluded sites which would impact on existing sustainable energy projects.

3.509 Responses also expressed the importance of the windfarm to the local community and the financial benefits it brings to stakeholders.

The Government's response

3.510 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.

3.511 Paragraph 7.682 of the previous Government response[89] 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.

Comments on cumulative effects

3.512 Comments were received expressing concern over potential cumulative effects with nominated sites at Braystones, which is also excluded from the NPS, and Sellafield. Several responses made reference to a 'line' of power stations down the North West coast. Possible effects mentioned included damage to the tourism industry in the area and an increase in the likelihood of a terrorist attack.

The Government response

3.513 Both the sites at Braystones and Kirksanton are no longer included in EN-6 on the list of sites potentially suitable for the deployment of a new nuclear power station by 2025. However, the sites were not excluded on the basis of potential cumulative effects as set out in the Government response[90].

89 See footnote 25

90 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, p131. www.energynpsconsultation.decc.gov

3.514 Information on security and terrorism can be found from paragraph 3.155.

Comments on the need for sites

3.515 The nominator queried the role of the need for sites when the Government when assessing the suitability of the nominated site against criterion D8 noting that need is not one of the SSA criteria.

3.516 The nominator also states that the need for sites within the revised draft EN-6 does not justify the exclusion of potentially suitable sites.

The Government's response

3.517 Although need is not a specified SSA criterion, it is still a consideration when making a decision on whether to include a site in the draft EN-6. In its response to the consultation on the SSA, the previous Government made clear that when assessing the suitability of sites the Government may have regard to the need for new nuclear capacity if relevant, any policy on the role of nuclear power in the energy mix, and also wider energy policy[91].

3.518 The Government believes that the eight sites deemed potentially suitable for nuclear new build should allow sufficient flexibility to meet the urgent need for new nuclear power stations by 2025, whilst enabling the IPC or its successor to refuse consent at sites should it consider it appropriate to do so.

91 See footnote 52

Oldbury

Introduction and overall conclusion

3.519 The Government has assessed the site against the SSA criteria in the light of evidence from, inter alia, the public[92], regulators and the revised AoS and HRA, and the Government has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and that it should be included in EN-6.

3.520 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 and the impact of this proposal in combination with any other relevant nuclear power stations or developments in the region.

3.521 Key themes raised during the consultation include demographics, flood risk and mitigation, and the visual impact of potential cooling towers at the site.

Comments on C1: Demographics

3.522 Responses questioned the suitability of the nominated site given its proximity to the town of Thornbury (approximately 5km), the city of Bristol (approximately 21km) and settlements on the opposite side of the Severn Estuary such as Chepstow. Some responses said that populations had increased since the original Oldbury power station was developed and that this should be considered.

The Government's response

3.523 The Government has taken advice from the ONR on this criterion. The HSE's demographic analysis was carried out to a radius of 30km from the nominated site. This takes into account population centres out to that distance, including Thornbury, Chepstow and Bristol. The ONR'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.

3.524 The ONR has advised that, against this criterion, the site is potentially suitable for development. Before any licence was granted the ONR would carry out further assessment including analysis of transient populations if necessary.

Comments on D1: Flood risk, storm surge and tsunami

3.525 Responses were concerned that the nominated site is wholly within Flood Zone 3. Some queried whether the development of a new nuclear power

92 Public comment window in 2009, consultation running from November 2009 – February 2010, second consultation running from October 2010 – January 2011.

station should therefore go ahead. This issue arose at more than one site, so is considered at paragraph 3.289.

3.526 Comments were received expressing concern that flood defences constructed to protect the power station may increase the risk of inland flooding due to runoff.

3.527 It was also commented that the NPS should explicitly reference the need to mitigate risk from sea level rise, more storms, pluvial flooding (i.e. arising from rainfall), flooding from the rivers and the local rhynes (drainage ditches or canals) as well as the impact of the proposed new build station, including all associated infrastructure.

The Government's response

3.528 The potential for flood protection measures to increase the flood risk to other areas is something that is considered at a strategic level in all flood risk assessments for developments at the SSA stage and was recognised in the EA advice on Oldbury.

3.529 As noted in the previous Government response at paragraph 7.720, 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 the area to absorb and disperse flood water but that a suitable approach could be developed that would improve the protection of the surrounding area[93].

3.530 The EA will advise the IPC or its successor about detailed flood risk matters when any proposal for a nuclear power station is brought forward. Prior to this they will provide advice to the developers as they develop their detailed site specific designs to help ensure that their proposals should be acceptable.

3.531 The importance of consideration of mitigation is reflected within EN-6 at paragraph C.6.23. This states that further modelling and surveying should be conducted as part of the detailed appraisal. This appraisal would include consideration of local features such as river and rhynes.

Comments on D2: Coastal processes

3.532 Responses were received recommending that the NPSs 'have regard' to the Shoreline Management Plan (SMP2) published by the EA.

The Government's response

3.533 The SMP2 will be a 'route map' for local authorities and other decision makers to move from the present situation towards meeting future needs of

93 DECC, *The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure*, 2010, paragraph 7.720. www.energynpsconsultation.decc.gov

the coastline. SMP2s will apply at all sites, including Oldbury. SMP2s 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.

3.534 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 D6: Proximity to sites of international ecological importance

3.535 Concern was expressed about the effects of the development removing existing silt lagoons which currently provide a high tide roost for wading birds feeding in the upper reaches of the Severn Estuary, with noted populations of Ringed Plover, Dunlin and Curlew, these species being qualifying features of the Severn Estuary SPA.

3.536 Respondents questioned why the site at Dungeness was removed from EN-6 on the basis of impact on internationally designated sites but Oldbury, which has also been identified as having potential impacts on European Sites, remains on the list.

The Government's response

3.537 In the absence of a detailed proposal, it is not possible to judge whether the removal of the silt lagoons will be necessary. The developer has not ruled out using some of the land occupied by one or both of the northern silt lagoons within the nomination boundary, though the effects of any such proposal would need to be assessed further should a development proposal come forward.

3.538 Whilst Oldbury is adjacent to the Severn Estuary which is an internationally designated site of ecological importance, the Dungeness nomination lies within the Dungeness SAC, which is also an internationally designated site. 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). Dungeness SAC is the most important shingle site in the UK and Europe and is one of the largest shingle expanses in the world. More information can be found at the section on Dungeness from paragraph 3.373.

3.539 At this stage, it is Government's view that there is potential for mitigation of the environmental effects at Oldbury but this will be further assessed should a development application come forward.

Comments on D7: Proximity to sites of national ecological importance

3.540 Some respondents raised concerns about possible impacts of development on the Severn Estuary SSSI, and River Wye SSSI, but did not give specific detail about what they were concerned about.

The Government's response

3.541 The SSA has considered impacts on nationally designated sites of ecological importance, such as Sites of Special Scientific Interest (SSSIs). The AoS report for Oldbury identified potential effects on nationally protected conservation sites, including the Severn Estuary Ramsar/SSSI site, the Upper Severn Estuary SSSI, and the River Wye (Lower Wye) SSSI. However, the AoS report suggested possible mitigation measures including a construction environmental management plan to minimise disturbance to the area, which may be achieved through sensitive timing of construction programmes and visual or noise screening.

Comments on D8: Proximity to areas of amenity, cultural heritage and landscape value

3.542 Part 5.3 of EN-1 sets out guidance for development that may have an adverse effect on an SSSI.

3.543 Responses were received expressing concern about the potential visual impact of the hybrid cooling towers and worries that they would significantly increase the visual spread of the power station and impact on the Wye Valley and the Cotswolds AONBs which are 7km and 13km respectively. It was stated that proximity to these nationally designated sites makes Oldbury similar to Braystones and Kirksanton, which were removed from EN-6, and that Oldbury should be excluded on this basis, as well as because it lies in an area with a distinct local character.

3.544 Possible mitigation strategies for reducing the visual impact of possible cooling towers were also questioned, as it was stated that the landscape around the nominated site is flat and open.

The Government's response

3.545 The nominator has indicated that cooling towers would need to be used at the site because of unacceptable environmental impacts caused by the size of thermal plume discharged in the Severn Estuary. In October 2010 the nominator 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[94]. It has indicated that these would be around 70m.

94 http://www.horizonnuclearpower.com/files/downloads/october_exhibition.pdf

3.546 Whilst it is not possible to completely eliminate the visual impacts associated with any generating station, developments with hybrid cooling towers would reduce visual impact to the surrounding areas (as compared to natural draft cooling towers) and would mean that a new power station would be more in keeping with the height of the existing power station. However, hybrid cooling towers would increase the size and spread of the development.

3.547 There are mitigation strategies that can be undertaken by developers to reduce visual impact. These can include screening of the power station and sympathetic alignment with the existing landscape. However, 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".

3.548 The site was found to be potentially suitable as it is the Government's view that there is scope for a developer and the IPC to explore in detail minimisation, avoidance and mitigation of adverse effects (even if not total mitigation); and there is a need for sites to be available for potential new nuclear power stations. The NPS says that the nature, scope, and scale of any effect is currently uncertain and is dependent on the exact form of development proposed and even hybrid towers will bring impacts. Nonetheless there is scope for a developer and the IPC to explore in detail minimisation, avoidance and mitigation of adverse effects.

3.549 The nominated sites at Braystones and Kirksanton were removed from the list of potentially suitable sites on the revised draft EN-6 on the basis of reservations about the practicability of deployment by the end of 2025 and potential visual impacts on the Lake District National Park. No issues arise at Oldbury with respect to the credibility of deployment by 2025. As regards potential visual impacts, Kirksanton is adjacent to the Lake District National Park and Braystones lies approximately 3.5km away. The impacts at these sites, which would also be increasing the visual spread of the industrial Sellafield complex, were not found to be acceptable. In contrast, the nominated site at Oldbury is approximately 7km from the Wye Valley AONB and 13km from the Cotswolds AONB.

Comments on D10: Access to suitable sources of cooling

3.550 Comments were received expressing concern that, even with the use of cooling towers, heat discharge from the power station into the Severn Estuary may be unacceptable.

3.551 Many respondents questioned why the site at Oldbury remains on the NPS as it is the only site at which it can be said that cooling towers will definitely be required at this point.

3.552 As described above, the developer has stated a preference for mechanically assisted hybrid cooling towers at Oldbury. Responses were received questioning whether these will cause noise pollution, produce a visible steam plume or affect wildlife in the area.

The Government's response

3.553 Cooling towers transfer waste heat to the atmosphere by evaporating water. Water from the Severn Estuary would be used in the cooling tower and would contain salt. In addition to make up water to replace that which is evaporated, there would be a requirement for purging of the water in the system back to the Estuary to avoid the build up of salt and this would transfer small quantities of heat to the Estuary. The EA advise that it was aware of this when it originally advised that it agreed with the nominator's assessment of the cooling technologies that are feasible for a new nuclear power station within the nominated site. While detailed proposals have not been made the EA would not permit proposals that had an unacceptable impact on the Estuary.

3.554 The Environmental Impact Assessment for the development consent and the application for the Environmental Permit for the discharge will require detailed survey of the sea and modelling of impacts on the environment, including thermal effects.

3.555 Oldbury has not been ruled out on the basis of its requirement for cooling towers as Government has not taken the view that the possibility of indirect cooling should automatically rule a site out of EN-6. It is not Government policy that, in principle, indirect cooling should be disallowed either for nuclear or for other types of power station.

3.556 Horizon has stated that all cooling towers will give rise to noise to some extent[95], and it is normal to include a noise specification to the manufacturer so that the towers will meet background noise limits imposed by regulators. Site design and landscaping can be used to mitigate noise and the measures proposed will form a key part of any future planning application. 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[96].

3.557 The developer has advised that although the hybrid towers do not produce a steam plume comparable to that produced by natural draft cooling towers, in adverse weather conditions a plume may be visible. However, this plume would generally remain less significant than that from a natural draught tower. Part 5.9 of EN-1 sets out that the IPC should ensure that applicants have taken into account the landscape and visual impacts of visible plumes from the cooling assembly. It may need to attach conditions to the consent requiring the incorporation of particular design details that are in keeping with the statutory and technical requirements.

95 http://www.horizonnuclearpower.com/faq_oldbury.php

96 See EN-1

3.558 The EA has advised that there might be some micro-climate effects local to the cooling towers. If there were likely to be further impacts these would need to be considered under the Environmental Impact Assessment when the precise nature and location of the cooling towers is known.

Comments on transport

3.559 Respondents stated that the area around the nominated site already suffers from significant traffic congestion and the construction and operation of a new nuclear power station would increase this. One respondent felt that the AoS for Oldbury does not adequately reflect the potential for impacts on the area, and that a transport assessment should be carried out before the site is listed in EN-6.

The Government's response

3.560 Transport is not considered as one of the SSA criteria as effects cannot be effectively assessed until detailed proposals come forward for the site. Disturbance caused by traffic and abnormal loads generated during the construction phase will depend on the scale and type of the proposal. This is discussed further from paragraph 3.275.

3.561 Guidance in Part 5.13 of EN-1 states that If a project is likely to have significant transport implications, the applicant's Environmental Statement should include a transport assessment.

Comments on health

3.562 Concern was raised that there are clusters of cancer cases around the Oldbury area. This concern was raised in a report by Dr. Chris Busby[97] on an excess of myeloid leukaemia in 0-4 year olds in Chepstow.

The Government's response

3.563 In its eleventh report 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 close to the sites of these types of nuclear installations' Among its recommendations, the report said that the incidence of childhood leukaemia and other cancers in the vicinity of Sellafield and Dounreay was raised and should be kept under surveillance and periodic review. COMARE is continuing to undertake this work, which is intended to form the basis of their fifteenth report

3.564 More detailed comments on COMARE can be found from paragraph 3.144.

3.565 Local primary care trusts and public health observatories currently have responsibilities for maintaining surveillance of cancer rates and investigating

97 Busby, *Childhood leukaemia and cancer in Chepstow, opposite Oldbury nuclear power station*, 2001, http://www.llrc.org/health/subtopic/chepstow.html

reports of clusters, including those of adult cancers. COMARE has also investigated reports of cancer clusters in adults around Oldbury and found that these reports were not substantiated.

Comments on the geological stability of the site

3.566 It was raised that the proposed site is situated on Mercia Mudstone, and would therefore be unsuitable for a large infrastructure project.

The Government's response

3.567 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.

3.568 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 features.

3.569 In the event of a proposal for a nuclear power station at Oldbury, the ONR will not grant consent for the start of construction unless it is satisfied that the design is demonstrably suitable for the ground conditions at the site.

Comments on cumulative effects

3.570 Responses were received expressing concern about possible in combination effects with a proposed new power station at Hinkley Point, particularly in relation to the discharge of heated cooling water and biocides into the Severn Estuary.

3.571 Possible cumulative effects with the proposed gas fired power station at Severnside, a new container terminal at Avonmouth and the expanding Bristol Port were also mentioned. It was suggested that an assessment of the availability of materials and workforce in the area should be undertaken in light of the other construction projects potentially ongoing.

The Government's response

3.572 Although the HRA and AoS for Oldbury identify possible adverse in combination effects with a number of projects in the area, the AoS found 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, 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.

3.573 Cumulative effects through cooling on the Severn Estuary from power stations at Hinkley Point and Oldbury are unlikely, as the nominator has indicated that Oldbury will make use of cooling towers so the only water discharged into the Estuary will be that used to flush sediment and will not be significantly heated. The only heat that the water will obtain will be from the process of being circulated, and the EA has advised that this is a small fraction of the heat discharged during direct cooling.

3.574 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 EN-6, particularly given the uncertainty about the cumulative effects identified by the AoS, the scope for mitigation, and the fact that the SSA is a strategic level assessment.

3.575 The NPS sets out that when an application comes forward, cumulative effects must be considered for those other developments where planning consent has been sought or granted.

3.576 The AoS report for Oldbury assessed potential effects on workforce availability due to multiple projects in the area, and recognized the potential need for mitigation to address ‘likely difficulties in sourcing labour and the effects of this on the local/regional construction industry’. It states that further detailed studies should therefore be carried out by the developer and the regulators at the project level stage.

Sellafield

Introduction and overall conclusion

3.577 The Government has assessed the site against the SSA criteria in the light of evidence from, inter alia, the public[98], regulators and the revised AoS and HRA, and has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and that it should be included in EN-6.

3.578 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 impacts on the River Ehen SAC and SSSI from cooling water discharge.

3.579 Key themes which were raised during the consultation include effects on biodiversity in the area and effects of cooling on the aquatic environment.

Comments on criterion D6: Proximity to sites of international ecological importance

3.580 Responses were received expressing concern that the River Ehen SAC may be affected by the abstraction and emission of cooling water which may be warmed or contain biocides. Points raised on cooling are considered under criterion D10 – Access to suitable sources of cooling.

3.581 It was commented that development in the area would negatively impact on natterjack toad habitats and mitigation of this impact would not be possible.

3.582 Responses were received expressing concern that the construction and operation of a new nuclear power station on the nominated sites may cause changes to coastal processes which could impact on the River Ehen Estuary and therefore impact on the freshwater River Ehen SAC and SSSI via indirect impacts on migratory fish.

The Government's response

3.583 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 nominated site, a detailed mitigation strategy will be required. 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.

98 Public comment window in 2009, consultation running from November 2009 – February 2010, second consultation running from October 2010 – January 2011.

3.584 The HRA report for Sellafield[99] states that there is the potential for obstruction to the path of migratory fish at the River Ehen, which is located approximately 7.7km from the site. The AoS for Sellafield identifies potential effects on coastal processes, and potential indirect effects on nationally and internationally designated habitats. However, potential mitigation measures are identified including suitable design and location of coastal and fluvial flood defence works and selection of appropriate construction methods.

3.585 Guidance to the IPC when considering any potential change to coastal processes and possible effects is contained in Part 5.5 of EN-1. This states that, where relevant, applicants should undertake coastal geomorphological and sediment transfer modelling to predict and understand impacts and help identify relevant mitigating or compensatory measures.

3.586 It also states that applicants should assess, as part of their environmental statement, the effects of the proposed project on marine ecology, biodiversity and protected sites.

Comments on criterion D7: Proximity to sites of national ecological importance

3.587 Responses expressed concern about effects on the Church Moss SSSI, Low Church Moss SSSI, St. Bee's Head SSSI and the Sellafield Tarn County Wildlife site.

3.588 It was stated that the Church Moss SSSI has a high level of invertebrate diversity and this would be disturbed or destroyed by the construction and operation of the power station.

3.589 Concern was also raised that indirect impacts of construction such as pollution may destroy the ecology of the site, and that these impacts would be very difficult to mitigate.

3.590 Sellafield Tarn County Wildlife site lies entirely within the nominated area and respondents felt that it is likely that this site would lose its hydrological integrity even if it is not directly built upon. It was commented that this would lead to the loss of the site.

The Government's response

3.591 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 avoided, through careful siting of the development.

99 DECC, *Appraisal of Sustainability Site Report for Sellafield*, 2010. www.energynpsconsulation.decc.gov.

3.592 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 such as Sellafield Tarn County Wildlife Site 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. Part 5.3 of EN-1 provides guidance to the IPC and applicants on assessing impacts on national and local sites of ecological importance.

3.593 Paragraph 5.3.13 of EN-1 states that the IPC should give due consideration to such regional or local designations. However, given the need for new infrastructure, these designations should not be used in themselves to refuse development consent.

Comments on criterion D8: Proximity to areas of amenity, cultural heritage and landscape value

3.594 Respondents expressed concern that development on the nominated site at Sellafield would lead to negative visual impacts on the Lake District National Park. Respondents also questioned why the sites at Braystones and Kirksanton were excluded on the basis of impact on the Lake District National Park, and Sellafield remains within EN-6.

The Government's response

3.595 Visual impact on the Lake District National Park was one reason why Kirksanton and Braystones were removed from the revised draft EN-6; another was the Government's reservations about the practicability of deployment by the end of 2025

3.596 The AoS for Sellafield states that the existing nuclear facilities at nearby Sellafield already make a prominent feature in views from western areas of the National Park. 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. In contrast, the Government found that development at the Braystones or Kirksanton sites would serve to increase the visual spread of the Sellafield complex.

3.597 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.

3.598 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.

3.599 Any application would be assessed by the IPC using guidance in Part 5.9 of EN-1 which states that National Parks and AONBs have been confirmed by the Government as having the highest status of protection in relation to landscape and scenic beauty. The conservation of the natural beauty of the landscape and countryside should be given substantial weight by the IPC in deciding on applications for development consent in these areas.

Comments on criterion D9: Size of site to accommodate operation

3.600 Comments were received stating that the size of site could accommodate more reactors than proposed by the developer and that the site should be developed to its full potential in order to maximize the socio-economic benefit to the area.

The Government's response

3.601 The SSA did not require nominators to specify how many reactors may be developed at a site. This would be part of the application made to the IPC.

Comments on D10: Access to suitable sources of cooling

3.602 Concerns were received from respondents regarding the entrainment of marine life in a seawater abstraction system, discharge of biocides and its effects on marine ecology and effects of any thermal plume from the emission of cooling water.

The Government's response

3.603 The potential for effects on water quality and migratory fish in nearby coastal waters due to the abstraction and release of sea water for cooling is identified in the AoS report for Sellafield. However, the AoS report[100] finds that there is the potential for the mitigation or compensation of these effects

3.604 A report from the EA on cooling[101] analysed the issue of entrainment, entrapment and impingement of fish in direct cooling systems in detail. The report made several suggestions for mitigation of this issue which could be deployed by the developer. These include specially designed screens and the construction of a bubble curtain to deter fish. The EA has advised that each site will be considered individually.

3.605 The AoS report 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

100 DECC, *Appraisal of Sustainability Site Report for Sellafield*, 2010 paragraph 5.19. www.energynpsconsulation.decc.gov.

101 See footnote 33

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. Any thermal discharge will require an environmental permit from the EA and will need to meet existing regulatory standards.

Sizewell

Introduction and overall conclusion

3.606 The Government has assessed the site against the SSA criteria in the light of evidence from, inter alia, the public[102], regulators and the revised AoS and HRA, and the Government has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and that it should be included in EN-6.

3.607 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 and mitigation of effects on the Suffolk Coast and Heaths AONB.

3.608 Key themes raised during the consultation include flood risk and coastal erosion, emergency planning and impacts on the AONB.

Comments on D1: Flood risk, storm surge and tsunami

3.609 It was questioned how the Government could conclude that the site could be protected from the effects of climate change into the future when data is only available up to 2100, as the Government has stated that waste may be stored onsite up to 2130, which is beyond the date that predictions have been considered. This issue arose at more than one site and is considered at paragraph.

3.610 A report entitled *Climate Change - Adapting to the Inevitable?*[103] was referred to. It was stated that sea level rise may necessitate the abandonment of the site.

The Government's response

3.611 The report *Climate Change - Adapting to the Inevitable* indicates that a projected 2m sea level rise in the second half of the 23rd century would have a major impact on the UK if no adaptation effort is made to prevent it, including inundating the Norfolk Broads and major parts of London such that the viability of London, key ports and the Sizewell site would be threatened. The EA has considered this report and note that the latter half of the 23rd century is significantly beyond the expected timescale for the complete decommissioning of the Sizewell site. The EA has advised that they agree with the report's suggestion that the site might need additional flood protection in the future, as considered in their original advice for the site.

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102 Public comment window in 2009, consultation running from November 2009 – February 2010, second consultation running from October 2010 – January 2011.

103 Institution of Mechanical Engineers, *Climate Change – Adapting to the Inevitable?,* 2009. http://www.imeche.org/Libraries/Rita/IMechE_Adaptation_report.sflb.ashx

3.612 As described from paragraph 3.205, 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 year 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. Guidance for the IPC on resistance to climate change is also contained in Part 4.8 of EN-1.

Comments on D2: Coastal processes

3.613 A number of responses were received expressing concern over coastal erosion occurring at the nominated site, and stating that it is occurring at an accelerated rate and that the site is therefore unsuitable for development.

3.614 Concern was also raised about possible effects of efforts to protect the nominated site on other areas of the coast. It was stated that, if the sea's energy is deflected from the coast around the site, it will be concentrated more strongly in other places speeding up erosion there.

3.615 Comments were also received on the importance of the Minsmere Sluice to the protection of the coastline from erosion.

The Government's response

3.616 Although the AoS for Sizewell states that the current inundation and erosion threat at the station is relatively low, 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. The EA does not consider that the shoreline has come under greater stress in recent years. It advises that there have been storms that have removed material from the local beaches but these events are part of natural processes and the material will be replenished. The EA considers that there is no accelerated rate of erosion and that its original advice is still sound. The EA has advised that detailed modelling supported by data will be required to support the development application for a new power station. 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.

3.617 The EA has advised that potential impact elsewhere of any coastal defences for a site must be assessed, mitigated and acceptable. This is a matter that would be considered if specific proposals for the site are made.

3.618 The EA recognizes the importance of the Minsmere Sluice and is in discussions with the local stakeholder group. Detailed points about the future of the Sluice will be addressed as part of this direct engagement. The protection of any future power station will be considered in detail when

detailed proposals are brought forward and the potential impacts on the surrounding area of the measures to protect the development from flood risk will also be consider at that stage.

Comments on D7: Proximity to sites of national ecological importance

3.619 Comments expressed concern over possible effects on the Sizewell Marshes SSSI which is situated adjacent to and within the nominated site, and from which therefore it is possible that some land may occur. Respondents questioned how mitigation of effects on the SSSI may be possible.

The Government's response

3.620 Although the AoS assessment for Sizewell finds that development in the area is likely to lead to some direct loss and fragmentation of habitats within the Sizewell Marshes SSSI, it also found that there is some scope for mitigation or compensation for negative effects on biodiversity.

3.621 These mitigations could include careful site layout, design, routing, location of the development, associated infrastructure, and sympathetic construction management and timings. Artificial habitat creation can also be used to compensate for habitat loss, but full compensation may not be possible.

3.622 Despite this, 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.

3.623 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.

Comments on D8: Proximity to areas of amenity, cultural heritage and landscape value

3.624 Respondents were concerned that the location of the nominated site entirely within the Suffolk Coast and Heaths AONB would cause significant visual impact for which mitigation would not be possible.

The Government's response

3.625 The nominator has noted that there is established plantation woodland to the north-west of the site and it would be the intention to retain some of this

woodland to help screen the development. The nominator has also proposed that mitigation is also likely to be achieved by minimising ancillary land use in those areas away from the main power station site, although this would depend on consultation with local planning authorities.

3.626 The nominator of the site has noted that there is some potential for landscape and nature conservation benefits through the creation of habitats such as heath land on land surrounding the site, which it believes could help offset the impacts of additional development in the AONB and provide landscape continuity with those heath land areas adjoining the Sizewell Estate to the north and south[104].

3.627 The AoS assessment for Sizewell notes that the current power station is already a significant feature in the landscape and that any new build would be seen in this context. However, given the potential scale of the proposed new nuclear power station, it is likely that there will be adverse direct and indirect effects on landscape character and visual impacts on the AONB, with limited potential for mitigation.

3.628 However, the AoS 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.

3.629 Further guidance on what must be considered by the IPC and the applicant when looking at visual impact is found at Part 5.9 of EN-1. Further detailed assessment of visual effects and potential mitigation will be carried out at the project stage, the AoS suggests that an integrated landscape, heritage and architectural plan would be appropriate.

Comments on D9: Size of site to accommodate operation

3.630 The size of the nominated site and the potential impact this could have on the AONB remained of concern to some respondents.

3.631 Conversely, some respondents expressed concern that the site was 'too cramped' for the number of reactors proposed, and that there would be insufficient space within the nominated boundary for the developers to consider placement of facilities to avoid flooding.

3.632 It was also suggested that there is insufficient 'defence in depth[105]' around Sizewell A and B.

104 See www.energynpsconsultation.decc.gov.uk for the nomination documents for Sizewell, and in particular the nomination report.

105 Defence-in-depth is defined by the International Atomic Energy Agency (IAEA) as "a concept used to design security systems that require an adversary to overcome or circumvent multiple obstacles, either similar or diverse, in order to achieve his objective"

The Government's response

3.633 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.

3.634 The ONR have expressed the view that there is sufficient space within the nominated site at Sizewell to provide defence in depth for at least one single unit nuclear power station, and for it to be safely configured. EDF has stated that they 'would like to' build two reactors at the Sizewell site[106] but this would be assessed in more detail when a proposal and plan come forward. Further detail on the number of reactors assessed for can be found at paragraph 3.256.

Comments on D10: Access to suitable sources of cooling

3.635 Responses were received expressing concern about damage to fish populations caused by the abstraction of larger volumes of water needed for the two stations.

The Government's response

3.636 There are many forms of mitigation available to protect marine ecology from the effects of cooling technology. 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.

3.637 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 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 EN-6 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.

3.638 The EA's report on cooling[107] outlines further forms of mitigation, which can include specially designed screens and the deployment of a bubble curtain.

Comments on emergency planning

3.639 Responses were received stating that there is not sufficient awareness of offsite emergency plans around Sizewell, and that there should be greater

106 EDF, *CNPO letter,* 2009. www.energynpsconsultation.decc.gov

107 See footnote 33.

community engagement so that local residents are more confident about the procedure to undertake should an incident occur. Education and engagement in schools was mentioned in particular.

The Government's response

3.640 Under legislation[108] people living or working within or near to the detailed emergency planning zone for a nuclear installation should receive certain prescribed information. Please see paragraph 2.195 onwards for more information about this.

3.641 The responsibility for keeping schools in Leiston advised of the action to take in the event of an emergency is with the Children and Young People's Services of Suffolk County Council who review the advice every year to make sure that it is up to date and accurate. All head teachers in the Leiston area receive a letter from the council, advising what to do in the event of an emergency.

Comments on socio-economic impacts, community benefit and transport

3.642 Some responses encouraged the consideration of the socio-economic consequences of construction at the proposed site, but were not specific in their concerns. Comments on socio-economic impact are considered from paragraph 3.740. Some respondents felt that community benefit in the form of permanent housing for workers, which could then be fed onto the property market at the end of the development period, should be provided. Community benefit arose at more than one site and is considered from paragraph 3.735. It was also mentioned that a '4 Village' bypass should be built avoiding the villages of Farnham, Stratford St. Andrew, Little Glemham and Marlesford on the A12 in order to mitigate traffic from the proposed nuclear power station and assist in the wider economic benefits accruing from the East Coast Energy Corridor based on the axis between Lowestoft to the north and the Haven Gateway ports (Harwich and Felixstowe) to the south. Comments on transport are considered from paragraph 3.275.

108 The legal basis for the supply of this information is the Radiation (Emergency Preparedness and Public Information) Regulations (REPPIR) 2001.

Wylfa

Introduction and overall conclusion

3.643 The Government has assessed the site against the SSA criteria in the light of evidence from, inter alia, the public[109], regulators and the revised AoS and HRA, and has concluded that the site is potentially suitable for the deployment of a new nuclear power station by 2025 and that it should be included in the revised draft EN-6.

3.644 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.

3.645 Key themes identified from those received include the need for sites, landscape impacts and socio-economic benefit for the area.

Comments on D8: Proximity to areas of amenity, cultural heritage and landscape value

3.646 Concerns were expressed over the possibility of landscape impacts on Anglesey AONB from supporting infrastructure necessary for construction and operation of a new nuclear power station on the nominated site, including whether there would be impacts from transmission lines on the AONB and Snowdonia National Park. Respondents felt that the lines should be placed underground to prevent such impacts. It was also noted that 'LANDMAP' assessments of the area had not been referenced when assessing landscape impacts.

The Government's response

3.647 The Government carefully considered whether the site was suitable given that small parts of the Anglesey AONB are within the nominated site. The AoS report for Wylfa[110] states that although the new power station will be seen in the context of the existing power station, it is still likely that there will be adverse direct and indirect landscape and visual impacts on the surrounding area arising from the proposed development. However, the AoS site report advises that some visual impact mitigation may be possible, including the application of principles of good design. The nominator envisages that mitigation measures may include: arranging the layout of the site to minimise loss of visual amenity from sensitive viewpoints as far as practical; the use of colour schemes which blend the structures with the background and the use of on-site and if necessary off-site landscaping and

109 Public comment window in 2009, consultation running from November 2009 – February 2010, second consultation running from October 2010 – January 2011.

110 DECC, *Appraisal of Sustainability Site Report for Wylfa,* 2010. www.energynpsconsultation.decc.gov.

planting to help screen the site especially from the more sensitive viewpoints[111].

3.648 The boundary of Snowdonia National Park is approximately 25 miles from the nominated site, but the Government acknowledges the possibility of visual effects from supporting infrastructure such as transmission lines.

3.649 This would be assessed by the IPC using guidance in Part 5.9 of EN-1 which states that National Parks have been confirmed by the Government as having the highest status of protection in relation to landscape and scenic beauty. The conservation of the natural beauty of the landscape and countryside should be given substantial weight by the IPC in deciding on applications for development consent in these areas.

3.650 The LANDMAP landscape assessment of the area is a valuable resource, and would be considered when formulating the Environmental Impact Assessment at the project stage of development.

3.651 Although transmission is considered at a strategic level within the site AoS, it is not considered in detail as part of the SSA as knowledge of detailed proposals would be necessary. A separate NPS (EN-5) covers electricity networks (transmission lines and associated infrastructure). Applications for new transmission lines have not yet been received but 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. 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.

3.652 The Government has concluded that, when the ability to partially mitigate the possible effects is considered, alongside the scope for further assessment, the site should be in EN-6.

Comments on socio-economic effects

3.653 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. It was stated that unemployment in Anglesey is high and that the benefits a new nuclear power station would bring should be a key factor in the decision whether to list the site on EN-6.

The Government's response

3.654 The SSA criteria were consulted on and did not include socio-economic effects. There are important regulatory and technical factors in the siting of nuclear power stations such as demographics and access to cooling water,

111 See www.energynpsconsultation.decc.gov.uk for the nomination documents for Wylfa, and in particular the nomination form.

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 criterion of economic deprivation should be added. However, the Government recognises the importance of issues around socio-economic impacts and community benefit. Such issues were raised at Wylfa and at other sites, and are discussed from paragraph 3.735.

Comments on the need for sites

3.655 Concerns were expressed by respondents that the nominated site at Wylfa has only been included due to a lack of alternatives, and that the need for sites should not override any factors which may make the site unsuitable. Specifically mentioned was the impact development may have on the Anglesey AONB and Snowdonia National Park. Detailed comments on visual impact are considered under criterion D8 - Areas of amenity, cultural heritage and landscape value.

The Government's response

3.656 The nominated site at Wylfa has been assessed against the SSA criteria in the same way as the other nominated sites, and has been found to be suitable. The site assessment is contained in Volume II of EN-6.

3.657 Although need is not a specified SSA criterion, it is still a consideration when making a decision on whether to include a site in the draft EN-6. In its response to the consultation on the SSA, the previous Government made clear that when assessing the suitability of sites it may have regard to the need for new nuclear capacity if relevant, any policy on the role of nuclear power in the energy mix, and also wider energy policy[112].

3.658 The Government has carefully considered whether the site is suitable in light of the potential impacts on the Anglesey AONB and Snowdonia National Park, and in light of the scope for further assessment and minimisation of effects, and the lack of alternatives with no impact on nationally designated landscapes, has concluded that it should remain in EN-6.

Comments on grid connection

3.659 Comments were received suggesting that two grid connections should be provided to the site in order to prevent a loss of connection to the power station in an emergency. It was stated that a loss of grid connection could have serious safety consequences.

The Government's response

3.660 The ONR has advised that the loss of offsite power is a design basis event that all designs need to consider and have robust arrangements to deal with. Individual designs cater for the loss of grid in different ways,

112 See footnote 52

through passivity in the design, non-active control and the provision of back up electrical supplies for remnant essential functions.

3.661 The ONR requires a detailed consideration of the consequences of the loss of off-site power on the safety of all nuclear installations. Whilst proposals for a second Grid Line into Wylfa may or may not come forward, the ONR has not advised at this stage that this is a fundamental requirement.

Comments on transport

3.662 Comments stated that the roads in the area are insufficient to deal with extra traffic generated by the construction and operation of a new nuclear power station. In particular, the A5025 was mentioned as being narrow and dangerous. Comments on transport improvement arose at more than one site and are considered from paragraph 3.275.

Question 3 g) to 3k): Revised Appraisal of Sustainability EN1 to EN-5

3.663 The consultation posed the question:

3 g) Do you have any comments on the revised Appraisal of Sustainability for EN-1?

3 h) Do you have any comments on the revised Appraisal of Sustainability for EN-2?

3 i) Do you have any comments on the revised Appraisal of Sustainability for EN-3?

3 j) Do you have any comments on the revised Appraisal of Sustainability for EN-4?

3 k) Do you have any comments on the revised Appraisal of Sustainability for EN-5?

3.664 A number of responses under these headings were in fact comments on the text of the NPSs themselves and are therefore considered under the relevant NPS question. There were very few responses that dealt specifically with the Appraisals of Sustainability for EN-1 to EN-5 and so the responses have been dealt with together below.

Carbon Capture and Storage (CCS)

3.665 There was some question as to whether the “neutral” or “minor positive” rating given to CCS was incorrect given that CCS was not a proven technology.

The Government’s response

3.666 The Appraisal of Sustainability assessed the sustainability of policies set out in EN-2 against the specified alternatives. Although Government acknowledges that CCS is not a proven technology, the assessment considered whether policies to require CCS on all new fossil fuel generating stations would be more sustainable when potential adverse impacts (e.g. the uncertainty that CCS would be able to be applied to all the generating capacity) were taken into account.

Health risks of EMFs not properly considered in AoS5

3.667 Some respondents felt that Government policy on EMFs is wrong and that the AoS should have assessed the health risks on a different basis.

The Government’s response

3.668 The Department of Health is responsible for assessing the risks to human health in this area, and they in turn advise other Departments including DECC, although DECC is responsible for technical issues regarding power

lines. Their advice is that the balance of evidence to date suggests that exposure to EMFs below the 1998 ICNIRP guideline levels is not harmful to the health of the general population. Although they acknowledge there have been some scientific studies into health effects and the proximity of overhead power lines which could imply an effect on health at levels lower than the current guideline levels, (these health effects include childhood leukaemia, neurodegenerative diseases, miscarriages and depression), these should be considered in the context of worldwide research on health effects of ELF EMF.

3.669 However both the Department of Health and HPA support international research in this area and keep emerging science under review whilst maintaining a precautionary approach.

Risks for undergrounding electricity lines overstated

3.670 Some respondents felt that the reasons for not preferring alternative b to the Plan were biased and in some cases wrong, e.g. an increase in flood risk would not be possible because National Parks and AONBs are not usually in low-lying areas but in upland or mountainous terrain. Also that the evidence suggesting that undergrounding was more expensive was not set out in the AoS.

The Government's response

3.671 We believe that the assessment in the AoS is valid. Many nationally designated areas include coastal areas (where coal and nuclear plants may be situated), and river valleys, which may be specifically chosen for siting overhead lines in order to try to reduce visual impact. We therefore believe that the points made on flooding remain valid.

3.672 The Government recognises that there has previously been no comprehensive independent calculation of the additional costs involved in undergrounding high voltage cables, or the extent to which different factors contribute to such costs, and so welcomes any independent review into these costs. In the absence of such a calculation, the NPS does not contain any generalised estimate of the additional cost of putting transmission lines underground. However, evidence from individual cases which has been made public clearly supports the proposition that undergrounding any stretch of electric line is almost invariably more expensive than putting it overhead

3.673 We believe that a policy where decisions on whether or not to underground electricity lines taken within a flexible framework of case by case evaluation is preferable to a tick box approach that might avoid nationally designated areas totally, while forcing more infrastructure into undesignated areas that may have an equal importance locally.

Question 3 l): Revised Appraisal of Sustainability for EN-6

3.674 The consultation document posed the question:

Do you have any comments on the revised Appraisal of Sustainability for EN-6?

3.675 The AoS for EN-6 was revised and republished following the first consultation. As with the first consultation, most of the responses received to the second consultation concerned matters of detail relating to specific sites. For example, some respondents commented upon what they considered to be factual inaccuracies in the characterisation of the area around the nominated site Some called for more detailed information unsuitable for a strategic process like the NPS and which can only be provided in specific site studies associated with applications for development consent at a later stage of the process. Some called for repetition or cross-reference of material already included in the documentation. Some commented that they disagreed with the assessment and conclusions.

3.676 The Government has considered these responses. Nothing in the responses received has caused the Government to think that it should further revise the text of the AoS. A draft AoS post-adoption statement outlining the responses received in the course of both consultations and the Government's response to these is being published alongside this response to consultation.

3.677 Comments on individual sites are not reflected in this chapter. The sections below address key themes emerging from the consultation comments on the AoS.

Comments on uranium mining

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

The Government's response

3.679 The Government has seen no evidence which would cause it to change the position set out in its response to the first consultation. EN-6 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.

3.680 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, 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 transboundary effects

3.681 One respondent asked whether the Government of the Irish Republic had been consulted about the potential transboundary effects on Ireland of new nuclear power stations on the West coast of the UK mainland.

The Government's response

3.682 The Government consulted with the Government of the Irish Republic about the finding in the draft AoS that the construction and operation of new nuclear power stations in line with EN-6 was not likely to result in significant transboundary effects.

3.683 In its response to the consultation, which we have published alongside other responses, the Government of the Irish Republic did not ask formal transboundary consultations to be opened as part of the SEA Directive process but made clear that it is their view that their concerns in this area are best pursued as part of the ongoing dialogue between the two Governments on nuclear issues and through the process of transboundary consultation at project level. The Government shares this view.

Question 3 m): Revised Appraisal of Sustainability Monitoring Strategy

3.685 The consultation document posed the question:

Do you have any comments on the revised Appraisal of Sustainability Monitoring Strategy?

3.686 There were very few responses on the monitoring strategy. Generally there was an agreement that DECC's approach was the right one, though some respondents did suggest adding additional detail, or widening the scope of the monitoring process to include elements outside the UK

The Government's response

3.687 The Monitoring Strategy proposes using existing data sources, which we believe to be proportionate, and we do not propose widening the scope of the Strategy to cover anything outside the UK. We have made some detailed additions and amendments following responses to the public consultation on the draft strategy, but we have not changed the overall structure and content of the document by including large amounts of additional detail, as suggested by some respondents.

Question 3 n): Revised Habitats Regulations Assessment for EN-1 to EN-5

3.688 The consultation document posed the question:

Do you have any comments on the revised Habitats Regulations Assessment for EN-1 to EN-5?

3.689 Relatively few comments were received in response to this question.

3.690 Of those comments that were received, most welcomed the clarification that this HRA was a plan-level assessment for the suite of energy NPSs and is not transferrable to individual projects. Any project that does come forward which is likely to significantly affect a European Site will still require a project level appropriate assessment.

Question 3 o): Revised Habitats Regulations Assessments for EN-6

3.692 The consultation document posed the question:

Do you have any comments on the revised Habitats Regulations Assessments for EN-6?

3.693 The HRA for EN-6 was revised and republished following the first consultation. As with the first consultation, most of the responses received to the second consultation concerned matters of detail relating to specific sites. For example, some respondents commented upon what they considered to be factual inaccuracies in the characterisation of the area around the nominated site. Some called for more detailed information unsuitable for a strategic process like the NPS and which can only be provided in specific site studies associated with applications for development consent at a later stage of the process. Some called for repetition or cross-reference of material already included in the documentation. Some commented that they disagreed with the assessment and conclusions.

3.694 The Government has considered these responses. Nothing in the responses received has caused the Government to think that it should revise the general approach of these documents.

HRA a plan-level assessment

3.695 One respondent asked for confirmation that the Government's findings in respect of Article 6(4) of the Habitats Directive and EN-6 do not automatically transfer directly to individual projects and that when undertaking a Habitats Regulations Assessment in respect of a project, including assessing the requirements of Article 6(4) of the directive, the IPC should have regard to the Government's findings detailed in EN-6 and this HRA.

The Government's response

3.696 The Government confirms that this is the case.

Table S.2 of the HRA Non-Technical Summary

3.697 One respondent suggested that Table S.2 of the HRA Non-Technical Summary should :

- consider water resources and transportation issues in respect of construction activity;
- under the heading "Potential impacts subsequent to operation" include thermal discharge, potential indirect effects associated with entrainment and impacts on migratory species;
- acknowledge the potential for effects on natural heritage in addition to habitat loss and fragmentation;

- instead of the term ‘coastal squeeze’ for the process of coastal development leading to loss of habitats should use the term ‘constraining geomorphologic processes’.

- include additional ‘potential effects’ boxes to make it consistent with proposed avoidance and mitigation measures.

The Government’s response

3.698 The Government’s view is that:

- Table S.2 sufficiently covers these issues.

- Table S.2 is intended to be generic and these subjects are discussed at length in the detailed assessments. In particular the Government’s view is that changes in water volume and pollution capture the impacts arising from thermal discharge.

- Table S.2 is generic and aims to identify the key/ strategic impacts and effects.

- The phrase “coastal squeeze” is widely used and understood and captures the impacts and effects being identified.

- The existing boxes relate well to the key heading for the avoidance and mitigation measures.

Table S.3 of the HRA Non-Technical Summary

3.699 One respondent suggested that Table S.3 of the HRA Non-Technical Summary should :

- refer in the section Water Resources to potential impacts from thermal pollution from discharges, including the creation of thermal barriers to fish migration;

- instead of the term ‘coastal squeeze’ for the process of coastal development leading to loss of habitats should use the term ‘constraining geomorphologic processes’;

- refer in the section Disturbance Events to light pollution.

The Government’s response

3.700 The Government’s view is that:

- This point is covered in the table by the bullet point ‘Cooling water discharges could further reduce the amount of dissolved oxygen in the water column and create thermal and chemical barriers to fish migration’;

- The phrase “coastal squeeze” is widely used and understood and captures the impacts and effects being identified;

- Key elements of disturbance are covered in the table and light pollution is covered in the detailed assessment where it is relevant.

River Usk

3.701 One respondent suggested that Table 5.3 of the HRA Main Report should also include the River Usk SAC against the Oldbury site given the sensitivity of shad to noise/vibration.

The Government’s response

3.702 The River Usk SAC does not appear on Table 5.3 because although the HRA site report for Oldbury concluded that the potential for adverse effects on the River Usk could not be ruled out in relation to habitat loss and fragmentation, it did not consider that the River Usk SAC would be adversely affected by direct disturbance issues. The indirect effect on migratory fish in the River Usk of disturbance at Oldbury is considered under the heading of habitat (and species) loss (paragraph 2.39).

Hartlepool

3.703 One respondent, with reference to paragraph 3.44 of the Hartlepool HRA site report, thought that this understated the potential impact of loss of land in the event of a nuclear power station being built.

The Government’s response

3.704 The Government’s view is that the present proposals do not preclude the possibility of maintaining satisfactory connectivity between wildlife corridors. The nominated site is large and it is not clear where development will take place nor how much open space will be retained. For this reason the Government feels it appropriate to recommend further consideration of connectivity and habitat creation at the project level, which should help optimise the site layout so as to avoid/minimise Impacts and assess mitigation.

Heysham

3.705 One respondent questioned the statement in the Heysham HRA site report about the robustness of the Morecambe Bay SAC and said that this failed to make clear the actions necessary to maintain the component SSSIs in favourable conditions.

The Government’s response

3.706 The meaning of the passage is that the SAC is robust to current pressures and that its condition status is currently 90% favourable. It is not saying that the favourable condition status implies robustness. Information sources for

this statement in the HRA report include the JNCC standard data form which describes the site as being 'subject to a wide range of pressures' and being 'relatively robust'.

Heysham

3.707 One respondent said that the HRA should include all the following internationally and nationally protected sites which may be affected Morecambe Bay SAC, Morecambe Bay SPA, Morecambe Bay RAMSAR, Leighton Moss SPA, Leighton Moss RAMSAR, Shell Flat cSAC, Lune Deep cSAC, Liverpool Bay pSPA, Morecambe Bay SSSI, Lune Estuary SSSI, Heysham Moss SSSI and Leighton Moss SSSI.

The Government's response

3.708 The HRA is only required to consider European designations and by definition assessments take into account component SSSIs. The HRA Main Report does refer to all the European sites listed. It is not required to refer to the SSSIs individually.

Hinkley

3.709 One respondent, with reference to the Hinkley HRA site report, said that they had concerns about the impact of a thermal plume from the existing and new nuclear power stations on the ecology of Bridgwater Bay and the capacity for mitigation.

The Government's response

3.710 The HRA site report for Hinkley provides what the Government believes is an appropriate level of evidence for a strategic level assessment.

Sellafield

3.711 One respondent advised that the HRA should not screen out the Solway Firth and River Eden SACs at this stage and that Table 5.1 of the HRA Main Report should also include these sites.

The Government's response

3.712 The Government assumes this refers to the potential impact on migratory fish species. Paragraph 2.19 of the Sellafield HRA site report explains that there is little information on the coastal migration routes used by these species and that this would need to be addressed at the project level to inform the screening process for project level HRA.

Local nature reserves

3.713 Some respondents said that the impact of nuclear power stations on local nature reserves, not qualifying for international or national status, should be considered as they often supported protected habitats and species.

The Government's response

3.714 Any habitats or species that are of European importance but that fall outside designated areas are protected by legislation including the Conservation of Habitats and Species Regulations 2010 and the Environmental Liability Directive which places obligations on business to avoid environmental damage and they would have to be addressed by future project level assessments (both HRA & EIA).

Designation of habitats

3.715 One respondent pointed out that not all EC Habitats Directive Annex 1 Habitats are covered by Natura 2000 sites, that some fall outside the international designations and that all such sites, not only international sites, should be considered. The respondent said that the same point applied to nationally designated sites of ecological importance and that SSSIs are only a representative sample and do not cover all important sites.

The Government's response

3.716 The Government's view is that this is a complex wider issue which cannot be satisfactorily dealt with in the NPS HRA/ AoS consultation. European and national sites are designated on the basis of the species and habitats they support. It is typically the case that these species and habitats also exist in areas outside the designations. HRAs will take account of supporting habitats that may also reflect those within the designated areas (e.g. transition areas for migrating birds) where they are known to be relevant to the integrity of the species/ overall designation. However, it is not appropriate for the SSA criteria and the strategic level AoS/HRAs to have considered all local sites that do not fall within formal designations. Where relevant, local designations and undesignated areas would be addressed by project level EIA.

Question 3 p): Revised Impact Assessment

3.717 The consultation document posed the question:

Do you have any comments on the revised Impact Assessment for the energy NPSs?

3.718 There were no substantive comments to this question.

3.719 Some responses were not the subject of this question and so have been answered under the most appropriate question elsewhere in this response.

Other issues

3.721 Some themes emerged which are outside the scope of the formal consultation, not specifically related to any one consultation question, or not directly relevant to NPSs. They are outlined below.

Comments on community benefit

3.722 Some local authority respondents felt that the Government should put an obligation on developers to deliver community benefit that would adequately offset and compensate the community for hosting a new development and its associated infrastructure. These respondents argued that as well as mitigating the impacts of development in planning terms, developers should also provide wider community benefit and fully mitigate and compensate for the perceived, as well as real, impacts of development (for example, in respect of new nuclear power stations, to include compensation for the perceived risk of hosting interim waste storage). It was suggested that the NPSs should describe how community benefit packages could be arranged outside the current framework of section 106 agreements and the Community Infrastructure Levy. It was also suggested that the Overarching Energy NPS (EN-1) should direct the IPC to consider whether proposed compensation for impacts on the community was sufficient.

The Government's response

3.723 Planning obligations (sometimes known as "section 106 agreements" – after section 106 of the Town and Country Planning Act 1990 – although they can be assumed unilaterally) can be used to make acceptable developments that would otherwise be unacceptable in planning terms. Such obligations can be used, for example, to secure a contribution from a developer to compensate for loss or damage created by a development, or to mitigate a development's impact. Planning obligations must be relevant to planning, necessary to make the proposed development acceptable in planning terms, directly related to the proposed development, fairly and reasonably related in scale and kind to the proposed development, and reasonable in all other respects. The use of planning obligations must be governed by the fundamental principle that planning permission may not be bought or sold.

3.724 Paragraph 4.1.8 of EN-1 makes it clear that the IPC may take into account any planning obligations that an applicant agrees with local authorities. The IPC has given advice to individual applicants about the process for consideration of these, and has issued general guidance on planning obligations in its Guidance Note 2[113]. Further information on planning

[113] A register of IPC advice to individual applicants under s.51 of the Planning Act 2008 is available on the IPC website http://infrastructure.independent.gov.uk/legislation-and-advice/register-of-advice/. IPC Guidance Note 2 on Preparation of Application Documents under s.37 of the Planning Act 2008 http://infrastructure.independent.gov.uk/wp-content/uploads/2010/04/IPC-app-docs-guidance-note-2.pdf

obligations can be found on the Department of Communities and Local Government website[114].

3.725 There is also the possibility for Community Infrastructure Levy (CIL)[115] to be charged on certain types of development to provide infrastructure to support the development of an area in line with local authorities' development plans. CIL and planning obligations are intended to operate in a complementary way: CIL providing for general infrastructure contributions; and planning obligations providing for site-specific mitigation.

3.726 The Government is giving further consideration to issues raised about the provision of community benefit outside the planning regime.

Comments on socio-economic impacts and mitigation

3.727 Some respondents felt that appropriate mitigation of socio-economic effects should be one of the key obligations on which consent from the IPC would depend. Others felt that the NPSs should provide additional information on the key features of any socio-economic assessment and the range of mitigation that should be considered by an applicant, to include for example mitigation through funding for skills and training. Also noted was the importance of demonstrating how negative impacts arising from a sudden influx of temporary workers will be avoided, including a consideration of the pressure that may be placed on local services and resources. Some respondents said that the socio-economic impacts of new nuclear power stations were not always positive, and that this should be reflected.

3.728 Some respondents felt that developers should be encouraged to consider legacy socio-economic benefits, for instance through the provision of permanent rather than temporary facilities. Some respondents emphasised the importance of housing as a legacy option which could mitigate impacts. However, there was also a concern that the Planning Act 2008 did not allow permanent housing to be considered as Associated Development by the IPC.

The Government's response

3.729 It would not be appropriate for the Government to specify the sorts of benefits or mitigations of socio-economic impacts that developers may wish to consider providing in respect of their developments, or to restrict the IPC in its consideration of socio-economic (or any other) impacts. Paragraph 5.12.2 of EN-1 makes clear that where the project is likely to have socio-economic impacts at local or regional levels, the applicant should undertake and include in their application an assessment of these impacts as part of the Environmental Statement. In addition, paragraph 5.12.8 of EN-1 makes it

[114] See Circular 05/2005 on Planning Obligations, available at http://www.communities.gov.uk/publications/planningandbuilding/circularplanningobligations

[115] An overview of the Community Infrastructure Levy is available at: http://www.communities.gov.uk/documents/planningandbuilding/pdf/communityinfrastructurelevy.pdf

clear that the IPC should consider any relevant positive provisions the developer has made or is proposing to make to mitigate impacts (for example through planning obligations) and any legacy benefits that may arise, as well as any options for phasing development in relation to the socio-economic impacts. Section 3.11 of EN-6 has been updated to reflect that whilst the Nuclear Appraisal of Sustainability identified that there are likely to be positive effects of local economic significance, there may also be negative effects.

3.730 On housing, it will be for the IPC to determine whether any proposal for associated development included in a development consent application does constitute Associated Development, in line with the Planning Act and guidance from the Department of Communities and Local Government[116]. As stated above, section 5.12.8 of EN-1 explains that in its consideration of socio-economic impacts the IPC should consider, amongst other things, any legacy benefits that may arise. It would also be open to the developer to apply for consent for associated development such as housing to the relevant local planning authority under the Town and Country Planning Act 1990.

Comments on impacts on policing and crime

3.731 Some respondents were concerned that an influx of workers or, in some cases, protestors, to new developments could lead to increased crime or disorder and/or reduced community cohesion. There were also concerns regarding road safety due to pressures on transport systems. Some respondents were concerned that the NPSs should adequately reflect this and ensure that impacts on policing are considered. It was asked what opportunity the police would have to feed in their views to an application for development consent and whether this would be through a Local Impact Report.

3.732 Respondents also asked how the costs of policing would be met, saying that they should not fall on the local policing budget, given that the infrastructure benefits are felt nationally.

The Government's response

3.733 Paragraph 5.12.3 of EN-1 sets out some of the potential socio-economic impacts that applicants should assess, including potential impacts on the demand for local services. This list is not intended to be exhaustive and does not specify potential impacts on individual services, but it could certainly include potential impacts on policing services (for example, as a result of an influx of workers or protestors). The relevant police authority is a statutory consultee at pre-application stage and will therefore have the opportunity to raise specific community cohesion and policing concerns with the applicant

[116] Communities and Local Government, *Guidance on Associated Development: Applications to the Infrastructure Planning Commission*, September 2009 http://www.communities.gov.uk/documents/planningandbuilding/pdf/guidanceassocdevelopment.pdf

at this pre-application stage. In addition, local police forces would be advised to liaise closely with local authorities to ensure that any Local Impact Report reflects any potential impacts on local policing.

3.734 It would not be appropriate for the NPSs to set out how the costs of policing should be met. This should be a matter for consideration by the relevant local police authority, in discussion with the developer where appropriate.

Comments on local authority resource and business rates

3.735 Some local authorities said that they would face significant additional work in dealing with prospective applications for development consent under the new planning regime, which would present financial pressures for them as they would no longer receive a fee from the developer. They suggested that the NPSs should provide guidance on the use of Planning Performance Agreements and Service Level Agreements as a way of securing funding from the developer.

3.736 Some respondents also felt that business rates should be retained in communities and that this policy should be explained in the NPSs. Some local authorities sought clarification that the policy would apply to local communities hosting new nuclear power stations, as well as renewable energy developments.

The Government's response

3.737 Local authorities already look closely at any major infrastructure projects proposed in their area and engage with developers on potential applications. However, where a local authority receives a request for pre-application advice that requires substantially more resources than is normal, they may recover costs by charging a fee under section 93 of the Local Government Act 2003. In addition to this, Planning Performance Agreements (PPAs) can help local authorities deal with very large and complex applications. These are up front agreements between a developer and a local planning authority that set out all the information required and the timetable for delivering the decision or advice. Guidance on the use of PPAs is already available online[117].

3.738 On business rates and local growth more widely, the Local Government Resource Review is considering options to allow local authorities to retain locally-raised business rates from all types of business development in their areas. Such an approach will help set free as many local authorities as possible from dependency on central government grant funding, as well as develop better incentives for local authorities to promote economic growth in

117 See for example the letter on local authorities' role in the new planning regime, July 2009, at http://www.decc.gov.uk/assets/decc/What%20we%20do/UK%20energy%20supply/Development%20consents%20and%20planning%20reform/1_20090716112449_e_@@_localauthorityletter.pdf; joint CLG/ATLAS guidance at http://www.atlasplanning.com/lib/liDownload/195/P4.9%20PDA%20Pilot%20Report.pdf?CFID=736988&CFTOKEN=65603811; and case study by the Planning Advisory Service at http://www.pas.gov.uk/pas/aio/40105

their areas and to benefit financially from that growth. The first phase of the review will deliver proposals by July 2011.

Associated Development and Cumulative Impacts

3.739 A number of respondents questioned the ability of a developer to apply for consents for related infrastructure which may be indispensable to a project's operation, such as electricity transmission lines connecting a generating station, separately to an application from a generating station. They felt that the cumulative impacts of the development could not be properly understood if the whole project was not the subject of a single application for development consent.

The Government's response

3.740 The intention of the Planning Act 2008 was to create a holistic planning regime with all elements of a project being considered together, as far as possible.

3.741 The Government prefers that lines and generators are considered 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 or urgently needed development delayed.

3.742 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.

Publication of NPSs to be delayed

3.743 A few respondents asked that Government delay finalisation of the energy NPSs until after work on the Electricity Market Reform, which could make important changes to energy policy, is published.

3.744 Similarly a few respondents asked that Government delay finalisation of the NPSs until after the Localism Bill passes through Parliament and receives Royal Assent, in order to ensure the IPC does not determine any cases by itself.

The Government's response

3.745 There is an urgent need for new energy infrastructure and we believe that approval and designation of the NPSs are vital steps on the path to meeting our 2050 targets. This is why we have proceeded to lay the NPSs before Parliament at this stage.

3.746 The Government is pursuing a major programme of planning reform which is being coordinated across Government. The Government believes that there is no need to wait for the different elements of our reforms to conclude before we present the NPSs to Parliament for approval.

3.747 There will almost always be other initiatives emerging which it could be argued might interact with the NPSs and therefore provide a reason to delay. Delay to the designation of the NPSs is one important source of uncertainty.

3.748 Subject to the Localism Bill receiving Royal Assent, we intend to abolish the IPC in April 2012 – delaying approval until then would cause significant uncertainty to developers and investors, as well as the local communities which may be affected by new infrastructure.

3.749 Arrangements are in place which enable designated NPSs to apply and applications to be considered before the Localism Bill receives Royal Assent.

3.750 We also do not believe that it is necessary to delay the NPSs until after publication of the Electricity Market Reform (EMR) White Paper, which will set our detailed proposals for reform of the electricity market. While EMR does interact with planning policy, these have been developed in parallel and the interactions considered within Government to ensure they are consistent. The EMR White Paper is scheduled to be published before the summer recess.

Comments on local impact reports

3.751 A number of respondents stated that the NPSs still did not give enough guidance on what information should be provided in a Local Impact Report to the IPC and that further advice was needed over and above that which has already been provided by the IPC.

The Government's response

3.752 The definition of a Local Impact Report is given in the Planning Act 2008 as 'a report in writing giving details of the likely impact of the proposed development on the authority's area (or any part of that area)'[118]. It is intentionally not specific as it is intended to allow local authorities to include any information that they consider relevant to the impact of the development in their area.

[118] See section 60(3) of the Planning Act 2008

3.753 The IPC has published a note on Local Impact Reports with some suggestions of scope on their website[119]. Local Authorities can also contact the IPC to discuss information to include should they wish.

3.754 The Government does not agree that it should produce guidance on the production of local impact reports. Such reports will be created by Local Authorities and used by the IPC, and the Government does not wish to restrict what the Local Authority would wish to cover or the IPC would find useful.

Status of NPSs within planning system

3.755 A few respondents felt that some of the policies within the NPSs were contradictory and requested more information on which of the NPSs took precedence over each other.

3.756 Similarly they requested more information on the status of the NPSs in the wider planning system and what precedence NPSs have over other planning laws and documents.

The Government's response

3.757 EN-1 is an umbrella document, under which all of the technology specific energy NPSs sit. When considering an application for development consent for a project which is subject to a technology-specific NPS, the IPC must consider all of the criteria set out in EN-1 as well as the additional criteria set out in the technology specific NPS to which the application relates.

3.758 NPSs are aimed primarily at providing a framework for the IPC to take decisions on major infrastructure projects. Decisions by the IPC (and in future, the Secretary of State) have to be taken in accordance with NPSs – it is therefore clear that NPSs take precedence over any other statement of planning policy or guidance for decisions on major infrastructure projects.

3.759 However, a close interaction is envisaged between NPSs and the Town and Country Planning regime. Under existing Town and Country Planning Act (TCPA) 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.

3.760 The basis of the advice in the Chief Planner's letter[120] was that 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

119 Advice Note One: Local Impact Reports is available at: http://infrastructure.independent.gov.uk/wp-content/uploads/2010/05/Advice-note-1-LIR.pdf

120 The letter is available at: http://www.communities.gov.uk/publications/planningandbuilding/letternpsconsultation

have to make their decisions in accordance with the development plan unless there are material considerations which indicate otherwise. The Government policy (including policy issued in draft for consultation) may, where relevant, be such a material consideration. However, the degree to which Government policy, including the policy in the NPS, or draft NPS, 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.

3.761 This is a principle with which local planning authorities are already familiar.

Missing information in technology specific NPSs (EN-2 to 6)

3.762 A few respondents questioned why information present in the impact sections of EN-1 is not also present in the technology specific NPSs EN-2 to 6.

The Government's response

3.763 As stated above, EN-1 is an umbrella document, under which all of the remaining energy NPSs sit. When considering an application for development consent the IPC must consider all of the criteria set out in EN-1 as well as those set out in the technology specific NPS to which the application relates.

3.764 To avoid lengthy repetition within the NPSs, we have not repeated in the technology specific NPSs anything that is present in EN-1. EN-2 to 6 set out additional criteria for the IPC to consider which are specific to the type of infrastructure they cover.

Annex A: How have the NPSs changed?

4.1 This section summarises the key changes made to the NPSs since the consultation. It aims focus on the main elements that are materially different, but does not seek to discuss them in detail.

Overarching National Policy Statement for Energy (EN-1)

4.2 The Overarching NPS (EN-1) sets out the Government's energy policy, explains the need for new energy infrastructure, sets out policies which are relevant to more than one type of energy infrastructure and instructs the IPC on how to assess the impacts which are common to more than one type of energy infrastructure. The other energy NPSs contain supplementary information for specific types of infrastructure. These 'technology-specific' energy NPSs (EN-2 to 6) must be read in conjunction with the draft EN-1.

What are the key changes?	Where is the change in the revised draft?
Policy Section 2 has been updated to take account of publication of the EMR consultation. Text on the EU ETS has also been revised for clarity.	Section 2.2.17 Section 2.2.12
Need This section sets out the need for new energy infrastructure. Clarity has been provided on the urgency of the need for electricity technologies throughout the chapter. On nuclear power plants the Government has added a footnote to highlight that nuclear power stations sometimes achieve lifetime extensions but that the Government does not believe that the potential to achieve relatively short-term lifetime extensions for existing aging plant removes the need for large-scale investment in new modern nuclear generating plants that will have working lives of 60 years or more.	Section 3.4; Sections 3.6 to 3.9

Carbon Capture and Storage (CCS) This section has been revised to clarify that the CCS demonstration is now open to gas-fired generating stations to apply for funding. It also clarifies that operators would need to comply with any emissions performance standards (EPS), but this is not a planning issue.	Section 3.6.5 to 3.6.7 Section 4.7
Assessment Principles This section has been revised for clarity on policy for consideration of applications.	Section 4.1
ES and information requirements This section has been revised to explain why it may be helpful to include information not specifically described in the EIA Directive in an application for energy infrastructure.	Section 4.2
Alternatives This section has been revised to clarify legislative requirements for alternatives and how IPC should address alternatives proposed by 3rd parties after an application has been submitted**.**	Section 4.4
Historic environment This section has been further updated to ensure that it accurately reflects the revised Planning Policy Statement PPS5[121].	Section 5.8
Landscape and visual impact This section on how the IPC should consider cooling towers and systems has been revised to take account of comments that there would be some efficiency losses and to clarify the amount of visible plumes from hybrid systems.	Section 5.9
Waste Management Specific considerations with regard to radioactive waste are set out in section 2.11 and Annex B of EN-6. This section of EN-1 will apply to *non*-radioactive waste for nuclear infrastructure as for other energy infrastructure.	Section 5.14

121 Planning Policy Statement PPS5 is available at: http://www.communities.gov.uk/publications/planningandbuilding/pps5

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

4.3 This NPS, taken together with EN-1, provides the primary basis for decisions by IPC on applications it receives for fossil fuel generating stations with over 50 MW (megawatts) generating capacity.

What are the key changes?	Where is the change in the revised draft?
CCS Amendment to note that the CCS demonstration programme has been extended to gas-fired generating stations.	Paragraph 1.1.2
Landscape and visual impact A small revision has been made to clarify why the IPC should be assessing mitigation proposals. Additional text has been inserted to separate acceptable design for impacts other than on landscape and visual from acceptable landscape and visual impacts.	Paragraph 2.6.8 Paragraph 2.6.10
Residue Management Added text to indicate what the applicant and IPC should do after exploring options for ash mitigation.	Paragraph 2.9.5
Noise and Vibration Amended to make clear that “good design” for noise and vibration reduction is not solely about buildings.	Paragraph 2.7.5
Water Quality and Resources Amended to avoid any perception that pre-judging outcome of IPC considerations.	Page 2.10.3

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

4.4 This NPS, taken together with EN-1, provides the primary basis for decisions by IPC on applications it receives for renewable energy infrastructure. This covers any energy infrastructure for biomass and/or waste generating above 50 MW, any offshore wind farm generating above 100MW, and any onshore wind farm generating more than 50MW. This NPS does not cover other types of renewable energy generation, such as schemes that generate electricity from tidal or wave power.

What are the key changes?	Where is the change in the revised draft?
Clarification Revision on CHP and CCS for biomass/EfW to make clear that CHP applies to both biomass and EfW and that biomass generating stations >300 MW should be CCR, in response to public consultation comment. Amendment to clarify scope of waste management plans in England and Wales Revision to clarify what happens if noise not mitigated. Revision to clarify that “appropriate distances” applies to all sensitive receptors, not only residential properties, to reflect comments from Defra and Environmental Protection UK and be consistent with other references	Paragraph 2.5.4 Paragraph 2.5.63 Paragraph 2.6.96 Paragraph 2.7.7
Biomass sustainability The text has been substantially revised to take account of the latest position on Renewables Obligation Certificates (ROCs), comments from consultation responses and recent developments of Government policy on whether sustainability of biomass should be a material consideration in development consent decisions.	Section 2.5
Odour, insect and vermin infestation Impacts for Biomass / Waste New section included to reflect comments from Defra.	Section 2.5

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

4.5 This NPS, taken together with EN-1, provides the primary basis for decisions by the IPC on applications it receives for gas supply infrastructure and gas and oil pipelines, and including infrastructure that is being assessed as associated development with another Nationally Significant Infrastructure Project.

What are the key changes?	Where is the change?
EU rules for the Internal Market in Natural Gas A new section has been included to ensure we meet the requirements in EU Directive 2009/73/EC.	Section 2.7
Gas and Oil Pipelines Impacts: Biodiversity, Landscape and Visual This section has been revised to include impacts on Biodiversity ,alongside landscape and visual impacts.	Section 2.21

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

4.6 This NPS, taken together with EN-1, provides the primary basis for decisions by IPC on applications it receives for electricity networks infrastructure, covering above ground electricity lines of 132 kilovolts (kV) and above, and other infrastructure for electricity networks that is associated with a Nationally Significant Infrastructure Project, such as substations and converter stations.

What are the key changes?	Where is the change?
Undergrounding Further clarification of policy in this area.	Section 2.8

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

4.7 This NPS, taken together with EN-1, provides the primary basis for decisions by IPC on applications it receives for nuclear generating stations with over 50MW generating capacity.

4.8 This NPS lists the sites that the Government has judged to be potentially suitable for the deployment of new nuclear power stations by the end of 2025 and the reasons why those sites are considered potentially suitable.

4.9 This NPS also sets out the Government's 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; and that there are IROPI for why it should proceed despite it not being possible at this stage to rule out any adverse effects on European Sites.

4.10 EN-6 looks different because as a result of the consultation the NPS has been streamlined to clarify the policy that the IPC should consider when determining an application for new nuclear development and reduce repetition of material from EN-1.

What are the key changes?	Where is the change?
Reasons for policy Throughout the NPS, clarification has been given for the reasons for the policy that appears in the NPS (when it does not already appear in EN-1).	Throughout
Future planning reform Text has been added to highlight the forthcoming change from the IPC to MIPU.	Section 1.4
Need for nuclear power stations The NPS now states that the fact that a site is identified as potentially suitable does not prevent the impacts being considered greater than the benefits in the consideration of an application for development consent.	Paragraph 2.2.5
Combined Heat and Power The presumption against CHP for new nuclear power stations has been removed. However, the economic viability of CHP opportunities (see Section 4.6.5 of EN-1 for further details) opportunities may be more limited for new nuclear	Section 2.9

power stations.	
Relationship between the planning regime and the regulators This section has been clarified, in particular to emphasise that applicants should have involved the Nuclear Regulators early enough during the pre-application stage so that they have had the opportunity to incorporate the relevant regulators' requirements in proposals where appropriate. It also reflects that the IPC does not need to consider the Weightman reports into the Japanese earthquake and tsunami when considering applications for development consent.	Section 2.7.
The management and disposal of radioactive waste There are two points on which the wording in EN-6 has been revised: On on-site interim storage of waste, the NPS has been revised to provide further clarification on what the IPC considers. On central storage of waste, the Government has clarified the NPS to clarify that whilst the planning assumption is that interim storage of waste will be onsite, there are some factors which might cause interim storage period to be significantly shorter, for example it is not necessarily the case that the whole interim storage period for the spent fuel produced by a new nuclear power station will be on-site. The Government does not wish to preclude alternative arrangements, for example a central storage facility, if a site can be identified and the necessary regulatory and planning permissions obtained.	Section 2.11 B.44, Volume II annex B
Policy on the siting of new nuclear power stations Section 3.3. on listed boundaries and the location of facilities has been deleted and incorporated into this section, which now also reflects what the IPC should do if it receives an application for a site which is partly within the boundary (it should treat it as a non-listed site, but in making any recommendation should consider the conclusions	Section 3.3. (deleted) Section 2.3.

reached in the SSA in relation to the land within the boundary).	
Flood risk The "Applicant's assessment" is now clarified to show that the applicant should identify the impacts of the credible maximum scenario and demonstrate that in principle adaptation to that scenario would be possible.	3.7.6.
Site assessments Site assessments have been updated since the consultation for the sites listed within the NPS and are now set out in Annex C of the revised draft NPS. Details regarding Braystones, Kirksanton and Dungeness (which are not on the list in the Revised Draft) are set out within the Government Response. Please see below for details on the changes to individual site assessments.	Annex C, Volume II of the NPS

BRADWELL

What are the key changes?	Where is the change in the NPS?
Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami
Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami
Areas of amenity, cultural heritage and landscape value More detail added in response to consultation comments. Clarification that Othona Roman Fort and St. Peter's Chapel are not nationally designated sites.	D8: Areas of amenity, cultural heritage and landscape value
Access to suitable sources of cooling Further detail added on direct and indirect cooling in response to consultation comments. Text added on the Shellfish Waters Directive and temperature limits.	D10: Access to suitable sources of cooling
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th).	Health

HARTLEPOOL

What are the key changes?	Where is the change in the NPS?
Lifetime extension Text added to reflect that the lifetime of the existing power station has been extended to 2019.	Description of the site
Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami

Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami
Teesside Environmental Recycling and Reclamation Centre (TERRC) Detail added in response to consultation comments describing potential cumulative effects identified in the site AoS and HRA, and suggested mitigation.	D3: Proximity to hazardous industrial facilities and operations
Functional land used by SPA species Text added in response to consultation comments regarding the preservation of land used by SPA species.	D6: Proximity to internationally designated sites of ecological importance
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th).	Health

HEYSHAM

What are the key changes?	Where is the change in the NPS?
Lifetime extension Updated to reflect that Heysham 1 has received a lifetime extension to 2019.	Description of the site
Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami
Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami
Effects on Morecambe Bay and Leighton Moss SPA and RAMSAR sites Detail added in response to consultation comments regarding assessment of and possible mitigation against impacts on the Morecambe bay and Leighton Moss sites.	D6: Proximity to internationally designated sites of ecological importance
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th).	Health

Existing land use Text added regarding the importance of engagement between developers and communities throughout the planning and construction process.	Existing land use

HINKLEY POINT

What are the key changes?	Where is the change in the revised draft?
Detailed developer proposals Text added to reflect that responses to the consultation were received regarding detailed developer proposals outside the scope of the NPS. These are summarized but not responded to specifically.	Description of the site Detailed proposals and local effects
Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami
Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami
Severn Tidal Project References to potential cumulative effects with a Severn Tidal project have been removed as the project has been discontinued at present.	D6: Proximity to internationally designated sites of ecological importance
Cultural Heritage Assets Text added in response to consultation comments regarding the treatment of cultural heritage assets in the pre application stage.	D8: Areas of amenity, cultural heritage and landscape value
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th). Text added regarding the studies undertaken by the Environment Agency in response to claims that enriched uranium is present in the soil at the site.	Health

OLDBURY

What are the key changes?	Where is the change in the NPS?
Lifetime extension Updated to reflect that the existing power station at Oldbury has received a lifetime extension to 2011	Description of the site
Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami
Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami
Shoreline Management Plans Text added in response to consultation comments detailing that Shoreline Management Plans will be considered at the application stage.	D2: Coastal processes
Silt lagoons Text added on the retention or removal of silt lagoons on the nominated site, detailing that effects of both actions would be assessed should a development proposal be received.	D6: Proximity to internationally designated sites of ecological importance
Cooling towers Updated to reflect the nominator's stated preference for hybrid cooling towers. Text added regarding the nomination of a site requiring cooling towers.	D8: Areas of amenity, cultural heritage and landscape value
Cooling water discharge Text added in response to consultation comments regarding cooling water discharge where cooling towers are used.	D10: Access to suitable sources of cooling
Severn Tidal Project References to potential cumulative effects with a Severn Tidal project have been removed as the project has been discontinued at present.	Cumulative effects
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th). RIFE percentages for each site have been removed and replaced with a link to the RIFE site in order to keep the NPS up to date.	Health

Tritium Text added in response to consultation comments regarding the discharge of tritium at the site.	Tritium discharge

SELLAFIELD

What are the key changes?	Where is the change in the NPS?
Grid connection Text added to reflect the potential challenges of grid connection at Sellafield.	Deployability by 2025
Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami
Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami
Coastal Processes Text added in response to consultation comments regarding potential indirect impacts on the River Ehen SSSI and SAC from changes in coastal processes.	D2: Coastal processes
Size of site Text added in response to consultation comments that the site is large enough to accommodate more reactors than were suggested in the site nomination.	D9: Size of site to accommodate operation
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th). RIFE percentages for each site have been removed and replaced with a link to the RIFE site in order to keep the NPS up to date.	Health

SIZEWELL

What are the key changes?	Where is the change in the NPS?

Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami
Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami
Coastal Processes Text added and updated to reflect the latest advice from the Environment Agency on coastal erosion at the site. Text added in response to consultation comments regarding the importance of the Minsmere Sluice to protection of the coastline from erosion. Text added in Policy notes section strengthening D2 criterion.	D2: Coastal processes
Air quality impacts Text added to clarify that adverse impacts on site integrity cause by a decrease in air quality in the Outer Thames Estuary SPA have been ruled out by the HRA.	D6: Proximity to internationally designated sites of ecological importance
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th). RIFE percentages for each site have been removed and replaced with a link to the RIFE site in order to keep the NPS up to date.	Health

WYLFA

What are the key changes?	Where is the change in the NPS?
Lifetime extension Updated to reflect that the existing power station at Wylfa has received a lifetime extension to 2012.	Description of the site
Effects of climate change Updated to clarify the position of the regulators and the Government on protection of power stations against flooding and the effects of climate change.	D1: Flooding, storm surge and tsunami
Interim waste storage Updated to clarify the position on Geological Disposal and interim storage. A link to an indicative timeline has been added.	D1: Flooding, storm surge and tsunami

LANDMAP assessments Text added in response to consultation comments that LANDMAP assessments had not been considered when assessing landscape impacts.	D8: Areas of amenity, cultural heritage and landscape value
Transmission infrastructure Text added to reflect the potential challenges of siting transmission infrastructure in the context of Snowdonia National Park.	D8: Areas of amenity, cultural heritage and landscape value
Health Updated to reflect the latest Committee on Medical Aspects of Radiation in the Environment (COMARE) report (14th). Updated to reflect the latest Radioactivity in Food and the Environment (RIFE) data (15th). RIFE percentages for each site have been removed and replaced with a link to the RIFE site in order to keep the NPS up to date.	Health

Annex B: Complete list of consultation questions

Question 1: Do you have any comments on the appraisal of policy alternatives within the Appraisals of Sustainability for EN-1 to 5?

Question 2: Do you have any comments on the revised "need case" (the need for new energy infrastructure) in the Overarching National Policy Statement (EN-1)?

Question 3: Do you have any other comments on the revised National Policy Statements and accompanying documents? These are:

a) Revised draft Overarching National Policy Statement for Energy (EN-1)

b) Revised draft National Policy Statement for Fossil Fuel Electricity Generating Infrastructure (EN-2)

c) Revised draft National Policy Statement for Renewable Energy Infrastructure (EN-3)

d) Revised draft National Policy Statement for Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4)

e) Revised draft National Policy Statement for Electricity Networks Infrastructure (EN-5)

f) Revised draft National Policy Statement for Nuclear Generation (EN-6) including the list of potentially suitable sites for the deployment of new nuclear power stations by 2025

g) Revised Appraisal of Sustainability for EN-1

h) Revised Appraisal of Sustainability for EN-2

i) Revised Appraisal of Sustainability for EN-3

j) Revised Appraisal of Sustainability for EN-4

k) Revised Appraisal of Sustainability for EN-5

l) Revised Appraisals of Sustainability for EN-6

m) Appraisal of Sustainability Monitoring Strategy

n) Revised Habitats Regulations Assessment for EN-1-5

o) Revised Habitats Regulations Assessments for EN-6

p) Revised Impact Assessment for the energy NPSs

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