

National Policy Statements (NPSs) for Energy Infrastructure: SEA Post-Adoption Statement

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1. Introduction

The National Policy Statements (NPSs) for New Energy Infrastructure

- 1.1 Under the Planning Act 2008, National Policy Statements (NPSs) set out the framework for decision-making on individual applications for development consent for nationally significant infrastructure. The Secretary of State for Energy and Climate Change is responsible for preparing the NPSs that relate to new energy infrastructure projects. The Overarching NPS for Energy (EN-1) sets out the national policy for a range of types of new energy infrastructure and, along with the technology specific Energy NPSs, provides guidance on how applications for development consent for such energy infrastructure should be decided. There are five technology specific Energy NPSs as follows:
- EN-2 Fossil Fuel Electricity Generating Infrastructure
 - EN-3 Renewable Energy Infrastructure
 - EN-4 Gas Supply Infrastructure and Gas and Oil Pipelines
 - EN-5 Electricity Networks Infrastructure
 - EN-6 Nuclear Power Generation
- 1.2 In this Statement, EN-1 and the five technology-specific NPSs are referred to collectively as the Energy NPSs.

Appraisal of Sustainability (AoS) and Strategic Environmental Assessment (SEA)

- 1.3 The Planning Act 2008 requires that before a statement can be designated as an NPS, the Secretary of State must carry out an appraisal of sustainability (AoS) of the policy set out in the statement. The Secretary of State must exercise functions relating to the designation of national policy statements with the objective of contributing to the achievement of sustainable development, in particular having regard to mitigating and adapting to climate change and achieving good design.
- 1.4 EU law requires, in the Strategic Environmental Assessment (“SEA”) Directive (2001/42/EC), that before a plan or programme which establishes the framework for development consent is adopted, it should be subject to consultation alongside an environmental report which identifies, describes and evaluates the significant effects which its implementation is likely to have on the environment. The objective of the SEA Directive is to provide for a high level of protection of the environment and for environmental considerations to be integrated into the preparation and adoption of plans and programmes, with a view to promoting

sustainable development. Amongst other things, the NPSs are a plan or programme for the purposes of the Directive.

- 1.5 The AoS Reports which were published with the revised draft Energy NPSs for consultation in October 2010 combine the functions of AoSs under the Act and environmental reports under the SEA Directive. They examine the likely environmental, social and economic effects of the draft NPS, consider and compare reasonable alternatives to them, identify any potential significant adverse effects they may have, and recommend options for avoiding or mitigating such effects.

Adoption and availability of Energy NPSs and AoS Reports

- 1.6 The Energy NPSs were designated for the purposes of the Planning Act 2008 and adopted for the purposes of the SEA Directive on 19th July 2011. Copies of the Energy NPSs and the accompanying AoS Reports are available free of charge at www.energynpsconsultation.decc.gov.uk or to view at DECC's principal offices (3 Whitehall Place, London SW1A 2AW) during normal office hours.

Purpose of this Post-Adoption Statement

- 1.7 Article 9(1)(b) of the SEA Directive¹ requires that when a plan or programme is adopted, there should also be made available a statement summarising:
- how environmental considerations have been integrated into the plan or programme;
 - how the environmental report has been taken into account;
 - how opinions expressed in response to public consultations on the draft plan or programme and the environmental report have been taken into account; and
 - the reasons for choosing the plan or programme, as adopted, in the light of other reasonable alternatives dealt with.

This statement is designed to fulfil these requirements. Together with the Energy NPS AoS Monitoring Strategy², it also fulfils the requirement to make available details of the measures that are to be taken to monitor the significant environmental effects of implementation of the plan or programme.

- 1.8 In order to meet these requirements, this statement is formatted as follows:
- Section 2: Environmental Considerations
 - Section 3: AoS Report

¹ See also regulation 16(3) of the Environmental Assessment of Plans and Programmes Regulations 2004.

² AoS Monitoring Strategy is available at: www.energynpsconsultation.decc.gov.uk

- Section 4: Consultation
- Section 5: Choice of Energy NPSs as adopted (and alternatives)
- Section 6: Monitoring

2. How environmental considerations have been integrated into the Energy NPSs

- 2.1. DECC works with other Government departments and environmental and health regulators to promote sustainable development and address climate change. The Energy NPSs exemplify this.
- 2.2. The Energy NPSs owe their existence to the national need for unprecedented amounts of new energy infrastructure. That need is itself largely the product of Government's determination to respond to the threat of climate change by renewing and expanding our national energy infrastructure in various ways. The overall goal of the Energy NPSs is to help to mitigate what is probably the single most serious environmental problem facing the world today, and much of the detailed content of the Energy NPSs consists of a discussion of how applications for the new energy infrastructure we need should be determined (with particular reference to environmental impacts) if we are to maintain a secure supply of reasonably priced energy and respond effectively to the challenges of climate change.
- 2.3. Environmental considerations are therefore integral to the Energy NPSs at every level from the outset. The AoS process and the consultations relating to the Energy NPSs have helped to enrich the consideration given to environmental matters in the context of the Energy NPSs in various ways. A summary of the relevant formal processes is given in the table below.

Table 2.1: Stages in integrating SD into the Energy NPSs

AoS Development ³ And Consultation	Purpose
SEA Scoping Report (March 2008 for nuclear, Feb/March 2009 for non-nuclear)	A report comprising early consultation with the statutory bodies and other interested parties on the scope and level of detail proposed for the SEA (now AoS) in accordance with the SEA Directive.
The Environmental and Sustainability Study (July 2008) (nuclear)	As part of the consultation on the proposed Strategic Siting Assessment (SSA) criteria, this comprised a study of the potential environmental and sustainability effects of applying the SSA criteria.
The Update Report (January 2009)(nuclear)	A report to update the environmental study with changes made to the SSA criteria as a result of consultation. Also explains changes from an SEA to an AoS in accordance with new requirements outlined in the Planning Act 2008.

³ All these documents are available at www.energygpsconsultation.decc.gov.uk

AoS Development³ And Consultation	Purpose
Ongoing consultation during appraisal stage (April –November 2009)	Liaison with statutory environmental bodies, relevant regulators, and other Government departments to assist with refinement of AoS methods and assessments.
The AoS Report (November 2009)	The AoS Reports comprising: Non Technical Summaries; Main AoSs; Sites AoS (nuclear only) – all published for consultation alongside draft NPSs.
Decision to revise non-nuclear AoSs (July 2010)	Following responses to consultation on the way in which the AoSs for the non-nuclear NPSs had been done, a decision was taken to revise these and give people the opportunity to make further comments through a further round of consultation.
Revised AoSs published (October 2010)	Following consultation with statutory environmental bodies, relevant regulators and other Government departments, revised AoSs published with consultation on revised draft Energy NPSs.
AoS Post Adoption Statement	Following consultation on the draft Energy NPSs and the AoS Report, this final AoS Statement sets out how the consultation and the appraisal have been taken into account in deciding the final NPS to be designated.

- 2.4. In addition, environmental considerations have been further integrated into the Energy NPSs throughout the process of their preparation by means of informal engagement with stakeholders and the input of specialist expertise. The process of stakeholder engagement for the Nuclear NPS (EN-6) additionally involved consultation on the process for nominating and the criteria for assessing possible sites in the Strategic Siting Assessment (SSA) and an SEA analysis of the potential sites.
- 2.5. The AoSs were originally carried out in an iterative way. As emerging issues were identified by the AoSs, they were discussed with the teams preparing the draft NPSs (including the SSA for the Nuclear NPS). The key recommendations from the AoSs were associated with identifying any significant adverse effects and possibilities for mitigation that could help inform the preparation of the draft NPSs and their guidance on impacts for the IPC when considering applications for development consent. This also included drawing attention to any opportunities for enhancing environmental benefits and the potential for cumulative effects where there might be clusters of new energy infrastructure. Preparation of the draft NPSs was informed by environmental, planning and technical specialists and this helped better integrate environmental considerations.
- 2.6. The AoSs were subject to consultation with statutory bodies and other key stakeholders such as the Department of Health at the scoping stage and on drafts of the AoS findings. The findings of the AoSs were also subject to public consultation between November 2009 and February 2010 and again between

October 2010 and January 2011; the developing NPSs have been subject to public consultation at several stages, including, in the case of the Nuclear NPS and AoS, public meetings at proposed sites. Where appropriate, environmental considerations expressed by respondents have been incorporated into the NPSs (see tables 4.1 - 4.6 in Annex C).

- 2.7. If the way in which the Energy NPSs were prepared can be said to have integrated environmental considerations into them from the “bottom up”, the AoS process also provides assurance from the “top down” that they exhibit the high standards of environmental protection referred to in the SEA Directive and the concern for sustainable development matters referred to in the Planning Act. The AoS Reports for EN-1 to EN-5 approach this using three sets of headings or criteria: the criteria or factors listed in Annex I, paragraph (f) to the Directive; the AoS objectives or appraisal headings developed from national guidance on SEA and sustainability appraisal practice and discussed in section 2.4 of the AoS for EN-1; and the sustainable development (“SD”) themes used for the purpose of comparing the likely significant effects of reasonable alternatives with those of the Energy NPSs and discussed in section 2.6 of the AoS for EN-1.⁴ The topics addressed under these headings included environmental, social and economic effects of the NPSs. The appraisal framework against which the NPSs were assessed therefore reflected environmental and wider sustainable development considerations and provided a means of appraising the performance of the NPSs in a consistent manner, enabling potential effects to be identified and mitigated where possible and recommending enhancements. The relationship between the three sets of headings or criteria is summarised in the table below.

Table 2.2: How SEA Directive Annex I criteria correspond to the headings used in the AoSs of the Energy NPSs (“AoS objectives” and “SD themes”)

AoS objectives	SEA Annex I criteria	SD themes
Climate change	Climatic factors	Climate change
Flood risk & coastal change		Built environment
Ecology (fauna & flora)	Biodiversity	Natural environment
	Fauna	
	Flora	

⁴ The terms “AoS objectives” and “SD themes” are used slightly differently in the AoS for EN-6, but in that AoS, SD themes correspond broadly to the AoS objectives referred to here, while the SD themes referred to here correspond to broadly to the “Headline Sustainable Development Topics” of the AoS for EN-6. See Tables 2.2, 2.5 and 2.8 in that AoS.

Resources and raw materials	Material assets	Security of energy supply
Economy & skills		Economy
Water quality & resources	Water	Natural environment
Traffic & transport	Population	Built environment
Noise		
Landscape, Townscape & Visual	Landscape	Natural environment
Archaeology & cultural heritage	Cultural heritage	Built environment
Air quality	Air	Health & wellbeing
Soil and geology	Soil	Natural environment
Health & wellbeing	Human health	Health & wellbeing
Equality		

3. How the AoS Report has been taken into account

- 3.1. The AoS Reports and the Energy NPSs were developed alongside each other in an iterative way. The way in which the AoS Reports were taken into account in the Overarching and Technology-Specific NPSs is summarised in the following sections.

EN-1

- 3.2. As the AoS was originally being drafted, a number of suggestions were made that informed the drafting of the NPS, although some of these may not be immediately obvious in the final versions because of subsequent redrafting.
- 3.3. Changes were made to reflect the fact that IPCC assessment reports would be needed to assess the climate change impacts of proposed developments over a longer lifespan, that significant ecological effects could include effects on non-protected species, and to reflect that projects can be a cause of increased flood risk as well as being affected by flood risk. There were also suggestions for referencing external documents, such as DfT guidance on Transport Assessment and British Standards on noise assessment. The section on biodiversity was also expanded to geological conservation, which refers to geological designations.

EN-2

- 3.4. A new section on Water Quality and Resources was added to EN-2, which dealt with a number of comments.

EN-3

- 3.5. Further information on the Coast Protection Act and Food and Environment Protection Act (FEPA) licences, as well as more on the potential for bird and bat strike, was added to EN-3 as a result of recommendations made in the AoS.

EN-4

- 3.6. A suggestion about covering effects of increased tanker shipments on marine transport, with particular reference to safety, was considered, but changes were not made as it was felt that sufficient information was to be found elsewhere.

EN-5

- 3.7. Suggestions were made to include more detail on the different components of electricity lines, but a decision was taken in later versions to remove all such information as it is readily available elsewhere and not directly applicable to the planning process.

- 3.8. During the preparation of the revised AoSs, a gap was identified under the biodiversity theme, where there was no information for the potential of bird strike on overhead lines. As a consequence, a new section was added to EN-5.

EN-6

- 3.9. Each of the site level reports in the AoS included a summary table of potential strategic significant effects and mitigation possibilities for adverse effects. This informed the development of that part of the NPS that analyses each site, highlighting particular issues that may need to be considered for development consent and site licensing. This will help scope the information that needs to be provided in Environmental Statements to be prepared by developers prior to submission of applications for development consent to the IPC. To the extent relevant, the IPC may take account of the appropriate Nuclear Site Reports when determining an application for development consent.
- 3.10. As the draft Nuclear NPS was being finalised, further key recommendations were made by the AoS with regard to significant SD effects. These were detailed in the Main AoS Report as Appendix 2 and included the Government's response to the Consultation on the draft NPS, with relevant changes made to the draft NPS.
- 3.11. A table of specific changes made to all the NPSs as a result of the recommendations made in the revised AoS Reports can be found at Annexes A and B. In addition, the original AoS Reports set out a number of recommendations, and explain how these were taken into account.
- 3.12. In general:
- the original AoSs for EN-1 to EN-5 confirmed that the proposed scope and format of those NPSs were consistent with the objectives of the reforms of the development consenting process embodied in and envisaged by the Planning Act 2008;
 - the revised AoSs for EN-1 to EN-5 supported the conclusion that the NPSs should achieve their intended function of ensuring that the development of new large-scale energy infrastructure provides security of energy supply at a reasonable cost and in a manner in keeping with the principles of sustainable development (see further section 5 below); and
 - the AoSs for EN-6 indicated both that the scope and format of that NPS were consistent with the objectives of the Planning Act 2008 reforms and the substantive policies of that NPS should enable new nuclear power stations to play their part in the development of new large-scale energy infrastructure, providing security of energy supply at a reasonable cost and in a manner in keeping with the principles of sustainable development.

4. How opinions expressed through public consultation have been taken into account

- 4.1. The consultation on the original draft National Policy Statements for Energy Infrastructure, was undertaken between 9 November 2009 and 22 February 2010⁵. A Government Response to that consultation has been published⁶ which identifies the key themes and responds to them.
- 4.2. Having considered the responses received to this consultation and the outputs of the Parliamentary scrutiny process, the Government made changes to the draft Energy NPSs and the AoSs. In particular, substantial changes were made to the AoSs for EN-1 to EN-5, following criticisms by a number of respondents of the methods adopted in the original versions of these documents. These are outlined briefly in section 1.4.3 of the AoS for EN-1. Given the changes that were made to the drafts, the Government undertook a consultation on the revised Energy NPSs between 18 October 2010 and 24 January 2011.
- 4.3. The comments received and the responses from DECC to the consultation on the draft revised energy NPSs and revised AoSs are detailed in the Government Response to consultation on revised energy NPSs⁷. A summary of the views expressed in both consultations and relevant to the AoS, together with how DECC has taken them into account, are set out in Tables 4.1 to 4.6 in Annex C.

Criticism of the revised AoS Reports

- 4.4. A number of consultation responses argued that the revised AoS Reports did not adequately fulfil the functions of SEA environmental reports and/or AoSs. DECC takes any such responses extremely seriously. Where allegations along similar lines were made in respect of the original AoSs, we gave them careful consideration and concluded that significant revisions to the AoS were required in order to ensure that the AoSs fulfilled their functions properly. We have given equally careful consideration to the arguments made that the revised AoS Reports were defective. In particular, we have carried out further work to verify that each of the revised AoS Reports deals with all of the matters set out in Annex I to the Directive, in the manner required by Article 5 of the Directive. We

⁵ Consultation on the draft National Policy Statements for Energy Infrastructure (November 2009), available at www.energynpsconsultation.decc.gov.uk

⁶ The Government Response to the Consultation on the Draft National Policy Statements for Energy Infrastructure, DECC 2010, available at www.energynpsconsultation.decc.gov.uk.

⁷ Government Response to consultation on revised energy NPSs is available at: www.energynpsconsultation.decc.gov.uk.

have concluded that the AoS Reports comply with all relevant AoS and SEA requirements, and that they provide a satisfactory SEA / AoS basis on which to designate the Energy NPSs. Comments on the revised AoS methodology and DECC's responses to them are summarised below.

- 4.5. There were comments on whether DECC 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. It was suggested that contrary to guidance, alternatives had been ruled out within the AoS, which did not allow public consultation on all options. There were also comments on the sustainability themes used and whether the alternatives had been assessed against different timescales from those against which the plan was assessed, as well as whether the exercise had been applied retrospectively.
- 4.6. 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 in the AoS. The alternatives do, however, cover different policies that could be pursued in pursuit of the given objective.
- 4.7. 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" in the sense that some are rejected as unreasonable and in the sense that 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 from the assessment of the plan. The assessments of the plan and of the alternatives include the same range of issues – albeit differently packaged by bundling the 14 points from Annex I into "SD themes". The bundling 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.

- 4.8. Further details of consultation comments on the AoSs and DECC's responses to them may be found in the Government Response to Consultation. As regards the compliance of the AoS Reports with the requirements of the SEA Directive, see Annex E to the AoS for EN-1, Annex A to the AoSs for EN-2 to EN-5 and Table 2.7 in the AoS for EN-6.

5. Reasons for adopting (designating) the Energy NPSs in the light of the reasonable alternatives considered

- 5.1. Energy is vital to economic prosperity and social well-being, which means that it is important to ensure that the UK has secure and affordable energy, while also moving towards the UK's target of cutting greenhouse gas emissions by 80% compared to 1990 levels by 2050⁸. About 25% of the UK's generating capacity is due to close by 2018 and new low carbon generation is needed that will be reliable, secure and affordable. The 2050 Pathways Analysis also shows that demand for electricity could double over the next forty years as a result of the need to electrify large parts of the industrial and domestic heat and transport sectors. This all points to an urgent need for new energy infrastructure being consented and built.
- 5.2. The National Policy Statements are an integral part of planning reform designed to make the planning process more transparent, faster and efficient, by setting out the relevant policy, issues that will need to be considered and suggested mitigation. Before they were adopted, the Government needed to have some assurance that the Energy NPSs would both
- play their part in procedural terms as an element in the reformed planning process, enabling decisions on applications for development consent to be taken more quickly under the Planning Act than has often been the case under the pre-Planning Act regime, especially in more controversial cases; and,
 - more substantively, that a new generation of large-scale energy infrastructure projects consented in accordance with the policies set out in the Energy NPSs would help to achieve the energy policy and sustainability objectives referred to above.

(See paragraph 3.13 above for how the AoS Reports in their original and revised forms, confirm that the NPSs will fulfil both the procedural and substantive relevant policy objectives.)

- 5.3. The AoSs provide assurance in relation to the substantive functions of the NPSs in two ways. The first is (in the terms of the SEA Directive) through their direct appraisal of the likely environmental effects of the Energy NPSs as a plan or programme; the second is by a comparative analysis of reasonable alternatives

⁸ More detail on Government energy policy and the need for new energy infrastructure is set out in Chapters 2 and 3 of the Overarching Energy NPS – EN-1

to that plan or programme, designed to ascertain whether there may be more effective ways of achieving the relevant energy and climate change policy goals through the development control regime – and, if there appear to be such, whether or not they are to be preferred to the Energy NPSs or any aspect of them.

- 5.4. In the remaining paragraphs of this section, we summarise the substantive appraisal of each of the Energy NPSs that resulted from the AoS exercise, including the reasonable alternatives considered by way of explanation of the reasons for choosing (in SEA Directive terms) the plan or programme as adopted.

EN-1

- 5.5. Current government policy promotes the delivery of low carbon energy. The Energy NPSs are predicted to speed up the transition to a low carbon economy thus promoting positive cumulative effects on the AoS climate change objectives because UK climate change commitments may be realised sooner than continuation under the current planning system. However there is also some uncertainty as it is difficult to predict the mix of technology that will be delivered by the market.
- 5.6. The Energy NPSs are likely to contribute positively towards improving the vitality and competitiveness of the UK energy market by providing greater clarity for developers; this should in turn improve the UK's security of supply. Reliable energy supplies nationally will contribute to positive effects generally on our economy and skills with indirect positive effects for health and well-being in the medium to longer term through helping to secure affordable supplies of energy and minimising fuel poverty; positive medium and long term effects are also likely for equalities.
- 5.7. The development of new energy infrastructure, at the scale and speed required to meet the current need, is likely to have negative effects on biodiversity, landscape/visual amenity and cultural heritage; however the significance of these effects and the effectiveness of mitigation possibilities is uncertain at the strategic and non-locally specific level. Short-term construction impacts are also likely through an increased use of raw materials and resources, and negative effects on the economy due to impacts on existing land and sea uses. There may also be short-term cumulative negative effects on water quality, water resources, flood risk, coastal change and health at the regional or sub-regional levels depending upon location and the extent of clustering of new energy and other infrastructure. Proposed energy developments will still be subject to project level assessments, including Environmental Impact Assessments, and these will address locally specific effects. The energy NPSs set out mitigation for cumulative negative effects by requiring the IPC to consider accumulation of effects as a whole in their decision-making on individual applications for development consent.

EN-2

- 5.8. The AoS concluded that fossil fuel electricity generating infrastructure development has similar effects to other types of combustion generation infrastructure, because of their size. For the majority of the AoS objectives, the strategic effects of EN-2 were considered to be neutral or negative but uncertain.
- 5.9. However, through facilitating and enabling the fossil fuel electricity generating infrastructure necessary to support the transition to a low carbon economy and ensure security of supply, EN-2 is considered likely to have positive effects on the economy and skills, and health and well being as secondary benefits, in the short, medium and long term, and positive effects in the medium to long term, on the AoS climate change objective. However, uncertainty is also associated with these benefits given the need to demonstrate the economic and technical viability of CCS.
- 5.10. Effects on a range of AoS objectives (Ecology; Resources and Raw Materials; Flood Risk and Coastal Change; Water Quality; and Landscape, Townscape and Visual) were judged to be generally negative across short, medium and long terms. Again uncertainty is associated with this assessment, as at this level of appraisal, actual effects are dependent on the sensitivity of the environment and the location and design of infrastructure.
- 5.11. The appraisal also concludes that there are likely to be negative effects on AoS topics for both Air Quality and Health and Well-being. These are considered to be linked, given the association between emissions from fossil fuel electricity generating plants and public health. Neutral effects were identified for AoS objectives Traffic and Transport and Noise across all time scales specifically related to the adoption of EN-2. EN-2 contains a range of technology specific mitigation measures, along with those proposed in EN-1, which seek to address the range of negative effects identified.

EN-3

- 5.12. The AoS found that for the majority of AoS objectives, the strategic effects of EN-3 were considered to be neutral for onshore and offshore wind, whilst biomass and energy from waste were associated with a greater number of negative effects.
- 5.13. However, through its contribution towards the move to a low carbon economy and ensuring security of supply, the three technologies covered by EN-3 are considered likely to have significant positive effects on the AoS climate change objective in the medium and long term and both positive and negative effects on equality through provision of affordable energy. There are positive effects on economy and skills from EN-3's facilitation of development of onshore wind and biomass/energy from waste, and both positive and negative effects from offshore

wind. Biomass/energy from waste is associated with positive and negative effects on raw materials and resources.

- 5.14. Effects on ecology are uncertain at this level of appraisal, as they are dependent on the sensitivity of the environment and the location and design of infrastructure. Significant negative effects were identified for onshore wind for traffic and transport; noise; landscape, townscape and visual; and soil and geology. For offshore wind, negative effects are identified for landscape, townscape and visual; water quality; traffic and transport; and noise. Biomass/energy from waste is associated with negative effects under the AoS objectives of landscape, townscape and visual; flood risk; water quality; traffic and transport; and noise. EN-3 contains a range of mitigation measures for significant effects identified.

EN-4

- 5.15. The AoS found that, generally, the development of gas supply infrastructure and gas and oil pipelines has similar effects to other types of energy infrastructure, although due to the linear nature of cross-country, long distance pipelines, effects are often spread across a wider area. Therefore, for the majority of the AoS objectives, the strategic effects of EN-4 were considered to be neutral.
- 5.16. EN-4 is considered likely to have significant positive effects on the economy and skills AoS objective in the medium-term, reducing to minor positive significance in the longer term as advancements in other energy technologies are likely to reduce the reliance on gas and oil and security of supply will not be of such importance.
- 5.17. Negative effects were identified for the short and medium-term for the landscape, townscape and visual AoS objective and short-term negative effects for the ecological, resources and raw materials and water quality AoS objectives. These were largely associated with the dredging requirements of LNG facilities and the disposal of the large quantities of brine generated during the solution mining of underground gas storage caverns. Short-term negative effects were also identified for the noise AoS objective associated with cross-country pipelines, where construction can lead to effects on sensitive rural communities, landscapes and biodiversity throughout the length of the pipeline. EN-4 contains a range of technology specific mitigation measures, along with those proposed in NPS EN-1, which seek to address the range of negative effects identified.

EN-5

- 5.18. The AoS Report found that, generally, electricity networks infrastructure development has similar effects to other types of energy infrastructure, although due to the linear nature of electricity lines, effects are often spread across a wider area; therefore, for the majority of the AoS objectives, the strategic effects of EN-5 are considered to be neutral.

- 5.19. Electricity lines are a vital component in the move to provide low carbon electricity and EN-5 is therefore considered likely to have significant positive effects on climate change and the economy and skills AoS objectives. Effects on ecology are uncertain at this level of appraisal, as they are dependent on the sensitivity of the environment and the location and design of infrastructure.
- 5.20. Significant negative effects were identified for the short, medium and long-term for the landscape, townscape and visual AoS objective due to the prominent visual nature of the electricity networks infrastructure that EN-5 will facilitate. In areas where employment and the economy relies on tourism from the natural environment and its scenery, negative impacts may be considered to be of local and wider, regional significance. However it is noted that EN-1 and EN-5 include extensive and robust mitigations to ensure these effects are considered by applicants and the IPC when preparing and determining applications. Despite this residual effects on landscape are expected to be significant.

EN-6

- 5.21. A summary of the main findings of the Nuclear AoS is set out below.
- The Nuclear NPS could bring significant benefits in meeting the Government's climate change and energy security objectives.
 - Possible adverse effects on nature conservation sites of European importance were identified by the Nuclear Habitats Regulations Assessment (HRA). Further studies will need to be carried out, as part of the project HRA and environmental impact assessment (EIA) processes for individual development consent applications, to determine the significance of the effects and the effectiveness of any mitigation measures.
 - Possible significant adverse effects on nationally important nature conservation sites and designated landscapes were identified by the Nuclear AoS. Further studies will need to be carried out, as part of the project EIA process for individual development consent applications, to determine the significance of the effects and the effectiveness of any mitigation measures.
 - Key inter-relationships between biodiversity and other sustainability effects were identified. These were most notably in relation to flood risk management, water quality and sustainable communities.
 - There is the potential for interactions and cumulative adverse effects on wider biodiversity in relation to water quality and resources, habitat loss and "coastal squeeze" where there is more than one potentially suitable site for new nuclear power in the locality or as a result of other major development in the area. Such interactions and adverse effects are possible in European Sites in the Severn Estuary and River Wye and the Outer Thames Estuary where there are two potentially suitable nuclear sites. These issues will need to be considered in project level HRAs and EIAs.

- Effects associated with the management and disposal of hazardous wastes, including radioactive wastes, can affect other sustainability topics. The significance of these effects can only be determined through studies as part of the project level EIA and HRA.
- There is the potential for positive effects on local employment opportunities. A development consent application should therefore include an assessment of the considerations given to socio-economic as well as environmental issues. This might be especially relevant where there is the potential for cumulative positive effects for economic development at the regional level, for example in the south-west and north-west of England.
- Significant trans-boundary effects arising from the construction of new nuclear power stations are not considered likely. Due to the robustness of the regulatory regime there is a very low probability of an unintended release of radiation, and routine radioactive discharges will be within legally authorised limits.

Alternatives considered in the Overarching Energy NPS - EN-1

5.22. The NPSs set out planning policies, in which there are a large number of key policies, any of which could have been designed differently to produce a result consistent with DECC’s overall energy and climate change policies – specifically as regards the construction of infrastructure to facilitate the supply of secure and affordable energy and meet the target of 80% reduction in greenhouse gas emissions by 2050 in a way that is consistent with the principles of sustainable development. The 2050 Pathway Analysis work also shows that a number of different scenarios can all lead to the achievement of the overall objective. Any reasonable alternative must, like the policies in the NPS, strike a balance between four principal criteria. These are:

- i. cost;
- ii. security of supply;
- iii. reduction of greenhouse gas (in particular CO₂) emissions; and
- iv. minimising environmental impacts other than greenhouse gas emissions.

5.23. The adoption of any reasonable alternative to any one of the individual policies in the NPS would be likely to give greater emphasis to one or other of the above criteria. Given that the NPSs are a high-level plan without locational specificity, a good way to analyse alternatives to it at a strategic level is to consider in generic terms the ways in which the balance between the four main criteria might be varied while still fulfilling the objectives of the plan. The following main alternatives were therefore considered:

Criterion	Alternative that places more emphasis on criterion than Plan does	Plan	Alternative that places less emphasis on criterion than Plan does
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Low Cost	A1	EN-1	B1
Security of Supply	A2	EN-1	B2
Reduction in greenhouse gas emissions	A3	EN-1	B3
Reduction in Environmental impacts	A4	EN-1	B4

Key:

Reasonable alternative		Unreasonable alternative		Alternative not considered	
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- 5.24. The first step was to decide whether all the above options were capable of being *reasonable* alternatives. To be considered reasonable, an alternative should be capable of delivering the overall objective. On this basis, B1, B2 and B3 were ruled out as, by giving less weight to a key element of DECC’s energy and climate change policy, they risked failing to achieve the objectives of that policy. Although alternative B4 was not considered likely to fail the objectives of the plan, it was ruled out, since it was felt to be inappropriate to appraise an alternative that was, by definition, less good at delivering sustainable development as required in the Planning Act.
- 5.25. The remaining four alternatives were all considered likely to be able to fulfil the objectives of the plan, and therefore reasonable alternatives. However, A2 was not assessed, as the policies in EN-1 are already designed to deliver security of supply and more security of supply in the form of additional capacity would have adverse effects on other indicators such as natural environment and climate change, and would not have fulfilled the Secretary of State’s duty of contributing to sustainable development. Therefore the alternatives assessment focused on alternatives A1, A3 and A4. The alternatives have been assessed explicitly by comparison with the plan, which means that the assessment relating to the alternatives only shows where it differed materially to the assessment of the plan.
- 5.26. While it is true that the AoS reasonable alternatives (in particular, for the AoS for EN-1), are described in broad, strategic terms, the Government considers this approach is appropriate given the high-level strategic nature of the NPSs which are being appraised (again, in particular, EN-1). In addition Annex G of the AoS for the Overarching Energy NPS (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. 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 a high level summary of the reasonable alternatives analysis and should not be read as if it were in some way a substitute for it.

- 5.27. The AoS shows how these 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.
- 5.28. Because of the large number of policies in the AoS and its strategic nature, we believe that the highly strategic approach that was taken to selecting alternatives is the most appropriate one.
- 5.29. For EN-1 alternative A1 compares favourably on the SD themes of Health and Well-being and the Economy, but unfavourably against Climate Change, Security of Energy Supply, the Built Environment and the Natural Environment.
- 5.30. Alternative A3 would be beneficial to the Climate Change objective, and it may be favourable in terms of Health and Well-being and Economy SD themes. However it is likely to be unfavourable to Security of Supply or the Natural Environment. Although A3 was not preferred to EN-1 because of this, it does represent options that should be kept under review for the future (eg once the rate of progress towards widespread availability of CCS becomes clear).
- 5.31. Alternative A4 would benefit the Natural and Built Environments, but pose a potentially significant risk to Security of Supply, given our current need for large scale energy infrastructure. Government is not prepared to risk the adverse effects on security of supply and the consequent potential risks to human health and the economy, given the current need, and so prefers to adopt EN-1 policies (which already included significant protections for the Natural and Built Environment interests), at least until such time as there is a far lower need for such infrastructure.

Formulation of alternatives considered for AoSs of EN-2-5

- 5.32. In the appraisal of alternatives for each technology-specific NPS, we have compared the effects of changing the plan or programme specifically as it relates to each technology in more detail, assuming that each technology will be developed in a way consistent with the statement of need in Part 3 of EN-1.

Alternatives considered in the Fossil Fuels NPS - EN-2

- 5.33. The focus of alternatives to EN-2 policies is on CO₂ emissions, as the majority of other impacts covered in EN-2 are primarily dealt with in EN-1. The alternatives appraised were:
- (a) a stricter approach to CCS (e.g. no new coal without full CCS, or no new fossil fuel plants without a substantial amount of CCS from the outset);

- (b) a stricter approach to CCR (i.e. more demanding criteria set for demonstrating that retrofit of CCS will be economically feasible).

5.34. Alternative A for EN-2 is negative for Security of Supply, and the potential benefits are uncertain, because of the need to demonstrate the economic and technical viability on a commercial scale. Alternative B risks there being insufficient fossil fuel electricity generating capacity available to support the transition to a low carbon economy, and reduces employment opportunities. Because of clustering, negative effects on a national scale may be reduced, but cumulative effects in areas of clustering would be increased.

Alternatives considered in the Renewables Energy NPS - EN-3

5.35. The alternatives to EN-3 policies concentrate on different approaches to reducing or eliminating the impacts of the technology concerned which experience shows are most objectionable, such as noise and shadow flicker for onshore wind farms and the sustainability or otherwise of fuel used in biomass-fuelled power stations. The alternatives appraised were:

- (a) adopting a policy that would be less tolerant of the adverse visual, noise and shadow flicker impacts of onshore wind farms;
- (b) adopting a policy that would mean consents set more stringent criteria for biomass/energy from waste (based on what such plants were allowed to burn).

5.36. Alternative A for EN-3 would implement more stringent visual, noise and flicker criteria, which would be likely to reduce impacts because fewer wind farms would be developed. However a reduction in wind power would be likely to have a significant impact on security of supply or reduce the positive impacts of windfarms on climate change. Alternative B to impose sustainability criteria on biomass plant could lead to a reduction in biomass plant. Impacts of individual facilities would be similar; differences would be evident only because of a difference in the overall number of developments, which is likely to have an adverse effect on security of supply. Some reduction of adverse impacts relating to traffic and transport, noise, flood risk, coastal change, ecology and visual effects may arise. However, there would also be a reduction in the employment opportunities and economy and associated benefits to health and well-being. (But see paragraph 5.47-8 below.)

Alternatives considered in the gas supply infrastructure and gas and oil pipelines NPS - EN-4

5.37. The majority of impacts of the infrastructure covered by EN-4 are dealt with primarily in EN-1. However, the major sources of demand and location of existing infrastructure may provide sufficient fixed points to allow the consideration of an alternative that was spatially specific. The alternative appraised was:

- (a) the Government would take a strategic view on locations where it is best to develop new oil and gas infrastructure (based on geology, cost etc) and limit consenting to those areas;
- 5.38. It was not clear that the alternative assessed for EN-4 would bring significant benefits as compared with the approach set out in the NPSs, and its potential dampening effect on innovation and more sustainable technologies could be harmful. The geographical constraints on underground storage and LNG facilities are likely in practice to dictate their location whether or not the alternative is adopted, and it is not clear that a more centrally planned approach to gas and oil pipeline development would be advantageous.

Alternatives considered in the Electricity Networks Infrastructure NPS - EN-5

- 5.39. The alternatives to EN-5 policies focus on different approaches to avoiding or reducing the likely significant impacts of electricity networks infrastructure. It was also considered that the major sources of demand and some existing infrastructure could allow consideration of a spatially specific alternative. They were considered as alternatives to dealing with each application on a case by case basis with no presumption of undergrounding. The alternatives appraised were:
- (a) the Government would take a strategic view on locations where it is best to develop electricity network infrastructure and limit consenting to those areas;
- (b) adopt a presumption that transmission lines should be put underground (generally, or in particular locations, such as AONBs).
- 5.40. Alternative A for EN-5 is likely to have similar effects as EN-5 itself, with the key difference being that EN-5 is less likely to lead to planning blight than alternative A. Alternative B was appraised as having potential negative effects on security of supply and economic objectives, as well as short term negative effects on soil, water and archaeology. There are also likely to be significant negative effects for ecology objectives. There would, however be positive effects in the medium to long term on landscape.

Alternatives considered in the Nuclear NPS - EN-6

- 5.41. Alternatives for the Nuclear NPS were appraised in a phased approach as follows :
- Need – do we need the Nuclear NPS?
 - Process – how should the Nuclear NPS be developed?
 - Location – where should the new nuclear power stations be built?

5.42. Under Need three options were considered :

- A Nuclear NPS in line with Government policy
- A Nuclear NPS that prohibits nuclear
- No Nuclear NPS

The Nuclear NPS option in line with Government policy was found to be the preferred option based on the case for nuclear power in relation to other alternatives, and the effect it will have on the long-term ability of the UK to meet its emission reduction targets and maintain its security of supply.

5.43. Four process options for drafting the Nuclear NPS were appraised:

- B1: A Nuclear NPS with siting criteria but no list of sites
- B2: A Nuclear NPS with a list of sites but no siting criteria
- B3: A Nuclear NPS with siting criteria and a list of sites
- B4: A Nuclear NPS with siting criteria and a list of sites restricted to those in the vicinity of existing power stations

Option B3 was chosen because it would be more likely than options B1 and B2 to reduce uncertainty and thus reduce the time for a planning application to be determined as it would list sites which have been assessed at a strategic level. This would allow for earlier new nuclear build and better contribute to meeting the Government's climate change, security of energy supply and other sustainability objectives. In addition, the strategic level assessment could reduce the likelihood of adverse sustainability effects occurring and provide a means of enabling such effects to be avoided or mitigated. Option B4, by limiting new nuclear power stations to existing sites, could exclude some potentially suitable sites from the selection process leading to an incomplete assessment of alternative sites.

5.44. As regards sites, the criteria used in the SSA process were appraised as well as eleven nominated sites and three potentially suitable sites identified through an Alternative Sites Study. Following these alternatives assessments, and comments received in the two consultations on the draft Energy NPSs, eight potentially suitable sites are listed in the final Nuclear NPS.

5.45. A more detailed consideration of alternatives is set out in the relevant sections of each NPS.

Preferred approach for the NPSs

5.46. Because all the alternatives are assessed as performing less well than the NPSs against one of the fundamental plan objectives, the Government's preferred

option is to take forward the NPSs and nothing in the responses to the consultations has led the Secretary of State to conclude that any of the alternatives would be preferable.. The multiple market uncertainties liable to characterise the next 40 years of energy development, as demonstrated by the 2050 Pathways Analysis, are also relevant, as the policies in the NPSs are designed to facilitate a range of possible outcomes rather than relying too heavily on any particular view of the future.

- 5.47. However, in connection with alternative B in the AoS Report on EN-3, the following should be noted. As well as carrying out the AoS process for EN-3, DECC consulted on changes to the Renewables Obligation (RO). As a result of the consultation, the Renewables Obligation (Amendment) Order 2011 (ROO) came into effect on 1 April 2011, and eligibility for financial support under the RO regime for liquid biofuels is now subject to satisfying mandatory sustainability criteria as set out in the Renewables Directive. The Government considers that it is neither necessary nor desirable to duplicate the RO sustainability regime though development consent requirements. However, sustainability of biomass is relevant and important to development consent decision-making and it may be appropriate for the IPC to ensure that sustainability criteria are adhered to, whether or not RO support is claimed. Further information on sustainability of biomass is set out in paragraphs 2.5.6 and 2.5.7 of EN-3.
- 5.48. In some possible scenarios (for example if the criteria were stricter than those proposed under the RO), alternative B could have significant negative impacts such as fewer facilities being developed. This could lead to adverse impacts on security of supply and a reduction in potential socio-economic benefits associated with new biomass plant. It could also lead to some possible beneficial effects in terms of reduced negative impacts on traffic and transport, noise, flood risk, coastal change, ecology and visual effects. However, Government is satisfied that its recognition of the merits of applying sustainability criteria through the consenting framework in a limited way in individual cases - where justified by the circumstances - is appropriate and will not result in loss of the benefits of the NPS policies, or in the potential negative impacts of alternative B.
- 5.49. As noted above, the Appraisals of Sustainability were revised following criticism from respondents to the public consultation in 2009/10 and subjected to further consultation in October 2010. After careful consideration of the comments made during this second round of consultation, it was not considered necessary to make significant changes to the NPSs of a kind not envisaged by the AoS Report, therefore no re-appraisal of any elements of NPS policy was considered necessary.
- 5.50. The Energy NPSs are being designated as they provide a carefully considered and consulted-on flexible framework within which widely different individual applications can be considered and decided

6. Monitoring

- 6.1. As the plan maker, DECC is responsible for monitoring the energy NPSs. The approach to monitoring that has been developed through the development of the AoS process, the findings of the AoS, and the responses to consultation, is set out in a separate document – Energy NPS: AoS Monitoring Strategy. Much of the information required may be obtained from other sources where information is collected on the environmental and socio-economic trends identified as significant for the NPSs overall. Therefore a decision was taken that, wherever possible, use will be made of existing monitoring, which will be coordinated by DECC. The AoS Monitoring Strategy sets out a proposed monitoring framework in Chapter 8.

Annex A: How the AoS Report has been taken into account in EN-1 to EN-5

Recommendations for EN-1

Climate Change: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: The UKCIP scenarios project until 2100, for proposals over a longer lifespan, the data source would need to be the IPCC Assessment Reports.

Response: The text now reflects that IPCC reports will be needed for longer term assessment of climate change.

Ecology: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: Consider revising para 4.18.3 (Applicant’s Assessment) to reflect that significant effects could arise in other ways (e.g. on species that are not legally protected).

Response: This has been revised and now includes reference to ‘other species identified as being of principal importance for the conservation of biodiversity’.

Recommendation: Para 4.18.15 (Project affecting legally protected species) implies that the Defra species referred to are protected, but they are not. Consider adding another subsection (e.g. Projects affecting other notable species) and including BAP priority species/habitats and rare species and habitats that are not on these lists (and may not be legally protected).

Response: The title has been changed to ‘Habitats and Other Species Protection’.

Flood Risk: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: The draft introductory paragraph singles out the effects of flood risk on projects. Consider revising to reflect the need to ensure that projects don’t adversely affect flood risk (i.e. don’t increase run-off).

Response: The introductory paragraphs have been amended and reflect more widely flood risk.

Recommendation: The text should state clearly that whilst some energy projects may be acceptable in areas of low flood risk – they still need to manage surface water in accordance with PPS25.

Response: This text has been clarified and reference to Planning Policy Statement 25 (PPS25) has been included.

Water Quality and Resources: Key recommendation(s) emerging from the appraisal and how DECC responded

Water Quality and Resources: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation : NPS should clarify that water quality refers to marine and freshwater quality and resources.

Response: NPS now includes reference to marine and freshwater quality and resources.

Recommendation : The NPS should cover the effects of proposed development on water quality.

Response : NPS now outlines effects of proposed developments on water quality.

Recommendation : The NPS should refer to Water Framework Directive status and the objectives/measures for waterbodies affected.

Response : The NPS now refers to the Water Framework Directive.

Traffic and Transport: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: Consider the need for a Transport Assessment.

Response: Reference to the requirement for a Transport Assessment is now included.

Recommendation: Reference should be made to the Department for Transport guidance on Transport Assessment.

Response: Reference is now made to the NATA/WebTAG methodology stipulated in Department for Transport guidance.

Noise: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: Within the NPS text reference to the BS4142 should read as 1997 rather than 1990. Reference to PPG24 should also cover the Welsh equivalent TAN11. With reference to construction noise BS5228:2009 should be used in calculating the noise levels while BS6472:2008 should be used when considering the effects of vibration on human health.

Response: The NPS now makes reference to the correct standards and planning policy. The NPS includes the AoS recommendations within the section which details what aspects should be included in a noise assessment.

Soil and Geology: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: The NPS does not mention specific geological designations for consideration by the IPC and the proposed mitigation measures are relatively limited

Response: Reference to geological designations has been added. The section on biodiversity has been expanded to include geological conservation.

Recommendations for EN-2

Ecology: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: The likely locations of fossil fuel power stations (coastal/estuary) may result in ecological effects on migratory fish, benthic invertebrates, etc. Consider adding an ecology section which would reference appropriate mitigation measures (or cross-referencing EN-1).

Response: Separate impact on water quality and resources now references effect on fish.

Water Quality and Resources: Key recommendation(s) emerging from the appraisal and how DECC responded -

Recommendation: Specific reference is needed to Section 4.13.7 of EN-1. It is acknowledged that the Overarching NPS does a good job of highlighting the generic key issues and that the Fossil Fuels NPS briefly touches on water resources as a technical siting constraint in Section 2.2.3.

Response: Water quality and resources impact added since Entec's draft was prepared.

Recommendation: However, due to the specific issues that have relevance to the water environment given the likely location of the sites, the demand for water, significant discharges and potential for pollution from the significant infrastructure involved, it is recommended that a specific section be included on water quality to ensure that the correct issues for this type of infrastructure are considered by the IPC separate from those covered in the Overarching NPS.

Response: Water quality and resources impact added since original draft was prepared.

Recommendation: No reference is made in EN-2 to the Water Framework Directive or in EN-1 or EN-2 to the potential need for Appropriate Assessment under the Habitats Regulations.

Response: Water quality and resources impact added.

Noise: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: The delivery of coal to and residual waste materials from site will also add to noise effects from HGVs/traffic – consider referring to this under Section 2.4.3.1.

Response: Noise and nuisance impacts substantially revised in EN-1 and EN-2. Texts now aligned with these recommendations

Recommendation: Sleep disturbance is an example of an effect of noise but no more valid than other effects. Therefore, consider re-phrasing EN-2 2.4.3.2 to include other potential effects as in EN-1.

Response: Noise and nuisance impacts substantially revised in EN-1 and EN-2. Texts now aligned with these recommendations

Landscape, Townscape and Visual Effects: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: EN-1 does not appear to reference Green Belt under the Landscape and Visual Impact Section as stated.

Response: Titles of sections revised in line with EN-1.

Recommendation : Consider including the reference to PPG2 Green Belt under a separate Land Use section (as it's not considered to be a Landscape or Visual effect).

Response: Details of Land Use impacts, including consideration of Green Belts and "green infrastructure" are set out in EN-1 Section 4.25, which is cross-referenced from EN-2.

Recommendations for EN-3

Ecology: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: Consider specifying how the Coast Protection Act 1949 (CPA) and Food and Environment Protection Act 1985 (a FEPA licence) requirements will be reported to the IPC.

Response: Text has been added to specify CPA and FEPA licence requirements (paragraphs 2.6.6 – 2.6.14).

Recommendation: The favoured methodologies for addressing bird collision risk for onshore turbines are based on calculating theoretical risk, and they are likely to be revised radically as post-construction monitoring builds up the evidence base. Therefore, consider just stating that this is recognised as an issue of concern that should be addressed in consultation with the Statutory Consultation Organisation (SCO). For bats, it has yet to be established that this is an issue at all in the UK, and it may be unnecessarily restrictive to go beyond a general acknowledgement that this is a potential issue that needs to be addressed in consultation with the SCOs.

Response: Text has been revised within paragraphs 2.7.35 - 2.7.46.

Economy and Skills: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation : Suggest addition text paragraph 2.6.120 Dredging-....., typically for scallops or towing a dredge with a suction system for various shellfish.

Response: Text added.

Traffic and Transport: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: Suggest the possibility of conducting a dry run to assess issues for wide loads.

Response: Reference to “dry run” added to mitigation.

Recommendations for EN-4

Traffic and Transport: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: 7.1: With reference to LNG facilities, DECC to consider effects of increased tanker shipments on marine transport, with particular reference to safety

Response: 7.1: It is agreed that the safety of shipping and navigation is an important issue for all shipping, especially LNG tanker shipments. The existing legal framework and its enforcement will ensure that LNG tanker shipments are safely regulated. The Safety of Life at Sea Convention (SOLAS) governs the requirements for safe navigation between ports. Chapters 4 and 5 cover the carriage requirements of navigation and communications equipment, nautical charts and publications, and the planning and execution of the passage, port to port. The carriage requirements vary between ship sizes and classes, but for all intents and purposes LNG ships (because of their size) will face the strictest carriage requirements of any cargo ship. These are variously inspected, surveyed and certified by the Flag Maritime Administration or a

Recognised Organisation acting on their behalf. A proportion of foreign Flag vessels entering UK ports are subject to Port State Control.

At sea, LNG tankers have to obey all the normal traffic reporting and routing rules and procedures as well as COLREGs (collision regulations).

There are special rules regarding port operations for LNG vessels, with detailed procedures set out port by port in each Port Safety Management System.

Recommendations for EN-5

Landscape, Townscape and Visual Effects: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: We suggest the different components of an electricity line are detailed. Information on route components is given in National Grid's publication 'A Sense of Place - Design guidelines for development near high voltage overhead lines' (2003)

Information on tower types is given in National Grid's Publication 'Development Near Overhead Lines' - Planning and amenity aspects of high voltage electricity transmission lines and substations. Appendix II pp.21-22

Response: A decision was taken to strip all this information out of the NPS as it is available elsewhere. Development near overhead lines etc is irrelevant here as we are talking about putting the overhead lines in the first place, and these docs are about building AFTER a line has been built. We do have references to undergrounding and Holford Rules, which are relevant.

Ecology: Key recommendation(s) emerging from the appraisal and how DECC responded

Recommendation: More information on the effect of birds (and bats) striking OHLs is needed in EN-5

Response: A new Biodiversity section has been added to EN-5

Annex B: How the AoS Report has been taken into account in EN-6

(Note : This forms Appendix B of the Nuclear NPS)

Key revised AoS recommendations for the revised draft Nuclear NPS	DECC responses to recommendations (including changes)
<u>AoS Recommendations applicable generally to the revised draft Nuclear NPS</u>	
<p>Recommendations</p> <p>1.1 The NPS should guide the IPC to the findings of the site level AoSs to help scope the studies needed for the project level EIAs and any Sustainability Assessments.</p> <p>1.2 The NPS requires that for new nuclear power stations any development consent application should be subject to a further appropriate assessment at the project level</p> <p>1.3 The NPS should highlight to the IPC that the significance of effects can only be determined through site level studies as part of the project level EIA and HRA.</p> <p>1.4 The IPC should consider requesting a sustainability statement / assessment for each application to ensure full consideration of socio-economic issues as well as environmental issues addressed through EIA. Opportunities for enhanced socio-economic benefits are likely to be more significant at the regional level where there are clusters of potentially suitable sites for new nuclear power stations, particularly for the North West region.</p> <p>1.5 The NPS should inform the IPC that a requirement for an Environmental Management Plan as part of the EIA scoping will help ensure that any commitments to mitigating any significant impacts will be implemented.</p>	<p>1.1 Para 1.7.3 of EN-6 makes specific reference to taking account of site level AoSs to scope studies needed for project level EIAs.</p> <p>1.2 Para 4.3.1 of EN-1 makes this explicit.</p> <p>1.3 Para 1.7.4 of EN-6 states that the significance of effects can only be considered at the site level.</p> <p>1.4 Para 4.2.2 of EN-1 states that the IPC should expect a development consent application to contain an assessment of the considerations given to socio-economic as well as environmental issues within the ES.</p> <p>1.5 The EIA requires that proponents provide in their ES “a description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment”. Information within the ES may inform a Habitat Management Plan (HMP) or other Environmental Management</p>

Key revised AoS recommendations for the revised draft Nuclear NPS	DECC responses to recommendations (including changes)
	<p>Plan (EMP). However, it is not necessary for developers to deliver all mitigation proposed pre-consent or to prepare an HMP or EMP in every case. Para 4.2 of EN-1 addresses this point.</p>
<p><u>Specific AoS Recommendations applicable to Sustainable Development (SD) Themes and the revised draft Nuclear NPS</u></p>	
<p>SD Theme: Climate Change (mitigation; adaptation is considered within SD Theme Flood Risk) AoS Objective: to minimise greenhouse gas emissions</p>	
<p>Recommendations</p> <p>2.1 The UKCIP scenarios project until 2100; for nuclear projects having a longer life of approximately 160 years, the data source would need to be the IPCC Assessment Reports and updated reports/scenarios as available.</p> <p>2.2 The NPS could highlight to the IPC that nuclear power generation is associated with relatively low levels of greenhouse gas (GHG) emissions, particularly when compared with conventional fossil fuel generation.</p> <p>2.3 Minor levels of GHG emissions may arise from the transport of goods and workers during the construction phase; the significance of this depends upon the relative sustainability of local/regional transport services.</p>	<p>2.1 EN-6's flood risk text now reflects that applicants will need to allow for any future credible modelling scenarios (3.7) for longer term assessment of climate change. EN-1 sets out general considerations for adapting to climate change (para 4.8).</p> <p>2.2 EN-1 states that nuclear power is a low carbon source of power generation.</p> <p>2.3 Para 3.16.3 of EN-6 raises the potential issue of pressures on transport networks. A summary of transport effects and mitigations is contained in para 5.13 of EN-1.</p>
<p>SD Theme: Biodiversity and Ecosystems AoS Objectives: to avoid adverse impacts on the integrity of wildlife sites of international and national importance; to avoid adverse impacts on valuable ecological networks and ecosystem functionality; to avoid adverse impacts on Priority Habitats and Species including European Protected Species</p>	
<p>Recommendations</p>	<p>3.1 Para 1.7 of EN-6 explicitly refers to the fact that the AoS has identified key inter-relationships between biodiversity and other</p>

Key revised AoS recommendations for the revised draft Nuclear NPS	DECC responses to recommendations (including changes)
<p>3.1 The NPS should highlight to the IPC that there are key inter-relationships between biodiversity and other sustainability effects, most notably flood risk management (climate change adaptation), health and well-being, and sustainable communities.</p>	<p>sustainability effects.</p>
<p>3.2 It is likely to be very difficult to compensate for loss of internationally important shingle habitat at Dungeness and the NPS should consider whether this can be a potentially suitable site since building a new nuclear power station is likely to have an adverse impact on the integrity of a Special Area of Conservation (SAC)⁹ which is unlikely to be capable of mitigation..</p>	<p>3.2 Dungeness is not included in the list of potentially suitable sites in the revised draft Nuclear NPS.</p> <p>3.3 Para 1.8 of EN-6 states that development consent applications constitute projects for the purposes of the Habitats Directive and that the IPC must assess them accordingly, taking into account the plan level HRA.</p>
<p>3.3 Project level HRAs will be required since all potentially suitable new nuclear power station sites are adjacent to European designated sites or at a distance at which the strategic level HRAs have considered potential adverse effects to be possible or likely. The IPC should undertake an Appropriate Assessment that clarifies uncertainties highlighted in the strategic HRAs and addresses the adverse impacts considered possible or likely.</p>	<p>3.4 Para 3.10 of EN-6 raises the potential for interactions and cumulative adverse effects on these factors.</p>
<p>3.4 The NPS should guide the IPC towards the potential for interactions and cumulative adverse effects on water quality, habitat loss, coastal squeeze, disturbance and air quality on European designated sites where there is a cluster of potentially suitable sites for new nuclear power stations in the Severn Estuary in the south west of England.</p>	<p>3.5 The general requirement to consider cumulative effects is set out in Part 4 of EN-1. Para 3.10 of EN-6 also draws potential cumulative impacts to the attention of the IPC.</p> <p>3.6 EN-6 identifies for the IPC the potential for adverse effects on the wider biodiversity from new nuclear power stations in, for example, the guidance set out in Para 3.10 of EN-6.</p>
<p>3.5 The NPS should highlight potential cumulative effects in the north west and south west of England with other major plans and projects</p>	
<p>3.6 The NPS could inform the IPC that the common potential adverse effects on biodiversity from new nuclear power stations include water discharge, abstraction and quality; habitat and species loss and fragmentation; coastal squeeze; disturbance events (noise and visual); and air quality. These effects are likely to be most significant</p>	<p>3.7 The NPSs refer to these mitigation options in para 3.10 of EN-6 and para 4.8 of EN-1 .</p>

⁹ any impacts could not be avoided or mitigated on a SAC (part of the Natura 2000 network within the protection of the Habitats Directive)

Key revised AoS recommendations for the revised draft Nuclear NPS	DECC responses to recommendations (including changes)
<p>during construction and operation.</p> <p>3.7 The NPS could inform the IPC that there are various mitigation options available in respect of impacts on biodiversity. These include variations to building layout to avoid ecologically sensitive areas; and habitat and species protection measures on site to avoid or minimise disturbance and pollution to wildlife.</p> <p>3.8 The NPS should guide the IPC that implementation of mitigation options for significant adverse effects can be more certain if an Environmental Management Plan is included in the developer’s ES.</p> <p>3.9 Habitat Management Plans / Nature Conservation Strategies may be requested as part of a current application. However, the NPS may benefit from referring explicitly to the preparation of Habitat Management Plans / Nature Conservation Strategies.</p> <p>3.10 The NPS could consider highlighting to the IPC that there may be scope to consider ecological effects and mitigation in the context of wider Green Infrastructure Strategies and an ecosystems approach.</p>	<p>3.8, 3.9 and 3.10: The EIA regulations require that the ES provides: <i>“ a description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment”.</i></p> <p>Information within the ES may inform a Habitat Management Plan or other Environmental Management Plan (EMP). However, it is not necessary for developers to deliver all mitigation proposed pre-consent or to prepare an HMP, EMP or Green Infrastructure Strategy.</p>
<p>SD Theme: Communities – population, employment and viability AoS Objectives: to create employment opportunities; to encourage the development of sustainable communities; to avoid adverse impacts on property and land values and avoid planning blight</p>	
<p>Recommendations</p> <p>4.1 Project EIA focuses on demographic changes rather than socio-economic effects and the NPS should consider that the IPC requires an economic/employment statement.</p> <p>4.2 The NPS should highlight to the IPC that the significance of positive effects depends on whether workers are sourced from local communities.</p> <p>4.3 The NPS could highlight to the IPC that the positive effects of local employment have secondary positive effects on wider community viability.</p>	<p>4.1, 4.2, 4.3, 4.4: These recommendations are addressed in para 5.12 of EN-1 and para 3.12 of EN-6.</p> <p>Para 4.2.2 of EN-1 also requires that social and economic impacts (including matters such as employment, equality, community cohesion and well being) should be addressed by the applicant within the ES.</p>

Key revised AoS recommendations for the revised draft Nuclear NPS	DECC responses to recommendations (including changes)
<p>4.4 The NPS should highlight to the IPC that cumulative positive effects for economic development are likely to be more significant at the regional level where there are clusters of potentially suitable sites for new nuclear power station - particularly for the North West region, and possibly for the South West of England region.</p>	
<p>SD Theme: Communities – supporting infrastructure AoS Objectives: to avoid adverse impacts on the function and efficiency of the strategic transport infrastructure; to avoid disruption to basic services and infrastructure</p>	
<p>Recommendations</p> <p>5.1 The NPS could highlight to the IPC that there may be adverse effects during the construction and decommissioning phases on regional transport networks already under stress, particularly where there are clusters of potentially suitable sites for new nuclear power stations; consideration could be given to rail or maritime freight, and phasing. During operation of nuclear power stations, the effects of transport are likely to be minor and local.</p> <p>5.5 The IPC should require site (non-radioactive) waste management plans for all phases of the new nuclear power station as part of an overall commitment to sustainable waste management principles within an Environmental Management Plan as part of the ES/Sustainability Statement to help ensure implementation of mitigation proposals. Non-radioactive hazardous waste should be disposed of in accordance with current legislation including application of the principle of Best Available Technique (BAT)</p>	<p>5.1 This is addressed in para 5.13 of EN-1 and para 3.16.3 of EN-6.</p> <p>5.5 The waste management impact text of EN-1 (para 5.14) now refers to the generation of (non-radioactive) waste during the construction, operation and decommissioning phases.</p>
<p>SD Theme: Human Health and Well Being AoS Objectives: to avoid adverse impacts on physical health; to avoid adverse impacts on mental health; to avoid loss of access and recreational opportunities, their quality and user convenience</p>	
<p>Recommendations</p> <p>6.1 The NPS should inform the IPC that there may be common effects for health and well-being from new nuclear power stations associated with the following:</p>	<p>6.1 This recommendation is addressed in para 3.13 of EN-6</p>

Key revised AoS recommendations for the revised draft Nuclear NPS	DECC responses to recommendations (including changes)
<ul style="list-style-type: none"> • Radiation and radiological protection from permitted discharges, storage of waste, and potential hazards from accidental emissions • Safety and security • Employment • Emissions to water and air • Noise • Accessibility to green space and exercise <p>6.2 The NPS should ensure that the IPC appreciates the regulatory systems for operation of nuclear power stations so that effects associated with safety, security, radiological doses to the public and workers are dealt with by these systems.</p> <p>6.3 The NPS should inform the IPC of the beneficial effects of secure long term employment and community viability on health and well being.</p> <p>6.4 The NPS should inform the IPC that operation of new nuclear power stations is unlikely to be associated with significant noise, although there may be localised effects from transport and activities during the construction phase.</p> <p>6.5 The NPS should advise the IPC that nuclear power stations are often located in rural areas on the coast with potential conflicts for recreation and amenity.</p> <p>6.6 The NPS could consider the added value to decision making from a health impact assessment to accompany the ES and particularly to focus on the wider determinants of health since such health impacts would not be specifically required by the EIA Directive.</p> <p>6.7 The NPS should guide the IPC that any Sustainability Assessment should include consideration of the wider determinants of health as such impacts will not necessarily be addressed within the scope of the EIA.</p>	<p>6.2 Para 2.7 of EN-6 sets out the relationship between the regulatory regime and the planning regime for nuclear power stations and says that consent should be granted on the basis that the regulatory regimes and the aims of the relevant legislation will be implemented.</p> <p>6.3 Para 3.13 of EN-6 draws the positive benefits to be gained from employment to the attention of the IPC.</p> <p>6.4 This is addressed in para 3.13 of EN-6.</p> <p>6.5 This is identified as a potential impact in para 3.13 of EN-6</p> <p>6.6 and 6.7 HIA is not a requirement for energy infrastructure applications and is therefore not required in EN-6. The UK's robust regulatory regime means that the risk of health detriment posed by new nuclear power stations is small. Applicants are required to consider socio-economic impacts as part of the EIA process.</p>
<p>SD Theme: Cultural Heritage AoS Objectives: to avoid adverse impacts on the internationally and nationally important features of the historic environment; to avoid adverse impacts on the setting and quality of built heritage, archaeology, and historic landscapes</p>	

Key revised AoS recommendations for the revised draft Nuclear NPS	DECC responses to recommendations (including changes)
<p>Recommendations</p> <p>7.1 The NPS should advise the IPC that significant adverse effects to cultural heritage resources may be difficult to mitigate.</p>	<p>7.1 Para 5.8 of EN-1 includes reference to potential impacts on the historic environment and heritage assets.</p>

SD Theme: Landscape AoS Objectives: to avoid adverse impacts on nationally important landscapes; to avoid adverse impacts on landscape character, quality and tranquillity, diversity and distinctiveness	
Recommendations 8.1 The NPS should highlight to the IPC that there are likely to be some impacts that cannot be mitigated due to the scale of new nuclear power station development. 8.2 The NPS should highlight to the IPC the increased significance of visual impacts if cooling towers are proposed.	8.1, 8.2 Para 3.11 of EN-6 instructs the IPC to have regard to these issues: in addition Para 5.9 of EN-1 makes clear that .a landscape and visual assessment should be carried out as part of the application.
SD Theme: Air Quality AoS Objectives: to avoid adverse impacts on air quality	
Recommendations 9.4 The NPS could highlight to the IPC that impacts on air quality are unlikely to be significant with new nuclear power stations; impacts from traffic associated with the construction phase should be considered in the scope of the EIA.	9.4 This is raised in Para 3.13 of EN-6 and policy on air emissions is set out in Para 5.2 of EN-1.
SD Theme: Soils, Geology, Land Use AoS Objectives: to avoid damage to geological resources; to avoid the use of greenfield land and encourage the reuse of brownfield sites; to avoid the contamination of soils and adverse impacts on soil functions; to avoid damage to geological resources	
Recommendations 10.1 The NPS should inform the IPC that impacts to soils may affect the soil water regime which in turn may affect various terrestrial habitats and this will need to be considered in the project level HRAs.	10.1 This is identified in para 3.10 of EN-6.

<p>SD Theme: Water Quality and Resources AoS Objectives: to avoid adverse impacts on surface water hydrology and channel geomorphology (including coastal geomorphology); to avoid adverse impacts on surface water quality (including coastal and marine water quality) and assist achievement of Water Framework Directive objectives; to avoid adverse impacts on the supply of water resources; to avoid adverse impacts on groundwater quality, distribution and flow, and assist achievement of Water Framework Directive objectives</p>	
<p>Recommendations</p> <p>11.1 The NPS should guide the IPC to the findings of the site level AoSs and HRAs to help scope the studies needed for the project level EIAs and further appropriate assessments. The inter-relationships between impacts on water and ecology should be outlined.</p> <p>11.2 The NPS should highlight to the IPC the characteristics of cooling water for new nuclear power stations and the implications for the marine and estuarial environments. The impacts are likely to be neutral on water quality and resources but there may be greater impacts where several sites discharge cooling water to the same water body. Such cumulative effects are possible in the North West region and the Severn Estuary.</p> <p>11.3 At one potentially suitable site (Oldbury) it is proposed to use cooling towers and the NPS should highlight to the IPC that the associated impacts of landscape and visual amenity should be considered as well as water quality.</p> <p>11.4 The NPS should inform the IPC that there could be increased water demand, particularly during the construction phase, and in those regions that are already under water stress: the east and south east of England. The IPC will need to consider the impacts of new nuclear power stations with other major infrastructure proposals and interactions with other plans such as Water Company Resource Plans, Shoreline/Estuary Management Plans and River Basin Management Plans.</p>	<p>11.1, 11.2, 11.3, 11.4 Paras 1.7, 1.8 and 3.8 of EN-6 address these issues. Additional policy and guidance is set out in Para 4.10 of EN-1.</p> <p>11.3 is also addressed in para 3.11 of EN-6 and para 5.9 of EN-1.</p> <p>EN-1 states that the IPC will need to be satisfied that hybrid cooling technology is not reasonably practicable before granting consent for natural draught cooling technology.</p>

<p>SD Theme: Flood Risk (adaptation; mitigation is considered within SD Theme Climate Change) AoS Objectives: to avoid increased flood risk (including coastal flood risk) and seek to reduce risks where possible</p>	
<p>Recommendations</p> <p>12.1 The NPS should guide the IPC to the findings of the site level AoSs and HRAs to help scope the studies needed for the project level EIAs and further appropriate assessments. The inter-relationships between impacts on water and ecology should be outlined.</p> <p>12.2 The NPS should inform the IPC of the characteristics of cooling water for new nuclear power stations and the implications for the marine and estuarial environments.</p> <p>12.3 The NPS should guide the IPC that flood risk management measures put in place to mitigate the impacts of flooding on or from individual sites, including new works and possibly marine landing jetties/docks, may impact on coastal processes, hydrodynamics and sediment transport, which in turn may impact on designated habitats.</p> <p>12.4 The NPS should highlight to the IPC that when scoping the EIA/HRA for sites in the Severn Estuary consideration should be given to cumulative effects on coastal erosion.</p>	<p>12.1 Paras 1.7, 1.8 and 3.7 of EN-6 now refers the IPC to the site level AoS and HRA reports.</p> <p>12.2 Para 3.8 of EN-6 requires the applicant to provide details of the characteristics of cooling water for new nuclear power stations and the specific impact of the proposals on the marine and estuarine environment.</p> <p>12.3 Para 3.9 of EN-6 now contains information to this effect.</p> <p>12.4 Para 3.9 of EN-6 raises this as a consideration for the IPC.</p>
<p>SD Theme: Radioactive and Hazardous Waste (non-radioactive waste is addressed within the SD theme on sustainable communities: supporting infrastructure)</p>	
<p>Recommendations</p> <p>13.1 The NPS should highlight to the IPC that the management of radioactive and hazardous waste has the potential to produce effects at a nuclear power station site or offsite at other locations where management of waste is undertaken. There may also be effects associated with the transport of waste between nuclear power stations and waste management sites.</p>	<p>13.1 Para 5.14 of EN-1 covers this as part of the assessment of waste management. Further information in respect of radioactive waste management is contained in para 2.11 and Annex B of EN-6. .</p>

<p>13.2 The effects of the significant additional volume of spent fuel from new nuclear power stations should be taken into account by the Nuclear Decommissioning Authority (NDA) in their design and evaluation of a Geological Disposal Facility (GDF), including transportation.</p> <p>13.3 The effects of the minor additional volumes of Intermediate Level Waste (ILW) from new nuclear power stations should be taken into account by the NDA in their design and evaluation of a GDF.</p> <p>13.4 The effects of the minor additional volumes of Low Level Waste (LLW) from new nuclear power stations should be taken into account in the planning for LLW disposal capacity that the NDA undertake through their National LLW Strategy programme.</p> <p>13.5 In considering authorisations for gaseous and liquid discharges at sites receiving radioactive waste from new nuclear power stations, the Environment Agency should take into account the additional quantities of radioactive waste arising from the new nuclear power stations.</p>	<p>13.2, 13.3, 13.4 It is not for the Nuclear NPS to direct the NDA in this way However the NDA will be free to take account of anything set out in EN-6 or Nuclear AoS if it chooses to do so.</p> <p>13.5 It is not for EN-6 to direct the EA in this way as the NPS provides planning policy for the IPC when considering an application for a new nuclear power station. However the EA will be free to take account of anything set out in EN-6 or Nuclear AoS if it chooses to do so.</p>
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Annex C

Table 4.1: Summary of views expressed on EN-1 during both consultations and how DECC has taken them into account (paras 2.36 ff in Government Response¹⁰)

AoS SD Theme	Summary Issues Raised and DECC's Response
Climate Change	
<p>Government's environmental and climate change policies, such as CO₂ emission reduction and renewables targets should be more clearly laid out and emphasised in the NPS.</p> <p>Response: <i>it is important that EN-1 clearly states the Government's climate change and renewable energy targets. Part 2 of EN-1 sets out the Government's commitment to tackling climate change and renewables targets. The revised NPS makes clear that the key goal of energy policy is that of maintaining safe, secure and affordable supplies of energy to GB consumers; what kinds of new infrastructure will be needed to achieve this target; and how the NPSs, as a policy framework for assessment of applications for development consent, will facilitate the construction of infrastructure in a way which ensures that the need for new infrastructure can be satisfied in line with the principles of sustainable development.</i></p> <p>The IPC should be required to consider the potential carbon emissions of proposals in relation to UK emission reduction targets and carbon budgets, in line with the requirements of the Climate Change Act 2008.</p> <p>Response: <i>The Government does not believe that the IPC needs to take into account the potential contribution that a proposed new plant would make to meeting carbon budgets. The Government agrees that it is important to track carbon emissions and ensure that we are meeting our carbon budgets but this is a matter for wider Government intervention in energy markets, not a planning issue.</i></p> <p>It was suggested that AoS objectives placed too much emphasis on the avoidance of adverse impacts and not enough on potential positive contributions.</p> <p>Response: <i>The AoS objectives adopted were the results of a previous consultation on the SEA Scoping Report and should not be changed at this stage. Some objectives emphasise positive aspects such as creating employment and encouraging the development of sustainable communities, and where the plan is appraised as making a positive contribution these are reported in the AoS.</i></p>	
Natural Environment	
<p>The NPS instructed the IPC to ignore requirements for alternatives when considering applications in protected or designated areas.</p> <p>Response: <i>EN-1 does not instruct the IPC to ignore legislative requirements for consideration of applications in protected areas. It makes clear that applicants and the IPC must comply with any legal requirements for assessment of alternatives in designated</i></p>	

¹⁰ Ref to Government Response to consultation on revised energy NPSs

<p>areas and provides outline information on the nature of such areas, e.g. SSSIs.</p> <p>There was insufficient detailed guidance for applicants on the details that should be covered in an Environmental Statement.</p> <p>Response: <i>The sections on assessment principles, environmental statements and alternatives have been revised to clarify how applicants and the IPC should consider these issues.</i></p>
<p>Economy; Built Environment</p> <p>The non-nuclear NPSs to contain more spatial information, with regards to the best locations for bringing forward energy infrastructure. Without this information, the IPC may consent infrastructure in a way that means that it imposes too much in one area.</p> <p>Response: <i>The Government does not believe that the non-nuclear NPSs (EN-1 to EN-5) should be more spatially specific. 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 were suggested the set aside area could be too large and could deter investment in other infrastructure such as housing. Most energy infrastructure does have clearly identifiable locational criteria that are set out in the relevant NPSs.</i></p>

Table 4.2: Summary of views expressed on EN-2 and how DECC has taken them into account (paras 2.55 ff in Government Response)

AoS SD Theme	Summary Issues Raised and DECC’s Response
<p>Climate Change</p>	<p>Because CCS is as yet unproven it should not be required on fossil fuel generating stations.</p> <p>Response: <i>EN-1 and EN-2 make it 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.</i></p> <p>CCS should be applied equally to gas-fired generating stations as to coal-fired generating stations.</p> <p>Response: <i>EN-1 sets out the policy that, because coal-fired generating stations have the highest CO₂ emissions, the priority is to tackle these first.</i></p> <p>Further information on the requirements for carbon capture readiness (CCR) should be given.</p> <p>Response: <i>Section 4.7 of EN-1 and section 2.3 of EN-2 have been amended to include more information from the guidance published by the Department in November 2009.</i></p> <p>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.</p>

Response: 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.

Economy

EN-2 Should refer specifically to underground coal gasification as an electricity generation technology and encourage its use.

Response: 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.

Table 4.3: Summary of views expressed on EN-3 and how DECC has taken them into account (paras 2.65 ff in Government Response)

AoS SD Theme	Summary Issues Raised and DECC’s Response
Climate Change	
<p>Energy from the incineration of waste (energy from waste or EfW) should not be regarded as a “renewable” source of electricity. 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”.</p> <p>Response: We considered whether EfW electricity generating stations should be more properly included in the fossil fuel electricity generating infrastructure NPS EN-2. Although there are certain similarities with fossil fuels, there are more points of similarity – from a development consent point of view - with biomass electricity generating stations. These relate particularly to impacts of fuel transport and storage and ash residue management. Further, as set out in EN-3, it is possible that some biomass waste may be renewable and qualify for financial support under the Renewables Obligation. The renewables NPS sets out how the RO should be considered for development consents. It is therefore, more appropriate that EfW electricity generating stations are included in EN-3 than in EN-2.</p>	
Natural Environment	
<p>The IPC should not be directed to have no regard for sustainability of biomass. In particular there should be an assessment of sustainability not only for the direct impacts, but also for indirect impacts in foreign biomass producing countries.</p> <p>Response: 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. The text on biomass sustainability in EN-3 has been substantially revised. The IPC is directed that biomass sustainability will be a material consideration for applications using biomass (whether liquid, solid or gaseous).</p>	

Economy
<p>EN-3 should take account of other forms of renewable energy generation, particularly tidal and wave and hydro-electric power.</p> <p>Response: <i>The IPC is concerned only with consents for infrastructure generating more than 50 MW on land or 100MW 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 over 50MW will be submitted, the NPS will be revised or another NPS drafted to cover this additional infrastructure.</i></p>
Health and Well Being
<p>ETSU-R-97, giving recommended limits for noise from wind turbines, should be revised because it is alleged to be out-of-date.</p> <p>Response: <i>DECC commissioned consultants Hayes McKenzie to analyse and report how noise impacts are considered in the determination of wind farm planning applications in England. There is no substantive evidence to demonstrate that the fundamental guidelines are unsound and the Government therefore has no plans to revise them. However, as recommended by the report, the Government will explore ways of producing best practice guidance on the implementation of ETSU R-97.</i></p> <p><i>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 may impose requirements that limit noise from wind turbines to specified levels.</i></p>

Table 4.4: Summary of views expressed on EN-4 and how DECC has taken them into account

AoS SD Theme	Summary Issues Raised and DECC's Response
Climate Change	<p>EN-4 should cover CO₂ pipelines as a CO₂ pipeline network will be integral to the future deployment of Carbon Capture and Storage technologies.</p> <p>Response: <i>The Government is currently considering how we build the right infrastructure for CCS, including onshore CO₂ pipelines. Once we have a better understanding of the technical requirements of CO₂ pipelines we will include this either in a new NPS, or as a revision to EN-4 at a later date. In the meantime, decisions relating to CO₂ pipeline projects can be taken having regard, as appropriate, to relevant aspects of EN-1 and EN-4.</i></p> <p>The impact of flaring gas from Gas Reception facilities was not covered by EN-4</p> <p>Response: <i>A new section relating to the impact on gas emissions due to the flaring or venting of gas was added to EN-4. This also contained measures available to mitigate the impact to its lowest level.</i></p>
Natural Environment; Built Environment	<p>Some respondents felt that the Landscape and visual impact section relating to Gas and Oil pipelines should include impacts on biodiversity</p>

<p>Response: The section was revised to include impacts on Biodiversity, alongside landscape and visual impacts.</p>
<p>Health and Well Being</p>
<p>Some respondents felt that EN-4 should include more information on safety, and especially the safety of shipping LNG (liquefied natural gas).</p>
<p>Response: EN-4 was revised to ensure that technology-specific information on safety is included but it does not repeat what is already set out in EN-1. EN-4 was also revised to include suitable references to explain which regulatory controls apply to ensure the safety of shipping of LNG (liquefied natural gas).</p>

Table 4.5: Summary of views expressed on EN-5 and how DECC has taken them into account (paras 2.94ff of Government Response)

AoS SD Theme	Summary Issues Raised and DECC's Response
Natural Environment; Built Environment	
<p>The majority of responses were around the visual impact of overhead lines and whether undergrounding should be treated more favourably in the NPSs; whether the Holford Rules are still relevant; and whether there were different policies for town and country.</p>	
<p>Response: The Planning Act covers overhead lines (OHLs), not underground lines. The NPS recognises the visual impact as the most serious impact of OHLs, but believes the best way to deal with mitigation by undergrounding is on a case by case basis depending on individual circumstances. The Holford Rules remain a commonsense approach to the siting of pylons and design of potential routes. The policy for electricity lines in town and country is the same, but can have different effects because of the different characteristics of the relevant landscapes.</p>	
<p>As part of the argument for undergrounding as a mitigation for the visual impact of OHLs, some argued that the adverse effects of undergrounding were overstated in the NPS.</p>	
<p>Response: Many of the responses were done in the light of proposed lines that were undergoing pre-application consultation. As a result they tended to be arguments for undergrounding specific parts of a specific line, rather than arguments for changing NPSs, which need to deliver appropriate results in all cases. The impacts will vary from project to project, so it is important that the NPSs provide a flexible framework in which sensible decisions can be taken.</p>	
<p>Some respondents felt that the reasons for not preferring alternative b to the Plan were biased and in some cases wrong, eg 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.</p>	
<p>Response: 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. The Government recognises that there has previously been no comprehensive independent</p>	

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 now 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. 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. We believe that a policy where decisions on whether or not to underground electricity lines are taken within a more 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.

Economy

One of the problems with undergrounding is the cost of undergrounding, which will be passed down to consumers. Some respondents mentioned a report which aimed 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. Others thought that another argument for undergrounding OHLs was their vulnerability to terrorist attack and extreme weather events.

Response: *Government recognises the lack of independent calculations of the additional cost of undergrounding, but DECC policy allows decisions on whether a line should be undergrounded to be taken within a flexible framework taking account of all relevant factors, one of which will be cost. This policy would not need to change based on the findings of this report, although it could affect the decisions made by developers in relation to individual electricity line proposals. 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. Overall, Government believes that from a resilience perspective, the benefits and risks are finely balanced.*

Health and Well Being

Electromagnetic fields (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. They felt that Government policy on EMFs is wrong and that the AoS should have assessed the health risks on a different basis. There were also comments about the revision of International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines.

Response: *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. 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 until the EU and Member States decide to revise and then adopt a revised Recommendation. At that point EN-5 will be reviewed in order to check whether changes need to be made.

Table 4.6: Summary of views expressed on EN-6 and how DECC has taken them into account.

AoS SD Theme	Summary Issues Raised and DECC's Response
Climate Change	
<p>One respondent suggested that the proposed marine current tidal development within the Skerries area could be mentioned.</p> <p>Response: <i>The Government has noted this response. As set out in section 1.7 of the over-arching NPS (EN1), developers will have to consider cumulative impacts, including the interaction with other proposed projects, in their project level applications.</i></p>	
Natural Environment	
<p>During the first consultation, concern was expressed about blight from potential 200m cooling towers at Oldbury.</p> <p>Response: <i>The Government responded by amending the over-arching NPS (EN-1) so that the policy in the draft Fossil Fuels NPS (which set out that when considering applications for development consent, the IPC should be satisfied that application of shorter modern hybrid cooling technology was not reasonably practicable before giving consent to any development proposing natural draught towers) applied to other generating stations including nuclear power stations.</i></p> <p>During the first consultation, concern was expressed about the impact on the Lake District National Park of proposed nuclear power stations at Braystones and Kirksanton.</p> <p>Responses: <i>Although the Government took other factors into account, these considerations contributed to the decision not to include these sites in the revised Nuclear NPS.</i></p> <p>One respondent said with reference to paragraph S.8.5 of the AoS Non-Technical Summary that the three high level options considered within the AoS process did not appear to have been similarly considered in the separate Habitats Regulations Assessment (HRA) process, with particular reference to a case for Imperative Reasons of Over-riding Public Interest (IROPI).</p> <p>Response: <i>The Government considers that the text meets these concerns as far as is possible at this stage. The treatment of alternatives in the HRA is explained in Section 3.1 of the Main HRA report. Paragraph 3.1.5 says that the strategic needs alternatives concern policy choices, that no conclusions could be drawn about site locations and that HRA cannot therefore be reasonably applied. However, the Main Report also says that as part of the IROPI case the 'zero' option of not having a plan is considered. Also, as with the AoS, a strategic screen of the process alternatives was carried out and is reported in paragraphs 3.1.6 – 3.1.12 of the Main HRA Report.</i></p> <p>One respondent said with reference to paragraph S.12.10 of the AoS Non-Technical</p>	

Summary that reference should be made to potential adverse effects on migratory species and their habitats.

Response: *In general the Government's view is that the AoS and HRA Non-Technical Summaries are summaries and not intended to make reference to every issue covered. The AoS and HRA documents cover a wide range of issues and detailed information. Some selection of material in summary sections is essential if the documents are not to become too unwieldy to use. On this particular point the Government thinks that it is sufficiently covered in the Hinkley AoS site report.*

One respondent said with reference to paragraph S.12.20 of the Non-Technical Summary of the AoS that in respect of Oldbury and Hinkley there should be reference to potential effects on the River Usk, as there was in the HRA and in the AoS site reports.

Response: *The Government thinks that this point is sufficiently covered in the HRA and the site reports.*

One respondent suggested that paragraph 5.11 of the Hinkley Point site AoS should refer to the Hinkley Point site HRA and clarify the reference to compensation.

Response: *The Government believes that these points are sufficiently covered in paragraphs 5.19 and 5.20 of this section.*

One respondent said that it was unclear from the Oldbury AoS site report what the effect on silt lagoons would be of a new nuclear power station, and that this issue was not addressed in the HRA.

Response: *This point is addressed in paragraph 3.16 of the HRA Site Report for Oldbury.*

One respondent, with reference to paragraphs 4.54 – 4.58 of the Wylfa AoS site report, suggested that reference should be made to potential impacts on the Snowdonia National Park and to the LANDMAP landscape assessments for this area.

Response: *References have been added to the Wylfa site Annex to the Nuclear NPS, although these do not alter the conclusion that the development of a new nuclear power station will have a negative visual impact on the local and sub-regional landscape.*

One respondent said that the AoS and HRA Hartlepool site reports omit reference to the Able UK TERRC shipyard.

Response: *The Able UK TERRC shipyard is referred to in paragraph 5.89 of the AoS Hartlepool site report as a key project that might have interactions with a new power station. Paragraph 3.20 of the Hartlepool HRA site report also considers the Able UK TERRC shipyard (as the Able Seaton Port) and identifies potential cumulative effects due to disturbance. The assessment of cumulative effects has included consideration of the Able UK TERRC shipyard and identifies potential cumulative effects on landscape.*

Health and Well Being

Many respondents expressed concerns about the health impacts which could be associated

with a new nuclear build programme.

Response: *The Government has seen no evidence which would cause it to change the position set out 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 and concluded that the regulatory regime will effectively limit and minimise the release of radiation to very low levels and that the health detriment will be very low,*

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

Response: *The NPS sets out advice to be considered in making UK planning decisions. It does not cover activities which take place overseas. However, the Secretary of State, 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, found that the evidence 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.*

Built Environment

One respondent argued that the conclusion in the AoS that overall there is likely to be a "minor significant negative effect on cultural resources" apart from Bradwell did not take account of the destruction of archaeology, which was likely to be complete and irreversible before an application had been made to the IPC.

Response: *The Government understands the concern that archaeological evidence might be damaged during site preparation ahead of the IPC application being submitted but the NPS is intended to assist the IPC in making its decisions and this is not something that the AoS can address directly.*

Proposals for early site work should be dealt with through pre-application discussions under existing PPS5 and accompanying guidance. The principle would be applicable to all major infrastructure and thus EN1 which sets out in 5.8.8-10 the requirements for the historic environment. If the developer does do work ahead of submitting an application, then they will risk contravening these requirements in EN1.

Water Quality & Resources / Flood Risk

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 on site. Comments were also received expressing concern about development on sites located in Flood Zone 3. This related particularly to the nominated sites at Bradwell and Oldbury.

Response: *The Government response to consultation sets out that the capacity of new nuclear power stations to withstand the potential impacts of climate change will be reviewed in more detail as part of the site licensing process and as part of the Flood Risk Assessment that applicants must undertake in conjunction with their applications to the IPC. Should sites receive development consent, their capacity to withstand potential climate change will remain under consideration throughout the life of the nuclear power station*

Some respondents commented that the AoS site report for Hinkley should have a separate section on coastal processes and the conservation sites

Response: *The structure of the site AoS reports is designed to respond to the AoS/SEA objectives that were proposed in the Scoping Report that was consulted upon in 2008. 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.*

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.

Radioactive Waste

Many respondents raised concerns about the radioactive waste from nuclear power stations, in particular the duration and safety of interim waste storage and the timetable and arrangements for geological disposal

Response: *Annex B of the Nuclear NPS and the Government response to the consultation on the NPSs set out the Government’s reasons for being satisfied that effective arrangements will exist to manage and dispose of the waste that will be produced from new nuclear power stations.*

Transboundary effects

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.

Response: *We 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 the Nuclear NPS was not likely to result in significant transboundary effects.*

The Government of the Irish Republic’s response to the consultation makes 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.

