DEPARTMENT OF ENERGY & CLIMATE CHANGE

Appraisal of Sustainability for the revised draft National Policy Statement for Electricity Networks Infrastructure (EN-5): Non-Technical Summary

Planning For New Energy Infrastructure

October 2011

Preface

Appraisal of Sustainability for the revised draft National Policy Statement for Electricity Networks Infrastructure

A key objective of Government energy and climate change policy is to ensure the UK has a diverse, safe, secure and affordable energy system that incentivises investment in and deployment of low carbon energy technologies. As regards the nationally significant energy infrastructure with which this document is concerned, that means that the UK needs new power stations, electricity networks and other nationally significant infrastructure if it is to continue to enjoy secure, safe and affordable supplies of energy and drastically reduce the amount of greenhouse gases (particularly carbon dioxide (CO_2)) that it emits.

Building and operating new nationally significant energy infrastructure has a range of environmental, social and economic impacts: some beneficial (such as satisfying demand for electricity and creating jobs), others detrimental (such as construction noise and adverse landscape and visual effects). A new planning regime has been set up to facilitate the rapid development of major energy projects and other important infrastructure which Government believes we need while at the same time ensuring that their benefits outweigh their detriments.

This document presents a summary, for non-specialists, of what constructing a new generation of nationally significant energy infrastructure in accordance with the requirements of the new regime is likely to mean for the environment, society and the economy. It is set out as follows:

- **Part 1** (Introduction) sets out relevant legal, factual and policy background;
- **Part 2** (Assessment of Alternatives) shows how the proposed policies of the new regime compare against other combinations of policies which could be used to support the delivery of secure, safe and affordable supplies of increasingly low-carbon energy;
- **Part 3** (Summary of Appraisal) summarises the likely effect of development taking place in accordance with the policies of the new regime in terms of various environmental, social and economic impacts; and
- **Part 4** (Next steps) outlines the process of monitoring the actual effects of the new regime.

This document is about the revised draft Overarching Energy National Policy Statement (NPS) and the Appraisal of Sustainability for it, which are subject to public consultation for 14 weeks from 18th October 2010. For more information on this consultation and how you may give us your views please see:

Consultation Document (www.energynpsconsultation.decc.gov.uk).

Further details are included below in Part 4

Contents

Introduction

The Planning Act 2008 and National Policy Statements

1.1 The Planning Act 2008 changed the way in which a number of different categories of nationally important planning decisions, including those relating to nationally significant energy infrastructure, are made in England and Wales.

1.2 At the heart of the new regime, National Policy Statements (NPSs) produced by Government will provide a blueprint for decision-making on individual applications for development consent by those wishing to build new infrastructure. The Department of Energy and Climate Change (DECC) is responsible for preparing the NPSs relating to energy projects. These are:

- Overarching National Policy Statement for Energy (EN-1, setting out the need for new infrastructure and dealing with a range of issues common to more than one type of nationally significant energy infrastructure);
- Fossil Fuel Electricity Generating Infrastructure (EN-2, covering power stations with a capacity of more than 50MW, fuelled by coal or gas);
- Renewable Energy Infrastructure (EN-3, covering onshore wind farms and power stations fuelled by waste or biomass with a capacity of more than 50MW, and offshore wind farms with a capacity of more than 100MW);
- Gas Supply Infrastructure and Gas and Oil Pipelines (EN-4, covering nationally significant gas storage projects, gas and oil pipelines, and facilities for handling liquefied natural gas);
- Electricity Network Infrastructure (EN-5, covering overhead electricity transmission and distribution lines with a voltage of 132kV or more); and
- Nuclear Power Generation (EN-6, covering nuclear power stations).

1.3 Before the NPSs can be designated, they must be the subject of public consultation, including the publication of an Appraisal of Sustainability (AoS). The NPSs are plans for granting development consent to proposals to develop new energy infrastructure – on a case by case basis, but in accordance with certain general principles which should be applied in all cases. The AoSs are evaluations of the effects of the environmental and other effects of such plans – in so far as these can be assessed given that the NPSs indicate how applications will be dealt with, but not what applications will come forward, or (except in the case of EN-6) which they will relate to – which Government is required to carry out under both UK and EU law (the Planning Act 2008 and the Strategic Environmental Assessment (SEA) Directive (2001/42/EC)).

1.4 The energy NPSs were first published for consultation in November 2009. That consultation closed in February 2010. As a result of comments received in response to it, a number of which were critical of the approach taken in the AoSs produced for them, changes have been made to the draft NPSs and the draft AoSs. The changes to the AoSs are quite radical in some respects. Revised versions of both the NPSs and

the AoSs are now being consulted on again (for 14 weeks from 18th October 2010), with a view to their being finally "designated" (i.e. coming into effect) following approval by Parliament in 2011.

1.5 EN-2 to EN-6 are known as the "technology-specific" NPSs. They set out policies and background which are relevant only to decision-making on the particular types of infrastructure to which they relate. EN-1 sets out matters of relevance to more than one type (if not all types) of nationally significant energy infrastructure. Each application will need to be considered in the light of both EN-1 and any relevant technology-specific NPS, which need to be read together. Similarly, the AoS for EN-1 (AoS-1) considers the impacts of approving the construction of all the required types of new nationally significant energy infrastructure, while the AoSs for EN-2 to EN-6 focus on impacts and policies specific to the specific technologies with which they are concerned.

Need for new energy infrastructure

1.6 The Government believes that the need for new nationally significant energy infrastructure is so acute, for a variety of reasons, that it will not be necessary to consider in detail whether there is a demonstrable need for each individual proposed development. One of the purposes of EN-1 is to establish this "need case", which may be summarised as follows.

1.7 To meet its energy and climate change policy goals, the UK needs a new generation of energy infrastructure which will facilitate the supply of secure, safe and affordable energy generated to an increasing extent from low carbon sources (such as wind farms, nuclear power stations, and fossil fuel generating plant fitted with carbon capture and storage equipment – this last technology has yet to be demonstrated successfully at commercial scale) rather than on conventional coal- and gas-fired plant (although the latter will continue to play a part for some time in support of the transition to a low carbon energy system).

1.8 Government policy takes as its starting point the principle that a market-based system is the most cost effective and efficient way of providing energy supply and that investment is best made by the private sector. The private sector bases decisions on investment on anticipated profitability. To ensure that investments in new nationally significant infrastructure support the objectives of reducing carbon emissions and so help to combat climate change, the Government seeks to provide incentives to the market to promote the development of more sustainable energy generation methods. While the policies in the NPSs are also designed to support the development of secure, safe, affordable and low carbon energy infrastructure, Government has decided not to set quotas or targets for each different technology type in the NPSs as it believes that, provided its other policies have put the right incentives in place, the NPSs will provide an appropriate framework for ensuring that the kinds of developments we need are consented in sufficient quantities to satisfy demand, while ensuring that they do not have unacceptable adverse effects.

1.9 As well as addressing more immediate needs, policies put in place now will result in the building of infrastructure which will in many cases still be in operation in 2050 and which in all cases will have some influence on whether we achieve the greenhouse gas reductions we are aiming to achieve by that date. But with such long time horizons come many uncertainties such as the future price of fuel, the price which operators will

pay to emit greenhouse gases under the EU Emissions Trading Scheme, and the pace at which new technologies will evolve and be deployed. As a result our analysis shows that there are many different possible ways of achieving our energy and climate change policy objectives in relation to nationally significant energy infrastructure, but that it is impossible at this stage to identify a single "best" way to do so. The NPSs therefore aim to facilitate sensible levels of development of all the technologies which are currently being deployed at the relevant scale and may form part of a successful future energy infrastructure mix, rather than attempting to match a particular view of what the future should look like, based on imperfect information.

1.10 The NPSs sit alongside and draw on a very substantial body of existing legislation and policy (detailed in Annex B to AoS-1), much of it deriving from EU or internationally agreed rules and principles, all of which have a bearing on planning consents generally, or specific aspects of infrastructure consenting, such as ensuring that proper protection is given to conservation interests, while still permitting much needed development to go ahead. At least parts of England and Wales have been industrialised to a significant extent for over 200 years and are relatively densely populated. At the same time, considerable legislative, administrative and voluntary effort has gone into attempting to remedy the consequences of high levels of development, often (historically at least) not carried out in a particular sustainable way, with the Government participating in EU programmes such as the designation of protected "Natura 2000" sites, as well as adopting various national measures designed to protect the environment. (For information on the resulting "baseline" condition of the environment to which the NPSs will apply, see Annex F to AoS-1.) A particular challenge facing the development of the large quantities of new large-scale energy infrastructure which the Government has determined need to be constructed is that much of it will, for one reason or another, need to be located in areas which have hitherto seen relatively little large scale development of any kind and/or enjoy some kind of protective designation. In some cases, the need to take account of the increased risk of floods which comes with climate change (and which arises particularly in areas where some types of energy infrastructure may be located) provides an additional challenge.

Appraisals of Sustainability

1.11 As part of the planning process, each application for development consent for nationally significant energy infrastructure will be subject to detailed analysis of its environmental impacts. The AoS process does not substitute the need for that analysis. This AoS has two primary functions.

- EU law requires, in the Strategic Environmental Assessment 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. Amongst other things, the NPSs are a plan or programme for the purposes of the Directive, and so the AoSs fulfil the function of an environmental report under the Directive.

- The Planning Act requires that NPSs must be the subject of an appraisal of sustainability before they are designated. The scope of such an appraisal is similar

to that of an environmental report under the SEA Directive, but with more emphasis on social and economic impacts, and informed overall with the principles of sustainable development (often summarised as ensuring that development meets the needs of the present without compromising the ability of future generations to meet their own needs).

1.12 By requiring the AoS to be produced alongside the NPSs while they are still in draft form, the Directive and Act aim to ensure that consultees are able to review and comment on the NPSs with a sense of what it would mean in environmental and other terms for a new generation of large-scale energy infrastructure to be built in accordance with decisions made on Planning Act applications for development consent which were decided on the basis of the energy NPSs.

1.13 This AoS report for EN-5 is organised as follows:

Table 1 – Layout of the Revised Draft AoS for Electricity Networks Infrastructure.

Introduction An Introduction to AoS and a summary of the content and policies of EN-5.
Appraisal Findings Identifies, develops and assesses strategic alternatives to the NPS and comparison of the significant sustainability effects of the strategic alternatives. The findings of the appraisal of the likely significant effects of the NPS Policies. Potential ways of mitigating adverse effects are presented.
Monitoring and Next Steps Proposals for monitoring the actual impacts of implementing the NPSs.

1.14 Just as individual applications will have to be assessed in accordance with EN-1 as well as any relevant technology-specific NPS, so the revised draft AoS for Electricity Networks Infrastructure, AoS-5, must be read in conjunction with the Overarching AoS report, AoS-1. The Overarching AoS includes general background material and a discussion of the methodology of the AoSs, as well as considering the impacts of implementing the suite of energy NPSs as a whole, and a number of possible strategic alternatives to the policies set out in EN-1. The relevant technology-specific AoSs (EN-2 to EN-6) focus on alternatives, issues and recommendations which are additional to those already in the Overarching AoS report.

Assessment of Alternatives

2.1 The SEA Directive requires the identification, description and evaluation of the likely significant effects of implementing NPSs (which constitute a “plan or programme” for the purposes of the Directive) and any reasonable alternatives to them. In this context, an alternative is reasonable if it may be expected to achieve the ultimate objectives of the plan it is being compared against. Here, that plan is set out in the NPSs and the objectives are those of using the NPS framework to facilitate the development of a new generation of nationally significant energy infrastructure that will produce secure, safe and affordable supplies of increasingly low carbon energy (recognising that the NPSs are not the only policy tool available to Government to achieve this objective).

2.2 The AoS published with the draft EN-5 for public consultation in November 2009 contained an assessment of alternatives. However, following comments received during the original consultation that the range of alternatives considered was too narrow and that other alternatives should have been considered more fully, a decision was taken to reassess the alternatives.

2.3 The approach taken in assessing the alternatives to EN-5 for the revised AoS has been a two stage process:

- Development and initial screening to establish a series of reasonable strategic alternatives to the plan.
- Assessment of the selected reasonable alternatives against the AoS objectives.

2.4 A wide range of strategic alternatives have been considered in the initial screening. Those alternatives that appear capable of fulfilling the objectives of the plan and of representing genuinely strategic-level choices have been tested against the AoS objectives. The strategic alternatives proposed and considered by the appraisal team in the initial screening are discussed in AoS-1, together with the reasons for those options not being taken forward to the second stage of the alternatives assessment. AoS-1 also details the assessment of the selected reasonable alternatives against the AoS objectives, the methodology used for the assessment of alternatives and the methodology for grouping of these objectives into high-level themes.

2.5 AoS-1 contains a strategic-level analysis of alternatives to the policies in EN-1 and describes the process of identifying and evaluating alternatives in more detail. AoS-5 is concerned with the analysis of alternatives to those policies in the NPS suite which are of most direct impact to electricity networks infrastructure. Although, as noted above, EN-5 contains information on the electricity networks-specific aspects of issues and impacts which are considered in EN-1, such as land use and biodiversity, the key points of policy on these are laid down at a generic level in EN-1 and alternatives to them are considered in AoS-1. In its treatment of alternatives, AoS-5 concentrates on different approaches to reducing or eliminating the impacts of the technology concerned which experience shows are most objectionable – in particular, adverse visual impacts.

2.6 The reasonable alternatives for consideration in the AoS for the Electricity Networks Transmission NPS are the following:

- EN-5 (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

- EN-5 (b): adopt a presumption that transmission lines should be put underground (generally, or in particular locations, such as AONBs)

2.7 The findings of the assessment of alternatives, grouped according to six key sustainable development themes, are summarised in the following table 2. Broadly speaking, the conclusions were as follows. Alternative (a) would only really work if policy under EN-1, EN-2 and EN-3 was changed to require generating stations to be developed in specific areas: since the Government has chosen not to do this, alternative (a) would be more likely to lead to planning blight than the policies in the NPSs. Alternative (b) would reduce the adverse landscape and visual effects of developing new transmission and distribution infrastructure, but the larger the extent of any areas in which overhead lines are not permitted, the greater would be the overall costs of developing new electricity networks infrastructure and the greater would be the disruption to ecology and in some cases agriculture, because of the impacts of undergrounding electric lines. It is considered better to allow undergrounding as an option to adopt where appropriate on a case by case basis than to require it as a matter of course in all cases or any particular category of cases.

Table 2 – Summary of Alternatives Assessment Findings

Headline SD themes	EN-5	No NPS	Alternative (a)	Alternative (b)
Climate Change		**-?**	**0**	**+?**
Security of Energy Supply		**-?**	**0?**	**-**
Health & Well-Being		**0**	**+/-**	**+/-**
The Economy		**0?**	**+/-**	**-**
The Built Environment		**0?**	**0**	**-?**
The Natural Environment		**0?**	**0**	**+/-**

2.8 Therefore the Government's preferred option is to take forward the policies on electricity network infrastructure set out in EN-1 and EN-5.

Summary of Appraisal

Findings for individual sustainability topics

3.1 The appraisal of the impacts of implementing EN-5 was undertaken in a topic by topic manner, with the revised draft Electricity Networks Infrastructure National NPS tested against a series of "AoS objectives" based on the topics listed in Table 3 (section 2 of AoS-1 explains in more detail what each of these topics covers). Many issues and effects for sustainability are cross-cutting and effects are reported where they are most relevant to avoid duplication of appraisal.

Table 3 – Appraisal of Sustainability topics

Climate Change
Ecology (Flora and Fauna)
Resources and Raw Materials
Economy and Skills
Flood Risk
Water Quality
Traffic and Transport
Noise
Landscape, Townscape and Visual
Archaeology and Cultural Heritage
Air Quality
Soil and Geology
Health and Well Being
Equality

3.2 The likely short, medium and long-term effects of EN-5 on each of these AoS objectives was evaluated and recorded using the following key.

Table 4 – Key to Appraisal Significance of Predicted Effects

Likely Significant Effects:		
Major Positive	++	Policy would resolve an existing sustainability problem; major effect considered to be of national/ international significance
Minor Positive	+	No major sustainability constraints or effects ; minor effect considered to be of regional/ national/ international significance
Neutral	0	Neutral effect i.e. no overall effects or not-applicable
Minor Negative	-	Potential sustainability issues, mitigation possible; effect considered to be of regional/ national/ international significance
Major Negative	--	Policy would exacerbate known sustainability issues; mitigation difficult and/or expensive; major effect considered to be of national/ international significance
Uncertainty	?	Where the significance of an effect is particularly uncertain, e.g. insufficient information is available at the plan stage to fully appraise the effects of the policy or the potential for successful mitigation, the significance category is qualified by the addition of the symbol "?"

3.3 Inter-relationships between topics and interactions between different impacts, as well as the overlapping impacts of different projects (so-called "cumulative effects") are also reported where appropriate in each topic. Where significant adverse effects are predicted, possibilities for mitigation are suggested.

3.4 For the purposes of the AoS the short term has been defined as the effects arising generally during the infrastructure construction period of between 2-7 years; the medium term as between 5 and 25 years (varying with the characteristics of different technologies); and the long term as beyond 25 years (and including decommissioning where relevant).

Climate Change

Objective: To minimise detrimental effects on the climate from greenhouse gases and ozone depleting substances and maximise resilience to climate change.)

AoS Objective 1. Climate Change	Assessment (by timescale)		
	S	M	L
	0	+?	+?

3.5 Whilst EN-5 will help to facilitate the delivery of renewable energy, its effect on the Climate Change AoS objective is considered unlikely to be significant in the short-term. In the medium to longer term, low carbon energy sources are more likely to be operational and connected to the network and therefore EN-5 may have a positive effect, although this is dependent on the implementation of other Energy NPSs and the

construction of projects on the ground. The effect is therefore considered to be minor positive and uncertain.

3.6 Resilience to climate change is also an important consideration, and the development of electricity network infrastructure can be affected through transmission losses in hot weather, damage from high winds and flooding. EN-5 and EN-1 require consideration of these issues, and include mitigation measures that should ensure any negative effects are minimised.

Ecology (Flora and Fauna)

Objective: To protect and enhance protected habitats, species, valuable ecological networks and ecosystem functionality.)

AoS Objective 2. Ecology (Flora and Fauna)	Assessment (by timescale)		
	S	M	L
	-?	0	0

3.7 The effects of underground transmission lines on ecology are considered to be more significant than those for overhead transmission lines as the associated excavation can lead to significant disturbance and/or loss to terrestrial and aquatic habitats and species. The mitigation measures outlined in EN-1 along with careful planning and design will help to minimise negative effects on ecology.

3.8 EN-5 identifies that birds sometimes collide with overhead line conductors in poor visibility, resulting in their injury or death. Large raptors can also be accidentally electrocuted when using power lines and pylons as vantage points to hunt. Mitigation measures for these technology-specific effects include the careful planning and design of over head power lines so that they avoid migration routes and feeding/ breeding areas as well as providing alternative areas for large raptors to perch.

3.9 The significance of the effects identified and the effectiveness of mitigation depends upon the specific sensitivities of the sites together with details of design and site layout. This will be addressed alongside wider effects on ecology during the project level habitat regulations assessment (HRA) and environmental impact assessments (EIA). There are opportunities to mitigate certain potential negative effects on ecology, for example, project design to avoid sensitive areas, and habitat retention and species protection measures on site. As the nature and significance of effects is dependent on the location of electricity network infrastructure, it is appraised that the effect of enabling the development of new electricity networks infrastructure on ecology in the short term is minor negative and uncertain. It is appraised that the effects of enabling the development of electricity networks infrastructure on ecology will be neutral in the medium and long term given the mitigation measures available.

Resources and Raw Materials

Objective: To promote the sustainable use of resources and natural assets and to deliver secure, clean and affordable energy.)

AoS Objective 3. Resources and Raw Materials	Assessment (by timescale)		
	S	M	L
	0	0	?

3.10 Through facilitating and enabling the transmission and distribution infrastructure necessary to support the transition to a low carbon economy, EN-5 will have positive short-term effects on sustainable resource use and will help to deliver secure, clean and affordable energy. Its impact on raw materials and resources is not considered to be significant. The production of waste is a potential short-term (construction) and long-term (decommissioning) effect. However, this can be mitigated through employing Environmental Management Plans, and it is noted that electricity networks infrastructure are generally more likely to be upgraded and repaired rather than decommissioned.

Economy and Skills

Objective: To promote a strong and stable economy with opportunities for all.

AoS Objective 4. Economy and Skills	Assessment (by timescale)		
	S	M	L
	+	0	0

3.11 EN-5 is considered to have positive effects in the short term, as it is likely to lead to job opportunities and economic benefits occurring earlier than would have occurred otherwise. Through facilitating and enabling the transmission and distribution infrastructure necessary to support the transition to a low carbon economy and ensure security of supply, EN-5 may also contribute indirectly to the positive cumulative effects of the Energy NPSs on economy and skills. Whilst there is some potential for negative economic effects locally on existing and future land uses, as noted in EN-5 this can generally be mitigated through the design and planning process, and for the AoS is not considered of strategic significance.

Flood Risk

Objective: To avoid, reduce and manage flood risk (including coastal flood risk) from all sources and coastal erosion risks by locating infrastructure in lower risk areas and ensuring it is resilient over its lifetime without increasing risks elsewhere.

AoS Objective 5. Flood Risk	Assessment (by timescale)		
	S	M	L
	0	0	0

3.12 Enabling the development of electricity networks infrastructure has the potential to increase flood risk through changes to hydrological flow, and these effects are typically localised. More so than for overhead lines, the construction of underground

transmission lines can result in the disturbance and/or loss of soil leading to changes in permeability, ground and surface water flow. However, this effect can be mitigated through appropriate surface water drainage and soil management plans.

3.13 Electricity Networks infrastructure, particularly substations, are vulnerable to flooding. However, the requirements and mitigation outlined in EN-1 will help to minimise flood risk and manage the impacts on people and property. Taking mitigation measures into account it is assessed that enabling the development of new electricity networks infrastructure will have no overall effect on flood risk in the short, medium or long term.

Water Quality

Objective: To protect and enhance surface (including coastal) and groundwater quality (including distribution and flow).

AoS Objective 6. Water Quality	Assessment (by timescale)		
	S	M	L
	0	0	0

3.14 There are a number of generic effects on the water environment that are applicable to all energy infrastructure development, including electricity networks infrastructure. The significance of the effects and effectiveness of mitigation depends on the location of development and will need to be evaluated during studies for project level environmental impact assessment (EIAs). Taking mitigation measures into account it is considered that enabling the development of new electricity networks infrastructure will have no overall effect on the water environment in the short, medium and long term.

Traffic and Transport

Objective: To minimise the detrimental impacts of travel and transport on communities and the environment, whilst maximising positive effects.

AoS Objective 7. Traffic and Transport	Assessment (by timescale)		
	S	M	L
	0	0	0

3.15 The negative effects of transmission and distribution infrastructure on transport and traffic are generally limited to the construction period, and can be mitigated through appropriate design, planning (for example traffic management plans) and consultation with affected stakeholders. A similar effect on traffic and transport would occur if a network were decommissioned.

3.16 EN-5 may therefore have negative effects in the short term, however such effects are considered to be local and not strategically significant to the AoS.

Noise

Objective: To protect both human and ecological receptors from disturbing levels of noise.

AoS Objective 8. Noise	Assessment (by timescale)		
	S	M	L
	0	0	0

3.17 Enabling the development of new electricity infrastructure has the potential for minor negative effects on the noise AoS objective due to noise generated by high voltage transmission lines and substation equipment. The general mitigation measures outlined in EN-1 and the technology-specific mitigation identified in EN-5, such as the sensitive positioning of lines, should help to minimise negative effects on noise. Taking mitigation measures into account it is considered that enabling the development of new electricity networks infrastructure will have no overall effect on noise levels in the short, medium and long term.

Landscape, Townscape and Visual

Objective: To protect and enhance landscape quality, townscape quality and to enhance visual amenity.

AoS Objective 9. Landscape, Townscape and Visual	Assessment (by timescale)		
	S	M	L
	--?	--?	--?

3.18 Through facilitating the expansion of the electricity grid, EN1 has the potential for increased strategic negative visual effects on landscape and townscape across England and Wales. The NPS (particularly EN-1 and EN-5) includes robust mitigations which will help to minimise negative effects. However, even if some undergrounding takes place on a case by case basis, and/or overhead line routes otherwise avoid nationally designated landscapes, the development of transmission networks is likely to have negative effects for landscape, potentially including significant, direct impacts on the tourist economy at local and regional scales and therefore the overall effect is likely to be major negative in the short, medium and longer term..

Archaeology and Cultural Heritage

Objective: Protect and where appropriate enhance the historic environment including heritage resources, historic buildings and archaeological features.

AoS Objective 10. Archaeology and Cultural Heritage	Assessment (by timescale)		
	S	M	L
	0?	0?	0?

3.19 No technologically specific effects on archaeology have been identified in relation to electricity networks infrastructure, although it is recognised that overhead and underground lines have the potential to affect archaeological and cultural designations over a large spatial area, given their linear nature and potential for significant route distance.

3.20 The mitigation measures outlined in EN-1 with regard to the historic environment, for example the requirement for proposed developments to take account of the setting of heritage assets and how it contributes to its significance, should help to minimise adverse effects on archaeology and cultural heritage. Taking the mitigation measures into account it is considered that enabling the development of new electricity networks infrastructure will have no overall effect on archaeology and cultural heritage in the short, medium or long term.

Air Quality

Objective: To protect and enhance air quality on local, regional, national and international scale

AoS Objective 11. Air Quality	Assessment (by timescale)		
	S	M	L
	0	0	0

3.21 Localised negative effects on air quality as a result of electricity networks infrastructure are likely in the short term as a result of air emissions generated during construction. Taking mitigation measures into account it is considered that enabling the development of new electricity networks infrastructure will have no overall effect on air quality in the short, medium or long term.

Soil and Geology

Objective: To promote the use of brownfield land and where this is not possible to prioritise the protection of geologically important sites and agriculturally important land.

AoS Objective 12. Soil and Geology:	Assessment (by timescale)		
	S	M	L
	0?	0?	0?

3.22 No technologically specific effects have been identified in relation to electricity networks infrastructure, although it is recognised that overhead power lines have the potential to affect soil and geology over a large spatial area, given their linear nature and the long distances covered. The undergrounding of transmission lines has the potential for a more significant negative effect on soil and geology than for overhead lines, due to the requirement to excavate large trenches and the maintenance and repair activities that may be necessary during the infrastructure lifecycle. Mitigation measures outlined in EN-1 with regard to geological conservation will help to minimise any negative effects. Taking mitigation measures into account it is assessed that the effect of enabling the development of new electricity networks infrastructure on soil and geology will be neutral and uncertain in the short, medium and long term.

Health and Well-being

Objective: To protect and enhance the physical and mental health of the population.

AoS Objective 13. Health and Well-Being	Assessment (by timescale)		
	S	M	L
	0	0	0

3.23 The positive effects on health of EN-5 are similar to the other NPSs, and this effect is dealt with in detail in the appraisal of EN-1. Potential negative effects of electricity and transmission networks include effects on human health from Electric and Magnetic Fields; however, mitigations are provided in EN-5 which include an application of voluntary international guidelines on non-ionising radiation. Other potential effects on health relating to dust, noise and congestion are dealt with in the air pollution, noise and traffic sections of the AoS respectively. The overall effect of EN-5 on health and wellbeing is considered to be neutral at this strategic level of appraisal, but may be a consideration for project-level assessment, especially for proposals in urban areas.

Equality

Objective: To encourage equality and sustainable communities.)

AoS Objective 14. Equality	Assessment (by timescale)		
	S	M	L
	0	0	0

3.24 Through providing more certainty and helping to facilitate the transmission and distribution networks required to meet UK energy needs, EN-5 will further contribute to energy security and affordability, with positive effects for all socio-economic groups, especially low-income groups susceptible to fuel poverty. In itself this is not considered to be a significant effect; however, when considered together with the other Energy NPSs and the enhanced employment opportunities likely to occur from the suite of NPSs this will have positive cumulative effects for equality.

Cumulative Effects

3.25 Cumulative effects have been considered during the appraisal of sustainability for electricity networks infrastructure, and noted where relevant under each topic. The following summarises the cumulative effects identified for EN-5:

- **Climate change effects:** Through helping to facilitate the delivery of low carbon energy, EN-5 will contribute to the UK meeting its renewables targets and minimising greenhouse gas emissions.
- **Economic effects**: EN-5 is likely to contribute cumulatively to the overall positive effect of the Energy NPS documents for the UK Economy through ensuring a secure supply of energy required by industry and business and supporting the transition to a low carbon economy.
- **Landscape, townscape and visual effects:** Negative cumulative landscape and townscape effects, including for dependant tourist economies can occur where new overhead lines are required alongside energy infrastructure and related developments, such as substations. This is considered in AoS-1.
- **Equality effects:** EN-5 will contribute cumulatively to energy security and affordability, with positive effects for all socio-economic groups, especially low-income groups susceptible to fuel poverty.

Overall findings and conclusions

3.26 Generally, electricity networks infrastructure development has similar effects to other types of energy infrastructure, although due to the linear nature of transmission lines, effects are often more dispersed and spread across a wider area; therefore, for the majority of the AoS objectives, the strategic effects of EN-5 are considered to be neutral.

3.27 However, through facilitating and enabling the transmission and distribution infrastructure necessary to support the transition to a low carbon economy and ensure security of supply, EN-5 is considered likely to have significant positive effects on the economy and skills AoS objective in the short-term, and on the resources and raw materials AoS objective.

3.28 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; however, it is noted that EN-1 and EN-5 include extensive mitigations to ensure these effects are considered by applicants and the IPC when preparing and determining applications.

3.29 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. The NPS (particularly EN-1 and EN-5) includes robust mitigations and considerations which will help to minimise negative effects on landscape, however the residual effect remains significant.

3.30 A summary of the likely significant effects arising specifically from networks development is set out in the following table:

Table5: Summary of Key AoS Findings Specific to Electricity Networks

AoS Objective	Assessment of effects (by timescale)		
	S	M	L
1. Climate Change	0	+?	+?
2. Ecology (Flora and Fauna)	-?	0	0
3. Resources and Raw Materials	0	0	?
4. Economy and Skills	+	0	0
5. Flood Risk	0	0	0
6. Water Quality	0	0	0
7. Traffic and Transport	0	0	0
8. Noise	0	0	0
9. Landscape, Townscape and Visual	--?	--?	--?
10. Archaeology and Cultural Heritage	0?	0?	0?
11. Air Quality	0	0	0
12. Soil and Geology	0?	0?	0?
13. Health and Well-Being	0	0	0
14. Equality	0	0	0

Next Steps

Consultation

4.1 The Revised Draft of the Appraisal of Sustainability report (AoS-5) for Electricity Networks Infrastructure and the National Policy Statement (NPS) are subject to public consultation.

4.2 The public consultation commences on the 18th October 2010 and continues until the 24st January 2011.

4.3 For more information on this consultation and how you may give us your views please see the Consultation Document (www.energynpsconsultation.decc.gov.uk).

4.4 Alternatively you may contact nps.consultation@decc.gsi.gov.uk for further details.

4.5 The Government will consider any further comments received during the public re-consultation when finalising the energy NPSs. On designation of the NPS, an AoS Post Adoption Statement will be published and this will summarise how the AoS and the consultation responses have been taken into account, including how sustainability and environmental considerations have been integrated into EN-1.

The monitoring process

4.6 Monitoring should be focussed upon likely significant effects that may give rise to irreversible damage, with a view to identifying trends before such damage is caused, and likely significant effects where there was uncertainty in the AoS such that monitoring would enable preventative or mitigation measures to be undertaken.

4.7 A draft Monitoring Strategy for the Energy NPSs and AoSs will be published alongside the main consultation documents. The Government will further develop the monitoring strategy during the re-consultation period to take into account responses received on the revised draft NPSs and AoSs. The Strategy sets out the proposed indicators for monitoring together with agreed responsibilities and frequencies of monitoring during the implementation of the NPSs. This will be summarised in the Post- Adoption Statement that will be published with the designated NPSs.

URN 10D/850

Department of Energy and Climate Change
3 Whitehall Place
London
SW1A 2AW
www.decc.gov.uk