Department for
Business, Energy
& Industrial Strategy

SCOPING REPORT

Appraisal of Sustainability for the New National Policy Statement for Nuclear

December 2017

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Appraisal of Sustainability for the New National Policy Statement for Nuclear

The consultation can be found on the BEIS section of GOV.UK

Scoping Report

Any enquiries regarding this publication should be sent to us at newnuclearnps@beis.gov.uk@beis.gov.uk.

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General information

Purpose of this consultation

The Appraisal of Sustainability Scoping Report provides an opportunity for the UK's statutory consultation bodies[1] to comment on the scope of an Appraisal of Sustainability (AoS) for a new National Policy Statement (NPS) for nuclear power stations deploying in England and Wales between 2026 and 2035. The consultation is limited to agreeing the scope of the AoS that is due to be produced. The draft NPS, and accompanying AoS Report, will be made available for full public consultation.

The following statutory bodies are being consulted specifically as part of this scoping consultation:

- England: Environment Agency (EA), Historic England (HE) and Natural England (NE).
- Northern Ireland: The Department of Agriculture, Environment and Rural Affairs (DAERA).
- Scotland: Historic Scotland[2], Scottish Natural Heritage (SNH) and the Scottish Environment Protection Agency (SEPA).
- Wales: Cadw (Welsh Government historic environment service)[3], Natural Resources Wales (NRW).

In accordance with Regulation 12(5) of the Environmental Assessment of Plans and Programmes Regulations 2004, only specific statutory consultees are being consulted on this AoS Scoping Report. However, the report is also being made publically available (for information purposes only) on the gov.uk website.

Issued: 7 December 2017

Respond by: 11 January 2018

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[1] These are defined within *The Environmental Assessment of Plans and Programmes Regulations 2004* (*S.I.2004 No.1633) and equivalent Regulations in Wales, Scotland and Northern Ireland (see Chapter 2 of this Report).*

[2] It should be noted that whilst Historic Scotland is not identified as a consultation body in the SEA Regulations, Scottish Ministers have designated Historic Scotland to act on their behalf on matters affecting the historic environment and it is considered appropriate to consult them in respect of this scoping exercise.

[3] Cadw is listed as a consultation body in the Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (WSI 1656 (W.170)) and it is considered appropriate to consult them in respect of this scoping exercise

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England and Wales

How to respond

Please respond by email to newnuclearNPS@beis.gov.uk.

Additional copies:
You may make copies of this document without seeking permission. An electronic version can be found at https://www.gov.uk/government/consultations/national-policy-statement-for-new-nuclear-above-1gw-post-2025-siting-criteria-and-process.

Confidentiality and data protection

Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the consultation. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

We will summarise all responses and place this summary on the GOV.UK website. This summary will include a list of names or organisations that responded but not people's personal names, addresses or other contact details.

Quality assurance

This consultation has been carried out in accordance with the Government's Consultation Principles.

If you have any complaints about the consultation process (as opposed to comments about the issues which are the subject of the consultation) please address them to:

Email: enquiries@beis.gov.uk

Executive Summary

1. This consultation is on the scope of the Appraisal of Sustainability (AoS) for a proposed new National Policy Statement (NPS) for nuclear power stations deploying between 2026 and 2035 (the new NPS). It proposes how the AoS will be undertaken, the level and type of information to be covered in the AoS and how this will be integrated into the development of the proposed new NPS for Nuclear.

2. Statutory bodies will be consulted on the scope and level of detail of the information to be included in the AoS. We are also publishing this consultation on our website to enable others who may wish to do so the opportunity to comment. The AoS will meet two regulatory requirements:

    - The requirement for an AoS of NPS within the Planning Act 2008[4]
    - The Strategic Environmental Assessment (SEA) Regulations 2004[5]

3. The purpose of the AoS is to enable sustainability considerations (including environmental and social aspects) to be fully integrated into the development of the NPS. It facilitates the identification of potentially significant effects so that mitigation can be identified and considered within decision-making.

4. The AoS will apply to policies within the new NPS. As part of the new NPS, strategic criteria will be used to determine the suitability of sites for new nuclear power stations. It is considered that the strategic criteria and draft list of potential sites will constitute the most significant elements requiring AoS assessment. The scoping stage of AoS comprises a number of tasks:

    - Task A1: Review of other relevant plans, programmes and environmental protection objectives (PPPs).
    - Task A2: Collecting baseline information on sustainability aspects.
    - Task A3: Identifying existing and future sustainability issues and problems.
    - Task A4: Developing an AoS Framework to appraise the new NPS.

5. The AoS covers a number of different topics: climate change; biodiversity and ecosystems; communities (covering population, employment and viability in addition to supporting infrastructure), health and well-being; historic environment; landscape,

[4] http://www.legislation.gov.uk/ukpga/2008/29, see section 5(3)
[5] The Environmental Assessment of Plans and Programmes Regulations 2004 (S.I. 2004 No. 1633).

townscape and seascape; air quality; soils, geology, and land use; water quality and resources; flood risk and coastal change.

6. Within this scoping report, the review of PPPs and baseline information was used to identify sustainability issues. These were used to develop the following sustainability objectives for use in the appraisal:

    1. To minimise detrimental effects on the climate from greenhouse gases and ozone depleting substances and maximise resilience to climate change.
    2. To protect and enhance protected habitats, species, valuable ecological networks and ecosystem functionality.
    3. To promote a strong economy with opportunities for local communities.
    4. To minimise detrimental impacts on strategic transport network and disruption to basic services and infrastructure.
    5. To protect and enhance the physical and mental health of the population.
    6. To conserve and where appropriate enhance heritage assets and the wider historic environment including buildings, structures, landscapes, townscapes and archaeological remains.
    7. To protect and enhance quality of landscapes, townscapes and seascapes and visual amenity.
    8. To protect and enhance air quality on local, regional, national and international scale.
    9. 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.
    10. To protect and enhance surface (including coastal) and groundwater quality (including distribution and flow).
    11. 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.
    12. To promote the sustainable use of resources and natural assets.

7. The following consultation questions are asked as part of this scoping report:

Catalogue of consultation questions

Consultation Questions

1.	Are there other plans, programmes or environmental protection objectives that should be identified and reviewed as part of the AoS process?
2.	Is there additional information that needs to be considered as part of the baseline data?
3.	Do you consider that the range of sustainability problems and issues covered is appropriate?
4.	Are there any changes you consider should be made to the proposed sustainability objectives and guide questions?
5.	Do you have further suggestions regarding the scope of the AoS and its proposed assessment of the new NPS?

1. Introduction

1.1 The current National Policy Statement (NPS) for nuclear (the current NPS) was designated by the Department of Energy and Climate Change in 2011. The current NPS designated eight sites as potentially suitable for the development of nuclear power stations. These sites were selected on the basis of site specific assessments that considered, amongst other elements, the potential environmental and sustainability impacts of deploying a new nuclear power station on each designated site by the end of 2025.

1.2 The Government continues to support the deployment of new nuclear and the Department for Business, Energy and Industrial Strategy (BEIS) is working to develop a new NPS for nuclear to provide more certainty for projects with a programme to deploy between 2026 and 2035 (the new NPS). As part of the work to develop the new NPS, BEIS will produce an Appraisal of Sustainability (AoS) and Habitat Regulation Assessments (HRA) for the new NPS.

Appraisal of Sustainability

1.3 The main purpose of an AoS is to examine the likely social, economic and environmental effects of designating an NPS. If potential significant adverse effects are identified, the AoS recommends options for avoiding or mitigating such effects. In this way, the AoS helps inform the preparation of the NPS to promote sustainable development.

1.4 AoS is a requirement of the Planning Act 2008[6]. It also incorporates the requirements of the Strategic Environmental Assessment (SEA) Regulations 2004[7]. The AoS considers socio-economic effects alongside the environmental effects which are required to be assessed by the SEA Regulations. Chapter 2 provides further legislative context.

1.5 This report sets out the scoping stage of the AoS to support the new NPS. A number of tasks are undertaken which result in the development of an AoS framework. The AoS framework sets the scope against which the new NPS is assessed.

[6] http://www.legislation.gov.uk/ukpga/2008/29, see section 5(3)
[7] The Environmental Assessment of Plans and Programmes Regulations 2004 (S.I. 2004 No. 1633).

Structure of Scoping Report

1.6 The scoping report follows the structure below:

- Chapter 2: Approach to the AoS – this chapter provides the regulatory background, the scope of the new NPS, the relationship between the new NPS and AoS, and sets out the AoS process which is followed in the subsequent sections.
- Chapter 3: Task A1: Review Other Relevant Policies, Plans, Programmes – this chapter summarises the review of other legislation and policy at an international and national level which is presented in full in Appendix A.
- Chapter 4: Task A2: Collecting Baseline Information – this chapter sets out the information collected at a national level, summarising the contents of Appendix B and Appendix C. It also sets out the further information to be collected at a local or regional level when potential sites are considered.
- Chapter 5: Task A3: Identifying sustainability issues and problems - this section uses the review of policies, plans, and programmes in addition to the baseline information to identify key issues for the appraisal of the new NPS.
- Chapter 6: Task A4: Developing the AoS Framework – this chapter sets out the framework that will be used to appraise the new NPS in the AoS.
- Chapter 7: Next Steps – provides a summary of the consultation and next steps in development of the new NPS.

2. Approach to the AoS

Introduction

2.1 The Planning Act 2008[8] sets out a requirement that before designating an NPS, the Secretary of State must carry out an AoS. The AoS must also meet the requirements for SEA. These processes are integrated. There are also additional assessments which are separate processes but provide information for the AoS.

AoS process

2.2 The AoS process and methods used has been adopted from the following sources of guidance:

- SEA Guidance set out in A Practical Guide to Strategic Environmental Assessment Directive (ODPM, 2005)[9]; and,
- Online government guidance on SEA and SA[10]

2.3 The AoS process is set out below in Figure 2. This scoping report comprises Stage A of the process.

[8] http://www.legislation.gov.uk/ukpga/2008/29, see section 5(3)
[9] https://www.gov.uk/government/publications/strategic-environmental-assessment-directive-guidance
[10] https://www.gov.uk/guidance/strategic-environmental-assessment-and-sustainability-appraisal

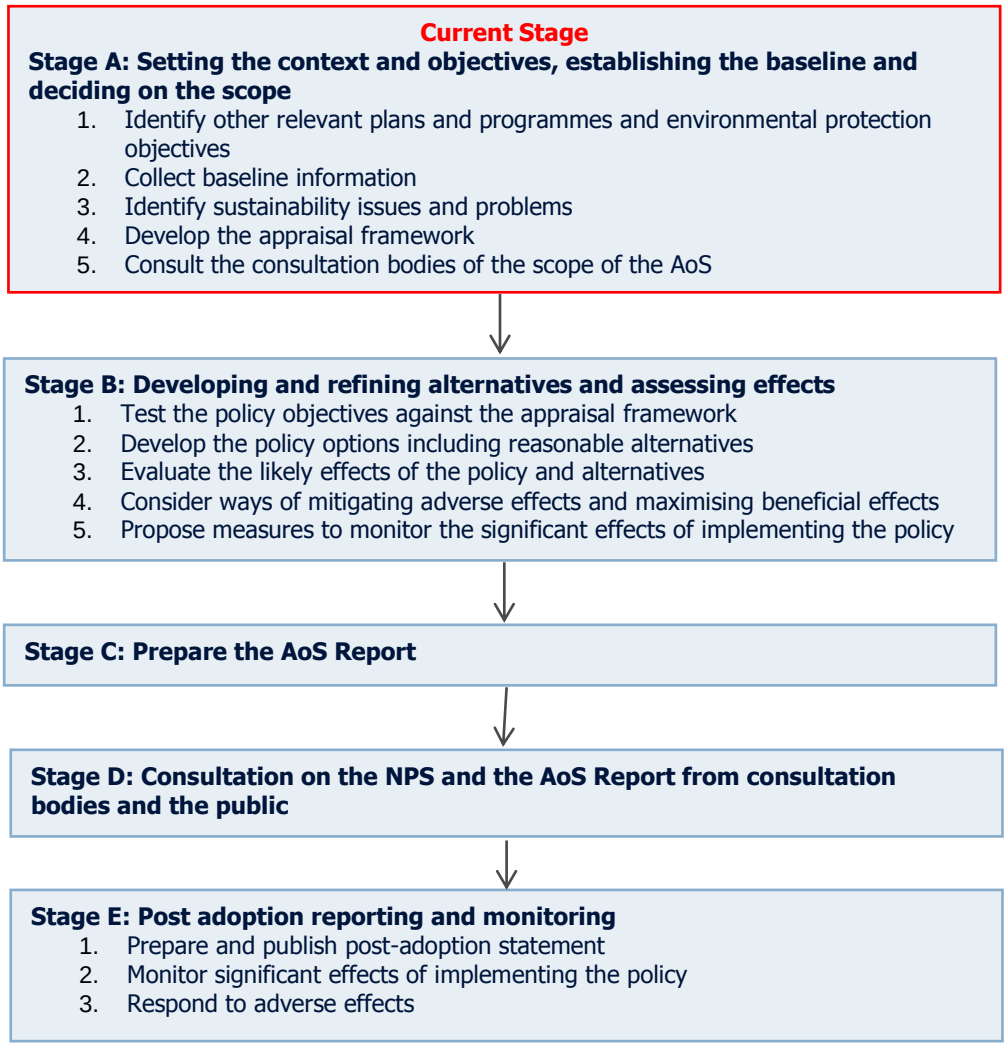

Figure 1 - The AoS Process

2.4 Chapters 3-6 of this report set out tasks 1-4 under stage A in the figure above.

Statutory Requirements

Strategic Environmental Assessment and Appraisal of Sustainability

2.5 SEA is required by European Directive 2001/42/EC (the SEA Directive)[11]. The SEA Directive makes provision in relation to environmental assessments of plans or

[11] European Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment.

programmes which are likely to have significant effects on the environment. The SEA Directive is transposed into UK law by the following sets of regulations:

- The Environmental Assessment of Plans and Programmes Regulations 2004[12] (the SEA Regulations)
- The Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004[13]
- Environmental Assessment (Scotland) Act 2005, and
- The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004[14].

2.6 The SEA Regulations (listed first above) apply to any plan or programme which relates either solely to the whole or any part of England, or to England and any other part of the UK. This scoping report will therefore be undertaken under the SEA Regulations[15].

2.7 The Planning Act 2008 (section 5(3)) requires that an AoS must be carried out before an NPS can be designated in the UK. The AoS will consider sustainability aspects such as socio-economic effects alongside any environmental effects which are required to be assessed by the SEA Regulations.

2.8 The approach to this AoS is modelled on the Government's guidance for preparing SEAs[16] and Sustainability Appraisals (SA)[17], and the term AoS includes the application of SEA and SA. Preparing an AoS is a staged approach and the process is set out in Chapter 3.6 of this document.

Habitats Regulations Assessment

2.9 Under Article 6 (3) of the EU Habitats Directive[18] as transposed into the UK law by the Habitats Regulations[19] , an assessment (referred to as a Habitats Regulations Assessment or HRA) needs to be undertaken in respect of any plan or project which:

- *either alone or in combination with other plans or projects would be likely to have a significant effect on a site designated within the Natura 2000 network – these*

[12] The Environmental Assessment of Plans and Programmes Regulations 2004 (S.I. 2004 No. 1633).
[13] Environmental Assessment of Plans and Programmes Regulations (Northern Ireland) 2004 (SR 280/2004).
[14] The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 (W.S.I 2004 No. 1656 (W.170))
[15] Each of the Regulations for Scotland, Wales and Northern Ireland applies to plans and programmes which relate solely to the whole or any part of Scotland, Wales or Northern Ireland.
[16] ODPM, 2005, *A Practical Guide to Strategic Environmental Assessment Directive*
[17] https://www.gov.uk/guidance/strategic-environmental-assessment-and-sustainability-appraisal
[18] *Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora.*
[19] *The Conservation of Habitats and Species Regulations 2010/490* (as amended).

are Special Areas of Conservation (SACs), candidate SACs (cSACs), and Special Protection Areas (SPAs). In addition, Ramsar sites (wetlands of international importance), potential SPAs (pSPA) and in England possible SACs (pSACs), are considered in this process as a matter of law or Government policy. [These sites are collectively termed 'European sites' in Habitats Regulations Assessment].

- *is not directly connected with, or necessary to, the management of the site.*

2.10 The first stage of this HRA process will be screening and this will be undertaken to determine whether the sites selected under the new NPS would be likely to have a significant effect on European sites. This will identify whether an appropriate assessment, in accordance with the Habitats Regulations, is required. This process will run alongside, but be separate to, the AoS process. A HRA Screening Report will be produced following identification of potential sites. This will determine whether the policies in the new NPS and development of sites are likely to result in significant environmental effects on European sites. The Screening Report will be shared with the Statutory Nature Conservation Bodies (Natural England, Natural Resources Wales, the Department of Agriculture, Environment and Rural Affairs's Environment and Heritage Service and Scottish Natural Heritage) for their comment.

2.11 If the Screening Report concludes that significant effects on European sites are likely to occur, then Stage 2 of the HRA, "appropriate assessment" will be undertaken. This stage comprises the detailed consideration of the impact on the integrity of the European sites selected under the new NPS, either alone or in combination with other plans or projects, with respect to the site's conservation objectives and its structure and function. This is to determine whether there will be adverse effects on the integrity of the site.

2.12 If potential adverse effects on site integrity are identified, the HRA will need to progress to Stage 3 and Stage 4. Stage 3 is an assessment of alternative solutions: the process examines alternative ways of achieving the objectives of the policy that avoid adverse impacts on the integrity of the European site. Where no alternative solutions exist and where adverse impacts remain, Stage 4 is an assessment of whether the development is necessary for imperative reasons of overriding public interest (IROPI) and, if so, of the compensatory measures needed to maintain the overall coherence of the European site's network.

Equalities Assessment

2.13 The Equality Act 2010 provides protections to people with certain protected characteristics and includes a public sector equality duty[20]. In summary, this duty requires public authorities in the exercise of their functions, to have due regard to the need to eliminate unlawful discrimination, harassment, and victimisation; to advance equality of opportunity between those with protected characteristics and those without; and to foster good relationships between people who share a protected characteristics and those who do not.

2.14 The equality assessment process forms part of this on-going duty and focuses on assessing and recording the likely equalities effects as a result of a policy. Equalities assessment commences with screening, the purpose of which is to identify any differential or disproportionate effects on protected characteristics[21]. Should the screening exercise determine potential significant effects are likely, a further equalities assessment would need to be undertaken.

The relationship between the new NPS and the AoS

2.15 The AoS will evolve alongside the new NPS and will provide the primary basis for decisions taken by the Planning Inspectorate (PINS) on applications it receives for nuclear power stations planning to deploy between 2026 and 2035. The new NPS and supporting AoS will apply to sites which will host at least one nuclear reactor with a generating capacity of above 1 gigawatt and that is deployable before 2035. The new NPS will sit outside of the 2011 Energy NPS suite as a standalone NPS which will set the framework for development consent decisions on applications for new nuclear power stations deploying between 2026 and 2035 without needing to be considered with the Overarching NPS for Energy.

2.16 The AoS would need to incorporate the following aspects of the new NPS:

- **Generic effects of nuclear power generation**. These would apply to each of the sites listed as potential locations for the deployment of nuclear power stations in the new NPS regardless of location, for example carbon emissions, effects on workers and the management of radioactive waste.

- **Site specific assessments of the proposed locations for nuclear power stations**. These would be identified through a set of strategic criteria for sites and/ or based on the existing sites identified in EN6.

[20] http://www.legislation.gov.uk/ukpga/2010/15, see in particular section 149.
[21] Age, sex, religion or belief, disability, ethnicity, sexual orientation, gender reassignment, and pregnancy and maternity.

2.17 It is important to note that the AoS is undertaken at a strategic level. Therefore, where site specific assessments are undertaken, specific details, designs and site footprints of nuclear power stations and supporting infrastructure will not be available. Assessments will be based on generic infrastructure requirements for nuclear power stations. Government will consider planning issues related to smaller and medium sized reactors separately to this process.

2.18 The level of baseline information collected for sites will be sufficient to identify likely significant effects from generic infrastructure. However, it would not be sufficiently detailed to inform assessment of a specific design (see Chapter 4 for Baseline). More detailed assessments including an Environmental Impact Assessment would be undertaken by the developer as part of an application to the PINS for development consent to develop an individual site.

Geographic & temporal scope

2.19 This consultation relates to the exercise of powers in England and Wales. Energy policy is generally a matter reserved to UK Ministers but the powers relevant to this consultation do not apply in Scotland and Northern Ireland because the legal power to consent to the construction of power stations in excess of 50MW capacity has been executively devolved to Scottish Ministers and is also devolved in Northern Ireland.

2.20 To ensure that any issues that may affect Scotland and Northern Ireland are addressed, the AoS will cover all of the UK. However the assessment of certain issues under the AoS may need to focus on just England and Wales to reflect the fact that sites designated in the new NPS will be limited to England and Wales.

2.21 The new NPS covers the deployment of nuclear power stations between 2026 and 2035. Therefore the AoS will consider the lifetime of the project. That is the construction, operation and decommissioning and the safe and secure on-site storage of all the spent fuel and intermediate level waste produced from operation and decommissioning until it can be sent for final disposal in a geological disposal facility (GDF).

Coverage of radioactive waste

2.22 New nuclear power stations will produce a number of different types of waste that will need safe and secure management:

- On the presumption of a once through fuel cycle (and therefore assuming no reprocessing of spent fuel), “higher activity waste” will consist of spent fuel and intermediate level waste. Geological disposal is the way in which higher activity

waste will be managed in the long term[22]. This will be preceded by safe and secure interim on-site storage until a geological disposal facility can receive waste.

- New nuclear power stations will also produce other waste streams: low level waste, liquid and gaseous discharges, and non-radioactive wastes. The UK has experience of dealing with these wastes from existing nuclear power stations and arrangements already exist to effectively manage and dispose of wastes in these categories.

2.23 The AoS will include assessment of the interim storage of higher activity waste and management of other waste streams. It does not include effects of geological disposal as this is covered under a separate policy development[23].

Alternatives

2.24 For this AoS, the Government has considered alternatives through a hierarchy as suggested by SEA and SA guidance as follows:

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

Need

2.25 The Government considered the need for new nuclear in the 2008 White Paper which set out that nuclear is required for a secure, low carbon energy mix. The need for nuclear energy is not considered further in the current AoS. The Government will consider whether an NPS or another mechanism is the best approach to delivering new nuclear.

Process

2.26 The format and detail of the new NPS can influence the number, location and timing of new nuclear power stations through the policy guidance and framework. The

[22] The 2014 White Paper '*Implementing Geological Disposal*' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/332890/GDF_White_Paper_FINAL.pdf The White Paper also recognised that where there could be the potential to improve the overall management of Higher Activity Waste, it is appropriate to continue to investigate alternative options to a GDF for some of the inventory. Whilst disposal in a GDF remains the baseline in England and Wales, the Nuclear Decommissioning Authority continues to investigate options for some of the inventory. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/522435/NDA_Higher_Activity_Waste_Strategy_2016.pdf

[23] https://www.gov.uk/government/collections/geological-disposal-facility-gdf-for-high-activity-radioactive-waste

process taken to designating the current NPS included identifying siting criteria and a list of nominated sites, supported by a review of potential sites which had not been nominated. The Government will consider reasonable alternative processes to delivering the requirements of the new NPS.

Location

2.27 For the current NPS, nominations of sites suitable for the siting of a nuclear power station were invited from developers. Nominated sites were assessed against exclusionary and discretionary criteria set out in the strategic criteria and sites were also appraised using the AoS Framework. Along with advice from the regulators, this informed the decision making of whether nominated sites were to be included in the current NPS as a designated site.

2.28 This assessment process was supplemented by a report which considered how sites had been selected by developers for nomination and identified any additional sites in England and Wales suitable for development within the criteria. This study of alternative sites satisfied both the SEA Regulations and the HRA requirements to consider alternatives. The Government will undertake a review of this study to identify whether there are other sites suitable for development within the strategic criteria.

3. Task A1: Review other relevant Plans, Programmes and Environmental Protection Objectives

Introduction

3.1 The identification of plans, programmes and environmental protection objectives (PPP) is the first step of the scoping report outlined in Figure 2 above. The SEA Regulations require:

'An outline of the contents and main objectives of the plan or programme and of its relationship with other relevant plans and programmes' (Schedule 2, paragraph 1)

'The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation' (Schedule 2, paragraph 5)

Summary of PPPs reviewed

3.2 The review of PPP is a valuable element of the AoS process as it assists with the following:

- The identification of environmental objectives of other relevant plans or programmes that should guide the identification of sustainability issues;
- The development of the AoS framework which should comprise sustainability objectives;
- Determining whether there are any clear potential conflicts or challenges between the PPP and the emerging policy which is the subject of the AoS process.

3.3 A series of tables presented in Appendix A present the review of PPP and document the following:

- The primary objectives of the documents including their environmental protection objectives where appropriate;
- Key indicators and targets of relevance in the documents;

- How the objectives within the plans and programmes should be taken into consideration in the AoS and NPS process, including any clear potential conflicts between them and developing the new NPS.

Box 1 below presents the common environmental protection themes and objectives from the PPPs reviewed in Appendix A.

Box 1 – Review of PPPs: Common environmental protection themes and objectives (Appendix A)

- Promoting development which meets economic, social and environmental objectives;
- Promoting the 'Polluter Pays Principle' to prevent pollution from emissions to air, water and land.
- Protecting the environment as a whole and human health, by reducing emissions of atmospheric pollutants;
- Protecting and enhancing biodiversity, including habitats and species, in addition to geological diversity;
- Reducing greenhouse gas emissions;
- Tackling climate change through mitigation and adaptation, including planning and assessing the risks.
- Identifying and managing flood risk;
- Promoting the protection of landscapes and improvement of landscape character;
- Protecting soil from loss and damage, including the identification and remediation of contaminated land;
- Promoting sustainable consumption and production including prudent use of natural resources;
- Promoting sustainable waste management, including safe disposal of hazardous and radioactive waste;
- Promoting a low carbon economy and the use of renewable energy;
- Avoiding, preventing or reducing the harmful impacts, including annoyance, due to exposure to noise;
- Protecting and improving water resources, including environmental quality and quantity available for use;
- Recognising the importance of the marine environment, through both environmental protection and challenges of development in the coastal zone.
- Conserving and enhancing the historic environment
- Promoting better health and well-being;
- Promoting equality and social inclusion;
- The importance of the cultural and natural environment, including greenspace, woodlands and trees to quality of life.

Consultation Question 1: Are there other plans, programmes or environmental protection objectives that should be identified and reviewed as part of the AoS process (Appendix A)?

4. Task A2: Collecting Baseline Information

Introduction

4.1 The collection of baseline information is the next step of the scoping report outlined in Figure 2. The SEA Regulations require the inclusion of:

The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme. (Schedule 2, paragraph 2)

The environmental characteristics of areas likely to be significantly affected (Schedule 2, paragraph 3);

4.2 This chapter sets out the information which provides a baseline for the UK and what further baseline information would be required for assessment of selected sites within the new NPS. The collection of baseline information in this Chapter and Appendix B is an update of existing information used to inform the current NPS.

Summary of national baseline data reviewed

4.3 The AoS is being undertaken to support a NPS which will have national implications and will also identify broad sites at a more local scale which will need to be considered in the AoS. Consequently, a two-stage approach to the baseline data collation process is to be adopted which will allow higher-level data to be collated first and then regional and local data to be collated, as appropriate, once potential sites for the deployment of new nuclear power stations have been identified.

4.4 The starting point for the collation of baseline data is the sustainability topics in EN-1. Data has largely been collated for internationally and nationally designated sites with an emphasis placed upon sites which have a statutory importance, for example internationally protected Ramsar sites and Special Areas of Conservation and nationally protected Sites of Special Scientific Interest and Areas of Outstanding Natural Beauty. The baseline data sets have been updated to include recent designations.

4.5 Appendix B sets out baseline information collected. This is summarised in Table 1 below.

Table 1 - Summary of baseline information

Topic	Baseline Information (national)
Climate change	Distribution of greenhouse gas emissions Contribution of sectors to greenhouse gas emissions Predicted changes to temperature and weather patterns
Biodiversity and Ecosystems	Special Protection Areas Special Areas of Conservation Ramsar Sites National Nature Reserves Sites of Special Scientific Interest (England, Scotland, Wales) and Areas of Special Scientific Interest (Northern Ireland) Marine Conservation Zones (England, Wales, Northern Ireland) Nature Conservation Marine Protected Areas (Scotland) Ancient Woodland Biosphere Reserves Biodiversity Targets
Communities – Population, Employment, and Viability	Population Location of major settlements and areas of population Working age population Unemployment Economic Activity Rates
Communities – Supporting Infrastructure	Location of strategic rail links Location of strategic road network Location of airports Location of ports
Health and Well-Being	Radioactivity levels in the environment The Index of Multiple Deprivation (England) The Scottish Index of Multiple Deprivation The Welsh Index of Multiple Deprivation Northern Ireland Multiple Deprivation Measure The Measuring National Well-Being Programme

	National Trails (England and Wales), Scotland's Great Trails
Historic Environment	World Heritage Sites Scheduled Monuments Historic Battlefields Parks and Gardens Protected Wrecks Listed Buildings Conservation Areas
Landscape, Townscape, and Seascape	National Parks. Areas of Outstanding Natural Beauty (England, Wales, Northern Ireland) and National Scenic Areas (Scotland) Heritage Coasts (England and Wales) National Character Areas (England)
Air Quality	Air Quality Management Areas
Soils, Geology, and Land Use	Sites of Special Scientific Interest (England, Scotland, Wales) and Areas of Special Scientific Interest (Northern Ireland) Geoparks
Water Quality and Resources	Water Framework Directive (WFD) Bathing Water Quality Marine Strategy Framework Directive
Flood Risk and Coastal Change	Flood Zones (England, Scotland, Wales) and Flood Risk Areas (Northern Ireland)
Resources and Waste	Sector waste statistics

4.6 Appendix B is supported by Figures 1 - 6 in Appendix C which show the geographical distribution of some of the key designated sites across the UK. Table 2 provides a summary of the data presented on these figures. An indication is provided in brackets of whether an information layer only applies to a specific part of the UK.

Table 2 - Summary of Figures within Appendix C

Figure Name	Sites Shown
Figure 1: Biodiversity and Ecosystems	Special Protection Areas Special Area of Conservation Ramsar Sites Sites of Special Scientific Interest (England, Scotland, Wales) and Areas of Special Scientific Interest (Northern Ireland) National Nature Reserves Ancient Woodland Inventory (England and Scotland) Marine Conservation Zones (England, Wales, Northern Ireland) Nature Conservation Marine Protected Areas (Scotland) Biosphere Reserves
Figure 2: Infrastructure	Urban Areas Location of strategic rail links Location of strategic road network Location of airports Location of ports
Figure 3: Historic Environment	Protected Wrecks (England) World Heritage Sites Scheduled Monuments (England and Scotland) Historic Battlefields (England and Scotland) Parks and Gardens (England and Scotland)
Figure 4: Landscape / Health and Well-being	Areas of Outstanding Natural Beauty National Parks Heritage Coasts National Trials (England)
Figure 5: Air Quality	Air Quality Management Areas
Figure 6: Flood Risk	Flood Risks Zones (England and Wales) Flood Risk Areas (Northern Ireland)

Proposed local baseline data

4.7 Following the identification of potential sites for new nuclear power stations, the baseline data collation process will be further refined. It is proposed that regional and local level data will be sourced, as appropriate, to provide relevant information to inform each of the strategic assessments to be undertaken as part of the AoS.

4.8 Data that would typically be collated to inform an Environmental Impact Assessment (EIA) i.e. very site specific data or data requiring knowledge of site design and surveys would not be gathered as part of the AoS. For example, local information might include local designations. Table 3 presents the information that will be gathered for the AoS during this second stage of data collation.

Table 3 - Summary of local baseline information collected at the second stage

Topic	Further Baseline Information (local/ regional)
Climate change	Regional variations in climate change
Biodiversity and Ecosystems	Local Wildlife Sites Local Nature Reserves Local Nature Conservation Sites Sites of Importance for Nature Conservation Sites of Nature Conservation Importance International and Nationally Protected Species Limestone Pavement Orders Ancient / Veteran Trees
Communities – Population, Employment, and Viability	Key skills gaps in the regional / local workforce. Average property values
Communities – Supporting Infrastructure	Collation of regional / localised data in relation to access services, housing and public transport infrastructure Location of emergency services including police stations, fire stations and hospitals
Health and Well-Being	Health Surveys (England) Noise levels Radioactivity levels in the environment

	Radon levels in homes Open Access Land. Woodland Parks / Forest Parks
Historic Environment	Non-designated assets (Historic Environment Records)
Landscape, Townscape, and Seascape	Country Parks. Regional Parks (Scotland). Special Landscape Areas and Areas of Great Landscape Value. Landscape / Seascape Character Assessments
Air Quality	Proposed Clean Air Zones
Soils, Geology, and Land Use	Geological Conservation Review (England, Scotland, Wales) and Earth Science Conservation Review (Northern Ireland) sites. Regionally Important Geological and Geomorphological Sites (RIGS). Recorded Mineral Sites. Areas of Known Mining Instability Control of Major Hazard Sites Agricultural Land Classification
Water Quality and Resources	Freshwater Fish Directive Sites Designated Shellfish Waters Groundwater Source Protection Zones Groundwater Vulnerability WFD Waterbody / Catchment Designation
Flood Risk and Coastal Change	Areas benefiting from Flood Defences Flood Water Storage Areas

Question 2: Is there additional information that needs to be considered as part of the baseline data?

5. Task A3: Identifying sustainability issues and problems

Introduction

5.1 The identification of sustainability issues and problems is the next step of the scoping report outlined in Figure 2 above. The SEA Regulations require the inclusion of:

any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive[24] (Schedule 2, paragraph 4).

Summary of key sustainability issues and problems

5.2 The identification of key sustainability issues and problems has been based upon the collation of baseline data and the review of other relevant PPP. The summary of issues and problems is presented below in Table 4.

5.3 It should be noted that some issues are cross-cutting and affect several topics. For example climate change can affect biodiversity, water resources, flooding and landscapes. It is anticipated that cross-cutting issues will be reviewed within the AoS.

Table 4 - Sustainability issues and problems

Topic	Key sustainability issues and problems
Climate Change	Earth's climate is changing due to emissions of greenhouse gases (GHGs) resulting from human activities. Climate change within the UK has the potential to pose significant risks to population, the economy and ecosystems through changes in environmental conditions, including increased frequency of severe flooding and storm events, increased

[24] *Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds. Directive 2009/147/EC is the codified version of Directive 79/409/EEC as amended] and 92/43/EEC [Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora]*

Topic	Key sustainability issues and problems
	temperatures, loss of habitats and increased pressure on water resources. The bulk of emissions which contribute to climate change are derived from demand for energy, with the largest contributor being CO_2 emitted when fossil fuels are burnt. As of 2015, emissions from the energy supply, business, and transport sectors accounted for 70% of the UKs total net direct GHG emissions[25]. The UK is committed, under the Kyoto Protocol, Doha Amendment, to reduce emissions by 20% below 1990 levels, between 2013 and 2020. Through the Climate Change Act 2008, the UK is committed to reducing emissions by at least 80% in 2050 from 1990 levels. This 2050 target was derived as a contribution to a global emissions path aimed at keeping global average temperature to around 2°C above pre-industrial levels. The Paris Agreement aims to limit warming to well below 2°C and to pursue efforts to limit it to 1.5°C. To achieve this aim, the Paris Agreement sets a target for net-zero global emissions in the second half of the 21st century. The UK Government is yet to set a target for reducing domestic emissions in the UK to net-zero[26]. Total emissions[27] of direct greenhouse gases have decreased by 38% between 1990 (800 $MtCO_2e$) and 2015 (496 $MtCO_2e$), and 4% between 2014 (515 $MtCO_2e$) and 2015 (496 $MtCO_2e$). Emissions from the energy supply sector have declined from 278 $MtCO_2e$ in 1990 to 144 $MtCO_2e$ in 2015 (-48%). Emissions from the business sector have declined from 114 $MtCO_2e$ in 1990 to 85 $MtCO_2e$ in 2015 (-26%). Emissions from the transport sector have declined from 122 $MtCO_2e$ in 1990 to 120 MtCO2 e in 205 (-2%). The development of new nuclear sites will contribute to the reduction of GHG emissions through increasing the supply of low-carbon energy.

[25] Reference: Final UK greenhouse gas emissions national statistics: 1990-2015. Available: https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2015

[26] Reference: UK climate action following the Paris Agreement. *Committee on Climate Change.* October 2016. Available: https://www.theccc.org.uk/wp-content/uploads/2016/10/UK-climate-action-following-the-Paris-Agreement-Committee-on-Climate-Change-October-2016.pdf

[27] Final UK greenhouse gas emissions national statistics: 1990-2015. Available: https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2015

Topic	Key sustainability issues and problems
	They will also need to be resilient to the effects of climate change.
Biodiversity and Ecosystems	The UK has a diverse variety of habitats and species. Many habitats within the UK are of international importance and are subsequently designated as sites for nature conservation. For example, the UK has: • 265 Special Protection Areas (SPAs) covering 2,169,621ha. • 658 Special Areas of Conservation (SACs) covering 4,035,146ha. • 145 Ramsar sites covering 732,436ha. The UK also has a large number of nationally important sites designated for nature conservation: • 359 National Nature Reserves (NNRs); • Approximately 6500 Sites of Special Scientific Interest (SSSIs) (England, Wales, Scotland)) and 395 Areas of Scientific Interest (ASSIs (Northern Ireland)); • 56 Marine Conservation Zones (MCZs (England, Wales)); and, • 17 Nature Conservation Marine Protected Areas (NCMPAs) (Scotland) It is likely that these sites will be of growing importance for nature conservation as the demand for undeveloped land increases in line with the anticipated rise in population and development needs. Condition of these sites may decline, or the achievement of desired condition may be affected, due to environmental problems such as reduced air quality, climate change and coastal squeeze. Nuclear sites are likely to be located within estuarine and coastal locations due to their proximity to water which is required for cooling. Many of these areas are designated as internationally and nationally important sites (SPAs, SACs, Ramsar wetland sites and SSSIs). Nuclear sites may impact directly on protected sites, e.g. land take, and indirectly, e.g. disruption to functional linkages and ecosystem processes. In addition to these designated sites, the UK has numerous Local Nature Reserves (LNRs), Local Wildlife Sites (LWSs), areas of Ancient Woodland Inventory woodland and Veteran Trees, which although not afforded statutory protection, contribute significantly towards nature conservation. The UK is a signatory to the Convention on Biological Diversity (CBD) and is committed to the biodiversity goals and targets agreed in Aichi in 2010 (‘the Aichi Targets’). These targets are detailed in the Strategic Plan for Biodiversity 2011 – 2020. Current performance against these

Topic	Key sustainability issues and problems
	targets is mixed, for example 75% of UK Biodiversity Action Plan (BAP) species have declined between 1970 and 2012, whilst areas of land in higher level agri-environment and sustainably managed forests have increased. Nuclear sites have the potential impact directly and indirectly on internationally and nationally protected species. Biodiversity objectives include ensuring protection of species and the enhancement habitats. The effects of development and operation on biodiversity and ecosystems include as habitat loss and fragmentation, coastal squeeze, introduction of barriers to dispersal, water abstraction, discharge of cooling water, changes to water levels, water, air and soil quality, and disturbance through increased access, changes to visual baseline, lighting, noise and vibration. These will have to be considered when assessing new nuclear sites.
Communities – Population, Employment, and Viability.	Population is increasing and this is a trend that is predicted to continue. As of June 2015, the population of the UK was 65.1 million. This has increased 16% since 1971 and is steadily rising by approximately 0.8% per annum. A comparison of the last two censuses shows that the UK has an aging population; in 2001 the percentage of older people (65+) was 15.9%, with this rising to 16.4% in 2011. Comparatively the percentage of younger people (0-14) was 18.8% in 2001, with this decreasing to 16.4% in 2011. Approximately 66% of the UK population is classified as working age (15-64). As of September 2016, the unemployment rate in England was 4.8%, Scotland 5.3%, Wales 4.3% and Northern Ireland 5.7%. This has generally decreased over the last decade, however is largely dependent on economic performance. As of September 2016, economic activity rates (a measure of people, who are economically active, expressed as a percentage of all people (aged 16-64)), were 78.6% in England, 77.5% in Scotland, 76.3% in Wales and 73.8% in Northern Ireland. These figures have not varied significantly over the last 20 years. The cost of housing relative to incomes has reduced home ownership rates among working age people in recent years. Between 2004-05 and 2014-15, the average age of first time buyers rose from 31 to 33, and the proportion of 25-34 year olds buying decreased from 54% to 34% (English Housing Survey 2014-15 headline report). The construction, operation and decommissioning of nuclear power sites will create direct and indirect employment opportunities. In-migration of labour, particularly if temporarily housed locally, could affect availability and cost of housing and the provision of local services such as health

Topic	Key sustainability issues and problems
	and education as well as benefit the local economy. Equally local communities can benefit from apprenticeships and job opportunities.
Communities – Supporting Infrastructure	The UK has a comprehensive strategic rail and road network and is well served by major airports and principal ports. Nonetheless, traffic congestion and associated air quality and climatic impacts are rising, notably in major urban areas. There are still many more remote, rural areas of the UK which are less well served by the transport network. The construction, operation and decommissioning of nuclear sites will utilise transport infrastructure and may exacerbate existing transport problems or in remote areas may affect access for existing rural communities. Other infrastructure used by communities such as water, energy and electricity may be affected by construction, operation and decommissioning. Major construction activity has the potential to affect civil contingency and emergency services coverage for local communities. Housing construction workers locally may require temporary accommodation compounds, requiring land and supporting infrastructure and placing demands on local facilities.
Health and Well-being	The Indices of Multiple Deprivation show that the majority of the most deprived areas in the UK are located within urban centres of population. These areas have relatively lower income, less access to services, higher unemployment and increased crime rates. There has been little variance in the locations of the most deprived areas of the UK over the last 20 years, with certain areas being in a state of persistent deprivation. These areas have relatively poorer health and well-being in comparison as those classed as less deprived. Radioactivity in Food and the Environment (RIFE) reports identifies that in 2015, the radiation doses to people living around nuclear licensed sites from authorised releases of radioactivity were well below the UK national and European limit of 1 millisievert (mSv) per year. The highest dosage recorded in the UK (0.42 mSv) was near Sellafield in the north west of England. This was largely attributed to historic discharges from the former phosphate processing plant at Whitehaven (0.35 mSv) rather than the nuclear site at Sellafield (0.078 mSv). As a result of an on-going programme of monitoring by the operator, radioactive items (particles, including contaminated pebbles / stones) from Sellafield were detected on Cumbrian coastline beaches and removed (339 in financial year 2015 / 16). The risk to public health is considered very low. At Dounreay in Scotland, a comprehensive beach monitoring programme continues for fragments of irradiated nuclear fuel (particles). Fishing restrictions under the Food and Environment Protection Act (FEPA) 1985 are still in force.

Topic	Key sustainability issues and problems
	New nuclear sites have the potential to increase radiation levels in the environment, through permitted and accidental discharges. Assessment of new nuclear sites will need to consider the potential impact on the environment and human health and ensure that areas of deprivation are not unfairly impacted. Landscapes, visual amenity and publically accessible land are important in the maintenance of health and well-being. The placing of nuclear sites may impact negatively on designated and non-designated landscapes and publically accessible land.
Historic Environment	The UK has a large number of internationally and nationally designated heritage assets, including: • 25 World Heritage Sites; • Approximately 34,000 Scheduled Monuments; • 81 Historic Battlefields (England and Scotland); • Approximately 1600 Historic Park and Gardens (England); • Approximately 300 Inventory of Gardens and Designed Landscapes (Scotland); • Approximately 400 Register of Parks and Gardens of Special Historic Interest sites (Wales); • 154 register of Historic Gardens and Demesnes sites (Northern Ireland); • 67 Protected Wrecks; • Approximately 462,077 Listed Buildings; and, • Approximately 11,000 Conservation Areas. The number of designated sites in the UK is increasing, Scheduled Monuments have increased in England, Scotland and Northern Ireland by 2,563 since 2007 and Wales has an on-going plan to increase the number of sites on the Schedule. Sites can be nominated for World Heritage designation at any time, with the last designation being the Forth Road Bridge in 2015. Wales is currently consulting on the creation of a Register of Historic Battlefields, therefore the number of these is likely to also increase. There are also a number of undesignated assets or unknown archaeological remains which could have national regional or local value. The importance of the protection of the historic environment is increasingly being recognised at a national and regional level, with the

Topic	Key sustainability issues and problems
	loss of heritage resources being difficult to mitigate. Development affects the historic environment through loss, damage or changes to setting for instance from visual intrusion, increased traffic, noise, or air pollution. This applies to new nuclear sites.
Landscape, Townscape, and Seascape	There are a number of areas across the UK which are designated for their landscape value: • 15 National Parks; • 46 Areas of Outstanding Natural Beauty (AONBs (England, Wales and Northern Ireland)); • 40 National Scenic Areas (NSAs (Scotland)); and, • 46 Heritage Coasts (England and Wales). National Parks, AONBs and NSAs are intended to conserve and enhance landscapes, whilst promoting public enjoyment and the socio-economic development of communities within them. National Trails and Scotland's Great Trails are protected to encourage and promote non-motorised use of long distance and predominantly off-road routes. Many of these trails pass through protected landscapes. The development of nuclear sites has the potential to impact on designated landscapes. Large stretches of the English and Welsh coastline are designated Heritage Coast in recognition of scenic quality and being substantially undeveloped. Landscapes are increasingly subject to both direct (physical impact and impact on visual setting) and indirect (increased traffic and noise) effects as a result of increased development and these issues also apply to nuclear development. The historic dimension is an important element of landscapes, townscapes and seascapes. Historic townscapes can also be designated as Conservation Areas (see Historic Environment) and can be indirectly affected by development of nuclear sites, for example from increased traffic.
Air Quality	Where air quality objectives are not likely to be achieved an Air Quality Management Area (AQMA) must be declared. As of October 2016 there were 523 AQMAs in England, 35 in Scotland, 38 in Wales and 26 in Northern Ireland. These are predominantly associated with vehicle emissions, principally oxides of nitrogen (NOx), oxides of sulphur (SO_2), volatile organic compounds (VOCs) and particulates (PM10). As such, AQMAs are principally located within urban areas and sections of the road network which are frequently congested. Overall air quality has improved considerably over the last decade,

Topic	Key sustainability issues and problems
	largely due to progressively tighter vehicle emission and fuel standards agreed at European level and set in UK regulations. Nuclear energy generation can contribute to improvements in air quality by increasing the supply of non-fossil fuel energy. When considering site assessment, consideration will need to be taken of indirect effects, including increased traffic flows which could impact AQMAs as well as other air quality targets.
Soils, Geology and Land Use	There are approximately 3,650 Geological Conservation Review (GCR (England, Scotland, and Wales)) and Earth Science Conservation Review (ESCR (Northern Ireland)) which have been deemed as having international and national importance for earth science conservation. Many of these are statutory protected under the SSSI and ASSI system. Currently there are seven Geoparks (internationally-recognised areas encompassing one or more sites of scientific importance in which the geological heritage is safeguarded and sustainably managed) in the UK. Additionally there are many non-statutory Regionally Important Geological Sites (RIGS) which are considered worthy of protection for their educational, research, historical or aesthetic importance. Soil is a non-renewable resource and is vulnerable to erosion, degradation and contamination. Soil sealing (the covering of the soil surface with impervious material or the changing of its nature so that it becomes impermeable) is associated with development and is a primary cause of soil loss. The development of greenfield sites can lead to loss to valuable agricultural land which generally cannot be mitigated. The impact on geology, soils and land use will have to be considered when assessing new nuclear sites.
Water Quality and Resources	In the UK, as of 2015, 35% of surface water bodies assessed under the Water Framework Directive (WFD) were in high or good status. There has been small decrease in the number of water bodies awarded high or good surface water status between 2010 and 2015. Comparatively more estuarine and coastal waters are in high or good status than lakes, rivers and canals. It is anticipated that overall water quality will improve as the UK aims to ensure that the objectives of the WFD (all aquatic ecosystems and terrestrial ecosystems and wetlands to reach good chemical and ecological status by 2027). There are 623 designated bathing waters in the UK, the majority of which are classified as excellent or good. Only 25 are classified as poor. Overall there has been an improvement in bathing water quality since recording began in 1988. Climate change and a growing population will increase pressure on water resources. Nuclear sites will require abstraction from water

Topic	Key sustainability issues and problems
	resources for cooling and have the potential to deteriorate water quality though abstraction and discharges. Assessments of sites will need to consider the impact on the existing water environment and consider future demand.
Flood Risk and Coastal Change	Large parts of the UK are at risk from fluvial, surface water and tidal flooding. In England, 5.2 million properties, or one in six residential properties, are identified as being at risk of flooding. In Scotland, 3,425 km^2, or 4.3%, of the country is within fluvial flood zones, with 566 km^2, or 0.7% of the country within the coastal flood zone. Significant areas of Wales and Northern Ireland are at similar risk of flooding. Environmental assets, including designated sites, are also at risk of flooding or coastal squeeze from flood defence. Flood risk management and changes to hydrology may be influenced by development of nuclear sites and associated infrastructure, such as flood defences. Climate change effects, such as heavier rainfall and higher coastal storm surges are likely to increase flood risk in the future. The increasing demand for development may result in encroachment into current and future flood zones. The assessment of new nuclear sites will have to carefully consider current and anticipated future flood risk, taking into account worst case scenarios.
Resources and Waste	The UK generated 202.8 million tonnes of total waste in 2014, with over half of this (59.4%) being generated by construction, demolition and excavation activities. There has been a general decline in the quantities of waste produced in the UK since 2010. As of 2014 (latest data available) 44.5% of all wastes was recovered (including recycling and energy recovery). 55 million tonnes of non-hazardous construction and demolition waste was produced in 2014, of which 90% (49.4 million tonnes) was recovered. This is above the 70% by 2020 target set out in the EU Waste Framework Directive. Resources are finite and new nuclear sites will require large quantities of raw materials for construction. Additionally there will be demand for nuclear materials for power production. Different types of waste will be produced during construction, operation and decommissioning.

Question 3: Do you consider that the range of sustainability problems and issues covered is appropriate?

6. Task A4: Developing the AoS Framework

Introduction

6.1 This chapter sets out the AoS Framework which will be used to assess the new NPS and the alternatives in the AoS. The AoS Framework is comprised of sustainability objectives and related guide questions. The use of objectives and guide questions is explained further below.

The Purpose of Sustainability Objectives

6.2 The use of objectives is not a requirement of the SEA Regulations but their use is a recognised method of assessing the effects of a plan or programme. This technique is also proposed in the published guidance.

6.3 Sustainability objectives are aspirational and reflect a desired direction of change, for example the maintenance of biodiversity levels. It therefore follows that these objectives do not have to be met in full.

Development of Sustainability Objectives and Guide Questions

6.4 The sustainability objectives were developed using:

- The review of PPP.
- The baseline data collation.
- The identification of sustainability issues and problems.

6.5 Each sustainability objective is supported by guide questions. The guide questions are intended to provide more direction and focus to the sustainability objectives. The guide questions will assist the overall assessment process and help to ensure that significant effects are identified. However, the output of the assessment will be against the sustainability objectives and not individual questions.

AoS Framework

6.6 The proposed AoS Framework is set out below at Table 5.

Table 5 - AoS Framework

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Climate Change				
Kyoto Protocol to the UN Framework Convention on Climate Change (agreed in 1997, ratified in 2005, and amended in 2012.) UN Framework Convention on Climate Change (1994) The European Spatial Development Perspective (ESDP) (European Commission, 1999) Climate Change – The UK Programme 2006: Tomorrow's Climate Today's Challenge (House of Commons Environmental Audit Committee, 2006) Stern Review of the Economics of Climate Change (Stern, 2007) UK Climate Change Risk Assessment 2017 Synthesis report: priorities for the next five years: Government Report (2012) Building a Low-Carbon Economy – The UK's Contribution to Tackling Climate Change	Baseline Information (National) Regional greenhouse gas (GHG) emissions; Greenhouse gas emissions by sector Increase in temperature and changing weather patterns Contribution of sectors to greenhouse gas emissions. Further baseline Information (Local/ Regional) Regional variations in climate change predictions.	Opportunities to reduce greenhouse gas emissions in the energy sector Climate change can put infrastructure at risk. Climate change has the potential to pose significant risks to population, the economy and ecosystems through changes in environmental conditions, including increased frequency of severe flooding and storm events, increased temperatures, loss of habitats and increased pressure on water resources. Demand for energy is the largest contributor (CO_2 emitted) Commitment under the Kyoto Protocol and through the Climate Change Act 2008 to reducing emissions by at least 80% in 2050 from 1990 levels. Total emissions of direct greenhouse gases have decreased by 38% between 1990 and 2014	1. To minimise detrimental effects on the climate from greenhouse gases and ozone depleting substances and maximise resilience to climate change.	Will the NPS ensure that the carbon throughput of the national portfolio of major energy infrastructure is reduced? Will the NPS change the result in other direct or indirect emissions of carbon dioxide and other greenhouse gases? Will the NPS promote future proofing (e.g. through good design) against the effects and risks of climate change (e.g. sea level rise and changes in weather patterns)?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
(Committee on Climate Change, 2008), the Fourth Carbon Budget: Reducing Emissions Through the 2020s (CCC, 2010) and the Fifth Carbon Budget: The First Steps Towards a Low Carbon Economy (CCC, 2015). UK Renewable Energy Road Map 2013 Carbon Plan (DECC, 2011) The National Adaptation Programme – Making the country resilient to a changing climate (2013) The Climate Change Strategy for Wales (2010) Climate Change (Scotland) Act 2009 Climate Ready Scotland Scottish Climate Change Adaptation Programme (2014) Paris Agreement (2015): The UK has ratified the agreement to keep global warming well below 2°C, pursuing efforts to limit the temperature increase to 1.5°C. Specific UK targets are yet to be set.		and 4% between 2014 and 2015. Compared to 1990, total net greenhouse gas (GHG) emissions in 2015 have declined in all sectors: energy supply; business; agriculture; industrial processes; LULUCF; public; residential; transport; and waste. Emissions from the energy supply sector (the largest source of total net GHG emissions) have declined from 278 Mt $ktCO_2e$ in 1990 to 144 Mt $ktCO_2e$ in 2015 (-48%). The transport sector shows the smallest decline in emissions (-2%) between 1990 (122 $MtCO_2e$) and 2015 (120 $MtCO_2e$). Development of new nuclear sites will contribute to the reduction of GHG emissions through increasing the supply of low-carbon energy		

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Biodiversity and Ecosystems				
Bern Convention on the Conservation of European Wildlife and Natural Habitats (1979) Bonn Convention on the Conservation of Migratory Species of Wild Animals (1979) Council Directive on the Conservation of European Wild Birds (79/409/EEC) (The Birds Directive) Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (The EC Habitats Directive) Our life insurance, our natural capital: an EU biodiversity strategy to 2020 (EC, 2011) Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat (1971) The Wildlife and Countryside Act (1981) Marine and Coastal Access Act (2009) UK Post-2010 Biodiversity	Baseline Information (National) Special Protection Areas. Special Areas of Conservation. Ramsar Sites. National Nature Reserves Sites of Special Scientific Interest (England, Scotland, Wales) and Areas of Special Scientific Interest (Northern Ireland). Marine Conservation Zones (England, Wales, Northern Ireland). Nature Conservation Marine Protected Areas (Scotland). Ancient Woodland. Biosphere Reserves. Biodiversity Targets. Further Baseline Information (Local/ Regional) Local Wildlife Sites. Local Nature Reserves. Local Nature Conservation	UK has a diverse variety of habitats and species, many of which are of international importance and are subsequently designated as sites for nature conservation. UK also has a large number of nationally important sites designated for nature conservation. Condition of these sites may decline, or the achievement of desired condition may be affected, due to environmental problems such as reduced air quality, climate change and coastal squeeze. Nuclear sites are likely to be located within estuarine and coastal locations due to their proximity to water which is required for cooling. Many of these areas are designated as internationally and nationally important sites e.g. SPAs, SACs, Ramsar wetland sites and SSSIs. Nuclear sites may impact directly on protected sites, e.g. land take, and indirectly, e.g. disruption to functional	2. To protect and enhance protected habitats, species, valuable ecological networks and ecosystem functionality	Will the NPS result in the loss of habitats of international / national importance? Will the NPS affect other statutory or non-statutory wildlife sites? Will it result in harm to internationally or nationally important or protected species? Will the NPS affect the structure and function/ecosystem processes? Will the NPS result in indirect effects such as pollution (air, soils, water), changes to waterbodies or, geomorphology? Will the NPS promote new habitat creation or restoration and linkages with existing habitats? Will the NPS seek to minimise habitat fragmentation and severance of migration and commuter routes?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Framework (July 2012) The Conservation of Habitats and Species (Amendment) Regulations 2010 (as amended)1 (SI 2012/1927) The Eel Regulations (EC/1100/2007) Salmon & Freshwater Fisheries Act (1975) Government Forestry and Woodlands Policy Statement (2013) Biodiversity 2020: a Strategy for England's Wildlife and Ecosystem Services (Defra, 2011) The National Planning Policy Framework (2012) Biodiversity Strategy for Northern Ireland to 2020 TAN 5: Nature Conservation and Planning (2009) The Town and Country Planning (Trees) (Amendment) (Wales) Regulations 2012 Woodlands for Wales (2011) The Nature Conservation (Scotland) Act 2004	Sites. Sites of Importance for Nature Conservation. Sites of Nature Conservation Importance. Limestone Pavement Orders.	linkages and ecosystem processes. UK has numerous Local Nature Reserves (LNRs), Local Wildlife Sites (LWSs) and areas of Ancient Woodland Inventory woodland, which, contribute significantly towards nature conservation. Nuclear sites have the potential impact directly and indirectly on international and nationally protected species. Biodiversity objectives include ensuring protection of species and enhancement of habitats. The effects of development on biodiversity and ecosystems include as habitat loss and fragmentation, changes to water levels, lighting, noise and vibration, and pollution.		

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
(Authorised Operations) Order 2011 2020 Challenge for Scotland's Biodiversity Control of Woodland Removal 2012 The Scottish Forestry Strategy (2006)				

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Communities – population, employment, and viability				
Aarhus Convention (Convention on Access to Information, Public Participation in Decision Making and Access to Justice in Environmental Matters) (1998) Europe 2020: a strategy for European Union growth Localism Act 2011 The National Planning Policy Framework (2012) Regional Development Strategy 2035 Planning Policy Wales (Edition 9, 2016) TAN 6: Planning for Sustainable Rural Communities (2010) TAN 13: Tourism (1997) Welsh Government Rural Communities - Rural Development Programme (2014-2020) Tourism Development Framework for Scotland (2013) PAN 3/2010 Community Engagement	Baseline Information (National) Population. Location of major settlements and areas of population. Working age population. Unemployment. Economic Activity Rates. Further Baseline Information (Local/ Regional) Key skills gaps in the regional / local workforce. Average property values.	Population is increasing and is steadily rising by approximately 0.8% per annum. UK has an aging population; Percentage of younger people (0-14) is decreasing to 16.4% in 2011. Unemployment rates generally decreased over the last decade, Economic activity rates have not varied significantly over the last 20 years. The construction, operation and decommissioning of nuclear power sites will create direct and indirect employment opportunities. In-migration of labour could affect provision of local services such as health an education as well as benefit the local economy. Equally local communities can benefit from apprenticeships and job opportunities.	3. To promote a strong economy with opportunities for local communities.	Will the NPS improve the reliability of the national energy supply? Will the NPS create both temporary and permanent jobs and increase skills particularly in areas of need? Will the NPS have wider socio-economic effects such as changes to the demographics, community services or house prices? Will the NPS have disproportionate effects on specific groups?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Communities – supporting infrastructure				
National Infrastructure Plan (HM Treasury, 2014) Regional Transportation Strategy (2002-2012) (Ireland). TAN 18: Transport (2007) One Wales: Connecting the Nation - The Wales Transport Strategy (2008) 2020 Routemap for Renewable Energy in Scotland (2011)	Baseline Information (National) Location of strategic rail links. Location of strategic road network. Location of airports. Location of ports. Further Baseline Information (Local/ Regional) Collation of regional / localised data in relation to access services, housing and public transport infrastructure. Location of emergency services including police stations, fire stations and hospitals.	Rural areas are less well served by the transport network. The construction, operation and decommissioning of nuclear sites will utilise transport infrastructure and may exacerbate existing transport problems. There may be other infrastructure used by communities such as water, energy and electricity which may be affected by construction, operation and decommissioning.	4. To minimise detrimental impacts on strategic transport network and disruption to basic services and infrastructure.	Will the NPS result in adverse changes to strategic transport infrastructure road/rail/airport? Will the NPS result in loss or disruption to basic services and infrastructure (e.g. electricity, gas)?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Health and Well-Being				
EU Directive 2002/49/EC Relating to the Assessment and Management of Environmental Noise - The Environmental Noise Directive (EU, 2002) Joint Report on Social Protection and Social Inclusion (Council of European Union, 2010) Closing the Gap: Social Determinants of Health (World Health Organisation, 2008) Environmental Liability Directive 2004/35/EC UK Government Sustainable Development Strategy: Securing the Future (HM Government, 2005) Environmental Noise (England) Regulations 2006 SI 2238 as amended by Environmental Noise (England) (Amendment) Regulations 2009 and 2010 Noise Policy Statement for England (DEFRA, 2010) The Environmental Noise Regulations (Northern	Baseline Information (National) Radioactivity levels in the environment. The Index of Multiple Deprivation (England) The Scottish Index of Multiple Deprivation. The Welsh Index of Multiple Deprivation. Northern Ireland Multiple Deprivation Measure. Further Baseline Information (Local/ Regional) Radioactivity levels in the environment. Radon levels in homes. Location of National Trails. Long Distance Routes (Scotland). Woodland Parks / Forest Parks. National Trails Scotland's Great Trails	Urban areas are generally more deprived than rural locations, having lower levels of health and well-being. Releases of radiation into the environment can be detrimental to water resources, biodiversity and human health. There may also be a perceived risk for local communities.	5. To protect and enhance the physical and mental health of the population	Will the NPS adversely affect the physical health of local communities through accidental radioactive discharges or exposure to radiation, including interim storage of waste? Will the NPS affect perceptions of risk? Will the NPS lead to exposure to increased nuisance, including noise and vibration? Will the NPS result in the loss of recreational and amenity land or loss of access? Will the NPS affect recreational enjoyment of the countryside and coasts?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Ireland) 2006 TAN 11: Noise (1997) Environmental Noise (Scotland) Regulations (2006) PAN 1/2011 Planning and Noise				
Historic Environment				
UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) Ancient Monuments and Archaeological Areas Act (1979) Planning (Listed Buildings and Conservation Areas) Act (1990) Protection of Wrecks Act (1973) National Planning Policy Framework, 2012 Natural Heritage Strategic Plan (2003) – N Ireland The Welsh Historic Environment Strategic Statement: Action Plan (2010) PAN 2/2011 Planning and Archaeology	Baseline Information (National) World Heritage Sites. Scheduled Monuments. Historic Battlefields. Parks and Gardens. Protected Wrecks. Further Baseline Information (Local/ Regional) Listed Buildings. Conservation Areas. Non-designated heritage assets (Historic Environment Record & acknowledge there will be unknown sites).	Large number of internationally and nationally designated heritage assets. Numerous Conservation Areas and Listed Buildings which have heritage value. Designated sites are increasing along with the number of undesignated assets or unknown archaeological remains which could have national regional or local value. The importance of the protection of the historic environment is increasingly being recognised at a national and regional level, with the loss of heritage resources being difficult to mitigate. Development affects the historic environment	6. To conserve and where appropriate enhance heritage assets and the wider historic environment including buildings, structures, landscapes, townscapes and archaeological remains	Will the NPS affect the significance of designated heritage assets and their settings? Will the NPS affect the significance of non-designated heritage assets and their settings? Will the NPS lead to harm to the significance of heritage assets, for example from visual intrusion and the generation of noise? Will the NPS conserve and enhance heritage assets and the wider historic environment including landscapes, townscapes, buildings, structures and archaeological remains.

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
PAN 71 Conservation Area Management PAN 60 Planning for Natural Heritage		through loss, damage or changes to setting for instance from visual intrusion, increased traffic, noise, or air pollution. This applies to new nuclear sites.		
Landscape, Townscape, and Seascape				
European Landscape Convention (Council of Europe, 2000) EU Thematic Strategy for Soil Protection (EC, 2004) National Planning Policy Framework, 2012 TAN 16: Sport, Recreation and Open Space (2009).	Baseline Information (National) National Parks. Areas of Outstanding Natural Beauty (England, Wales, Northern Ireland) and National Scenic Areas (Scotland). Heritage Coasts (England and Wales).	A large number of areas across the UK are designated for their landscape value. National Parks, AONBs and NSAs are intended to conserve and enhance landscapes, whilst promoting public enjoyment and the socio-economic development of communities within them. Designated Heritage Coast in recognition of scenic quality and being substantially undeveloped. Landscapes are increasingly subject to both direct (physical impact and impact on visual setting) and indirect (increased traffic and noise) effects as a result of increased development.	7. To protect and enhance quality of landscapes, townscapes and seascapes and visual amenity.	Will the NPS affect nationally or locally designated landscapes? Will the NPS affect the character of landscapes, townscapes and seascapes through changes to views or indirectly through changes to tranquillity, light pollution and traffic? Will the NPS enhance the quality of landscapes, townscapes and seascapes and visual amenity?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Air quality				
EU Thematic Strategy on Air Quality (2005) Integrated Pollution Prevention and Control: IPPC Directive 2008/1/EC Ambient Air Quality Directives (2008/50/EC) The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Defra, 2007) Air Quality Standards Regulation 2010 Air Pollution: Action in a Changing Climate (Defra, 2010) The Air Quality Standards Regulations (Northern Ireland) 2010 The Smoke Control Areas (Authorised Fuels) (Wales) The Air Quality Standards (Scotland) Regulations (2010)	Air Quality Management Areas (AQMA). Further Baseline Information (Local/ Regional) Country Parks. Regional Parks (Scotland). Special Landscape Areas and Areas of Great Landscape Value.	AQMAs are predominantly associated with vehicle emissions and are principally located within urban areas and sections of the road network which are frequently congested. Overall air quality has improved considerably over the last decade, Nuclear energy generation can contribute to improvements in air quality by increasing the supply of non-fossil fuel energy. When considering site assessment, consideration will need to be taken of indirect effects, including increased traffic flows which could impact AQMAs as well as other air quality targets.	8. To protect and enhance air quality on local, regional, national and international scale.	Will the NPS adversely affect human health or biodiversity? Will the NPS maintain and/or enhance air quality? Will the NPS result in existing areas of poor air quality be made worse?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Soils and Geology				
Directive on the Landfill of Waste (99/31/EC) Waste Framework Directive (2008/98/EC) The Contaminated Land (England) Regulations 2006 (HMSO, 2006) as amended by the Contaminated Land (England) (Amendment) Regulations 2012 Waste and Contaminated Land (Amendment) Act (Northern Ireland) 2011 The Hazardous Waste (Amendment No. 2) Regulations (Northern Ireland) 2015 The Waste (Scotland) Regulations 2012 Contaminated Land (Scotland) Regulations (2000 and 2005) PAN 33 Development of Contaminated Land (Revised Oct 2000)	Baseline Information (National) Geoparks SSSIs with Geological designations Further Baseline Information (Local/ Regional) Regionally Important Geological and Geomorphological Sites. Recorded Mineral Sites. Areas of Known Mining Instability. Control of Major Hazard Sites. ALC	Geoparks encompass one or more sites of scientific importance in which the geological heritage is safeguarded and sustainably managed) in the UK. Soil is a non-renewable resource and is vulnerable to erosion, degradation and contamination. Development of greenfield sites can lead to loss to valuable agricultural land which generally cannot be mitigated. The impact on geology, soils and land use will have to be considered when assessing new nuclear sites.	9. 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.	Will the NPS promote the use of brownfield land and minimise loss of agricultural land? Will the NPS safeguard soils and geology, including designated geological sites, from damage including potential contamination, compaction and erosion?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Water Quality and Resources				
Directive Concerning the Management of Bathing Water Quality and Repealing Council Directive 76/160/EEC (2006/7/EC) Drinking Water Directive (98/83/ Fish Directive (2006/44/EC)EC) "New" Groundwater Directive (GWD) (2006/118/EC) Water Framework Directive (2000/60/EC) Environmental Quality Standards Directive 2008/105/EEC River Basin Management Plans (Environment Agency) The Groundwater (Amendment) Regulations (Northern Ireland) 2016 Marine Strategy Framework Directive (2008/56/EC)	Baseline Information (National) Water Framework Directive. Bathing water quality. Further Baseline Information (Local/ Regional) Freshwater Fish Directive Sites. Designated Shellfish Waters. Groundwater Source Protection Zones. Groundwater Vulnerability.	In the UK, as of 2015, 35% of surface water bodies assessed under the Water Framework Directive were in high or good status. Decrease in quality of water status between 2010 and 2015. More estuarine and coastal waters are in high or good status than lakes, rivers and canals. Overall water quality is set to improve. There has also been an improvement in bathing water quality since recording began in 1988. Climate change and a growing population will increase pressure on water resources. Nuclear sites will require abstraction from water resources for cooling and have the potential to deteriorate water quality though discharges. Assessments of sites will need to consider the impact on the existing water environment and consider future demand.	10. To protect and enhance surface (including coastal) and groundwater quality (including distribution and flow).	Will the NPS protect and improve ground and surface water quality in line with Water Framework Directive requirements? Will the NPS protect and enhance coastal water and fisheries? Will the NPS safeguard the availability of water resources?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Flood Risk and Coastal Change				
Environmental Protection (2009) The Flood Risk Regulations 2009 Flood and Water Management Act 2010 Future Water, the Government's Water Strategy for England (Defra, 2008) The National Flood and Coastal Erosion Risk Management Strategy for England (FCERM) 2011 The Water Environment (Controlled Activities) (Scotland) Regulations (2011) Towards an Integrated Coastal Zone Management Strategy for Northern Ireland 2006 – 2026 PPS 15 (Revised) – Planning and Flood Risk (2014) TAN 14: Coastal Planning (1998) TAN 15: Development and Flood Risk (2004) PAN 61 Waste Management Planning	Baseline Information (National) Flood Zones (England, Scotland, Wales) and Significant Flood Risk Areas (Northern Ireland). Further Baseline Information (Local/ Regional) Areas benefiting from Flood Defences. Flood Water Storage Areas.	Significant areas of England, Wales and Scotland are at risk of flooding. Climate change effects, such as increased rainfall, river flows and higher coastal storm surges are likely to increase flood risk in the future. Increasing demand for development may result in encroachment into current and future flood zones. The assessment of new nuclear sites will have to carefully consider current and anticipated future flood risk, taking into account worst case scenarios.	11. 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	Will the NPS avoid or reduce flood risk to existing properties and new energy infrastructure? Will it avoid inappropriate development in areas at risk from flooding and coastal erosion? Will it manage the risks of flooding and coastal erosion though working with natural processes?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Resources and Raw Materials:				
Natural Environment White Paper (Defra, 2011) National Planning Policy for Waste (2014) Government Review of Waste Policy in England 2011 Waste Management Plan for England (2013) Strategic Energy Framework for Northern Ireland (2010) Delivering Resource Efficiency – Northern Ireland Waste Management Strategy (2013) PPS 11 – Planning and Waste Management (2002) TAN 21: Waste (2014) The Waste (Miscellaneous Provisions) (Wales) Regulations 2012 Towards Zero Waste - One Wales: One Planet - The Overarching Waste Strategy Document for Wales (2010) Water Strategy for Wales (2015)	Baseline Information (National) Further Baseline Information (Local/ Regional)	New nuclear sites will require large quantities of raw materials for construction. Waste, including radioactive waste will be produced during the construction, operational and decommissioning stages.	12. To promote the sustainable use of resources and natural assets.	Will the NPS provide for safe and secure interim storage of nuclear wastes? Will it minimise consumption of natural resources and generation of waste through the resource efficiency hierarchy?

Relevant PPPs	Relevant Baseline data for the UK	Sustainability issues	Sustainability Objectives	Guide Questions
Scotland's Zero Waste Plan (2010)				

Question 4: Are there any changes you consider should be made to the proposed sustainability objectives and guide questions?

Application of the Framework

6.7 The next stage will be to assess the new NPS and its alternatives against the AoS Framework.

6.8 The AoS Framework will be used to identify likely significant effects including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, secondary and cumulative effects (including synergistic effects).

6.9 Criteria to determine significant effects are set out in the SEA Regulations (Schedule 1 (2)) and comprise characteristics of the effects and of the area likely to be affected:

(a) the probability, duration, frequency and reversibility of the effects;
(b) the cumulative nature of the effects;
(c) the transboundary nature of the effects;
(d) the risks to human health or the environment (for example, due to accidents);
(e) the magnitude and spatial extent of the effects (geographical area and size of the population likely to be affected);
(f) the value and vulnerability of the area likely to be affected due to—
(i) special natural characteristics or cultural heritage;
(ii) exceeded environmental quality standards or limit values; or
(iii) intensive land-use; and
(g) the effects on areas or landscapes which have a recognised national, Community or international protection status.

6.10 The AoS will not consider the implications of different nuclear power station designs at each identified site. It is considered that these are better addressed at the project level by the developer, the regulators, and the planning consultation process. Therefore, the AoS will make a number of assumptions about the generic design characteristics of new nuclear power stations.

6.11 The assumptions about generic design characteristics are summarised into a base case in order to provide a standardised approach to the appraisal of the sites. The base case will be used to guide the appraisal for each site. These key assumptions are outlined in Table 6 below.

6.12 Table 3 in Section 4 provides an indication of the level of information that will be presented in the assessment.

Table 6 - Generic design characteristics for nuclear power stations

Base case generic design characteristics for new nuclear power station
At least one nuclear reactor (with generating capacity of 1GW)
Technology neutral (i.e. unknown reactor type)
A requirement for cooling water abstraction
Discharges of cooling water
Site boundary as indicated on nomination form
Timescales: Construction: approximately 5-6 years Operation: approximately 60 years (subject to possible life extension that would require regulatory approval) Decommissioning: around 30 years Lifetime of site: approximately 166 years
No. of employees: Construction: approx. 4,000 (approx. 50% from within region) Operation: approx. 500 Decommissioning= range of 400-800 at key phases Associated employment creation= 2000
Coastal and flood protection measures (where relevant)
Infrastructure for transporting reactor (for example, jetty, landing facility)
Interim radioactive waste storage facilities will be capable for 160 years from first arising of

waste
Highway improvements, access routes
Associated transmission infrastructure
Other associated infrastructure/plant

7. Next Steps

7.1 Following the receipt of the consultation comments, they will be reviewed and modifications made to the scope of the AoS as necessary. Stage B of the AoS process comprises the assessment of the new NPS and alternatives. An AoS will be produced alongside the draft NPS for consultation.

7.2 The relationship between the AoS and new NPS processes is shown in Figure 2 below.

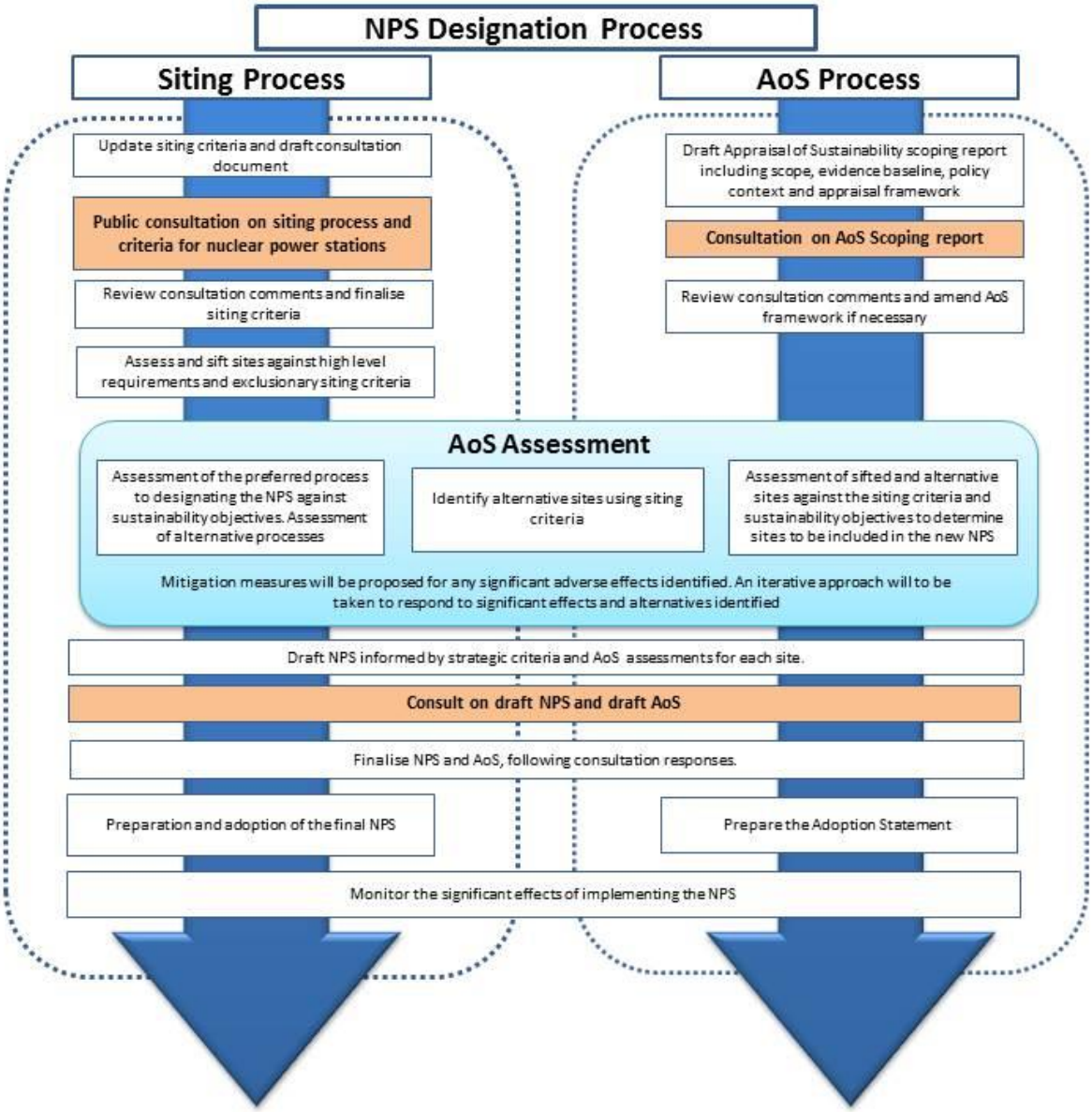

Figure 2 - Relationship between AoS and NPS

Question 5: Do you have further suggestions regarding the scope of the AoS and its proposed assessment of the new NPS?

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