Department of Energy & Climate Change

Government Response to consultation on Appraisal of Sustainability of the National Policy Statement for Geological Disposal of Radioactive Waste: Scoping Report

Appraisal of Sustainability Scoping Report

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Foreword

This Appraisal of Sustainability Scoping Report ('Scoping Report') has been produced by Amec Foster Wheeler on behalf of the Department of Energy and Climate Change (DECC). The Scoping Report sets out the proposed technical scope of the Appraisal of Sustainability of the National Policy Statement for Geological Disposal of Radioactive Waste. The National Policy Statement is currently being prepared by DECC in accordance with the Government's White Paper ('Implementing Geological Disposal'), issued in July 2014. The Planning Act 2008 requires that an Appraisal of Sustainability be carried out before a National Policy Statement can be designated.

The Appraisal of Sustainability will be undertaken by Amec Foster Wheeler on behalf of DECC and is intended to satisfy the requirements of the European Union Strategic Environmental Assessment Directive[1] and relevant implementing regulations[2]. It will identify, describe and assess the likely significant socio-economic and environmental effects of using the National Policy Statement to deliver the Government's policy of implementing geological disposal for higher level radioactive waste as well as reasonable alternatives to the National Policy Statement approach. If potentially significant adverse effects are identified, the Appraisal of Sustainability will recommend options for avoiding or mitigating any such effects. Measures will also be identified to enhance benefits associated with the implementation of the National Policy Statement where appropriate.

This Final Scoping Report has been produced following a consultation exercise between the 4th August and the 25th September 2015 to enable technical experts from a number of statutory organisations, and other consultees with relevant expertise,[3] to comment on the proposed scope of the Appraisal of Sustainability of the National Policy Statement. While the focus of this exercise was obtaining feedback from technical experts on the Scoping Report, any other interested organisations and members of the public were welcome to respond. In all 15 responses were received to the consultation and details of these are given in Section 1.5 and Appendix D; these responses were analysed and considered in the production of the Final Scoping Report as described. The Final Scoping Report will now be used by Amec Foster Wheeler (on behalf of DECC) as the basis for undertaking the Appraisal of Sustainability itself.

[1] European Union Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment.
[2] The Environmental Assessment of Plans and Programmes Regulations 2004 S.I. 2004 No. 1633
[3] Please see Box 1.1 for a full list of specific scoping consultees.

Contents

Non-Technical Summary

This Non-Technical Summary ('NTS') provides an overview of the Final Scoping Report produced as part of the Appraisal of Sustainability (AoS) of the draft National Policy Statement (NPS) for Geological Disposal of Radioactive Waste (hereafter referred to as the 'draft NPS'). The draft NPS will apply to geological disposal facilities (GDF) and the deep boreholes[4] required to investigate potential sites for these facilities in England only. If circumstances were to arise requiring planning consideration of a GDF elsewhere in the UK, planning decisions and environmental assessments would be pursued through the relevant, devolved planning system.

Although the NPS will only apply to England, the Scoping Report sets out an approach whereby the AoS will consider the potential effects of a GDF and the related deep boreholes sited in England on Wales and Scotland, as they each share a common border with England. However, the AoS relates to the NPS only and will not, therefore, consider specific scheme proposals for a GDF or related deep boreholes.

The production of a Final Scoping Report for the AoS of the draft NPS follows technical consultation on an initial Scoping Report[5] between the 4th August 2015 and the 25th September 2015. The Final Scoping Report establishes the scope and the level of detail that will be included within the appraisal and subsequent AoS Report of the draft NPS. The AoS Report will then be placed alongside the draft NPS for full public and parliamentary consultation in spring 2016.

The following sections of this NTS:

- provide an overview of geological disposal and the draft NPS;
- describe the AoS process together with how it is to be applied to the draft NPS, including what will be appraised as part of the AoS Report;
- provide a summary of the key sustainability issues relevant to the AoS;
- outline the approach to the AoS of the draft NPS, including the appraisal framework;
- set out the next steps in the AoS process.

[4] Deep boreholes are for site investigation only and do not refer to any proposals for deep borehole disposal of radioactive waste.
[5] DECC (2015) Appraisal of Sustainability of the National Policy Statement for Geological Disposal of Radioactive Waste: Appraisal of Sustainability Scoping Report (4 August 2015).

Geological Disposal – An Overview

The UK has accumulated a legacy of higher activity radioactive waste. More will arise as existing nuclear facilities are decommissioned, cleaned up, and through the operation and decommissioning of any new nuclear power stations.

In 2001, the UK Government and devolved administrations began a programme[6] to find a practical long-term management solution for the UK's higher activity radioactive waste. A wide range of options were considered by the independent Committee on Radioactive Waste Management (CoRWM) in a process which involved extensive consultation with the public and expert groups. In July 2006, CoRWM recommended that geological disposal, alongside safe and secure interim storage, was the best available approach for the long-term management of the UK's legacy of higher activity radioactive wastes[7].

Since then, the UK Government has been committed to the policy of geological disposal and favours an approach to siting a GDF that is based on the willingness of local communities to participate in the site selection process. A 2008 White Paper established a policy framework and national siting process. The 2014 Implementing Geological Disposal White Paper[8] set out a revised policy framework and a set of initial actions that will inform a new national siting process, including an action to define the planning process (separate to the siting process) for geological disposal facilities and related deep boreholes.

What is Geological Disposal?

Geological disposal involves isolating radioactive waste deep inside a suitable rock volume to ensure that no harmful quantities of radioactivity ever reach the surface environment. This is achieved through the use of multiple barriers that work together to provide protection over hundreds of thousands of years. The multiple barriers that provide safety for geological waste disposal are a combination of the:

- form of the radioactive waste itself - for example, high level waste that arises initially as a liquid is converted into a durable, stable solid glass form before storage and disposal;
- packaging of the waste;
- engineered barriers (buffer) that protect the waste packages and limit the movement of radionuclides if they are released from the waste packages;
- engineered features of the facility that the waste packages are placed in; and
- stable geological setting (rock) in which the facility is sited.

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[6] *Managing Radioactive Waste Safely: Proposals for Developing a Policy for Managing Solid Radioactive Waste in the UK*, September 2001 http://bit.ly/15Rum8m

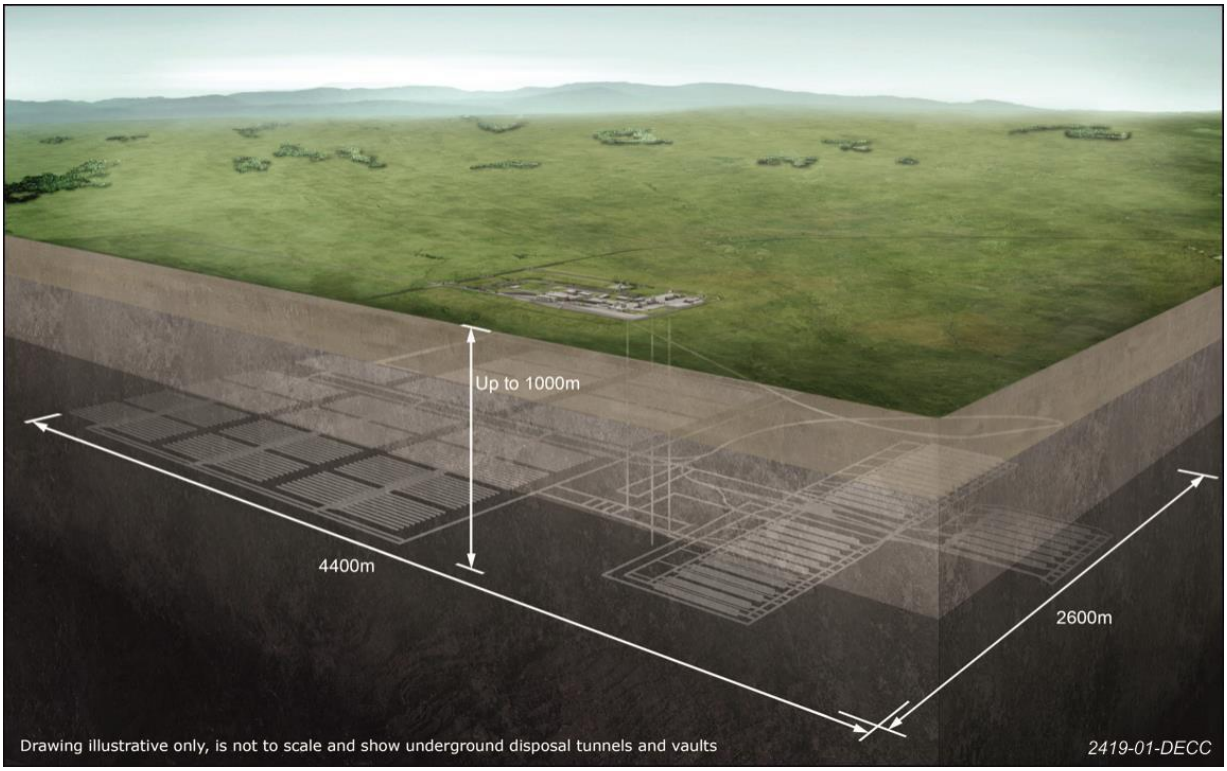
[7] Managing our Radioactive Waste Safely – CoRWM's Recommendations to Government, July 2006 http://bit.ly/15R4QpL

[8] DECC (2014), Implementing Geological Disposal - A Framework for the long-term management of higher activity radioactive waste, July 2014 http://bit.ly/1rF6xQn

The geological formations around the engineered facility will isolate and contain the radioactivity for a very long period, thus preventing any harmful amounts of radioactivity being released into the environment in the future.

Figure NTS 1 provides an illustrative diagram of a GDF.

Figure NTS 1 Illustrative Diagram of a Geological Disposal Facility



National Policy Statement for Geological Disposal of Radioactive Waste

In March 2015, The Infrastructure Planning (Radioactive Waste GDF) Order 2015[9] amended the Planning Act 2008 to extend the categories of Nationally Significant Infrastructure Projects (NSIPs) to include GDFs and the deep boreholes required to investigate potential sites for these facilities. In consequence, work has begun to develop the draft NPS which is being led by the Department of Energy and Climate Change (DECC).

The NPS will be non-site specific, focusing on the high level assessment principles against which development consent order applications will be examined for any GDFs and related deep boreholes projects in England. The NPS is likely to contain information concerning:

- the policy context for the GDF;
- the need for the GDF;

[9] S.I. 2015 No. 949.

- development principles; and
- generic impacts and siting considerations, including generic mitigation measures.

Both radioactive waste management and planning are devolved issues and the Welsh Government, Northern Ireland Executive and Scottish Government each have responsibility for these issues in or as regards their respective countries. The NPS will only apply (to GDFs and deep borehole infrastructure projects) in England.

What is Appraisal of Sustainability (AoS)?

The Planning Act 2008[10] requires that an AoS must be carried out before an NPS can be designated. The main purpose of an AoS is to ensure that the likely environmental and socio-economic effects of the NPS, at a national level, are identified, described and evaluated. If potential significant adverse effects are identified, the AoS recommends options for avoiding or mitigating such effects. In this way, the AoS helps to inform the preparation of the NPS and to support the NPS's contribution to the achievement of sustainable development.

The AoS incorporates an assessment in accordance with the requirements of the Strategic Environmental Assessment (SEA) Directive[11] and relevant implementing regulations[12] (the SEA Regulations). The Directive aims for a high level of environmental protection and to promote sustainable development. It applies to certain plans that are likely to have significant effects on the environment. The AoS considers socio-economic effects in the same way as environmental effects are required to be assessed by the SEA Directive.

In this context, the purposes of the AoS of the draft NPS are:

- to support the Secretary of State in meeting their requirements under Section 10 of the Planning Act 2008 to ensure that the NPS contributes to the achievement of sustainable development and for due regard to be given to the desirability of mitigating and adapting to climate change and achieving good design;
- to identify and quantify the potentially significant environmental and socio-economic effects of the draft NPS including reasonable alternatives to the NPS;
- to inform the UK Government's decisions on the draft NPS;
- to help identify appropriate measures to avoid, reduce or manage adverse effects and to enhance beneficial effects associated with the implementation of the draft NPS wherever possible; and
- to give the statutory consultees, stakeholders and the wider public the ability to see and comment upon the environmental and socio-economic effects that the draft NPS may

[10] The Planning Act 2008 at: http://www.opsi.gov.uk/acts/acts2008/ukpga_20080029_en_1
[11] European Union Directive 2001/42/EC on the assessment of the effects of certain plans and programmes
[12] The Environmental Assessment of Plans and Programmes Regulations 2004 S.I. 2004 No. 1633.

have on them, their communities and their interests, and to encourage them to make responses and suggest improvements to the draft NPS.

As noted above, the AoS relates to the NPS only and will not, therefore, consider specific proposals for a GDF or related deep boreholes.

The main stages for carrying out an AoS mirror those required for an SEA and are iterative, building on evidence and consultation responses over time to inform the development of the NPS. They include:

- setting the context and objectives, establishing the baseline and deciding on the scope of the appraisal in consultation with consultees including the statutory SEA bodies (**Stage A**);
- developing and refining alternatives, assessing the likely direct, indirect and cumulative effects of proposed and preferred options for the NPS and identifying mitigating and monitoring measures (**Stage B**);
- completing an AoS Report to present the predicted environmental and socio-economic effects of the draft NPS, including alternatives, in a form suitable for public consultation and use by decision-makers (**Stage C**);
- consulting on the draft NPS and the AoS Report (**Stage D**);
- assessing the environmental and socio-economic implications of any significant changes to the draft NPS (**Stage D**);
- providing information in a Post Adoption Statement on how the AoS Report and consultees' opinions were taken into account in deciding the final form of the NPS to be designated (**Stage D**); and
- undertaking suitable monitoring of the associated impacts of the selected options (**Stage E**).

The main outputs of the AoS are:

- the **AoS Scoping Report** (this report);
- the **AoS Report**, which will contain the findings of the appraisal of the environmental, social and economic effects of the draft NPS and which will be issued for public consultation; and
- the **AoS Post Adoption Statement**, which will set out how environmental, social and economic factors, the AoS Report and consultees' opinions were taken into account in deciding the final form of the NPS.

What is being Assessed?

The AoS of the draft NPS will be undertaken by appraising the likely sustainability effects of implementing the NPS in delivering the Government's policy of geological disposal for higher level waste, with a particular focus on:

- the overarching objectives of the NPS;

- the development principles; and
- the generic impacts and siting considerations, including generic mitigation measures.

In addition, the effects of reasonable alternatives to the draft NPS will be considered. At this stage, alternatives to a non-site specific NPS could include:

- an NPS that is generic but sets exclusionary or inclusionary criteria;
- no NPS.

(The consultation draft of the Scoping Report listed a location-specific NPS that identifies candidate sites for the GDF as a possible reasonable alternative. However, after further consideration, the Government has concluded that such an option is not possible at this stage: the geological information needed to set out a list of sites at which a GDF could be established is not yet available).

What are the Key Sustainability Issues for the Draft NPS?

The Final AoS Scoping Report draws on a range of environmental and socio-economic data across England, Wales and Scotland (reflecting the potential cross-border implications of the NPS), including technical information relating to geological disposal[13], a review of other relevant plans and programmes and consultation responses on the initial Scoping Report to identify a number of key sustainability issues. These issues are summarised in **Table NTS 1**. They are not exhaustive and are merely representative of the issues arising from the more detailed consideration of plans and programmes and baseline information contained in the Scoping Report and associated appendices.

Table NTS 1 Key Sustainability Issues for the Draft NPS and AoS

AoS Topics	Key Sustainability Issues for the Draft NPS and AoS
Biodiversity and Nature Conservation	Consideration will need to be given to the potential effects on the natural environment, especially to those areas protected for their wildlife and conservation importance, in respect of the disturbance or loss of habitat during site investigation, construction and operation of the facility.

[13] For example:
- Nuclear Decommissioning Authority (December 2014) Geological Disposal: Generic Environmental Assessment
- Nuclear Decommissioning Authority (December 2014) Geological Disposal: Generic Socio-Economic Assessment
- Nuclear Decommissioning Authority (December 2014) Geological Disposal: Generic Health Impact Assessment
- DECC (July 2014) Implementing Geological Disposal: A Framework for the long-term management of higher activity radioactive waste [HMG White Paper]
- Nuclear Decommissioning Authority (February 2015) Geological Disposal: An Assessment of the Current Illustrative GDF Design against the Geological Disposal Facility Sustainable Design Objectives – Low Embodied Impact Materials

AoS Topics	Key Sustainability Issues for the Draft NPS and AoS
Population, Economics and Skills	Consideration will need to be given to the potential effects on receiving communities, including socio-economic impacts and the extent to which proposals present opportunities for community benefit through employment and training for example.
Human Health	Consideration will need to be given to the potential effects on public and worker health and safety arising from the construction and operation of the GDF and the transport movements associated with it.
Land Use, Geology and Soils	Consideration will need to be given to the potential effects on land use (including development of greenfield and brownfield land), soil extent, variety and quality (including the potential for disturbance of historic contamination), agricultural land and on protected and locally important geological features.
Water Quality	Consideration will need to be given to the potential effects on water resources, water demand and water quality, including in the coastal marine environment.
Flood Risk and Coastal Change	Consideration will need to be given to the likely impacts of, and the potential for the draft NPS to affect, current and future flood risk and coastal change.
Air	Consideration will need to be given to the potential effects on air quality, such as dust and emissions associated with construction and transport.
Noise	Consideration will need to be given to the likely effects of noise and vibration associated with the construction and operation of any GDF.
Climatic Factors	Consideration will need to be given to the likely impacts of climate change, such as sea level rise, as well as climate change mitigation.
Waste and Resources	Consideration will need to be given to the potential effects on (non-radioactive) waste volumes and waste management infrastructure and the need to promote sustainable waste management. Effects on resource use, such as the use of sustainable construction materials will also need to be assessed.

AoS Topics	Key Sustainability Issues for the Draft NPS and AoS
Traffic and Transport	Consideration will need to be given to the potential effects on the volume and management of traffic likely to be associated with site development (materials, people and waste) and operation, particularly on local communities.
Cultural Heritage	Consideration will need to be given to the potential effects on the historic environment, including cultural heritage resources, historic buildings, archaeological features and their setting.
Landscape and Townscape	Consideration will need to be given to the potential effects on the quality and attractiveness of landscapes and townscapes and the setting of assets, as well as on visual amenity and public access to open spaces.

What is the Appraisal Framework?

The review of plans and programmes, analysis of the baseline evidence and the assessment of the key sustainability issues (above) for the draft NPS have been used to establish a number of AoS objectives and guide questions against which the draft NPS and alternatives will be appraised. The AoS objectives and guide questions, which have also be informed by consultation responses to the initial Scoping Report, are shown in **Table NTS 2**.

Table NTS 2 Appraisal Objectives and Guide Questions

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topic
Biodiversity and Nature Conservation	1. To protect and enhance biodiversity (habitats, species and ecosystems) working within environmental capacities and limits.	• Will the Geological Disposal NPS protect and/or enhance internationally designated nature conservation sites e.g. SACs, SPAs and Ramsar Sites? • Will the Geological Disposal NPS protect and/or enhance nationally designated nature conservation sites e.g. SSSIs? • Will the Geological Disposal NPS affect animals or plants including protected species?	Biodiversity, Flora and Fauna

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topic
		• Will the Geological Disposal NPS protect and/or enhance priority species and habitats? • Will the Geological Disposal NPS affect the structure and function of natural systems (ecosystems)? • Will the Geological Disposal NPS affect public access to areas of wildlife interest? • Will the Geological Disposal NPS have an impact on fisheries?	
Population, Economics and Skills	2. To promote a strong, diverse and stable economy with opportunities for all; improve education and skills, minimise disturbance to local communities and maximise positive social impacts.	• Will the Geological Disposal NPS affect the social infrastructure and amenities available to local communities? • Will the Geological Disposal NPS affect local population demographics and/ or levels of deprivation in surrounding areas? • Will the Geological Disposal NPS affect opportunities for investment in education and skills development? • Will the Geological Disposal NPS affect the number or types of jobs available in local economies? • Will the Geological Disposal NPS affect how diverse and robust local economies are?	Population
Human Health	3. To protect and enhance health, safety and wellbeing of workers and	• Will the Geological Disposal NPS protect and/or enhance the health and safety of workers, or other people working at any proposed sites?	Population Human Health

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topic
	communities and minimise any health risks associated with disposal operations.	• Will the Geological Disposal NPS protect and/or enhance the health, safety and well-being of local communities and specific groups within those communities? • Will the Geological Disposal NPS protect and/or enhance the health, safety and well-being of wider communities (i.e. those communities that are not host to a GDF or deep boreholes)? • Will the Geological Disposal NPS disproportionately affect communities already identified as vulnerable / at risk? • Will the Geological Disposal NPS minimise the risk or consequences of a major accident?	
Land Use, Geology and Soils	4. To conserve and enhance soil and geology and contribute to the sustainable use of land.	• Will the Geological Disposal NPS have an effect on soil quality/function, variety, extent and/or compaction levels? • Will the Geological Disposal NPS increase the risk of significant land contamination? • Will the Geological Disposal NPS have an effect on any known and existing contamination? • Will the Geological Disposal NPS protect and/or enhance Geological Conservation Sites, important geological features and geophysical processes and functions? • Will the Geological Disposal	Soils

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topic
		NPS affect land stability? • Will the Geological Disposal NPS change patterns of land use including effects on best and most versatile land? • Will the Geological Disposal NPS affect induced seismicity?	
Water Quality (including surface and ground water quality and availability)	5. To maximise water efficiency, protect and enhance water quality and help achieve the objectives of the Water Framework Directive.	• Will the Geological Disposal NPS affect demand for water resources? • Will the Geological Disposal NPS affect the amount of waste water and surface runoff produced? • Will the Geological Disposal NPS protect and enhance the quality of surface, groundwater, estuarine and coastal water quality?	Water
Flood Risk and Coastal Change	6. To minimise the risks from coastal change and flooding to people, property and communities, taking into account the effects of climate change.	• Will the Geological Disposal NPS help to avoid development in areas of flood risk and, where possible, reduce flood risk? • Will the Geological Disposal NPS help to avoid development in areas affected by coastal erosion and not affect coastal processes and/or erosion rates?	Water Climatic Factors
Air	7. To minimise emissions of pollutant gases and particulates and enhance air quality, helping to achieve the objectives of the Air Quality and Ambient Air Quality and Cleaner Air for	• Will the Geological Disposal NPS affect air quality? • Will the Geological Disposal NPS create a nuisance for people or wildlife (for example from dust or odours)?	Air

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topic
	Europe Directives.		
Noise	8. To minimise noise pollution and the effects of vibration.	• Will the Geological Disposal NPS help to minimise noise and vibration effects from construction and operational activities on residential amenity and effects on sensitive locations and receptors?	Human Health Fauna
Climatic Factors	9. To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change.	• Will the Geological Disposal NPS help to ensure a low carbon design solution to the disposal of higher activity radioactive wastes, at both construction and operation phases? • Will the Geological Disposal NPS promote climate change adaptation (including rising temperatures and more extreme weather events)?	Climatic Factors
Waste and Resources	10. To minimise waste arisings, promote reuse, recovery and recycling, minimise the impact of wastes on the environment and communities and contribute to the sustainable use of natural and material assets.	• Will the Geological Disposal NPS affect the amount of hazardous and non-hazardous wastes produced? • Will the Geological Disposal NPS affect the capacity of existing waste management systems, both nationally and locally? • Will the Geological Disposal NPS maximise re-use and recycling of recovered components and materials? • Will the Geological Disposal NPS help achieve government and national targets for	Material Assets

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topic
		minimising, recovering and recycling waste? • Will the Geological Disposal NPS increase the burden on limited natural resources? • Will the Geological Disposal NPS make best use of existing infrastructure and resources?	
Traffic and Transport	11. To minimise the volume of traffic and promote more sustainable transport choices.	• Will the Geological Disposal NPS help to minimise traffic volumes? • Will the Geological Disposal NPS help to minimise the direct effects of transport such as noise and vibration, severance[1] of communities and wildlife habitats and safety concerns? • Will the Geological Disposal NPS encourage alternative and sustainable means of transporting freight, waste and minerals, where possible?	Biodiversity, Flora and Fauna Population Human Health
Cultural Heritage	12. To protect and where appropriate enhance the historic environment including cultural heritage resources, historic buildings and archaeological features and their settings.	• Will the Geological Disposal NPS affect designated or locally-important archaeological features or their settings? • Will the Geological Disposal NPS affect the fabric and setting of historic buildings, places or spaces that contribute to local distinctiveness, character and appearances?	Cultural Heritage
Landscape and Townscape	13. To protect and enhance landscape and townscape quality and visual	• Will the Geological Disposal NPS have significant visual impacts (including those at night)?	Landscape Human Health

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topic
	amenity.	• Will the Geological Disposal NPS affect protected/designated landscapes or their setting? • Will the Geological Disposal NPS affect the intrinsic character or setting of local landscapes or townscapes? • Will the Geological Disposal NPS help to minimise light pollution from construction and operational activities on residential amenity and on sensitive locations and receptors? • Will the Geological Disposal NPS affect public access to open spaces or the countryside?	

[1] Severance refers to the separation of communities by development such as roads.

How will the Appraisal be undertaken?

The appraisal of the draft NPS and alternatives will be completed and recorded using an AoS matrix (see the example provided in **Table NTS 3**). Matrices will be used to record:

- the nature and scale of the potential effects on the AoS objectives (what is expected to happen), including cumulative, secondary and synergistic, direct and indirect effects;
- when the effect could occur (timing) and its degree of permanence;
- what mitigation measures might be appropriate for potentially significant negative effects on the AoS objectives;
- what options there are to enhance positive effects; and
- assumptions and uncertainties that underpin the assessment.

Symbols and colour coding will also be used to indicate significant (positive or negative) effects.

Table NTS 3 Appraisal Matrix (Example: Draft Geological Disposal NPS 'Principles of Assessment')

AoS Objective	Score	Commentary
1. To protect and enhance biodiversity (habitats, species and ecosystems) working within environmental capacities and limits.	**- LT**	**Assessment of Effects:** *A description of effects of the Geological Disposal NPS principle of assessment under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted.*
2. To promote a strong, diverse and stable economy with opportunities for all; improve education and skills, minimise disturbance to local communities and maximise positive social impacts.	**+ LT/MT**	**Assessment of Effects:** *A description of effects of the Geological Disposal NPS principle of assessment under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted.*
3. Etc		**Etc**
Summary		
A brief summary of the effects on the AoS objective under consideration will be provided.		

Score Key:	**+ + Significant**	**+ Minor**	**0** No overall	**- Minor**	**- - Significant**	**? Score**

AoS Objective	Score	Commentary				
	positive effect	positive effect	effect	negative effect	negative effect	**uncertain**
NB: Where more than one symbol/colour is presented in a box it indicates that the appraisal has identified both positive and negative effects. Where a box is coloured but also contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect although a professional judgement is expressed in the colour used. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.						
Likely timing of effects (indicated by ST, MT, or LT or combinations thereof) where: ST – short term (less than 20 years), MT – medium term (between 20 and 120 years) and LT – long term (>120 years)						

Note: This draft AoS matrix is for illustrative purposes only. The full matrix will be finalised after comments have been received on the AoS categories, objectives and appraisal criteria.

Cumulative effects of the draft NPS will also be assessed both in terms of the collective implementation of the NPS and in terms of its effects in-combination with other plans and programmes.

What are the Next Steps of the AoS Process?

The next stages of the AoS process involve the prediction and evaluation of the effects that the draft NPS and reasonable alternatives to it are likely to have. The appraisal will propose, where appropriate, mitigating measures for adverse effects as well as opportunities to enhance beneficial aspects. The appraisal will be presented in the AoS Report, which will be published for public consultation. The AoS Report has the following purposes:

- to ensure that the significant potential environmental and socio-economic effects associated with the draft NPS and alternatives are identified, characterised and assessed;
- to propose measures to mitigate the adverse effects identified and, where appropriate, to enhance potential positive effects;
- to provide a framework for monitoring the potential significant effects arising from the implementation of the draft NPS; and
- to provide sufficient information to those affected so that the development of the draft NPS is open and transparent.

The production of the AoS Report will support a full public consultation on the draft NPS in spring 2016.

1. Introduction

1.1 Overview

The 2014 White Paper 'Implementing Geological Disposal'[14] set out the UK Government's intention to amend the Planning Act 2008[15] to bring Geological Disposal Facilities (GDFs) for radioactive waste, and the deep boreholes[16] required to investigate potential sites for these facilities, within the definition of Nationally Significant Infrastructure Projects (NSIPs) in England, and to designate a National Policy Statement (NPS) to guide future decision making. The Infrastructure Planning (Radioactive Waste Geological Disposal Facilities) Order 2015[17], which came into force on the 27th March 2015, subsequently amended the Planning Act 2008 to extend the categories of NSIPs to include development relating to geological disposal. In consequence, work has begun to develop the NPS for Geological Disposal of Radioactive Waste (as defined by section 30A of the Planning Act 2008), which is being led by the Department of Energy and Climate Change (DECC) as part of its work in managing the UK nuclear legacy and radioactive waste safely and cost effectively.

The purpose of the NPS for Geological Disposal of Radioactive Waste will be to guide the Secretary of State, Planning Inspectorate and developer of the site in the consideration of any applications for development consent in relation to GDF-related NSIPs, including deep boreholes. Once the NPS has been designated, the Secretary of State will be required to determine any applications for development consent in accordance with it, unless certain other criteria (set out in the Planning Act 2008) apply. The NPS is intended to be non-site specific, focussing on the high level assessment principles against which development consent order applications will be considered, rather than identifying specific sites. In this regard, the proposed NPS will be similar to the other non-nuclear energy infrastructure NPSs already designated by DECC[18].

[14] DECC (July 2014), Implementing Geological Disposal - A Framework for the long-term management of higher activity radioactive waste
[15] 2008 c.29.
[16] Deep boreholes are for site investigation only and do not refer to any proposals for deep borehole disposal of radioactive waste.
[17] S.I. 2015 No. 949.
[18] Energy NPSs designated on 19th July 2011. Non nuclear cover EN-1 Overarching Energy NPS to EN-5 Electricity Networks Infrastructure NPS

Both radioactive waste management and planning are devolved issues. Therefore, the Welsh Government, Northern Ireland Executive and Scottish Government each have responsibility for these issues in or as regards their respective countries. The NPS will apply to England only.

Before designating a NPS, section 5(3) of the Planning Act 2008 requires that the Secretary of State carry out an appraisal of the sustainability (AoS) of the policy set out in the statement. The Secretary of State must exercise this function with the objective of contributing to the achievement of sustainable development, in particular having regard to mitigating and adapting to climate change and achieving good design. In this context, the AoS will ensure that the likely environmental and socio-economic effects of the NPS are identified, described and evaluated. The AoS will also need to satisfy the requirements of the European Union Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (commonly referred to as the Strategic Environmental Assessment (SEA) Directive and relevant implementing regulations[19] (the SEA Regulations).

In this context, the purposes of the AoS of the draft NPS are:

- to support the Secretary of State in meeting their requirements under Section 10 of the Planning Act 2008 to ensure that the NPS contributes to the achievement of sustainable development and for due regard to be given to the desirability of mitigating and adapting to climate change and achieving good design;
- to identify and quantify the potentially significant environmental and socio-economic effects of the draft NPS including reasonable alternatives to the NPS;
- to inform the UK Government's decisions on the draft NPS;
- to help identify appropriate measures to avoid, reduce or manage adverse effects and to enhance beneficial effects associated with the implementation of the draft NPS wherever possible; and
- to give the statutory consultees, stakeholders and the wider public the ability to see and comment upon the environmental and socio-economic effects that the draft NPS may have on them, their communities and their interests, and to encourage them to make responses and suggest improvements to the draft NPS.

The AoS relates to the NPS only and will not, therefore, consider specific proposals for a GDF or related deep boreholes.

1.2 Purpose of this Report

This document is the Final Scoping Report for the AoS of the draft NPS for Geological Disposal of Radioactive Waste (hereafter referred to as the 'draft NPS') and follows technical

[19] The Environmental Assessment of Plans and Programmes Regulations 2004 S.I. 2004 No. 1633

consultation on an initial Scoping Report[20] between the 4th August 2015 and the 25th September 2015. It provides:

- an overview of the relationship between the AoS and SEA, and a demonstration of how, as far as is relevant at this scoping stage, the AoS approach meets the requirements of the SEA Directive;
- an overview of the anticipated NPS content and an indication of the likely reasonable alternatives to the NPS for consideration;
- a summary of the responses received during consultation on the initial AoS Scoping Report and how they have been taken into account in this Final Scoping Report;
- a summary of the significant policy topics or objectives, that may be appropriate to the AoS of the draft NPS, identified following a review of relevant international and national plans, policies and programmes;
- baseline information for each of the AoS topics, with an indication of the source of the data and its relevance to the draft NPS;
- key economic, social and environmental issues relevant to the appraisal of the draft NPS;
- an appraisal framework (comprising AoS objectives, guide questions, assessment matrices, and proposed threshold values used to determine the significance of an effect);
- the approach to the assessment of cumulative effects of the draft NPS; and
- the proposed structure of the AoS Report.

1.3 Geological Disposal – An Overview

The UK has accumulated a legacy of higher activity radioactive waste. More will arise as existing nuclear facilities are decommissioned, cleaned up, and through the operation and decommissioning of any new nuclear power stations.

In 2001, the UK Government and devolved administrations began a programme[21] to find a practical long-term management solution for the UK's higher activity radioactive waste. A wide range of options were considered by the independent Committee on Radioactive Waste Management (CoRWM) in a process which involved extensive consultation with the public and expert groups. In July 2006, CoRWM recommended that geological disposal, alongside safe

[20] DECC (2015) Appraisal of Sustainability of the National Policy Statement for Geological Disposal of Radioactive Waste: Appraisal of Sustainability Scoping Report (4 August 2015).

[21] Managing Radioactive Waste Safely: Proposals for Developing a Policy for Managing Solid Radioactive Waste in the UK, September 2001 http://bit.ly/15Rum8m

and secure interim storage, was the best available approach for the long-term management of the UK's legacy of higher activity radioactive wastes[22].

Since then, the UK Government has been committed to the policy of geological disposal and favours an approach to siting a GDF that is based on the willingness of local communities to participate in the siting process. A 2008 White Paper established a policy framework and national siting process. The 2014 Implementing Geological Disposal White Paper[23] set out a revised policy framework and a set of initial actions that will inform a new national siting process.

1.3.1 What is Geological Disposal?

Geological disposal involves isolating radioactive waste deep inside a suitable rock volume to ensure that no harmful quantities of radioactivity ever reach the surface environment. This is achieved through the use of multiple barriers that work together to provide protection over hundreds of thousands of years. The multiple barriers that provide safety for geological waste disposal are a combination of the:

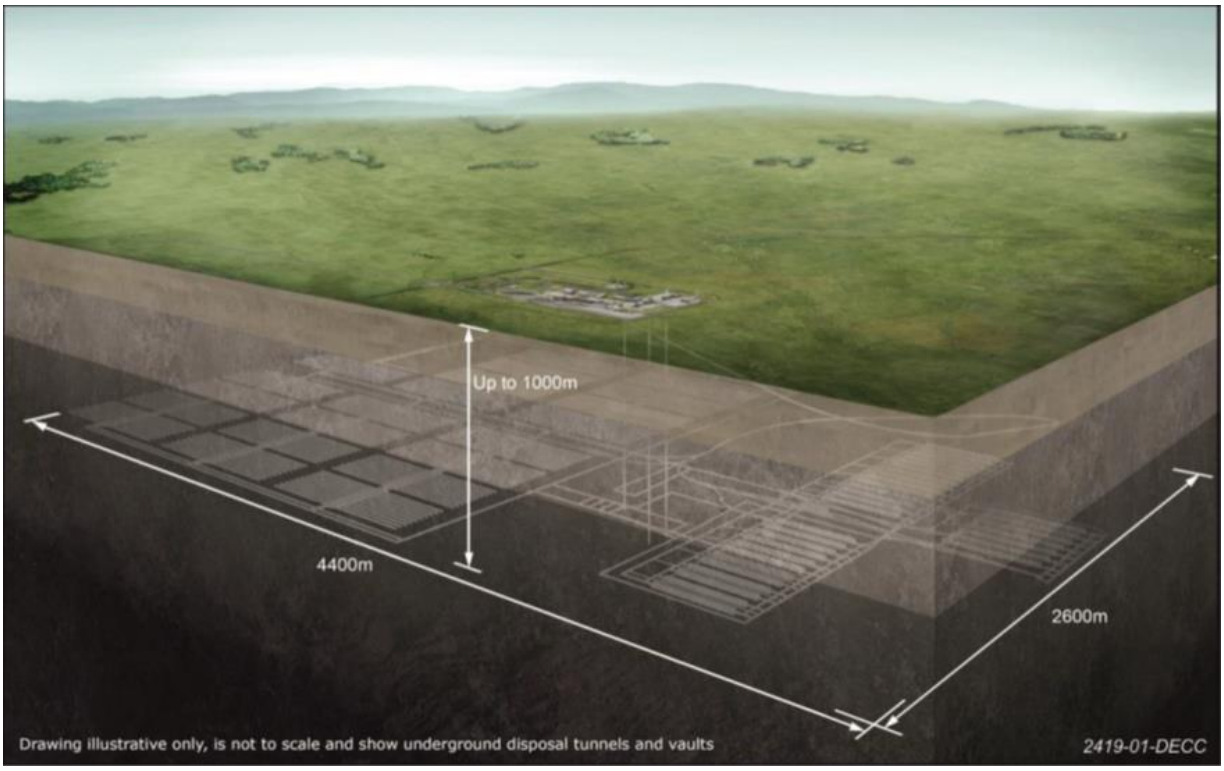
- form of the radioactive waste itself - for example, high level waste that arises initially as a liquid is converted into a durable, stable solid glass form before storage and disposal;
- packaging of the waste;
- engineered barriers (buffer) that protect the waste packages and limit the movement of radionuclides if they are released from the waste packages;
- engineered features of the facility that the waste packages are placed in;
- stable geological setting (rock) in which the facility is sited.

The geological formations around the engineered facility will isolate and contain the radioactivity for a very long period, thus preventing any harmful amounts of radioactivity being released into the environment in the future.

Figure 1.1 provides an illustrative diagram of a GDF.

[22] Managing our Radioactive Waste Safely – CoRWM's Recommendations to Government, July 2006 http://bit.ly/15R4QpL
[23] DECC (2014), Implementing Geological Disposal - A Framework for the long-term management of higher activity radioactive waste, July 2014 http://bit.ly/1rF6xQn

Figure 1.1Illustrative Diagram of a Geological Disposal Facility



1.3.2 National Policy Statement for Geological Disposal of Radioactive Waste

In March 2015, The Infrastructure Planning (Radioactive Waste GDF) Order 2015[24] amended the Planning Act 2008 to extend the categories of Nationally Significant Infrastructure Projects (NSIPs) to include GDFs and the deep boreholes required to investigate potential sites for these facilities. In consequence, work has begun to develop the draft NPS which is being led by DECC.

The draft NPS will be non-site specific, focusing on the high level assessment principles against which development consent order applications will be examined for any GDFs and related deep boreholes projects in England. The NPS is likely to contain information concerning:

- the policy context for the GDF;
- the need for the GDF;
- development principles;
- generic impacts and siting considerations, including generic mitigation measures.

[24] S.I. 2015 No. 949.

Both radioactive waste management and planning are devolved issues and the Welsh Government, Northern Ireland Executive and Scottish Government each have responsibility for these issues in or as regards their respective countries. The NPS will therefore apply to GDFs and deep borehole infrastructure projects in England only.

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

1.4.1 The Requirement for an AoS of the National Policy Statement for Geological Disposal of Radioactive Waste

Section 5(3) of the Planning Act 2008[25] requires that an AoS must be carried out before an NPS can be designated. The main purpose of an AoS is to examine the likely social, economic and environmental effects of designating the 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 and to support the NPS's contribution to the achievement of sustainable development.

1.4.2 Relationship between AoS and SEA

The AoS incorporates an assessment in accordance with the requirements of the SEA Directive and relevant implementing regulations[26]. The Directive aims for a high level of environmental protection and to promote sustainable development. The Directive applies to certain plans that are likely to have significant effects on the environment.

The draft NPS is being treated as a plan for the purpose of the SEA Directive.

The AoS considers socio-economic and environmental effects in the same way as environmental effects are required to be assessed by the SEA Directive.

1.4.3 Stages of the AoS Process

The main stages of AoS mirror those of SEA and are iterative, building on evidence and consultation responses over time to inform the development of the NPS. They include:

- setting the context and objectives, establishing the baseline and deciding on the scope of the appraisal in consultation with consultees including the statutory SEA bodies (**Stage A**);
- developing and refining alternatives, assessing the likely direct, indirect and cumulative effects of proposed options and identifying mitigating and monitoring measures (**Stage B**);

[25] The Planning Act 2008 http://www.opsi.gov.uk/acts/acts2008/ukpga_20080029_en_1
[26] The Environmental Assessment of Plans and Programmes Regulations 2004 S.I. 2004 No. 1633

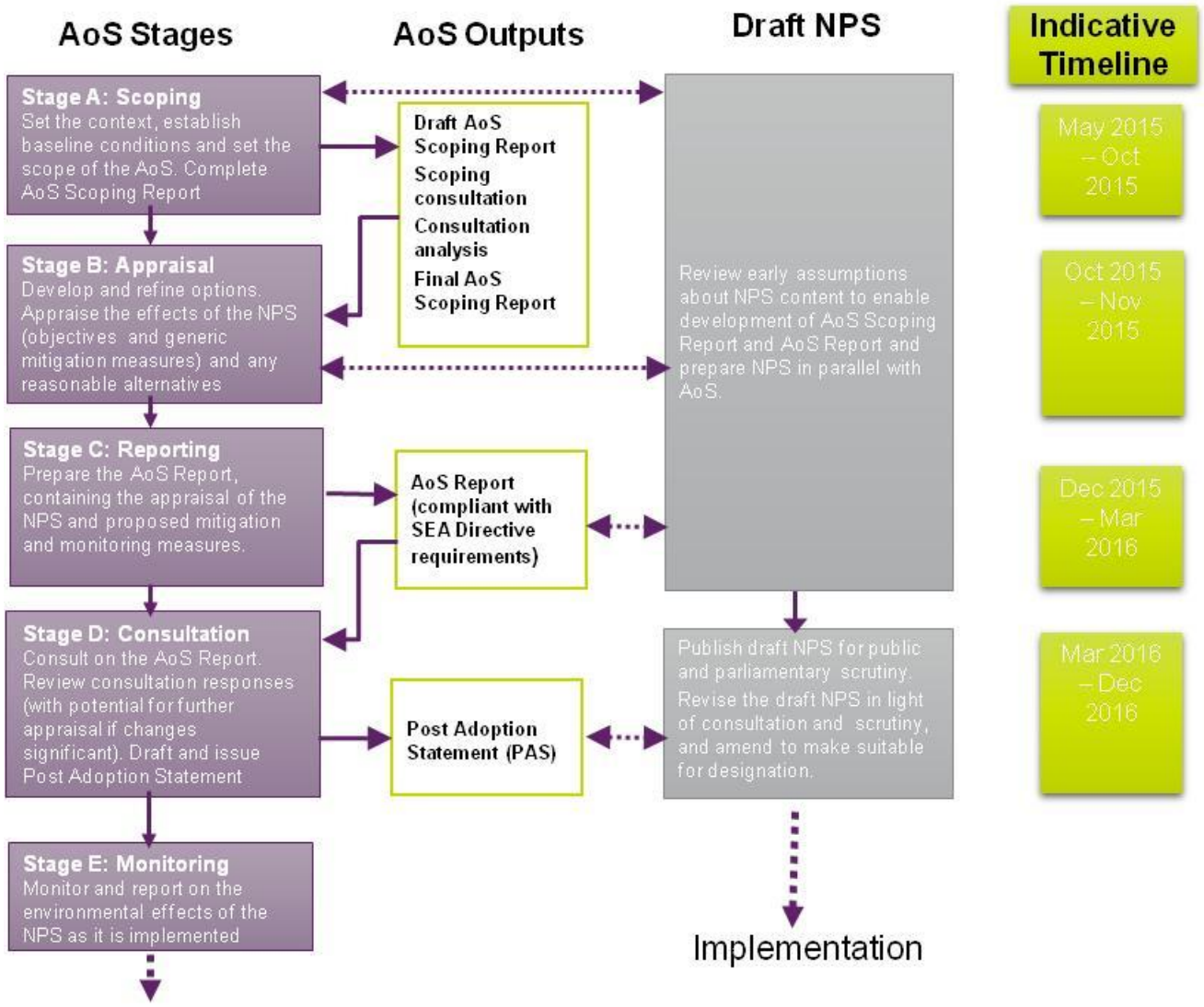
- completing an AoS Report to present the predicted environmental and socio-economic effects of the draft NPS, including alternatives, in a form suitable for public consultation and use by decision-makers (**Stage C**);
- consulting on the draft NPS and the AoS Report (**Stage D**);
- assessing the environmental and socio-economic implications of any significant changes to the draft NPS (**Stage D**);
- providing information in a Post Adoption Statement on how the AoS Report and consultees' opinions were taken into account in deciding the final form of the NPS to be designated (**Stage D**); and
- undertaking suitable monitoring of the associated impacts of the selected options (**Stage E**).

The main outputs of the AoS are:

- the **AoS Scoping Report** (this report);
- the **AoS Report**, which will contain the findings of the appraisal of the environmental, social and economic effects of the draft NPS and which will be issued for public consultation; and
- the **AoS Post Adoption Statement**, which will set out how environmental, social and economic factors, the AoS Report and consultees' opinions were taken into account in deciding the final form of the NPS.

The key AoS stages are shown in **Figure 1.2** together with links to the draft NPS process.

Figure 1.2 Linking the AoS and Draft NPS



Note: These stages are based on guidance contained in Office of the Deputy Prime Minister (ODPM) (now Communities and Local Government) (2005) guidance.[27]

Technical consultation on an initial AoS Scoping Report took place between the 4th August 2015 and the 25th September 2015 (**Stage A** highlighted above). This included the proposed appraisal framework which has been amended in preparing this Final Scoping Report to take into account the consultation responses received. The amended appraisal framework (comprising objectives and guide questions) will be used to appraise the socio-economic and environmental effects of the draft NPS as well as the reasonable alternatives to the NPS (**Stage B**). These appraisals will be presented in an AoS Report (**Stage C**) which will be

[27] ODPM (2005) *Practical Guide to the Strategic Environmental Assessment Directive*, available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf

available for consultation (**Stage D**). Following consultation on the AoS Report, DECC will prepare an AoS Post Adoption Statement that sets out the results of the consultation and appraisal and the extent to which the views and AoS findings have been addressed in the designated NPS. Compliance with the SEA Directive requires that any resultant significant environmental effects of the NPS are monitored (**Stage E**).

The following activities have been undertaken to complete **Stage A** (highlighted above) and as part of the preparation of this Final Scoping Report:

- **Identifying relevant plans and programmes**: A review has been undertaken of relevant international, European, UK and national (England, Scotland and Wales) plans and programmes in order to establish how the draft NPS could be affected by (and affect) their objectives and proposals, and to help identify any relevant environmental protection objectives which need to be taken into account during the NPS's preparation and the AoS. Scottish and Welsh plans and programmes have been considered given the envisaged potential for an English GDF (or deep boreholes) to potentially impact upon Scottish and Welsh territories, given their common borders and geographical proximity.
- **Collecting baseline information**: A review has been undertaken of current and predicted baseline environmental conditions following a 'business as usual' scenario, again conducted for the UK, England, Scotland and Wales, as appropriate. This includes the key environmental characteristics of each topic or area most likely to be significantly affected by the draft NPS. This baseline will provide an evidence base for current environmental and socio-economic problems, prediction of effects and proposals for monitoring. It also helps inform the development of the AoS objectives.
- **Identifying sustainability problems**: The baseline has been used to identify key sustainability issues relevant to the NPS to help show where the AoS should be focussed and to inform the AoS objectives.
- **Developing AoS objectives**: Objectives (and associated appraisal guide questions) have been developed alongside definitions of significance to provide a means by which the effects of the draft NPS and the reasonable alternatives to the NPS can be meaningfully appraised.
- **Technical consultation on an initial Scoping Report**: Consultation has been undertaken with appropriate bodies to ensure that the AoS covers the likely significant sustainability effects of the draft NPS. This is also consistent with regulation 12 of the SEA Regulations which concerns the appropriateness, scope and level of detail of the information that must be included in the subsequent AoS Report (which will also meet the SEA requirements for the environmental report). An initial AoS Scoping Report was produced for this purpose and sets out the proposed scope and approach to the appraisal. A summary of the outcomes of the consultation is provided in **Section 1.5**.
- **Finalising the Scoping Report:** The responses received to consultation on the initial Scoping Report have been reviewed and the contents of the report revised as appropriate. This report represents the final output of the scoping stage and includes the amended appraisal framework.

1.5 Consultation and Stakeholder Engagement

1.5.1 Overview

Consultation lies at the heart of any meaningful assessment or appraisal process and is based on the key principle that plan and programme making is better where it is transparent, inclusive and uses information that has been subject to public scrutiny. In this context, the intention is that those with an interest in, or affected by, the draft NPS should have the opportunity to present their views on the draft NPS and the AoS thereof.

1.5.2 Technical consultation on the initial AoS Scoping Report

The initial AoS Scoping Report was issued for consultation to statutory and other selected consultees. The report was issued directly to the UK statutory SEA and other bodies identified in **Box 1.1** for comment. Whilst this technical consultation was primarily aimed at a number of statutory and selected consultees, DECC also made the initial Scoping Report publicly available.

Box 1.1 AoS Scoping Consultees

UK SEA Statutory Consultation Bodies

- Environment Agency
- Historic England
- Natural England
- Scottish Natural Heritage
- Historic Environment Scotland[1]
- Scottish Environment Protection Agency
- Scottish Government
- Natural Resources Wales
- Cadw (Welsh Government historic environment service)[2]
- Welsh Government
- Department of the Environment's 'Environment and Heritage Service', Northern Ireland

Additional (Specialist) Consultees

- Nuclear Legacy Advisory Forum (on behalf of Local Government Association)
- Radioactive Waste Management Limited
- Nuclear Decommissioning Authority
- Office of Nuclear Regulation

[1] It should be noted that whilst Historic Environment Scotland is not identified as a consultation body in the SEA Regulations, Scottish Ministers have designated Historic Environment 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.

[2] 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.

Comments on any aspect of the initial Scoping Report were welcomed although views were particularly sought in response to the following questions:

1. Do you agree with the main issues identified in the topic areas? Specifically –
    a) What issue or issues, which have been included in the proposed scope of the appraisal, do you think should be removed, and why?
    b) What relevant issue or issues, which have not been reflected in the proposed scope of the appraisal, do you think should be included, and why?
2. Do you think that the AoS Scoping Report sets out sufficient information to establish the context for the appraisal? If not, which areas do you think have been missed and where is information on these topics available from?
3. Do you agree that the AoS objectives and guide questions cover the breadth of issues appropriate for appraising the effects the draft NPS? If not, which objectives should be amended and which other objectives do you believe should be included?

A total of 15 responses were received from the following bodies:

- Copeland Borough Council;
- Above Derwent Parish Council;
- Northern Ireland Environment Agency;
- Environment Agency;
- Historic England;
- Historic Environment Scotland;
- Department of Environment, Food and Agriculture (Isle of Man Government);
- Natural England;
- Nuclear Decommissioning Authority and Radioactive Waste Management Limited;
- Nuclear Legacy Forum;
- Public Health England;
- Scottish Environment Protection Agency;
- Scottish Natural Heritage;
- EDF Energy; and
- United Utilities

Responses related to all aspects of the initial AoS Scoping Report but particularly concerned:

- requests for further contextual information including in respect of the work carried out by the independent Committee on Radioactive Waste Management (CoRWM);
- requests for additional baseline information and inclusion of further plans and programmes;
- amendments to the summary of key objectives identified from the review of plans and programmes contained in Table 3.2 and to the key issues relevant to the AoS summarised in Table 3.3;

- the geographic scope of the AoS of the draft NPS;
- the topics for inclusion in the AoS of the draft NPS;
- proposed amendments to the AoS objectives, guide questions and illustrative guidance that comprise the appraisal framework; and
- the aspects of the draft NPS and related infrastructure that will be appraised.

Appendix D contains a schedule of the consultation responses received on the initial AoS Scoping Report, DECC's response and the subsequent action taken and reflected in this Final Scoping Report.

The draft NPS, and accompanying AoS Report, will be made available in spring 2016 and be subject to consultation at that point. Should trans-boundary effects be identified in the AoS of the draft NPS, comment will be sought from the EU member states that may be affected.

1.6 Habitats Regulations Assessment

In accordance with Regulation 102(1) of *The Conservation of Habitats and Species Regulations 2010 (*as amended*)*[28] ('the Habitats Regulations'), there is a need for DECC to consider whether the NPS is likely to have a significant effect on any specified European sites. Such sites include Special Areas of Conservation (SACs) designated under *Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora* and Special Protection Areas (SPAs) designated under *Council Directive 2009/147/EC on the Conservation of Wild Birds*. Ramsar Sites (designated under the 1976 Ramsar Convention) are not European sites but under UK planning policy are given the same level of protection. If this screening were to show that such effects were likely, DECC should make an appropriate assessment of the implications for these sites. The need for these actions arises because the draft NPS is not directly connected with or necessary for the management of any European sites.

The HRA will be reported separately from the AoS. However, the conclusions of the HRA will help to inform the appraisal process, particularly in respect of the potential effects of the draft NPS on biodiversity.

DECC notes that all development consent order applications which may be made pursuant to the NPS, once designated, will be subject to the requirements of the planning system under the Planning Act 2008.

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[28] Regulation 61(1) states: *"A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which —*
(a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and
(b) is not directly connected with or necessary to the management of that site, must make an appropriate assessment of the implications for that site in view of that site's conservation objectives."

1.7 How Information in this AoS Scoping Report Meets the Requirements of the SEA Directive

To meet the requirements of the SEA Directive and its transposing regulations, information on the following is required in this AoS Scoping Report:

- the current state of the environment and likely evolution without the implementation of the plan or programme;
- the environmental characteristics of areas likely to be significantly affected;
- any relevant existing environmental problems, especially in terms of nature conservation; and
- the relationship of proposals with other relevant plans and programmes.

Table 1.1 details how these requirements have been addressed in this Scoping Report.

Table 1.1 SEA Information Requirements Addressed within this AoS Scoping Report

SEA Information Requirements	AoS Scoping Report Reference
Schedule 2 of the SEA Regulations (SI 2004 No. 1633) sets out the following information requirements:	***The following sections of this Scoping Report address the requirements of the SEA Regulations:***
1. An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	This requirement is addressed in **Section 2** (The draft NPS for Geological Disposal of Radioactive Waste), **Section 3** (Context and Baseline) and Appendix B. It will be further reported on in the AoS Report.
2. The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	This requirement is addressed in **Appendix B**. It will be further reported on in the AoS Report.
3. The environmental characteristics of areas likely to be significantly affected.	This requirement is addressed in **Appendix B**. It will be further reported on in the AoS Report.
4. 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 2009/147/EC (the 'new wild birds	This requirement is addressed in **Section 3** (Context and Baseline) and **Appendix B**. It will be further reported on in the AoS Report and in a separate HRA Screening Report.

SEA Information Requirements	AoS Scoping Report Reference
directive').	
5. 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.	This requirement is addressed in **Section 3** (Context and Baseline) and **Appendix B**. It will be further reported on in the AoS Report.
6. The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects, on issues such as: biodiversity; population; human health; fauna; flora; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).	A provisional indication of the likely effects of the draft NPS has been provided in the NTS and **Section 2** (The draft NPS for Geological Disposal of Radioactive Waste) to provide direction about which environmental (and socio-economic) issues need to be considered. However, it is the purpose of Stage B of the AoS process to assess the potential effects of the draft NPS and reasonable alternatives to it. In consequence, more specific detail on the likely significant effects of the draft NPS will be provided in the AoS Report.
7. The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	It is not appropriate to consider this requirement at this stage in the appraisal process. However, in broad terms the 'mitigation hierarchy' will be applied where practicable and results reported in the AoS Report. Examples of these types of measure are included in **Section 4** (Draft Appraisal Framework).
8. An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	This requirement is addressed in Section 2 (The Draft NPS for Geological Disposal of Radioactive Waste) and Section 3 (Context and Baseline) and will be further reported on in the AoS Report.
9. A description of the measures envisaged concerning monitoring of environmental	As detailed at point 7 above, it is not appropriate to consider this requirement at this stage. However, where practicable, monitoring

SEA Information Requirements	AoS Scoping Report Reference
conditions	regimes will be identified through the AoS Report.
10. A non-technical summary of the information provided under paragraphs 1 to 9.	A Non-Technical Summary is provided with this Scoping Report. A Non-Technical Summary will also accompany the AoS Report.

1.8 Scoping Report Structure

This Scoping Report is structured as follows:

- **Non Technical Summary** - Provides a summary of the Scoping Report, including information on both the draft NPS and the proposed approach to the appraisal;
- **Section 1: Introduction** - Includes a summary of the draft NPS, report contents and a summary of consultation on the initial Scoping Report;
- **Section 2: The Draft NPS for Geological Disposal of Radioactive Waste** - Describes the background to the draft NPS, its objectives and regulatory context together with an overview of the potential structure and contents. This section also sets out the potential alternatives that will be assessed as part of the AoS;
- **Section 3: Context and Baseline** - Provides details of the review of the international, European, UK and national (England, Scotland and Wales) plans and programmes and baseline conditions for the environmental categories required by the SEA Directive and additional socio-economic topics and summarises the key sustainability issues relevant to geological disposal. Further detailed information is contained at **Appendix B**;
- **Section 4: Appraisal Framework** - Outlines the scope of the appraisal before identifying the AoS objectives and guide questions. Details are also provided with respect to how the appraisal will be undertaken including in relation to the consideration of indirect, synergistic cumulative effects;
- **Section 5: Summary and Next Steps** - Details the next steps in the assessment process including a draft AoS Report structure;
- **Appendix A: Definitions of Significance** – Details the thresholds that will be used to steer judgements made in the appraisal process;
- **Appendix B: Baseline and Contextual Information** - Sets out the collated contextual and baseline information, on a topic-by-topic basis, for each of the appraisal topics. For each topic, this Appendix presents the following information (consistent with the SEA Directive reporting requirements):
    - **Introduction** - provides an overview of the topic;
    - **Summary of Plans and Programmes** - provides an overview of the policy context in which the NPS sits;

- **Overview of the Baseline** - provides an overview of the baseline and the key topic specific baseline factors which will need to be considered as part of the appraisal. This includes the key environmental characteristics of each topic or area most likely to be significantly affected;

- **Existing Problems** - highlights some of the existing pressures on the topic area, particularly in relation to the NPS;

- **Likely Evolution of the Baseline** - provides an overview of how the baseline is likely to change in the absence of the NPS, an understanding of this is key to understanding the effects of the NPS on the topic area;

- **Assessing Significance**: outlines the objectives and guide questions related to the topic area which have been identified for use in the appraisal of the effects of the draft NPS alongside guidance that will be utilised during the appraisal to help determine the relative significance of potential effects on the objectives.

2. The Draft NPS for Geological Disposal of Radioactive Waste

2.1 Introduction

The 2014 White Paper[29] on the long term management of higher activity radioactive waste sets out the UK Government's intention to produce an NPS to help guide applications for the development of GDFs. The White Paper identifies the following purposes of the NPS for Geological Disposal of Radioactive Waste:

> '*6.12. The purpose of the NPS is to guide the Secretary of State and the Planning Inspectorate in the consideration of any applications for a Development Consent Order for the development of a GDF, and the use of boreholes to characterise potential sites, in England.*
>
> *6.13. Once the NPS has been designated, the Secretary of State will be required to determine any applications for development consent in accordance with it, unless certain other criteria (set out in the Planning Act 2008) apply*.'

This section expands on the description above, providing further detail in respect of the planning context for nationally significant infrastructure projects (NSIPs) (**Section 2.2**) and the scope and likely contents of the NPS for Geological Disposal of Radioactive Waste (**Section 2.3**). It also identifies reasonable alternatives to the NPS that could be considered during the appraisal process (**Section 2.4**).

2.2 Nationally Significant Infrastructure Projects

2.2.1 Legislative and Consenting Background

The Planning Act 2008 introduced a procedure to streamline the decision-making process for NSIPs. Under the Act, a developer wishing to construct a NSIP must first apply for development consent. All development consent order applications which may be made pursuant to the NPS, once designated, will be subject to the requirements of the planning system under the Planning Act 2008. As part of this process, the applicant should consider whether the proposed NSIP should be considered as an Environmental Impact Assessment (EIA) development under the Infrastructure Planning (Environmental Impact Assessment)

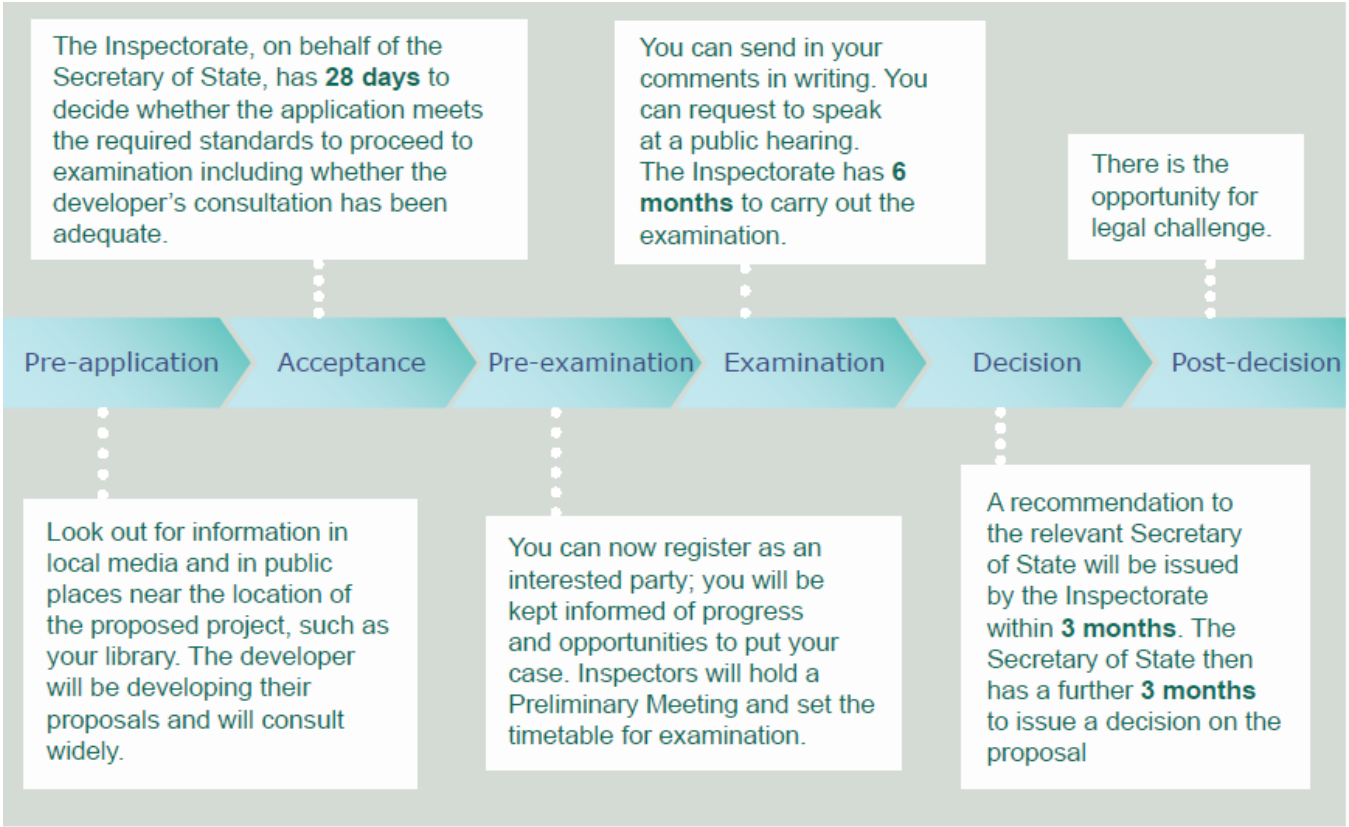
[29] DECC (July 2014) Implementing Geological Disposal: A Framework for the long-term management of higher activity radioactive waste

Regulations 2009 (the EIA Regulations)[30]. Similarly, the applicant should consider the potential effects of the proposed development on protected habitats through consideration of requirements of the Conservation of Habitats and Species Regulations 2010 (as amended) [31].

For such projects, the relevant Secretary of State will appoint an 'Examining Authority' to examine the application. The Examining Authority will be from the Planning Inspectorate, and will be either a single Inspector or a panel of three or more Inspectors. Once the examination has been concluded, the Examining Authority will make a recommendation to the Secretary of State, who will make the decision on whether to grant or to refuse consent.

There are six key stages in the development consent application process for NSIPs and these are shown in **Figure 2.1**.

Figure 2.1 The Development Consent Process for Nationally Significant Infrastructure Projects



Source: The Planning Inspectorate (2012) http://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/04/Advice-note-8-1v4.pdf [Accessed October 2015]

[30] Planning Inspectorate (March 2015), Preliminary Environmental Information, Screening and Scoping: Advice note Seven: Environmental Impact Assessment: Preliminary Environmental Information, Screening and Scoping

[31] Planning Inspectorate (December 2015), Habitats Regulations Assessment: Advice note ten: Habitats Regulations Assessment relevant to nationally significant infrastructure projects

Part 3 of the Planning Act 2008 lists the projects that are to be determined as NSIPs. In March 2015, The Infrastructure Planning (Radioactive Waste GDF) Order 2015[32] amended the Act to extend the categories of NSIPs to include GDFs and the deep boreholes required to investigate potential sites for these facilities.

In addition to development consent under the Planning Act 2008, a developer will also need permits from the relevant environmental regulator(s) before constructing a NSIP. A number of environmental regulators are responsible for environmental regulation of the nuclear sector within their respective jurisdictions. The Environment Agency is responsible for the enforcement of environmental protection legislation in England under the Environmental Permitting (England and Wales) Regulations 2010, regulating radioactive and non-radioactive discharges and disposals to air, water (both surface and groundwater) and land, including disposal by transfer to another site.

For a GDF, the developer will need regulatory approval before each stage of development can begin (a process known as 'staged regulation') and, in particular, disposal of radioactive waste will not be allowed without the appropriate environmental permit.

The independent Office for Nuclear Regulation (ONR) is responsible for the safety and security regulation of the nuclear sector across the UK. ONR grants licences that allow licence holders to use nuclear sites for specified activities. ONR also regulates the safety of transport of radioactive materials. ONR works closely with the International Atomic Energy Agency (IAEA) and European Commission to ensure that the UK's safeguarding obligations are met.

A GDF will be a nuclear installation under the Nuclear Installations Act 1965 and, as such, it will be ONR's role to ensure that, prior to construction of a GDF, a licencing process is in place such that ONR can consider the granting of a licence for the site, with the requisite site licence conditions attached, and enforce the requirements of that licence. ONR will also be responsible for advice, assessment of the licensee's security, and approving security arrangements for the geological disposal facility, and for securing compliance with those arrangements.

To demonstrate how a GDF meets high standards of safety, security and environmental protection, the developer will need to develop and maintain a number of safety cases (including operational safety, environmental safety and transport) and security plans throughout the lifecycle of the facility, all of which will be subject to scrutiny by the independent nuclear regulators.

The ONR and the appropriate environmental regulator must be consulted in any application for development consent for a GDF. The appropriate environmental regulator must also be

[32] S.I. 2015 No. 949.

consulted in any application for development consent for borehole investigations to characterise potential candidate sites.

2.2.2 National Policy Statements

NPSs set out the criteria by which applications for NSIPs are determined. They include the Government's objectives for the development of nationally significant infrastructure in a particular sector and set out:

- how this will contribute to sustainable development;
- how these objectives have been integrated with other Government policies;
- how actual and projected capacity and demand have been taken into account;
- relevant issues in relation to safety or technology;
- circumstances where it would be particularly important to address the adverse impacts of development;
- specific locations, where appropriate, in order to provide a clear framework for investment and planning decisions.

They also include any other policies or circumstances that Ministers consider should be taken into account in decisions on infrastructure development.

NPSs undergo a democratic process of public consultation and parliamentary scrutiny before being designated (i.e. published). They provide the framework within which Inspectors make their recommendations to the Secretary of State.

2.3 Possible Purpose, Scope and Contents of the NPS for Geological Disposal of Radioactive Waste

2.3.1 Purpose

The NPS for Geological Disposal of Radioactive Waste will set out the need for NSIPs related to the geological disposal of higher activity radioactive waste, and the Government's policies to deliver them. It will be used as the primary basis for the examination by the Examining Authority, and decisions by the Secretary of State, on development consent order applications for geological disposal facility infrastructure that falls within the definition of a NSIP as defined in the Planning Act 2008.

2.3.2 What Infrastructure is to be Covered by the NPS?

The definitions for nationally significant infrastructure that are related to the geological disposal of higher activity radioactive waste are set out in section of 30A of the Planning Act 2008. Applications for the following types of projects, and decisions on them, will be made under the Planning Act and will be covered by the NPS:

- Construction of facilities in England where the main purpose of the facility is expected to be the final disposition of radioactive waste, where:
    - the part of the facility where radioactive waste is to be disposed of is expected to be constructed at a depth of at least 200 metres beneath the surface of the ground or seabed; and
    - the natural environment which surrounds the facility is expected to act, in combination with any engineered measures, to inhibit the transit of radionuclides from the part of the facility where radioactive waste is to be disposed of to the surface.
- Construction of one or more boreholes, and any associated excavation, construction or building work, in England or waters adjacent to England up to the seaward limits of the territorial sea, where:
    - the borehole is expected to be constructed to a depth of at least 150 metres beneath the surface of the ground or seabed; and
    - the main purpose of constructing the borehole is to obtain information, data or samples to determine the suitability of a site for the construction or use of a radioactive waste GDF.

2.3.3 What is the Waste to be Managed by a GDF?

The types of higher activity radioactive waste (and nuclear materials that could be declared as waste) to be received and disposed of in a GDF covered by the NPS are identified in the 2014 White Paper[33] as:

- HLW arising from the reprocessing of spent nuclear fuel at Sellafield;
- ILW arising from existing nuclear licensed sites, and defence, medical, industrial, research and educational activities;
- The small proportion of LLW that is not suitable for disposal in the national LLW Repository;
- Spent fuel from existing commercial reactors (yet to be declared waste) and research reactors that is not reprocessed;
- Spent fuel (yet to be declared waste) and ILW from a new build programme up to a defined amount;
- Plutonium stocks - residual plutonium not re-used in new fuel manufacture (yet to be declared waste);

[33] DECC (July 2014) Implementing Geological Disposal: A Framework for the long-term management of higher activity radioactive waste, paragraph 2.17

- Uranium stocks – including that arising from enrichment and fuel fabrication activities (yet to be declared waste);
- Irradiated fuel and nuclear materials (yet to be declared waste) from the UK defence programme.

The volumes of these wastes (known as the 'inventory for disposal') have been made publicly available as part of the Radioactive Waste Management (RWM) Geological Disposal: The 2013 Derived Inventory[34].

2.3.4 What Could a GDF Look Like?

Figure 1.1 (**Section 1**) provides an indicative design for a GDF. It will have both surface and underground facilities linked by access tunnels and / or shafts, depending on the layout of these facilities. The underground facilities do not need to be located directly below the surface facilities – they could be separated by a distance of several kilometres.

The surface facilities could cover an area of approximately 1 square kilometre, although the layout of these facilities will be tailored to the site (or sites). The primary purpose of the surface facilities will be to receive waste packages from the rail and road network, and transfer them to the underground disposal facilities.

The underground facilities are expected to comprise a system of vaults for the disposal of ILW, and an array of engineered tunnels for the disposal of HLW and spent fuel. HLW and spent fuel require different disposal structures because they generate heat.

The precise layout and design of the facilities will depend on the inventory for disposal and the specific geological characteristics at the site in question.

Site investigations, including the drilling of boreholes, will be undertaken to improve understanding of the local geology and to identify potential sites prior to the construction of a GDF.

2.3.5 What is the Geographical Coverage of the NPS?

The NPS will provide the framework for decision making on development consent order applications for the construction of new radioactive waste geological disposal facilities and deep boreholes in England.

The NPS will be non-site specific and so will not include candidate sites. It is therefore analogous to the non-nuclear Energy NPSs (EN-1 to EN-5) rather than the approach taken in the Energy NPS for new nuclear infrastructure (EN-6).

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[34] Available from http://www.nda.gov.uk/publication/2013-derived-inventory/ [Accessed October 2015].

In Scotland, Wales and Northern Ireland, planning consents for all radioactive waste projects are devolved to the Scottish Government, Welsh Government and Northern Ireland Executive respectively. The Secretary of State will not decide applications in these territories and the NPS will not apply. Notwithstanding, relevant Scottish and Welsh plans and programmes and baseline information have been considered in the preparation of this Scoping Report, given the early assumption that a GDF and related deep boreholes sited in England could potentially have effects in Scotland or Wales due to their shared borders, and geographical proximity, with England.

2.3.6 Indicative Contents of the NPS

The NPS is likely to contain information concerning:

- the policy context for the GDF;
- the need for the GDF;
- development principles;
- generic impacts and siting considerations, including generic mitigation measures.

2.4 Reasonable Alternatives to the Draft NPS

Article 5(1) of the SEA Directive requires the identification, description and evaluation of "*the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme*". Reasonable alternatives for the NPS should be consistent with the hierarchy set out in the Government's guidance to the SEA Directive, as follows:

- Need or demand: is it necessary?
- Mode or process: how should it be done?
- Location: where should it go?
- Timing and detailed implementation.

It is anticipated that the NPS will state why there is need for geological disposal infrastructure (i.e. GDFs and the related deep boreholes). Alternatives regarding how higher activity radioactive waste should be disposed of have been addressed by the work carried out by the independent Committee on Radioactive Waste Management (CoRWM). CoRWM examined a wide range of options for how to deal with the UK's higher activity radioactive waste in a process which involved extensive consultation with the public and expert groups. In July 2006, CoRWM recommended that geological disposal, coupled with safe and secure interim storage, was the best available approach for the long-term management of the UK's legacy of higher

activity radioactive wastes[35]. Since then, the UK Government has been committed to the policy of geological disposal, most recently reflected in the 2014 White Paper.

The Government's policy, in the light of the evidence, analysis and consultation already undertaken, and culminating in the 2014 White Paper, is for long-term management of higher activity waste by way of geological disposal. The AoS for the NPS will therefore not revisit alternatives to geological disposal itself. Rather the focus of alternatives will rest on the third question within the hierarchy, i.e. 'where should it go?', and the reasonable alternatives to delivering geological disposal through a non-site specific NPS, which could include:

- an NPS that is generic but sets exclusionary or inclusionary criteria (for example, exclusionary criteria based on areas of specific environmental concern);
- no NPS.

(The consultation draft of the Scoping Report listed a location-specific NPS that identifies candidate sites for the GDF as a possible reasonable alternative. However, after further consideration, the Government has concluded that such an option is not possible at this stage: the geological information needed to set out a list of sites at which a GDF could be established is not yet available).

[35] Managing our Radioactive Waste Safely – CoRWM's Recommendations to Government, July 2006 http://bit.ly/15R4QpL

3. Context and Baseline

3.1 Introduction

This section, alongside **Appendix B**, provides an overview of the context and baseline information that has informed the development of the appraisal framework (see **Section 4**). It includes details of the review of other relevant plans and programmes (**Section 3.2**) and baseline data (**Section 3.3**) and culminates in the identification of key issues to be considered by the draft NPS and AoS (**Section 3.4**).

Baseline information and relevant plans and programmes have been considered for England, Wales and Scotland. The proposed geographical scope of the context and baseline has been arrived at through consideration of the fact that, although the NPS specifically concerns GDF (and deep borehole) projects in England only, there is the potential for cross-boundary effects in Scotland and Wales given their common borders with, and geographical proximity to, England.

Annex I of the SEA Directive requires that the subsequent appraisal (to be contained in the AoS Report) should include information on the "*likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to*". These topics have formed the basis for the collection and analysis of contextual and baseline information alongside additional socio-economic topics. **Table 3.1** presents how the proposed topics in this report are consistent with the SEA Directive requirements. Whilst information is presented by topic, the appraisal of the draft NPS will consider linkages between the topics as appropriate.

Table 3.1 Topics Considered in this Scoping Report

Annex I SEA Directive Effects	Topics Considered in this AoS Scoping Report
Biodiversity, Flora and Fauna	Biodiversity and Nature Conservation
Population	Population, Economics and Skills
Human Health	Human Health

Annex I SEA Directive Effects	Topics Considered in this AoS Scoping Report
Soil	Land Use, Geology and Soils
Water	Water Quality (including surface and ground water quality and availability)
Air	Air Quality
	Noise
Climatic Factors	Climatic Factors (including climate change mitigation and adaptation and energy)
	Flood Risk and Coastal Change
Material Assets	Waste and Resources
	Traffic and Transport
Cultural Heritage, including architectural and archaeological heritage	Cultural Heritage (including architectural and archaeological heritage)
Landscape	Landscape and Townscape

Consistent with the requirements of Annex 1 (b), (c) and (d) of the SEA Directive, **Appendix B** sets out the collated contextual and baseline information, on a topic-by-topic basis, for each of the 13 AoS topics above, structured as follows:

- **Introduction**: provides an overview and definition of the topic.
- **Review of Plans and Programmes**: provides an overview of the international/European, UK and national (England, Scotland and Wales) policy context in which the draft NPS sits.
- **Overview of the Baseline**: summarises the baseline for each of the topic areas at the UK and national (England, Scotland and Wales) level. This includes the key environmental characteristics of each topic or area most likely to be significantly affected.
- **Summary of Existing Problems Relevant to Geological Disposal**: identifies the key topic specific issues which will need to be considered as part of the appraisal.

- **Likely Evolution of the Baseline**: describes the likely evolution of baseline conditions without the implementation of the draft NPS, an understanding of this is key to understanding the effects of the NPS on the topic area.
- **Assessing Significance**: outlines the objectives and guide questions related to the topic area which have been identified for use in the appraisal of the effects of the draft NPS alongside guidance that will be utilised during the appraisal to help determine the relative significance of potential effects on the objectives.

3.2 Review of Plans and Programmes

One of the first steps in undertaking the AoS (and to meet the requirements of the SEA Directive) is to identify and review other relevant plans, programmes, policies and strategies (hereafter referred to as 'plans and programmes') that could have an effect on the draft NPS. These may be plans and programmes at an international/European, UK or national level, as relevant to the scope of the NPS. The initial AoS Scoping Report included a review of plans and programmes, consistent with the requirements of the SEA Directive, and which informed the development of the appraisal framework. This review has been updated as part of the preparation of this Final Scoping Report to take into account consultation responses to the initial Scoping Report and relevant plans and programmes that have been recently published.

The summary within each topic section in **Appendix B** identifies the relationships between the draft NPS and these other documents; i.e. how the NPS could be affected by the other plans' and programmes' aims, objectives and/or targets, or how it could contribute to the achievement of any environmental and sustainability objectives and targets set out in these plans and programmes.

The review of plans and programmes has also informed the environmental and socio-economic baseline and helped determine the key sustainability issues for the NPS and AoS. It will also provide the policy context for the appraisal of sustainability contained within the AoS Report.

From the review of these plans and programmes, a number of key environmental protection and socio-economic objectives have been identified. These are summarised in **Table 3.2**, along with an indication of where the policy objectives are reflected in the AoS objectives (discussed further in **Section 4**). The key objectives have been structured around the AoS topics set out in **Table 3.2**.

Table 3.2 Summary of Key Objectives Identified from the Review of Plans and Programmes Relevant to the AoS

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
1. Biodiversity and Nature Conservation	**International** • To protect international/European protected wildlife areas (including Special Areas of Conservation, Special Protection Areas and Ramsar sites); • To contribute to the conservation of global biodiversity; • To ensure the conservation and enhancement of natural heritage including wetland conservation; • To ensure the conservation of biodiversity in order to continue to harness the derived health and wellbeing benefits for the population; • To identify where operators are financially liable for threats of or actual damage to the environment under the "polluter pays" principle; • To anticipate, prevent and act on causes of significant reduction or loss of biodiversity. **UK, England, Scotland and Wales** • To conserve and enhance biological diversity within the UK; • To ensure that the quality of habitats and biodiversity is enhanced or at least conserved and take account of key priority habitats and species in decision making; • To protect the network of nationally protected wildlife areas (including Sites of Special Scientific Interest); • To create an ecological network which is resilient to changing pressures; • To safeguard vulnerable non-renewable resources for future generations.	Objective 1: Biodiversity and Nature Conservation Objective 3: Human Health Objective 4: Land Use, Geology & Soils Objective 5: Water Quality Objective 6: Flood Risk & Coastal Change Objective 9: Climatic Factors
2. **Population, Economics and Skills**	**International** • To achieve economic development and reduction of inequalities whilst adhering to the	Objective 2: Population, Economics and

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	principles of social and environmental justice and sustainable development; • To promote full employment, quality and productivity at work and promote inclusion by addressing disparities in access to labour markets; • To promote the economic development of disadvantaged areas within the European Union; • To grant public rights to information, public participation and access to justice; • To undertake appropriate consultation with consultation bodies and the public. **UK, England, Scotland and Wales** • To create strong, prosperous and sustainable communities; • To narrow the gap between deprived neighbourhoods and the rest of the UK; • To remove barriers to growth; • To develop and support successful, thriving, safer and inclusive urban and rural communities whilst continuing to protect the open countryside for the benefit of all; • To support the transition to a low carbon economy; • To foster a culture of innovation and research and development; • To enhance educational attainment and skills.	Skills Objective 3: Health
3. Human Health	**International** • To ensure children have safe water and clean air; • To ensure that measures to improve the health and wellbeing of the population are appropriately supported; • To preserve, protect and improve the quality of the environment and to protect human health; • To promote good health throughout the lifespan of the population;	Objective 2: Population, Economics and Skills Objective 3: Health

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	• To reduce inequities in health; • To prevent critical health effects as a result of high levels of noise in and around dwellings; • To avoid, prevent or reduce the harmful effects including annoyance due to exposure to environmental noise; • To protect against the risks associated with ionising radiation, from artificial sources used widely in medicine, general industry and nuclear enterprises, and from naturally occurring sources. **UK, England, Scotland and Wales** • To reduce and where possible avoid the effects and causes of statutory nuisance and to comply with all relevant UK environmental legislation; • To minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business; • To ensure noise reduction occurs where there may be adverse impacts of noise on human health; • To protect and enhance the quality of the environment, including the availability of green space; • To promote good health and good quality of life through the effective management of noise in the context of Government policy on sustainable development; • To maintain and enhance public and worker safety through restriction of exposure and control and design features.	
4. Land Use, Geology and Soils	**International** • To protect soil on the basis of the principles of: preservation of soil functions; prevention of soil degradation; mitigation of its effects; and restoration of degraded soils; • To take precautionary measures where soil function may be affected; • To identify areas at risk of erosion, organic	Objective 1: Biodiversity and Nature Conservation Objective 3: Health Objective 4: Land Use, Geology and Soils

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	matter decline, salinisation, compaction and landslides; • To limit the introduction of dangerous substances into the soil, to avoid accumulation in soil that would hamper soil functions and create a risk to human health and the environment. **UK, England, Scotland and Wales** • To ensure contaminated land is identified and remediated where appropriate; • To protect and preserve the environment and guard against pollution to land; • To preserve, where possible, the best and most versatile agricultural land; • To promote more sustainable patterns of development; • To adopt a sustainable approach to land use though consideration of: economic development, social inclusion, environmental protection and prudent use of resources; • To promote development of previously developed land; • To protect and enhance geological conservation interests and soils; • To safeguard workable resources and ensure that an adequate and steady supply is available to meet the needs of the construction, energy and other sectors; • To secure the sustainable restoration of sites to a relevant use after operation has ceased.	Objective 5: Water
5. Water Quality (including surface and ground water quality and availability)	**International** • To ensure that the water and ecological quality of freshwater and marine environments is conserved and enhanced; • To ensure sustainable use of water resources and reduced pollution and physical impacts; • To facilitate the integrated management of both the coastal zone and River Basin Districts to ensure sustainable use and protection of resources;	Objective 1: Biodiversity and Nature Conservation Objective 3: Health Objective 4: Land Use, Geology and Soils Objective 5: Water

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	• To encourage the sustainable use of water resources and protect aquatic ecology, drinking water and bathing waters; • To protect the environment from the adverse effects of urban waste water discharges and discharges from industrial processes; • To prevent the pollution of groundwater; • To protect the health of European water consumers; • To encourage the uptake of Sustainable Drainage Systems (SuDS). **UK, England, Scotland and Wales** • To protect the water environment in a way that allows it to adjust flexibly to a changing climate; • To manage water resources sustainably without causing environmental damage; • To increase water efficiency and maintain water quality; • To maintain and enhance the quality of water sources; understand and manage diffuse pollution sources; • To reduce pressure on the environment caused by water taken for human use; promote water use efficiency; and protect vital water supply infrastructure; • To improve quality of the UK water environment and the ecology which it supports.	
6. Flood Risk and Coastal Change	**International** • To reduce and manage the risks that floods pose to human health, the environment, cultural heritage and economic activity; • To provide a consistent approach to managing flood risk across Europe. **UK, England, Scotland and Wales** • To reduce the threat of flooding to people and their property; avoid inappropriate development in areas at risk of flooding; and sustainably	Objective 2: Population, Economics and Skills Objective 3: Health Objective 5: Water Objective 6: Flood Risk & Coastal Change Objective 9:

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	manage risks from flooding and coastal erosion; • To ensure that policies and decisions in coastal areas are based on an understanding of coastal change over time; • To enable an appropriate and consistent approach to marine planning across UK waters, and to ensure the sustainable use of marine resources and strategic management of marine activities from renewable energy to nature conservation, fishing, recreation and tourism; • To prevent new development from being put at risk from coastal change.	Climatic Factors
7. Air	**International** • To promote cleaner transport technologies and manage the demand for transport to prevent detrimental effects to human health from air pollution; • To ensure that air quality is enhanced or at least maintained and ensure that measures are adopted to support continued air quality standards; • To monitor and reduce trans-boundary atmospheric pollution; • To maintain air quality where it is good and improving; • To attain levels of air quality that do not give rise to significant negative impacts on, and risks to, human health and the environment; • To reduce emissions from industrial processes. **UK, England, Scotland and Wales** • To improve air quality and reduce the impact of air pollution on human health; • To improve air quality and reduce the impact of air pollution on biodiversity ; • To ensure new development is appropriate for its location and takes into account effects of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution.	Objective 1: Biodiversity and Nature Conservation Objective 3: Health Objective 4: Land Use, Geology and Soils Objective 5: Water Objective 7: Air

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
8. Noise	**International** • To ensure that measures to improve the health and wellbeing of the population are appropriately supported; • To preserve, protect and improve the quality of the environment and to protect human health; • To prevent critical health effects as a result of high levels of noise in and around dwellings; • To avoid, prevent or reduce the harmful effects including annoyance due to exposure to environmental noise. **UK, England, Scotland and Wales** • To reduce and where possible avoid the effects and causes of statutory nuisance and to comply with all relevant UK environmental legislation; • To minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business; • To ensure noise reduction occurs where there may be adverse impacts of noise on human health.	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Health Objective 7: Noise
9. Climatic Factors (including climate change and adaptation)	**International** • To prevent “dangerous” human interference with the climate system, namely through reductions in the emissions of greenhouse gases; • To promote renewable energy sources; • To promote sustainable development with regards to energy development, efficiency and consumption, transportation, industrial development, terrestrial and marine resource development and land use; • To reduce emissions of carbon dioxide and combat the serious threat of climate change; • To help transform Europe into a low-carbon economy and increase its energy security; • To ensure that energy efficiency measures are put in place and, where possible, renewables are employed to contribute to appropriate climate change targets.	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Health Objective 5: Water Objective 6: Flood Risk & Coastal Change Objective 7: Air Objective 9: Climatic Factors Objective 11:

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	UK, England, Scotland and Wales • To improve carbon management and help the transition towards a low carbon economy; • To promote climate change risk management in all aspects of business to ensure future resilience for communities, businesses and the environment; • To pursue new development in places that are resilient to climate change; and in ways that are consistent with social cohesion and inclusion; • To conserve and enhance biodiversity, recognising that the distribution of habitats and species will be affected by climate change; • To reduce energy consumption, minimise detrimental effects on the climate from greenhouse gases and maximise resilience to climate change.	Traffic and Transport
10. Waste and Resources	**International** • To ensure that waste reduction is at the forefront of waste management and where disposal is unavoidable, ensure a high level of protection for the environment and human health; • To adopt waste management principles such as the "polluter pays principle" and the "waste hierarchy"; • To protect human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste; • To help Europe become a recycling society that seeks to avoid waste and uses waste as a resource; • To ensure the prudent use of resources; • To achieve and maintain a high level of safety worldwide in spent fuel and radioactive waste management; • To ensure there are effective defences against potential hazards so that individuals, society and the environment are protected now and in the future;	Objective 1: Biodiversity and Nature Conservation Objective 3: Health Objective 4: Land Use, Geology and Soils Objective 5: Water Objective 7: Air Objective 9: Climatic Factors Objective 10: Waste and Resources

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	• To prevent accidents with radiological consequences and to mitigate their consequences should they occur. **UK, England, Scotland and Wales** • To decouple waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use; • To increase diversion from landfill of municipal and non-municipal waste and secure better integration of treatment for all waste; • To ensure waste is disposed of as near as possible to the place of production; • To ensure the layout and design of new development supports sustainable waste management; • To make best use of resources currently in use, reducing as far as practicable the quantity of material used and waste generated, and using as much recycled and secondary material as possible, before securing the remainder of material needed through new primary extraction; • To safeguard workable resources and ensure that an adequate and steady supply is available to meet the needs of the construction, energy and other sectors; • To minimise the impacts of aggregate extraction on local communities, built and natural heritage, and the water environment.	
11. Traffic and Transport	**International** • To achieve a 60% cut in transport emissions by 2050 through: no more conventionally-fuelled cars in cities, 40% use of sustainable low carbon fuels in aviation; and a 50% shift of medium distance intercity passenger and freight journeys from road to rail and waterborne transport. **UK, England, Scotland and Wales** • To encourage sustainable local travel and economic growth by making public transport and cycling and walking more attractive and effective, promoting lower carbon transport and tackling	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Health Objective 10: Traffic and Transport

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	local road congestion; • To integrate planning and transport to promote more sustainable transport choices, promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling and to reduce the need to travel, especially by car; • To promote patterns of development which optimise the use of existing infrastructure, reduce the need to travel, provide safe and convenient opportunities for walking and cycling for both active travel and recreation, enable the integration of transport modes and facilitate freight movement by rail or water; • To deliver national networks that meet long term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system.	
12. Cultural Heritage	**International** • To identify, protect and preserve World Heritage Sites; • To protect and sustain the historic environment for the benefit of current and future generations; • To identify and protect important heritage features; • To collect and disseminate scientific information on cultural and archaeological heritage to aid conservation and public awareness. **UK, England, Scotland and Wales** • To protect listed buildings, scheduled monuments and buildings within conservation areas; • To protect and promote stewardship of the historic environment; • To promote positive planning and management to bring about sensible solutions to the treatment of sites with archaeological remains and to reduce the areas of potential conflict between development and preservation;	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Human Health Objective 4: Land Use, Geology and Soils Objective 12: Cultural Heritage Objective 13: Landscape and Townscape

Topic	Summary Objectives From Other Plans and Programmes	AoS Objectives link (see Section 4.3)
	• To protect heritage assets and their wider settings; • To safeguard internationally and nationally-designated historically or culturally significant sites.	
13. Landscape and Townscape	**International** • To ensure that development is 'appropriate' particularly in relation to protected landscapes; • To protect, manage and plan for landscape change throughout Europe. **UK, England, Scotland and Wales** • To conserve and enhance nationally designated landscapes (Areas of Outstanding Natural Beauty and National Parks); • To maintain the character of the undeveloped coast, protecting and enhancing its distinctive landscapes, particularly in areas defined as Heritage Coast; • To provide public access to the countryside and promote sustainable farming and protection of wildlife; • To retain attractive landscapes, and enhance landscapes near to where people live; • To improve damaged and derelict land around towns; • To work within the framework of landscape to help shape future places and manage change everywhere; • To retain land in agricultural, forestry and related uses.	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Human Health Objective 4: Land Use, Geology and Soils Objective 12: Cultural Heritage Objective 13: Landscape and Townscape

3.3 Collecting Baseline Evidence

An essential part of the SEA compliant AoS process is to identify the current state of the environment and its likely evolution under a 'business as usual' scenario. Only with sufficient knowledge of the existing baseline conditions can the likely significant effects of the draft NPS

be identified and appraised. Compliance with SEA Regulations also requires that the actual effects of implementing the NPS on baseline conditions are monitored.

To inform the baseline analysis contained in **Appendix B**, information has been used from a variety of sources including, amongst others, the Department for Environment, Food and Rural Affairs (Defra), DECC, the Environment Agency, Natural England, Historic England, the Office of National Statistics, Welsh Government, Natural Resources Wales and the Scottish Environment Protection Agency. Consultation responses received on the initial AoS Scoping Report have also been taken into account and Appendix B updated as appropriate in order to ensure that the baseline evidence is sufficiently robust to support the AoS of the draft NPS.

3.4 Key Issues Relevant to the Draft NPS

From the analysis of current and projected baseline conditions, a number of issues have been identified as being relevant to the draft NPS. These are summarised in **Table 3.3**. Against each topic, the reference to the AoS objectives indicates how these issues have been reflected within the appraisal framework (see **Section 4**).

Table 3.3 Key Issues Relevant to the NPS

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
1. Biodiversity and Nature Conservation	• The status of UK priority habitats and species in 2008 indicates that the decline of biodiversity is a major issue. For example, only 31% of the 45 priority habitats and 44% of the 391 priority species were judged to be stable, stable and probably increasing, or increasing, and of those that are stable, some may have populations well below what is recommended; • A 2013 State of Nature Report using records of 3,148 species found that some 60% of these have declined over the last 50 years and 31% have declined strongly; • Half of the species assessed have shown strong changes in abundance or distribution, indicating that recent environmental changes are having a dramatic impact on the nature of the UK's land and seas. There is also evidence to suggest that species with specific habitat requirements are faring worse than	Objective 1: Biodiversity and Nature Conservation Objective 3: Human Health Objective 4: Land Use, Geology & Soils Objective 5: Water Quality Objective 6: Flood Risk & Coastal Change Objective 9: Climatic Factors

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	generalist species that are better able to adapt to a changing environment • Over the period 1999-2005, the national conservation agencies carried out a programme of monitoring the designated features of SSSI, SACs, SPAs and Ramsar sites. Some 57% of SSSI sites were reported in favourable condition, with 37% of SACs, 86% of Ramsar sites and 73% of SPAs reported as favourable; • Key pressures and risks in respect of biodiversity and nature conservation that are particularly relevant include, inter-alia: ○ habitat destruction and fragmentation by development; ○ agricultural intensification and changes in agricultural management practices; ○ changes in woodland and forestry management; ○ water abstraction, drainage or inappropriate river management; ○ inappropriate coastal management; ○ lack of appropriate habitat management; ○ atmospheric pollution (acid precipitation, nitrogen deposition); ○ water pollution from both point and wider (diffuse) agricultural sources; ○ climate change and sea level rise; ○ sea fisheries practices; ○ recreational pressure and human disturbance; and ○ invasive and non-native species.	
2. Population, Economics and Skills	• The growing population within the UK will increase population densities and, in-turn, the likelihood of communities being within proximity to a GDF or transport of High	Objective 2: Population, Economics and Skills Objective 3: Human Health

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	Level Waste (HLW) and Intermediate Level Waste (ILW). This will increase the likelihood of operations having, or being perceived to have, a negative impact on communities; • It is estimated that a GDF would create between 500 - 600 direct full-time equivalent (FTE) jobs in an average year throughout the lifetime of the facility. In addition, it is estimated that a further 400 - 1000 jobs could be created through indirect and induced employment effects of a GDF, many of which could be filled at a District level. The majority of these would be skilled jobs associated with construction, safety, security and project management; • In relation to economic development, a GDF is estimated to generate an additional £50 - £200 million indirect and induced expenditure in the economy in an average year. This equates to a present value benefit of £1.8 to £6.7 billion over the lifetime of the project.	
3. Human Health	• Health inequalities exist in many communities. This is due to a number of factors (and the interplay between them) including housing quality, economic wellbeing, employment, lifestyle, heredity factors, cultural and environmental factors; • At present, respiratory illness places a significant burden on the health service. Sustained exposure to elevated air pollution levels (including exposure to elevated concentrations of particulate matter, oxides of nitrogen and sulphur) contributes to this problem. According to WHO estimates, nearly 500,000 deaths in Europe in 2012 were linked to exposure to outdoor air pollution (WHO 2014); • Health problems associated with radiological exposure are generally a minor issue in the UK; the great majority of the	Objective 2: Population, Economics and Skills Objective 3: Human Health

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	average public dose comes from natural sources of radiation, although testing and accidental releases do contribute to this. Background levels of natural radiation vary considerably from area to area, and any additional exposure (however small) may be an important issue for those communities who are already exposed to high natural background levels.	
4. Soil (including geology and land use)	• Mining activities have left a legacy of hazards in some parts of the UK such as landslips, subsidence, contamination of ground and surface water sources from metals such as tin, copper and arsenic, and radon gas and flooding; • Significant areas across the UK carry a burden of contamination from industrial activity, although this is progressively being addressed as sites are redeveloped. Whilst contamination is remediated during redevelopment, the process can be expensive; • Disturbance of contaminated sites carries the risk of pollution pathways being created or re-opened for any existing ground contamination; • There is currently increasing pressure on rural and agricultural land from developers as urban areas expand. Future population growth leading to an increase in the need for housing and related urban development infrastructure will put more pressure on protected land including important geological sites; • Soils in England continue to be degraded by human actions including intensive agriculture, historic levels of industrial pollution and urban development, making them vulnerable to erosion (by wind and water), compaction and loss of organic matter.	Objective 1: Biodiversity and Nature Conservation Objective 3: Human Health Objective 4: Land Use, Geology and Soils Objective 5: Water Quality

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
5. Water Quality (including surface and ground water quality and availability)	• There is considerable pressure on water resources in many parts of the UK; • There is a legacy of groundwater pollution in the UK from historical mining and other industrial activities; • Climate change is expected to have significant impacts on the water environment. Areas where the underlying geology is generally impermeable are expected to be particularly affected as river flows would be likely to fall to low levels in drier periods and quickly react to rainfall episodes; • There is a need to ensure that there is sufficient water infrastructure in place to accommodate future growth in the UK.	Objective 1: Biodiversity and Nature Conservation Objective 3: Human Health Objective 4: Land Use, Geology and Soils Objective 5: Water Quality
6. Flood Risk and Coastal Change	• Significant proportions of the UK population are at risk from flooding, although the degree of risk varies; • The Flood Directive (2007/60/EC) was transposed into UK law in the form of the Flood and Water Management Act 2010 (England & Wales) and the Flood Risk Management (Scotland) Act 2009. The Directive requires the production of flood hazard maps and flood management plans; • The Environment Agency has completed Catchment Flood Management Plans (CFMPs) in England and Wales. At the local authority level, Strategic Flood Risk Assessments are being completed; • Sea levels are rising, with worst case scenarios of a 1.9m increase in sea level by 2100 (with up to 0.76m more likely). The south and east of England will experience the greatest effective increases, due to the effects of post-glacial rebalancing; • Many coastal sites (especially in the south	Objective 2: Population, Economics and Skills Objective 3: Human Health Objective 5: Water Quality Objective 6: Flood Risk & Coastal Change Objective 9: Climatic Factors

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	and east of the England) are already prone to erosion, due to their underlying geology, coupled with rising sea levels and increased storm intensity. Increasing development pressures on and around the coastal environment (often accompanied by coastal engineering projects such as sea defences) are conflicting with the need for their effective management in the face of climate change. Shoreline Management Plans (in England and Wales) are taking a long term view of coastal change by identifying sustainable management approaches for up to the next 100 years; • Flood risk presents a significant planning issue in the development of major infrastructure projects, both in terms of potential direct impacts on the project itself and indirect impacts associated with works (such as increased run-off).	
7. Air Quality	• Air quality has improved in the UK over the last sixty years as a result of the switch from coal to gas and electricity for heating of domestic and industrial premises, stricter controls on industrial emissions, higher standards for the composition of fuel and tighter regulations on emissions from motor vehicles. However, poor air quality - particularly from vehicles - remains a significant issue for community health and for biodiversity, especially in/downwind of urban areas and major transport networks; • Poor air quality is generally associated with urban/industrial areas and major road infrastructure. A relatively large number of Air Quality Management Areas are located in urban areas, many of which have been designated due to high NO_2 and PM_{10} levels; • Historical emissions have resulted in high levels of sulphur and nitrogen deposits in wetter parts of the UK such as northern	Objective 1: Biodiversity and Nature Conservation Objective 3: Human Health Objective 4: Land Use, Geology and Soils Objective 5: Water Quality Objective 7: Air

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	England and the Welsh uplands. This has resulted in acidification and nitrogen eutrophication in some areas. Around a third of the UK land area is sensitive to acid deposition and a third to eutrophication. By 2010, the percentage of sensitive habitat area where acid deposited exceeded critical load was 49%. Similarly, 68% of sensitive habitat area exceeded the critical load as a result of nitrogen.	
8. Noise	• Ambient noise levels are gradually rising in the UK as a result of an increasing - and increasingly mobile - population. The cumulative impacts of noise on sensitive groups in local communities may create or exacerbate existing health issues; • Road traffic is a dominant source of noise; • There is a need to address noise issues in the UK's most affected communities.	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Human Health Objective 8: Noise
9. Climatic Factors (including climate change and adaptation and flood risk)	• The input of greenhouse gasses (e.g. CO_2, CH_4, N_2O, O_3) resulting from fossil fuel usage, agriculture and other land use have been linked with atmospheric warming and undesirable climate change; • Fossil fuel dependency remains high and is likely to remain so for some time; • Legally binding EU and government targets (see: the Climate Change Act 2008 and subsequent revisions: The Climate Change Act 2008 (2020 Target, Credit Limit and Definitions) Order 2009, The Carbon Budgets Order 2009) seek to reduce emissions (based on a carbon budget of $MtCO_2$ equivalent) by 80% on 1990 levels by 2050, with an interim target of 34% by 2020; • Changes in temperature and rainfall patterns, along with more frequent extreme weather events creates the situation where a greater degree of resilience will have to be incorporated into plans and proposals;	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Human Health Objective 5: Water Quality Objective 6: Flood Risk & Coastal Change Objective 7: Air Objective 9: Climatic Factors Objective 11: Traffic and Transport

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	• The UK's Climate Projections (UKCP09) show that the UK as a whole is likely to experience hotter, drier summers, warmer, wetter winters and rising sea levels, particularly in the south east of England. This is likely to have a significant effect on a range of environmental conditions, including the water environment; • Sensitive ecosystems and UK water resources are likely to come under increasing pressure as a result of climate change.	
10. Waste and Resources	• The total amount of municipal and commercial and industrial waste produced each year is likely to decrease in coming years; • The consumption of non-renewable sources will deplete overall stocks and result in a scarcity of resources for future generations; • Although more space is being built and there are plans for expansion in the future, the potential capacity of the LLW Repository at Drigg is well below the forecast volume of LLW from nuclear industry decommissioning and environmental restoration that must be dealt with in the future; • Facilities for disposing of higher activity wastes, which include LLW not suitable for near-surface disposal, ILW and HLW, have yet to be developed in the UK.	Objective 1: Biodiversity and Nature Conservation Objective 3: Human Health Objective 11: Traffic and Transport
11. Traffic and Transport	• There are areas of the UK's transport network which are stretched beyond their capacity at peak times; • Increasing levels of congestion are being experienced on the UK's road network; • There is a need for investment in transportation infrastructure to meet future demand and support economic growth; • There is a need to reduce the need to travel and facilitate a shift towards more	Objective 2: Population, Economics and Skills Objective 12: Cultural Heritage Objective 13: Landscape and Townscape

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	sustainable modes of transport; • The transport of radiological materials by road and rail in the UK is controlled by the Office for Nuclear Regulation and the Department for Transport. Nevertheless, there is a need to ensure the safe transportation of such materials and minimise adverse effects of transport movements on local communities.	
12. Cultural Heritage	• Scheduled monuments in rural areas are at risk from agricultural practices, land disturbance and unrestricted plant, scrub or tree growth; • Challenging economic conditions are reducing the funds available to conserve and manage heritage assets; • The settings of heritage assets are at risk from new development.	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Human Health Objective 4: Land Use, Geology and Soils Objective 12: Cultural Heritage Objective 13: Landscape and Townscape
13. Landscape and Townscape	• Over the last century the following landscape character trends have been experienced in the UK: ○ a gradual erosion of local distinctiveness in some areas, through a process of standardisation and simplification of some of the components that make up landscape character; ○ a loss of some natural and semi-natural features and habitats such as ancient woodlands and unimproved grassland; ○ a decline in some traditional agricultural landscape features such as farm ponds and hedgerows, and a loss of archaeological sites and traditional buildings;	Objective 1: Biodiversity and Nature Conservation Objective 2: Population, Economics and Skills Objective 3: Human Health Objective 4: Land Use, Geology and Soils Objective 12: Cultural Heritage Objective 13: Landscape and Townscape

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	○ increased urbanisation, often accompanied by poor design standards and a decline in the variety of building materials, and the importation of urban and suburban building styles into rural areas; and ○ a loss of remoteness and reduced tranquillity because of built development and traffic growth. • As part of the most recent Countryside Quality Counts (2007) survey, 29% of National Character Areas in England were identified as having a changing landscape character, many of which were altering in a direction which could be regarded as inconsistent with the traditional landscape vernacular of the area. A similar study of landscape change is not available for Scotland or Wales though changes have undoubtedly taken place in these countries also; • Light pollution appears to have increased considerably over the last 30-40 years over much of the UK. The growth of urban areas, road networks and industrial areas are all major contributors to increased light levels; • The Scottish landscape is vulnerable to a variety of pressures. Key threats and opportunities to landscape character include the development of new infrastructure, agriculture, the loss and expansion of woodland and natural processes. Wind energy development is placing a pressure on landscape character, in particular in southern Scotland where there are 83 windfarms installed or approved; • In Wales, changes in weather patterns and soil conditions will alter the vegetation that is an important landscape feature. Climate change can also have an effect on flooding	

Topic	Summary of Key Issues	AoS Objectives link (see Section 4.3)
	or increases in temperatures may also present challenges for the landscape. Coastal areas may be most at risk. Responses to changing climate such as the introduction of new crops and land uses will also have an impact on the visual appearance of the landscape.	

3.5 Limitations of the Data

Data has generally been sourced from national bodies to enable comparison between baseline information for England, Scotland and Wales. However, in some cases baseline information collected by national bodies differs meaning that data is not directly comparable.

The information used has been sourced, so far as is possible, from the most recent datasets available utilising a wide range of authoritative and official sources. It is important to acknowledge that there are variable time lags between raw data collection and its publication. Consequently, at the time of this Scoping Report's publication, the baseline or predicted future trends may have varied from those described above and in **Appendix B**.

In some instances, data concerning predicted future trends does not cover the expected period of a GDF. Notwithstanding, the appraisal contained in the AoS Report will consider effects over the long term, informed by existing and new information on future trends as well as professional judgement.

4. Appraisal Framework

4.1 Introduction

This section describes the approach that will be followed in the AoS of the draft NPS. It draws on the information presented in **Section 2**, **Section 3** and **Appendix B**, as well as the responses received to consultation on the initial AoS Scoping Report, to define the scope of the appraisal (in terms of what is to be appraised and the environmental and socio-economic issues to be considered) and develop the appraisal framework. The appraisal framework includes AoS objectives and guide questions supported by definitions of significance that will help the reader understand how the appraiser will determine the effects of the draft NPS against the objectives.

4.2 Scope of the Appraisal

4.2.1 Topics

The range of potential environmental and socio-economic effects under consideration has been informed primarily by the SEA Regulations, using published government guidance, along with an evaluation of existing information on the potential effects of a GDF (and related deep boreholes)[36]. As discussed in **Section 3**, Annex I of the SEA Directive and Schedule 2 of the SEA Regulation requires that the assessment includes information on the "*likely significant effects on the environment, including on issues such as: biodiversity; population; human health; fauna; flora; soil; water; air; climatic factors; material assets; cultural heritage, including architectural and archaeological heritage; landscape; and the inter-relationship between the issues referred to*". The scope of the draft NPS presented in **Section 2** and the outputs from the review of other relevant plans and programmes and baseline information have also been used to define the scope of the appraisal.

In **Table 4.1** each of the 12 SEA topic areas listed above are considered in-turn. All of these topic areas will be addressed in the AoS.

[36] Including

- NDA, for the West Cumbria MRWS Partnership (2009) Summary Note on Potential Impacts of Implementing Geological Disposal at: http://www.westcumbriamrws.org.uk/documents/27-Potential_impacts_of_implementing-geological_disposal.pdf
- Nuclear Decommissioning Authority (December 2014) Geological Disposal: Generic Environmental Assessment
- Nuclear Decommissioning Authority (December 2014) Geological Disposal: Generic Socio-Economic Assessment
- Nuclear Decommissioning Authority (December 2014) Geological Disposal: Generic Health Impact Assessment
- DECC (July 2014) Implementing Geological Disposal: A Framework for the long-term management of higher activity radioactive waste [HMG White Paper]

Table 4.1 Basis for Scoping out Topic Areas from the SEA

SEA Topic Area	Propose to Include in Draft Geological Disposal NPS AoS?	Justification for Proposal to Scope the Topic Out of the AoS
Biodiversity	Yes	Include within appraisal framework
Population	Yes	Include within appraisal framework
Human Health	Yes	Include within appraisal framework
Fauna	Yes	Include within appraisal framework
Flora	Yes	Include within appraisal framework
Soils	Yes	Include within appraisal framework
Water	Yes	Include within appraisal framework
Air	Yes	Include within appraisal framework
Climatic Factors	Yes	Include within appraisal framework
Material Assets	Yes	Include within appraisal framework
Cultural Heritage	Yes	Include within appraisal framework
Landscape	Yes	Include within appraisal framework

It should be noted that, whilst the appraisal of the draft NPS will be presented on a topic-by-topic basis, where there are linkages between the impacts and effects identified (for example, the potential impact of vehicle movements on human health caused by associated emissions to air) this will be highlighted in the appraisal commentary as appropriate.

4.2.2 Geographic Scope

The AoS will consider the potential effects of the draft NPS in England in addition to Scotland and Wales, given the envisaged potential for a GDF (or deep boreholes) in England to impact upon Scottish and Welsh territories (due to their common borders and geographical proximity). Any likely significant effects with other areas and states will also be considered.

As noted in **Section 1.1**, the AoS relates to the NPS only and will not, therefore, consider site specific proposals for a GDF or related deep boreholes.

4.2.3 Timescales

When considering the timing of potential effects of the draft NPS, the appraisal will classify effects as 'short,' 'medium' or 'long term.' This reflects an intention to capture the differences that could arise at different timescales, consistent with the requirements of the Annex II (2) of the SEA Directive where the assessment of the effects should have regard to 'the probability, **duration**, frequency and reversibility of the effects'. **Table 4.2** below summarises the proposed timescales to be applied in the AoS.

Table 4.2 Duration of Short, Medium and Long Term

Duration	Length (years)	Phase
Short	0 years to 20 years	Site identification and characterisation (including deep boreholes)
Medium	20 to 120 years[#]	GDF construction and operation (including ongoing construction of further underground waste vaults)
Long	120 years and beyond	Closure and post closure monitoring

100 years referenced from DECC (July 2014) GDF White Paper para 3.22 at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/332890/GDF_White_Paper_FINAL.pdf

4.3 AoS Objectives and Guide Questions

Establishing appropriate AoS objectives and guide questions is central to appraising the effects of the draft NPS. The AoS objectives and guide questions reflect the topics to be included within the appraisal and have been informed by:

- the review of plans and programmes and the associated environmental protection objectives (see **Section 3.2** and **Appendix B**);
- the baseline information and key sustainability issues (see **Section 3.3** and **Appendix B**);
- a broad understanding of the likely generic effects arising from a GDF; and
- responses received to consultation on the initial AoS Scoping Report.

Broadly, the AoS objectives present the preferred environmental and socio-economic outcome, which typically involves minimising detrimental effects and enhancing positive effects.

Associated guide questions have been developed for each AoS objective to provide a detailed framework against which the draft NPS can be appraised. The appraisal objectives and guide questions are presented in **Table 4.3.**

Table 4.3 Appraisal Objectives and Guide Questions

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topics
Biodiversity and Nature Conservation	1. To protect and enhance biodiversity (habitats, species and ecosystems) working within environmental capacities and limits.	• Will the Geological Disposal NPS protect and/or enhance internationally designated nature conservation sites e.g. SACs, SPAs and Ramsar Sites? • Will the Geological Disposal NPS protect and/or enhance nationally designated nature conservation sites e.g. SSSIs? • Will the Geological Disposal NPS affect animals or plants including protected species? • Will the Geological Disposal NPS protect and/or enhance priority species and habitats? • Will the Geological Disposal NPS affect the structure and function of natural systems (ecosystems)? • Will the Geological Disposal NPS affect public access to areas of wildlife interest? • Will the Geological Disposal NPS have an impact on fisheries?	Biodiversity, Flora and Fauna
Population, Economics and Skills	2. To promote a strong, diverse and stable economy with opportunities for all; improve education and skills, minimise disturbance to local	• Will the Geological Disposal NPS affect the social infrastructure and amenities available to local communities? • Will the Geological Disposal NPS affect local population	Population

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topics
	communities and maximise positive social impacts.	demographics and/ or levels of deprivation in surrounding areas? • Will the Geological Disposal NPS affect opportunities for investment in education and skills development? • Will the Geological Disposal NPS affect the number or types of jobs available in local economies? • Will the Geological Disposal NPS affect how diverse and robust local economies are?	
Human Health	3. To protect and enhance health, safety and wellbeing of workers and communities and minimise any health risks associated with disposal operations.	• Will the Geological Disposal NPS protect and/or enhance the health and safety of workers, or other people working at any proposed sites? • Will the Geological Disposal NPS protect and/or enhance the health, safety and well-being of local communities and specific groups within those communities? • Will the Geological Disposal NPS protect and/or enhance the health, safety and well-being of wider communities (i.e. those communities that are not host to a GDF or deep boreholes)? • Will the Geological Disposal NPS disproportionately affect communities already identified as vulnerable / at risk? • Will the Geological Disposal NPS minimise the risk or consequences of a major	Population Human Health

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topics
		accident?	
Land Use, Geology and Soils	4. To conserve and enhance soil and geology and contribute to the sustainable use of land.	• Will the Geological Disposal NPS have an effect on soil quality/function, variety, extent and/or compaction levels? • Will the Geological Disposal NPS increase the risk of significant land contamination? • Will the Geological Disposal NPS have an effect on any known and existing contamination? • Will the Geological Disposal NPS protect and/or enhance Geological Conservation Sites, important geological features and geophysical processes and functions? • Will the Geological Disposal NPS affect land stability? • Will the Geological Disposal NPS change patterns of land use including effects on best and most versatile land? • Will the Geological Disposal NPS affect induced seismicity?	Soils
Water Quality (including surface and ground water quality and availability)	5. To maximise water efficiency, protect and enhance water quality and help achieve the objectives of the Water Framework Directive.	• Will the Geological Disposal NPS affect demand for water resources? • Will the Geological Disposal NPS affect the amount of waste water and surface runoff produced? • Will the Geological Disposal NPS protect and enhance the quality of surface, groundwater, estuarine and	Water

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topics
		coastal water quality?	
Flood Risk and Coastal Change	6. To minimise the risks from coastal change and flooding to people, property and communities, taking into account the effects of climate change.	• Will the Geological Disposal NPS help to avoid development in areas of flood risk and, where possible, reduce flood risk? • Will the Geological Disposal NPS help to avoid development in areas affected by coastal erosion and not affect coastal processes and/or erosion rates?	Water Climatic Factors
Air	7. To minimise emissions of pollutant gases and particulates and enhance air quality, helping to achieve the objectives of the Air Quality and Ambient Air Quality and Cleaner Air for Europe Directives.	• Will the Geological Disposal NPS affect air quality? • Will the Geological Disposal NPS create a nuisance for people or wildlife (for example from dust or odours)?	Air
Noise	8. To minimise noise pollution and the effects of vibration.	• Will the Geological Disposal NPS help to minimise noise and vibration effects from construction and operational activities on residential amenity and effects on sensitive locations and receptors?	Human Health Fauna
Climatic Factors	9. To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change.	• Will the Geological Disposal NPS help to ensure a low carbon design solution to the disposal of higher activity radioactive wastes, at both construction and operation phases? • Will the Geological Disposal	Climatic Factors

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topics
		NPS promote climate change adaptation (including rising temperatures and more extreme weather events)?	
Waste and Resources	10. To minimise waste arisings, promote reuse, recovery and recycling, minimise the impact of wastes on the environment and communities and contribute to the sustainable use of natural and material assets.	• Will the Geological Disposal NPS affect the amount of hazardous and non-hazardous wastes produced? • Will the Geological Disposal NPS affect the capacity of existing waste management systems, both nationally and locally? • Will the Geological Disposal NPS maximise re-use and recycling of recovered components and materials? • Will the Geological Disposal NPS help achieve government and national targets for minimising, recovering and recycling waste? • Will the Geological Disposal NPS increase the burden on limited natural resources? • Will the Geological Disposal NPS make best use of existing infrastructure and resources?	Material Assets
Traffic and Transport	11. To minimise the volume of traffic and promote more sustainable transport choices**.**	• Will the Geological Disposal NPS help to minimise traffic volumes? • Will the Geological Disposal NPS help to minimise the direct effects of transport such as noise and vibration, severance[1] of communities and wildlife habitats and safety	Biodiversity, Flora and Fauna Population Human Health

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topics
		concerns? • Will the Geological Disposal NPS encourage alternative and sustainable means of transporting freight, waste and minerals, where possible?	
Cultural Heritage	12. To protect and where appropriate enhance the historic environment including cultural heritage resources, historic buildings and archaeological features and their settings.	• Will the Geological Disposal NPS affect designated or locally-important archaeological features or their settings? • Will the Geological Disposal NPS affect the fabric and setting of historic buildings, places or spaces that contribute to local distinctiveness, character and appearances?	Cultural Heritage
Landscape and Townscape	13. To protect and enhance landscape and townscape quality and visual amenity.	• Will the Geological Disposal NPS have significant visual impacts (including those at night)? • Will the Geological Disposal NPS affect protected/designated landscapes or their setting? • Will the Geological Disposal NPS affect the intrinsic character or setting of local landscapes or townscapes? • Will the Geological Disposal NPS help to minimise light pollution from construction and operational activities on residential amenity and on sensitive locations and receptors? • Will the Geological Disposal	Landscape Human Health

AoS Topic Area	AoS Objectives	Guide Questions	SEA Directive Topics
		NPS affect public access to open spaces or the countryside?	

[1] Severance refers to the separation of communities by development such as roads.

4.4 Completing and Recording the Appraisal

4.4.1 Appraising the Effects of the Draft NPS

In accordance with the ODPM (now CLG) Practical Guide to the SEA Directive[37], the appraisal process will seek to predict the significant effects of the draft NPS. This will be done by identifying the likely changes to the baseline conditions as a result of implementing the draft NPS (or reasonable alternative to the NPS). These changes will be described (where possible) in terms of their geographic scale, the timescale over which they could occur, whether the effects would be temporary or permanent, positive or negative, likely or unlikely, frequent or rare. Where numerical information is not available, the appraisal will be based on professional judgement and with reference to relevant legislation, regulations and policy. More specifically, in undertaking the appraisal, consideration will be given to:

- baseline information including existing socio-economic and environmental problems and their evolution;
- the likely activities and potential sources of effects associated with (a) GDF(s) and (b.) deep boreholes;
- the regulatory framework;
- consultation with statutory consultees and other stakeholders;
- the AoS objectives and guide questions; and
- definitions of significance (see below).

The elements of the draft NPS that, based on current understanding of the likely content of the document, would be subject to appraisal are likely to include:

- the proposed objectives of the draft NPS;
- the proposed design principles contained within the draft NPS;
- the reasonable alternatives to the draft NPS.

The resulting appraisal and identification of effects will be used to determine the extent to which any generic impacts identified in the draft NPS are considered sufficient and appropriate to cover the likely effects of GDFs, along with any proposed mitigation measures. The appraisal will be recorded within an appraisal matrix, illustrated by **Table 4.4.**

[37] ODPM (CLG) (2005) A Practical Guide to the Strategic Environmental Assessment Directive.

Table 4.4 Appraisal Matrix (Example: Draft Geological Disposal NPS 'Principles of Assessment')

AoS Objective	Score	Commentary
1. To protect and enhance biodiversity (habitats, species and ecosystems) working within environmental capacities and limits.	**- LT**	**Assessment of Effects:** *A description of effects of the Geological Disposal NPS principle of assessment under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted.*
2. To promote a strong, diverse and stable economy with opportunities for all; improve education and skills, minimise disturbance to local communities and maximise positive social impacts.	**+ LT/MT**	**Assessment of Effects:** *A description of effects of the Geological Disposal NPS principle of assessment under consideration will be provided here, with reasoning and justification included.* **Mitigation:** *Measures to offset adverse effects and enhance positive effects will be identified.* **Assumptions:** *Any assumptions that have underpinned the assessment will be highlighted here.* **Uncertainties:** *Uncertainties encountered during the assessment will be noted.*
3. Etc		**Etc**
A brief summary of the effects on the AoS objective under consideration will be provided.		

Score Key:	+ + **Significant** positive effect	+ **Minor** positive effect	0 No overall effect	- **Minor** negative effect	-- **Significant** negative effect	**Score uncertain**

AoS Objective	Score	Commentary
NB: Where more than one symbol/colour is presented in a box it indicates that the appraisal has identified both positive and negative effects. Where a box is coloured but also contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect although a professional judgement is expressed in the colour used. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.		
Likely timing of effects (indicated by ST, MT, or LT or combinations thereof) where: ST – short term (less than 20 years), MT – medium term (between 20 and 120 years) and LT – long term (>120 years)		

Note: This draft AoS matrix is for illustrative purposes only. The full matrix will be finalised after comments have been received on the AoS categories, objectives and appraisal criteria.

4.4.2 Guidance on Determining Significance

Topic-specific guidance has been developed for what constitutes a significant effect, a minor effect or a neutral effect for each of the AoS objectives. These definitions of significance will help to ensure a consistent approach to interpreting the significance of effects and will help the reader understand the decisions made by the appraiser. The guidance on significance can be found in the relevant topic chapters in **Appendix B** and are summarised in **Appendix A**. **Table 4.5** shows an example of this guidance along with the symbols used to record the effects within the appraisal.

Table 4.5 Illustrative Guidance for the Appraisal of Significance for Biodiversity and Nature Conservation

Effect	Description	Illustrative Guidance
++	Significant positive	• Option would have a significant and sustained positive effect on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species); • Option will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to these sites.
+	Positive	• Option would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short

Effect	Description	Illustrative Guidance
		term increase in population of designated species); • Option would have a positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function); • Option would enhance existing public access to areas of wildlife interest in areas where there is some demand for these sites.
0	Neutral	• Option would not have any effects on European or national designated sites and/or any species (including both designated and non-designated species); • Option would not affect public rights of way or access to areas of wildlife interest.
-	Negative	• Option would have negative effects on local biodiversity (e.g. – through an increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function); • Option would decrease public access to areas of wildlife interest in areas where there is some demand for access to these sites.
--	Significant negative	• Option would have a negative effect on European or national designated sites and/or protected species (i.e. on the interest features and integrity of the site, by preventing any of the conservation objectives from being achieved or resulting in a long term decrease in the population of a priority species). These effects could not be reasonably mitigated.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

4.4.3 Mitigation

Identifying effective mitigation measures will also be a fundamental part of the AoS. **Box 4.1** provides information on types and examples of mitigation measures that might be proposed and includes an overview of the mitigation hierarchy. The mitigation hierarchy is based on the principle that it is preferable to prevent the generation of an impact rather than counteract its effects. It thus suggests that mitigation measures higher up the hierarchy should be considered in preference to those further down the list.

Box 4.1 Mitigation Hierarchy and Example Measures

Mitigation measures should be consistent with the mitigation hierarchy (after DETR 1997[38] and CLG 2006[39]):

- Avoidance – making changes to a design (or potential location) to avoid adverse effects on an environmental feature. This is considered to be the most acceptable form of mitigation.
- Reduction – where avoidance is not possible, adverse effects can be reduced through sensitive environmental treatments/design.
- Compensation – where avoidance or reduction measures are not available, it may be appropriate to provide compensatory measures (e.g. an area of habitat that is unavoidably damaged may be compensated for by recreating similar habitat elsewhere). It should be noted that compensatory measures do not eliminate the original adverse effect, they merely seek to offset it with a comparable positive one.
- Remediation – where adverse effects are unavoidable, management measures can be introduced to limit their influence.
- Enhancement – where there are no negative impacts, but measures are adopted to achieve a positive move towards the sustainability objectives e.g. through innovative design.

Examples of how mitigation measures could be incorporated into the Geological Disposal NPS

- Design work with local communities to help ensure a sensitive visual fit with the receiving environment.
- Maximising positive impacts such as job creation as part of a wider community benefit package.
- Management of the project lifecycle from site investigation through to closure, which is likely to span a century.
- EIA-specific measures to minimise environmental and socio-economic impacts such as through:
  - Minimisation of land-take.
  - Minimisation / re-use of excavated rock.
  - On-going site management such as the monitoring of emissions.
  - Exploration of alternatives to road transport for construction materials and waste.
  - Wider commercial/community use of new transport infrastructure.
  - Local sourcing of construction material and (non-radioactive) waste disposal.
  - Sensitive routing of transport movements, avoiding sensitive receptors such as schools, using traffic management plans.
  - Avoidance of flood risk areas and use of measures such as sustainable drainage.
  - Use of renewable energy generation.

[38] Department of the Environment, Transport and the Regions (1997) *Mitigation Measures in Environmental Statements*. London: DETR

[39] Department for Communities and Local Government (2006): *Consultation Document - EIA: A guide to good practice and procedures.* London: CLG

Box 4.1 Mitigation Hierarchy and Example Measures
- Use of best practice waste minimisation and (non-radioactive) waste disposal. - Minimisation of radioactive discharges to air and water and disposal of secondary solid waste to land.

4.4.4 Appraisal of Secondary, Cumulative and Synergistic Effects

The AoS, in complying with the SEA Directive and its implementing regulations in the UK, will need to demonstrate that secondary, cumulative and synergistic effects have been considered as part of the appraisal (see definitions presented in **Table 4.6**).

Table 4.6 Definitions of Secondary, Cumulative and Synergistic Effects

Type of Effect	Definition*
Secondary (or indirect)	Effects that do not occur as a direct result of the draft NPS's implementation, but occur at distance from the direct impacts or as a result of a complex pathway. Examples of a secondary effect of the draft NPS would include the materials (and embedded carbon) used in the development of the geological disposal facility, or health effects of changes to air quality associated with transport.
Cumulative	Effects that occur where several individual activities which each may have an insignificant effect, combine to have a significant effect. Examples of a cumulative effect resulting from the implementation of the NPS could include the potential effects on a European designated site, where a habitat or species is vulnerable and the cumulative effects of disturbance and pollutant emissions arising from development and operation causes a significant impact. Cumulative effects will also include the potential effects (if any) of a proposed activity and any other proposed and consented developments.
Synergistic	Effects that interact to produce a total effect that is greater than the sum of the individual effects. For example, this can occur where the toxicity of two chemicals is greatly increased when they are combined.

*Adapted from SEA guidance, ODPM (2005)[27]

The AoS will consider the cumulative effect of the constituent elements of the draft NPS. Additionally, the effects of the draft NPS in-combination with other plans and programmes will also be considered. A matrix similar to that shown in **Table 4.7** could be used to summarise the cumulative effects of the draft NPS with other plans and programmes.

Table 4.7 Example of a Cumulative Assessment Matrix

SEA Objective	Plan/ Programme 1	Plan/ Programme 1	Plan/ Programme 3	Plan/ Programme 4	Commentary
1.Biodiversity and Nature Conservation *To protect and enhance biodiversity (habitats, species and ecosystems) working within environmental capacities and limits.*	**-- LT**	**- MT**	**- MT**	**+ LT**	*A description of the biodiversity and nature conservation effects of the draft Geological Disposal NPS and other plans and programmes in-turn will be provided here, with reasoning and justification included…*

Score Key:	+ + **Significant** positive effect	+ **Minor** positive effect	0 No overall effect	- **Minor** negative effect	- - **Significant** negative effect	? **Score uncertain**

NB: Where more than one symbol/colour is presented in a box it indicates that the appraisal has identified both positive and negative effects. Where a box is coloured but also contains a ?, this indicates uncertainty over whether the effect could be a minor or significant effect although a professional judgement is expressed in the colour used. A conclusion of uncertainty arises where there is insufficient evidence for expert judgement to conclude an effect.

Likely timing of effects (indicated by ST, MT, or LT or combinations thereof) where: ST – short term (less than 20 years), MT – medium term (between 20 and 120 years) and LT – long term (>120 years)

Note: This draft AoS matrix is for illustrative purposes only. The full matrix will be finalised after comments have been received on the AoS categories, objectives and appraisal criteria.

5. Next Steps

5.1 Summary

This Final AoS Scoping Report presents the approach that will be followed in undertaking the AoS of the draft NPS and which has been revised to take into account consultation responses on the initial Scoping Report. It has been prepared to meet the requirements of the SEA Directive and associated Regulations. It fulfils the requirements of Stage A, as outlined within the Quality Assurance Checklist presented in **Appendix C**.

5.2 Next Steps and Structure of the AoS Report

Using the approach set out in this Final AoS Scoping Report the potential effects of the draft NPS will then be appraised.

The next stages of the AoS process (Stages B and C) involve the prediction and evaluation of the effects that the draft NPS and reasonable alternatives to the NPS are likely to have. The appraisal will propose, where appropriate, mitigating measures for adverse effects as well as opportunities to enhance beneficial aspects. The appraisal will be presented in the AoS Report, which will be published for public consultation. The AoS Report has the following purposes:

- to ensure that the significant potential environmental and socio-economic effects associated with the draft NPS and alternatives are identified, characterised and appraised;
- to propose measures to mitigate the adverse effects identified and, where appropriate, to enhance potential positive effects;
- to provide a framework for monitoring the potential significant effects arising from the implementation of the draft NPS; and
- to provide sufficient information to those affected so that the development of the draft NPS is open and transparent.

In accordance with the requirements of Schedule 2 of the SEA Regulations (which reproduce the SEA Directive Annex I issues), the AoS Report will consist of:

- A Non-Technical Summary;
- A chapter setting out the scope and purpose of the appraisal;
- A chapter providing an overview of the draft NPS and its main objectives;

- A chapter summarising the key objectives of other plans and programmes and sustainability issues relevant to the draft NPS;
- A chapter setting out the proposed approach to appraisal;
- A chapter outlining the likely significant environmental and socio-economic effects of the implementation of the draft NPS and the reasonable alternatives to it, including cumulative effects, mitigating measures, uncertainties and risks. The reasons for selecting the draft NPS as proposed and the rejection of alternatives, together with any difficulties encountered in completing the appraisal, will be explained;
- A chapter presenting views on implementation and monitoring;
- An appendix outlining statutory and selected consultee responses to scoping (and any additional views provided by interested members of the public or other organisations);
- An appendix, structured by each draft NPS AoS topic, setting out the review of plans and programmes, baseline analysis including evolution of the baseline and key sustainability issues alongside detailed appraisal. It is anticipated that each topic section will contain:
    - **Introduction**: providing an overview and definition of the topic;
    - **Review of Plans and Programmes**: providing an overview of the international/European, UK and national policy context in which the draft NPS sits;
    - **Overview of the Baseline**: summarising the baseline for each of the topic areas at the UK and national (England, Scotland and Wales) level. This includes the key environmental characteristics of each topic or area most likely to be significantly affected;
    - **Summary of Existing Problems Relevant to Geological Disposal**: identifying the key topic specific issues considered as part of the appraisal;
    - **Likely Evolution of the Baseline**: describing the likely evolution of baseline conditions without the implementation of the draft NPS;
    - **Assessing Significance**: identifying the AoS objectives, guide questions and associated definitions of significance related to the topic area and used in the appraisal of the effects of draft Geological Disposal NPS;
    - **Appraisal**: including completed appraisal matrices covering draft NPS objectives and principles of assessment and providing information on the potential nature and scale of effects, proposed mitigation measures (where appropriate) and measures for enhancement, assumptions and uncertainties and additional information that may be required; and
    - **Monitoring requirements**.
- An appendix outlining how the Quality Assurance checklist identified in the ODPM SEA Guidance[27] has been met.

Appendix A
Assessment guide questions and associated guidance on significance

1. BIODIVERSITY AND NATURE CONSERVATION

Approach to Assessing the Effects of the draft NPS on Biodiversity and Nature Conservation

Objective/Guide Question	Reasoning
Objective: To protect and enhance biodiversity (habitats, species and ecosystems) working within environmental capacities and limits.	The SEA Regulations require that likely significant effects on biodiversity should be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS protect and/or enhance internationally designated nature conservation sites e.g. SACs, SPAs and Ramsar Sites?	The Habitats Directive designates SPAs and SACs to help maintain or restore important natural habitats and species.
Will the Geological Disposal NPS protect and/or enhance nationally designated nature conservation sites e.g. SSSIs?	The Wildlife and Countryside Act includes measures relating to protected sites. Devolved administrations are preparing detailed action plans on protecting habitats and species e.g. Biodiversity 2020 – A Strategy for England's Wildlife and Ecosystem Services.
Will the Geological Disposal NPS affect animals or plants including protected species?	The Wildlife and Countryside Act includes legislation relating to protected sites. Devolved administrations are preparing detailed action plans on protecting habitats and species.
Will the Geological Disposal NPS protect and/or enhance priority species and habitats?	The National Planning Policy Framework (NPPF) promotes the protection and enhancement of Species and Habitats of Principle Importance included in the England Biodiversity List published by the Secretary of State under section 41 of the Natural Environment and Rural Communities Act 2006 (known as priority species and habitats).

Objective/Guide Question	Reasoning
Will the Geological Disposal NPS affect the structure and function of natural systems (ecosystems)?	Biodiversity is a highly sensitive receptor. It is likely that many of the other topics considered in this report will have an effect on biodiversity. Ecosystems will be sensitive to these interconnected effects.
Will the Geological Disposal NPS affect public access to areas of wildlife interest?	The Countryside and Rights of Way Act addresses public rights of way and access to open land.
Will the Geological Disposal NPS have an impact on fisheries?	Various inland waters could be affected by the Geological Disposal NPS meaning that the provisions of the Freshwater Fish Directive apply, which includes measures on the quality of fresh waters needing protection or improvement in order to support fish life.

Illustrative Guidance for the Assessment of Significance for Biodiversity and Nature Conservation

Effect	Description	Illustrative Guidance
++	Significant positive	• Option would have a significant and sustained positive effect on European or national designated sites and/or protected species. (e.g. – fully supports all conservation objectives on site, long term increase in population of designated species); • Option will create new areas of wildlife interest with improved public access in areas where there is a high demand for access to these sites.
+	Positive	• Option would have a minor positive effect on European or national designated sites and/or protected species (e.g. – supports one of the conservation objectives on site, short term increase in population of designated species); • Option would have a positive effect on local biodiversity (e.g. – through removal of all existing disturbance/pollutant emissions, or creation of new habitats leading to long term improvement to ecosystem structure and function); • Option would enhance existing public access to areas of wildlife interest in areas where there is some demand for these sites.
0	Neutral	• Option would not have any effects on European or national designated sites and/or any species (including both

Effect	Description	Illustrative Guidance
		designated and non-designated species); • Option would not affect public rights of way or access to areas of wildlife interest.
-	Negative	• Option would have negative effects on local biodiversity (e.g. – through an increase in disturbance/pollutant emissions, or some loss of habitat leading to temporary loss of ecosystem structure and function); • Option would decrease public access to areas of wildlife interest in areas where there is some demand for access to these sites.
--	Significant negative	• Option would have a negative effect on European or national designated sites and/or protected species (i.e. on the interest features and integrity of the site, by preventing any of the conservation objectives from being achieved or resulting in a long term decrease in the population of a priority species). These effects could not be reasonably mitigated.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

2. POPULATION, ECONOMICS AND SKILLS

Approach to Assessing the Effects of the draft NPS on Population, Economics and Skills

Objective/Guide Question	Reasoning
Objective: To promote a strong, diverse and stable economy with opportunities for all; improve education and skills, minimise disturbance to local communities and maximise positive social impacts.	The SEA Directive requires that the likely significant effects on the population should be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS affect the social infrastructure and amenities available to local communities?	Any development of radioactive waste geological disposal facilities (in common with all major projects) has the potential to impact on the local social infrastructure and amenities which could affect the quality of life of individuals in local communities.
Will the Geological Disposal NPS affect local population demographics and/ or levels of deprivation in surrounding areas?	The Geological Disposal NPS may result in change to population demographics (for example, through in migration of workers skilled to work in the industry). Changes to local population demographics and employment have the potential to impact on the local economy and demand for community facilities such as healthcare, education and recreation. Changes to these factors may alter the levels of deprivation in an area.
Will the Geological Disposal NPS affect opportunities for investment in education and skills development?	Investment in education and skills development are vital for economic growth.
Will the Geological Disposal NPS affect the number or types of jobs available in local economies?	Affecting the number or type of jobs will have influences on the local economy and productivity. The majority of jobs for GDF construction will be highly skilled (e.g. geologists, geophysicists, engineers and drilling experts) and this may have an influence on the types of jobs within the local area. The White Paper identifies that a GDF could generate around 570 direct jobs over the duration of the project with total workforce numbers rising to more than 1,000 during construction and early operation of the facility.

Objective/Guide Question	Reasoning
Will the Geological Disposal NPS affect how diverse and robust local economies are?	A diverse and robust economy is important to ensure economic growth.

Illustrative Guidance for the Assessment of Significance for Population, Economics and Skills

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would incorporate the provision of social infrastructure and amenities; • Option would provide educational services/facilities and offer long term opportunities for skills development including, for example, apprenticeship schemes; • Option would generate in the order of 500 or more direct full time equivalent (FTE) employment opportunities per annum[1], a large proportion of which will benefit the local community; • Option would generate significant investment in local supply chains fostering economic growth, generating indirect employment opportunities and enhancing the robustness of the local economy (e.g. through the procurement of local contractors to undertake construction activities); • Option would significantly enhance the attractiveness of an area to existing and prospective residents and businesses (e.g. through the generation of employment opportunities).
+	Positive	• Option would stimulate some limited investment in existing services and amenities (e.g. associated with any increase in the work place population); • Option would provide some educational opportunities and skills development including, for example, apprenticeship schemes; • Option would generate some direct full time equivalent (FTE) employment opportunities per annum (below 500) which may benefit the local community; • Option would generate limited investment in local supply chains (e.g. through the procurement of local contractors to undertake construction activities); • Option would enhance the attractiveness of an area to existing and prospective residents and businesses (e.g. through the generation of employment opportunities and provision of

Effect	Description	Illustrative Guidance
		infrastructure).
0	Neutral	• Option would not affect social infrastructure and amenities available to local communities; • Option would not affect the provision of educational services/facilities or offer opportunities for skills development; • Option would not affect any local employment opportunities/increase local unemployment rates; • Option would have no effect on wider economic benefits/undermine the growth and diversity of the local economy; • Option would not affect the attractiveness of the area to existing and prospective residents and businesses.
-	Negative	• Option would cause some disruption to existing services and amenities available to local communities which is likely to be felt in the short term; • Option would lead to a loss of some direct FTE jobs (below 500 per annum) (e.g. due to the cessation of some activities or rationalisation of activities on sites); • Option would reduce the resilience and diversity of the local economy (e.g. through loss of local supply chain opportunities); • Option would reduce local investment in an area and affect growth of local economy; • Option would undermine the attractiveness of an area to existing and prospective residents and businesses (e.g. due to impacts arising from construction activities or concerns regarding operational impacts); • Option would undermine the quality of life of the local population (e.g. due to noise and vibration associated with HGV movements during construction or operation) such that some complaints could be expected.
--	Significant Negative	• Option would result in the loss of existing services and amenities available to local communities (e.g. where development is proposed on a site in community use); • Option would lead to a significant loss of direct FTE jobs (a minimum of 500 per annum) (e.g. due to the closure of local employment sites); • Option would significantly reduce the resilience and diversity of the local economy (e.g. through significant loss of local contracts and supply chain opportunities);

Effect	Description	Illustrative Guidance
		• Option would lead to a significant reduction in investment in an area that will affect the growth of local economy; • Option would significantly undermine the attractiveness of an area to existing and prospective residents and businesses (e.g. due to impacts arising from construction activities or concerns regarding the operational impacts); • Option would seriously undermine the quality of life of the local population (e.g. due to noise and vibration associated with HGV movements during construction or operation of facilities) such that the project and local authority would be likely to experience a considerable number of complaints.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

[1] The proposed threshold of significance represents around 1% of the existing 80,000 jobs supported by the nuclear industry in the UK (http://www.niauk.org/facts-and-information-for-nuclear-energy). This threshold is subject to consultee responses.

3. HUMAN HEALTH

Approach to Assessing the Effects of the draft NPS on Human Health

Objective/Guide Question	Reasoning
Objective: To protect and enhance health, safety and wellbeing of workers and communities and minimise any health risks associated with disposal operations.	The SEA Directive requires that likely significant effects on human health be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS protect and/or enhance the health and safety of workers, or other people working at any proposed sites?	All employers have a general duty to protect the health and safety of their employees and those affected by their work activities, as set out in the Health and Safety at Work etc Act (1974).
Will the Geological Disposal NPS protect and/or enhance the health, safety and well-being of local communities and specific groups within those communities?	There is a duty to protect the health of the local communities, including more vulnerable members of the population, such as children as set out in CEHAPE (2004) and UK CEHAPE strategy (2007).
Will the Geological Disposal NPS protect and/or enhance the health, safety and well-being of wider communities (i.e. those communities that are not host to a GDF or deep boreholes)?	There is a duty to protect the health of the local communities, including more vulnerable members of the population, such as children as set out in CEHAPE (2004) and UK CEHAPE strategy (2007).
Will the Geological Disposal NPS disproportionately affect communities already identified as vulnerable / at risk?	There is a duty to protect the health of the local communities, including more vulnerable members of the population, such as children as set out in CEHAPE (2004) and UK CEHAPE strategy (2007).
Will the Geological Disposal NPS minimise the risk or consequences of a major accident?	Enables the consideration of the requirements of the Article 13(1)(c) of the Seveso III Directive that provides that in taking account of the need to prevent major accidents in land use policies where the siting or developments may be the source of or increase the risk or consequences of a major accident'.

Illustrative Guidance for the Assessment of Significance for Human Health

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would have a significant positive effect on the likely determinants of good health (including employment opportunities, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety); • Option would have a strong and sustained positive effect on health and well-being and acknowledges the health needs of specific groups in society (children, mums to be and the elderly); • Option supports the provision of healthcare facilities.
+	Positive	• Option would have a positive effect on the likely determinants of good health (including employment opportunities, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety); • Option would have a positive effect on health and well-being and acknowledges the health needs of specific groups in society (children, mums to be and the elderly); • Option would support the provision of healthcare facilities (i.e. as a result of an increase in the local population linked with employment provision).
0	Neutral	• Option would have no observable effects (short, medium and long term) on the health and well-being of individuals, specific groups in society (children, mums to be and the elderly) and communities.
-	Negative	• Option would have a negative effect on the likely determinants of good health (including employment opportunities, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety); • Option would have a negative effect on the health and well-being of individuals, specific groups in society (children, mums to be and the elderly) and communities; • Option would result in some nuisance and/or disruption to communities, such that some complaints could be expected.
--	Significant Negative	• Option would have a significant negative effect on the likely determinants of good health (including employment

Effect	Description	Illustrative Guidance
		opportunities, level of deprivation, physical activity, access to open space and recreational activities, improvements to environmental quality and community safety); • Option would have a significant negative effect on the health and well-being of individuals, specific groups in society (children, mums to be and the elderly) and communities; • Option causes statutory nuisance or a sustained and significant nuisance and/or disruption to communities.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

4. LAND USE, GEOLOGY AND SOILS

Approach to Assessing the Effects of the draft NPS on Land Use, Geology and Soils

Objective/Guide Question	Reasoning
Objective: To conserve and enhance soil and geology and contribute to the sustainable use of land.	The SEA Directive requires that likely significant effects on soil and resources be taken into account in the Environmental Report, which for the purposes of the AoS is included within the AoS Report.
Will the Geological Disposal NPS have an effect on soil quality/function, variety, extent and/or compaction levels?	Loss of soil quality, variety, extent or an increase in soil compaction will lead to degradation of soil. The European Thematic Strategy on Soil Protection seeks the protection and sustainable use of soil, preventing soil degradation and ensuring restoration of degraded soils.
Will the Geological Disposal NPS increase the risk of significant land contamination?	Environment Act 1995 seeks to protect and preserve environment against pollution to land. The Soil Strategy for England and Scottish Soil Framework include objectives on reducing/preventing soil pollution and contamination.
Will the Geological Disposal NPS have an effect on any known and existing contamination?	Significant areas of the UK carry a burden of contamination from industrial activity. Disturbance of contaminated sites carry the risk of pollution pathways being created or re-opened for existing ground contamination.
Will the Geological Disposal NPS protect and/or enhance Geological Conservation Sites, important geological features and geophysical processes and functions?	National planning policy in England, Scotland and Wales seeks to protect and enhance geological conservation interests.
Will the Geological Disposal NPS affect land stability?	A key challenge is to ensure the correct identification and selection of geological sites, based on a risk assessment of specific geological features.
Will the Geological Disposal NPS change patterns of land use including effects on best and most versatile agricultural land?	National and local planning policies set out that planning should use of previously developed land where possible, and avoid using best and most versatile land.
Will the Geological Disposal NPS affect induced seismicity?	The potential impacts of the construction of a GDF and deep boreholes on seismicity will need to be considered.

Illustrative Guidance for the Assessment of Significance for Land Use, Geology and Soils

Effect	Description	Illustrative Guidance
++	Significant positive	• Option would restore and significantly improve soil quality and land stability to conditions beyond current levels and remove all soil contamination so that soil functions and processes would be significantly improved in the long term; • Option would minimise the use of, and protect from irreversible damage, high quality agricultural land; • Option would have a significant and sustained positive impact on national designated geological sites; • Option would seek to minimise the use of any undeveloped land, and look to preferentially reclaim and redevelop significant areas of previously developed or derelict land.
+	Positive	• Option would generate minor improvements in soil quality and land stability and would remove some soil contamination so that soil functions and processes would be improved in the long term; • Option would reduce any potential damage to high quality agricultural land; • Option would reduce any potential hazard associated with existing soil contamination; • Option would have a minor and temporary positive impact on a national designated geological site; • Option would seek to preferentially make use of previously developed land.
0	Neutral	• Option would not significantly affect potential hazards associated with any existing contamination; • Option would not cause damage or loss to soil such that soil function and processes would not be affected; • Option would not affect land stability; • Option would not involve significant loss of any undeveloped or developed land.

Effect	Description	Illustrative Guidance
-	Negative	• Option would lead to an increase in pollutant discharges to soil, however these would be less than permitted limits, such that there would be minor short term increases in land contamination; • Option would cause minor increases in potential hazards associated with existing soil contamination; • Option would cause minor increases in potential hazards associated with land stability; • Option would cause a temporary loss of soil so that soil function and processes would be negatively affected in the short/medium term; • Option would cause minor short term negative effects on geological conservation sites/important geological features or soils of high importance; • Option would lead to the majority of development using undeveloped land or land that has reverted to a 'wild' state.
--	Significant negative	• Option would lead to a statutory limit being reached or exceeded in relation to land contamination, such that there would be a major and sustained increase in land contamination; • Option would cause major and sustained increases in potential hazards associated with existing soil contamination; • Option would cause major increases in potential hazards associated with land stability; • Option would cause considerable loss of soil quality, such that soil function and processes would be irreversibly and significantly affected; • Option would cause a substantial and permanent loss of, or damage to, soil of high importance (such as best and most versatile agricultural land) and/or designated geological conservation sites/important geological features; • Option would not develop derelict or previously developed land, but would lead to development of significant areas of undeveloped land/ land that has reverted to a 'wild' state.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

5. WATER QUALITY

Approach to Assessing the Effects of the draft NPS on Water Quality

Objective/Guide Question	Reasoning
Objective: To maximise water efficiency, protect and enhance water quality and help achieve the objectives of the Water Framework Directive.	The SEA Directive requires that likely significant effects on water be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS affect demand for water resources?	The Water Framework Directive encourages the sustainable use of water resources. Government strategies including Water for people and the environment - Water resources strategy for England and Wales (2009) and Water for Life (2011) promote the sustainable use of water. Some parts of the UK have abstraction above a sustainable level which could result in water shortages in some areas in the future.
Will the Geological Disposal NPS affect the amount of waste water and surface runoff produced?	Surface runoff and waste water may affect water quality if it reaches water receptors. The Water Framework Directive (England and Wales), 2003 requires all inland, coastal and groundwater to reach a 'good' chemical and ecological status by 2015. Under Water Environment (Controlled Activities) (Scotland) Regulations (2011) authorisation is required for discharges to water.
Will the Geological Disposal NPS protect and enhance the quality of surface, groundwater, estuarine and coastal water quality?	The Water Framework Directive requires all inland, coastal and groundwater to reach a 'good' chemical and ecological status by 2015. Government strategies such as the Water resources strategy for England and Wales (2009) and Water for Life (2011) include objectives to protect the quality of water.

Illustrative Guidance for the Assessment of Significance for Water Quality

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would lead to a major reduction in water use compared to prior to development such that the risk of water shortages in an area is significantly decreased and abstraction is at a sustainable level in the long term; • Option would significantly decrease the amount of waste water, surface runoff and pollutant discharges so that the quality of

Effect	Description	Illustrative Guidance
		water receptors (including groundwater, surface water, sea water or drinking receptors) would be significantly improved and sustained and water targets (including those relevant to chemical and ecological condition) reached and exceeded.
+	Positive	• Option would lead to a minor reduction in water use compared to prior to development such that the risk of water shortages in an area is decreased in the short term and abstraction is closer to sustainable levels than prior to development; • Option would lead to minor decreases in the amount of waste water, surface runoff and/or pollutant discharges so that the quality of water receptors (including groundwater, surface water, sea water or drinking receptors) may be improved to some level temporarily and some water targets (including those relevant to chemical and ecological condition) would be reached/exceeded.
0	Neutral	• Option would not significantly affect water demand and abstraction levels would not be altered; • Option would not change the amount of waste water, surface runoff and/or pollutant discharges such that the quality of water receptors would not be affected.
-	Negative	• Option would lead to a minor increase in water use compared to prior to development such that the risk of water shortages in an area is increased to some level in the short term, particularly in periods of low flow, and abstraction is considered beyond sustainable levels; • Option would lead to minor increases in the amount of waste water, surface runoff and/or pollutant discharges so that the quality of water receptors (including groundwater, surface water, sea water or drinking receptors) may be decreased to some level temporarily and it may prevent some water targets (including those relevant to chemical and ecological condition) from being achieved.
--	Significant Negative	• Option would lead to major increases in water use compared to prior to development such that the risk of water shortages in an area is significantly increased and abstraction is significantly beyond sustainable levels; • Option would lead to an exceedance of an abstraction license limit; • Option would lead to major increases in the amount of waste water, surface runoff and/or pollutant discharges so that the quality of water receptors (including groundwater, surface

Effect	Description	Illustrative Guidance
		water, sea water or drinking receptors) would be considerably increased and some or all water targets (including those relevant to chemical and ecological condition) would not be achieved.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

6. FLOOD RISK AND COASTAL CHANGE

Approach to Assessing the Effects of the NPS on Flood Risk and Coastal Change

Objective/Guide Question	Reasoning
Objective: To minimise the risks from coastal change and flooding to people, property and communities, taking into account the effects of climate change.	The SEA Directive requires that the likely significant effects on the environment, which includes their integration in the interests of promoting sustainable development, should be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS help to avoid development in areas of flood risk and, where possible, reduce flood risk?	Minimising flood risk is a key part of sustainable development and environmental and planning policy seeks to ensure that new development does not exacerbate risks.
Will the Geological Disposal NPS help to avoid development in areas affected by coastal erosion and not affect coastal processes and/or erosion rates?	Changes to coastal processes or erosion rate caused by development have a potential to negatively impact on the marine environment. The Marine Strategy Framework Directive (2008) require member states to achieve or maintain good environmental status in the marine environment by 2020.

Illustrative Guidance for the Assessment of Significance for Flood Risk and Coastal Change

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would result in a significant decrease in people or property at risk of or affected by flooding, coastal inundation or sea level rise.
+	Positive	• Option would result in a decrease in people or property at risk of or affected by flooding, coastal inundation or sea level rise.
0	Neutral	• Option would not lead to an overall change in people or property at risk of or affected by flooding, coastal inundation or sea level rise. • Option would result in development being sited in Flood Zone 1 (or equivalent) areas.
	Negative	• Option would result in an increase in people or property at risk

Effect	Description	Illustrative Guidance
-		of or affected by flooding, coastal inundation or sea level rise. • Option would result in development being sited in Flood Zone 2 (or equivalent) areas.
--	Significant Negative	• Option would result in a significant number of people or property affected by flooding, coastal inundation or sea level rise. • Option would result in development being sited in Flood Zone 3 (or equivalent) areas.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

7. AIR

Approach to Assessing the Effects of the draft NPS on Air Quality

Objective/Guide Question	Reasoning
Objective: To minimise emissions of pollutant gases and particulates and enhance air quality, helping to achieve the objectives of the Air Quality and Ambient Air Quality and Cleaner Air for Europe Directives.	The SEA Directive requires that likely significant effects on air quality be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS affect air quality?	The Ambient Air Quality and Cleaner Air for Europe Directives aim to avoid the harmful effects on human health and the environment from air pollution and includes objectives and targets for ambient air quality. This is transposed into UK law by Air Quality Standards.
Will the Geological Disposal NPS create a nuisance for people or wildlife (for example from dust or odours)?	Emissions to air may create dust or odours that have the potential to affect air quality or to be classed as a statutory nuisance (as under Environmental Protection Act 1990).

Illustrative Guidance for the Assessment of Significance for Air Quality

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would significantly improve local air quality through a sustained reduction in concentrations of pollutants identified in national air quality objectives.
+	Positive	• Option would lead to a minor improvement in local air quality from a reduction in concentrations of pollutants identified in national air quality objectives.
0	Neutral	• Option would not affect local air quality.
-	Negative	• Option would result in a minor decrease in local air quality; • Option would have a negative effect on local communities and biodiversity due to an increase in air and odour pollution and particulate deposition.

Effect	Description	Illustrative Guidance
--	Significant Negative	• Option would cause a significant decrease in local air quality (e.g. leading to an exceedance of Air Quality Objectives for designated pollutants and the designation of a new Air Quality Management Area); • Option would have a strong and sustained negative effect on local communities and biodiversity due to significant increase in air and odour pollution and particulate deposition.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

8. NOISE

Approach to Assessing the Effects of the draft NPS on Noise

Objective/Guide Question	Reasoning
Objective: To minimise noise pollution and the effects of vibration.	EU and UK policy on noise management and reduction guides the preparation of strategies at the UK and local levels to avoid and limit what is a pollutant. As such, the issues are important to the AoS Report in respect of human health, in particular.
Will the Geological Disposal NPS help to minimise noise and vibration effects from construction and operational activities on residential amenity and effects on sensitive locations and receptors?	The impacts of noise pollution and from vibration on specific localities will need careful consideration in all phases of any project associated with the development of a GDF. This could include local strategies based on general principles and practical measures for noise and vibration avoidance and limitation.

Illustrative Guidance for the Assessment of Significance for Noise

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would significantly improve the ambient noise environment in the vicinity of potential or actual sites.
+	Positive	• Option would lead to an improvement in the ambient noise environment in the vicinity of potential or actual sites.
0	Neutral	• Option would not affect the noise environment of potential or actual sites.
-	Negative	• Option would result in a minor negative effect on the ambient noise environment in the vicinity of potential or actual sites; • Option would cause minor disturbance associated with vibration on potential or actual sites.
--	Significant Negative	• Option would result in a major negative effect on the ambient noise environment in the vicinity of potential or actual sites over the short or longer term; • Option would cause major disturbance associated with vibration on potential or actual sites over the short or longer term.

Effect	Description	Illustrative Guidance
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

9. CLIMATIC FACTORS

Approach to Assessing the Effects of the draft NPS on Climatic Factors

Objective/Guide Question	Reasoning
Objective: To minimise greenhouse gas emissions as a contribution to climate change and ensure resilience to any consequences of climate change.	The SEA Directive requires that the likely significant effects on the environment, which includes their integration in the interests of promoting sustainable development, should be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS help to ensure a low carbon design solution to the disposal of higher activity radioactive wastes, at both construction and operation phases?	Government legislation (Climate Change Act 2008; Flood & Water Management Act 2010) and strategies seek to address the causes and consequences of climate change, minimising harmful emissions and investing in infrastructure that will help limit the consequences of climate change on life, property and other environmental indicators considered as part of this assessment. Government legislation (under international agreements) commits to the progressive reduction in CO_2 and other greenhouse gas emissions.
Will the Geological Disposal NPS promote climate change adaptation (including rising temperatures and more extreme weather events)?	UKCP09 scenarios show that increasing temperatures and changes to precipitation, increased storminess and extreme weather is expected, which has the potential to impact on the proposals.

Illustrative Guidance for the Assessment of Significance for Climate Change and Flood Risk

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would help to significantly reduce carbon and other greenhouse gas emissions; • Option would increase resilience/decrease vulnerability to climate change in the wider environment.
+	Positive	• Option would help to reduce carbon and other greenhouse gas emissions; • Option would increase resilience/decrease vulnerability to climate change in the wider environment.
	Neutral	• Option would not lead to an overall change in carbon and other greenhouse gas emissions in a way that would not contribute to

Effect	Description	Illustrative Guidance
0		climate change or resilience to climate change within the wider environment.
-	Negative	• Option would increase carbon and other greenhouse gas emissions; • Option would decrease resilience/increase vulnerability to climate change in the wider environment.
--	Significant Negative	• Option would significantly increase carbon and other greenhouse gas emissions; • Option would decrease resilience/increase vulnerability to climate change in the wider environment.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

10. WASTE AND RESOURCE USE

Approach to Assessing the Effects of the draft NPS on Waste and Resource Use

Objective/guide question	Reasoning
To minimise waste arisings, promote reuse, recovery and recycling, minimise the impact of wastes on the environment and communities and contribute to the sustainable use of natural and material assets.	The SEA Directive requires likely effects on resources be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS affect the amount of hazardous and non-hazardous wastes produced?	The Waste Framework Directive promotes a hierarchical approach to waste management with waste prevention at the top of the hierarchy. This is supported through national strategies such as the Waste Management Plan for England. In addition, the Basel Convention promotes minimisation of generation of quantities of hazardous waste in order to prevent against problems and challenges posed by hazardous waste.
Will the Geological Disposal NPS affect the capacity of existing waste management systems, both nationally and locally?	The UK currently has no specific facility or capacity for the disposal of Higher Activity Waste. The 2014 White Paper sets out the types of radioactive waste to be managed, and a proposed way forward through the creation of a GDF. As such, the proposals will help to create the required capacity to accommodate this particular waste stream.
Will the Geological Disposal NPS maximise re-use and recycling of recovered components and materials?	Recovering and recycling waste will assist in decreasing the amount of waste to landfill. The Landfill Directive aims to reduce amount of biodegradable waste going to landfill to 35% of the 1995 figures by 2020.
Will the Geological Disposal NPS help achieve government and national targets for minimising, recovering and recycling waste?	Minimising, recovering and recycling waste will assist in decreasing the amount of waste to landfill. The Landfill Directive aims to reduce amount of biodegradable waste going to landfill to 35% of the 1995 figures by 2020.

Objective/guide question	Reasoning
Will the Geological Disposal NPS increase the burden on limited natural resources?	Conservation of resources and living within environmental limits are underlying objectives of several the international policies such as European Spatial Development Perspective, and national policy, such as Framework for Sustainable Development.
Will the Geological Disposal NPS make best use of existing infrastructure and resources?	Use of existing infrastructure and resources will decrease the total resources required and will increase efficiency.

Illustrative Guidance for the Assessment of Significance for Waste and Resource Use

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would increase the capacity of waste management infrastructure; • Option would create no additional hazardous or non-recyclable waste, whilst maximising the proportion of materials that are re-useable or recyclable; • Option would ensure the safe handling of hazardous wastes; • Option would make best use of existing infrastructure and resources (e.g. buildings and other facilities on sites) and help conserve natural resources.
+	Positive	• Option would not create an increase in the volume of hazardous and non-recyclable wastes that require disposal; • Option would increase the volume of materials reused and recycled; • Option would make best use of existing infrastructure and resources (e.g. buildings and other facilities on sites).
0	Neutral	• Option would not create an increase in the volume of hazardous and non-recyclable wastes that require disposal; • Option would have no effect on the capacity of waste management infrastructure; • Option would not have any impact on existing natural resources.

Effect	Description	Illustrative Guidance
-	Negative	• Option would increase volumes of hazardous and non-recyclable waste that would require disposal; • Option would have a limited adverse impact on the capacity of existing waste management systems; • Option would require the limited use of natural resources during construction and operational stages.
--	Significant Negative	• Option would generate a high volume of hazardous and non-recyclable waste that would require disposal; • Option would impede the achievement of government and national targets for minimising, recovering and recycling waste; • Option would have a significant adverse impact on the capacity of existing waste management systems (e.g. leading to the permitting of additional landfill capacity to accommodate waste); • Option would increase risks associated with the handling of hazardous wastes; • Option would require a significant volume of natural resources and result in the direct loss of resources.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

11. TRAFFIC AND TRANSPORT

Approach to Assessing the Effects of the draft NPS on Traffic and Transport

Objective/Guide Question	Reasoning
Objective: To minimise the volume of traffic and promote more sustainable transport choices.	Whilst traffic and transport is not specifically referred to in the SEA Directive, the issue is a significant one in the case of the GDF given the character of construction and operation.
Will the Geological Disposal NPS help to minimise traffic volumes?	Traffic, comprising heavy goods vehicles, passenger vehicles and trains can have a significant influence over noise, air quality, climate change, wildlife habitats and quality of life of communities in the vicinity of operations. The control of traffic volumes will help to minimise these effects.
Will the Geological Disposal NPS help to minimise the direct effects of transport such as noise and vibration, severance of communities and wildlife habitats and safety concerns?	Minimising the direct effectis of traffic and transport on people and the environment is a key aim of national planning policy, and by extension issues such as human health in the SEA Directive. As such, these effects should be taken into consideration in the planning and management of traffic associated with implementing the NPS.
Will the Geological Disposal NPS encourage alternative and sustainable means of transporting freight, waste and minerals, where possible?	The development and use of sustainable transport is a major theme in national planning policy and as such, transport substitution (for example road to rail) wherever possible is encouraged, as well as trip minimisation. In turn this will help to meet air quality targets set locally, nationally and internationally.

Illustrative Guidance for the Assessment of Significance for Traffic and Transport

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would make a significant positive and long-term contribution to minimising the direct and indirect effects of traffic and transport associated with the GDF.
+	Positive	• Option would make a positive contribution to minimising the direct and indirect effects of traffic and transport associated with the GDF.

Effect	Description	Illustrative Guidance
0	Neutral	• Option would not have any significant effects on traffic and transport.
-	Negative	• Option would have minor, short term effects associated with the direct and indirect impacts of traffic and transport associated with the GDF.
--	Significant Negative	• Option would cause significant long term effects associated with the direct and indirect impacts of traffic and transport associated the GDF.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

12. CULTURAL HERITAGE

Approach to Assessing the Effects of the draft NPS on Cultural Heritage

Objective/Guide Question	Reasoning
Objective: To protect and where appropriate enhance the historic environment including cultural heritage resources, historic buildings and archaeological features and their settings.	The SEA Directive requires that the likely significant effects on cultural heritage including architectural and archaeological heritage should be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS affect designated or locally-important archaeological features or their settings?	A number of legislative provisions require the protection of sites designated for archaeological or cultural heritage importance including the Ancient Monuments and Archaeological Areas Act and Planning (Listed Buildings and Conservation Areas) Act. National planning policy in England requires the protection of the most important components of historic landscapes and encourages development that is consistent with maintaining its overall historic character.
Will the Geological Disposal NPS affect the fabric and setting of historic buildings, places or spaces that contribute to local distinctiveness, character and appearances?	

Illustrative Guidance for the Assessment of Significance for Cultural Heritage

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would make a significant positive and long-term contribution to the setting and conservation of designated and locally important cultural heritage features (e.g. through enhancement of setting, permanent removal of a structure creating a negative visual impact, large scale enhancement of designated features).
+	Positive	• Option would bring minor short-term improvements to the setting and conservation of designated and locally important cultural heritage features (e.g. temporary removal of structure creating a negative visual impact).
0	Neutral	• Option would not have any significant effects on any cultural heritage sites or assets or their setting.

Effect	Description	Illustrative Guidance
-	Negative	• Option would bring minor short-term degradation to the setting and conservation of designated and locally important cultural heritage features (e.g. temporary use of equipment/structures creating a negative visual impact).
--	Significant Negative	• Option would cause long-term degradation to the setting and conservation of designated and locally important cultural heritage features (e.g. through direct and permanent loss or damage to designated sites, introduction of a structure that will have a considerable and permanent negative visual impact).
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

13. LANDSCAPE AND TOWNSCAPE

Approach to Assessing the Effects of the draft NPS on Landscape and Townscape

Objective/Guide Question	Reasoning
Objective: To protect and enhance landscape and townscape quality and visual amenity.	The SEA Directive requires that the likely significant effects on landscape should be taken into account in the Environmental Report, which for the purposes of the AoS is incorporated within the AoS Report.
Will the Geological Disposal NPS have significant visual impacts (including those at night)?	Visual impacts can influence how people perceive a landscape or townscape and can decrease the character and intrinsic value.
Will the Geological Disposal NPS affect protected/designated landscapes or their setting?	Areas designated for their landscape value are important at a national level and should be protected from adverse effects and enhanced where possible.
Will the Geological Disposal NPS affect the intrinsic character or setting of local landscapes or townscapes?	Considering the protection and enhancement of landscape and townscape character is a requirement of the NPPF, SPP and PPW.
Will the Geological Disposal NPS help to minimise light pollution from construction and operational activities on residential amenity and on sensitive locations and receptors?	The consideration of light pollution is a requirement of the NPPF and PPW.
Will the Geological Disposal NPS affect public access to open spaces or the countryside?	*National Parks and Access to the Countryside Act 1949* and *Countryside and Rights of Way Act 2000*, for example, make provision for the recording, creation, maintenance and improvement of public paths and for securing access to open country and confers further powers for preserving and enhancing natural beauty.

Illustrative Guidance for the Assessment of Significance for Landscape and Townscape

Effect	Description	Illustrative Guidance
++	Significant Positive	• Option would make a significant positive contribution to statutorily-designated landscapes and/or their setting; • Option would have a significant positive effect on local landscapes and townscapes and/or their setting (e.g. through the replacement of poorly designed/derelict buildings with high quality development);

Effect	Description	Illustrative Guidance
		• Option would enhance public access to the countryside and increase open space provision.
+	Positive	• Option would serve to enhance statutorily-designated landscapes and/or their setting; • Option would have a positive effect on local landscapes and townscapes and/or their setting; • Option would enhance public access to open spaces and the countryside.
0	Neutral	• Option would not have any effect on statutorily-designated landscapes or their setting; • Option would not have any effects on local landscapes and townscapes or their setting • Option would not affect visual amenity; • Option would not enhance or restrict public access to open spaces and the countryside.
-	Negative	• Option would have short-term negative effects on statutorily-designated landscapes and/or their setting; • Option would have a negative effect on the intrinsic character of local landscapes and townscapes and/or their setting; • Option would affect the visual amenity of local communities; • Option would temporally restrict public access to open spaces and the countryside.
--	Significant Negative	• Option would have long-term negative effects on statutorily-designated landscapes (such as AONBs) and/or their setting; • Option would severely affect the intrinsic character of local landscapes and townscapes and/or their setting; • Option would severely affect the visual amenity of local communities; • Option would result in the loss of open spaces and restrict public access to the countryside.
?	Uncertain	• From the level of information available the effect that the option would have on this objective is uncertain.

Appendix B
Baseline and Contextual Information

Appendix B contains the detailed context and baseline review and resulting AoS framework by topic, as follows:

- B1: Biodiversity and Nature Conservation
- B2: Population, Economics and Skills
- B3: Human Health
- B4: Land Use, Geology and Soils
- B5: Water Quality
- B6: Flood Risk and Coastal Change
- B7: Air
- B8: Noise
- B9: Climatic Factors
- B10: Waste
- B11: Traffic and Transport
- B12: Cultural Heritage
- B13: Landscape and Townscape

Each topic chapter contains:

- A definition of the topic under consideration;
- A review of plans and programmes at international, UK and national (England, Scotland and Wales) scales;
- An overview of the baseline[40];
- A summary of the existing problems to be taken into account in carrying out the AoS;
- A description of the evolution of the baseline[40]; and
- Objectives and guide questions to be used in the appraisal of the draft NPS and reasonable alternatives to the NPS alongside definitions of significance.

[40] The baseline and trend data represents the best data forecasts available at the time of writing, but the AoS will use the most relevant data available.

Appendix C
Quality Assurance Checklist

The Government's Guidance on SEA contains a quality assurance checklist to help ensure that the requirements of the SEA Directive are met. Those relevant to the scoping stage have been highlighted below and a signpost provided to where the requirements are met in this Final AoS Scoping Report.

Objectives and Context	
The plan's purpose and objectives are made clear.	Presented in **Section 2**.
Environmental issues, including international and EC objectives, are considered in developing objectives and targets.	**Section 3** and **Appendix B** identify the sustainability baseline issues and set out the environmental protection objectives and targets and how these are linked to the AoS objectives. AoS objectives are clearly set out and linked to indicators and targets where appropriate. **Section 4** presents the AoS objectives and guide questions. Links to other related plans, programmes and policies are identified and explained. **Section 3 and Appendix B** identify relevant plans and programmes.
Scoping	
The environmental consultation bodies are consulted in appropriate ways and at appropriate times on the content and scope of the Scoping Report.	Technical consultation on an initial AoS Scoping Report took place between 4 August 2015 and 25 September 2015. **Section 1.5** presents a summary of this consultation. **Appendix D** contains a schedule of consultation responses.
The SEA focuses on significant issues.	Key sustainability issues that could arise from the implementation of the draft NPS have been identified in this Scoping Report (see **Section 3.4**)

	and **Appendix B**.
Technical, procedural and other difficulties encountered are discussed; assumptions and uncertainties are made explicit.	**Section 4** describes the key difficulties encountered during the preparation of this Scoping Report.
Alternatives	
Realistic alternatives are considered for key issues, and the reasons for choosing them are documented.	Potential alternatives are identified in **Section 2.4**.
The environmental effects (both adverse and beneficial) of each alternative are identified and compared.	To be presented in the AoS Report.
Inconsistencies between the alternatives and other relevant plans, programmes or policies are identified and explained.	To be presented in the AoS Report.
Reasons are given for selection or elimination of alternatives.	To be presented in the AoS Report.
Baseline Information	
Relevant aspects of the current state of the environment and their likely evolution without the plan are described.	Refer to **Section 3** and **Appendix B**.
Characteristics of areas likely to be significantly affected are described, including areas wider than the physical boundary of the plan area where it is likely to be affected	Refer to **Appendix B**.

by the plan where practical.	
Difficulties such as deficiencies in information or methods are explained.	These are stated throughout the report where appropriate and **Section 4.**
Prediction and Evaluation of Significant Environmental Effects	
Effects identified include the types listed in the Directive (biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage and landscape) as relevant; other likely environmental effects are also covered as appropriate.	Set out as part of the Appraisal Framework in **Section 4**.
Both positive and negative effects are considered, and the duration of effects (short, medium, or long term) is addressed.	Set out as part of the Appraisal Framework in **Section 4.**
Likely secondary, cumulative and synergistic effects are identified where practicable.	Set out as part of the Appraisal Framework in **Section 4**.
Inter-relationships between effects are considered where practicable.	Set out as part of the Appraisal Framework in **Section 4**.
The prediction and evaluation of effects makes use of relevant accepted standards, regulations and thresholds.	Set out as part of the Appraisal Framework in **Section 4**.
Methods used to evaluate the effects are described.	Set out as part of the Appraisal Framework in **Section 4**.

Mitigation Measures	
Measures envisaged to prevent, reduce and offset any significant adverse effects of implementing the plan or programme are indicated.	To be presented in the AoS Report.
Issues to be taken into account in project consents are identified.	To be presented in the AoS Report.
Environmental Report	
Is clear and concise in its layout and presentation.	The proposed structure of the AoS Report is set out in **Section 5.** The structure is subject to early consultation and review as part of scoping.
Uses simple, clear language and avoids or explains technical terms.	To be presented in the AoS Report.
Uses maps and other illustrations where appropriate.	To be presented in the AoS Report.
Explains the methodology used.	To be presented in the AoS Report.
Explains who was consulted and what methods of consultation were used.	To be presented in the AoS Report.
Identifies sources of information, including expert judgement and matters of opinion.	To be presented in the AoS Report.
Contains a non-technical summary covering the overall	To be presented in the AoS Report.

approach to the SEA, the objectives of the plan, the main options considered, and any changes to the plan resulting from the SEA.	
Consultation	
The SEA is consulted on as an integral part of the plan-making process.	Technical consultation on an initial AoS Scoping Report took place between 4 August 2015 and 25 September 2015. **Section 1.5** presents a summary of this consultation. **Appendix D** contains a schedule of consultation responses.
Consultation Bodies and the public likely to be affected by, or having an interest in, the plan or programme are consulted in ways and at times which give them an early and effective opportunity within appropriate timeframes to express their opinions on the draft plan and Environmental Report.	Technical consultation on an initial AoS Scoping Report took place between 4 August 2015 and 25 September 2015. **Section 1.5** presents a summary of this consultation. **Appendix D** contains a schedule of consultation responses. .
Decision-making and Information on the Decision	
The Environmental Report and the opinions of those consulted are taken into account in finalising and adopting the plan or programme.	This will be included in the Post Adoption Statement (to be issued following consultation on the AoS Report).
An explanation is given of how they have been taken into account.	This will be included in the Post Adoption Statement (to be issued following consultation on the AoS Report).
Reasons are given for choosing the plan or programme as adopted, in the light of other reasonable	This will be included in the Post Adoption Statement (to be issued following consultation on the AoS Report).

alternatives considered.	
Monitoring Measures	
Measures proposed for monitoring are clear, practicable and linked to the indicators and objectives used in the SEA.	To be presented in the AoS Report.
Monitoring is used, where appropriate, during implementation of the plan or programme to make good deficiencies in baseline information in the SEA.	To be presented in the AoS Report.
Monitoring enables unforeseen adverse effects to be identified at an early stage (these effects may include predictions which prove to be incorrect).	To be presented in the AoS Report.
Proposals are made for action in response to significant adverse effects.	To be presented in the AoS Report.

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