



Department for
Business, Energy
& Industrial Strategy

APPRAISAL OF SUSTAINABILITY

Post Adoption Statement for the Appraisal of
Sustainability of the National Policy
Statement for Geological Disposal
Infrastructure

October 2019



OGL

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Foreword

The Planning Act 2008 requires that an Appraisal of Sustainability (AoS) be carried out before a National Policy Statement (NPS) can be designated. The Government has determined that the AoS of the NPS for Geological Disposal Infrastructure should incorporate an assessment in accordance with the requirements of the Strategic Environmental Assessment (SEA) Directive 2001/42/EC and relevant implementing regulations¹ to ensure that environmental considerations are taken into account. This document is the Post Adoption Statement required by the SEA process. SEA is an assessment process that supports decision making by identifying, characterising and evaluating the likely significant effects of a plan or programme on the environment and determining how any adverse effects may be mitigated or where any beneficial effects may be enhanced.

The Post Adoption Statement is being published in parallel with the designation of NPS for Geological Disposal Infrastructure.

¹ The Environmental Assessment of Plans and Programmes Regulations 2004 S.I. 2004 No. 1633.

1. Introduction

Overview

- 1.1. The UK Government is committed to the policy of geological disposal of higher activity radioactive waste for the reasons set out in the Committee on Radioactive Waste Management's 'Recommendations to Government'² and subsequent UK Government policy documents³ on radioactive waste management.
- 1.2. The 2014 White Paper 'Implementing Geological Disposal'⁴ (the '2014 White Paper') set out the UK Government's intention to amend the Planning Act 2008⁵ (the 'Planning Act') to bring geological disposal facilities (GDFs) for radioactive waste, and the deep boreholes⁶ required to investigate potential sites for these facilities, within the definition of nationally significant infrastructure projects in England and UK territorial waters adjacent to England, and to designate a National Policy Statement (NPS) to guide future decision making.
- 1.3. The Infrastructure Planning (Radioactive Waste Geological Disposal Facilities) Order 2015⁷, which came into force on 27 March 2015, amended the Planning Act to extend the categories of nationally significant infrastructure projects (NSIPs) to include development relating to geological disposal.
- 1.4. The Government has also taken forward work on a NPS in respect of geological disposal infrastructure in England (as defined by section 30A of the Planning Act). In January 2018, the Government published a draft NPS⁸ for geological disposal infrastructure. As required by the Planning Act, the draft NPS has been subject to both public consultation and parliamentary scrutiny. The NPS has now been designated.
- 1.5. The purpose of the NPS is to guide the Secretary of State and the Planning Inspectorate in considering, and the developer of the site in preparing, any

² CoRWM (2006) 'Managing our Radioactive Waste Safely – CoRWM's Recommendations to Government', available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/294118/700_-_CoRWM_July_2006_Recommendations_to_Government_pdf.pdf

³ Defra (2008) 'Managing radioactive waste safely: a framework for implementing geological disposal', available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68927/7386.pdf and BEIS (2018), 'Implementing Geological Disposal – Working With Communities: An updated framework for the long-term management of higher activity radioactive waste', available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/766643/Implementing_Geological_Disposal_-_Working_with_Communities.pdf

⁴ Department for Energy and Climate Change (DECC) (now BEIS) (July 2014), 'Implementing Geological Disposal - A Framework for the long-term management of higher activity radioactive waste', available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/332890/GDF_White_Paper_FINAL.pdf

⁵ The Planning Act 2008, available online at: http://www.opsi.gov.uk/acts/acts2008/ukpga_20080029_en_1

⁶ Deep boreholes are for site investigation only and do not refer to any proposals for deep borehole disposal of radioactive waste.

⁷ S.I. 2015 No. 949. The Infrastructure Planning (Radioactive Waste Geological Disposal Facilities) Order 2015, available online at: https://www.legislation.gov.uk/uksi/2015/949/pdfs/uksi_20150949_en.pdf

⁸ BEIS (2018), 'Draft National Policy Statement For Geological Disposal Infrastructure A framework document for planning decisions on nationally significant infrastructure', available online at: <https://www.gov.uk/government/consultations/national-policy-statement-for-geological-disposal-infrastructure>

applications for development consent for the development of a GDF, and the deep boreholes necessary to characterise the geology at potential sites, in England. The Secretary of State will be required to determine any applications for development consent in accordance with the NPS, unless certain other criteria (set out in the Planning Act) apply. The NPS is non-site specific; it sets out the need for NSIPs related to the geological disposal of higher activity radioactive waste in England and the Government's approach to deliver them and provides the high level assessment principles against which applications for development consent will be considered. Further to consultation in early 2018, the UK Government has published an updated framework for the long-term management of higher activity waste, *Implementing Geological Disposal – Working with Communities*⁹. This document replaces the 2014 White Paper in England. It provides updates on the actions set out in the 2014 White Paper, including the policy on how the Government will work with communities to identify a suitable location for a GDF.

- 1.6. The Planning Act requires that an appraisal of the sustainability (AoS) of the policy set out in the statement be carried out before an NPS can be designated. This report forms the Post Adoption Statement for the NPS and is the final output of the AoS process following consultation on the draft NPS and AoS Report between 25 January 2018 and 19 April 2018.
- 1.7. Copies of the NPS and accompanying documents are available online¹⁰.
- 1.8. On 23 June 2016, the European Union (EU) referendum took place and the people of the UK voted to leave the EU. Until exit negotiations are concluded, the UK remains a full member of the EU and all the rights and obligations of EU membership remain in force. During this period, the Government will continue to negotiate, implement and apply EU legislation. The outcome of these negotiations will determine what arrangements apply in relation to EU legislation in future once the UK has left the EU¹¹.

What is geological disposal?

- 1.9. 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.
- 1.10. This is achieved through the use of multiple barriers¹² that work together to provide protection over hundreds of thousands of years. The multiple barriers that provide safety for geological disposal are a combination of the:

⁹ BEIS (2018) *Implementing Geological Disposal – Working with Communities*. Available online at:

<https://www.gov.uk/government/publications/implementing-geological-disposal-working-with-communities-long-term-management-of-higher-activity-radioactive-waste>

¹⁰ <https://www.gov.uk/government/publications/national-policy-statement-for-geological-disposal-infrastructure>

¹¹ In so far as the context permits or requires, a reference to the European Union includes a reference to the European Atomic Energy Community.

¹² Radioactive Waste Management (2017) *The Multi-Barrier Approach*, Science file, October 2017, available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654537/3_The_multi-barrier_approach_Proof_6_1.pdf

- 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 (buffers) 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.
- 1.11. A GDF 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 and could be separated by a distance of several kilometres.
- 1.12. 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.

The National Policy Statement for Geological Disposal Infrastructure

Structure and contents

- 1.13. The designated NPS sets out the need for geological disposal infrastructure and provides a clear framework for those making development consent applications; in particular, setting out what should be included in their assessment of the potential impacts of a particular development and how these should be mitigated.
- 1.14. Specifically, the NPS contains the following chapters:
- **Chapter 1:** provides an overview of the purpose and scope of the NPS including the NPS Objectives;
 - **Chapter 2:** sets out the UK Government's policy on the management of higher activity radioactive waste, including an outline of what geological disposal is, the waste to be managed and the strategy for implementation;
 - **Chapter 3:** outlines the need for geological disposal infrastructure;
 - **Chapter 4:** sets out the assessment principles against which applications relating to geological disposal infrastructure are to be decided;
 - **Chapter 5:** sets out the generic impacts to be considered by an applicant and the Examining Authority.

Infrastructure covered by the NPS

1.15. Nationally significant infrastructure in relation to the geological disposal of radioactive waste is defined in section 30A of the Planning Act 2008 ('the Planning Act'). Applications for development consent relating to nationally significant geological disposal infrastructure will be made in accordance with the Planning Act. Geological disposal infrastructure, as defined in the Planning Act, comprises a facility in England (or within England's territorial waters up to the seaward limits of the territorial sea) that meets the following conditions:

- the main purpose of the facility is expected to be the final disposal of higher activity radioactive waste;
- 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.

1.16. As well as the facility itself, deep boreholes are also included within the Planning Act as geological disposal infrastructure. This is defined as the construction of one or more boreholes, and the carrying out of any associated excavation, construction or building work, where:

- the borehole or boreholes will be constructed, and any associated excavation, construction or building work will be carried out, in England or waters adjacent to England up to the seaward limit of the territorial sea; and
- 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 GDF¹³.

1.17. Therefore, the NPS covers both types of infrastructure projects – the deep boreholes necessary to determine the suitability of a site for a GDF, and the construction of a radioactive waste GDF itself. Applications for development consent for these projects may also include 'associated development' within the meaning of the Planning Act¹⁴. Development that does not fall within the definition

¹³ See section 30A (4) and (5), Planning Act 2008.

¹⁴ Department for Communities and Local Government (2013) *Planning Act 2008: Guidance on associated development applications for major infrastructure projects*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/192681/Planning_Act

of geological disposal infrastructure or associated development may require a separate application for planning permission to a local authority.

Territorial extent of the NPS

- 1.18. The NPS provides the framework for decision making on development consent applications for the construction of nationally significant infrastructure related to the geological disposal of higher activity radioactive waste in England, and beneath the seabed in waters adjacent to England up to the seaward limits of the territorial sea.
- 1.19. Radioactive waste management is a devolved policy issue. 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 NPS only applies to proposals for development in England and the Secretary of State will not decide applications for development in other parts of the UK. Scotland has a different policy for the long-term management of higher activity radioactive waste.

Appraisal of Sustainability of the National Policy Statement for Geological Disposal Infrastructure

- 1.20. Before designating an NPS, section 5(3) of the Planning Act requires that the Secretary of State carry out an AoS of the policy set out in the statement. The AoS ensures that the likely environmental and socio-economic effects of the NPS are identified, described and evaluated. The Government has determined that the AoS also satisfies the requirements of 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 regulations¹⁵ (the SEA Regulations).
- 1.21. The AoS also supports the achievement of section 10 (2) and (3) of the Planning Act 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.
- 1.22. The AoS Report¹⁶ was published alongside the draft NPS for Geological Disposal Infrastructure (the draft NPS) for consultation between January and April 2018. The AoS Report combined the functions of an AoS under the Planning Act and an Environmental Report under Article 5(1) of the SEA Directive.
- 1.23. The AoS Report identified, described and evaluated the likely environmental, social and economic effects of the draft NPS and considered and assessed any reasonable alternatives to the NPS. Where potential significant adverse effects

[2008 - Guidance on associated development applications for major infrastructure projects.pdf](#) [Accessed January 2019].

¹⁵ The Environmental Assessment of Plans and Programmes Regulations 2004 S.I. 2004 No. 1633.

¹⁶ BEIS (2018) *Appraisal of Sustainability Report: Appraisal of Sustainability of the National Policy Statement for Geological Disposal Infrastructure*. Available online at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/676404/AoS_Report_compressed.pdf

were identified, the AoS recommended options for avoiding or mitigating such effects.

- 1.24. The AoS for the draft NPS was undertaken at the same time as the drafting of the NPS for geological disposal. This ensured that findings from the AoS were taken into account and influenced the draft NPS, where practicable, prior to the public consultation stage. In this way, the AoS process helped to inform the preparation of the NPS and has supported the NPS's contribution to the achievement of sustainable development.

Habitats Regulations Assessment

- 1.25. In accordance with regulation 110 of The Conservation of Habitats and Species Regulations 2017 ('the Habitats Regulations') which applies regulations 105¹⁷ and 107 to NPSs, the Secretary of State must 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. A screening of the likely significant effects was undertaken, and because likely significant effects on European sites could not be ruled out, an appropriate assessment of the implications for European sites was undertaken. Given the uncertainties arising from the non-site specific NPS, the HRA was not able to conclude that the integrity of European site would not be adversely affected. In consequence, the provisions of regulation 107 (that there is no satisfactory alternative; and that the plan or project must be authorised for imperative reasons of overriding public interest (IROPI)¹⁸) have applied.
- 1.26. The HRA has been reported separately from the AoS. However, the conclusions of the HRA helped to inform the appraisal process, particularly in respect of the potential effects of the draft NPS on biodiversity. A copy of the final HRA is available online¹⁹.

Purpose of this Post Adoption Statement

- 1.27. Article 9 of the SEA Directive and regulation 16 (4) of the SEA Regulations require that when a plan or programme is adopted (in this case, the designated NPS for

¹⁷ Regulation 105(1) states: "Where a land use plan—

(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 the site, the plan-making authority for that plan must, before the plan is given effect, make an appropriate assessment of the implications for the site in view of that site's conservation objectives".

¹⁸ Having established there are no feasible alternative solutions, the competent authority must be able to identify "imperative reasons of overriding public interest" (IROPI) that justify the plan or project despite the environmental damage it will cause.

¹⁹ <https://www.gov.uk/government/publications/national-policy-statement-for-geological-disposal-infrastructure>

Geological Disposal Infrastructure), the consultation bodies, the public and any Member States that have participated in formal transboundary consultations on the plan are informed and the following specific information is made available:

- the plan as adopted;
- a statement summarising:
 - (i) how environmental considerations have been integrated into the NPS;
 - (ii) how the AoS Report has been taken into account;
 - (iii) how opinions expressed in response to the consultation have been taken into account;
 - (iv) the reasons for choosing the NPS, as designated, in the light of the other reasonable alternatives dealt with; and
 - (v) the measures that are to be taken to monitor the significant environmental effects of the implementation of the NPS.

1.28. The purpose of this Post Adoption Statement is to provide the specific information outlined under each of the points listed (i) to (v) above. The statement is structured as follows:

- **Section 2:** sets out how environmental considerations have been integrated into the designated NPS;
- **Section 3:** describes how the recommendations of the AoS have been taken into account in the designated NPS;
- **Section 4:** summarises how opinions expressed during the consultation on the draft NPS and AoS Report have been taken into account;
- **Section 5:** outlines the reasons for choosing the designated NPS as adopted in light of the reasonable alternatives considered and appraised;
- **Section 6:** sets out how significant effects will be monitored.

1.29. A table demonstrating how this Post Adoption Statement complies with the SEA Regulations' post adoption procedures is included in Appendix A.

2. How environmental considerations have been integrated into the NPS

Environmental considerations in the NPS

2.1 Environmental considerations are integral to the policy and guidance contained in the NPS. In particular, environmental considerations are promoted through the following key components of the document:

- the need for geological disposal (Chapter 3 of the NPS);
- NPS Objectives (Section 1);
- Assessment Principles (Section 4); and
- guidance on impacts (Section 5).

2.2 These components are considered in turn below and with reference to their appraisal as contained in AoS Report (where appropriate).

The need for geological disposal

2.3 Chapter 3 of the NPS confirms the technical, ethical and legal need for the safe and secure management of the UK's higher activity radioactive waste in the long term. There is legacy waste, including waste from over 60 years' nuclear generation, which is presently temporarily stored at over 30 sites in the UK; there is also a need for disposal of higher activity radioactive waste from new nuclear power stations that will be commissioned in the coming decades. The development of geological disposal infrastructure is essential because it provides the best available practical means of ensuring the long-term safety and security of higher activity radioactive waste.

2.4 Both types of NSIPs covered by this NPS, deep boreholes and a GDF, are required to successfully implement the Government's policy on the long-term management of radioactive waste. In this context, the AoS Report concluded at paragraph 6.3 that, by providing a clear framework for decisions relating to geological disposal infrastructure, the NPS will support the delivery of a GDF in a timely manner, in turn helping to ensure the safe and secure management of the UK's higher activity radioactive waste in the long term and protection of the environment.

NPS Objectives

2.5 Section 1.12 of the NPS sets out the following overarching objectives for the policy and guidance contained in the document:

- implementation of government policy on geological disposal for higher activity radioactive waste and the need for such infrastructure;

- to establish a clear and transparent planning process to guide the preparation and development of nationally significant infrastructure projects relating to the geological disposal of higher activity radioactive waste in England;
- to provide a planning process that enables infrastructure to be developed which will provide a long-term, secure, safe and sustainable solution to the disposal of higher activity radioactive waste;
- to provide guidance to nationally significant infrastructure developers on the relevant infrastructure, generic impacts and general siting considerations that may be needed to be taken into account when planning for the development of geological disposal infrastructure;
- to provide the primary basis for examination by the Examining Authority and for decisions by the Secretary of State, on development consent applications for geological disposal infrastructure;
- to provide policy and guidance on generic impacts to support any relevant local planning authorities in preparing their local impact reports, which they will be invited to prepare under section 60 of the Planning Act.

2.6 The assessment contained in the AoS Report (see paragraph 5.6) identified that the relationship between the NPS objectives listed above and the AoS objectives used during the appraisal process is a positive one. This reflects the purpose of the NPS, which is to provide a balanced and transparent approach to the consideration of the range of issues which need to be accounted for as part of the development consent process for geological disposal infrastructure.

Assessment Principles

2.7 Chapter 4 of the NPS sets out the assessment principles against which applications for development consent for geological disposal infrastructure are to be decided. These principles cover:

- criteria for 'good design' for geological disposal infrastructure;
- climate change adaptation;
- pollution control and other regulatory regimes;
- Common Law Nuisance and Statutory Nuisance;
- safety;
- health; and
- security considerations.

2.8 Through the application of these assessment principles, the consideration of environmental factors will be promoted in both the development of proposals for geological disposal infrastructure and in decision making on development consent applications. For example, it is anticipated that the promotion of good design will help to ensure that proposals promote sustainable infrastructure that is sensitive to place and mitigate adverse impacts on the environment. In this regard, at paragraph 4.5.4 the NPS states:

“Project design will be an important and relevant consideration in decision making. Given the importance which the Planning Act 2008 places on good design and sustainability, the Secretary of State needs to be satisfied that geological disposal infrastructure development adheres to the principles of sustainable development. In addition to observing regulatory and other constraints, the design should be as attractive, durable and adaptable (including taking account of natural hazards such as flooding) as it can be.”

2.9 It should be noted that Chapter 4 of the NPS refers to regulatory requirements associated with planning such as the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (EIA Regulations)²⁰ and the Habitats Regulations. It also outlines the permitting and consenting requirements of (amongst others), the Environmental Permitting (England and Wales) Regulations 2016, the Nuclear Installations Act 1965²¹ and the Planning Act. This guidance serves to make clear the statutory environmental requirements pertinent to geological disposal infrastructure.

Guidance on impacts

2.10 Informed by a review of environmental and socio-economic factors that may be impacted by the development of geological disposal infrastructure undertaken as part the AoS process, Chapter 5 of the NPS sets out the generic impacts to be considered by an applicant and the Examining Authority. The guidance covers a wide range of social, economic and environmental topics, including:

- Air Quality;
- Noise;
- Biodiversity and Nature Conservation (including Flora and Fauna);
- Climatic Factors including Climate Change and Adaptation;
- Historic Environment;
- Socio-economics, Population and Demographics;
- Flood Risk and Coastal Change;

²⁰ Available online at: <http://www.legislation.gov.uk/ukxi/2017/572/contents/made>

²¹ Available online at: <https://www.legislation.gov.uk/ukpga/1965/57>

- Human Health;
- Landscape and Visual Impacts;
- Land Use;
- Traffic and Transport;
- Waste Management; and
- Water Quality (including Surface and Ground Water Quality and Availability).

2.11 For each impact, guidance is provided to the applicant on the matters to be considered and presented in an Environmental Statement (ES), completed to meet the requirements of the EIA Regulations, and on decision making by the Secretary of State. Guidance is also provided on the proposed mitigation measures to be considered by the applicant. This guidance will help to ensure that environmental considerations are fully integrated into the development of NSIP proposals and the decision making process.

2.12 The guidance on impacts contained in the draft NPS was assessed against the 13 AoS objectives used in the appraisal. Taking the findings of the appraisal into account, the AoS Report concluded (at paragraph 6.2):

“Overall, the appraisal contained in this AoS Report has found that the implementation of the draft NPS is likely to have positive effects across all of the AoS objectives that have been used to help characterise the socio-economic and environmental effects of the draft NPS, although no significant positive effects are predicted to occur. This reflects the expectation that the policy and guidance for the nationally significant infrastructure project developer, the Examining Authority and the Secretary of State contained in the draft NPS will, alongside prevailing national planning policy, legislation and regulatory regimes, provide a positive framework that helps to ensure the potential adverse impacts of geological disposal infrastructure development are identified, appropriately assessed and, where necessary, avoided, minimised or mitigated.”

Environmental considerations through the AoS

2.13 Environmental considerations have been integrated into the NPS throughout the key stages of the AoS process and in particular through:

- the review of the context and baseline for the AoS and NPS;
- the development of the framework used to appraise the draft NPS; and
- the evolution of the NPS and AoS thereof.

Context and baseline

- 2.14 To provide the context for the AoS, the relevant aspects of the current state of the environment and its evolution without the NPS were considered at the outset of the AoS process, along with the environmental characteristics likely to be significantly affected. This information was contained in the initial AoS Scoping Report²² that was subject to consultation between 4 August 2015 and 25 September 2015, and was subsequently updated to reflect consultation responses in the Final Scoping Report²³.
- 2.15 Baseline information and relevant plans and programmes were considered for England, Wales and Scotland, with the geographic scope reflecting 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.
- 2.16 Annex I of the SEA Directive requires that the appraisal 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 formed the basis for the collection and analysis of contextual and baseline information alongside additional socio-economic topics. **Table 2.1** lists the AoS topics and highlights their relationship with the SEA Directive requirements.

Table 2.1 Topics considered in the AoS Report

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

²² Department for Energy and Climate Change (2015) *Appraisal of Sustainability of the National Policy Statement for Geological Disposal of Radioactive Waste: Appraisal of Sustainability Scoping Report*.

²³ Department for Energy and Climate Change (2015) *Appraisal of Sustainability of the National Policy Statement for Geological Disposal of Radioactive Waste: Final Appraisal of Sustainability Scoping Report*.

Annex I SEA Directive Effects	Topics Considered in this AoS Report
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

2.17 Consistent with the requirements of Annex 1 (b), (c) and (d) of the SEA Directive, Appendix B of the AoS Report set out the collated contextual and baseline information, on a topic-by-topic basis, for each of the 13 AoS topics listed in **Table 2.1**.

2.18 From the review of plans and programmes and analysis of current and projected baseline conditions contained in Appendix B, a number of key environmental protection and socio-economic objectives and key sustainability issues were identified. These objectives and issues are summarised in Table 3.2 and Table 3.3 of the AoS Report respectively and were reflected in the framework used to support the appraisal of the draft NPS.

Appraisal framework

2.19 The framework used to appraise the draft NPS comprised of 13 AoS objectives and associated guide questions. The AoS objectives and guide questions used in the appraisal of the draft NPS reflected the topics contained in Annex I of the SEA Directive and were informed by:

- the review of plans and programmes and the associated environmental protection objectives;
- the baseline information and key sustainability issues;
- a broad understanding of the likely generic effects arising from geological disposal infrastructure; and
- responses received to consultation on the initial AoS Scoping Report.

2.20 Broadly, the AoS objectives presented the preferred environmental and socio-economic outcome, which typically involves minimising detrimental effects and enhancing positive effects. Appraising the draft NPS against the AoS objectives helped to ensure the AoS had adequately covered the SEA topics and, in-turn, that environmental (as well as social and economic) factors have been fully taken into account in the NPS.

Evolution of the NPS and AoS

2.21 The AoS was undertaken alongside, and informing, the development of the NPS to help ensure that environmental, and wider sustainability, considerations were taken into account in the development of the policy.

2.22 As a first stage in the AoS of the NPS, a review of the emerging draft NPS was undertaken. Initial views on the likely significant effects of the draft NPS were provided together with measures proposed to avoid, minimise or mitigate any adverse effects and to maximise positive effects thereby enhancing its sustainability performance. The review led to a number of changes to the emerging draft NPS, including:

- development and inclusion of draft NPS objectives (see Section 1.12 of the NPS);
- the identification and inclusion of headline assessment principles (see Table 1, Section 4.1.9 of the NPS);
- inclusion of a specific topic in the impacts section concerning human health (see Section 5.9 of the NPS);
- inclusion of reference to equalities impact assessment (see Section 5.7 of the NPS);
- amendments to the wording of the impacts including the identification of additional mitigation measures; and
- minor structural modifications to minimise duplication.

2.23 Based on the appraisal of the consultation draft NPS, further measures were identified to enhance its sustainability. These measures were included within each of the topic-based assessments in Appendix B to the AoS Report and presented separately in Appendix D. Further information relating to how these measures have been taken into account in the designated NPS is contained in **Section 3** of this report.

3. How the AoS Report has been taken into account

Introduction

- 3.1 The AoS has been undertaken iteratively alongside the development of the NPS in order to enhance its sustainability performance. As highlighted in **Section 2**, an initial review of the emerging NPS was undertaken, the findings of which helped to inform the development of the draft NPS and led to a number of changes that served to enhance the sustainability performance of the policy and guidance contained in the document.
- 3.2 Based on the subsequent appraisal of the consultation draft NPS, further measures were identified to enhance its sustainability, and these were set out in the AoS Report. This section describes how the findings of the AoS Report have been taken into account in the designated NPS.

Recommendations arising from the AoS

- 3.3 Based on the appraisal of the draft NPS, a series of measures were identified to enhance the sustainability of the document. These measures were included within each of the topic-based assessments in Appendix B of the AoS Report and presented separately in Appendix D.
- 3.4 The recommendations arising from the appraisal predominantly related to the impacts contained in Chapter 5 of the draft NPS and a number of the measures identified to enhance the draft NPS cut-across several of the AoS objectives and draft NPS topics. The cross-cutting measures identified included:
- the inclusion of direct reference to the Planning Practice Guidance;
 - the need for further guidance in respect of when the Secretary of State should refuse consent in the context of water and waste; and
 - the potential for greater specificity in terms of the suite of measures that could be implemented to address impacts during the key stages of the project life cycle (construction, operation and decommissioning/closure).
- 3.5 Based on the findings of the AoS, it was also recommended that the guidance contained in the 'Applicant's Assessment' sub-sections of Chapter 5 could make more explicit the requirements in respect of the content and scope of an ES (as required).
- 3.6 The Government considered those recommendations, but has ultimately decided not to make the proposed changes to the NPS. It was felt that the level of detail required

of any developer looking to apply for development consent for geological disposal infrastructure was already sufficient in the NPS as drafted. The recommendations required considerably more detail relating to the Environmental Statement to be specified within the topics set out in Chapter 5. The Government does not believe the addition of that detail would be of benefit to the developer in making their application for development consent, the Examining Authority in their scrutiny of the application or the Secretary of State in their decision making on any such application. The Government has concluded that there is adequate detail contained in the draft of the NPS, and this has been expanded, where appropriate, in line with recommendations made as part of the public consultation. The level of the detail contained in the revised NPS is consistent with other NPSs, whilst placing emphasis on aspects which may be relevant to the type of infrastructure in question.

- 3.7 The Government also considers that in the case of many of the recommendations relating to the mitigation of impacts during site investigation, construction and operation and closure, that information will be additionally required through the staged regulation by the Environment Agency and Office for Nuclear Regulation (set out in the table in Annex 1 of the NPS)

4. How opinions expressed on the consultation have been taken into account

Introduction

- 4.1 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, BEIS has sought to ensure that those with an interest in, or who are affected by, the NPS should have the opportunity to present their views on the draft NPS and the accompanying AoS.
- 4.2 This section provides a summary of the consultation on the NPS and AoS, providing a signpost to how responses have been taken into account.

Public consultation on the NPS

- 4.3 Public consultation on the draft NPS (including the AoS Report) took place from 25 January 2018 to 19 April 2018. The consultation sought responses to seven questions:
1. Does the draft NPS provide suitable direction to the Planning Inspectorate and Secretary of State on the need for geological disposal infrastructure?
 2. Do the assessment criteria adequately address the principles that the developer, the Planning Inspectorate and the Secretary of State should take into account in an application for development consent? If not, what further information on the assessment criteria is required?
 3. Does the draft NPS appropriately cover the impacts of geological disposal infrastructure and potential options to mitigate those impacts? Please provide reasons to support your answer.
 4. Do you agree with the findings (of 'likely significant effects') from the Appraisal of Sustainability report and the recommendations for enhancing the positive effects of the draft National Policy Statement? Please provide reasons to support your answer.
 5. Do you agree with the conclusions of the Appraisal of Sustainability report? If not, please explain why.
 6. Do you agree with the findings from the Habitats Regulations Assessment report for the draft National Policy Statement? Please provide reasons to support your answer.

7. Do you have any other comments on the draft National Policy Statement and the accompanying documents (Appraisal of Sustainability, Habitats Regulation Assessment)?

4.4A total of 86 individual responses were received to the consultation from a range of organisations and members of the public from the following categories:

- Statutory Strategic Environmental Assessment (SEA) and HRA bodies;
- Other Government bodies;
- Local authorities (including parish and town councils);
- Industry; and
- Non-Government Organisations and campaign groups.

4.5In addition, there were 350 campaign responses from members of the German public.

4.6The responses raised a number of points regarding the draft NPS with the main themes relating to: alternatives to disposal; alternative disposal methods; the need case for geological disposal infrastructure; general impacts; and exclusionary criteria for siting of geological disposal infrastructure.

4.7A detailed summary of the key issues raised in response to the consultation, and how the Government has addressed these issues in the final, designated NPS, is contained in the Summary of Responses to the Consultation: Draft National Policy Statement for Geological Disposal Infrastructure²⁴.

AoS consultation

Technical consultation on the initial AoS Scoping Report

4.8An initial AoS Scoping Report was issued for consultation to statutory and other selected consultees between 4 August 2015 and 25 September 2015. The initial AoS Scoping Report was issued directly to the UK statutory SEA and other bodies identified in **Box 1.1** for comment. This was consistent with regulation 12(5) of the SEA Regulations which concerns consulting statutory bodies on the appropriateness, scope and level of detail of the information that must be included in the subsequent environmental report (which in this case is the AoS Report). At over seven weeks, the AoS scoping consultation period exceeded the five week period required by regulation 12(6) of the SEA Regulations. Whilst this technical consultation was primarily aimed at a number of statutory and

²⁴ BEIS (2019) 'Summary of Responses to the Consultation: Draft National Policy Statement for Geological Disposal Infrastructure'. Available online at: <https://www.gov.uk/government/consultations/national-policy-statement-for-geological-disposal-infrastructure>

selected consultees, BEIS 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 Scotland²⁵
- Scottish Environment Protection Agency
- Scottish Government
- Natural Resources Wales
- Cadw (Welsh Government historic environment service)²⁶
- 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
- The Office for Nuclear Regulation

4.9A total of 15 responses were received. 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 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 and to the key issues relevant to the AoS that were summarised in the main report;
- 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

²⁵ 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.

²⁶ 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.

- the aspects of the draft NPS and related infrastructure that will be appraised.

4.10 Appendix E of the AoS Report contains a schedule of the consultation responses received on the initial AoS Scoping Report, BEIS’s response and the subsequent action taken and reflected in the Final Scoping Report that was published on 1 February 2016.

Public consultation on the AoS Report

4.11 The AoS Report was published for consultation alongside the draft NPS between 25 January 2018 and 19 April 2018. The Consultation Document sought responses to the following specific questions relating to the AoS:

- Do you agree with the findings (of ‘likely significant effects’) from the Appraisal of Sustainability Report and the recommendations for enhancing the positive effects of the draft National Policy Statement? Please provide reasons to support your answer. **Consultation question 4.**
- Do you agree with the conclusions of the Appraisal of Sustainability Report? If not, please explain why. **Consultation question 5.**
- Do you have any other comments on the draft National Policy Statement and the accompanying documents? **Consultation question 7.**

4.12 As highlighted above, a total of 86 responses were received to the consultation. **Table 4.2** summarises the numerical responses to those questions concerning the AoS Report.

Table 4.2 Numerical summary of the responses to the consultation questions on the AoS Report

Question	No. of Responses	Agree	Disagree	Partially Agree/Disagree	Unclear	N/A
Q4	86	11	24	7	6	38
Q5	86	12	22	12	6	34

4.13 The main themes raised under question 4 included: the findings of the AoS; cultural heritage; landscape and townscape; and socio-economic effects. With regard to question 5, the main themes raised included the AoS assessment of reasonable alternatives. **Table 4.3** provides a summary of the consultee responses under each of the main themes outlined above, together with the Government’s response.

Table 4.3 Summary of the comments raised in the consultation on the AoS Report and the Government’s response

Theme	Summary of comments	Government’s response
<p>Findings of the AoS</p>	<p>Respondents felt that the AoS should appraise both the positive and negative effects of a GDF, proposing mitigation measures as appropriate.</p> <p>They also considered that there were too many risks that had not been addressed</p>	<p>The purpose of the NPS is to provide the framework for planning decisions on nationally significant infrastructure and it is the proposed contents of this framework, including the applicant assessment requirements, decision making requirements for the Secretary of State and mitigation considerations, that have been the subject of the AoS. The AoS identified, described and assessed the likely significant socio-economic and environmental effects of using the NPS to deliver the Government’s policy of implementing geological disposal for higher activity radioactive waste, as well as reasonable alternatives to the NPS.</p> <p>As noted at paragraphs 1.5 and 4.7 of the AoS Report, the AoS is an appraisal of the draft NPS only and does not, therefore, consider site specific proposals for geological disposal infrastructure. Notwithstanding this, in undertaking the AoS, consideration was given to the likely activities and potential sources of effects associated with the resulting infrastructure.</p> <p>This review of impacts has helped to determine the extent to which the policy contained in the NPS addresses potential adverse impacts, and enhances benefits, associated with the development of geological disposal infrastructure, in-turn informing the identification of mitigation and enhancement measures (see the detailed assessment matrices contained in Appendix B of the AoS Report). As detailed in section 4 of the AoS Report, the review contained in Appendix B has included full consideration of (inter alia) the RWM Geological Disposal Generic Environmental Assessment 2016²⁷.</p> <p>In this context, the appraisal contained in the AoS Report has found that the implementation of the draft NPS would be likely to have positive effects across all of the AoS objectives that have been used to help characterise the socio-economic and environmental effects of the draft NPS. This reflects policy and</p>

²⁷ RWM (2016) ‘*Geological Disposal Generic Environmental Assessment 2016*’. Available online at: <https://rwm.nda.gov.uk/publication/geological-disposal-generic-environmental-assessment-report/>

How opinions have been taken into account

Theme	Summary of comments	Government's response
	<p>Comments were received on the potential for accidents during the transport of radioactive waste, and potential contamination, specifically noting the lack of scenario testing and assessment of potential accidents within the AoS.</p> <p>Respondents agreed with the AoS findings with regards to working at depth but suggested that reference should be made to the long-term health effects that it may have.</p> <p>Respondents queried how the AoS could conclude positive cumulative effects against biodiversity without reference to the principle of environmental net gain.</p>	<p>guidance for the nationally significant infrastructure project developer, the Examining Authority and the Secretary of State contained in the draft NPS which will, alongside prevailing national planning policy, legislation and regulatory regimes, provide a positive framework that helps to ensure the potential adverse impacts of geological disposal infrastructure development are identified, appropriately assessed and, where necessary, avoided, minimised or mitigated. No change to the AoS was therefore considered necessary.</p> <p>The impacts of specific geological disposal infrastructure will be assessed when an application for development consent is made. The application(s) will fully consider the impacts of construction, operation, decommissioning and closure of the facility at the location identified. The application will need to be in accordance with the requirements of the NPS.</p> <p>It is noted that paragraph 4.2.5 of the NPS states “<i>Pursuant to the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, applicants should ensure that the expected effects deriving from the vulnerability of the geological disposal facility development to risks of major accidents and/or disasters are considered. Where these effects fall outside the remit of the Examining Authority, they will be considered by the independent regulators. The applicant should make reference to the safety case, in which consideration is given to major accidents and/or disasters, in the Environmental Statement.</i>”</p> <p>With regards to working at depth, the Government considers that the suggested change would not materially affect the determination of significant effects identified in section 5 of the AoS Report and no change is therefore proposed.</p> <p>The 25 Year Environment Plan to embed an ‘environmental net gain’ principle for development was published in January 2018 by the Department for Environment, Food and Rural Affairs, after the draft NPS and accompanying assessments were published by BEIS. BEIS has reviewed the current policy in the NPS to ensure it is aligned with the ‘environmental net gain’ principle. Updates to the NPS only further emphasise the positive effects</p>

How opinions have been taken into account

Theme	Summary of comments	Government's response
	<p>Respondents disagreed with the findings of the AoS, with regards to the effects on national heritage assets and protected landscapes. In addition to this, it was commented that the AoS did not take proper account of the impact on key sections of the economy, such as tourism, agriculture and food production in relation to designated areas such as National Parks, Areas of Outstanding Natural Beauty and World Heritage Sites. Comments were received noting that the AoS did not take into account future climate change scenarios.</p>	<p>already identified on this AoS objective. No change to the AoS was therefore considered necessary.</p> <p>With regard to landscape, paragraph 5.142 of the AoS report stated: <i>“Potential impacts associated with the development of geological disposal infrastructure on landscape/seascape and visual amenity are likely to be similar to other major developments and could include the loss or fragmentation of, or damage to, landscape features, changes in overall landscape character, visual intrusion through the introduction of new, contrasting elements into existing views, or the obstruction of existing views and light pollution associated with construction/operation works”</i>.</p> <p>With regards to climate change scenarios, Appendix B of the AoS Report contained the detailed appraisal of the draft NPS and reasonable alternatives and, consistent with the reporting requirements of the Environmental Assessment of Plans and Programmes Regulations 2004, includes the <i>“relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme”</i>. Section B9 ‘Climatic Factors’ of Appendix B presented the baseline and evolution of the baseline concerning climate change. It referenced UK Climate Projections 2014 (UKCP09) maps and key findings and provided predictions on changes to climate within the UK based on a medium emission scenario with 90% probability.</p>
<p>Cultural heritage, landscape and townscape</p>	<p>A number of comments were received regarding the findings in the AoS on cultural heritage, land and townscape. In particular, it was felt that in the absence of detailed site-specific information, the findings of the AoS were premature and inaccurate.</p>	<p>Applications for development consent for geological disposal infrastructure will consider the impacts of construction, operation, decommissioning and closure of the facility at the location identified. It should be noted that the application will need to comply with the requirements of the NPS. In this context, the findings of the AoS with regard to cultural heritage and landscape and townscape reflect the policy contained in the draft NPS, which broadly requires applicants to assess the likely effects of geological disposal infrastructure and ensure that impacts in this regard are taken into account and mitigated.</p>

How opinions have been taken into account

Theme	Summary of comments	Government's response
		<p>The changes proposed in the response received would not materially affect the determination of significant effects identified in section 5 of the AoS Report or lead to any additional mitigation measures. Therefore, the Government does not consider any changes necessary.</p>
Socio-economic	<p>Respondents considered that the positive socio-economic effects associated with the geological disposal facility had not been appropriately scored in the AoS and should be reappraised as a significant positive effect.</p>	<p>Table 5.17 of the AoS Report contained a summary of the cumulative effects of the draft NPS against the AoS objectives. Against AoS Objective 2 'People, Economy and Skills', it is stated: "<i>The construction and operation of geological disposal infrastructure will have positive economic impacts such as job creation, spend in the local economy and investment in the supply chain.</i>"</p> <p>The AoS assessment of socio-economic effect has been done based on the RWM Geological Disposal Generic Socio-economic Assessment 2016²⁸. This identifies both positive and negative impacts of geological disposal infrastructure. Indicative capital costs of the development need to be considered within the context of short, medium and long-term timeframes for the construction, operation and closure of the GDF. The Government considers the scoring within the AoS to be appropriate according to the evidence available.</p> <p>It should be noted that the impacts of specific geological disposal infrastructure will be assessed when an application for development consent is made. The application(s) will fully consider the impacts of construction, operation, decommissioning and closure of the facility at the location identified. It should be noted that the application will need to comply with the requirements of the NPS.</p>
AoS assessment of NPS with	<p>Comments were received on the need for exclusionary criteria and disagreeing with the justification for the selection of the Government-preferred NPS option of having no exclusionary criteria.</p>	<p>Whilst noting the possible beneficial effects of adopting exclusionary criteria, the Government has rejected this alternative, the reasons for which are set out in 6.15 to 6.19 of the AoS Report. The reasons cited include: the potential for exclusionary criteria to restrict the Government's ability to ensure</p>

²⁸ RWM (2016) 'Geological Disposal Generic Environmental Assessment 2016'. Available online at: <https://rwm.nda.gov.uk/publication/geological-disposal-generic-environmental-assessment-report/>

How opinions have been taken into account

Theme	Summary of comments	Government's response
exclusionary criteria		<p>that a geological disposal facility is sited in a geologically suitable environment; the potential to site a geological disposal facility within an excluded area without causing an unacceptable environmental impact; and the potential for the adoption of exclusionary criteria to unduly exclude communities in these areas from the potential socio-economic benefits of hosting a geological disposal facility.</p> <p>It remains the Government's view that an NPS including exclusionary criteria is not appropriate.</p>
Reasonable alternatives	<p>Respondents considered that the AoS should review the alternative options to the policy of geological disposal, including alternatives that would be passively safe, above ground, monitorable and provide retrievable storage of existing waste. Requests were made for a comparison of nuclear new build waste against non-nuclear energy policy.</p>	<p>Paragraphs 2.42 to 2.83 of the AoS Report set out information on the reasonable alternatives to the NPS, including reference to Government guidance. The alternatives considered in the AoS are alternatives to the plan (i.e. alternatives to having an NPS and the type of NPS), and not to the existing policy on geological disposal which the NPS is designed to implement (i.e. alternative methods of disposal of higher activity radioactive waste). In addition, the NPS does not cover the development of new nuclear power stations and therefore consideration of other forms of energy generation was not relevant.</p>

5. The reasons for choosing the NPS as designated, in the light of the other reasonable alternatives dealt with

Introduction

5.1 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”.

5.2 In accordance with the requirements of the SEA Directive, and following the consideration of a range of possible alternatives identified through the application of the hierarchy of alternatives contained in Government’s SEA guidance²⁹, two reasonable alternatives to the draft NPS were identified by BEIS and subject to appraisal. These reasonable alternatives were:

- a non-site specific NPS that includes exclusionary criteria. Such criteria may be included on the grounds of landscape, cultural and natural heritage and nature conservation; and
- a no NPS option which is based on existing national planning policy to guide the development of any future geological disposal infrastructure for higher activity radioactive waste in England.

5.3 This section of the Post Adoption Statement sets out the reasons for the selecting the NPS as designated and for the rejection of the two reasonable alternatives considered.

Reasons for choosing the NPS

5.4 The designated NPS provides a clear and transparent policy framework in which planning decisions in respect of geological disposal infrastructure would take place. The NPS will provide increased certainty to the developer, Examining Authority and Secretary of State that geological disposal infrastructure will be brought forward. As supported by the conclusions of the AoS Report (section 6), it will help to ensure that the potential adverse impacts of geological disposal infrastructure development are identified, appropriately assessed and, where necessary, that such impacts are avoided, minimised or mitigated. It also sets out a clear decision making process,

²⁹ Office of the Deputy Prime Minister (ODPM) (now the Ministry of Housing, Communities and Local Government (MHCLG)) (2005) ‘A Practical Guide to the Strategic Environmental Assessment Directive’. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf [Accessed January 2019].

involving objective examination by the Planning Inspectorate, which recommends to the Secretary of State whether or not to grant development consent.

5.5 The Government considers that a non-site specific NPS (as designated) does not anticipate the outcome of the separate siting process and provides a sufficiently flexible framework to ensure that geologically suitable sites can be selected to ensure the necessary safety and security in future geological disposal.

5.6 Overall, the NPS will ensure that planning decisions in respect of geological disposal infrastructure take into account the full range of environmental and socio-economic impacts associated with geological disposal infrastructure development and that they are expedient, timely, predictable and accountable. This will ultimately support the UK Government's policy of geological disposal of higher activity radioactive waste. In consequence, the NPS has been designated.

Reasons for the rejection of reasonable alternatives

No NPS

5.7 Under this reasonable alternative, an NPS would not be designated. This would not prevent geological disposal infrastructure from coming forward (proposals could still be considered in the context of Council Directive 2011/70/Euratom, which broadly accepts that deep geological disposal represents the safest and most sustainable option as the end point of the management of high level waste) and planning decisions would be made in the context of the prevailing national planning policy and legislation. However, there would be increased uncertainty in respect of the successful and timely delivery of a GDF to ensure the safe and secure management of the UK's higher activity radioactive waste in the long term. Further, as highlighted in the conclusions of the AoS Report, there would also be a higher degree of uncertainty due to the absence of a clear statement regarding the full range of considerations to be taken into account by the applicant and Secretary of State and opportunities for the mitigation of adverse impacts and enhancement of benefits may be missed.

5.8 In consequence, the alternative of not designating an NPS was rejected.

Draft NPS including exclusionary criteria

5.9 A 'criteria based' NPS was also considered as a reasonable alternative. Such criteria would be for the purpose of protecting the environment and may include, for example, excluding development at, under or adjacent to World Heritage Sites, National Parks, the Broads, Areas of Outstanding Natural Beauty or European designated conservation sites. Specifically excluding these areas would help to establish clearer parameters for decision making and could have significant positive effects on the environment by introducing heightened protection from the effects of geological disposal infrastructure to them.

5.10 Whilst noting the possible beneficial effects of adopting exclusionary criteria in respect of heritage, landscape and biodiversity, their use within the NPS could challenge the Government's ability to ensure that a GDF is sited in a geologically suitable environment. Geological considerations are critical to ensuring that there are

effective barriers with no conceivable pathways from the facility to the surface. The Government does not wish to foreclose future possible locations that could be more advantageous in addressing safety over the lifetime of the facility.

5.11 Furthermore, the sensitivity of designated areas varies considerably and many of the potential effects of infrastructure developments can be mitigated by good design and planning. Given this, it may well be possible to develop infrastructure in these areas without an unacceptable environmental impact, as has occurred in some circumstances previously in National Parks and World Heritage Sites. Exclusion of these areas could also reduce the scope of community engagement and unnecessarily exclude communities in these areas from the potential socio-economic benefits of hosting a GDF.

5.12 The planning process already provides protection for designated areas as described in Chapter 5 of the NPS; these issues will be examined at the site-specific stage when both the potential impacts and the effectiveness of their mitigation can best be judged. Therefore, broad exclusionary criteria are not necessary to achieve the goal of ensuring that the environment is suitably protected, as site-specific examination may show it is possible to develop infrastructure in these areas without an unacceptable impact on people or the environment. Furthermore, the Government wants to ensure that the separate siting process has sufficient flexibility to identify the safest location for a GDF over the lifetime of the facility.

5.13 The Government considers that applying exclusionary criteria would risk prematurely excluding some areas from detailed consideration and, as a consequence, compromising the Government's ability to ensure that geological disposal infrastructure is sited in a geologically suitable environment to provide a long-term, secure, safe and sustainable solution for the disposal of higher activity radioactive waste. In addition, it may be possible to develop geological disposal infrastructure in designated areas without an unacceptable impact on people or the environment. In consequence, the reasonable alternative of a draft NPS that includes exclusionary criteria was rejected.

6. The measures that are to be taken to monitor the significant environmental effects of the implementation of the NPS

Introduction

6.1 It is a requirement of the SEA Directive to establish how the significant effects of implementing the NPS will be monitored. As set out in Government Guidance³⁰, “*it is not necessary to monitor everything or monitor an effect indefinitely. Instead, monitoring needs to be focused on significant sustainability effects*”.

6.2 Monitoring should therefore be focused on:

- the significant effects identified in the AoS that may give rise to irreversible damage, with a view to identifying trends and where appropriate to implement relevant mitigating measures before such damage is caused; and
- uncertain effects where monitoring would enable preventative or mitigating measures to be undertaken.

6.3 The AoS Report found that the implementation of the draft NPS would be likely to have positive effects across all of the AoS objectives. Whilst no significant positive or significant negative effects were identified, monitoring the socio-economic and environmental effects of the implementation of the NPS can help to answer questions such as:

- Were the AoS predictions of effects accurate?
- Is the NPS contributing to the achievement of the AoS objectives?
- Are mitigation measures performing as well as expected?
- Are there any unforeseen adverse effects? Are these within acceptable limits, or is remedial action desirable?

6.4 The need for ongoing monitoring is particularly pertinent given the uncertainties identified in the appraisal.

³⁰ ODPM (now MHCLG) (2005) 'A Practical Guide to the Strategic Environmental Assessment Directive', available online: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf

The NPS monitoring framework

6.5 The AoS Report set out, for consultation, possible indicators for monitoring the implementation of the NPS. Based on the responses received to the AoS Report, the proposed indicators have been reviewed and amended as appropriate in preparing this Post Adoption Statement.

6.6 Consistent with the proposals of the AoS Report, monitoring will focus on all of the 13 topics considered in the AoS. **Table 6.1** identifies, for each topic area, the indicators that have been adopted to monitor the implementation of the NPS together with the sources of information that will be used.

Table 6.1 Adopted monitoring indicators

Topic Area	Indicator(s)	Source(s) of Information
Biodiversity and Nature Conservation	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> condition of designated sites; threatened habitats and species; populations of countryside birds; and surface water biological indicators <p>in locations at or adjacent to borehole and GDF development sites.</p> <p>Implementation of construction management plans.</p> <p>Implementation of biodiversity enhancement measures.</p>	<p>Joint Nature Conservation Committee</p> <p>Department for Environment, Food and Rural Affairs (Defra)</p> <p>Environment Agency</p> <p>Natural England</p> <p>Natural Resources Wales</p> <p>Scottish Natural Heritage</p> <p>Developer</p>
Population, Economics and Skills	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> number of construction workers employed at geological disposal infrastructure sites; employment activity and unemployment rates in locations hosting geological disposal infrastructure; business counts in locations hosting geological disposal infrastructure; local jobs creation associated with the development of geological disposal infrastructure; training and apprenticeship opportunities generated by geological disposal infrastructure development; Gross Value Added (GVA)³¹ associated with construction and operation of geological disposal infrastructure; investment in local community facilities and services associated with geological disposal infrastructure; and 	<p>Developer</p> <p>Office for National Statistics</p>

³¹ GVA is the measure of the value of goods and services produced in an area, industry or sector of an economy.

The measures decided concerning monitoring

Topic Area	Indicator(s)	Source(s) of Information
	<ul style="list-style-type: none"> deprivation at locations hosting geological disposal infrastructure. 	
Human Health	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> monitoring of noise levels at development sites and along transport routes to/from the borehole and GDF construction site(s); number of nuisance complaints received related to GDF activity; air quality at development sites and along key transport routes from/to the borehole and GDF construction site(s); GDF worker accidents; and health deprivation and inequalities at locations hosting geological disposal infrastructure. <p>Implementation of construction management plans at borehole and GDF construction sites.</p>	<p>Developer</p> <p>Local Planning Authority</p> <p>Public Health England</p> <p>Office for National Statistics</p>
Land Use, Geology and Soils	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> loss of best and most versatile agricultural land as result of the development of geological disposal infrastructure; area of vegetation and soil layers cleared to support geological disposal infrastructure; remediation of contaminated land in support of geological disposal infrastructure; incidences of land contamination at geological disposal infrastructure sites; and condition of Geological Conservation Review sites in locations adjacent to geological disposal infrastructure. <p>Implementation of construction management plans at boreholes and GDF construction sites.</p>	<p>Developer</p> <p>Local Planning Authority</p> <p>Centre for Ecology and Hydrology (who are currently compiling soil quality information)</p>
Water Quality (including surface and ground water quality and availability)	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> groundwater quality monitoring; surface water quality monitoring; volumes of water consumption; and consented/permitted discharges at GDF development sites and linked waterbodies. 	<p>Developer</p> <p>Environment Agency</p> <p>Natural Resources Wales</p> <p>Scottish Environment Protection Agency</p> <p>Relevant water companies</p>
Flood Risk and Coastal Change	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> the extent of geological disposal 	<p>Developer</p> <p>Environment Agency</p> <p>Local Planning Authority</p>

The measures decided concerning monitoring

Topic Area	Indicator(s)	Source(s) of Information
	<p>infrastructure in Flood Zones 2 and 3³²;</p> <ul style="list-style-type: none"> • flood risk adjacent to geological disposal infrastructure sites; • incidents of flooding affecting geological disposal infrastructure; and • investment in flood risk defences associated with geological disposal infrastructure development. 	
Air	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> • air quality monitoring (including nitrogen oxides (NOx), hydrocarbons, carbon monoxide (CO), particulate matter (PM), methane, sulphur dioxide (SO₂), radon, volatile organic compounds (VOCs) and ozone at GDF development sites and along key transport routes to/from the borehole and GDF construction site(s); and • traffic activity levels around GDF development sites (annual average daily traffic flows). <p>Implementation of construction management plans at borehole and GDF construction sites.</p>	<p>Developer</p> <p>Local Planning Authority</p> <p>Public Health England</p>
Noise	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> • monitoring of noise levels at GDF development sites and along transport routes from/to the borehole and GDF construction site(s); and • number of nuisance complaints received related to GDF activity. <p>Implementation of construction management plans at borehole and GDF construction site(s).</p>	<p>Developer</p> <p>Local Planning Authority</p>
Climatic Factors	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> • energy consumption associated with the development of geological disposal infrastructure; and • emissions of greenhouse gases associated with geological disposal infrastructure development. 	<p>Developer</p>

³² Land identified by the Environment Agency as having either a medium or high probability of flooding. Flood Zone 2 defined as land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. Flood zone 3 defined as Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.

The measures decided concerning monitoring

Topic Area	Indicator(s)	Source(s) of Information
Waste and Resources	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> • volume of construction waste and proportions recycled; • volume of hazardous waste; • volume of controlled wastes and proportions recycled; • volumes of wastewater; and • raw materials used <p>associated with borehole and GDF development.</p> <p>Annual (where information allows) trends in volumes of higher activity radioactive waste deposited in a GDF.</p> <p>Implementation of Site Waste Management Plans.</p>	<p>Developer</p> <p>Environment Agency</p> <p>Relevant Waste Planning Authorities</p>
Traffic and Transport	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> • traffic activity levels around GDF development sites (annual average daily traffic flows); • proportion of GDF workers using sustainable modes of transport; and • investment in transportation infrastructure and public transport services associated with geological disposal infrastructure. <p>Implementation of GDF Staff Travel Plans.</p>	<p>Developer</p> <p>Highways Authority</p>
Cultural Heritage	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> • % of heritage assets of different types that are at risk at or adjacent to geological disposal infrastructure development sites; • harm to the historic environment including loss of, or damage to, heritage assets and their settings as a result of GDF development; and • the impact of GDF development on the significance of historic assets in locations at or adjacent to geological disposal infrastructure development sites. <p>Implementation of mitigation strategies for built heritage and below-ground archaeological remains.</p>	<p>Developer</p> <p>Historic England</p> <p>Cadw (Welsh Government historic environment service)</p> <p>Historic Environment Scotland</p> <p>Local Planning Authority</p>
Landscape and Townscape	<p>Annual (where information allows) trends in:</p> <ul style="list-style-type: none"> • development of geological disposal infrastructure in National Parks and Areas of Outstanding Natural Beauty (AONBs); • changes in the quality of character or status of the landscape, townscape and 	<p>Developer</p> <p>Local Planning Authority (including National Park authorities)</p>

Topic Area	Indicator(s)	Source(s) of Information
	waterscape; <ul style="list-style-type: none"> • changes in the settings and views of designated/local landscapes, sensitive locations, sites and receptors. Implementation of landscape enhancement measures as part of geological disposal infrastructure development, including off-site mitigation and enhancement strategies.	

Monitoring responsibilities

6.7 As author of the NPS, BEIS will be responsible for arranging for monitoring of the implementation of the policy, although the information required on the environmental and socio-economic trends may be obtained from a number of sources, agencies and organisations, as identified in **Table 6.1**. These include the Environment Agency, Natural England, Historic England and the developer. Wherever possible, existing and established monitoring systems will be used.

Appendix A

Compliance with SEA Regulations

Table A.1 details the SEA Regulations' requirements of the post adoption procedures and indicates where relevant information required can be found in this report.

Table A.1 Compliance of this report with the requirements of the SEA Regulations

SEA Regulations Requirement	Location in the Post Adoption Statement (where appropriate)
Information as to adoption of plan or programme (SEA regulation 16)	
<p>(1) As soon as reasonably practicable after the adoption of a plan or programme for which an environmental assessment has been carried out under these Regulations, the responsible authority shall -</p> <p>(a) make a copy of the plan or programme and its accompanying environmental report available at its principal office for inspection by the public at all reasonable times and free of charge; and</p> <p>(b) take such steps as it considers appropriate to bring to the attention of the public</p> <ul style="list-style-type: none"> - (i) the title of the plan or programme; - (ii) the date on which it was adopted; - (iii) the address (which may include a website) at which a copy of it and of its accompanying environmental report, and of a statement containing the particulars specified in paragraph (4), may be viewed or from which a copy may be obtained; - (iv) the times at which inspection may be made; and - (v) that inspection may be made free of charge. 	<p>A copy of the NPS and accompanying reports and documentation are available at: https://www.gov.uk/government/publications/national-policy-statement-for-geological-disposal-infrastructure</p>
<p>(2) As soon as reasonably practicable after the adoption of a plan or programme -</p> <p>(a) the responsible authority shall inform -</p> <ul style="list-style-type: none"> - (i) the consultation bodies; - (ii) the persons who, in relation to the plan or programme, were public consultees for the purposes of regulation 13; and 	<p>BEIS, as the responsible authority informed the consultation bodies and public consultees on the matters included in (3). A copy of the NPS and accompanying reports and documentation are available at: https://www.gov.uk/government/publications/national-policy-statement-for-geological-disposal-infrastructure</p> <p>A copy of the AoS Report is available at: https://www.gov.uk/government/consultations/national-policy-statement-for-geological-disposal-infrastructure</p>

SEA Regulations Requirement	Location in the Post Adoption Statement (where appropriate)
<ul style="list-style-type: none"> - (iii) where the responsible authority is not the Secretary of State, the Secretary of State; and <p>(b) the Secretary of State shall inform the Member State with which consultations in relation to the plan or programme have taken place under regulation 14(4)</p>	<p>This Post Adoption Statement addresses (iii) and contains particulars specified in paragraph (4) as outlined below.</p>
<p>(3) The matters are -</p> <p>(a) that the plan or programme has been adopted;</p> <p>(b) the date on which it was adopted; and (c) the address (which may include a website) at which a copy of -</p> <ul style="list-style-type: none"> - (i) the plan or programme, as adopted, - (ii) its accompanying environmental report, and . (iii) a statement containing the particulars specified in paragraph (4), may be viewed, or from which a copy may be obtained. 	<p>A copy of the NPS and accompanying reports and documentation are available at: https://www.gov.uk/government/publications/national-policy-statement-for-geological-disposal-infrastructure</p>
<p>(4) The particulars referred to in paragraphs (1)(b)(iii) and (3)(c)(iii) are -</p>	
<p>(a) how environmental considerations have been integrated into the plan or programme;</p>	<p>Section 2</p>
<p>(b) how the environmental report has been taken into account;</p>	<p>Section 3</p>
<p>(c) how opinions expressed in response to -</p> <ul style="list-style-type: none"> - (i) the invitation referred to in regulation 13(2)(d); - (ii) action taken by the responsible authority in accordance with regulation 13(4), <p>- have been taken into account;</p>	<p>Section 4</p>
<p>(d) how the results of any consultations entered into under regulation 14(4) have been taken into account;</p>	<p>Not applicable - no transboundary consultation with other EU Member States took place</p>
<p>(e) the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and</p>	<p>Section 5</p>
<p>(f) the measures that are to be taken to monitor the significant environmental effects of the implementation of the plan or programme.</p>	<p>Section 6, Table 6.1</p>
<p>Monitoring of implementation of plans and programmes (SEA regulation 17)</p>	
<p>(1) The responsible authority shall monitor the significant environmental effects of the implementation of each plan or programme with</p>	<p>Monitoring procedures are set out in section 6.</p>

SEA Regulations Requirement	Location in the Post Adoption Statement (where appropriate)
the purpose of identifying unforeseen adverse effects at an early stage and being able to undertake appropriate remedial action.	
(2) The responsible authority's monitoring arrangements may comprise or include arrangements established otherwise than for the express purpose of complying with paragraph (1).	The monitoring procedures set out in section 6 and will complement existing monitoring arrangements where possible.

This publication is available from: www.gov.uk/government/publications/national-policy-statement-for-geological-disposal-infrastructure

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