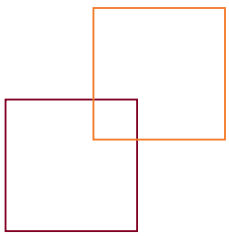
Draft National Policy Statement for Hazardous Waste:

Appraisal of Sustainability

A document issued by the Department for Environment, Food and Rural Affairs.

Annex 3



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Acknowledgements

This report has been produced by Defra and is based on advice provided by Parsons Brinckerhoff.

Contents

Abbreviations

Abbreviations List	
A	
AONB	Areas of Outstanding Natural Beauty
AoS	Appraisal of Sustainability
AQMA	Air Quality Management Area
B	
BAP	Biodiversity Action Plan
BMV	Best and Most Versatile (agricultural land)
C	
COT	Committee on Toxicity of Chemicals in Food, Consumer products and the Environment
D	
DCLG	Department of Communities and Local Government
Defra	Department for Environment, Food and Rural Affairs
E	
EC	European Commission
EEC	European Economic Community
EEE	Electrical and Electronic Equipment
EES	European Employment Strategy
EfW	Energy from waste
EIA	Environmental Impact Assessment
EqIA	Equality Impact Assessment
EU	European Union
F	
FRA	Flood Risk Assessment
H	
HER	Historic Environment Record
HTI	High Temperature Incineration
HRA	Habitats Regulations Assessment
I	
IDeA	Improvement and Development Agency
IMD	Indices of Multiple Deprivation
IPC	Infrastructure Planning Commission

Abbreviations List	
M	
MSW	Municipal Solid Waste
N	
NSA	National Scenic Area
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Projects
P	
PB	Parsons Brinckerhoff Ltd
PCSs	Polychlorinated Biphenyls
PPG	Planning Policy Guidance
PPS	Planning Policy Statement
R	
RIGS	Regionally Important Geological/Geomorphological Sites
S	
SAC	Special Area of Conservation
SCI	Site of Community Importance
SEA	Strategic Environmental Assessment
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SUDS	Sustainable Drainage Systems
U	
UK	United Kingdom
UN	United Nations
W	
WEEE	Waste Electrical and Electronic Equipment
WHO	World Health Organization

Technical Glossary

Term	Glossary
Air Quality Management Areas	Local authorities in the UK have statutory duties for managing local air quality under Part IV of the Environment Act 1995. Authorities are required regularly to review and assess air quality in their area and take decisive action when the objectives in regulation cannot be met by the specified target dates. When this happens, an Authority must declare an "Air Quality Management Area" (AQMA) and develop an Action Plan to tackle problems in the affected areas.
	Source: http://www.airquality.co.uk/annualreport/annualreport2007.php?d=es#mid
Appraisal of Sustainability	Before designating a statement as a National Policy Statement (NPS) for the purposes of the Planning Act 2008, the Secretary of State must carry out an Appraisal of the Sustainability (AoS) of the policy set out in the statement. The AoS is intended to help ensure that the NPS takes account of environmental, social and economic considerations, with the objective of contributing to the achievement of sustainable development. It incorporates the requirements of the Regulations that implement the Strategic Environmental Assessment Directive.
Ancillary infrastructure	Additional infrastructure, such as transport networks, required to serve the development or operation of a new hazardous waste facility.
Carrying capacity	The size of a population or community that can be supported indefinitely based on currently available resources and/or services.
Community fragmentation	The process or act of physically or theoretically separating people or established groups from one another, to the dis-benefit of one or more individuals in that same population.
Cross Border / Trans Boundary	In the context of this Report, this term refers to a measurable effect resulting from the design, construction, operation and/or legacy of a hazardous waste management facility that transcends one or more national or international borders. "Cross border" applies to internal UK borders and "Transboundary" to international borders.
Ecological connectivity	Connections between different habitats and species in an ecosystem or across a landscape.
	Source: http://www.oursouthwest.com/climate/registry/090529-biodiversity-glossary.pdf
Environmental equity	Protection for individuals so that no segment of the population, regardless of race, ethnicity, culture, or income, bears a disproportionate burden of the consequences of environmental pollution.
	Source: http://www.rff.org/wv/guide.aspx

Term	Glossary
European Site	The Conservation of Habitats and Species Regulations 2010 defines a European site as meaning (a) a Special Area of Conservation (SAC), (b) a site of Community importance (SCI) which has been placed on the list referred to in the third sub-paragraph of Article 4(2) of the Habitats Directive, (c) a site hosting a priority natural habitat type or priority species in respect of which consultation has been initiated under Article 5(1) of the Habitats Directive, during the consultation period or pending a decision of the Council under Article 5(3), or (d) an area classified pursuant to Article 4(1) or (2) of the Wild Birds Directive. A site which has been proposed to the European Commission under Regulation 10 (selection of sites eligible for identification as of Community importance). For the purposes of this report European Site is also taken to include Ramsar sites, which are designated under the Ramsar Convention (1971).
	Source: Conservation of Habitats and Species Regulations 2010: http://www.legislation.gov.uk/uksi/2010/490/regulation/8/made
Flood resilience	The ability to withstand and/or endure the impacts of flood. 'Resilience' differs from 'adaptability', as the latter suggests the process or act of change or progression towards the former.
Geodiversity	The variety of rocks, minerals, fossils, soils, landforms and natural processes that provide us with the raw materials, fuel and soils.
	Source: Natural England http://www.naturalengland.org.uk/ourwork/conservation/geodiversity/default.aspx
Green space	An area of natural or man-made park, woodland or other pleasant environment which has ecological value and increases the health and quality of life in the community by providing public spaces where the outdoors can be enjoyed.
	Source: adapted from http://www.greenspaces.org.uk/index.html
Habitats Regulation Assessment (HRA)	Any plan or project not directly connected with or necessary to the management of a European Site that is likely to have a significant effect on that site (either individually or in combination with other plans or projects) is subject to an Appropriate Assessment of its implications for the site with regard to the site's conservation objectives.
	Source: The Conservation of Habitats and Species Regulations 2010 http://www.legislation.gov.uk/uksi/2010/490/regulation/21/made
Habitat fragmentation	The separation and/or disintegration of one or more habitats into a collection of smaller habitats.

Term	Glossary
Hazardous waste	Waste that contains hazardous properties that may render it harmful to human health or the environment either immediately or over time. Procedures for the controlled management of such waste are set out by the European Commission (EC) in the Hazardous Waste Directive (91/689/EEC) (which has since been superseded by the Waste Framework Directive (2008/98/EC)), and hazardous waste is defined on the basis of a list, the European Waste Catalogue, drawn up under that Directive. The Hazardous Waste Directive is transposed by the Hazardous Waste (England) Regulations 2005 (SI 895), as amended (SI 1673). The Waste Framework Directive had not yet been transposed into UK legislation at the time the appraisal was undertaken. Hazardous wastes are listed in the List of Waste (England) Regulations and marked with an asterisk. Some wastes could be deemed hazardous or non-hazardous based on an assessment of their hazard properties. These are called 'mirror-entry' wastes. Typical hazardous wastes include: acids; alkaline solutions; batteries; oil fly ash; industrial solvents; oily sludges; pesticides; pharmaceutical compounds; photographic chemicals; waste oils; wood preservatives; TVs, computer monitors; paint; and fluorescent tubes.
	Source: http://www.defra.gov.uk/environment/waste/topics/hazwaste/documents/haz- waste-regs-guide.pdf
High Temperature Incineration	A waste treatment process that involves the destruction of waste by controlled burning at high temperatures. Under the Waste Incineration Directive (2000/76/EC) incineration plants must be designed, equipped, built and operated in such a way that the gas resulting from the process is raised, after the last injection of combustion air, in a controlled and homogenous fashion and even under the most unfavourable conditions, to a temperature of 850oC, as measured near the inner wall or at another representative point of the combustion chamber as authorised by the competent authority, for two seconds. If hazardous wastes with a content of more than 1% of halogenated organic substances, expressed as chlorine, are incinerated, the temperature has to be raised to 1100oC for at least two seconds.
	Source: adapted from Directive 2000/76/EC of the European Parliament and of the Council of 4 December 2000 on the Incineration of Waste http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:332:0091:0111:en:PDF

Term	Glossary
Historic environment	An environment which is central to the cultural heritage of the area/ region. It contributes to the sense of national, local and community identity, through the memories of events and phases in history. It has aesthetic value and provides local distinctiveness, particularly through leisure and recreation.
	Source: Consultation paper on a new Planning Policy Statement (PPS) 5: Planning for the Historic Environment http://www.communities.gov.uk/documents/planningandbuilding/pdf/1514132.pdf
Historic marine environment	Archaeological or cultural maritime assets and other previously undiscovered maritime features – particularly those that have the potential to be damaged or destroyed by human activity due to operations undertaken at ports or on the coastline.
	Source: adapted from http://nshistoricplaces.ca/conservation_resources/documents/Ports-policy.pdf, as referenced by English Heritage
Leachate	A solution arising from the process of leaching, whereby soluble constituents of a substance (for example, a waste) are taken up by a fluid.
Legacy	The stage at which a facility or component of that facility becomes no longer operational, and during which time, the processes of decommissioning, demolition, deconstructing and demounting structures to the benefit of the environment and/or communities, is undertaken.
Municipal Solid Waste (MSW)	Waste that is comprised mainly of household rubbish but also includes similar waste from shops and businesses.
	Source: Environment Agency http://www.environment-agency.gov.uk/research/library/publications/41171.aspx
National Policy Statement	Under the Planning Act 2008, national policy on infrastructure will be set out in a series of NPSs. These will establish the national need for a particular type of infrastructure and set the framework for decisions.
	Source: http://www.communities.gov.uk/documents/planningandbuilding/pdf/320282.pdf

Term	Glossary
Nationally Significant Infrastructure Projects	The large scale facilities that support the economy and vital public services. This includes railways, wind farms, power stations, reservoirs, harbours, airports, hazardous waste facilities and sewage treatment works. They could also include modifications to existing infrastructure such as extending electrical lines to enhance the electricity network or improving motorway junctions.
	Source: The IPC http://infrastructure.independent.gov.uk/?page_id=349
Nationally important	A feature or item for which the UK has special responsibility, features which are rare, and features which are declining or threatened.
	Source: adapted from http://www.jncc.gov.uk/page-2839
Natura 2000	Natura 2000 is a European Union (EU) wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of SACs designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) designated under the 1979 Birds Directive.
	Source: http://ec.europa.eu/environment/nature/natura2000/index_en.htm
Social cohesion	A term used to describe communities which have a common vision and sense of belonging, where particular bonds connect individuals to others in a defined area.
Solidification / stabilisation	Treatments which aim to improve pollutant retention and give the material obtained a certain structural durability. Their objective is thus not to achieve a simple cladding of the contaminated material in an inert matrix, but a complex physical-chemical process to obtain stabilization and solidification of the pollutants.
	Source: INERTEC http://www.inertec.fr/inertec/inertec_uk.nsf/site/Waste-stabilisation-and-solidification.Stabilisation-and-solidification-processes
Strategic Environmental Assessment (SEA)	A generic term for an environmental assessment of plans, programmes and policies; in this document, used to refer to an assessment which complies with the requirements of the EU Directive 2001/42/EC "on the assessment of the effects of certain plans and programmes on the environment" (the "SEA Directive")
	Source: http://www.communities.gov.uk/documents/planningandbuilding/pdf/practicalguidesea.pdf

Term	Glossary
Sustainable procurement	A process whereby organisations meet their needs for goods, services, works and utilities in a way that achieves value for money on a whole life basis in terms of generating benefits not only to the organisation, but also to society and the economy, whilst minimising damage to the environment.
	Source: Procuring the future http://www.defra.gov.uk/sustainable/government/documents/full-document.pdf
Waste Electrical and Electronic Equipment	Electrical and electronic equipment (EEE) in the categories listed below with a voltage of up to 1000 volts for alternating current or up to 1500 volts for direct current. Waste EEE (WEEE) the generation, handling or disposal of waste that falls under one of the following ten categories: 1. Large household appliances 2. Small household appliances 3. IT and telecommunications equipment 4. Consumer equipment 5. Lighting equipment 6. Electrical and electronic tools 7. Toys, leisure and sports equipment 8. Medical devices 9. Monitoring and control equipment 10. Automatic dispensers.
	Source: NetRegs http://www.netregs.gov.uk/netregs/topics/WEEE/63047.aspx
Waste hierarchy	A framework foundation for sustainable waste management, setting out the order in which options for waste management should be considered based on environmental impact: elimination/prevention – reduction – re-use – recycling – energy recovery – disposal.
	Source: Defra http://www.defra.gov.uk/ENVIRONMENT/waste/topics/index.htm
Whole-life costing	A technique that quantifies financial values for materials, buildings and infrastructure, from inception to end-of-use.
	Source: Whole Life Cost Forum http://www.wlcf.org.uk/page2.html

Section 1: Introduction

1.1 Purpose of this Report

1.1.1 The purpose of this Report is to present the information on the potential sustainability effects of the Hazardous Waste National Policy Statement (NPS). It identifies key sustainability issues relevant to the development of the Hazardous Waste NPS, sets out the AoS Framework against which the Hazardous Waste NPS has been appraised, and reports on how the AoS has influenced the development of the Hazardous Waste NPS.

1.2 Background

1.2.1 The Planning Act 2008 introduces a new system for Nationally Significant Infrastructure Projects (NSIPs). A major component of this legislation is the introduction of an Infrastructure Planning Commission (IPC), to take decisions on NSIPs (transport, energy, water and waste). To support decision-making, the IPC will refer to the Government's NPSs, which are to provide a clear long-term strategic direction for NSIPs.

1.2.2 Under the Planning Act, the Department for Environment, Food and Rural Affairs (Defra) is responsible for preparing an NPS for hazardous waste, which will set out a statement of Government policy on nationally significant hazardous waste infrastructure for plants whose main purpose is the final disposal or recovery of hazardous waste.

1.2.3 The Act also commits Government to undertaking an appraisal of the sustainability of the policy set out in an NPS, herein referred to as an Appraisal of Sustainability (AoS). The purpose of the AoS is to ensure that potential social, environmental and economic impacts of the NPS are identified as it is developed. The intent is to ensure that desirable impacts are enhanced and undesirable impacts are avoided or mitigated in the NPS as it is developed, thus contributing to the preparation of a sustainable Hazardous Waste NPS.

1.2.4 Defra commissioned Parsons Brinckerhoff Ltd (PB), and their associates Environ, WRc plc and SQW Consulting, to provide technical advice on the AoS of the Hazardous Waste NPS.

1.2.5 The AoS incorporates the requirements of European Directive 2001/42/EC on the assessment of effects of certain plans and programmes on the environment (the "Strategic Environmental Assessment (SEA) Directive"). The AoS also comprises a Habitats Regulations Assessment (HRA) in accordance with Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the "Habitats Directive") and an Equality Impact Assessment (EqIA) in accordance with Equalities legislation; the HRA and EqIA have been prepared as standalone documents however, where appropriate, the findings of these assessments have been incorporated into the AoS.

1.2.6 This AoS Report details the AoS process and includes the findings of the assessment of the Hazardous Waste NPS. It should be read in conjunction with the draft Hazardous Waste NPS.

1.3 Structure of this AoS Report

1.3.1 The AoS Report is structured as follows:

Section	Title	Description
Abbreviations and Technical Glossary		
Section 1	Introduction and Background	Sets out the background to the AoS, purpose, and the structure of the report.
Section 2	The Hazardous Waste NPS	Sets out the background to the Hazardous Waste NPS.
Section 3	Appraisal of Sustainability Methodology	Sets out the AoS process, steps undertaken, and the methodology followed for the AoS of the Hazardous Waste NPS.
Section 4	Sustainability Objectives, Baseline and Key Sustainability Issues	Sets out a list of baseline data collected and sources, sustainability objectives and key sustainability issues.
Section 5	Appraisal of Sustainability Framework	Provides a set of sustainability objectives used within the appraisal process and a compatibility analysis between the AoS objectives to identify potential conflicts.
Section 6	Compatibility Assessment of the NPS Objectives against the Appraisal of Sustainability Objectives	Presents a compatibility 'test' between each of the NPS objectives against each of the AoS objectives.
Section 7	Assessment of NPS Strategic Alternatives	Provides the assessment of strategic alternatives, by highlighting the sustainability implications of each, and by putting forward recommendations for improvement.
Section 8	Assessment of the draft NPS	Sets out the prediction and evaluation of social, environmental and economic effects of the draft NSP and proposed hazardous waste infrastructure. It also identifies ways of mitigating adverse and uncertain effects and maximise beneficial effects.
Section 9	Monitoring	Sets out monitoring measures of significant effects during the Hazardous Waste NPS implementation.
Section 10	Next Steps	Presents the methodology and work to be undertaken during the next phase of the AoS.
Section 11	Appendices	
Annexes		

Section 2: The Hazardous Waste National Policy Statement Background

2.1 Introduction

2.1.1 The previous Government laid out a series of reforms to the development consent system for NSIPs in the Planning for a Sustainable Future White Paper which was given a statutory basis in the Planning Act 2008.

2.1.2 The Planning Act 2008 provides for an independent IPC which will take decisions on planning approval for NSIPs in the light of statements of Government policy for each infrastructure type, known as NPSs.

2.1.3 Thresholds for infrastructure where planning applications will be considered by the IPC are set out in the Act, Article 30. For hazardous waste infrastructure, this includes:

- Construction of a facility in England whose main purpose is the final disposal or recovery of hazardous waste and where the facility is expected to have a capacity of more than 100,000 tonnes per year in the case of the disposal of hazardous waste by landfill or in a deep storage facility, and in any other case, more than 30,000 tonnes per year.
- Alteration of a hazardous waste facility in England whose main purpose is the final disposal or recovery of hazardous waste and where the capacity of the facility is expected to increase by more than 100,000 tonnes per year in the case of the disposal of hazardous waste by landfill or in a deep storage facility, and the capacity is expected to increase by more than 30,000 tonnes per year for any other type of facility.

2.2 What is Hazardous Waste?

2.2.1 Hazardous waste is waste that may cause harm to human health or the environment. Such wastes contain one or more hazardous properties. Requirements for the controlled management of such waste are set out in the European Union (EU) Hazardous Waste Directive (91/689/EEC) (which has since been superseded by the Waste Framework Directive (2008/98/EC)), and such wastes are currently asterisked in the European Waste List (EC Decision 2000/532/EC). The list is subject to periodic review.

2.2.2 Some everyday items such as computer monitors, televisions, refrigeration equipment and some batteries may be hazardous waste as well as more obvious materials such as asbestos and oil. Hazardous waste therefore comes from a wide range of sources, including households, businesses of all types, and public services, such as the health service, schools etc.

2.2.3 Hazardous waste accounts for only a small percentage of total waste arisings (in 2008 around 4% of waste arisings in England and Wales were hazardous waste), nevertheless amounts are still significant (6.4 million tonnes in England and Wales in 2008, of which 6.2 million[1] tonnes arose in England).

2.3 Waste Framework Directive 2008/98/EC

2.3.1 The Waste Framework Directive 2008/98/EC replaces the Hazardous Waste Directive (91/689/EEC) and sets out a revised waste hierarchy, as follows:

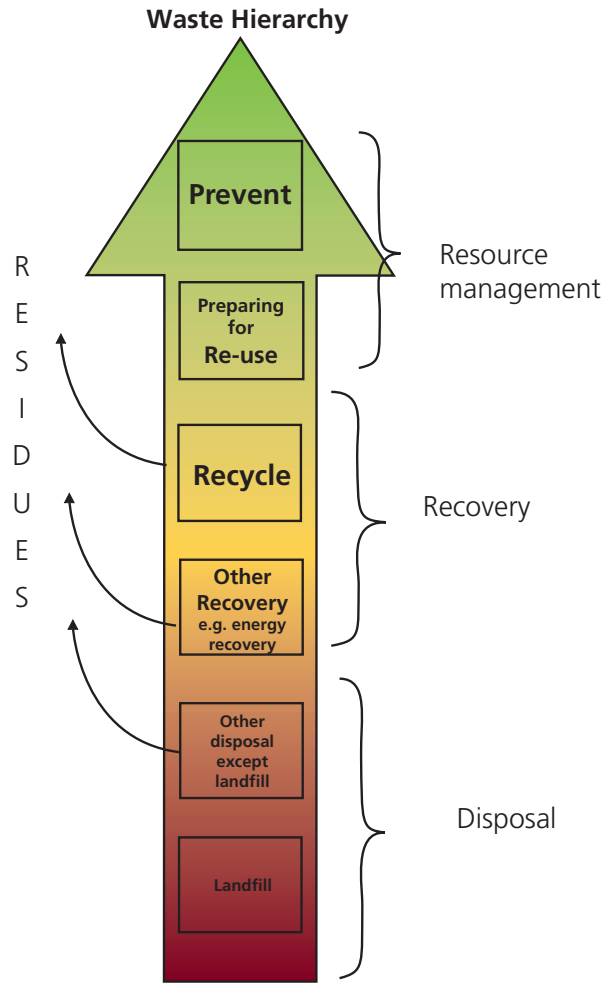
- Prevention;
- Preparation for reuse;
- Recycling;
- Other recovery, including energy recovery; and
- Disposal.

2.3.2 This is shown diagrammatically in Figure 2.1 below; it should be noted that, even with optimal

1 Environment Agency (2008), Waste Information 2008. Available at: http://www.environment-agency.gov.uk/static/documents/Research/Waste_Information_2008_Final.pdf

use of this hierarchy, there will always be some hazardous waste, such as asbestos or residues from other treatment processes, for which disposal is currently the only appropriate option.

Figure 2.1: The Waste Hierarchy



2.3.3 Article 16 of the revised Waste Framework Directive requires Member States to take appropriate measures in cooperation with other Member States, where this is necessary or advisable, to establish an integrated and adequate network of disposal installations, taking into account best available techniques. The network shall enable waste to be disposed of in one of the nearest appropriate installations. This "proximity principle" envisages adequate provision of waste facilities within each Member State, while recognising that there may be circumstances where waste is produced in too small a quantity for separate facilities in each Member State.

2.4 Current Hazardous Waste Policy in England

2.4.1 Defra has developed a specific strategy for hazardous waste to underpin the practical implementation of the revised Waste Framework Directive 2008/98/EC. The "Strategy for Hazardous Waste Management in England" was published on 18 March 2010.

2.4.2 The Strategy for the development of treatment infrastructure comprises:

- Six high level principles for the management of hazardous waste.
- A set of outline decision trees to assist waste producers and waste managers to make the right decisions about the management of their waste and investment in infrastructure to help move hazardous waste management up the waste hierarchy.
- A timeline of action on issues relating to the introduction and implementation of the strategy.
- A list of guidance relating to the treatment of hazardous waste.

2.4.3 The six high level principles for the management of hazardous waste intend to drive the management of hazardous waste up the waste hierarchy and encourage more sustainable management. These principles are as follows:

- Principle 1 – requires hazardous waste to be managed with a view to delivering the best overall environmental outcome and which would be expected to be in line with the waste hierarchy, except where life cycle analysis indicates that (exceptionally) the best overall environmental option would require a departure from that hierarchy.
- Principle 2 – looks to the market for the development of hazardous waste infrastructure which implements the hierarchy for the management of hazardous waste and meets

the needs of the United Kingdom (UK) to ensure that the country as a whole is self sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met.

- Principle 3 – requires a reduction in reliance on landfill, with landfill only being used where, overall, there is no better recovery or disposal option.
- Principle 4 – requires that hazardous waste is not mixed with different categories of hazardous waste or with other waste substances or materials that hazardous waste is not treated by the dilution of hazardous substances and that organic hazardous waste streams are kept separate from other streams to assist with their subsequent management in line with the hierarchy.
- Principle 5 – requires that organic hazardous wastes that cannot be reused, recycled or recovered shall be subject to destruction using best available techniques, with energy recovery for all appropriate treatments. No hazardous organic waste is to be landfilled unless the requirements of the Landfill Directive are met.
- Principle 6 – aims to end the practice of relying on higher Landfill Directive waste acceptance criteria to enable hazardous waste to continue to be landfilled.

2.5 The Hazardous Waste NPS

2.5.1 The Hazardous Waste NPS will provide a long-term strategy for nationally significant hazardous waste infrastructure development and will support the IPC in decision making on NSIPs when examining and determining planning applications for hazardous waste infrastructure. The Hazardous Waste NPS is based on the policy and principles set out in the Strategy for Hazardous Waste Management in England.

2.5.2 The Hazardous Waste NPS provides policy for hazardous waste infrastructure in England only, however, it is being developed with due regard to policy in Wales, Scotland and Northern Ireland, and with regard to cross border waste transfer to and from England.

2.5.3 The NPS is set out in the following Parts:

- Part 1: Introduction – this section sets out the legal requirement for the NPS, and its role and scope.
- Part 2: Government Policy Context – this section sets out a summary of Government Policy and Government Objectives for hazardous waste management, including a consideration of the policy alternatives "Central Planning of Infrastructure", "Government prescription on appropriate technologies", and "Identification of Suitable and Unsuitable Locations for Infrastructure".
- Part 3: Need for Large Scale Hazardous Waste Infrastructure – this section sets out a summary of the need for large scale infrastructure, including details on volumes of hazardous waste generated in England. It also sets out what types of NSIP will be required, as follows: Waste Electrical and Electronic Equipment (WEEE) Treatment Facilities; Oil Regeneration Plant; Facilities to treat Air Pollution Control Residues; Thermal Desorption Facilities; Bioremediation/Soil Washing Facilities; Ship Recycling Facilities; and Hazardous Waste Landfill Facilities.
- Part 4: Assessment Principles: this section sets out assessment principles and covers the following:
  - Environmental Impact Assessment
  - Habitats Regulations Assessment
  - Alternatives
  - Criteria for "Good Design" for Hazardous Waste

- Climate Change Adaptation
- Pollution Control and Other Environmental Regulatory Regimes
- Safety
- Hazardous Substances
- Health
- Common Law and Statutory Nuisance
- Security Considerations
- It also includes a section on specific considerations for each type of NSIP identified in Part 3 of the NPS.

- Part 5: Generic Impacts – this section of the NPS sets out potential generic impacts of new hazardous waste infrastructure, and proposed measures that Applicants and the IPC should take into consideration in the development of such infrastructure. The generic impacts considered in the NPS are identified below:

Air emissions	Landscape and visual impacts
Biodiversity and geological conservation	Land use including open space, green infrastructure and green belt
Civil and military aviation and defence interests	Noise
Coastal change	Socio-economic
Dust, odour, artificial light, smoke, steam and insect infestation	Traffic and transport impacts
Flood risk	Waste management
Historic environment	Water quality and resources

2.5.4 Further details on the Hazardous Waste NPS are provided throughout this AoS Report.

Section 3:
The Appraisal of Sustainability Methodology

3.1 Introduction

3.1.1 This AoS Report provides a qualitative assessment of the Hazardous Waste NPS, in its draft format, and its contribution towards achieving a range of environmental, social and economic objectives. This section sets out the methodology employed for the AoS of the draft Hazardous Waste NPS.

3.2 Overview of the Appraisal of Sustainability Process and other Assessments

3.2.1 The Planning Act 2008 (Section 5 (3)) requires that "…an appraisal of the sustainability of the policy set out in the statement" must be carried out before a statement can be designated as a NPS. The purpose of the AoS is to ensure that potential social, environmental and economic impacts of the NPS are identified as it is developed. The intent is to ensure that desirable impacts are enhanced and undesirable impacts are avoided or mitigated in the NPS as it is developed, thus contributing to the preparation of a sustainable Hazardous Waste NPS.

3.2.2 The approach taken to this AoS has been based on the legislative requirements of the SEA Directive, as expanded to include social and economic considerations. The AoS process has been undertaken in a fully accountable manner, with an audit of decisions taken during the appraisal process, and results presented within this AoS Report.

Strategic Environmental Assessment

3.2.3 SEA provides the basis for, and is integrated into the wider AoS process. The environmental component of this AoS fulfils the requirements of the SEA Directive, as transposed into UK law by The Environmental Assessment of Plans and Programmes Regulations 2004 (SI 2004/1633).

3.2.4 Relevant guidance for undertaking SEA is provided in 'A Practical Guide to the Strategic Environmental Assessment Directive'[2]. A summary of the requirements of the SEA Directive that should be incorporated into an AoS, as outlined in the SEA Practical Guide, is shown in Table 3.1. The table also indicates the section of this AoS Report where SEA requirements have been addressed throughout this Report.

Table 3.1: Summary of the Requirements of the SEA Directive

SEA Requirement	Section of AoS Report
Preparation of an environmental report in which the likely significant effects on the environment of implementing the plan or programme, and reasonable alternatives taking into account the objectives and geographical scope of the plan or programme, are identified, described and evaluated.	The Environmental Report has been incorporated into this AoS Report.
An outline of the contents, main objectives of the plan or programme, and relationship with other relevant plans and programmes.	Sections 2 and 4.
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	Section 4.
The environmental characteristics of areas likely to be significantly affected.	Section 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 Directives 79/409/EEC and 92/43/EEC.	Section 4.

2 Office of the Deputy Prime Minister (ODPM) (September 2005), *A Practical Guide to Strategic Environmental Assessment Directive*. London: HMSO.

SEA Requirement	Section of AoS Report
The environmental protection objectives, established at international, Community or national 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.	Section 5.
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	Sections 7 and 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.	Sections 7 and 8.
A description of measures envisaged concerning monitoring.	Section 9.
A non-technical summary of the information provided under the above headings.	Non technical summary accompanying the AoS Report.
Consultation: • Authorities with environmental responsibility, when deciding on the scope and level of detail of the information to be included in the environmental report. • Authorities with environmental responsibility and the public shall be given an early and effective opportunity within appropriate time frames to express their opinion on the draft plan or programme and the accompanying environmental report before the adoption of the plan or programme.	Consultation was undertaken with statutory authorities during the scoping phase; details are provided in the Scoping Report attached at Appendix A Ongoing consultation has been maintained with the statutory consultees. This AoS Report and the draft NPS will be issued for public consultation.
Taking the environmental report and the results of the consultations into account in decision-making.	Section 10 sets out the next steps for the AoS.
Provision of information on the decision: When the plan or programme is adopted, the public consulted shall be informed and the following made available to those so informed: • the plan or programme as adopted; • a statement summarising how environmental considerations have been integrated into the plan or programme and how the environmental report, the opinions expressed and the results of consultations have been taken into account, and the reasons for choosing the plan or programme as adopted, in the light of the other reasonable alternatives dealt with; and • the measures decided concerning monitoring.	Section 10 sets out the next steps for the AoS.

Monitoring of the significant environmental effects of the plan's or programme's implementation.	Section 9 sets out initial proposals for monitoring; the proposed monitoring will be refined following consultation.
Quality assurance: environmental reports should be of a sufficient standard to the requirements of the SEA Directive.	The SEA Quality Assurance checklist has been completed and is presented at Appendix B.

Source: A Practical Guide to the Strategic Environmental Assessment Directive (ODPM, September 2005).

3.3 Consultation

3.3.1 This AoS Report is being issued for public consultation alongside the draft Hazardous Waste NPS. For more information on the public consultation and how to give us your views, please refer to the separate Consultation Document prepared by Defra.

List of Scoping Consultees

3.3.2 A list of the organisations consulted on the scope of the AoS for the Hazardous Waste NPS is provided in Appendix A (Scoping Report, Appendix D). This list was developed based on SEA statutory requirements and in accordance with Defra requirements for consultation on NPSs.

Statutory Consultation Period

3.3.3 During the scoping phase, a 5 week statutory consultation period ran from Thursday 12 November until Thursday 17 December 2009. The purpose of the consultation was to invite feedback on the scope of the AoS for the Hazardous Waste NPS and to provide input into the development of the AoS Framework.

3.3.4 At the start of this consultation period, consultees received a Preliminary Report that set out the scoping findings to date, and a standard feedback form.

3.3.5 A consultee Workshop was also held on 27 November 2009. The workshop enabled the verification, updating and augmentation of baseline data, discussed the overall scope and key issues from the perspective of the Consultees, examined how the key sustainability issues should be addressed in the appraisal, and obtained further inputs into the development of the AoS framework.

How comments have been taken on board

3.3.6 Table 3.2 sets out how consultee comments during the scoping phase have been taken on board in the preparation of the AoS Report.

Initial Topic Headings	Consultee comments	How comments have been addressed
Waste Management	**Topic Heading / Objective:** • Introduction of the terms 'environmentally sound management' and 'facility life cycle'	Definition is included in the Glossary to the Scoping Report (Appendix A).
	Framework: • Refer to 'principles' of Waste Hierarchy and highlight 'prevention, minimisation and re-use' • Add question regarding managing facilities in an 'environmentally sound way' • Add question re 'reducing legacy impacts on communities and health' • Remove reference to 'sourcing ethical materials'	AoS framework updated.
Resources and Raw Materials	**Topic Heading / Objective:** • Introduction of the term 'resource efficiency'	Definition is included in the Glossary to the Scoping Report (Appendix A).
	Framework: • Ensure 'resource efficiency' is a key criterion in the questioned posed • Take into account Energy from Waste principles	AoS framework updated.
Climate Change and Climate Change Adaptation	**Topic Heading / Objective:** • Introduction of the term 'resilience' to both heading and objective	Definition is included in the Glossary to the Scoping Report (Appendix A).
	Framework: • Take into account 'resilience' in addition to 'adaptation to climate change'	AoS framework updated.
Air Quality and Emissions	**Topic Heading / Objective:** • None	No action required.
	Framework: • Take into account impacts of dispersed air pollution on Natura 2000 / RAMSAR sites • Recognise positive impacts on air quality from improved waste management facilities / technologies	AoS framework updated. Comments taken on board during the appraisal.

Traffic and Transport	**Topic Heading / Objective:** • None	No action required.
	Framework: • Take into account traffic impacts from ancillary infrastructure • Refer to 'non-motorised' or 'active' travel • Include question on impacts to 'historic and/or environment assets' • Refer to all emissions sources rather than just 'carbon'	AoS framework objective updated as relevant to hazardous waste management.
Biodiversity, Flora and Fauna	**Topic Heading / Objective:** • None	No action required.
	Framework: • Make reference to the protection of 'undesignated habitats and species' • Include a question on 'ecological connectivity' and 'habitat fragmentation'	AoS framework updated.
Water Quality and Resources	**Topic Heading / Objective:** • None	No action required.
	Framework: • Include a question on maximising water efficiency and reducing operational water consumption • Refer to 'protected areas' (Water Framework Directive) as well as 'water resources'	AoS framework updated.
Flood Risk	**Topic Heading / Objective:** • Introduction of the phrase 'to ensure that facilities remain safe and operational throughout their lifetime by being able to respond to climate change'	The objective has been updated.
	Framework: • Replace term 'floodplain' with 'areas of flood risk' • Take into account the need to make facilities 'safe and operationa' • Ensure facilities do not increase the risk of flooding elsewhere • Take into account the benefits of using Sustainable Urban Drainage Systems (SUDS)	AoS framework updated.

Initial Topic Headings	Consultee comments	How comments have been addressed
Soils, Geology and Geomorphology	**Topic Heading / Objective:** • Replace term 'geology and geomorphology' with 'geodiversity' in both heading and objective	Heading updated in the AoS.
	Framework: • Take into account the 'need to conserve geodiversity'	AoS framework updated.
Coastal Processes	**Topic Heading / Objective:** • Introduce term 'marine environment' to the topic heading • Take into account the 'natural and historic marine environment' in the objective	Heading updated in the AoS. Objective updated.
	Framework: • Take into account 'coastal erosion and change' • Refer to the need 'to protect the natural and historic marine environment'	AoS framework updated.
Landscape and Visual	**Topic Heading / Objective:** • Remove the term 'aesthetic' • Replace 'valuable' with 'nationally important'	Objective updated.
	Framework: • Recognise 'sensitive design' as a driver for reducing landscape impacts • Remove question on 'visual acceptability'	AoS framework updated.
Historic Environment	**Topic Heading / Objective:** • Replace 'archaeology and cultural heritage' with 'historic environment' in the topic heading • Introduce 'historic environment' and 'cultural assets' to topic objective	Heading updated in the AoS Report. Heading updated in the AoS Report.
	Framework: • *Written comments were provided following the workshop; please refer to Appendix E.*	AoS framework updated.

Population	**Topic Heading / Objective:** • Replace main body of objective with 'to ensure that hazardous waste management facilities optimise benefits to and encourage the development of sustainable communities'	Objective updated.
	Framework: • Take into account demographic trends to ensure avoidance of adverse effects on communities • Recognise carrying capacity of local populations	AoS framework updated.
Health and Well Being	**Topic Heading / Objective:** • Introduce term 'reduce health inequalities' • Make reference to 'legacy', as well as 'design, construction and operation'	Objective updated.
	Framework: • Take into account the potential to restore and manage legacy sites for public use and recreation	AoS framework updated.
Equality	**Topic Heading / Objective:** • None	No action required.
	Framework: • Introduce questions on: (a) ethical sourcing of materials and products, (b) compliance with equalities legislation, (c) prevention of community fragmentation / encouragement of social cohesion, and (d) protection of environmental equity.	AoS framework updated.
Noise	**Topic Heading / Objective:** • None	No action required.
	Framework: • Include 'surface, subsurface and aquatic environments' in the management of noise impacts • Replace term 'social receptors' with 'communities and individuals'	AoS framework updated.

Initial Topic Headings	Consultee comments	How comments have been addressed
Spatial Planning and Land Use	**Topic Heading / Objective:** • Include the term 'existing and proposed planning' • Replace 'land use, leisure and recreational activities or services' with 'green spaces'	Objective updated.
	Framework: • Simply questions by referring to 'the prevention of impacts on existing and proposed land', rather than identifying a wide range of land use types • Recognise 'the need to use process and operational by-products' in spatial planning • Take into account 'green spaces and parks' during both design and decommissioning	AoS framework updated.
Military and Civil Aviation	**Topic Heading / Objective:** • Introduce the term 'integrity and security' to objective	Objective updated.
	Framework: • Objective updated to read: To protect and conserve the integrity and security of aviation and military material and infrastructural assets.	AoS framework updated
Economy	**Topic Heading / Objective:** • None	No action required
	Framework: • Take into account the economic benefits of co-locating facilities and existing infrastructure • Address the need to contribute to local economic strategy requirements • Encourage investment in new / innovative technologies • Refer to making contributions to developing economic sectors • Ensure 'sustainable procurement' is considered in the framework questions	AoS framework updated

Employment, Education and Training	**Topic Heading / Objective:** • Split topics 'Employment and Business' and 'Education and Training'	Heading updated in the AoS Report, and topics treated separately.
	Framework: • Split previously combined policy, constraints, opportunities, objectives and AoS Criteria into two sections, as described in the above Topic Heading / Objective comment • Remove question on 'sustainable procurement' • Rephrase AoS Criterion to allow the management of facilities to 'provide for' (rather than 'necessitate') education and training	AoS framework updated.

Further consultation during development of the AoS Report

3.3.7 Following the preparation of the AoS Scoping Report, further consultation was undertaken with the Environment Agency to verify a number of data sources. Consultation was also undertaken with Natural England for the purposes of verifying the approach to and conclusions of the HRA; further details on that consultation are available within the HRA Report.

Next stages of consultation

3.3.8 This AoS Report will be published alongside the draft Hazardous Waste NPS for consultation, together with a Consultation document setting out the procedures for consultation. Following the consultation period, Defra will issue an AoS Statement to summarise how the AoS has influenced in the development of the Hazardous Waste NPS.

3.4 Scope of the Appraisal of Sustainability

Thematic scope

3.4.1 In order to ensure that the relevant aspects of the current state of the environment, and the likely evolution thereof, were addressed as part of the AoS, a series of 'thematic topics' was identified based on consultation and agreement with Defra, the Department of Communities and Local Government (DCLG), and consultees during the scoping stage of the AoS. The themes identified for consideration in the AoS are set out in Table 3.3. Table 3.3 also identifies the relationship between the AoS themes and the issues identified in Annex 1 of the SEA Directive.

Geographical scope

3.4.2 In accordance with the scope of the Hazardous Waste NPS, the spatial focus of the AoS is England; however, in recognising that hazardous waste crosses borders, consideration has also been given to hazardous waste management trends and sustainability issues in Scotland, Wales and Northern Ireland and, where relevant, longer distance international transfers of waste to and from England.

Temporal scope

3.4.3 The effects of a policy, plan or programme may change over time. The temporal effects of the NPS have been considered in the appraisal, where this is appropriate. For the purposes of this appraisal, short term is defined as effects arising from implementation up to 5 years, medium term as between 5-10, and long term as beyond 10 years.

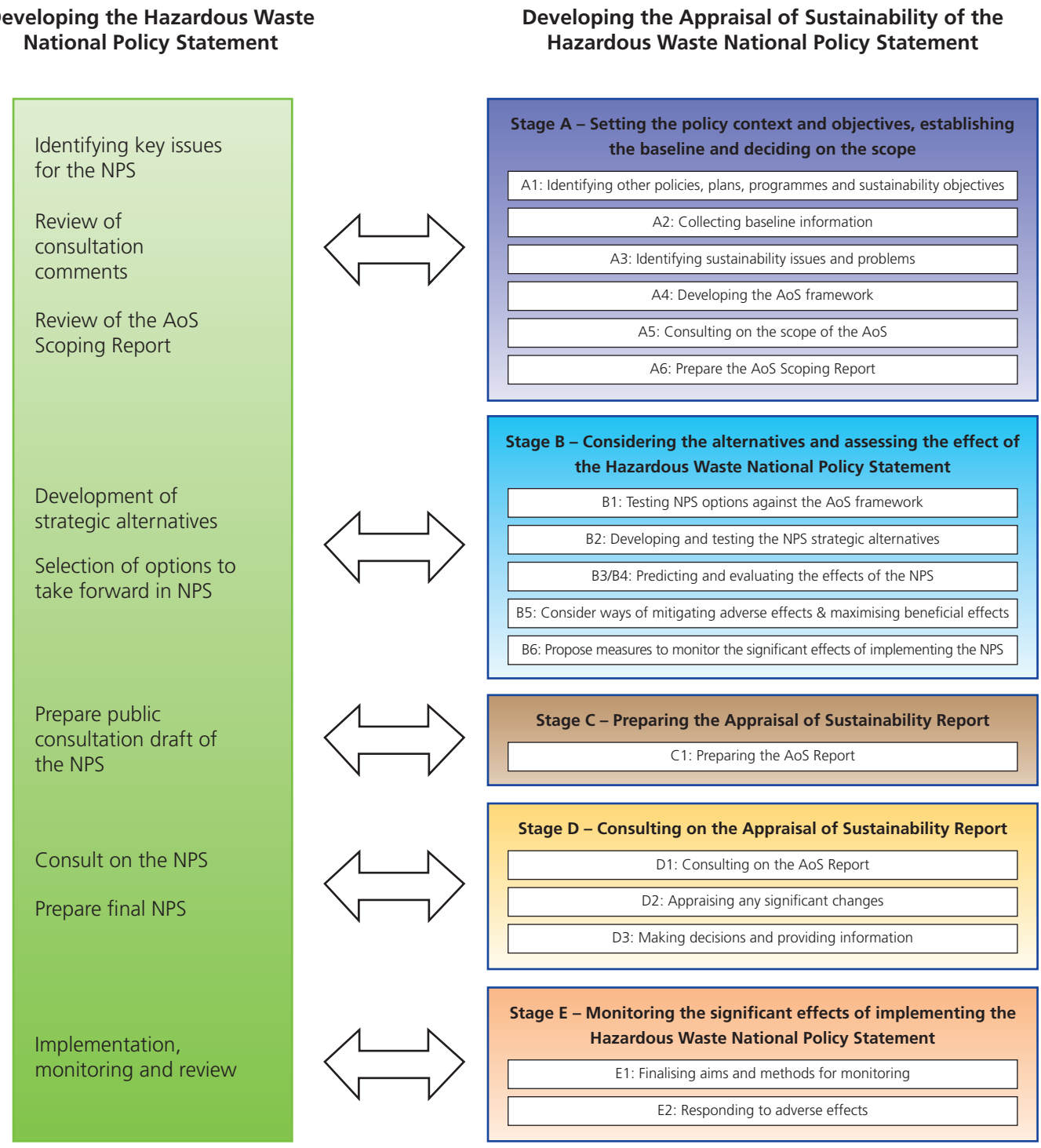
Table 3.3: Themes scoped into the AoS

Themes	Scoped in or out	SEA Directive Annex 1 Issues									
		Biodiversity, Flora & Fauna	Population	Human Health	Soil	Water	Air	Climatic Factors	Material Assets	Cultural Heritage	Landscape
Hazardous Waste Management	Yes		✓	✓							
Resources and Raw Materials	Yes								✓		
Climate Change Adaptation and Resilience	Yes							✓			
Air Quality and Emissions	Yes						✓	✓			
Traffic and Transport	Yes		✓	✓				✓	✓		
Biodiversity, Flora and Fauna	Yes	✓									
Water Quality and Resources	Yes					✓					
Flood Risk	Yes					✓		✓			
Soils and Geodiversity	Yes				✓						
Coastal Change and the Marine Environment	Yes	✓						✓		✓	
Landscape	Yes									✓	✓
Historic Environment	Yes									✓	✓
Population	Yes		✓								
Health and Well Being	Yes		✓	✓							
Equality	Yes		✓	✓							
Noise	Yes		✓								
Spatial Planning and Land Use	Yes		√								
Military and Civil Aviation	Yes								√		
Economy	Yes		√						√		
Employment and Business	Yes		√						√		
Education and Training	Yes		√						√		

3.5 Methodology of the Appraisal of Sustainability: Meeting the Combined Requirements of SEA and Sustainability

3.5.1 The relationship between the AoS and the Hazardous Waste NPS is shown in Figure 3.1 overleaf.

Figure 3.1: The relationship between the AoS and the Hazardous Waste NPS



Source: PB Adapted

3.5.2 The AoS for the Hazardous Waste NPS has been undertaken at the same time as the drafting of the NPS. This ensures that findings from the scoping exercise and the AoS have been taken into account and influenced amendments in the draft NPS prior to the public consultation stage.

3.5.3 The stages of the AoS process are detailed below.

3.6 Stage A: Setting the Policy Context and Objectives, establishing the Baseline and Deciding on the Scope (Scoping Stage)

3.6.1 Stage A, the Scoping stage, was undertaken between September 2009 and January 2010. The scoping stage involved the following:

- Stage A1: Identification of other relevant plans, policies, programmes and sustainability objectives – a review of relevant plans, policies, programmes and sustainability objectives of relevance to the Hazardous Waste NPS, and those that have the potential to influence its development was undertaken. A summary of this review is provided in Section 4 of this AoS Report.
- Stage A2: Collection of baseline information – Baseline environmental, social and economic information was collected (as available) to reflect the impacts of the current hazardous waste management situation and likely future trends and requirements. A summary of baseline information is provided in Section 4 of this AoS Report.
- Stage A3: Identifying sustainability issues and problems – Through the review of relevant plans, policies, programmes and sustainability objectives and the collation of baseline information, a range of key sustainability issues that could be addressed by or affect the content of the Hazardous Waste NPS were identified. A summary is provided in Section 4 of this AoS Report.
- Stage A4: Developing the AoS Framework – The AoS framework for the Hazardous Waste NPS was developed around the sustainability objectives developed through the review of relevant policies, plans, programmes and sustainability objectives and baseline conditions, and finalised in consultation with key consultees and liaison with Defra. This framework has been used to assess the impacts of the NPS (see Sections 4, 7 and 8 of this Report).
- Stage A5: Consulting on the scope of the AoS – Consultation was undertaken with Statutory Environmental Bodies and other key consultees during a 5 week period from Thursday 12 November until Thursday 17 December 2009. Comments received from consultees, and how these were addressed are provided in Section 1.3 of this AoS Report and in the Scoping Report in Appendix A.
- Stage A6: Prepare AoS Scoping Report – The findings of the Scoping Stage were reported on in the AoS Scoping Report, which can be found in Appendix A.

3.7 Stage B: Considering the Alternatives and Assessing the Effects of the Hazardous Waste National Policy Statement

3.7.1 The tasks undertaken in the appraisal stage of the AoS are set out in Stage B of Figure 3.1; these are addressed in turn below. The appraisal stage was undertaken between February and December 2010.

Testing the NPS objectives against the AoS framework

3.7.2 A compatibility analysis between the Hazardous Waste NPS objectives and the AoS objectives set out in the AoS framework was undertaken. This was to identify both potential synergies and inconsistencies, and to ensure that the fundamental aims of the NPS and AoS were not different. A matrix was used to assess whether each NPS objective is broadly compatible

or not compatible with AoS objectives, or whether there was uncertainty over compatibility or no relationship between the objectives (Section 6). Inconsistencies judged to be particularly important have been highlighted and, where possible, objectives reviewed and revised throughout the development of the NPS.

Developing and assessing the NPS strategic alternatives

3.7.3 Consideration of the reasonable alternatives for a proposed policy or plan is a fundamental aspect of policy and planning development. Providing clear, reasoned justification for selection of a preferred planning policy following appraisal of the alternatives is a pre-requisite for the preferred direction to gain wider and long term support.

3.7.4 Key strategic alternatives to meeting the need for new hazardous waste facilities were identified by Defra and the AoS team, taking into account the requirements of the SEA Directive to consider "reasonable alternatives", outlining the reasons for selecting the alternatives dealt with, describing how the assessment was undertaken and any difficulties encountered in gathering the information.

3.7.5 The following strategic alternatives were considered as part of this AoS (Section 7):

- Strategic alternatives to meeting need with large scale infrastructure
- Strategic alternative approaches to the provision of large scale infrastructure

Predicting and evaluating the effects of the NPS

3.7.6 The assessment of the effects of the NPS was undertaken on a theme by theme basis, with the NPS tested against the objectives set out in the AoS framework (Section 8). Whilst this was an iterative process, this report sets out the assessment of the current version of the draft NPS only.

3.7.7 In completing the assessment, the potential effects of the NPS against each of the objectives in the AoS framework has been considered. In predicting the likely effect of the NPS, changes to the sustainability baseline (i.e. the issues identified in Section 4) which would occur as a result of the NPS have been identified. These changes were considered generally in terms of their magnitude, scale, time period over which they may occur, whether the changes would be temporary or permanent, and their reversibility. Cumulative effects were also considered. The assessment undertaken was largely qualitative in nature due to a lack of quantitative data specific to the hazardous waste industry. Where this was the case, the prediction of effects was based on professional judgement and with reference to relevant legislation and guidance.

Consider ways of mitigating adverse effects and maximising beneficial effects

3.7.8 Where adverse effects of the NPS on AoS framework objectives have been identified, recommendations for mitigation have been made. The focus has been on identifying mitigation measures that will assist in delivering a sustainable policy in all areas related to the AoS framework, and where possible maximising beneficial effects.

3.7.9 Types of mitigation identified were varied, and include:

- Changes to the NPS as a whole, including identifying alternatives or eliminating policy options;
- Refining policies in order to improve the likelihood of beneficial effects and to minimise adverse effects e.g. by strengthening policy criteria;
- Technical measures to be applied during the implementation stage, e.g. application of design principles; and
- Proposals for undertaking Environmental Impact Assessments (EIAs) at the project implementation stage.

3.7.10 Where performance against an AoS objective has been identified as beneficial, enhancement measures have been proposed where appropriate to further improve the performance of the NPS against the AoS objective.

Propose measures to monitor the significant effects of implementing the NPS

3.7.11 Suggestions for monitoring the effects of the Hazardous Waste NPS have been made for those effects identified as adverse or uncertain. These are included in Section 10 of this Report.

3.8 Stage C: Preparing the Appraisal of Sustainability Report

3.8.1 This AoS Report, including a non-technical summary (NTS) has been prepared to provide a detailed account of the AoS process and the outcomes of the assessment. This document will be consulted on alongside the draft Hazardous Waste NPS.

3.9 Stages D and E

3.9.1 The draft NPS and AoS Report will be published for consultation, alongside a Consultation Document prepared by Defra. Any comments on the NPS, AoS Report or the Consultation document should be addressed to the Contact Point in Defra given in the Consultation Document.

3.9.2 Following the period of consultation, an AoS Statement will be issued. This will provide an overview of the responses to consultation and how these have been taken into account in the final NPS; provide any necessary clarification on the AoS; and provide confirmation of the final arrangements for monitoring. The AoS Statement will be published alongside the designated Hazardous Waste NPS.

3.10 Requirements of the Habitats Directive

3.10.1 The Habitats Directive requires that any plan or project not directly connected with or necessary to the management of a European Site[3] that is likely to have a significant effect on that Site (either individually or in combination with other plans or projects) is subject to an Appropriate Assessment[4] of its implications for the site with regard to the site's conservation objectives.

3.10.2 To comply with the Habitats Directive, an HRA has been undertaken as part of the AoS. he HRA is a four stage process:

- Stage 1: Screening
- Stage 2: Appropriate Assessment
- Stage 3: Assessment of alternative solutions
- Stage 4: Assessment where no alternative solutions exist and where adverse impacts remain

3 The Conservation of Habitats and Species Regulations 2010 defines a European site as meaning a) a Special Area of Conservation (SAC), (b) a site of Community importance (SCI) which has been placed on the list referred to in the third sub-paragraph of Article 4(2) of the Habitats Directive, (c) a site hosting a priority natural habitat type or priority species in respect of which consultation has been initiated under Article 5(1) of the Habitats Directive, during the consultation period or pending a decision of the Council under Article 5(3), or (d) an area classified pursuant to Article 4(1) or (2) of the Wild Birds Directive. a site which has been proposed to the European Commission under Regulation 10 (selection of sites eligible for identification as of Community importance). For the purposes of this report European Site is also taken to include Ramsar sites, which are designated under the Ramsar Convention (1971).

4 Directive 92/43/EEC (the Habitats Directive) on the Conservation of Natural Habitats and of Wild Fauna and Flora requires that any plan or project not directly connected with or necessary to the management of a designated habitats site, but likely to have a significant effect thereon, either individually or in combination with other plans or projects, is to be subject to an Appropriate Assessment (AA) of its implications for the site in view of the site's conservation objectives.

3.10.3 Given the nature of the Hazardous Waste NPS, the HRA has been conducted at strategic level. As such, it should be clearly noted that the HRA of the Hazardous Waste NPS does not preclude requirements for a more detailed examination which will be necessary for any specific application for development consent.

3.10.4 The HRA is provided as a standalone document however, where relevant, information from the HRA has been used to inform the AoS.

3.11 Requirements of Equalities Legislation

3.11.1 In line with statutory requirements, Government Departments must conduct EqIAs as soon as a new policy, function or service is considered. It should be an integral part of policy development. An EqIA is a tool for identifying the potential effects of the implementation of a policy, plan or function on the different groups within the wider community. The process helps to minimise inadvertent discrimination and, where possible, promote equality. EqIA is required under a number of Acts, as follows:

- Equality Act 2006;
- Human Rights Act 1998;
- Disability Discrimination Act 1995;
- Race Relations Act 1976 and Amendment 2000; and
- Sex Discrimination Act 1975.

3.11.2 The main focus of the EqIA is to gather evidence to determine whether there is a possibility that a policy has the potential to result in less favourable outcomes for any group within the community or unlawful discrimination of any kind. These groups stem from existing UK legislation that covers discrimination. The groups and target areas include:

- Ethnicity;
- Gender;
- Disability;
- Religion and belief;
- Age; and
- Sexual orientation.

3.11.3 To comply with the relevant Equalities legislation, an EqIA has been undertaken as part of the AoS. The EqIA has been undertaken in a number of sequential stages, in accordance with the process recommended by the Improvement and Development Agency (IDeA).

3.11.4 The EqIA is provided as a standalone document however, where relevant, information from the EqIA has been used to inform the AoS.

Section 4:
Relevant Sustainability Objectives, Baseline & Key Sustainability Issues

4.1 Introduction

4.1.1 The section provides an overview of the work undertaken in the AoS Scoping Stage on relevant sustainability objectives, baseline and key sustainability issues. The process of identifying and reviewing relevant programmes, policies, plans and sustainability objectives and collating the sustainability baseline was to inform the development of a set of key sustainability issues relevant to the Hazardous Waste NPS, and subsequent development of the AoS Framework. A summary of the relevant documents, baseline and key sustainability issues is provided below.

4.2 Sources of data

4.2.1 Data has been collated from available sources on the internet, including:

Office of National Statistics	MAGIC
European Commission (EC)	Countryside Council for Wales
Indices of Multiple Deprivation	Cadw
Regional Assemblies	Historic Scotland
Environment Agency	Scottish Natural Heritage
Defra	Scottish Environment Protection Agency (SEPA)
Natural England	Northern Ireland Environment Agency (NIEA)
English Heritage	Environment and Heritage Service (Northern Ireland)

4.3 Review of other plans, programmes, policies and sustainability objectives

4.3.1 The SEA Directive requires a report containing:

"an outline of the contents, main objectives of the plan or programme and relationship with other relevant plans and programmes" (Annex 1(a))

"The environmental protection objectives, established at the International, Community and 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 in its preparation" (Annex 1(e))

4.3.2 A review of relevant plans, programmes, policies and sustainability objectives of relevance to the Hazardous Waste NPS, and that have the potential to influence its development, was undertaken during the Scoping stage of the AoS; the spatial level of relevance of the document was also identified (International, Europe, UK, England, Scotland, Wales and Northern Ireland). Such plans etc. can potentially act as constraints, for example where formal limitations, policy contexts or requirements are stated. Through undertaking the review, these constraints were identified, as well as establishing any sustainability objectives they contained and potential opportunities for the Hazardous Waste NPS.

4.3.3 The general objectives identified in the plans, policies, programmes and sustainability objectives have been summarised and are categorised into overarching, hazardous waste-related, environmental, social and economic headings Table 4.1 below. A full list of plans, programmes, policies and sustainability objectives relevant to the Hazardous Waste NPS identified is presented in Appendix A (Scoping Report, Annex 1).

Table 4.1: Summary of Key Plans, Policies, Programmes and Sustainability Objectives reviewed

Key Plans, Policies, Programmes and Sustainability Objectives	Key Objectives/Targets
Hazardous waste	
Basel Convention on the control of transboundary movements of hazardous waste and their disposal	To protect human health and the environment against the adverse effects resulting from the generation, management, transboundary movements and disposal of hazardous and other wastes.
Management of Hazardous Waste: Policy Guidelines and Code of Practice (WHO)	Provides policy guidelines and a code of practice for management of hazardous waste from point of generation to place of disposal.
Thematic Strategy on the Prevention and Recycling of Waste (European Commission COM, 2005)	To renew emphasis on full implementation of legislation. To simplify and modernise current legislation to reduce administrative burden. Make it easier to perform well. To introduce life-cycle thinking into waste policy. To promote more ambitious waste prevention policy. To develop common minimum standards for recycling.
Waste Framework Directive 2008/98/EC (which replaces the Hazardous Waste Directive 91/689/EEC and the Waste Oil Directive 75/439/EEC)	The Directive applies a new waste hierarchy: Prevention; Preparing for re-use; Recycling; Other recovery, e.g. energy recovery; and Disposal.
Landfill Directive 1999/31/EC	To prevent or reduce as far as possible negative effects on the environment from the landfilling of waste, by introducing stringent technical requirements for waste and landfills. To prevent or reduce the adverse effects of the landfill of waste on the environment, in particular on surface water, groundwater, soil, air and human health.
Waste Electrical and Electronic Equipment Directives (WEEE) 2002/96/EC and 2003/108/EC	To address the environmental impacts of WEEE and to encourage its separate collection and subsequent treatment, reuse, recovery, recycling and environmentally sound disposal.
Waste Incineration Directive 2000/76/EC	No incineration plant (except those exempt under Article 2, Paragraph 2a) will operate without a permit. Permits will be granted providing that: The heat generated is recovered as far as possible through combined heat and power, district heating or steam generation. Residues will be minimised and recycled where possible. Residues which cannot be prevented, reduced or recycled will be disposed of in conformity with national and EC legislation.
The Hazardous Waste (England and Wales) Regulations 2005 (SI 894) as amended 2009 (SI 507)	To regulate the movement of hazardous waste. To ban the mixing of hazardous waste unless it is permitted as part of a disposal or recovery operation. To impose a duty to separate different categories of Hazardous Waste where technically feasible. To make it an offence to remove hazardous waste from premises which have not been notified to the Environment Agency and failure to comply with the requirements of these Regulations.

Key Plans, Policies, Programmes and Sustainability Objectives	Key Objectives/Targets
The Landfill (England and Wales) Regulations 2002 (SI 1559) as amended by The Landfill (England and Wales) (Amendment) Regulations 2004 (SI 1375) and The Landfill (England and Wales) (Amendment) Regulations 2005 (SI 1640)	To define criteria for acceptance of different types of waste at landfill sites for hazardous waste and landfill sites for non-hazardous waste.
The Waste Incineration (England & Wales) Regulations 2002 (SI 2980)	All waste incineration installations are subject to authorisation through a permit by the UK government which pertain to: Minimisation of pollution through preventative measures and best practices. Efficient energy use. And Accident prevention.
Waste Strategy for England (Defra, 2007)	To decouple waste growth (in all sectors) from economic growth and put more emphasis on waste prevention and re-use To meet and exceed the landfill directive diversion targets for biodegradable municipal waste in 2010, 2013 and 2020; To increase diversion from landfill of non-municipal waste and secure better integration of treatment for municipal and non-municipal waste; To secure the investment in infrastructure needed to divert waste from landfill and for the management of hazardous waste; and To get the most environmental benefit from that investment, through increased recycling of resources and recovery of energy from residual waste using a mix of technologies.
Strategy for Hazardous Waste Management in England (Defra, 2010)	Expresses the need to change current waste disposal strategies, including renewing emphasis on full implementation of legislation, simplifying and modernising current legislation to reduce administrative burden, introducing life-cycle thinking into waste policy, promoting more ambitious waste prevention policy and developing common minimum standards for recycling.
Planning Policy Statement (PPS) 10: Planning for Sustainable Waste Management (DCLG, 2005)	To drive waste management up the waste hierarchy, addressing waste as a resource and looking to disposal as the last option; To provide a framework in which communities take more responsibility for their own waste, and enable sufficient and timely provision of waste management facilities to meet the needs of their communities; To help implement the national waste strategy, European obligations and other legal controls for waste; To help secure the recovery or disposal of waste without endangering human health and without harming the environment, and enable waste to be disposed of in one of the nearest appropriate installations; To reflect the concerns and interests of communities, the needs of stakeholders; and To ensure the design and layout of new development supports sustainable waste management.
Wales Waste Strategy 'Towards Zero Waste' (April 2009)	To reduce the amount of hazardous waste to landfill with it being phased out in the medium term, working with industry to reduce current and legacy hazardous wastes.

Environment	
Towards a Thematic Strategy on the Sustainable Use of Natural Resources COM(2003)572 final	The communication aims to launch a debate on a framework for using resources which supports the objectives of the Lisbon strategy and the EU's sustainable development strategy. It sets out basic ideas on how the EU should target its efforts to reduce the environmental impacts of resource use.
An energy policy for Europe COM(2007) 1 final	Intended to firmly commit the European Union (EU) to a low consumption economy based on more secure, more competitive and more sustainable energy. Priority energy objectives involve ensuring the smooth functioning of the internal market in energy, security of strategic supply, concrete reductions in greenhouse gas emissions caused by the production or consumption of energy.
EC Directive on Electricity Production from Renewable Energy Sources COM 2001/77/EC	To promote an increase of the contribution of renewable energy sources to electricity production in the internal market for electricity and to create a basis for a future Community framework.
United Nations (UN) Convention on Biological Diversity	To conserve biological diversity. The use biological diversity in a sustainable fashion. To share the benefits of biological diversity fairly and equitably.
OSPAR Biological Diversity and Ecosystems Strategy	Ecological quality; Species and habitats; Marine protected species; and uman activities.
PPS9 on Biodiversity and Geological Conservation (DCLG 2005)	Sets out planning policy on protection of biodiversity and geological conservation.
Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat 1971	Conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world.
Directive on the Conservation of European Wildlife and of Wild Fauna and Flora 92/43/EEC (The EC Habitats Directive)	To protect species listed in the Annexes; to undertake surveillance of habitats and species and produce a report every six years. Assess any plan or programme likely to have a significant effect on the conservation objectives of a site which has been designated a 'special area of conservation' (SAC), as listed under the 'Natura 2000' network.
The EC Birds Directive 79/409/EEC	To avoid pollution or deterioration of protected habitats or any disturbances affecting the birds; Designated 'special protection areas' (SPAs) for rare and migratory birds must be observed.
Wildlife & Countryside Act 1981 (as amended)	To protect the wildlife and countryside
Marine and Coastal Access Act 2009	To ensure clean, healthy, safe, productive and biologically diverse oceans and seas, by putting in place better systems for delivering sustainable development of marine and coastal environment.
PPG20: Coastal Planning (DCLG, 1992)	Conservation and development of policies covering risks of flooding, erosion and land instability, as well as coastal protection and defence.
PPS5: Planning for the Historic Environment (DCLG,2010)	Sets out the Government's planning policies on the conservation of the historic environment.

Key Plans, Policies, Programmes and Sustainability Objectives	Key Objectives/Targets
The Conservation of Habitats and Species Regulations 2010 (SI 490)	To conserve habitats and species, they place a duty on the Secretary of State: To propose a list of sites which are important for either habitats or species to the EC. Once the Commission and EU Member States have agreed that the sites submitted are worthy of designation, they are identified as Sites of Community Importance (SCIs).
UK Climate Change Act 2008	To improve carbon management and help the transition towards a low carbon economy in the UK; and To demonstrate strong UK leadership internationally, signalling that we are committed to taking our share of responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen in 2009. Greenhouse gas emission reductions through action in the UK and abroad of at least 80% by 2050, and reductions in CO2 emissions of at least 26% by 2020, against a 1990 baseline.
4th Air Quality Daughter Directive (2004/107/EC)	To set binding air quality objectives for specific pollutants to protect human health and the environment.
The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Defra, 2007)	To set out air quality objectives and policy options to further improve air quality in the UK from today into the long term.
PPS 23: Planning and Pollution Control (DCLG, 2004)	To facilitate planning for good quality, sustainable development that takes appropriate account of pollution control issues.
Clean Air Act 1993	The Clean Air Act gives powers to local councils to control domestic and industrial smoke to improve local air quality and meet EU air quality standards for sulphur dioxide and particulates. It enables local councils to create 'smoke control areas' and order the use of cleaner fuels in these areas.
The Environment Act 1995	The Act makes provisions for: The transfer of functions, property, rights and liabilities to those bodies and for the conferring of other functions on them; Contaminated land and abandoned mines; National Parks; Control of pollution, the conservation of natural resources and the conservation or enhancement of the environment; Imposing obligations on certain persons in respect of certain products or materials; Fisheries.
The Environmental Protection Act 1990	This Act makes provisions for: The improved control of pollution arising from certain industrial and other processes; Re-enacts the provisions of the Control of Pollution Act 1974 relating to waste on land; The amendment of the Radioactive Substances Act 1960; The control of the importation, exportation, use, supply or storage of prescribed substances and articles and the importation or exportation of prescribed descriptions of waste; Powers to obtain information about potentially hazardous substances; The Food and Environment Protection Act 1985 as regards the dumping of waste at sea; and The prevention of oil pollution from ships

Water Framework Directive 2000/60/EC	Areas designated for special protection of their surface and/or groundwater, or the conservation of habitats and species directly dependent on the water must be observed. Areas designated for protection for the present or future extraction of water for human consumption must be observed.
Draft Floods and Water Bill	deliver improved security, service and sustainability for people and their communities; make clear who is responsible for managing all sources of flood risk; protect essential water supplies by enabling water companies to control more non-essential uses of water during droughts; modernise the law for managing the safety of reservoirs; encourage more sustainable forms of drainage in new developments; and make it easier to resolve misconnections to sewers.
PPS25: Development and Flood Risk (DCLG, 2006)	To ensure that flood risk is taken into account in the planning process to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk. Where new development is, exceptionally, necessary in such areas, policy aims to make it safe, without increasing flood risk elsewhere, and, where possible, reducing flood risk overall.
EU proposal for a Soil Framework Directive (COM(2006) 232) (EU, 2006)	To establish a common strategy for the protection and sustainable use of soil based on the principles of integration of soil concerns into other policies, preservation of soil functions within the context of sustainable use, prevention of threats to soil and mitigation of their effects, as well as restoration of degraded soils to a level of functionality consistent at least with the current and approved future use.
PSS7: Sustainable Development in Rural Areas (DCLG, 2004)	Decisions on development proposals should be based on sustainable development principles, ensuring an integrated approach to the consideration of: social inclusion, recognising the needs of everyone; effective protection and enhancement of the environment; prudent use of natural resources; and maintaining high and stable levels of economic growth and employment.
Social	
World Summit on Sustainable Development, Johannesburg (September 2002)	Commitment to build a humane, equitable and caring global society and to advancing and strengthening the pillars of sustainable development – economic development, social development and environmental protection – at the local, national, regional and global levels.
UK Government Sustainable Development Strategy: Securing the Future 2005 and UK's Shared Framework for Sustainable Development, One Future – Different Paths (Defra, 2005)	The Strategy sets out the common challenges and goals in sustainable development and establishes five guiding principles to achieve sustainable development in the UK. These include: living within environmental limits, ensuring a strong, healthy and just society, achieving a sustainable economy, promoting good governance, and using sound science responsibly.

Key Plans, Policies, Programmes and Sustainability Objectives	Key Objectives/Targets
Transport, Health and the Environment – Pan-European Programme (THE-PEP) (United Nations)	Contribute to sustainable economic development and stimulate job creation through investment in environment- and health-friendly transport. Manage sustainable mobility and promote a more efficient transport system. Reduce emissions of transport-related greenhouse gases, air pollutants and noise. Promote policies and actions conducive to healthy and safe modes of transport.
Health is Global; a UK Global health strategy 2008-13 (HM Government, 2008)	Outlines a set of principles and actions that the UK Government will focus on to improve the health of people across the world, including the UK.
The Human Rights Act 1998 and The Human Rights Act 1998 (Commencement No. 2) Order 2000	The human rights are: Right to life; freedom from torture and degrading treatment; freedom from slavery and forced labour; Right to liberty; the right to a fair trial; Right of not to be punished for something that wasn't a crime when you did it; Right to respect for private and family life; Freedom of thought, conscience and religion, and freedom to express your beliefs; freedom of expression, assembly and association; Right to marry and to start a family; the right not to be discriminated against in respect of these rights and freedoms; Right to peaceful enjoyment of your property; Right to an education; Right to participate in free elections; and Right not to be subjected to the death penalty.
The Equality Act 2006	To support the development of a society where: people's ability to achieve their potential is not limited by prejudice or discrimination; there is respect for and protection of each individual's human rights; there is respect for the dignity and worth of every individual; every individual has an equal opportunity to participate in society; and there is mutual respect between groups based on understanding and valuing diversity and on shared respect for equality and human rights.
The Disability Discrimination Act 1995	To promote civil rights for disabled people and protects disabled people from discrimination. It now gives disabled people rights in the areas of employment, education, access to goods, facilities and services,

PPG24: Planning and Noise (DCLG, 1994)	Policies should seek to minimise the impact of noise creating activities, through locating such activities either by ensuring that noise sensitive developments are located away from existing sources of noise, or where its effects will not be an important consideration, or where impacts can be minimised through mitigation methods.
Directive 2001/42/EC of the European Parliament and the Council on the Assessment of the Effects of Certain Plans and Programmes on the Environment (the "Strategic Environmental Assessment Directive")	All plans and programmes which set the framework for future development consent of projects for (amongst other sectors) waste management are subject to an environmental assessment.
Town and Country Planning Act 1990	To regulate the development of land in England and Wales.
Economic	
EU European Employment Strategy – EES (EC, 2005)	To place a new focus on delivering stronger, sustainable growth and more and better jobs to be achieved through complete revision and integration of macro-economic, micro-economic and employment policy strands.
PPG4: Industrial, Commercial Development and Small Firms (DCLG, 1992)	To encourage continued economic development that is compatible with the Government's environmental objectives. Planning authorities must weigh the importance of industrial and commercial development with that of maintaining and improving environmental quality.
Employment Act 2008	To increase protection for vulnerable workers and lightening the load for law-abiding business.
The Egan Review: Skills for Sustainable Communities (April 2004)	To establish a definition for sustainable communities and seven key components of a sustainable community that need to be addressed in order to plan, deliver and maintain sustainable communities.

Overarching plans, programmes, policies and sustainability objectives:

4.3.4 Overall, the Hazardous Waste NPS should set out a holistic framework which seeks to address the collective risk of environmental, social and economic impacts of proposals to avoid adverse impacts on health and well being and equality of health impacts.

4.3.5 With regard to hazardous waste plans, policies, programmes and sustainability objectives, the NPS has the opportunity to help drive significant changes within the hazardous waste management sector, by encouraging infrastructure development that will ensure that hazardous waste is managed to the full extent of its potential i.e. moving hazardous waste further up the waste hierarchy and encouraging facilities closer to waste arisings, where possible. There also exists the opportunity to ensure that the development of new infrastructure does not, itself, significantly contribute to waste generation, and that each new facility should be an exemplar of sustainable planning, design, construction, operation and legacy.

Environmental plans, programmes, policies and sustainability objectives

4.3.6 The NPS should provide guidance on the sustainable location of new hazardous waste management facilities to ensure the protection and conservation of water resources, biodiversity, flora and fauna, soils and geodiversity resources, cultural heritage assets and landscape. It should also avoid compromising existing coastal processes and / or causing damage to the marine environment and take full account in planning and design of the cumulative effects of developments on flood risk, and predicted future changes to climatic conditions. It should consider the transport requirement of proposals and encourage

the suitable location of management facilities in terms of proximity to both the source of waste as well as the onward reception facility, to minimise air emissions and other associated transportation impacts such as noise.

Social plans, programmes, policies and sustainability objectives

4.3.7 With regard to social plans, policies, programmes and sustainability objectives, the NPS should provide opportunities to ensure that the population, and especially the most vulnerable or deprived communities, are not adversely affected by the hazardous waste management infrastructure proposals. It should also provide opportunities to satisfy equality objectives both in terms of employment and ensuring that certain groups of the population are not disproportionately affected by the proposals and ensure that people across society are treated with respect for their human rights, and set legal procedures to prohibit discrimination.

Economic plans, programmes, policies and sustainability objectives

4.3.8 Finally, with regard to economic plans, policies, programmes and sustainability objectives, the NPS should facilitate sustainable economic growth in area, such as recycling and new technologies. It should also promote opportunities for employment and business and opportunities for education and training related to hazardous waste management infrastructure.

4.4 Baseline, Predicted Future Conditions and Sustainability Issues

4.4.1 The SEA Directive requires identification and characterisation of:

"the relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme" (Annex 1(b))

"the environmental characteristics of areas likely to be significantly affected" (Annex 1 (c))

"any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of particular environmental importance, such as areas designated pursuant to Directive 79/409/EEC and 92/43/EEC" (Annex 1(d))

4.4.2 An essential part of the AoS process is to identify the current baseline conditions and their likely evolution following a 'business as usual' scenario. The following section focuses on the environmental, economic, social and general baseline characteristics relevant to the AoS and Hazardous Waste NPS, where such data were available. Data on a range of key indicators relating to environmental, social and economic factors for the policy area were identified and collated during the Scoping stage.

4.4.3 The baseline data has been used to describe the status of the environment that may potentially be affected by the Hazardous Waste NPS. The full baseline data can be found in Appendix A, Scoping Report – Annex 2. These data were consulted upon during the scoping phase and further data collated as a result of the responses.

4.4.4 Through the review of relevant plans, policies, programmes and sustainability objectives, and the collation of sustainability baseline data, a range of key sustainability issues that could be addressed by or affect the content of the Hazardous Waste NPS were identified. These are also identified below. For the purposes of this exercise, key issues were grouped by sustainability theme, and are not presented in any particular order of priority.

Limitations and data gaps

4.4.5 The baseline information collected has focused on setting general baseline conditions and, where possible, more specific existing and future baseline trends in relation to hazardous waste management facilities and their potential impacts on environment, social and economic resources and receptors. There is little detailed information readily available on each individual type of hazardous waste management facility and their potential environmental, social and economic impacts. Therefore, in many instances the baseline information covers generic issues in relation to different types of hazardous waste management facilities.

4.4.6 In addition, it is recognised that the NPS will not provide details on the potential location of hazardous waste facilities. Therefore the identification of baseline and key sustainability issues is generic in nature, such that whilst types of features that might be affected can be identified, the identification of location-specific issues, including cross border and transboundary issues, has not been undertaken.

4.4.7 Where data was not readily available via the internet, data was requested via Defra and the statutory consultees (listed in Appendix A: Scoping Report, Appendix D) during the consultation period. In addition, data gathering was further undertaken via one to one telephone calls with selected academic sources.

Summary of Baseline Information

4.4.8 A summary of current contextual baseline information, issues of relevance to the NPS, future baseline, limitations and a description of the key sustainability issues to be considered in the appraisal is provided below in Table 4.2.

Table 4.2: Summary of Baseline Information

Topic	Summary of Current Contextual Baseline	Baseline Issues of relevance to the NPS	Future baseline	Limitations / Unavailable data	Key Sustainability Issues to take into account in the Hazardous Waste NPS
Environment					
Hazardous Waste Management	The Environment Agency (2008) recorded that approximately 6.2 million tonnes of hazardous waste was produced in England, with a total of 6.6 million tonnes sent for disposal and recovery in England and Wales combined. Of these, waste from waste and water treatment plants, construction waste with asbestos and oil/oil and water mixtures were the three waste streams with the largest tonnage increases in 2008. This waste was generated by more than 200,000 businesses and industrial sources. The principal destination of the hazardous waste produced in England and Wales in 2008 was treatment, followed by transfer before final delivery for recovery, recycling, re-use, landfill or incineration. The majority of construction and demolition waste goes to landfill. There are 24 hazardous waste only landfills, 17 merchants and 7 restricted users landfills in England and Wales. There are also approximately 50 non hazardous landfills that have a mono-cell for the disposal of stable non-reactive hazardous wastes. Estimations of future capacity needs for England's hazardous waste treatment and disposal in 2004 indicated that there would be a shortfall in stabilisation/ solidification treatment capacity and a potential shortfall in hazardous waste landfill capacity. Most common incidents of illegal disposal of hazardous waste in England are related to asbestos, chemical drums, oil and fuel.	The NPS should encourage ways to support the Government's aim and the Waste Framework Directive requirement to reduce waste using the principles of the waste hierarchy New infrastructure should be made sustainable throughout its lifecycle. The NPS should provide future capacity requirements of different hazardous waste management facility types.	Past and current trends are highly variable in hazardous waste management and can be influenced by one or two major developments. Overall, it is likely that in the future hazardous waste generation will increase initially, however over time this may decrease due to technological advances allowing a reduction in generation and also improved recovery of hazardous wastes. Reductions will also be driven by European legislation and UK policy. A general decline in the use of landfill is anticipated, with a greater move towards the management of hazardous waste higher up the waste hierarchy, although it is likely that there will be some hazardous waste for which landfill remains the best option.	Future forecasts for hazardous waste arisings in England per hazardous waste type Trend s and future forecasts for hazardous waste arisings per hazardous waste sector Further projections of future capacity / infrastructure requirements for hazardous waste recovery and disposal Current capacity versus demand for all types of hazardous waste streams Waste arising from different hazardous waste infrastructure types Self sufficiency of various regions throughout the UK	**Key Sustainability Issue 1** Trends are highly variable in hazardous waste management. Overall, it is likely that in the future hazardous waste generation will increase initially, however over time this may decrease due to technological advances allowing a reduction in generation and also improved recovery of hazardous wastes. In general the management of hazardous waste is strongly influenced by policy and legislation, which aim to protect human health and the environment from the adverse effects of the generation, management, movement and disposal of hazardous and other wastes. Integral to this is the characterisation of wastes, the assessment of waste against limit values and the restriction of hazardous waste going to landfill. The Waste Directive requires the principles of the waste hierarchy to be adopted in the management of waste, and as such a key aspect of the NPS should be supporting this approach by identifying infrastructure that pushes waste up the waste hierarchy. A further principle that needs to be taken into account is the "proximity principle" which requires the adequate provision of hazardous waste facilities within each EU Member State while recognising that there may be circumstances where waste is produced in too small a quantity for separate facilities in each Member State. Further legislation that will dictate how certain wastes should be addressed includes the Landfill (England and Wales) Regulations 2002 (as amended) and the WEEE Regulations 2006 (as amended). Details on specific types of hazardous waste management, the location of existing facilities and the movements of such waste around England and cross border/transboundary movements are limited. Therefore there is limited information with which to identify particular geographies that might contribute to improving the current supply of facilities for each type of waste stream requiring consideration in the NPS. The location of facilities also influences the potential impacts of transportation associated with such facilities. Whilst there are certain types of management that are currently employed for certain types of waste, there is clearly opportunity in some cases to reduce waste going to landfill and move it up the waste hierarchy. There are also likely to be further opportunities associated with the development of new technologies to encourage more sustainable forms of waste management that recognise the resource value of the hazardous waste.

Resources and Raw Materials	The rapidly increasing demand for a greener construction creating both challenges and opportunities in relation to the materials used. Accurate, accessible and timely information on the environmental and social impact of using different materials is increasingly desired by designers, contractors and procurers[5]. There is a trend to encourage the use of materials with lower environmental impacts over their lifecycle and to recognize and encourage the specification of responsibly sourced materials for basic building and finishing components.	Raw materials and resources, or environmental services and goods, are required for both the construction and operation of hazardous waste facilities. The NPS should take into account opportunities for sustainable material selection, and maximise opportunities for reuse of energy generated, use of renewable energy and low-carbon technology.	It is likely that the future baseline will include a reduced and more sustainable use of resources and raw materials.	Use of environmental services/goods, such as water, in hazardous waste management, construction and legacy of facilities Consumption of gas and electricity for each type of hazardous waste facility	**Key Sustainability Issue 2** The development of hazardous waste infrastructure may result in a demand on raw materials and resources. Any development should address policy requirements to reduce raw material usage and efficient use of resources. There is an opportunity to reduce raw materials and resource use through prioritising waste management methods according to the waste hierarchy, and through the promotion of new technologies. More sustainable forms of resource use should also be considered e.g. renewable energy sources, as well as opportunities to encourage a reduction in energy consumption through energy efficiency. Good resource management and use, including green procurement, should be prioritised. Addressing the development of new infrastructure in accordance with the proximity principle may also assist in reducing transportation distances.
Climate Change Adaptation and Resilience	Reports by the Intergovernmental Panel on Climate Change, most recently in the 4th Assessment Report[6] (2007), provide scientific evidence that the emission of greenhouse gases including carbon dioxide (CO2) is changing the world's climate. Treatment of solid waste, liquid waste, sewage and recycling activities combined to contribute approximately 0.04% of total economic greenhouse gas emissions in 2007[7]. Landfilling of waste is responsible for the greatest generation of greenhouse gas emissions. Currently, the UK has a per capita carbon dioxide emissions volume of approximately 9.7 tonnes per annum.	The NPS should contribute to the reduction of greenhouse emissions in line with the UK Climate Change Act 2008 by minimising carbon and other greenhouse gas emissions associated with the design, construction and operation of	Guidance and regulatory controls are likely to contribute to the reduction in greenhouse gas emissions in the future. Whilst the construction of further waste facilities may contribute to increased emissions, it is likely that	No specific data were available on the contribution of the hazardous waste sector/facility to greenhouse gas emissions. Efficiency of and greenhouse gas emissions associated with each hazardous recovery and disposal facility	**Key Sustainability Issue 3** Taking action on climate change can generally be categorised into either of two elements: **Mitigation** – that is actions that are designed to reduce the emissions of those gases that cause global warming and anthropogenic climate change; or **Adaptation** – that is adjustments in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderate harm or exploit beneficial opportunities. It is likely that the new infrastructure in the future will contribute to greenhouse gas emissions; emissions will arise during construction and operation, for example due to the use of raw materials, energy supplies and transportation.

5 HM Government. Strategy for Sustainable Construction (June, 2008). Available at: http://www.berr.gov.uk/files/file46535.pdf

6 IPCC Fourth Assessment Report: Climate Change 2007 (AR4). Available at: http://www.ipcc.ch/publications_and_data/publications_and_data_reports.htm

7 National Statistics Online: http://www.statistics.gov.uk/STATBASE/ssdataset.asp?vlnk=5695

Topic	Summary of Current Contextual Baseline	Baseline Issues of relevance to the NPS	Future baseline	Limitations / Unavailable data	Key Sustainability Issues to take into account in the Hazardous Waste NPS
Climate Change Adaptation and Resilience (cont…)	England's per capita carbon dioxide emissions is less than the UK average (approximately 8.0 tonnes per annum[8].	hazardous waste management facilities and to maximise opportunities for climate change adaptation and resilience	technological advances and more sustainable management of hazardous waste will overall contribute to a reduction in greenhouse gas emissions.		Any new facilities will need to be developed and designed in accordance with relevant legislation, in particular with consideration to energy and transportation requirements so as to contribute to the UK's commitment to reduce greenhouse gas emissions. In addition, certain types of hazardous waste management give rise to greater emissions, therefore there is a need to consider the type of management facility appropriate for each waste stream and identify those that are more likely to contribute to the UK objectives to reduce greenhouse gas emissions. Opportunities should be maximised to contribute to a reduction in climate change through the use of: new technologies; low carbon and renewable energy resources; and encouraging a reduction in transportation distances through appropriate siting of facilities in relation to hazardous waste arising. Opportunities to adapt to climate change through appropriate siting and building design should also be taken.
Air Quality	Key sources of air pollution in the UK include transport, energy generation, industry and agriculture. Atmospheric pollution in the UK from man-made particles is not only thought to reduce human life expectancy, but known to impact negatively on sensitive ecosystems. The air quality across the UK varies at both a local and regional scale. Across England and Wales 237 local authorities have declared air quality management areas (AQMAs). Most AQMAs are declared for their exceedances of nitrogen dioxide and particulate matter due to transport emissions. UK emissions data for the 2007 calendar year against the 2010 ceilings shows a continued decline in emissions of all four National Emission Ceilings Directive (NECD) pollutants.	The NPS should ensure that the management and reduction of emissions to the internal and external atmosphere in accordance with limits and ceiling targets set out in the relevant legislation, and minimise potential impacts on receptors.	Air quality in the longer term is likely to be influenced by both improvements due to greater regulatory control and improvements in technology, and by emissions arising from future development. It is likely that greater controls will result in an overall improvement in local air quality. In the shorter term, AQMAs will continue to play an important role in the management of air quality and, accordingly, spatial planning and land use. In addition, there is likely to be a concerted drive to reduce NOx emission from combustion processes in the UK to meet the 2010 NOx ceiling levels set out in the NECD.	Emissions associated with hazardous waste management options / recovery facilities Links between AQMAs and existing hazardous waste facilities, by type Contribution of the hazardous waste sector to greenhouse gas emissions	**Key Sustainability Issue 4** The factors affecting air quality that are relevant for the Hazardous Waste NPS include the type, scale, detailed design and locational characteristics of the proposed new infrastructure. Methane emissions are a key concern from landfills, however the organic content of hazardous waste inputs is much lower than non-hazardous wastes. Hazardous waste landfills will therefore generate much lower levels of greenhouse gas. WEEE recovery plant and oil regeneration plant are likely to result in the emissions of carbon dioxide and possibly some odours. In addition to the plant themselves, emissions from the transportation of hazardous waste, especially by road, is also a key issue in relation to the current management of hazardous waste management, as the largest source of nitrogen dioxide in the UK is from road traffic. Any future facility will need to ensure that air emissions are within regulatory limits and best practice. The siting of new facilities should be away from existing AQMAs and, where possible, closer to waste arisings to reduce emissions associated with transportation. More sustainable forms of transportation should also be encouraged. New technologies may assist in the reduction in air emissions at facilities.

8 Local and Regional CO_2 Emissions Estimates for 2005-2007 (AEA, September 2009). Available via: http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/loc_reg_dev/ni185_186/ni185_186.aspx

Traffic and Transport	*Movements of Hazardous Waste within the UK* In 2008, in England and Wales, 37% of hazardous waste was transported to a region for recovery or disposal other than the one in which it was generated. England also received Wales' hazardous waste and hazardous waste from Scotland and Northern Ireland. The majority of hazardous waste is transported via road. *Cross border and Transboundary movements of Hazardous Waste* Basel Convention data for England and Wales on the generation and transboundary movements of hazardous wastes and other wastes indicates that in 2006, 126,696 tonnes of hazardous waste were exported and 117,539 tonnes imported. The majority of notifiable wastes[9] imported into England and Wales in 2008[10] were mainly for recovery, where solvents were the primary import. Wastes exported from England and Wales in 2008[11], were for recovery. Less than 10% of the shipped waste from the UK is shipped for disposal operations.	The NPS has the opportunity to encourage more sustainable forms of transportation addressing the consideration of site location and traffic/ traffic emissions impacts.	Hazardous waste will continue to move across regional, national and international boundaries for treatment, especially for recovery including recycling. The nature and extent of traffic and transport issues associated with hazardous waste facility types will vary according to the circumstances of each individual facility.	Method of transportation of hazardous waste for recovery / disposal Transport requirements per management type (and potential impact on traffic) Origin of hazardous waste at recovery/ disposal sites	**Key Sustainability Issue 5** Key issues relate to the amount of transportation by road and the distribution of existing facilities in relation to arisings, including long distance and cross border / transboundary transportation. The Government 10 year Transport Plan (2000) highlights the need to reduce greenhouse gas emissions from transport and sets a target of a 20% reduction by 2010, providing a framework to address consideration of site location and traffic impact. Reduced carbon emissions associated with transportation of hazardous waste could be promoted, for example, through implementation of the waste hierarchy and, where new facilities are still required, the provision of those facilities closer to hazardous waste arisings where possible. Where reduction in distances travelled is not possible or is not practicable, opportunities should be maximised to encourage the coordination and integration of more sustainable transport modes, including options with lower carbon emissions. The consideration of transportation impacts on receptors such as historic and/or other environmental assets should also be taken into consideration in the development of new facilities.
Biodiversity, Fauna and Flora	England has a high diversity of habitats and many distinctive species, reflecting its geographical position[12], including SPAs, SACs, Ramsar sites[13], Sites of Special Scientific Interest (SSSIs), National Nature Reserves and Marine Nature Reserves. There are 241 SACs, SCIs, or cSACs in England including cross border sites[14]. The total area of land and sea designated in the UK as SPA, SAC or SSSI, increased between 1996 and 2006 by 50%[15].	The NPS should contribute to the protection, conservation and enhancement of all biodiversity, flora and fauna. It should favour the development of facilities that enhance or do not adversely impact habitats, species	Biodiversity, habitats and species will continue to remain under threat, exacerbated by development and climate change which is likely to alter the distribution and types of species and habitats. However, current and future legislation	Potential effect of each type of hazardous waste facility on SACs / SPAs / Ramsar / other designated sites, ecosystems, biodiversity, flora and fauna in England and adjacent countries	**Key Sustainability Issue 6** Existing hazardous waste management and facilities are heavily regulated and therefore, on the whole, impacts on biodiversity, flora and fauna are low. For example, hazardous waste landfills are operated under robust permitting conditions including rigorously engineered leachate containment and treatment systems; landfill gas emissions are similarly controlled to prevent off site migration and sites are expected to be ultimately restored in accordance with the relevant legislation. As such, impacts are minimised (in comparison to example for non hazardous waste landfill sites).

9 Notifiable wastes are those on the Amber List of the Waste Shipment Regulations and will have some hazardous component.

10 http://www.environment-agency.gov.uk/research/library/data/111312.aspx

11 http://www.environment-agency.gov.uk/research/library/data/111312.aspx

12 http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/englands/default.aspx

13 Wetlands designated under the International Convention of Wetlands of International Importance

14 http://www.jncc.gov.uk/ProtectedSites/SACselection/SAC_list.asp?Country=E

15 http://www.jncc.gov.uk/pdf/2010-BIYP2007.pdf

Topic	Summary of Current Contextual Baseline	Baseline Issues of relevance to the NPS	Future baseline	Limitations / Unavailable data	Key Sustainability Issues to take into account in the Hazardous Waste NPS
Biodiversity, Fauna and Flora (cont...)	A 43.8% of the SSSI land (which includes SPAs/SACs) is in a favourable condition[16] England is also home to many protected and important species and habitats. The UK Biodiversity Action Plan (BAP) sets out a programme for conserving biodiversity in the UK and includes lists of species and habitats which are conservation priorities.	or biodiversity, and encourage ecological connectivity.	and policy will continue to afford the highest level of protection to sites designated internationally and nationally and a drive to meet the ambitious biodiversity targets set by the EU to halt biodiversity loss by 2010.		However, the development of new facilities will inevitably result in some impact on biodiversity, flora or fauna and it is recognised that the handling of hazardous waste and the siting, construction and operation of new management facilities could have adverse effects on designated and non designated sites, and biodiversity, flora and fauna in general. For example through the footprint required for new waste management facilities, during construction due to air and noise emissions, and during operation due to the increase locally of traffic movements and hazardous waste facility operational activities. Atmospheric pollution in the UK from man-made particles is known to impact negatively on sensitive ecosystems. There is also additional risk arising from uncontrolled emissions (to water or air) for example accidentally (it is assumed that the same, if not tighter, controls on emissions and facility management will apply to any new facilities).
Water Quality and Resources	*Water Quality* Chemical and biological water quality in England has shown improvement since 1990[17]. For Biological quality in 2008, 72% of English rivers were at the best on record level, and 79% of English rivers were at excellent or good quality in terms of organic pollution. Surface water bodies quality assessments show that 29% meet good ecological status or better. Groundwater assessments show that 65% meet good quantitative status and 59% meet good status for chemicals. In 2008, England achieved 99.96% compliance with the European Drinking Water. *Water Resources* In 2005/06 water consumed by domestic and non domestic sources in the UK was 13,234 Ml/day[18]. There are significant	Since water is a key component in many hazardous waste management activities, the NPS should encourage the maximisation of water efficiency and reduction of facility water consumption. The NPS can provide a framework to prevent the deterioration of the status of all bodies of water, surface water and groundwater.	Water quality may improve in the future, however demands on water and water resource availability/ security of supply is likely to become an increasingly important issue due to increases in population and predicted climate change. Predicted impacts of forecast climate changes also will make it inevitable that action to improve the safety of small water supplies in Europe will feature highly in the future[19].	Consumption of water per hazardous waste management option Potential risk of affecting water quality / accidental spillage from different hazardous waste management facilities	**Key Sustainability Issue 7** The Water Framework Directive requires that deterioration of the status of all bodies of water is prevented, that surface water and groundwater achieve good status by 2015 and pollution is reduced to all bodies of water, and that discharges of 'priority hazardous substances' (the most toxic substances discharged to waters) cease by 2020. This will have implications for the management of hazardous waste in the future in terms of ensuring that facilities do not contribute to deterioration in water quality and also in ensuring that facilities contribute to the target of good status. In addition, River Basin Management Plans (RBMP) will need to be considered with regard to quality of discharges. The RBMP aim to ensure the integrated management of: groundwater; rivers; canals; lakes; reservoirs; estuaries and other brackish waters; coastal waters; and the water needs of terrestrial ecosystems that depend on groundwater, such as wetlands[20]. Management processes themselves can result in direct or indirect releases that may affect water quality if they are not managed to regulatory requirements. Landfill leachate is not considered a key issue due to strict controls on hazardous waste landfills to avoid leachate; other facilities may require emissions to watercourses however this would be controlled under Environmental Permitting regimes.

16 http://www.sssi.naturalengland.org.uk/Special/sssi/reportAction.cfm?Report=sdrt15&Category=N&Reference=0

17 http://www.environment-agency.gov.uk/research/library/data/34255.aspx

18 Water consumption from "Towards Sustainability 2005-2006" (Water UK) http://www.water.org.uk/home/policy/reports/sustainability/indicators-2005-06/towards-sustainability-2005-2006.pdf

19 The Drinking Water Inspectorate (25 June 2009) Letter to Defra; http://www.dwi.gov.uk/pubs/annrep08/contents.shtm

20 http://www.wfduk.org/about_wfd/

Water Quality and Resources (cont…)	pressures on water resources which affect both the water environment and water supplies. There are many catchments where there is little or no water available for abstraction during dry periods. Water supply currently crosses national boundaries. 33% of drinking water supplies are currently sourced from groundwater in England and Wales.				Despite strict controls there is the potential for accidental spillage or uncontrolled discharge from hazardous waste facilities. Consequently, hazardous waste discharges to water sources will need to be closely controlled, and designs for and operations of new infrastructure must avoid or minimise the risk of spillage. The impact on coastal water quality is most likely to occur in relation to recycling sites for end of life ships, where a coastal location is a requirement; there may be a risk that contamination from recycling enters the marine environment. Most vessels contain large amounts of hazardous materials, such as asbestos, oils and oil sludge, polychlorinated biphenyls (PCBs), and heavy metals in paints and equipment and therefore their safe management is imperative in relation to the marine environment. There is also potential for impact during transfer of waste from ships to land and vice versa during handling and storage. Water is an essential resource and is a key component in many hazardous waste management activities. This is likely to be a future issue in terms of water availability, safety and security. The development of alternative, new technologies may assist in limiting water demand and risk associated with water quality. Hazardous waste facilities with a high water demand should be located with due consideration to local water resources, and operational technologies that reduce water demand.
Flood Risk	Around 5.2 million properties in England, or one in six properties, are at risk of flooding[21]. There are 2.4 million properties at risk of flooding from rivers and the sea in England, of which one million of these are also susceptible to surface water flooding with a further 2.8 million properties susceptible to surface water flooding alone.	Due to current development pressures and the potential changes in the areas of flood risk in relation to climate change, it is not inconceivable that future hazardous waste management facilities may need to be located in the floodplain and therefore be at risk from, or contribute to, flooding.	With the impact of climate change, the future flood risk zones are likely to be more extensive than those currently and flood risk is likely to become an increasing issue.	Differential impacts of various types of hazardous waste management facility Siting requirements of hazardous waste facilities in relation to flood risk zones	**Key Sustainability Issue 8** The spatial and development planning processes are key mechanisms for helping to ensure that flood risk is adequately addressed at all stages in the planning process, to protect people and the environment. Under the existing planning regime, the Government sets out policy and requirements for managing flood risk where new or redevelopment is planned. This recognises that there are three flood risk zones (low-high) for fluvial and tidal flooding. Any development proposals within the higher risk Zones 2 and 3 must be subject to Flood Risk Assessments (FRAs), as well as any development over 1ha in Flood Zone 1. This situation will continue under the new planning regime brought about by the Planning Act 2008 for NSIPs. FRAs continue to be part of the ongoing assessment process as proposals for development move from strategic appraisal through to project level when applications for planning consent of major projects will require EIAs and other assessments as necessary such as FRAs. Where possible, development of new facilities outside the floodplain should be encouraged. Where this is not possible, an FRA should be undertaken and measures put in place to ensure that there is no increase in flood risk. Such infrastructure should strive to be resilient to flooding, future proofing new facilities against flood risk.

21 http://publications.environment-agency.gov.uk/pdf/GEHO0609BQDS-E-E.pdf

Topic	Summary of Current Contextual Baseline	Baseline Issues of relevance to the NPS	Future baseline	Limitations / Unavailable data	Key Sustainability Issues to take into account in the Hazardous Waste NPS
Soil and Geodiversity	As a result of the wide range of underlying rock types and drainage, England's soils are diverse and are variable in their characteristics. In England, there are around 1,215 geological SSSIs and, locally important sites may be declared as Regionally Important Geological/ Geomorphological Sites (RIGS); areas important for their geology may also be recognised as a World Heritage Sites[22]. England has 5,581 miles of coastline, which is characterised by widely varied geomorphology[23]. Land quality (as assessed by the Agricultural Land Classification, ALC) also varies from place to place.	Soils can be impacted by hazardous waste management facilities through the construction of such facilities and from accidental spills.	Soils and geodiversity will require continued protection in the future, although distribution of soil types and quality may change in relation to climate change. As brownfield land is developed, there may be increasing pressure for development on greenfield land.	Differential impacts of various types of hazardous waste management facility Potential for accidental spills per facility type	**Key Sustainability Issue 9** Soils can be impacted by hazardous waste management facilities through the construction of such facilities and from accidental spills (current regulation is such that impacts arising from deliberate emissions to soils are highly unlikely). There should be a presumption against development on best and most versatile (BMV) land. The siting of new facilities should be undertaken in accordance with the relevant legislation and guidance, avoiding geological SSSIs and RIGS. Where possible technologies should be sought that contribute to enhanced protection of soils and geodiversity.
Coastal Change and the Marine Environment	The UK has a total of 17,381 km of coastline. Coastal processes, resulting in flood and coastal erosion is a serious risk around the English coastline, with some 4,705km being affected by the impacts of coastal erosion equating to 27% of the entire coastline[24]. Coastal flood and erosion risk is assessed as part of the shoreline management planning process. There are 22 Shoreline Management Plans (SMPs) that cover the entire coastline of England and Wales, providing the latest information on coastal changes, including social, economic and environmental data.	Recycling sites for end of life ships and/or oil regeneration facilities, where a coastal location is a requirement, may have an impact on coastal processes and the marine environment. Such sites may be at risk from coastal flooding or erosion, or may cause or exacerbate coastal flooding or erosion elsewhere.	SMPs are likely to play an increasingly important role in the management of the coastal zone. In addition, the Marine and Coastal Access Act 2009 will create a new marine planning system designed to bring together the conservation, social and economic needs of the UK seas. A network of Marine Conservation Zones will be created that will protect rare and threatened species and habitats. The risk of coastal erosion will continue in the future, and locations most at risk may change in response to climate change.	Differential impacts of various types of hazardous waste management facility Location specific requirements of hazardous waste management facilities e.g. a ship recycling facility and potential impact on coastal geomorphology	**Key Sustainability Issue 10** The impact of hazardous waste facilities on coastal processes is most likely to occur in relation to recycling sites for end of life ships, where a coastal location is a requirement, and / or oil regeneration infrastructure where a coastal location may be favourable. Such sites may be at risk from coastal flooding or erosion, or may cause or exacerbate coastal flooding or erosion elsewhere. These facilities may also have direct or indirect effects on the marine environment. Development on the coast could lead to localised or more widespread coastal erosion or accretion and changes to offshore processes. In the siting of new facilities that require a coastal location, the marine environment should be protected and sites prone to erosion and flooding, or where such processes may be exacerbated, should be avoided. Where a coastal location is not a requirement of a facility, such locations that may give rise to coastal change should be avoided.

22 http://www.naturalengland.org.uk/ourwork/conservation/geodiversity/protectandmanage/default.aspx

23 http://www.cartography.org.uk/default.asp?contentID=749

24 Marine and Coastal Access Bill http://www.defra.gov.uk/environment/marine/documents/legislation/mab-policy.pdf

Landscape	England has 35 Areas of Outstanding Natural Beauty (AONB), 10 National Parks, 222 National Nature Reserves, 1,280 Local Nature Reserves, 865,000ha of Open Access Land, 400 Country Parks, and 13 National Trails[25] that span the breadth and width of the country. England also has approximately 118,000 miles of public rights of way, and over 600 miles of the English coastline is protected under the heritage coast scheme[26]. There are an additional 17,000 km of Greenways created or planned in England[27]. There are 5 AONB's in Wales[28], 9 AONB in Northern Ireland, and Scotland has 40 National Scenic Areas (NSA's).	The NPS should recognise the importance of protecting designated landscape within and outside England in the development of hazardous Waste management facilities. There are opportunities to promote design and management options that reduce potential landscape and visual impacts.	The future baseline will include the current distribution of sites protected for their landscape value, and any amendments or additions. Most valued landscapes will continue to afford the highest level of protection. It is possible that over time the distribution of valued landscapes may alter in response to climate change.	Location specific requirements of each facility type Differential impacts of various types of hazardous waste management facility	**Key Sustainability Issues 11** Large areas of England are protected for their landscape importance and therefore in the siting of any new facility conservation of the landscape must be taken into account, including its character and function. Whilst the NPS applies to England, hazardous waste moves across borders and therefore it is important to recognise the location and significance of landscape designations outside of England. The Environmental Protection Act recognises the importance of maintaining and managing nature reserves/National Parks. It obliges local authorities to produce management plans for AONBs; the role of the AONB Management Plan is dictated by the purposes of designation, primarily to conserve and enhance natural beauty, as manifested in distinctive local landscape character. In turn, one of the functions of the AONB Management Plan is to inform development plan policy with respect to the purposes of AONB designation. In the development of facilities, there is also an opportunity to promote design and management options that reduce potential landscape and visual impacts; the Planning Act requires that there is regard to the desirability of 'good design'. Enhancement opportunities should also be sought.
Historic Environment	The historic environment and cultural heritage as a whole is an important national resource[29]. The historic environment includes designated historic buildings, conservations areas, archaeological sites and also non designated sites and the wider landscape such as sites under water (e.g. wrecks and drowned landscapes) and sites such as AONBs and National Parks which have a historic and cultural dimension. Other less tangible aspects of heritage, including landscapes, art, literature, language and culture, and with people's perceptions around them[30].	The NPS should take account of the need to protect and conserve all heritage assets and their settings, and recognise that hazardous waste management facilities (and associated infrastructure) must not detract or impinge upon existing cultural capital.	The future baseline will see the historic environment continue to be a key consideration in the planning of new infrastructure or intrusive works, with the Historic Environment Record (HER) being used as the basis for evidence in planning decisions. Development pressure is likely to remain a concern for the protection of landscapes.	Differential impacts of various types of hazardous waste management facility	**Key Sustainability Issue 12** A new hazardous waste facility may cause direct damage to the historic environment for example through the footprint or indirectly through transportation of hazardous waste or air emissions. There is therefore a need to protect the historic environment in accordance with relevant legislation, policies and best practice. Sites should be located away from designated and other important assets. Where possible the footprint of a new facility should be minimised. The impact of road haulage associated with a new facility on the historic environment should also be taken into account.

25 Natural England website www.naturalengland.org.uk

26 Marine and Coastal Access Bill http://www.defra.gov.uk/environment/marine/documents/legislation/mab-policy.pdf

27 http://p1.countryside.gov.uk/LAR/Recreation/Greenways/index.asp

28 http://www.aonb.org.uk/wba/naaonb/naaonbpreview.nsf/Web%20Default%20Frameset?OpenFrameSet&Frame=Main&Src=%2Fwba%2Fnaaonb%2Fnaaonbpreview.nsf%2F%24LU.WebHomePage%2F%24first!OpenDocument%26AutoFramed

29 Department for Culture, Media and Sport (2001) The Historic Environment: A Force for Our Future

30 http://www.historic-scotland.gov.uk/index/heritage/valuingourheritage/what-is-the-historic-environment.htm

Topic	Summary of Current Contextual Baseline	Baseline Issues of relevance to the NPS	Future baseline	Limitations / Unavailable data	Key Sustainability Issues to take into account in the Hazardous Waste NPS
Social					
Population	Most urban centres in England contain high levels of deprivation. The most deprived region is the northeast followed by the northwest. Hazardous waste facilities are potentially more likely to be located in 'more deprived' neighbourhoods as classified by the Indices of Multiple Deprivation (IMD) (2007). However, the EqIA identifies that the existing spatial concentration of hazardous waste related industries in the UK does not appear to be co-related to communities that are highly ranked in terms of socio-economic deprivation (based on the ranking of the IMD).	The NPS should ensure that hazardous waste management facilities are located to avoid adverse effects on communities and potential impacts on social cohesion, community, severance and local population demographics.	Changing demographics will result in the growth or decline of particular groups within the overall population, as well as re-distribution of these groups. The scale of any new facility and its level of mechanisation will influence the extent to which local communities may be affected by new hazardous waste infrastructure, including temporary and permanent influx of workers.	Social and socio-economic impacts of different types of hazardous waste facilities proposed.	**Key Sustainability Issue 13** In general, the social and socio-economic impacts on the population are likely to be different for each hazardous waste management types. For example, public opposition to hazardous waste landfill focuses upon traffic movement, odour, loss of amenity and environmental impact, but the over-riding concern of opponents is with respect to public health issues. WEEE dismantling and recovery plants may give rise to noise, dust, traffic movements, production of residues for further recovery, liquid and ozone depleting gas emissions which need to controlled through permitting conditions. The siting of new facilities should avoid centres of population and/or unequal distribution of sites in relation to deprived communities. For large facilities, it is possible that communities will expand as a result of new employment, although this is more likely to occur during the construction phase. Population will have associated impacts on goods, services and employment.
Health and Well-Being	Life expectancy for both men and women has continued to rise in the UK – in 2002, life expectancy at birth for females born in the UK was 81 years, compared with 76 years for males[31]. The population of Great Britain has been living longer over the past 23 years, but the extra years have not necessarily been in good health or free from illness or disability. The Health Profile for 2008 (Department for Health) shows health improvements in declining mortality rates in targeted killers (cancers, all circulatory diseases and suicides), increasing life expectancy and reducing infant mortality.	The NPS should take into account legacy issues and public concerns; and propose measures to monitor and reduce the potential impacts on long-term health trends of operating (and decommissioning and legacy of) a hazardous waste management facility	Health, well being and addressing inequalities will be a key government drive moving forward. Therefore it can be assumed that any new hazardous waste facilities will be brought forth within a more stringent policy framework. In addition it is likely that there will be an improved understanding of the potential links between hazardous waste facilities and health.	Impacts on health and well being from different types of hazardous waste management facilities Health inequalities related to existing location of hazardous waste management facilities	**Key Sustainability Issue 14** There is considerable interest in the links between hazardous waste management and human health. In this, the potential effects are likely to vary between different types of facility. In terms of hazardous waste landfill concerns relate to both exposure from emissions during operation (e.g. dust) and the long term storage of these materials. Findings of a number of research studies and commentary by the Committee on Toxicity of Chemicals in Food, Consumer products and the Environment (COT) indicate that there is no evidence that rates of (birth) anomalies increased after landfill sites opened (Department of Health, 2001). Public opposition to hazardous waste facilities on the grounds of potential effects to human health will be a continuing issue with any proposed new facilities. There is an opportunity to improve public perception through greater awareness and through the promotion of more sustainable forms of hazardous waste management.

31 http://www.statistics.gov.uk/cci/nugget.asp?id=881

Health and Well-Being (cont…)	In 2001, there were 4.3 million people of working age who had a disability or long-term illness across England. Respiratory illnesses are an issue in the UK; death rates from respiratory disease are higher in the UK than both the European and EU average.	The NPS should take into account legacy issues and public concerns; and propose measures to monitor and reduce the potential impacts on long-term health trends of operating (and decommissioning and legacy of) a hazardous waste management facility	It is likely that risks to health and well being related to hazardous waste facilities will therefore reduce in the future. However, it is possible that public perception of such facilities will remain negative.	Impacts on health and well being from different types of hazardous waste management facilities Health inequalities related to existing location of hazardous waste management facilities	Where possible, transportation distances, and transportation by road should be reduced through appropriate siting of new facilities. New technologies should also contribute to reduced health impacts. The development of sites should not preclude the possibility to restore and manage sites for public use and recreation.
Equality	The existing spatial concentration of hazardous waste related industries in the UK does not appear to be co-related to communities that are highly ranked in terms of socio-economic deprivation (based on the ranking of CLG's IMD). Of the 10 English local authority areas that have the greatest specialisation of employment in hazardous waste industries, four have more than 50% of resident population that is non-white. There could be greater susceptibility of certain groups of the population to acute changes in lung function, airway responses and respiratory symptoms due to increased levels of certain atmospheric pollutants associated with some kinds of hazardous waste.	The NPS should comply with equalities legislation, and prevent community fragmentation whilst encouraging greater social cohesion.	Changes demographics are likely to have an influence on the distribution and re-distribution of particular groups within the overall population. The proportion of older people is likely to increase in the future and there is also likely to be a greater number if disabled people and people of working age who are long term sick; there is also like to be an increase in BME groups.	Differential impacts of various types of hazardous waste management facility	**Key Sustainability Issue 15** The future baseline will be driven by new hazardous waste recovery facilities, landfill sites and other facilities and the spatial distribution of the transport systems that link locations that originate waste with facilities that treat and/or dispose of this waste. There is a potential that new facilities could disproportionately affect members of the community; the EqIA identifies potential unequal impacts in relation to air quality, health and well being, traffic and transport and the economy. Any new facilities must be developed in accordance with Defra's duties under the Disability Discrimination Act (1995, 2005), Sex Discrimination Act (1975), Race Relations Act (1976, 2000) and Human Rights Act (1998). Siting of new facilities should be such to avoid disproportionately affecting deprived communities or other vulnerable groups of the community e.g. through appropriate land use planning.

Topic	Summary of Current Contextual Baseline	Baseline Issues of relevance to the NPS	Future baseline	Limitations / Unavailable data	Key Sustainability Issues to take into account in the Hazardous Waste NPS
Noise	Noise is recognised as a growing environmental pollutant to which a high percentage of the population in England is exposed. Increasing impacts from industrial noise (in addition to noise from other sector sources) have driven the publication of the World Health Organisation (WHO) document "Guidelines for Community Noise", which acknowledges the fact that about half of all EU citizens live in zones that do not afford acoustical comfort to residents.	The NPS should acknowledge the importance of effective control measures for noise as part of the construction and operation of hazardous waste management facilities.	Although existing planning guidance is designed to control ambient noise levels, it is likely that over time the future baseline will include increased noise levels and nuisance, in particular in urban areas.	Noise levels associated with each type of facility and their potential impact on the environment/ society	**Key Sustainability Issue 16** Noise emitted from existing hazardous waste management facilities will depend on the operation being undertaken; its nuisance factor will depend on the proximity of residents and other sensitive receptors to the operational noise. Current noise sources are anticipated to gradually increase in level due to urbanisation and land-take for purposes of intensification. Any new facility should be constructed in accordance with relevant legislation, guidance and best practice on occupational and domestic noise. Management options which reduce noise impacts on surface, subsurface and aquatic environments should be encouraged, as well as new technologies and appropriate design in new facilities to reduce noise emissions and provide exemplar standards for noise mitigation and management.
Spatial Planning and Land Use	Throughout England spatial planning is subject to considerable scrutiny and regulation, with a view to making development as sustainable as possible in accordance with established national priorities[32]. This has particular resonance with respect to the need to develop on brownfield sites and previously-developed land.	The NPS should ensure that a sustainable approach to spatial development is encouraged with regard to hazardous waste facilities, including future requirements. It should also encourage the development of brownfield sites.	Spatial planning in the future will continue to focus on developing sustainable communities to the extent possible; this may result in more appropriate land use zoning and development, and a focus on more self sustained communities.	Impact on land use of each type of hazardous waste installation Locations / sites of future potential generation of hazardous waste and existing zones allocated for (hazardous) waste management	**Key Sustainability Issue 17** Hazardous waste management facilities may have an effect on land use, through their footprint and also indirectly through the perception of risk associated with the management of hazardous waste. For example, there is a lot of public opposition to incinerators based on (perceived) public health issues. In addition, transportation needs also have an effect on land use especially where the location of facilities is currently distant from current provision of facilities. Similarly, existing and future land use patterns, such as urban extensions, could affect the volume and distribution of the generation of hazardous waste, although this link is less obvious for hazardous waste than non hazardous waste. Current trends in the redevelopment of brownfield sites can also generate hazardous wastes from contaminated land, and the construction industry itself results in large quantities of hazardous waste. The NPS has the opportunity to ensure that new infrastructure takes a long-term view by providing integrated, joined-up development decisions and land use solutions – including with regard to transportation impacts[33]. There is an opportunity to encourage the strategic siting of waste management facilities in accordance with predicted hazardous waste generation, so as to encourage sustainable land use planning; in so doing, green belts and other such protected areas should be avoided, with a preference for development on brownfield sites.

32 http://www.defra.gov.uk/sustainable/government/publications/uk-strategy/documents/SecFut_complete.pdf

33 Sustainable Development Commission (2006) Barker Review of Land Use Planning: Call for Evidence; http://www.sd-commission.org.uk/publications/downloads/Barker-Review-of-Land-Use-Planning.pdf

Military and Civil Aviation	The Defence Framework of the Ministry of Defence comprises organisations, people and activities involved in providing military capability and supporting infrastructure and services. The UK military currently maintains 18 low flying areas and 3 tactical training areas[34]. Similarly, regulatory requirements necessitate that within the vicinity of civil airports and runways, aircraft are able to maintain safe commercial, business, and recreational aviation operations.	The NPS should encourage management options that avoid impact upon the operation or quality of civil and military aviation operations, materials or asset.	The future baseline is likely to be the same as the current baseline.	Differential impacts of various types of hazardous waste management facility	**Key Sustainability Issue 18** Any new facility will need to avoid interference with Ministry of Defence lands or airspace and civil airspace.
Economic					
Economy	In 2007, 21.2% of people were economically inactive in England[35]. The economic activity rate in England was 79.0% in the third quarter of 2007. 31% of people from an ethnic minority background are economically inactive, compared with only 20% of people from a white background.	The NPS should encourage the beneficial co-location of existing and proposed facilities/ infrastructure and contribute to existing local economic strategy requirements. It should facilitate investment in new and/or innovative technologies and developing economic sectors.	The future baseline could see more stringent requirements for hazardous waste management affecting businesses and the economy. Additional costs occurring through the provision of new infrastructure and more stringent requirements are likely to be passed through the supply chain to the waste producer. This could affect businesses that produce a hazardous waste by-product. This is both positive,	Cost of hazardous waste management, per type – recovery / recycling / landfill / incineration Wider impact on other areas of the economy, such as tourism.	**Key Sustainability Issue 19** Envirowise identifies that there is a strong business case for improved performance in hazardous waste management as waste effectively costs businesses money. Envirowise has calculated that waste management, including hazardous waste, typically costs 4% of business turnover. When materials, costs of recovery, energy, wasted labour etc. are considered however, the real price tag on waste is five to twenty times the cost of disposal[36]. The cost of hazardous waste management can influence the type of facility used, for example landfill costs have led to some reduction in hazardous waste to landfill. Whilst one of the Government's key objectives is to 'decouple' waste growth from economic growth, and place more emphasis on waste prevention and re-use, this approach must be adopted in conjunction with more effective waste management, which has the ability to boost both the economy and business productivity. In turn, improving productivity will generate new opportunities and jobs[37]. This may arise through investment in new technologies and management options, and diversification of treatment options.

34 http://www.mod.uk/NR/rdonlyres/22A9CEDC-4069-4E68-AE77-15317255935B/0/UK_Military_Low_Flying.pdf

35 ILO unemployment

36 www.envirowise.gov.uk

37 www.envirowise.gov.uk

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Economy (cont…)			in that it will encourage the reduction of hazardous waste, but also negative if it becomes too expensive for the business to continue operations due to the costs of disposal.		More sustainable forms of hazardous waste management could result in inward investment – for example in new technologies and in green procurement strategies. This in itself has the potential for augmenting localised economic benefits, and creating self-sustaining pockets of growth.
Employment and Business	Between April 2007 and March 2008 the average unemployment rate was 5.6%, the percentage of working age people in work was 74.4%. Only 61% of ethnic minorities are employed, compared with 76% of white people.	The NPS should take into account the need to drive innovation in the development of a hazardous waste management facility. It should encourage or facilitate potential local, regional and national employment opportunities as a result of facilities development.	A key issue in terms of future hazardous waste management will be employment opportunities arising out of the development of new technologies, and the construction and operation of new facilities.	Number of jobs likely to be created per waste management type No information on employment numbers or trends in the hazardous waste market has been found to be readily available	**Key Sustainability Issue 20** A key issue in terms of future hazardous waste management will be employment opportunities arising out of the development of new technologies, and the construction and operation of new facilities. There is therefore an opportunity to encourage investment in Research and Development.
Education and Training	No specific information on skills gaps within the hazardous waste management sector has been readily available.	The NPS should provide for education and training during planning, design, construction and operational phases of hazardous waste management facilities. The NPS should encourage the supply of skills, including higher-level skills, for hazardous waste management.	A key issue in terms of future hazardous waste management will be employment opportunities arising out of the development of new technologies, and the construction and operation of new facilities. Whilst not a key objective of the NPS, in the development of new technologies, it will be important to ensure that adequate education and training is provided to be at the forefront of technological advancements in hazardous waste management. Interaction between the above	Potential skills requirements in relation to hazardous waste management facilities	**Key Sustainability Issue 21** A key issue in terms of future hazardous waste management will be employment opportunities arising out of the development of new technologies, and the construction and operation of new facilities. Whilst not a key objective of the NPS, in the development of new technologies, it will be important to ensure that adequate education and training is provided to be at the forefront of technological advancements in hazardous waste management and this should be encouraged through the NPS.

4.5 Interaction between the above

4.5.1 There are a number of interrelationships between different topics; these are given consideration in Table 4.2.

Table 4.2: Interaction between the different economic, social and environmental topics

AoS Key Sustainability Issues	Related Key Sustainability Issues	Nature of relationship
Hazardous Waste Management	All issues	Issues in relation to hazardous waste management are intrinsically linked to the protection of natural, cultural and human environments, in that it is the arising of hazardous waste and its management that gives rise to potential adverse impacts on these environments. The provision of waste management services also has economic impacts. Ultimately all of the issues presented link to hazardous waste management in some way. Promoting the waste hierarchy through the NPS will in itself encourage a more sustainable approach to hazardous waste management and therefore reduce potential impacts on natural, cultural and human environments. Where hazardous waste is produced, appropriate management approaches will help avoid or minimise any adverse effects on natural, cultural and human environments. This includes consideration of appropriate techniques during construction, operation and legacy of hazardous waste management facilities.
Resources and Raw Materials	1, 3, 4, 5, 6, 7, 9, 10, 11, 12, 14, 15, 19, 20	The procurement and use of appropriate materials impacts many elements of environmental, social and economic sustainability. Sustainable resource management should reduce waste. Efficiencies in energy use should have positive effects on climate change and air quality, as well as biodiversity, flora and fauna.
Climate Change Adaptation and Resilience	1, 2, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 17, 19, 20	Climate change has the potential to increase flooding and directly and indirectly impact upon the environment. Reducing greenhouse gas emissions may mitigate the speed of climate change.
Air Quality and Greenhouse Gases	1, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19	Air quality emissions have the potential to affect sensitive environmental and human receptors. Reducing air emissions also has the potential to mitigate the speed of climate change and associated economic impacts, as well as contribute to positive health benefits.
Traffic and Transport	1, 2, 3, 4, 6, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,19, 20	Traffic has direct impacts on the environment through noise and air pollution. It also generates a significant proportion of greenhouse gas emissions which has the potential to affect the rate of climate change. Transportation may also have impacts on receptors such as the historic environment and biodiversity, flora and fauna either through the need for new transport links or through increased pressure on existing roads.

AoS Key Sustainability Issues	Related Key Sustainability Issues	Nature of relationship
Biodiversity, Flora and Fauna	1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19	Biodiversity issues are linked to each of the environmental issues, as flora and/or fauna act as sensitive receptors for all topics. Water quality and resources can have an effect on biodiversity, flora and fauna, as can air quality and transportation. Strategic siting of facilities can help ensure that direct or indirect adverse impacts do not occur or are minimised. Impacts on biodiversity can, in turn, affect health and well being. Promoting strategic siting of hazardous waste facilities can also reduce current transportation requirements for hazardous waste, thus reducing emissions and other impacts associated with road haulage, that adversely affect biodiversity, flora and fauna.
Water Quality and Resources	1, 2, 3, 5, 6, 8, 9, 10, 13, 14, 15, 19	Water quality and resources directly impact the environment and population. In addition hazardous waste management facility processes have the potential to require water as a key resource. Affects on and availability of water may become key factors in the siting of facilities. The management of water discharges and water quality will have an indirect effect on biodiversity, flora and fauna, and potentially the population and human health.
Flood Risk	1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 19, 20	Flood risk is intrinsically linked to climate change. Flood risk may also have a direct or indirect impact on all environmental, social and economic issues.
Soils and Geodiversity	1, 2, 3, 4, 5, 6, 7, 8, 10, 13, 14, 15, 19	Hazardous waste emissions to soils are a potential issue for hazardous waste management facilities, as are direct impacts caused by the footprint of new infrastructure. Impacts on soils may have a knock on effect on biodiversity, flora and fauna, water quality, and land uses.
Coastal Change and the Marine Environment	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 19	The location of hazardous waste facilities within coastal environments may result in impacts on biodiversity, flora and fauna and the historic environment. It may also exacerbate the problem of flood risk. This in turn has links with the population and economy.
Landscape	1, 2, 3, 5, 6, 8, 9, 10, 12, 13, 14, 15, 19	Hazardous waste facilities may potentially impact on landscape. Impacts on these factors will, in turn, affect health and well being. Strategic siting of facilities can help ensure that direct or indirect adverse impacts do not occur. Promoting strategic siting of hazardous waste facilities can also reduce current transportation requirements for hazardous waste, thus reducing transportation impacts on landscape.

Historic Environment	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15, 19	Hazardous waste facilities may potentially impact on the historic environment. Transportation associated with facilities may also have direct or indirect effects on the historic environment. Strategic siting of facilities can help ensure that direct or indirect adverse impacts do not occur.
Population	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 19, 20, 21	Hazardous waste operations have the potential to directly and indirectly impact upon population and vulnerable and deprived groups for example through the siting of hazardous waste facilities. There may also be associated economic effects, for example positive impacts associated with job creation.
Health and Well Being	1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 19, 20, 21	Hazardous waste operations and their transportation requirements have the potential to directly impact upon human health and well-being through site selection. Indirect effects may also occur due to adverse effects on landscape, the historic environment and biodiversity, flora and fauna. Health impacts are also linked to equality, whereby particular groups of the population may be unequally affected by new facilities.
Equality	1, 3, 4, 5, 6, 7, 13, 14, 19, 20, 21	While equality is generally a social and economic related issue, there is the potential for impacts on the quality of life of low income groups as a result of changes in the levels of atmospheric pollution, should hazardous waste facilities be sited close to these groups.
Noise	1, 5, 6, 13, 14, 15, 19, 20	Only certain environmental receptors are sensitive to noise, these are biodiversity, flora and fauna and the health and well-being of the population.
Spatial Planning and Land Use	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 19, 20	Appropriate siting of hazardous waste facilities will be driven largely through the planning system, considering land use issues. Environmental, population and economic issues all link to the siting of hazardous waste facilities. Strategic management and siting can have significant positive impacts on equality, including health and socio-economic equality.
Military and Civil Aviation	13, 19	Avoiding impacts on military and civil aviation is linked to spatial planning and land use. There are also links to the economy, whereby a new facility does not prejudice the operation of these assets.
Economy	1, 2, 3, 5, 13, 15, 17, 20, 21	Economic issues link with those of climate change, transportation impacts and social issues.
Employment and Business	1, 2, 3, 5, 6, 7, 8, 10, 11, 12, 13, 15, 19, 21	Employment and business issues link with those of climate change, environmental impact, social and broader economic issues.
Education and Training	1, 13, 15, 19, 20	Hazardous waste related education and training issues directly link to issues of population and economy.

4.6 Evolution of the baseline without the NPS

4.6.1 In the absence of the proposed Hazardous Waste NPS the primary drivers of change in the hazardous waste sector will continue to be the quantity of hazardous waste produced and the policies relating to how that waste is to be managed. The key existing policy relating to hazardous waste management is the Strategy for Hazardous Waste Management in England (Defra, March 2010), which highlights the importance of the Waste Hierarchy. This should see the proportion of hazardous waste going to landfill reduced.

4.6.2 In terms of the development of hazardous waste management facilities, the primary drivers will remain the quantity of hazardous waste being created and therefore the demand for waste management facilities, and the existing planning system which will guide development to suitable locations. Hazardous waste companies would still apply for development consent for new nationally significant infrastructure to the IPC. However, in the absence of the comprehensive statement of national need and specific guidance on the application of hazardous waste policy to development consents that are provided by the NPS, the IPC would have few benchmarks against which to consider the application.

4.6.3 Overall, therefore, future trends in hazardous waste production should continue in a similar manner to current trends; however, the potential effects of hazardous waste management facilities may be less fully understood without the development of the NPS, as the NPS will encourage the consideration of environmental, social and economic impacts prior to the development of such infrastructure. The situation without the NPS therefore has the potential to lead to less well informed decisions being taken on the most appropriate type of hazardous waste facility to be developed. The evolution of the baseline without the NPS may therefore not be as positive in environmental, social and economic terms given that there is less certainty that facilities higher up the waste hierarchy will be developed, and less certainty those that are developed will be developed in an environmentally, socially and economically sustainable manner.

Section 5: Appraisal of Sustainability Framework

5.1 Introduction

5.1.1 This section sets out the AoS framework that was developed during the scoping phase of the AoS.

5.2 The AoS Framework

5.2.1 A set of sustainability objectives, referred to as the AoS framework were developed during the scoping stage and have been used within the appraisal process to assess the sustainability of the Hazardous Waste NPS. These sustainability objectives have been developed from the sustainability key issues and are organised under the headings 'environmental', 'economic' and 'social'.

5.2.2 Each objective is accompanied by a set of appraisal criteria and, where practicable and relevant to this NPS, targets. The appraisal criteria outline and define key issues and questions to be asked in order for the components of the objective to be achieved. The appraisal criteria are intended as a guide only and have been used to support the testing of the NPS against the key overarching sustainability objectives.

5.2.3 The AoS framework is set out in Table 5.1

Table 5.1: AoS Framework

AOS Key issue and objective	AOS Appraisal Criteria	Sea Topic
ENVIRONMENTAL		
WASTE MANAGEMENT **AoS 1: To encourage the reduction, reclamation, reuse and recycling of hazardous waste, and to promote environmentally sound management throughout facility life cycles**	• How will the NPS encourage ways to support the Government's aim and the Waste Framework Directive requirement to reduce waste? • How will the principles of the waste hierarchy be driven towards 'prevention, reduction and reuse' and enforced? • How is the infrastructure made sustainable throughout its lifecycle; for example environmental management, encouraging designing for decommissioning / deconstructability, demountability and for legacy? • How are criteria used to develop the best overall environmental outcome for each hazardous waste stream? • How are future capacity requirements of different hazardous waste management facility types taken into account in the NPS?	**Population, Human Health**

AOS Key issue and objective	AOS Appraisal Criteria	Sea Topic
ENVIRONMENTAL		
CLIMATE CHANGE ADAPTATION AND RESILIENCE **AoS 3: To minimise the carbon and other greenhouse gas emissions associated with the design, construction and operation of hazardous waste management facilities and to maximise opportunities for climate change adaptation and resilience**	• How does the NPS ensure the types and the design of hazardous waste management facilities take into account climate change adaptation and resilience? • How does the NPS contribute to the reduction of greenhouse emissions in line with the UK Climate Change Act 2008 to reduce greenhouse gas emissions by at least 80% by 2050, and reduce CO2 emission by 26% by 2020, against a 1990 baseline[39] by: – reducing the need for emission intensive facilities? – increasing the development of low carbon technology? – reducing non fossil fuel GHG emissions? – directing that greenhouse gas emissions associated with transportation of waste to and from different facility types are minimised?	**Climatic Factors**

38 PPS22: Renewable Energy; Page 6

39 UK Climate Change Act 2008, Part 1Carbon Target and Budgeting, Page 6

AIR QUALITY AND EMISSIONS **AoS 4: To optimise positive and minimise adverse impacts on air quality**	• Where possible, how does the NPS ensure the management and reduction of emissions to the internal and external atmosphere in accordance with limits and ceiling targets set out in the relevant legislation? • Does the NPS recognise the potential positive air quality impacts that may arise through the introduction of specialised handling and / or recovery facilities? • How does the NPS take into account issues of dispersed air quality on receiving environments, for example on Natura 2000 and (if not already accounted for) Ramsar sites?	**Air, Climatic Factors**
TRAFFIC AND TRANSPORT **AoS 5: To minimise the negative impacts of traffic and ensure that transport schemes associated with hazardous waste management facilities are environmentally sustainable and beneficial to the wider community**	• Where possible, how does the NPS encourage the siting of new hazardous waste management facilities close to waste arisings / ancillary infrastructure to reduce transport requirements? • How does the NPS promote active ('non-motorised') travel as part of the planning and design of hazardous waste management facilities? • How will the NPS ensure that traffic and transport will not adversely impact historic and/ or environmental assets?	**Population, Climatic Factors, Human Health**
BIODIVERSITY, FLORA AND FAUNA **AoS 6: To protect and enhance biodiversity, flora and fauna**	• How does the NPS contribute to 'the protection, conservation and enhancement of all biodiversity, flora and fauna'? • How does the NPS recognise the need to protect the full breadth and detail of different statutorily protected habitats and species and undesignated habitats and species in England? • How does the NPS stipulate and favour the development of facilities that enhance or do not adversely impact habitats, species or biodiversity? • How does the NPS prevent the fragmentation of habitats and encourage ecological connectivity?	**Biodiversity, Fauna, Flora**

AOS Key issue and objective	AOS Appraisal Criteria	Sea Topic
ENVIRONMENTAL		
FLOOD RISK **AoS 8: To minimise flood risks associated with the construction and operation of hazardous waste management facilities, and to ensure that facilities remain safe and operational throughout their lifetime by being able to respond to climate change**	• How does the NPS encourage the siting of facilities away from areas of flood risk, including fluvial, coastal and surface water flooding? • How does the NPS take into account the need to make facilities safe and operational whilst not increasing the risk of flooding elsewhere? • How does the NPS drive the reduction of flood risk during planning and design including the need for risk assessment and encouraging the use of SUDS?	**Climatic Factors, Water**
SOILS AND GEODIVERSITY **AoS 9: To remediate, protect and enhance the natural and healthy state of soils and geodiversity**	• How does the NPS take into account the need to protect soil function and processes? • How does the NPS take into account the need to conserve geodiversity?	**Soil**
COASTAL CHANGE AND THE MARINE ENVIRONMENT **AoS 10: To take account of coastal processes and protect the natural and historic marine environment**	• How does the NPS avoid adverse impact on coastal processes including coastal erosion and change? • How does the NPS contribute to the protection of the natural and historic marine environment?	**Climatic Factors, Water, Biodiversity; Fauna; Flora; Cultural heritage including architectural and archaeological heritage**
LANDSCAPE **AoS 11: To minimise adverse impacts on protected and other important landscapes**	• How does the NPS recognise the need to protect designated and other significant / important landscapes, including their historic and cultural dimension? • How does the NPS encourage the integration of hazardous waste management facilities into the landscape through sensitive design and mitigate the visual impacts on the local community?	**Landscape, Cultural heritage including architectural and archaeological heritage**

HISTORIC ENVIRONMENT **AoS 12: To protect and conserve heritage assets in a manner appropriate and proportionate to their significance**	• How does the NPS take account of the need to protect and conserve all heritage assets and their settings (designated and undesignated), including terrestrial and marine assets? • How does the NPS recognise that hazardous waste management facilities (and associated infrastructure) must not detract or impinge upon existing cultural capital? • How does the NPS avoid adverse impact on local tourism and local willingness to invest in the historic environment?	**Cultural heritage including architectural and archaeological heritage, Landscape**
SOCIAL		
POPULATION **AoS 13: To use population demographics to ensure that hazardous waste management facilities optimise benefits to and encourage the development of sustainable communities**	• How are demographic trends taken into account by the NPS, to ensure that hazardous waste management facilities are located to avoid adverse effects on communities e.g. carrying capacity of communities? • How does the NPS impact on social cohesion and community severance? • How will the NPS affect local population demographics, for example through migration?	**Population**
HEALTH AND WELL-BEING **AoS 14: To reduce health inequalities and to improve the health and well-being of both operatives and wider communities during the construction, operation and legacy of hazardous waste management facilities**	• How does the NPS take into account legacy issues (such as long term disposal) with regards community health? • How does the NPS promote the specification and use of healthy materials during construction and operation? • How does the NPS identify, monitor and reduce the potential impacts on long-term health trends of operating (and decommissioning and legacy of) a hazardous waste management facility? • How does the NPS address public concerns / fears for e.g. nuisance including smell and pests? • How does the NPS support construction, operation and legacy that improve health and well being and reduce health inequalities?	**Human Health, Population**

AOS Key issue and objective	AOS Appraisal Criteria	Sea Topic
SOCIAL		
NOISE **AoS 16: To minimise the adverse impacts of noise on both the environment and society**	• How does the NPS recognise the importance of effective control measures for noise as part of the construction and operation of hazardous waste management facilities, including surface, subsurface and underwater noise? • How does the NPS highlight the importance of minimising the potential impacts of noise on the environment, including biodiversity, and communities / individuals?	**Population**
SPATIAL PLANNING AND LAND USE **AoS 17: To ensure that hazardous waste management facilities do not adversely impact or detract from existing or proposed land uses or access to green space**	• How does the NPS ensure that a sustainable approach to spatial development is encouraged with regard to hazardous waste facilities including future requirements? • How does the NPS recognise and encourage the development of brownfield sites? • How does the NPS avoid severance of access to green spaces?	**Population**
MILITARY AND CIVIL AVIATION **AoS 18: To protect and conserve the integrity and security of aviation and military material and infrastructural assets**	• How does the NPS encourage management options that avoid impact upon the operation or quality of civil and military aviation operations, materials or assets?	**Material Assets**
ECONOMY **AoS 19: To ensure that hazardous waste management facilities benefit the local, regional and/or national economy, and that the planning, design, construction, operation and legacy phases are subject to whole-life costing**	• How does the NPS encourage the beneficial co-location of existing and proposed facilities/ infrastructure? • How does the NPS contribute to existing regional or local economic strategy requirements? • How does the NPS encourage investment in new and/or innovative technologies? • How does the NPS encourage the contributions to developing economic sectors?	**Material Assets, Population**

EMPLOYMENT AND BUSINESS **AoS 20: To support existing and create new employment and business opportunities locally, regionally and nationally**	• How does the NPS take into account the need to drive innovation in the development of a hazardous waste management facility? • How does the NPS encourage or facilitate potential local, regional and national employment opportunities as a result of facility development?	**Material Assets, Population**
EDUCATION AND TRAINING **AoS 21: To educate, train and address skills shortages or gaps in the planning, design, construction and operation of hazardous waste management facilities**	• How does the NPS provide for education and training during planning, design, construction and operational phases of hazardous waste management facilities? • How does the NPS maximise the potential for research and development? • How does the NPS encourage the supply of skills, including higher-level skills, for hazardous waste management?	**Material Assets, Population**

Section 6: Compatibility Assessment NPS Objectives Against AoS Objectives

6.1 Introduction

6.1.1 A compatibility assessment between the Hazardous Waste NPS objectives and the AoS objectives has been undertaken to identify both potential synergies and inconsistencies. This chapter presents the process of assessment, the results and a discussion of the outcomes.

6.2 Process

6.2.1 During the development of the NPS, preliminary assessments identified a number of uncertainties where the NPS objectives had no relationship with some or all of the AoS objectives. This indicated that there was an opportunity for sustainability principles embedded in the AoS objectives to more effectively underpin the NPS objectives. As such, recommendations were provided to Defra on how to amend the NPS objectives so that they more effectively illustrated how the NPS would not only deliver the Government's policy for hazardous waste but to also do so in the most sustainable manner.

6.2.2 The key findings of the assessment of the objectives set out in the final draft Hazardous Waste NPS are outlined in Section 6.5.

6.3 Hazardous Waste NPS objectives

6.3.1 The Hazardous Waste NPS draft objectives are set out in **Table 6.1** below. The AoS framework objectives were set out in **Table 5.1**.

Table 6.1: Hazardous Waste NPS Objectives

NPS Objective	Description
NPS1	Protect human health and the environment by producing less hazardous waste, using it as a resource where possible, only disposing of it as a last resort and ensuring that the natural environment and human health are not adversely affected by the transportation or treatment of hazardous waste.
NPS2	To provide a robust hazardous waste infrastructure network, which applies the waste hierarchy and drives the management of hazardous waste up that hierarchy.
NPS3	To provide an integrated an adequate network of installations to allow (UK) self-sufficiency in hazardous waste, except where hazardous waste is produced in too small a quantity for separate facilities in each Member State.
NPS4	To deliver the hazardous waste infrastructure needed to meet the objectives of the Hazardous Waste Management Strategy and in a way that encourages the development of sustainable communities.
NPS5	To deliver infrastructure that minimizes greenhouse gas emissions and maximises opportunities for climate change adaptation and resilience.
NPS6	In providing new infrastructure to look for opportunities to support existing and create new business opportunities and to address any skills shortages or gaps associated with the planning, design, construction and operation of hazardous waste management facilities.

6.4 Compatibility Analysis

6.4.1 **Table 6.2** presents the full outcomes of the compatibility assessment between the NPS objectives and the AoS objectives (Section 5).

6.4.2 The objectives have been assessed to be one of the following:

- Compatible;
- Not Compatible;
- No relationship; and
- Uncertainty over compatibility.

Table 6.2: Compatibility assessment between the NPS objectives and the AoS objectives

NPS Objective	AoS Objective	AoS Obj 1	AoS Obj 2	AoS Obj 3	AoS Obj 4	AoS Obj 5	AoS Obj 6	AoS Obj 7	AoS Obj 8	AoS Obj 9	AoS Obj 10	AoS Obj 11	AoS Obj 12	AoS Obj 13	AoS Obj 14	AoS Obj 15	AoS Obj 16	AoS Obj 17	AoS Obj 18	AoS Obj 19	AoS Obj 20	AoS Obj 21
	NPS1	C	C	C	C	C	C	C	C	C	C	C	–	–	C	–	C	–	–	C	C	–
	NPS2	C	C	C	C	?	?	?	?	?	?	?	?	–	?	–	?	?	?	C	C	–
	NPS3	–	–	?	?	?	?	?	?	?	?	?	?	–	?	–	?	?	?	C	C	?
	NPS4	C	C	C	C	C	C	C	C	C	–	C	C	C	C	C	C	C	–	C	C	C
	NPS5	C	C	C	C	C	C	C	C	–	C	–	–	–	C	–	–	–	–	C	C	–
	NPS6	C	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	C	C	C

Key	
Compatible	C
Not compatible	x
No relationship	–
Uncertainty over compatibility	?

AoS Objective 1 – Waste Management	AoS Objective 12 – Historic Environment
AoS Objective 2 – Resources and Raw Materials	AoS Objective 13 – Population
AoS Objective 3 – Climate Change Adaptation and resilience	AoS Objective 14 – Health and Well Being
AoS Objective 4 – Air Quality and Emissions	AoS Objective 15 – Equality
AoS Objective 5 – Traffic and Transport	AoS Objective 16 – Noise
AoS Objective 6 – Biodiversity Flora and Fauna	AoS Objective 17 – Spatial Planning and Land Use
AoS Objective 7 – Water Quality and Resources	AoS Objective 18 – Military and Civil Aviation
AoS Objective 8 – Flood Risk	AoS Objective 19 – Economy
AoS Objective 9 – Soils and Geodiversity	AoS Objective 20 – Employment and Business
AoS Objective 10 – Coastal Change and the Marine Environment	AoS Objective 21 – Education and Training

6.5 Discussion

6.5.1 Overall, the draft NPS objectives are broadly compatible with the AoS objectives. There were no objectives assessed as being incompatible. Below is an outline of how each NPS objective performed in the compatibility assessment.

NPS Objective 1

6.5.2 NPS objective 1 was assessed as being broadly compatible with 11 out of the 12 environmental AoS objectives, 2 out of 6 social objectives and 2 out of 3 economic objectives. The remaining objectives had no relationship.

NPS Objective 2

6.5.3 NPS objective 2 is broadly compatible with 4 out of 12 environmental objectives and 2 out of 3 economic objectives. The remaining objectives either showed an uncertain relationship or no relationship at all.

NPS Objective 3

6.5.4 The compatibility assessment revealed that NPS objective 3 was compatible with 2 out of 3 economic objectives. For social objectives, NPS objective 3 showed an uncertain relationship with 4 out of 6 AoS social objectives and an uncertain relationship with 10 out of 12 environmental objectives. There was no relationship with the remaining AoS objectives.

NPS Objective 4

6.5.5 NPS objective 4 is compatible with 11 out of 12 environmental objectives, 5 out of 6 social objectives and all 3 economic objectives. The remaining objectives showed no relationship.

NPS Objective 5

6.5.6 Overall, NPS objective 5 was found to be compatible with 9 out of 12 environmental objectives, one out of 6 social objectives and 2 out of 3 economic objectives. The remaining objectives showed no relationship.

NPS Objective 6

6.5.7 Overall NPS objective 6 was compatible with 1 environmental AoS objective (AoS1) and all 3 economic objectives. There was no relationship with the remaining objectives.

Section 7:
Assessment of NPS Strategic Policy Alternatives

7.1 Introduction

7.1.1 This section sets out reasonable alternatives to the policy taken forward in the Hazardous Waste NPS and assesses those alternatives against the AoS framework.

7.1.2 The development of the NPS and the reasonable alternatives has been an iterative process, based on the SEA guidance[40] which states that only "reasonable, realistic and relevant alternatives" need to be put forward, and that it is helpful if they are sufficiently distinct to enable meaningful comparisons to be made of the environmental implications of each. Alternatives may be discrete or may be combined in various ways to represent scenarios.

7.2 Strategic Alternatives

7.2.1 The development of the emerging NPS and the reasonable alternatives is consistent with the government guidance on SEA which refers to a hierarchy of options as outlined in the box below. The hierarchy uses questions to aid the definition of the alternatives. Each of these questions is linked and in answering the first, leads onto the next.

Need or demand: is it necessary?

Can the need or demand be met without implementing the plan or programme at all?
Can the proposal (development, infrastructure etc) be obviated?

Mode or process: how should it be done?

Are there technologies or methods that can meet the need with less environmental damage than 'obvious' or traditional methods?

Location: where should it go?

What's the preferred approach to location?

Timing and Detailed implementation

When, in what form and in what sequence, should developments be carried out?
What details matter, and what requirements should be made about them?

(adapted from: A Practical Guide to the Strategic Assessment Directive[40])

7.2.2 Defra and the AoS team identified key strategic policy alternatives, following the hierarchy set out in the SEA Directive. Initially, consideration was given to strategic alternatives to meeting the need for new infrastructure.

7.2.3 In particular could more be done to prevent hazardous waste arising and would greater reuse and recycling obviate the need for new hazardous waste infrastructure?

7.2.4 As explained in the Strategy for Hazardous Waste Management in England and in Part 3 of the NPS, hazardous waste continues to arise despite measures aimed at waste prevention. The prevention of waste is required as a first priority under the revised Waste Framework Directive. However, a number of initiatives associated with the better management of waste such as changes in the classification of hazardous

40 Office of the Deputy Prime Minister (ODPM) (September 2005), A Practical Guide to Strategic Environmental Assessment Directive. London: HMSO.

waste and the increasing impact of producer responsibility schemes, which require the separate collection of certain types of waste are leading to increases in the amounts of waste needing to be managed as "hazardous". In addition, moving the management of hazardous waste up the waste hierarchy as required by the Waste Framework Directive will increase the need for treatment and recycling facilities at a higher point on the hierarchy.

7.2.5 The possibility of relaxing the self-sufficiency requirements so that not all of the need for hazardous waste infrastructure needs to be provided for in this country is not an option because, as explained in Part 3 of the NPS, the revised Waste Framework Directive requires that sufficient disposal facilities be required in each Member State to match expected arisings of all hazardous waste except those arising in very small quantities. Hazardous waste may be exported to other EU and other OECD countries for recovery, but it is a matter of policy as well as a legal requirement that England should also have in place a range of facilities and plant for the recovery of hazardous waste to help meet the country's requirements. Relaxing the self-sufficiency requirements is not a reasonable alternative for waste recovery either.

7.2.6 It was therefore concluded that there is no reasonable alternative to meeting the need for new hazardous waste infrastructure.

7.2.7 Consideration was then given as to whether there was a need for the NPS or whether a Business as Usual alternative would achieve the overall objective which the NPS is designed to help achieve, namely to enable the development of the necessary new large hazardous waste infrastructure.

7.2.8 On the basis therefore that new large hazardous waste infrastructure would need to be provided in the future, consideration was then given to the question of whether there was a need for large scale infrastructure (above the threshold in the Planning Act for nationally significant infrastructure). A reasonable alternative was considered of meeting the need for new hazardous waste infrastructure only through a larger number of smaller (below threshold) facilities.

7.2.9 The consideration of alternatives then moved on to questions as to how the infrastructure should be developed and the role of the NPS in directing this. It is established Government policy that the market is best placed to provide the infrastructure needed. Nevertheless, the following alternatives have been appraised in order to explore the extent to which it would be beneficial for the NPS to provide direction or prescription about the types of technology to be used or about potentially suitable or unsuitable locations. The following questions were therefore developed:

- Would greater benefits be achieved through a centrally planned policy? Or should the policy allow new developments to be market-led?
- Are there preferred technologies or higher environmental, social and economic standards that could be applied to secure optimum environmental outcomes? Or should developers be allowed to determine the most appropriate type of technology?
- What would be the preferred approach to the location of new infrastructure? i.e. should specific locations be identified for schemes, or should it be generic?

7.2.10 The strategic alternatives developed for consideration in this AoS are therefore shown in **Table 7.1.** For each of the pairs of strategic alternatives, potential effects have been appraised against the overarching AoS sustainability themes (environmental, social, economic). These three broad themes cover the 21 objectives set out in Section 5 of this Report.

Table 7.1: Key Strategic Policy Alternatives under the SEA Hierarchy

Strategic Alternatives	SEA Hierarchy Need – do we need the Hazardous Waste NPS?	Process – What approach should we take to the development of large scale hazardous waste infrastructure	Location – where should new infrastructure for hazardous waste be built?
Baseline	Hazardous Waste NPS in line with Policy versus Business As Usual		
Strategic alternatives to the NPS meeting need with large scale infrastructure	Relying on a large number of smaller facilities		
Strategic alternatives to the provision of infrastructure		Central Planning of infrastructure Government prescription on appropriate technology	Identification of Suitable or Unsuitable Locations

7.2.11 It was considered that the question 'timing and detailed implementation' would be assessed at the project level of any new infrastructure brought forward, and is therefore considered outside the remit for this AoS.

7.2.12 A summary of the outcome of the appraisal is provided below; detailed appraisal tables are provided in Annex 1.

7.3 Appraisal Assumptions

7.3.1 Assumptions made during the assessment are based on professional judgement due to the lack of quantitative data. Assumptions are also generic in nature, with the appraisal being proportionate to the level of information available for each alternative. Further assumptions for each strategic alternative, where relevant, are set out under each alternative considered below.

7.3.2 In the consideration of the effects of each alternative, in all cases it has been assumed that any new development would have to comply with existing environmental legislation, regardless of whether or not an NPS is developed. However, in taking this into consideration it has been assumed that such requirements would only be addressed by the Developer at the project stage, for the purposes of planning permissions, rather than provide for a more strategic consideration of such impacts. It also assumes that the Developer and/or the IPC would only comply with the minimum requirement of such legislation.

7.4 Hazardous Waste NPS in line with Policy versus Business As Usual

7.4.1 Initially, consideration was given as to whether a Hazardous Waste NPS was required. The outcome of this appraisal is set out below.

Overview of alternatives

7.4.2 **Alternative 1: NPS in line with Policy** – This assumes that an NPS is prepared and that a need has been established for hazardous waste infrastructure that meets the requirements of the Planning Act 2008. The NPS would therefore follow government policy aimed at: protecting human health and the environment; implementing the waste hierarchy; promoting the principles of proximity and self sufficiency; and minimising greenhouse gas emissions. More specifically, an NPS would set out a statement of national need for large infrastructure and would set out measures that both Developers and the IPC should take into consideration in the development and consenting of NSIPs.

7.4.3 **Alternative 2: Business as Usual** – This assumes that the requirements of the Planning Act are implemented without an NPS for hazardous waste being drafted or designated. This is the business as usual scenario; hazardous waste companies would still apply for development consent for new nationally significant infrastructure to the IPC. However, in the absence of the comprehensive statement of national need and specific guidance on the application of hazardous waste policy to development consents that are provided by the NPS, the IPC would have few benchmarks against which to consider the application.

7.4.4 Both options would include existing policy on the management of hazardous waste – addressed in the Strategy for Hazardous Waste Management in England – which is aimed at driving the management of hazardous waste up the waste hierarchy. Both options would also be required to comply with all existing environmental, social and economic legislation at the project level.

7.4.5 Given that the majority of hazardous waste infrastructure is brought forward by the private sector, business as usual would not preclude the development of future infrastructure.

Summary of Appraisal

7.4.6 **Table 7.2** sets out a summary of the appraisal of these alternatives against the AoS framework; detailed appraisal matrices are provided in Annex 1.

Table 7.2: Summary of the appraisal of Hazardous Waste NPS versus Business as Usual

Summary of appraisal	
Environment	
An **NPS in line with policy alternative** assumes that hazardous waste will be managed in accordance with the Strategy for Hazardous Waste Management for England, and therefore that hazardous waste management will still aim to push waste up the hierarchy. For both alternatives, development meeting the criteria in the Planning Act is still likely to be brought forward, and therefore any new development is likely to have some impact on environmental resources and receptors. However, an NPS provides the opportunity to set out specific requirements for any new developments that will be brought forward to avoid and minimise environmental impacts as far as possible.	The **business as usual alternative,** taken to be as set out in the Hazardous Waste Strategy 2010, aims as a whole to push waste up the waste hierarchy, and therefore contributes to the environmental objectives by encouraging a reduction in waste production and hence potentially reduce the need for new infrastructure in the first place. However, given that some hazardous waste will still be produced, infrastructure is still likely to be brought forward by private developers. Annex 2 to the Strategy for Hazardous Waste Management in England sets out the type of infrastructure that is needed, but does not set out specific guidance or environmental criteria that should be taken into account in the development of a new facility, its siting or operation.

Environment (cont…)	
The extent to which the environmental objectives are achieved would depend on the level of provision against significant effects provided in the detailed wording of the NPS policy; overall, the NPS provides generic wording to support national legislation for the protection of the environment and various additional recommendations to Applicants to avoid adverse impacts, although in some areas further wording could be added to tighten the parameters within which Applicants will need to work in order to deliver an environmentally acceptable development.	A business as usual alternative would therefore rely solely on protection that is afforded through existing legislation, which will be implemented as appropriate at the project development stage through systems such as EIA. Whilst significant adverse impacts may be addressed through EIA and consents applications at the project development stage, this approach may not necessarily guide the Applicant to avoiding adverse impacts from the outset, and therefore opportunities may be missed to reduce environmental impacts.
Social	
An **NPS in line with policy alternative** assumes that hazardous waste will be managed in accordance with the Strategy for Hazardous Waste Management for England, and therefore that hazardous waste management will still aim to push waste up the hierarchy. For both alternatives, development meeting the criteria in the Planning Act is still likely to be brought forward, and therefore any new development is likely to have some social impacts. The wording in the draft NPS is such that it provides some guidance for Applicants to minimise social impacts. For example, the NPS encourages the development of brownfield sites and development that does not affect access to open space, green infrastructure and green belt.	The **business as usual alternative** aims as a whole to push waste up the waste hierarchy, and therefore contributes to the social objectives by encouraging a reduction in waste production. However, should a project be brought forward this alternative would not contribute directly to influencing its development in such a way that could minimise adverse social impacts as it provides no guidance to the Applicant on type of infrastructure to consider or siting selection criteria. Whilst significant adverse impacts may be addressed through EIA and consents applications at the project development stage, this approach may not necessarily guide the Applicant to avoiding adverse impacts from the outset, and therefore opportunities may be missed, especially as well being and social impacts are not necessarily addressed fully in the EIA process.
Economic	
An **NPS in line with policy alternative** allows some direction to be provided in the development of new infrastructure, for example the NPS encourages socio-economic assessment in order to reduce potential impacts on and maximise opportunities for the economy, employment and training. The NPS states that the information contained within such an assessment could include details on employment, equality, community cohesion and well-being, at the regional and local level. It therefore contributes to the achievement of the AoS Objectives.	The **business as usual alternative** as set out in the Strategy for Hazardous Waste Management for England makes no specific reference to economic employment, or training impacts or opportunities, and therefore would not contribute directly to the sustainable management of hazardous waste facilities that may be brought forward to the IPC for development. Indirectly, however, it may have a positive contribution to the economy and employment opportunities through secondary effects such as demand for raw materials, etc.

Conclusion

7.4.7 Both the NPS in line with Policy and the Business As Usual alternatives would take forward the application of the revised Waste Framework Directive 2008/98/EC (WFD) and in particular the requirements that apply to hazardous waste in relation to the waste hierarchy. Similarly, both promote the need for new infrastructure to drive the management of hazardous waste up that hierarchy. Both options would still require compliance with existing relevant legislation at the project level.

7.4.8 However, an NPS allows for specific guidance and criteria to be established to steer Applicants towards proposals that are sustainable and minimise adverse impacts from the outset of the development, i.e. prior to application. It will also provide greater certainty for the industry, the public and the regulators on the government's intentions for the conditions in which new infrastructure may be allowed.

7.4.9 Without the NPS, Applicants could still apply to the IPC for development consent but the IPC would make a recommendation to the Secretary of State instead of making the decision themselves. This process is likely to be more time consuming, the outcome less certain and the basis for decisions more open to challenge. As such, it is concluded that the preferred alternative is a Hazardous Waste NPS.

7.5 Relying on a larger number of smaller facilities

7.5.1 Consideration was given to whether it would be possible to meet the need for hazardous waste infrastructure by relying on a larger number of small hazardous waste facilities. The results of this appraisal are set out below.

Overview of alternatives

7.5.2 **Alternative 1: Small Facilities** – A small facility assumes that, for the same volume of hazardous waste requiring treatment, several smaller facilities would be constructed. Each individual facility would focus on treating a smaller volume of waste, potentially related to more local/ regional waste arisings. It has been assumed that small facilities would be under the threshold set out in the Planning Act 2008.

7.5.3 **Alternative 2: Large Facilities** – A large facility assumes that one or relatively few large facilities would be constructed for the same volume of hazardous waste requiring treatment, meeting the threshold set out in the Planning Act 2008.

7.5.4 In the appraisal of the above alternatives, a comparison has been made between the scale of a facility and the potential generic impacts, without specific consideration of any one type of hazardous waste infrastructure (i.e. not comparing a small WEEE facility with a large ship dismantling facility). Due to the need to provide several smaller facilities instead of one large facility, for the same volume of waste, the additional cumulative effects of smaller facilities have been taken into account in this appraisal.

Summary of Appraisal

7.5.5 **Table 7.3** following sets out a summary of the appraisal of these alternatives against the AoS framework; detailed appraisal matrices are provided in Annex 1.

Table 7.3: Summary of the Appraisal of Relying on a Larger Number of Small Facilities

Summary of appraisal	
Environment	
The appraisal of **a larger number of small facilities** against environmental objectives revealed that the development of small facilities could result in reduced distances between source and treatment facility thereby resulting in fewer impacts on air quality (particularly spatially) and biodiversity, flora and fauna compared to larger facilities. A reduction in distance travelled may reduce emissions and nuisance (such as noise) associated with hazardous waste transportation. The cumulative impacts however of a number of smaller facilities compared to one large facility may be similar or greater for example with regard to air emissions. From a landscape perspective, a small facility may also be more easily screened than a large facility. Contrarily, the development of smaller facilities may result in fewer opportunities to employ stringent abatement technologies and water reuse efficiency. The cumulative effect of the development of several small facilities may however result in greater resources used in relation to water use as well as raw materials in construction compared to one large facility in a single location. Given the greater number of facilities that could be developed for the same volume of waste, there may also be a greater potential for facilities to impact on more heritage assets and an overall larger landtake than larger facilities.	The development of **large facilities** may indirectly encourage a reduction in the generation of hazardous waste at source given the potentially greater transportation costs associated with the transport of waste from one or two large facilities. Further, there may be a greater opportunity to reduce resource use and encourage resource efficiency through the construction of large facilities (both financially and technically). Additionally, several large facilities may lead overall to a slightly smaller water demand than a smaller number of facilities, cumulatively. When assessed against other environmental objectives, large facilities will result in longer transportation distances compared to several facilities mirroring demand at more than one location. Long distance transportation of hazardous waste will result in emissions and nuisance such as noise. However, the local impacts on communities may be smaller as the majority of the transportation would be on major roads (railways, etc). The NPS sets out measures to avoid and/or reduce such impacts.
Social	
A larger number of small facilities may result in a greater spread of employment opportunities associated with the hazardous waste industry across England. Reduced transportation distances associated with more localised facilities may however result in an increased impact on local communities as more travel will be undertaken on local roads as opposed to major roads. This may also result in increased severance of communities if not planned appropriately. The landtake required for a small facility may be less. However, cumulatively the landtake required may be greater than a large facility, depending on how many large facilities are developed.	For **Larger facilities** the impact on the local community where the facility is located may be greater due to the size of the facility, however cumulatively this option may have less impact on communities and severance (as the majority of transportation would occur on major roads). The landtake required for larger facilities will be greater than for a small facility, but similar when compared to the cumulative landtake required for a number of smaller facilities.

Summary of appraisal	
Social (cont…)	
	There were some instances for social objectives where there were no discernable differences between developing small or large facilities. For example, the development of any new proposed hazardous waste facility may be associated with negative perceptions of poor health and well being and is therefore not intrinsically linked to whether there is one large single facility or several smaller facilities developed.
Economic	
A larger number of small facilities may require less initial investment than large facilities and therefore for individual investors a smaller facility may present less financial risk. However, if several smaller facilities are required the cumulative capital cost may be greater. Economies of scale may also make a smaller facility less economically viable. A smaller facility may be more likely to benefit the local economy. However, it is likely to have little direct impact on the national economy. It may be less cost effective to employ innovative technologies in a smaller facility. A small facility may result in local employment opportunities, distributed across several locations within England. Indirect employment opportunities may arise during the construction phase associated with the provision of specialist technologies. Whilst some local training may be required, the scale of a small facility may not generate the demand for additional education and training unless developed in clusters.	Large facilities are more likely to require greater initial capital investment. However, the overall investment to treat the same volume of hazardous waste may be less than investing in several small facilities. A large facility is more likely to contribute to the local and national economy. It may also be more cost effective to employ innovative technologies than in a smaller facility. A large facility may result in employment opportunities that are experienced at the national level. Indirect employment opportunities may arise during the construction phase associated with the provision of specialist technologies. A large facility may create the demand for greater investment in education and training. However, this would depend on the promoter maximising these opportunities.

Conclusion

7.5.6 Overall, the development of one or several large facilities performs slightly more positively against environmental, social and economic objectives than small facilities taking into account the measures proposed in the NPS for large facilities.

7.5.7 As any benefits realised will depend on the type of infrastructure and technologies available for that type of infrastructure, the preferred option will be dependent on the infrastructure being brought forward. As such, the preferred option may be a mixture of small and large facilities.

7.6 Central Planning of Infrastructure

7.6.1 Consideration was then given as to whether or not to adopt a central planning approach to the provision of new infrastructure.

Overview of alternatives

7.6.2 **Alternative 1: Central Planning Approach** – A central planning policy is one in which the Government makes decisions regarding when and where hazardous waste infrastructure should be provided, and dictates these decisions to the hazardous waste sector. Appropriate mitigation provisions would additionally be implemented, where appropriate, through the planning system to counter adverse effects.

7.6.3 **Alternative 2: Market-led Approach** – The intended policy is that a market-led approach to identifying and responding to future demand and exploiting available commercial opportunities is the most effective way of taking forward the development of hazardous waste infrastructure needed to drive the management of hazardous waste up the waste hierarchy and meet other policy objectives. However, this approach allows the opportunity to counter the adverse impacts of hazardous waste infrastructure development through appropriate mitigation provisions set out in the NPS and those that would be expected to be implemented via the planning and consents system e.g. EIA.

Summary of Appraisal

7.6.4 **Table 7.4** sets out a summary of the appraisal of these alternatives against the AoS framework; detailed appraisal matrices are provided in Annex 1.

Table 7.4: Summary of the Appraisal of Central Planning of Infrastructure

Summary of appraisal	
Environment	
A **central planning alternative** may provide an opportunity to drive forward the waste hierarchy in the management of hazardous waste by allowing Government to say exactly *how* the hazardous waste is to be managed in accordance with the waste hierarchy. It may also promote more environmentally sound management of facilities removing any potential bias of the Applicant towards economic advantages of a new development. However, this would require a substantial knowledge base within Government to ensure that appropriate infrastructure based on need is put forward. It also does not allow for innovation within the hazardous waste industry to contribute to the achievement of these objectives, for example through technological advances. Given that a number of environmental objectives would be equally achieved through the planning and consents process, it is unlikely that overall a central planning approach would result in greatly differing impacts on environmental objectives as compared to a market led approach.	A purely **market-led alternative,** in which there is no intervention by government, may result in hazardous waste not being optimally managed through the waste hierarchy. However, the NPS requires developments to be in accordance with the hierarchy thus reducing this risk. A market-led alternative may also be more responsive to the requirements of the hazardous waste sector, with new facilities only being brought forward on a needs basis. A market-led approach may result in environmental impacts on objectives not being sufficiently considered by the Applicant sufficiently early in the development process. However, through the mitigation measures proposed in the NPS this risk is reduced.

Summary of appraisal	
Social	
A **central planning alternative** may provide an opportunity to avoid adverse social impacts by allowing Government to say exactly *where and how* the hazardous waste infrastructure is to be developed to the benefit of social objectives. However, this would require a substantial knowledge base within Government to ensure that appropriate infrastructure is put forward.	The **market-led alternative** would rely on mitigation being guaranteed by the planning and consents system, for example via EIA, and through the measures proposed in the NPS to promote early consideration of social risks.
Economic	
A **central planning alternative** could allow Government to dictate where development takes place to reflect the needs of the local and national economy – this may also include direct and indirect mechanisms to stimulate business and employment opportunities. However, the Government may not have sufficient knowledge to ensure that all opportunities are maximised and therefore it may be more beneficial to seek to meet these objectives in liaison with industry. This alternative however is unlikely to encourage innovation within the industry that may contribute positively to these, and the other social and environmental objectives.	A **market-led alternative** is likely to be more intuitive to the needs of the hazardous waste sector and, therefore, result in developing facilities that assist in the development of employment and business opportunities through responding to demand. However, without incentives the extent to which industry would achieve this without specific guidance is unknown. A market-led approach will however be more likely to stimulate innovation which will have a greater contribution to economic objectives.

Conclusion

7.6.5 In conclusion, a centrally planned policy could allow for achievement of a number of the sustainability objectives as it would set out exactly what should or should not be done. However, such a policy would require significant knowledge for informed decisions to be made at the policy level so as to contribute effectively to the sustainability objectives; it would also stifle innovation and thus reduce the potential for future improvements to infrastructure that could contribute positively to the objectives.

7.6.6 A market-led approach, together with appropriate mitigation and enhancement measures (e.g. siting criteria), implemented through the planning system and the NPS, is unlikely to lead to significantly greater adverse sustainability impacts when compared with a centrally planned policy. It is considered that industry is probably best placed to make decisions on new infrastructure that will contribute to the economic objectives; with social and environmental objectives achieved through appropriate control criteria within the NPS to direct development appropriately.

7.6.7 As such, it is concluded that the preferred alternative is a market-led approach to the provision of Hazardous Waste infrastructure with appropriate mitigation measures included within the NPS.

7.7 Government Prescription on Appropriate Technologies

7.7.1 In considering the process alternatives, consideration was given as to whether or not the Government should prescribe the technologies to be used for any new hazardous waste infrastructure.

Overview of alternatives

7.7.2 **Alternative 1:** Prescribed Technologies Approach – This policy would assume that Government should prescribe the specific type(s) of technologies that should, for each hazardous waste stream, be employed in the development of new infrastructure. It has been assumed that technologies prescribed would not change over the period of the NPS. It has also been assumed that in prescribing technologies, this may stifle technological advancement in the provision of new infrastructure.

7.7.3 **Alternative 2:** Non Prescribed Technologies Approach – This policy would assume that Government does not prescribe the specific type of technologies that could be employed in the development of new hazardous waste infrastructure.

Summary of Appraisal

7.7.4 **Table 7.5** sets out a summary of the appraisal of these alternatives against the AoS framework; detailed appraisal matrices are provided in Annex 1.

Table 7.5: Summary of the Appraisal of Government Prescription on Appropriate Technologies

Summary of appraisal	
Environment	
An alternative of **prescribing technologies** that should be used for each hazardous waste type could allow emphasis to be placed on those proposals which accord with the Government's Waste Hierarchy and the principles of environmental sustainability, insofar as this can be determined at policy level. For example, there could be opportunities to specify energy ratings and the types of energy that should be used within prescribed technologies, or to propose technologies that seek to minimise potential impacts upon air quality, flora and fauna, water quality / use, and soils. Furthermore, preferential consideration could be given to options that contribute to the protection of coastal processes and the marine environment, that avoid adverse impacts on protected and important landscapes, and that avoid adverse impacts on heritage assets.	If no technology types are prescribed, the identification of technologies will be purely market-led which could result in an adverse effect on environmental objectives. However, subject to the imposition of appropriate mitigation measures, as recommended in the NPS, it is considered that the **non-prescribed technology** alternative would have a largely positive effect on environmental objectives when compared to the baseline. This assumes that broad guidance is provided on the type of infrastructure that is required and is appropriate. This also assumes that potential impacts on biodiversity, water quality and resources, soils and geodiversity, coastal processes / marine environment, protected and important landscapes, and heritage assets would be assessed through the planning and consents processes.

Summary of appraisal	
Environment (cont…)	
Other environmental objectives, such as the use of environmentally and socially responsible materials and resources, or the reduction in carbon and greenhouse gas emissions, would be more challenging to influence at this stage, as a life cycle analysis of all technology options available would be needed in order to make appropriate decisions. However, this alternative would require the Government having expert knowledge of technologies and their impacts in order to make informed decisions. Furthermore, given that technologies are subject to rapid change, this alternative could be too restrictive and not allow new technologies developed within the market to be brought forward; these new technologies could result in greater performance against environmental objectives.	In addition, this alternative may facilitate the development of innovative and new techniques which may come forward over the time period to which the NPS would apply. Such new technologies could contribute to environmental sustainability, for example in relation to energy efficiency, greenhouse gas emission reduction, or a reduction in air quality impacts.
Social	
An alternative of **prescribing technologies** that should be used for each hazardous waste type could provide an opportunity to put forward options that avoid adverse impacts on health, as only those technologies with the least environmental impacts would be selected – although this does not necessarily contribute to improving current inequalities in health. Similarly, adverse impacts on noise could be avoided, by selecting those technologies with the least environmental impact and by ensuring compliance with relevant legislation on noise. This option does not however allow for innovation or future improvements in technology to be implemented, which might further assist in the reduction of such impacts. The prescription of technologies is unlikely to have an impact on those sustainability objectives aimed at stakeholder / community involvement, communication and consultation, nor is it likely to affect existing or proposed planning or access to green space or the integrity and security of aviation and military material and infrastructural assets.	A **non prescribed policy** would mean that the technologies would be identified by the developer, although these would still need to fit into the broad categories of facility/treatment set out in the NPS. As a project would need to fulfil relevant legislative requirements, the planning and consents stage would contribute to minimising health and noise impacts. Furthermore, including appropriate selection criteria within the NPS could steer developers towards the most sustainable social options. New options may come forward over the time period to which the NPS would apply therefore this option may result in innovative and new techniques which may make a greater contribution to reducing health and noise impacts. As with prescribed technologies, this policy option is unlikely to have an impact on those sustainability objectives aimed at stakeholder / community involvement, communication and consultation, nor is it likely to affect existing or proposed planning or access to green space or the integrity and security of aviation and military material and infrastructural assets.

Economic	
The **prescribed technology** alternative may need some changes in order to have a positive effect upon the economy and business/employment opportunities. Prescribed technologies could take into consideration the extent to which a new facility would encourage co-location, and the potential contribution to the economy. It could also identify the business needs for the different types of technology, encouraging options that are more likely to generate opportunities. However, this would depend on the Government having sufficient information on all technology types to be able to make such decisions at policy level. Furthermore, the prescription of technologies may also mean that options are not as economically attractive to developers, with consequent implications for development timescales. This option also would not encourage investment in new technologies. It is considered unlikely that many additional opportunities will arise from existing technologies requiring the need for training. While this option would allow for more targeted training, it does not allow for innovation and new technologies, and therefore fewer new opportunities may arise for training.	The **non-prescribed technology** alternative could have a positive effect upon the economy and business /employment opportunities when compared to the baseline if appropriate requirements/mitigation are included in the NPS. While it would potentially allow more investment to take place in new and innovative technologies and potentially generate further business opportunities, this would depend on demand for new technologies. This market led approach would not guarantee that investment would take place, and that economic benefit would accrue from the technologies proposed. The opportunity for innovation and new technologies may contribute to a need for more trained and skilled staff.

Conclusion

7.7.5 A prescribed technology alternative allows consideration to be given to the relative merits of the technologies concerned, with particular emphasis upon their potential environmental, social and economic impacts, at the policy planning stage, and for these issues to be taken into consideration when identifying the preferred technologies. Certain impacts may, however, be difficult to discern at this strategic stage due to a lack of detailed information. Furthermore, such an approach would not allow for innovation or application of new technologies that could perform more favourably against the AoS objectives than existing technologies. This could be an issue given the timescale over which the NPS is likely to apply, and the potential for advances to be made in the sustainability of design solutions over this period.

7.7.6 Conversely, a non-prescribed alternative approach, together with appropriate recommendation of broad categories of infrastructure and mitigation measures that Applicants should demonstrate have been met, would allow the more sustainable development of infrastructure. This is therefore the preferred alternative.

7.8 Identification of Suitable and Unsuitable Locations for Infrastructure

7.8.1 Finally, as part of the appraisal of alternative approaches to the provision of large scale infrastructure, consideration was given as to whether or not the Government should identify suitable and unsuitable locations for the development of new hazardous waste infrastructure.

Overview of alternatives

7.8.2 **Alternative 1: Not Identifying Locations** – The intended policy is that suitable and unsuitable locations for development of infrastructure are not identified. Government believes that industry is best placed to make decisions about where to invest in hazardous waste infrastructure.

7.8.3 **Alternative 2: Identification of Locations** – This alternative would mean that the Government should play a direct role in determining the location of hazardous waste infrastructure. This could take a variety of different forms: the state determining exactly where development should take place; the state ruling out certain areas; or the state singling out certain areas for development but allowing the private sector to determine whether or not they are viable.

Summary of Appraisal

7.8.4 **Table 7.6** sets out a summary of the appraisal of these alternatives against the AoS framework; detailed appraisal matrices are provided in Annex 1.

Table 7.6: Summary of the Identification of Suitable and Unsuitable Locations for Infrastructure

Summary of appraisal	
Environment	
Overall, the **policy alternative of not identifying locations,** taking into account the measures set out in the NPS, performs positively against the AoS environmental objectives when compared to the baseline. This is because the NPS identifies factors that should be taken into account in the choice of location of new infrastructure., Overall, the requirement for a project to fulfil relevant legislative requirements such as EIA and Environmental Permitting should also contribute to minimising potential environmental impacts associated with this policy alternative. Given the requirements for a project to fulfil relevant legislative requirements, it is considered that the planning and consents stage (once a project and site have been selected) would contribute to avoiding significant adverse environmental effects, albeit at a much later stage in the development of a facility.	Overall, a **policy alternative of identifying locations** performed positively when assessed against the environmental AoS objectives. The assessment found that there are a number of benefits to having a policy of identifying locations in order to enable the consideration and assessment of the potential environmental constraints associated with future hazardous waste infrastructure at a strategic level. For example, such a policy could look to identify sensitive or protected sites (i.e. biodiversity, landscape, heritage) and locate new infrastructure sites so as to avoid adverse effects on these receiving environments. It would also have the benefit of strategically locating waste facilities in locations relative to arisings. This policy option may therefore avoid the costs associated with applications being made for a development and refused due to environmental constraints. However, this alternative would involve significant public sector costs in extensive data collection exercises in order to identify all the environmental constraints on a national basis, which may or may not be feasible in practice.

Social	
Overall, the **policy alternative of not identifying locations** performed positively when compared to the baseline from a social perspective taking into account the measures set out in the NPS. The NPS specifies locational factors to guide development in the most appropriate locations taking into account existing and proposed land uses and development plan allocations. In addition, the NPS includes wording to minimise adverse impacts on social receptors.	A **policy alternative of identifying locations** may allow greater dictation of the location of facilities to maximise opportunities for social and health benefits. The policy assessment also indicated that such a policy would allow for greater consideration of the ways in which a new facility can contribute to the development of sustainable communities, can avoid creating health inequalities and ensure that any new facilities are located away from military material and infrastructural assets. In addition, such a policy could identify broad areas which address strategic hazardous waste infrastructure requirements, thus allowing any trade offs in land use to be identified at the national level and appropriate decisions made. However, the Government would require significant information on these aspects in order to be able to identify suitable sites.
Economic	
Overall, the **policy alternative of not identifying sites** was assessed to perform either neutrally or positively when compared to the baseline against some of the AoS economic objectives. From an economic perspective, such a policy is more likely to lead to development coming forward in the locations in which it is needed, since Government does not have sufficient information on market demand to be able to direct in advance where development should take place to satisfy need. It is likely that any new facility would contribute to new employment and business. Appropriate guidance and criteria have been proposed in the NPS to maximise economic opportunities.	The **policy of identifying locations** was assessed to perform either neutrally or positively when appraised against some AoS economic objectives. Such a policy would potentially allow for identification of sites or general areas which might maximise benefits to local employment requirements and business needs. However, at the same time Government does not have sufficient information on market demand to be able to direct in advance where such development should take place to satisfy need. It is likely that any new facility will contribute to new employment and business, although the identification of specific sites could contribute more directly to these objectives.

Conclusion

7.8.5 Both the alternative of identifying suitable/unsuitable locations and the alternative of not identifying locations are considered to have, on balance, positive effects compared to the baseline when compared against the AoS objectives. A policy of identifying sites may allow environmental and social constraints to be considered at a strategic level, and thus contribute to avoiding significant adverse impacts from the outset. A policy of not identifying sites could result in opportunities to reduce significant adverse effects at the strategic level being missed. However, ultimately in most cases this is unlikely to occur due to the measures set out in the NPS, and due to the fact that any potential impacts would still be addressed at the planning and consents (project) stage. In addition, a policy of site identification assumes that there is sufficient knowledge at the policy level to be able to implement such a policy effectively.

7.8.6 Given the level of detail available at policy level it is considered that the preferred option is a policy of not identifying sites, provided that the policy sets out clear principles, locational factors and other criteria to be taken into account in order to reduce adverse impacts and maximise potential environmental, social and economic opportunities and that, where relevant, exclusionary criteria are also set out.

Section 8:
Appraisal of Sustainability of Hazardous Waste NPS

8.1 Introduction

8.1.1 The section presents a summary of the appraisal of the sustainability of the draft Hazardous Waste NPS.

The SEA Directive requires identification and characterisation of:

"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"

8.1.2 These changes or effects have been described (where possible) in terms of their nature and geographic scale, the timescale over which they would occur, whether the effects are temporary or permanent and adverse or beneficial. In addition, the secondary, cumulative or synergistic or effects were taken into consideration.

The SEA Directive (Annex 1 (f)) requires that secondary, cumulative and synergistic effects be taken into consideration.

For the purposes of the AoS, the following have been considered; these terms are not mutually exclusive and the term 'cumulative effects' has been used in this Report to include secondary and synergistic effects:

- **Cumulative effects** arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the NPS (e.g. noise, dust and visual) have a combined effect. This should consider the effects of the cumulative development of hazardous waste infrastructure, and with infrastructure proposed under other NPS currently being drafted.
- **Secondary or indirect effects** are effects that are not a direct result of the NPS, but occur away from the original effect or as a result of a complex pathway. Examples of secondary effects are a development that changes a water table and thus affects the ecology of a nearby wetland.
- **Synergistic effects** interact to produce a total effect greater than the sum of the individual effects. Synergistic effects often happen as habitats, resources or human communities get close to capacity. For instance a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species at all.

8.2 Process

8.2.1 An appraisal of the draft NPS policy was undertaken against the AoS framework. This was an iterative process, and the appraisal process has resulted in a number of suggestions and recommendations by the AoS team that have been incorporated into the current version of the NPS. In this manner, the NPS has been continually influenced by the AoS process.

8.2.2 This section of the report sets out the results of the AoS against the amended version of the NPS (i.e. which includes previous

suggestions and recommendations). The results of this appraisal were recorded in a set of appraisal tables (provided in Annex 2), and a summary of the outcome of this appraisal is provided below. As the Hazardous Waste NPS sets out both assessment principles/generic impacts and a consideration of different types of hazardous waste facilities, both were appraised as part of the AoS.

8.2.3 Significance criteria were used to assess the extent to which the NPS policy and proposed facilities performed against each AoS framework objective, as shown in **Table 8.1.** The assessment undertaken was largely qualitative in nature due to a lack of quantitative data specific to the hazardous waste industry. Where this was the case, the prediction of effects was based on professional judgement and with reference to relevant legislation and guidance.

Table 8.1: Key for performance of NPS against the AoS framework objectives

Scale of performance against AoS objective	Details
++	**Significant positive effect** NPS policy actively encouraged in its current form as it would resolve an existing sustainability issue / maximise sustainability opportunities.
+	**Minor positive effect** NPS policy would have a positive effect on sustainability issues identified.
0	**Neutral effect** NPS policy would have no effect.
-	**Minor negative effect** NPS policy would need some changes in order to have a positive effect on sustainability issues identified.
--	**Significant negative effect** NPS policy would exacerbate existing sustainability issues and cannot be suitably mitigated. Consider exclusion of policy.
?	**Uncertain** Unknown effect.

8.2.4 Sections 8.4, 8.5 and 8.6 describe the findings of the appraisal of the NPS policy against each AoS objective. Section 8.7 provides a summary of the appraisal of the different facilities set out in the draft Hazardous Waste NPS against the generic headings of 'environment', 'social' and 'economic'.

8.2.5 The duration of effects, unless specified, was identified as being long-term in the sense that almost all impacts will be permanent. In general, impacts have also been considered as irreversible given the likely timescale of operation of any new infrastructure.

8.2.6 Mitigation measures have been proposed where an adverse effect against an AoS objective was identified. Where appropriate, enhancement measures were proposed where it was considered possible to strengthen the performance of the infrastructure type against the AoS objectives.

8.3 Appraisal Assumptions

8.3.1 The following assumptions have been made in relation to the appraisal of the NPS:

- Assumptions made during the assessment are based on professional judgement where quantitative data were not available.
- As the baseline and key sustainability issues are generic in nature, potential impacts are taken to be the same whether they occur in England, Wales, Scotland or Northern Ireland. General assumptions have therefore been used for the appraisal of effects.
- It has been assumed that Developers and the IPC will need to have due regard to all existing relevant legislation, and therefore mitigation measures do not repeat existing legislative requirements but seek to complement and expand on such legislation.
- Specific technologies have not been identified as mitigation, as more sustainable options may come forward during the lifetime of the NPS; this should therefore be addressed on their individual merits at the time of an application.
- Whilst it is noted that different treatment facilities may exist for each infrastructure type identified in the NPS, the appropriate types of infrastructure have already been considered in the development of the Strategy for Hazardous Waste Management 2010 and therefore an appraisal of alternative facilities was not undertaken as part of the AoS.

8.4 Overview of Results – Environmental Appraisal

Summary

8.4.1 During the development of the NPS, a number of recommendations were made to improve the environmental sustainability performance of the NPS and these were incorporated into the text of the NPS. The results of the appraisal of the policy set out in the Hazardous Waste NPS against the AoS framework objectives therefore generally found that the NPS contributed positively when compared to the baseline to the achievement of most environmental objectives, and that its contribution was minor positive. For those effects identified as negative, or where further measures were identified to improve the performance of the NPS against AoS objectives, recommendations have been made.

Objective AoS 1: To encourage the reduction, reclamation, reuse and recycling of hazardous waste, and to promote environmentally sound management throughout facility life cycles

8.4.2 The appraisal of the draft Hazardous Waste NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective, in that it supports the waste hierarchy and the prevention of hazardous waste in the first place, and the reduction of hazardous and non-hazardous waste arising from the construction and operation of new infrastructure.

8.4.3 The draft NPS identified that there is no requirement under the Planning Act 2008 for the decision-maker to establish whether the proposed project represents the 'best' option amongst the various possible alternatives. However, the draft NPS goes on to state that the NPS does require that options selected for hazardous waste infrastructure should be at the most appropriate level on the waste hierarchy to deliver the best overall environmental outcome.

8.4.4 The draft NPS sets out the waste hierarchy and clearly states that waste disposal should only be considered where other waste management options are not available (Section 5.14). The draft NPS addresses both aiming for a reduction in the

production of hazardous waste arisings, and also the need to reduce waste arisings (hazardous and non hazardous) during the construction, operation and decommissioning of new infrastructure.

8.4.5 In terms of capacity, the draft NPS requires the Applicant to provide an assessment of the impact which the proposal will have upon the capacity of waste management facilities to deal with other waste arising in the area for at least five years of operation.

8.4.6 Section 4.13 of the draft NPS, which relates to decision-making, requires that applicants will provide evidence that the proposed facility will manage hazardous waste at the most appropriate point on the waste hierarchy. This should help ensure that the waste hierarchy is adhered to.

8.4.7 Section 5.14 of the draft NPS requires the production of a waste management plan for all proposed facilities, setting out principles for waste management throughout the lifecycle of the facility.

Mitigation and enhancement measures

8.4.8 No mitigation or enhancement measures are proposed under AoS objective 1.

Objective AoS 2: To specify and use environmentally and socially responsible materials and resources, and to encourage resource efficiency

8.4.9 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.10 The draft NPS contains reference at Section 4.5 to the requirement for hazardous waste infrastructure developments to be 'sustainable'. There is also a reference to the design and sensitive use of materials. An acknowledgement of the potential contribution of sustainable design within the 'Good Design' section, along with an appropriate cross-reference, demonstrates that good design is about more than visual appearance alone.

Mitigation and enhancement measures

8.4.11 No mitigation or enhancement measures are proposed under AoS objective 2.

Objective AoS 3: To minimise the carbon and other greenhouse gas emissions associated with the design, construction and operation of hazardous waste management facilities and to maximise opportunities for climate change adaptation and resilience

8.4.12 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.13 Current government policy is set towards the delivery of low carbon energy. The draft NPS places a requirement on Applicants to consider the impacts of climate change when planning the location, design, build, operation and where appropriate decommissioning of new waste infrastructure. It also stipulates that the ES should set out how the proposal will take account of the projected impacts of climate change. Consideration should be given to the latest set of UK Climate Change Projections and the most current emissions scenarios in doing this. The IPC should be satisfied that the above has been undertaken and necessary adaptation measures incorporated when determining applications.

These measures should together go some way towards ensuring that climate change adaptation is factored into development proposals for hazardous waste facilities.

8.4.14 With regards to topics related to climate change, the draft NPS stresses the requirement for Applicants to consider the vulnerability of any proposed development in a coastal location to coastal change, taking account of climate change during the project's operational life and any decommissioning period (Section 5.5) and for the IPC to be satisfied that these considerations have been taken into account. The NPS has also been strengthened by specifically stating that a coastal location will not be favoured by the IPC, where such a location would result in significant adverse effects on coastal processes. The need to consider climate change in assessing flood risk is taken into account via a cross-reference to Section 4.6 in Section 5.7.

8.4.15 Section 4.13 of the draft NPS requires that, where practical, new developments should look to use renewable energy with a view to contributing to reduction of greenhouse gases and impacts on climate change. The NPS states that the IPC should give weight to the benefits resulting from energy efficient proposals and in particular those using renewable and low carbon energy sources.

Mitigation and enhancement measures

8.4.16 No mitigation or enhancement measures are proposed under AoS objective 3.

Objective AoS 4: To optimise positive and minimise adverse impacts on air quality

8.4.17 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.18 The draft NPS contains reference in Section 4.3 on the HRA to the section on Geology and Biodiversity.

8.4.19 Section 4.7 on Pollution Control states that the IPC must be satisfied that development consent can be granted taking full account of environmental impacts. This will require close co-operation with the relevant pollution control authorities and other relevant bodies to ensure that the authority concerned is satisfied that potential releases can be adequately regulated under the pollution control framework, and the effects of existing pollution sources around the site are not such that cumulative effects would result in the development being unacceptable, having regard to statutory limits. This policy guidance would cover issues of relevance to air emissions and air quality.

8.4.20 Section 4.11 of the draft NPS recognises that Applicants may include in their application a request for the grant of a defence of statutory authority against nuisance claims (re. s158 of the Planning Act 2008) in respect of infrastructure for which development consent has been granted. Although the IPC can disapply the defence of statutory duty on a case by case basis, Government policy, confirmed within the NPS, is that a development consent order should maintain a defence of statutory authority for the authorised project, unless this would mean that the Applicant would not have to abide by statutory duties of care. A thorough consideration of all potential issues at determination stage should mitigate against the potential for nuisance to occur during the implementation stage. The text set out in Section 4.11 is in accordance with that contained within Section 5.2 to help safeguard air quality.

8.4.21 Section 5.2 of the draft NPS on air emissions requires that the Applicant undertakes an assessment of potential impacts upon air quality within the ES. Reference is made to the need to have regard to any relevant statutory air quality limits and to give particular consideration

to proposals within or adjacent to AQMAs, with the proviso that consent should be refused if the proposal would result in these limits being exceeded with no potential for mitigation. Reference is also made to potential contributions of air emissions to critical levels and loads for the protection of vegetation and ecosystems, along with the potential for eutrophication on habitat and ecosystems. However the NPS does not have regard to the potential positive air quality impacts that may arise through the introduction of specialised handling and / or recovery facilities.

Mitigation and enhancement measures

8.4.22 Proposed mitigation measures to improve the performance of the NPS against AoS objective 4:

- The NPS should include further text at Section 4.13 stating that the most sustainable option should include seeking to reduce impacts upon the environment as a whole and emissions in particular.

8.4.23 Proposed enhancement measures to improve the performance of the NPS against AoS objective 4:

- The NPS could be enhanced by including a cross-reference to Section 5.2 on Air Emissions at Section 4.3.
- Section 5.2 of the NPS should include an additional paragraph to highlight, in general terms, the potential positive effects on air quality that may arise through the introduction of specialised handling and / or recovery facilities, with a cross-reference to section 4.13.

Objective AoS 5: To minimise the negative impacts of traffic and ensure that transport schemes associated with hazardous waste management facilities are environmentally sustainable and beneficial to the wider community

8.4.24 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.25 The draft NPS on Traffic and Transport impacts (Section 5.13) stipulates that, for projects likely to have significant transport impacts, the ES should include a transport assessment with guidance offered as to content and methodology. A travel plan should also be prepared where appropriate, and information provided as to measures that will be implemented to encourage non-car forms of transport. These issues should be taken into account by the IPC when determining applications. If mitigation proposed by the applicant is deemed to be insufficient to reduce potential impacts on transport infrastructure to acceptable levels, the use of conditions or transport obligations should be considered. Demand management measures and the use of more sustainable transport modes (including the use of water-borne or rail transport in preference to road) should be considered.

Mitigation and enhancement measures

8.4.26 No mitigation or enhancement measures are proposed under AoS objective 5.

Objective AoS 6: To protect and enhance biodiversity, flora and fauna

8.4.27 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.28 Section 4.3 'Habitats Regulations' contains reference to the requirement for the IPC to consider whether the project may have a significant effect on a European site, or on any site to which the same protection is applied as a matter of policy, either alone or in combination, prior to granting of consent. Sufficient information is to be provided by the Applicant, who should also consult Natural England. This is consistent with the requirements of legislation and guidance.

8.4.29 Section 5.2 on Air Quality recognises the impacts that air emissions may have on biodiversity, flora and fauna with reference made to the potential contributions of air emissions to critical levels and loads for the protection of vegetation and ecosystems, along with the potential for eutrophication on habitat and ecosystems. However, no direct reference is made to HRA within this section.

8.4.30 Section 5.3 on Biodiversity and Geological Conservation contains clear guidance requiring Applicants to undertake a thorough assessment of potential effects of a proposal on internationally, nationally and locally designated sites of ecological conservation importance, along with protected species and habitats. It also seeks to ensure that the IPC gives appropriate weight to such features when granting development consent, and, where adverse effects are likely, there are no acceptable alternatives, and mitigation / compensation is provided as appropriate. However, no direct reference is made to HRA within this section.

8.4.31 Section 5.3 provides references to the requirements for applicants to consider the enhancement of biodiversity. Mention is also made of the potential for habitat creation within landscaping proposals.

Mitigation and enhancement measures

8.4.32 No mitigation measures are proposed.

8.4.33 Proposed enhancement measures to improve the performance of the NPS against AoS objective 6:

- It is considered that Section 5.2 would benefit from a reference to HRA and the potential need for Screening / Appropriate Assessment of proposals where there could be potential issues in respect of emissions on Natura 2000 sites (for example, by cross-referencing to Section 4.3 of the NPS).
- Section 5.3 could benefit by a cross-reference to Section 4.3 of the NPS.

Objective AoS 7: To optimise the opportunities for efficient water use, reuse and recycling and to ensure that natural water sources are protected, conserved and enhanced

8.4.34 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.35 Section 4.7of the draft NPS requires that the IPC must be satisfied that development consent can be granted taking full account of environmental impacts. This will require close co-operation with the relevant pollution control authorities and other relevant bodies to ensure that the authority concerned is satisfied that potential releases can be adequately regulated under the pollution control framework, and the effects of existing pollution sources around the site are not such that cumulative effects would result in the development being unacceptable, having regard to statutory limits. This policy guidance

would cover issues of relevance to water sources and quality.

8.4.36 Section 5.15 of the NPS states that the Applicant should include an assessment of the impacts of the proposed facility upon water quality, water resources, and the physical characteristics of the water environment as part of the ES, providing detail on the issues to be considered in respect of each of the above. The IPC should take the above considerations into account when determining applications, especially where there may be an adverse effect on the achievement of the environmental objectives of the Water Framework Directive, and should also give particular consideration to the specific objectives of River Basin Management Plans. The IPC should also consider whether conditions or obligations are needed to secure the delivery of mitigation that would safeguard the above. Finally, brief advice is given regarding the potential benefits of planning and designing for the efficient use of water, including water recycling. It is considered that this section of the NPS provides guidance sufficient to ensure that the detailed criteria which contribute to AoS objective 7 would be adhered to.

Mitigation and enhancement measures

8.4.37 No mitigation or enhancement measures are proposed under AoS objective 7.

Objective AoS 8: To minimise flood risks associated with the construction and operation of hazardous waste management facilities, and to ensure that facilities remain safe and operational throughout their lifetime by being able to respond to climate change.

8.4.38 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a positive effect on the performance of this objective.

8.4.39 The draft NPS contains reference to the potential for increased flooding as a result of climate change, and a requirement for adaptation measures to deal with these potential impacts (Section 4.6).

8.4.40 Section 5.7 on Flood Risk makes reference to the classification within PPS25 of hazardous waste facilities as 'more vulnerable' development, not permissible in Flood Zone 3b and only permissible in Flood Zone 3a if the 'exception test' is passed. This encourages the siting of facilities away from those areas most vulnerable to flood risk. Detailed guidance is also given on the requirements for FRA and the circumstances where this will be appropriate (having regard to the requirements of PPS25). FRA needs to take account of both the risk to the proposed development and potential risks arising from the proposed development. There is a reference to the requirement to take climate change into account. The advice set out in the draft NPS will help to ensure that potential risks with regard to flooding are identified and effective mitigation is built into the Applicant's proposal. Appropriate mitigation measures should be designed in to address issues associated with flood risk.

8.4.41 Notwithstanding these requirements there may be instances where development may occur in the floodplain, and there is reference in the draft NPS to the need for the facility to remain operational and adopt necessary safety procedures in the event of flooding.

8.4.42 The draft NPS also states that surface water should be dealt with via SUDS unless there are exceptional circumstances where it can be demonstrated that this would be inappropriate.

8.4.43 The IPC should ensure that the above issues have been properly taken into account by the Applicant, and they should be given due consideration in the determination of applications.

This should ensure that the key principles of this AoS objective are adhered to.

Mitigation and enhancement measures

8.4.44 No mitigation measures are proposed.

8.4.45 Proposed enhancement measures to improve the performance of the NPS against AoS objective 8:

- It is recommended that a cross-reference to the detailed advice offered in Section 5.7 (Flood Risk) is made in Section 4.6.
- While not significantly affecting the conclusions of the assessment of sustainability, it is suggested that the following could improve the clarity of the guidance offered in Section 5.7:
  - Reference to the 'sequential test' in Section 5.7 when the first reference is made to site selection / appropriateness of 'more vulnerable' uses in the different zones, with cross-reference to later Paragraphs in this section where more detailed guidance is offered;
  - Inclusion of reference to Applicant's justification of evidence on areas of search (as contained in footnote 53) within the 'Applicant's Assessment' section of the guidance.

Objective AoS 9: To remediate, protect and enhance the natural and healthy state of soils and geodiversity

8.4.46 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.47 The NPS may result in consent given to a project that could affect geological assets. However, Section 5.10 of the draft NPS requires Applicants to identify any effects of hazardous waste proposals on soil quality, taking account of any mitigation measures proposed. Furthermore, the IPC should also take into account any loss of high quality soil and whether the proposal gives rise to any risk of soil contamination when assessing schemes. This should help safeguard the natural and healthy state of soils in accordance with this AoS objective.

8.4.48 The NPS requires that the Applicant seek to minimize the impact on soils.

Mitigation and enhancement measures

8.4.49 No mitigation or enhancement measures are proposed under AoS objective 9.

Objective AoS 10: To take account of coastal processes and protect the natural and historic marine environment

8.4.50 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive to uncertain effect on the performance of this objective.

8.4.51 The draft NPS contains reference to the potential for increased storm events and rising sea levels as a result of climate change, and a requirement for adaptation measures to deal with these potential impacts (Section 4.6). Where adaptation measures may give rise to consequential effects (e.g. the protection against flood risk may affect coastal change) these should also be considered and assessed by the Applicant, with the potential for the IPC to require these adaptations only in the future event that they are required. This should protect coastal processes affected by climate change to some extent.

8.4.52 The draft NPS at Section 5.5 on Coastal Change requires that applicants undertake coastal geomorphological and sediment transfer modelling to predict and understand impacts and help identify relevant mitigatory or compensatory measures. Developments should not normally be consented in areas of dynamic shorelines where sediment flow could be inhibited or there could be an adverse effect on coastal processes at other locations. Impacts on coastal processes should be managed to minimise adverse effects elsewhere. Restoration plans should be put in place for areas of foreshore disturbed by direct works. This should result in protection to the most vulnerable coastal areas in the development of new infrastructure.

8.4.53 In addition, the draft NPS requires the Applicant to consult with the Marine Management Organisation regarding any proposals involving dredging or disposal at sea. These measures, combined, should ensure that adequate consideration is given to potential impacts upon coastal processes by the applicant in developing proposals and by the IPC in determining them.

Mitigation and enhancement measures

8.4.54 No mitigation measures are proposed.

8.4.55 There are no proposed enhancement measures to improve the performance of the NPS against AoS objective 10:

- It is considered that a cross-reference in Section 4.6 to the detailed advice offered in Section 5.5 (Coastal Change) would be useful.

Objective AoS 11: To minimise adverse impacts on protected and other important landscapes

8.4.56 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.4.57 Section 4.5 of the draft NPS contains an expectation that good aesthetic and functional design can go together. It states that the IPC should satisfy itself that the Applicant has taken both considerations into account. Development should be as attractive as possible as a result of good architecture and appropriate landscaping. Applicants should indicate alternative designs considered, and the IPC should consider the ultimate purpose of the infrastructure, including operational, safety and security requirements. This should ensure that landscape considerations are adequately addressed in the determination of applications for development consent.

8.4.58 The draft NPS further addresses landscape impacts in Section 5.9. The NPS may result in consent that could potentially be given to infrastructure that results in impacts on landscape and visual amenity. The draft NPS identifies national designations as the key landscape features and other important landscapes that may be valued locally. The draft NPS provides advice on assessing the potential impacts of hazardous waste facilities upon landscape and visual amenity, and clarifies at the outset that references to landscape should be taken to include seascape and townscape where appropriate. A landscape and visual assessment should be undertaken by the Applicant and included in the ES. Proposals should be designed to minimise harm to the landscape, providing reasonable mitigation where possible and appropriate. This is in keeping with current guidelines and policy on landscapes.

8.4.59 The draft NPS at Section 5.9 also requires that particular consideration is given by the IPC to potential impacts upon National Parks and AONB when assessing applications. Development should only be granted in the above areas if it is 'in the public interest' and a series of tests set out the circumstances where this would apply. Outside, but close to nationally designated areas, consideration should be given to sensitive design

to avoid compromising the objectives of the designation. In other areas, the emphasis is upon sensitive design and the imposition of mitigation (subject to ensuring that any associated reduction in function does not make the project unfeasible) in order to minimise harm to the landscape and visual amenity, while recognising that facilities of this nature are likely to have some impact. The IPC should judge whether adverse impact within these areas is likely to be so damaging that it is not offset by the benefits of the project. The NPS also stresses that siting, design and materials can also play an important role in minimising potential impact.

Mitigation and enhancement measures

8.4.60 No mitigation measures are proposed under AoS objective 11.

8.4.61 Proposed enhancement measures to improve the performance of the NPS against AoS objective 11:

- The NPS could be enhanced at Section 5.9 by specific mention of the need to balance stack heights (where relevant) for control of air emissions against the potential adverse visual and landscape impacts.

Objective AoS 12: To protect and conserve heritage assets in a manner appropriate and proportionate to their significance

8.4.62 The appraisal of the draft NPS indicates that when compared to the baseline, the draft NPS will overall have a minor positive effect on the performance of this objective.

8.4.63 The draft NPS may result in consent given to infrastructure that could potentially affect the historic environment. However, the draft NPS provides guidance to the Applicant and the IPC, and ensures that sufficient weighting is given to designated sites and to elements of setting that enhance the significance of designated and undesignated heritage assets. The draft NPS requires the Applicant to undertake a heritage assessment to determine the potential impacts upon heritage assets. Where a development site includes assets of potential archaeological interest, the Applicant should carry out an appropriate desk-based assessment. Field surveys may also be needed, and it will be necessary to determine whether they are needed in advance of determination of the application.

8.4.64 The NPS advises that the IPC should not approve applications where the extent of the impact on the historic environment cannot be understood from the supporting documents. The NPS also advises that the IPC take the above information into account in determining applications, and should not accept material harm to or removal of significance in relation to a heritage asset unless this is outweighed by wider social, economic and environmental benefits, also taking into account the significance of the asset. The IPC should also ensure that appropriate recording takes place in circumstances where consent is granted for a development that would result in the loss of an asset. Conditions should be imposed to secure the above. The above measures should ensure that heritage assets are protected and conserved in a manner appropriate to their significance when determining applications for hazardous waste facilities.

Mitigation and enhancement measures

8.4.65 No mitigation or enhancement measures were proposed under AoS objective 12.

8.5 Overview of Results – Social Appraisal

Summary

8.5.1 The appraisal of the NPS policy found that the draft NPS overall had minor to moderate positive when compared to the baseline contributions towards the achievement of social objectives.

Objective AoS 13: To use population demographics to ensure that hazardous waste management facilities optimise benefits to and encourage the development of sustainable communities

8.5.2 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective.

8.5.3 Section 4.2 of the draft NPS recommends that the Applicant set out the information on likely social effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, the draft NPS still requires that information should be provided on social (together with environmental and economic effects, proportionate to the project.

8.5.4 Section 5.12 of the draft NPS specifically requires that, where a project is likely to have socio-economic impacts at local levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse effects.

8.5.5 The NPS also recognises at Section 5.12, that socio-economic impacts may be linked to other impacts, for example visual impacts, tourism and impacts on local businesses and states that where such impacts are relevant to the development, the applicant should include them in their assessments.

Mitigation and enhancement measures

8.5.6 There are no proposed mitigation measures to improve the performance of the NPS against AoS objective 13:

- The NPS should include a reference at Section 5.12 to ensure that, where such impacts maybe relevant, these should be considered by the Applicant in any application.

8.5.7 No enhancement measures are proposed.

Objective AoS 14: To reduce health inequalities and to improve the health and well-being of both operatives and wider communities during the construction, operation and legacy of hazardous waste management facilities

8.5.8 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective, with two negative effects identified.

8.5.9 Section 4.7 of the draft NPS states that pollution control will require close co-operation with the relevant pollution control authorities and other relevant bodies to ensure that the authority concerned is satisfied that potential releases can be adequately regulated under the pollution control framework, and the effects of existing pollution sources around the site are not such that cumulative effects would result in the development being unacceptable, having regard to statutory limits. This policy guidance covers issues of potential relevance to health and nuisance.

8.5.10 Section 4.8 of the draft NPS on Safety contains a requirement that Applicants liaise closely with the Health and Safety Executive (HSE) on matters relating to safety and that states that the IPC will need to be satisfied that there is no reason to expect that the project will not comply. Whilst this addresses this objective to a certain extent, it is considered that the wording can be strengthened to ensure greater public confidence.

8.5.11 Section 4.9 also places a requirement on the IPC to consult with the HSE regarding the granting of hazardous substances consent, where relevant, alongside development consent. The HSE will advise whether this can be granted, and whether subject to condition. If a hazardous substances consent is granted, the HSE will specify a consultation distance around the facility to ensure appropriate consideration of future development proposals having regard to the use. This approach should safeguard existing and potential future neighbours from potential risks associated with proposed facilities.

8.5.12 Section 4.10 on Health recognises that health can be a material planning consideration. Where a proposed project has a potential effect on human beings, the NPS requires that the Environmental Statement assesses these effects for each element of the project, identifying any adverse health impacts (including cumulative impacts) and identifying measures to avoid, reduce or compensate these impacts. This approach should ensure that health considerations are taken into account by both Applicant and IPC when applications are made for hazardous waste facilities.

8.5.13 Furthermore, Section 5.6 of the NPS recognises the potential for emissions from hazardous waste facilities to have an adverse effect upon the amenity of local communities, and the requirement for such impacts to be minimised. It requires the potential amenity effects of these issues to be assessed by the Applicant as part of the EIA, and details the specific issues to be addressed, including the identification of potential mitigation measures. The IPC must give detailed consideration to these potential impacts when determining the application, and should impose conditions requiring the implementation of mitigation if necessary. These measures should further ensure that all reasonable measures have been taken to safeguard public amenity and health where consent for a facility is granted.

Mitigation and enhancement measures

8.5.14 Proposed mitigation to improve the performance of the NPS against AoS objective 14:

- The wording of Section 4.8 of the NPS could be strengthened the wording – from 'likely to be met' to 'will be met' to ensure greater public confidence.
- Section 4.10 could be strengthened to contain a policy objective to avoid such impacts if possible, rather than just assess their potential implications, to accord more with the principles of this AoS objective.

8.5.15 No enhancement measures are proposed.

Objective AoS 15: To involve, communicate and consult effectively with diverse stakeholders and communities, and ensure that the principles of equality and inclusivity are upheld

8.5.16 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have an uncertain effect on the performance of this objective.

8.5.17 Section 4.2 of the draft NPS contains a recommendation that the Applicant sets out information on the likely social and economic effects of development, including cumulative effects, within an EIA, along with any recommendations for mitigation. This should contribute towards the consideration of equality and inclusivity by the Applicant and IPC. However, the NPS does not set out any specific requirement for consultation and inclusion.

Mitigation and enhancement measures

8.5.18 No mitigation or enhancement measures are proposed.

Objective AoS 16: To minimise the adverse impacts of noise on both the environment and society

8.5.19 The appraisal of the draft NPS indicates that when compared to the baseline, the draft NPS will overall have a minor positive effect on the performance of this objective.

8.5.20 Noise can dramatically affect the quality of the environment in which we live and work and has also been shown to have a link to health. The draft NPS seeks to ensure that proposals will avoid significant adverse impacts on health and quality of life from noise.

8.5.21 Section 4.7 on Pollution Control states that the IPC must be satisfied that development consent can be granted taking full account of environmental impacts. This will require close co-operation with the relevant pollution control authorities and other relevant bodies to ensure that the authority concerned is satisfied that potential releases can be adequately regulated under the pollution control framework, and the effects of existing pollution sources around the site are not such that cumulative effects would result in the development being unacceptable, having regard to statutory limits. This policy guidance would cover issues of potential relevance to noise.

8.5.22 Section 4.11 of the draft NPS recognises that Applicants may include in their application a request for the grant of a defence of statutory authority against nuisance claims in respect of infrastructure for which development consent has been granted. Although the IPC can disapply the defence of statutory duty on a case by case basis, Government policy, confirmed within the NPS, is that a development consent order should maintain a defence of statutory authority for the authorised project, unless this would mean that the Applicant would not have to abide by statutory duties of care. Although a thorough consideration of all potential issues at determination stage should mitigate against the potential for nuisance to occur during the implementation stage, the potential effects of this policy have been assessed as being uncertain.

8.5.23 At Section 5.11, the NPS requires the Applicant to consider the potential impacts of construction, decommissioning, and operational noise (including that associated with ancillary activities e.g. traffic movements to and from the site) within the noise assessment, with detailed guidance given as to those issues which the

assessment should focus upon. Consideration should be given to potential impacts on ecological receptors as well as human ones.

8.5.24 The IPC should take noise considerations into account when determining applications, along with potential mitigation proposed by the applicant. The IPC should also assess how noise has been considered in design, layout, plant selection, landscaping and noise attenuation measures. Consideration should be given to the imposition of conditions to ensure that noise levels do not exceed those on which the IPC's decision was based. This approach should ensure that the considerations set out in this AoS objective are largely adhered to (see also specific comment regarding sub-surface / underwater noise however).

Mitigation and enhancement measures

8.5.25 Proposed mitigation measures to improve the performance of the NPS against AoS objective 16:

- As there is no linkage between the noise assessment and the ES, unlike other sections where this relationship is made clear, it is suggested that a reference to the ES is included at the outset of 'Applicant's Assessment' in Section 5.11 for consistency.
- Section 5.11 should also make specific reference to sub-surface or underwater noise, as set out in the AoS criterion.

8.5.26 No enhancement measures are proposed.

Objective AoS 17: To ensure that hazardous waste management facilities do not adversely impact or detract from existing or proposed land uses or access to green space

8.5.27 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a minor positive effect on the performance of this objective, with one negative effect identified.

8.5.28 The draft NPS contains a reference in Section 4.10 to the potential for hazardous waste infrastructure to have indirect health impacts if it affects the use of open space for recreation / physical activity. Section 4.10 requires potential health impacts to be assessed within the Environmental Statement process. This section could be strengthened to contain a policy objective to avoid such impacts if possible, rather than just assess their potential implications, to accord more with the principles of this AoS objective.

8.5.29 Section 5.10 of the draft NPS requires Applicants to assess, within the ES, the potential land use implications of their proposed schemes, in terms of potential effects on existing or proposed land uses for the site itself and adjacent land. The draft NPS stresses the need to re-use previously developed land and buildings (taking account of any significant biodiversity or geological interest).

8.5.30 The draft NPS also identifies that where certain land uses will be affected, Applicants (in preparing their proposals) and the IPC (in determining them) must address the issues identified. This includes Green Belt and Grades 1, 2 and 3a agricultural land, as well as land designated for other purposes within local development plans.

8.5.31 The draft NPS requires that the IPC should take account of the views of statutory bodies and from community consultation regarding impacts on land use. These policy provisions should safeguard the sustainability aspirations which AoS objective 17 seeks to achieve.

Mitigation and enhancement measures

8.5.32 Proposed mitigation measures to improve the performance of the NPS against AoS objective 17:

- Section 4.10 should be strengthened to contain a policy objective to avoid such impacts if possible, rather than just assess their potential implications, to accord more with the principles of this AoS objective.

8.5.33 No enhancement measures are proposed.

Objective AoS 18: To protect and conserve the integrity and security of aviation and military material and infrastructural assets

8.5.34 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have an uncertain to minor positive effect on the performance of this objective.

8.5.35 Section 5.4 of the draft NPS states that where a proposal may have an effect on civil or military aviation and/or other defence assets, an assessment of potential effects should be carried out. The IPC should be satisfied that any such effects have been adequately addressed, with any necessary mitigation proposed, before granting development consent.

8.5.36 There is a requirement for the Applicant to consult the MoD, CAA, NATS and any potentially affected aerodrome. The draft NPS states that it may be appropriate to expect aerodrome operators to consider making reasonable changes to operational procedures, having regard also to interests of defence and national security, and in full understanding of the potential implications of such changes.

8.5.37 The draft NPS stipulates that consent should not be granted if a development would prevent a licensed aerodrome from maintaining its licence, or where the benefits of the development would outweigh the harm to aerodromes serving business, training or emergency needs, or where it would significantly impede or compromise the safe and effective use of defence assets or military training. While this section of the NPS should generally have a positive effect in terms of avoiding impact upon the operation or quality of civil and military aviation operations, the potential for the alteration of operational procedures at existing aerodromes may make the overall effect uncertain. However, despite the uncertainty, no further recommendations were considered necessary.

Mitigation and enhancement measures

8.5.38 No mitigation or enhancement measures were proposed under AoS objective 18.

8.6 Overview of Results – Economic Appraisal

Summary

8.6.1 The appraisal of the NPS policy found that when compared to the baseline the draft NPS overall had minor positive contributions towards the achievement of economic objectives.

Objective AoS 19: To ensure that hazardous waste management facilities benefit the local, regional and/or national economy, and that the planning, design, construction, operation and legacy phases are subject to whole-life costing

Objective AoS 20: To support existing and create new employment and business opportunities locally, regionally and nationally

Objective AoS 21 To educate, train and address skills shortages or gaps in the planning, design, construction and operation of hazardous waste management facilities

8.6.2 The appraisal of the draft NPS indicates that when compared to the baseline, the NPS will overall have a neutral to a minor positive effect on the performance of these objectives.

8.6.3 Section 4.2 of the draft NPS generically recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. It also states that, if EIA is not required, information should still be provided on economic effects, proportionate to the project.

8.6.4 Section 4.13 requires Applicants to provide details of any benefits achieved from co-locating with existing facilities. More specifically, Section 5.12 on socio-economic impacts requires that, where a project is likely to have socio-economic impact at local levels, the Applicant should undertake and include in their application an assessment of these impacts at construction, operation and decommissioning stage. A range of impacts for consideration are identified in the draft NPS including the creation of jobs and training opportunities, the provision of educational and visitor facilities and effects on tourism, and the changing influx of workers at different stages in the facilities life. The IPC is also encouraged to have regard to potential socio-economic impacts (benefits) when determining applications, as long as these are backed up by evidence, and to consider whether potential mitigation is needed to mitigate adverse effects. Whilst this will contribute to the identification of job creation opportunities, it is unlikely that the policy will actively encourage job creation, as employment opportunities and therefore unlikely to have an impact on the performance of objective 21. While there is the potential for the encouragement of visitor facilities in conjunction with proposed developments, these are considered unlikely to represent a significant source of tourism.

Mitigation and enhancement measures

8.6.5 No mitigation or enhancement measures were proposed under these objectives.

8.7 Appraisal of Hazardous Waste Facilities identified in the NPS

8.7.1 The infrastructure options set out in Part 4 of the draft Hazardous Waste NPS, identified as likely to fall within the criteria set out in the Planning Act 2008, are as follows:

- WEEE – treatment for Flat Panel Displays
- Oil Regeneration Plant
- Treatment plant to recycle Air Pollution Control (APC) residues
- Thermal desorption facilities
- Bioremediation/soil washing facilities
- Ship Recycling facilities
- Hazardous waste landfill

8.7.2 A brief description of each infrastructure type and a summary of their appraisal against the environmental, social and economic objectives is provided below. The complete appraisal is presented in Annex 2.

8.7.3 Mitigation measures proposed are included within the appraisal of the draft NPS (see Annex 2).

8.8 Summary of the Appraisal of sustainability per infrastructure type

Waste Electrical and Electronic Equipment Treatment Plants

Introduction

8.8.1 The draft NPS identifies a need for a specific facility to treat flat panel displays used in some computer monitors, TVs and electronic notebook systems as there are currently no treatment options available for this type of waste. Technologies for handling this sort of waste are being developed.

8.8.2 It is recognised that there may still be residues that require disposal to landfill following the treatment process, and landfill may (based on current technologies) be the best option for disposal of such residues.

Environmental appraisal

8.8.3 Much of the material handled within WEEE facilities will be non-hazardous and once separated would be recovered as non-hazardous recyclate. Technologies for this type of waste are still under development and no specific types of technology have been identified in the NPS. This option would however contribute to the waste hierarchy, ensuring that this type of waste is treated instead of going to landfill.

8.8.4 Specific locational requirements of this type of plant are governed by efficiencies potentially gained by co-locating with existing facilities (for example through a reduced footprint and through reduced need for transportation), and adequate supplies of water and energy.

8.8.5 Whilst the provision of this infrastructure will inevitably lead to impacts, those impacts on the AoS objectives should be compared with the potential impacts associated with the same waste going to landfill. Potential adverse environmental impacts of this type of infrastructure include fugitive emissions e.g. of mercury vapour or dust, and emissions from facility-related transportation. These facilities also require adequate water and electricity supplies and therefore may contribute to adverse effects on water supplies and greenhouse gas emissions.

8.8.6 Potential impacts of the provision of new infrastructure include additional transportation requirements associated with a new facility. The effect will depend on the location of the facilities proposed. The NPS recognises that it may be advantageous to locate new flat panel display facilities alongside existing WEEE facilities. This would assist in identifying sites with existing transportation networks and may also reduce the need for additional transportation (for example, all WEEE products could be transported together to the same site).

8.8.7 Other potential impacts on the environment of a new facility arise from direct footprint impacts of the plant and indirect impacts due to noise and air emissions (from both the facility itself and its transportation requirements). These may result in direct and indirect adverse effects on biodiversity, flora and fauna, the historic environment, soils and geodiversity and protected and important landscapes.

8.8.8 The WEEE Directive (2002/96/EC) specifies a series of infrastructure requirements for such facilities which include weather proofing, impermeable surfaces and appropriate containers for hazardous materials; compliance with this Directive will in the most part contribute towards protection of the environment. Other environmental impacts would be expected to be assessed through the current environmental impact assessment and environmental permitting processes.

8.8.9 As WEEE facilities can be large in footprint, co-location may reduce the overall footprint required.

8.8.10 The generic impacts section of the NPS covers requirements to protect the natural

environment, including the reduction of air emissions (see the appraisal of the NPS in Section 8.3 of this report).

8.8.11 Taking into account the requirement to comply with the generic requirements of the draft NPS, the NPS is appraised as having a minor positive effect when compared to the baseline on the majority of environmental objectives.

Social appraisal

8.8.12 The draft NPS recognises that it may be advantageous to locate new facilities alongside existing WEEE facilities. Depending on the location of existing facilities, this could assist in avoiding adverse effects on existing population demographics or may indeed contribute to further effects on disadvantaged communities. Likewise, this provides potential opportunities to avoid effects on health inequalities, although, in some locations this could exacerbate existing problems, depending on the location of the facility. Overall, co-location is potentially likely to result in fewer social effects than a new development.

8.8.13 The majority of measures contributing to the achievement of the social objectives for the development of WEEE are set out in the assessment principles in Part 4 of the NPS and the generic text in Part 5. WEEE treatment facilities are likely to have the potential to cause noise pollution and section 5.11 of the NPS covers noise and vibration. Section 4.2 of the NPS requires that the Applicant sets out information on the likely social and economic effects of development, including cumulative effects, within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on social effects, proportionate to the project. Equally, this requirement does not contribute specifically to this objective.

8.8.14 Section 5.12 of the NPS requires that, where a project is likely to have socio-economic impacts at local or regional levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse impacts. The NPS requires that the socio-economic impacts should be assessed as appropriate for the proposed development.

8.8.15 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a neutral to minor effect when compared to the baseline on the majority of social objectives.

Economic appraisal

8.8.16 The NPS does not set out any specific requirements in relation to achieving the economic AoS objectives. However there may be some economic advantages gained through the co-location of new with existing WEEE facilities. Section 4.2 of the NPS text recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on economic effects, proportionate to the project. Overall it is considered that with respect specifically to WEEE infrastructure, the NPS has a neutral effect on economic objectives.

<u>Oil Regeneration Plant</u>

Introduction

8.8.17 The draft NPS identifies that, there is a shortfall in capacity for recycling used lubricants to a very high level back into base lubricating oil. Industry estimates that 160,000 annual tonnes of waste oil is suitable for regeneration.

Environmental appraisal

8.8.18 The regeneration of oil represents management of waste at a higher level in the waste hierarchy than burning waste oil or processing it for use as a fuel, and therefore contributes positively to the environmental objective to manage waste in accordance with the relevant legislation.

8.8.19 Oil regeneration facilities may have significant energy requirements which will result in atmospheric emissions; although these would be expected to be controlled under the Environmental Permitting Regime. However there remains potential for the loss of volatile organic compounds and odorous compounds to air where control systems fail. As the waste would otherwise be sent for burning, there should be a trade off in total emissions released (especially when measured at a national level) over the existing baseline.

8.8.20 Emissions will also be generated from facility-related transportation; the extent of the impact on objectives will depend on the location of the facilities proposed. The NPS also identifies at Section 4.15 that a location alongside an existing oil refinery could be an advantage, particularly where this can be shown to have a clear benefit in terms of reducing transportation impacts.

8.8.21 The footprint of the plant may have an adverse effect on biodiversity, flora and fauna, soils and geodiversity, historic assets and landscape. The NPS identifies that a location alongside an existing oil refinery could be an advantage – this may result in a smaller footprint, reducing any potential adverse effects on identified receptors. This is also likely to reduce transportation impacts associated with a new facility and could result in reduced emissions through using combined energy sources.

8.8.22 With regard to flora and fauna, the text in Section 4.3 of the NPS identifies that prior to giving consent the IPC must, under the Habitats Regulations, consider whether the project may have a significant effect on a European site. Further provisions are also provided in Section 5.3 of the NPS on biodiversity and geological conservation, which states that the Applicant should seek the advice of Natural England and provide the IPC with such information as it may reasonably require to determine whether an appropriate assessment is required.

8.8.23 Generic requirements aimed at protecting the historic environment are set out in Section 5.8, which states that the IPC should not approve applications for consent where the extent of the impact of the proposed development on the significance of any heritage assets affected cannot be understood from the application and supporting documents.

8.8.24 The NPS also recognises a potential advantage in location close to existing refineries, which may lend to a reduced visual impact and impact on landscapes. The generic impacts in Section 5.9: Landscape and Visual Impacts require the consideration of landscape in accordance with relevant legislation for all infrastructure types. The NPS in Section 5.9 covers considerations such as reducing the scale of the project to help mitigate landscape and visual effects appropriate siting and careful consideration of materials and design

8.8.25 Whilst any new infrastructure may require a demand for water, the generic text in the NPS identifies requirements for Applicants to reduce such demand. Section 5.15 requires that where the project is likely to have adverse effects on the water environment, the Applicant should undertake an assessment of the existing status of, and impacts of the proposed project on water quality, water resources and physical characteristics of the water environment as part of the Environmental Statement (ES) or equivalent. Section 4.15 of the NPS identifies that Applicants must demonstrate how the new facility will minimise the risk to soils of spills.

8.8.26 Whilst the majority of mitigation measures are covered in the generic text in Part 5 of the NPS, the following mitigation measure was

identified to strengthen the text specifically in Section 4.8 of the NPS:

- Section 4.15 could identify "water resources" as an issue that the decision maker must have particular regard to, in addition to the issues of "biodiversity and geological conservation", "landscape and visual impacts" and the "historical environment".

8.8.27 Taking into account the requirement to comply with the generic requirements of the NPS, and assuming the mitigation measure identified above is applied, the NPS is appraised as having a minor positive effect when compared to the baseline on the majority of environmental objectives. An uncertain impact was identified against the objectives of Flood Risk and Coastal Processes, as these facilities may be located adjacent to existing sites which may already be in the floodplain/in locations related to coastal processes of note.

Social appraisal

8.8.28 The draft NPS identifies that a location alongside an existing oil refinery could be an advantage – this would assist in avoiding impacts on existing population demographics and would make use of existing access. Likewise, this provides potential opportunities to avoid impacts on health inequalities, however, in some locations, co-location could exacerbate existing problems, depending on the location of the facility. However, overall co-location is potentially likely to result in fewer social impacts than a new development. The requirement to consider the social impacts of the location of new facilities is set out in the generic section of Part 5 of the NPS.

8.8.29 There are no specific location criteria associated with these type of facility, and no specific requirements are set out in the draft NPS. The draft NPS does however state that development consent should not be granted unless the proposed facility is situated away from residential areas due to the risk of nuisance and safety issues, and as such this is likely to contribute positively to social objectives.

8.8.30 Section 5.12 of the draft NPS requires that the Applicant sets out information on the likely social effects of development, including cumulative effects, within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on social effects, proportionate to the project.

8.8.31 Section 5.12 of the draft NPS requires that, where a project is likely to have socio-economic impacts at local levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse impacts. The draft NPS requires that the socio-economic impacts should be assessed as appropriate for the proposed development.

8.8.32 Taking into account the requirement to comply with the generic requirements of the draft NPS, the draft NPS is appraised as having a neutral to minor positive effect when compared to the baseline on the majority of social objectives.

Economic appraisal

8.8.33 The draft NPS does not set out any specific requirements in relation to achieving the economic AoS objectives in Section 4.15, however there may be some economic advantages gained through the co-location of new with existing oil regeneration facilities. Section 4.2 of the draft NPS text recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on economic effects, proportionate to the

project. Overall it is considered that with respect specifically to oil regeneration plant, the draft NPS has a neutral effect on economic objectives.

Treatment Plant for Air Pollution Control (APC) Residues

Introduction

8.8.34 APC residues arise from the treatment of flue gases from energy from waste (EfW) plant such as municipal waste incinerators. Such residues are hazardous waste due to their elevated alkalinity and for some residues, elevated concentrations of heavy metals. Arisings of APC residues are predicted to rise as more Municipal Solid Waste (MSW) EfW incineration and advanced thermal treatment (gasification, pyrolysis, plasma-gasification and vitrification) plant come on stream increasing the need for more treatment plant.

8.8.35 A number of different treatment options exist for APC residues including pre-treatment such as washing, physico-chemical methods (e.g. solidification/stabilization, stabilisation as a granular matrix, carbonation, acid neutralisation and acid extraction), combined processes (washing plus carbon dioxide and/or phosphate stabilisation) and thermal treatment (e.g. plasma-gasification/ vitrification, melting, sintering); no specific technology is identified in the draft NPS.

Environmental appraisal

8.8.36 Much of the current APC management capacity generates non-hazardous or hazardous treated residues for landfill disposal, or provides permanent underground storage of untreated residues. Whilst any new infrastructure will result in new development that could have adverse impacts on environmental objectives, this needs to be considered against the baseline of a predicted increase in APC residues in the future and therefore the need to manage this waste appropriately in accordance with the Waste Framework Directive. This may include increased APC residues to landfill should new treatment plant not be developed and therefore any adverse impacts should be considered against the potential impacts associated with the same hazardous wastes going to landfill.

8.8.37 The variety of techniques available makes it difficult to assess the potential impacts on environmental objectives and therefore generic impacts have been considered in the AoS. This also presents challenges in devising specific criteria for the consideration of new applications. However the draft NPS identifies that applications for processes which result in reusable products should be given priority above those which simply treat the APC residues so that they can be accepted at hazardous waste landfill (unless the type of APC residue concerned is such that disposal would remain the only possible route following treatment).

8.8.38 Where reduction of hazardous properties is achieved through treatment of the dangerous substances in APC residues to generate a non-hazardous waste, these options are higher up the waste hierarchy than hazardous waste landfill.

8.8.39 Outside the UK APC residues are mixed with a binder and water or effluent at solidification/stabilisation plant. Unless the binders are wastes destined for landfill themselves the process increases the quantity of waste to be landfilled. Access to a sufficient supply of water or waste water will be required. This is not currently an issue in England where stabilisation plant generate granular residues.

8.8.40 Plasma-gasification/vitrification typically involves heat of in excess of 1200˚C, and therefore requires access to a sufficient supply of energy. The heat also revaporises volatile inorganic elements requiring cleaning of the vitrification off-gases and production of a further APC residue (which may or may not be incorporated into the inputs to the vitrification plant). This process therefore requires large amounts of energy, and results in the production of an inert vitrified slag that can be reused as an aggregate. The technology used should aim to result in an overall reduction in the

quantity of residue requiring further treatment or disposal.

8.8.41 Washing generates a brine with potential for salt recovery.

8.8.42 Generic potential impacts of APC residue treatment plant include air emissions from operation and transportation. Air emissions may be greater with those technologies requiring greater input of energy sources. Dust may also be an issue if control systems fail. Some technologies also require greater water supplies than others, e.g. solidification. These impacts may result in indirect adverse effects on biodiversity, flora and fauna, the historic environment, soils and geodiversity and protected and important landscapes.

8.8.43 In addition, the footprint of the facility itself may have a direct adverse effect on these environmental objectives. The location of such facilities upstream of European sites or within aquifer/source protection zones is unlikely to be appropriate. Section 4.3 of the NPS identifies that prior to giving consent the IPC must, under the Habitats Regulations, consider whether the project may have a significant effect on a European site. Further provisions are also provided in Section 5.3 of the NPS on biodiversity and geological conservation, which states that the Applicant should seek the advice of Natural England and provide the IPC with such information as it may reasonably require to determine whether an appropriate assessment is required.

8.8.44 Given the potential solubility of certain APC residues and due to the highly concentrated nature of contaminants within APC residues their transport and handling must be carefully managed; however, this effect would be the same whether the residues are being transferred to a facility or direct to landfill.

8.8.45 Overall, energy and water requirements, and their impacts thereof, would be anticipated to be controlled under the Environmental Permitting Regime. Dust can be mitigated through use of closed transport systems and/or maintaining an appropriate moisture content. The generic text in relation to air pollution and dust in Part 5 of the NPS should address this. In addition, the NPS identifies that where APC residues are being treated so that they can be accepted at hazardous waste landfill, a location adjacent or near to the landfill would be an advantage. This would assist in reducing potential adverse impacts associated with new infrastructure mainly in terms of reducing transportation requirements.

8.8.46 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a minor effect when compared to the baseline on the majority of environmental objectives.

Social appraisal

8.8.47 Potential impacts may arise on social objectives where new facilities are located close to residential areas or where they have an adverse impact on transportation networks and access. Developments may also have an impact on land use. The operation of such plant, and associated transportation requirements, may also have an adverse effect on people through noise, nuisance and air emissions.

8.8.48 The draft NPS does identify potential benefits of locating such facilities adjacent to or close by EfW plant, from where the APC residues are likely to arise. This could assist in avoiding impacts on existing population demographics, reduce transportation requirements and could potentially avoid impacts on health inequalities. Section 4.2 of the draft NPS requires that the Applicant sets out information on the likely social and economic effects of development, including cumulative effects, within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on social effects, proportionate to the project.

8.8.49 In addition, Section 4.12 of the NPS requires that, where a project is likely to have socio-economic impacts at local or regional levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse impacts. The NPS requires that the socio-economic impacts should be assessed as appropriate for the proposed development.

8.8.50 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a neutral to minor positive effect when compared to the baseline on the majority of social objectives.

Economic appraisal

8.8.51 The NPS does not set out any specific requirements in relation to achieving the economic AoS objectives in Section 4.16, however there may be some economic advantages gained through the location of APC residue treatment plant with Energy from Waste plant or hazardous waste landfills. Section 4.2 of the NPS text recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on economic effects, proportionate to the project. Overall it is considered that with respect specifically to treatment plant for APC residues, the NPS has a neutral effect on economic objectives.

Thermal Desorption Facilities

Introduction

8.8.52 Thermal desorption is a process used to clean up volatile components from soil. It uses heat to increase the volatility of contaminants so that they can be separated from a solid matrix, which might typically be soil, sludge or filter cake. It is estimated that some 60,000 tonnes of oily sludges and oily filter cakes arise each year and that, in total around 109,000 tonnes of waste is likely to lend itself to this sort of treatment. In addition, a proportion of the 247,000 tonnes of contaminated soil that are produced each year would be amenable to treatment by this process. Some of this is already sent for recovery including to the few thermal desorption plants already operational in England. However, there is insufficient capacity to treat all suitable waste by thermal desorption and additional capacity of 60,000-120,000 tonnes is identified as required.

Environmental appraisal

8.8.53 Both thermal desorption and soil washing / bioremediation are higher up the waste hierarchy than alternatives such as High Temperature Incineration (HTI) and landfill. Since some of the materials can be recovered following this treatment process, it also reduces the amount of material sent to landfill and specifically may reduce the amount of hydrocarbons sent to landfill by some 50-80%. Any adverse impacts of a thermal desorption facility should therefore be considered against the potential impacts associated with the same waste going to landfill.

8.8.54 Potential impacts associated with this sort of infrastructure include atmospheric emissions through plant operations and through transportation requirements. Emissions from thermal desorption treatment plants also have the potential to contain volatile contaminants (although most would be captured by APC filters). However, whilst plant will result in air emissions, this is around 50% less CO2 emissions compared to HTI. Emissions would be expected to be controlled under the Environmental Permitting Regime. The requirements of the generic text in respect of air emissions will also play a role.

8.8.55 In addition to air quality impacts, new plant will have impacts in relation to the plant

footprint that could have a direct impact on biodiversity, flora and fauna, soils and geodiversity, historic assets and landscape. The operation of the plant and transportation requirements may also result in odour impacts, groundwater pollution and dust emissions, which in turn can have adverse effects on biodiversity, flora and fauna and historic assets. The generic text in Part 5 covers these impacts.

8.8.56 Any new infrastructure will result in transportation impacts. Requirements to reduce transportation impacts for all facilities are addressed in the generic text of the NPS at section 5.13.

8.8.57 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a minor positive effect when compared to the baseline on the majority of environmental objectives.

Social appraisal

8.8.58 Potential impacts may arise on social objectives where new facilities are located close to residential areas or where they have an adverse impact on transportation networks and access. Developments may also have an impact on existing land uses and the operation of such plant, and associated transportation requirements, may have an adverse effect on people through noise, nuisance and air emissions.

8.8.59 Section 4.2 of the NPS requires that the Applicant sets out information on the likely social and economic effects of development, including cumulative effects, within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on social effects, proportionate to the project.

8.8.60 In addition, Section 5.12 of the NPS requires that, where a project is likely to have socio-economic impacts at local or regional levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse impacts. The NPS requires that the socio-economic impacts should be assessed as appropriate for the proposed development.

8.8.61 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a neutral to minor positive effect when compared to the baseline on the majority of social objectives.

Economic appraisal

8.8.62 The NPS does not set out any specific requirements in relation to achieving the economic AoS objectives in Section 4.17. Section 4.2 of the NPS text recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on economic effects, proportionate to the project. Overall it is considered that with respect specifically to thermal desorption facilities, the NPS has a neutral effect on economic objectives.

Bioremediation/Soil Washing Facilities

Introduction

8.8.63 Waste soils and sludges from a number of industries, including construction and demolition, are suitable for treatment by bioremediation and/or soil washing. While landfill may be the best option for a proportion of this waste, some will lend itself to treatment by soil washing and/or bioremediation. The draft NPS identifies an urgent need for such facilities.

8.8.64 Bioremediation is essentially a process that uses natural biological processes to return contaminated soil to its original condition. Soil

washing is a technique that separates and cleans contaminated soils and can be used to treat a variety of organic and inorganic contaminants such as oils and metals.

8.8.65 Soil is classified as hazardous waste when it is contaminated by dangerous substances such as asbestos, fuels, oils, coal tars and metals. Soil washing is not however an option for soil which is heavily contaminated by asbestos (where landfill remains the best option for its disposal). Environment Agency data shows that some 30,000 tonnes of soil thought to be contaminated only by heavy metals arises each year and is sent to landfill. Such soil should lend itself to treatment by soil washing. There is a further 175,000 tonnes of soil contaminated by asbestos or by organic substances such as fuels, oils and coal tars currently sent to landfill per annum and at least some of this will be treatable by soil washing, possibly in combination with bioremediation or thermal desorption. Furthermore, *Environment Agency data shows a further 140,000 tonnes of soil arising per year and sent to landfill that is contaminated by a combination of dangerous metals and other dangerous substances. Where these other dangerous substances are limited to fuels above 2.5% or to a combination of hydrocarbons, the soil should lend itself to treatment by either soil washing or bioremediation.*

Environmental appraisal

8.8.66 Both soil washing / bioremediation are higher up the waste hierarchy than alternatives such as HTI and landfill. Any adverse impacts of bioremediation of soil washing should therefore be considered against the potential impacts associated with the same waste going to landfill.

8.8.67 Specific impacts will vary depending on the technique used. Potential impacts with either technique include atmospheric emissions through plant operations and through transportation requirements. Emissions would be expected to be controlled under the Environmental Permitting Regime. The requirements of the generic text in respect of air emissions will also play a role.

8.8.68 In addition to air quality impacts, new plant will have impacts in relation to the footprint of the plant as it is likely that sites will need to be large and need to house industrial type buildings and related plant – this could have a direct impact on biodiversity, flora and fauna, soils and geodiversity, historic assets and landscape. The NPS included generic text in relation to these impacts. Furthermore, the treatment of soils could result in a positive impact on this objective.

8.8.69 Other potential impacts on the objectives include dust and water pollution and, in the case of bioremediation, odour impacts. For bioremediation the handling of contaminated soils presents risks of contamination through wind spread dust and through surface water runoff. Dust is typically more difficult to control, although impacts arising from dust deposition tend to be isolated to the immediate surroundings of the facility. These options may result in an impact on water quality in the event of uncontrolled or accidental spills. These issues are covered in the generic text in Part 5 of the NPS.

8.8.70 For applications for soil washing facilities, the draft NPS identifies that priority should be given to applications that demonstrate that residual water after washing will be recycled for reuse in the process.

8.8.71 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a minor positive impact when compared to the baseline on the majority of environmental objectives.

Social appraisal

8.8.72 Potential impacts may arise on social objectives where new facilities are located close to residential areas or where they have an adverse impact on transportation networks and access. Developments may also have an impact on land use.

8.8.73 The operation of such plant, and associated transportation requirements, may have an adverse effect on people through noise, nuisance and air emissions.

8.8.74 Section 4.2 of the NPS requires that the Applicant sets out information on the likely social and economic effects of development, including cumulative effects, within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on social effects, proportionate to the project.

8.8.75 In addition, Section 5.12 of the NPS requires that, where a project is likely to have socio-economic impacts at local or regional levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse impacts. The NPS requires that the socio-economic impacts should be assessed as appropriate for the proposed development.

8.8.76 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a neutral to minor effect on the majority of social objectives when compared to the baseline.

Economic appraisal

8.8.77 The NPS does not set out any specific requirements in relation to achieving the economic AoS objectives in Section 4.18. Section 4.2 of the NPS text recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on economic effects, proportionate to the project. Overall it is considered that with respect specifically to bioremediation/soil washing facilities, the NPS has a neutral effect on economic objectives.

Ship Recycling Facilities

Introduction

8.8.78 To provide sufficient capacity for UK ships and contribute towards the provision of facilities globally, a mixture of new facilities with a capacity to manage above and below 30,000 tonnes of ships per annum is identified as necessary in the draft NPS. Larger facilities are also needed to manage waste arising from the dismantling of large oil and gas structures, since there are many similarities between major ship recycling operations and the dismantling of these structures. At present, decommissioned structures are routinely sent to Norway for recycling. In recent years there has been around one such decommissioning each year.

Environmental appraisal

8.8.79 This option contributes to the objective to move waste up the waste hierarchy, as it moves away from current trends that include disposal. It will also contribute towards sound management of this type of waste in accordance with relevant legislation and contributes to the proximity principle in the Waste Directive. Individual waste types removed from ships will still need to be addressed separately according with the appropriate management.

8.8.80 To provide sufficient capacity for UK ships and contribute towards the provision of facilities globally, a mixture of new facilities with a capacity to manage above and below 30,000 tonnes of ship/s per annum will be needed. The draft NPS does not identify how many facilities may potentially be required.

8.8.81 Any adverse impacts of new facilities within England need to be assessed against the impact of end of life ships being dismantled in

facilities overseas, possibly with less stringent environmental controls.

8.8.82 The introduction of new facilities in England would reduce long distance transportation and therefore would reduce transportation-related emissions, as well as potentially reducing the environmental impact of overseas facilities including on receptors such as flora, fauna and biodiversity. The generic text in Part 5 of the NPS covers these impacts.

8.8.83 The location of ship recycling facilities will be necessarily located in coastal or estuarine locations, and most likely, in association with major shipping ports due to the infrastructure that these ports already have. Typically ship recycling facilities have been located at former shipping ports. A port location is likely to continue to be the best option for these facilities because of the need for access to deep water to transport the ships to the facility and because of other infrastructure located at a port such as links to main transport networks (for example to transport materials removed from the ships for reuse, recycling or disposal).

8.8.84 However, while conversion of former shipbuilding facilities remains possible, the creation of a new facility at or alongside a port is also feasible. Potential impacts arising from the footprint of the plant, such as impacts on the historic environment, landscape and biodiversity, flora and fauna should be reduced where existing port facilities are used.

8.8.85 In terms of operational impacts, hazardous wastes handled by ship recycling facilities include asbestos containing materials (ACMs), heavy metals, oils, PCBs etc. Given the likely location of these facilities being within ship yards, during operation potential impacts include those on the marine and fresh water environments for example though incidental spillage of contaminated materials and contaminated surface water runoff. Given the nature of the work and the large structures often requiring dismantling there is a significant risk that the facility will have some impact upon local water quality. The NPS identifies that applications should not be approved where the requirements of the generic text in relation to these impacts are not met.

8.8.86 Given a coastal location, there is a high possibility that a new facility will be located within the floodplain. The effect on this objective is therefore uncertain.

8.8.87 Rigorous environmental controls will therefore be necessary within ship recycling facilities to minimise the risks of contaminants leaching into the adjacent water course/sea. The proximity of these facilities to sites of importance for flora, fauna and biodiversity is therefore also important with regard to the potential for adverse effects. The NPS identifies that applications should not be approved where the requirements of the generic text in relation to these effects are not met.

8.8.88 In terms of transportation requirements, the draft NPS identifies that given the amount of material that will be removed from the ship for reuse, recycling or disposal, a rail or sea haulage link near the facility is an advantage and will provide easier access to overseas markets where a higher price for scrap metal may be achieved (Section 4.19).

8.8.89 Whilst the majority of mitigation measures are covered in the generic text in Part 5 of the NPS, the following mitigation measures were identified to further improve the performance of the NPS against environmental objectives:

- Given the often frequent association in England between major water courses and the formation of estuaries, the NPS should require that Applicants demonstrate careful site selection for ship recycling to ensure that the potential for adverse impacts on European sites and other flora, fauna and biodiversity is minimised. Whilst this is addressed generally in the text in Section 4.3 and 4.7 of the NPS, the importance of this issue in locating this type of infrastructure should be emphasised in Section 4.19.

- The NPS should state in Section 4.19 that individual waste types removed from ships will need to be addressed separately according to the appropriate management options.

8.8.90 Taking into account the requirement to comply with the generic requirements of the NPS, and assuming the mitigation measures identified above are applied, the NPS is appraised as having a minor positive effect when compared to the baseline on the majority of environmental objectives. An uncertain effect was identified against the objectives of Flood Risk and Coastal Processes, as these facilities may be located adjacent to existing sites which may already be in the floodplain/in locations related to coastal processes of note.

Social appraisal

8.8.91 Potential impacts may arise on social objectives where new facilities are located close to residential areas or where they have an adverse impact on transportation networks and access. Developments may also have an impact on land use.

8.8.92 Ship recycling facilities to date have been developed at existing ports and have tended to utilise former shipbuilding yards. The creation of a new facility at or alongside a port is also feasible. Impacts are generally more likely where a new facility is constructed. Where an existing shipyard is used this may assist in avoiding impacts on existing population demographics and would make use of existing access. Likewise, this provides potential opportunities to avoid impacts on health inequalities, however, in some locations could exacerbate existing problems, depending on the location of the facility. However, overall co-location is potentially likely to result in fewer social impacts than a new development.

8.8.93 Section 4.2 of the NPS requires that the Applicant sets out information on the likely social and economic effects of development, including cumulative effects, within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on social effects, proportionate to the project.

8.8.94 In addition, Section 5.12 of the NPS requires that, where a project is likely to have socio-economic impacts at local or regional levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse impacts. The NPS requires that the socio-economic impacts should be assessed as appropriate for the proposed development.

8.8.95 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a neutral to minor positive effect when compared to the baseline on the majority of social objectives.

Economic appraisal

8.8.96 The NPS requires that the Applicant has shown consideration of the potential overseas market opportunities for any new facilities, in particular in respect of location of a new facility and ease of access to / from overseas markets for ship dismantling (Section 4.19). Section 4.2 of the NPS text recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on economic effects, proportionate to the project. Overall it is considered that with respect specifically to ship recycling facilities, the NPS has a neutral to minor positive effect when compared to the baseline on economic objectives.

Hazardous Waste Landfill

Introduction

8.8.97 Landfill is at the bottom of the waste hierarchy and the Strategy for Hazardous Waste Management in England[41] includes a Principle to reduce reliance on landfill which should only be used where, overall, there is no better recovery or disposal option. In time, the amount of hazardous waste sent to landfill is therefore expected to decrease, although it may be subject to temporary increases due to large construction projects. While some of this waste will lend itself to some of the treatment options listed above, there will always be some hazardous wastes, such as asbestos and residues from some of the other treatment processes, for which disposal to landfill will remain the best overall environmental option. At present there is sufficient capacity accepting a range of hazardous wastes and 50 separate cells in non-hazardous landfill for stable non-reactive hazardous waste such as asbestos. However, some hazardous waste landfills have time limited development consent at present and if capacity should fall below demand as a result of this, further facilities might be needed.

Environmental appraisal

8.8.98 Landfill is the least preferable option for hazardous waste management however there are certain wastes (e.g. asbestos) which cannot currently be processed any other way as well as residues arising from treatment that have limited potential for recycling. It is recognised in the draft NPS that there is sufficient hazardous waste landfill capacity at present however some hazardous waste landfills have time limited development consent at present and, if capacity should fall below demand as a result of this, further facilities might be needed.

8.8.99 In general, landfills have the potential to perform adversely against a number of environmental objectives, for example losses of volatile organic compounds and odorous compounds to air, potential for leachate and consequent potential direct and indirect impacts on soils and geodiversity, flora, fauna and biodiversity and water quality and quantity. However hazardous waste landfills are strictly controlled under the Landfill Regulations 2002, as amended and therefore generally emissions are not a significant issue. The potential for significant adverse impacts related to incidences such as the liner failing is mitigated by the existing environmental requirements.

8.8.100 The generic text set out in Part 5 of the NPS sets out criteria to avoid potential impacts arising on flora, fauna and biodiversity. In addition, the requirements of the Landfill Directive 1991/31/EEC should address risks of contamination to surface or ground waters.

8.8.101 Landfill facilities can have potentially adverse impacts on water quality through leachate releases. The Landfill Directive 1991/31/EEC includes requirements on containment. With the implementation of containment in accordance with legislation, the potential for adverse impacts on water quality and water resources are considered low.

8.8.102 There is the potential for localised adverse environmental impacts at the site itself associated with rubbish, incidental spillage, gaseous release and wind blown materials although the environmental control measures implemented at the facility would ensure that these impacts were within acceptable limits. Control of these impacts is addressed in the generic text in Part 5 of the NPS.

8.8.103 Emissions will be generated from facility-related transportation to and from the site. Given the potential area required for a new landfill potential adverse impacts on soils due the large footprint required. Further impacts due to the footprint may arise on the landscape and on the

41 Defra (2010), Strategy for hazardous Waste Management in England

historic environment. Post-site rehabilitation may also have an adverse, or positive impact, on the landscape.

8.8.104 Whilst the majority of mitigation measures are covered in the generic text in Part 5 of the NPS, the following mitigation measures were identified to further improve the performance of the NPS against environmental objectives:

- The NPS at Section 4.20 should require the Applicant to demonstrate methods for the reduction of emissions related to transportation to landfill for any new applications and specifically highlight the need for an application for a new landfill to demonstrate the transport impacts have been taken fully into account and mitigation measures proposed to reduce such impacts.
- The NPS at Section 4.20 should set out a requirement for the Applicant to consider post-use rehabilitation within an application for a new landfill site.
- The NPS at Section 5.13 should specifically highlight the need for an application for a new landfill to demonstrate the transport impacts have been taken fully into account and mitigation measures proposed to reduce such impacts.

8.8.105 Taking into account the requirement to comply with the generic requirements of the NPS, and assuming the mitigation measures identified above are applied, the NPS is appraised as having a minor positive effect when compared to the baseline on the majority of environmental objectives.

Social appraisal

8.8.106 Due to the potential size and nature of landfills, a new landfill could result in a significant adverse impact on population where they are constructed close to residential areas or where they have an adverse impact on transportation networks and access. Such development is also likely to have an adverse impact on land use. Transportation requirements to and from sites may also adversely affect local access and create nuisance.

8.8.107 Given the stringent controls on hazardous waste landfills, it is unlikely that adverse effects will be realised in terms of health.

8.8.108 Section 4.2 of the NPS requires that the Applicant sets out information on the likely social and economic effects of development, including cumulative effects, within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on social effects, proportionate to the project.

8.8.109 In addition, Section 5.12 of the NPS requires that, where a project is likely to have socio-economic impacts at local or regional levels, the Applicant should undertake and include in their application an assessment of these impacts during the construction, operation and decommissioning phases. As socio-economics is not always a key part of EIA, this is a positive contribution to this objective by understanding the potential impacts and requiring mitigation to be recommended for any adverse impacts. The NPS requires that the socio-economic impacts should be assessed as appropriate for the proposed development.

8.8.110 Taking into account the requirement to comply with the generic requirements of the NPS, the NPS is appraised as having a neutral to minor positive effect when compared to the baseline on the majority of social objectives.

Economic appraisal

8.8.111 The NPS does not set out any specific requirements in relation to achieving the economic AoS objectives in Section 4.20. Section 4.2 of the NPS text recommends that the Applicant sets out information on likely economic effects of development, including cumulative effects

within any Environmental Statement, along with any recommendations for mitigation. If EIA is not required, information should still be provided on economic effects, proportionate to the project. Overall it is considered that with respect specifically to landfill, the NPS has a neutral effect on economic objectives.

8.9 Summary of the Appraisal of Summary

8.9.1 **Table 8.2** sets out a summary of the results of the AoS of the NPS and hazardous waste infrastructure. Full details of the appraisal tables are set out in Annex 1I.

Table 8.2: Summary of the AoS of the Hazardous Waste NPS

AoS Objective	NPS policy	NPS Infrastructure						
		WEEE	Oil regenera-tion plant	Treatment plant for APC residues	Thermal desorption facilities	Bioremediat-ion / Soil washing facilities	Ship recycling facilities	Hazardous waste Landfill
AoS 1: Waste Management	+	+	+	+	+	+	-	+
AoS 2: Resources and Raw Materials	+	+	0	0	0	0	0	0
AoS 3: Climate Change Adaptation and Resilience	+	+	+	+	+	+	+	-
AoS 4: Air Quality and Emissions	+/-	+	+	+	+	+	+	-
AoS 5: Traffic and Transport	+	+	+	+	+	+	+	-
AoS 6: Biodiversity, Flora and Fauna	+	+	+	+	+	+	-	+
AoS 7: Water Quality and Resources	+	+	-	+	+	+	+	+
AoS 8: Flood Risk	+	?	?	+	+	+	?	+
AoS 9: Soils and Geodiversity	+	+	+	+	+	++	+	+
AoS 10: Coastal Change and the Marine Environment	+	+	?	+	+	+	?	+
AoS 11: Landscape	+	+	+	+	+	+	+	-
AoS 12: Historic Environment	+	+	+	+	+	+	+	+
AoS 13: Population	+/-	0	0	0	+	+	0	+
AoS 14: Health and Well Being	+/-	+	+	+	+	+	+	+

AoS 15: Equality	0/+	0	0	0	0	0	0	0
AoS 16: Noise	+/-	+	+	+	+	+	+	+
AoS 17: Spatial Planning and Land Use	+/-	+	+	+	+	+	+	+
AoS 18: Military and Civil Aviation	+/?	+	+	+	+	+	+	0
AoS 19: Economy	+	0	0	0	0	0	+	0
AoS 20: Employment and Business	+	0	0	0	0	0	0	0
AoS 21: Education and Training	+	0	0	0	0	0	0	0

Key to Table 8.2:

++	Significant positive impact	+	Minor positive impact	0	Neutral impact	-	Minor negative impact	--	Significant negative impact	?	Uncertain

8.10 Cumulative Effects

8.10.1 The SEA Directive requires that secondary, cumulative and synergistic effects are considered as part of the appraisal. These effects are considered below.

Cumulative effects – arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the NPS (e.g. noise, dust and visual) have a combined effect. This should consider the effects of the cumulative development of hazardous waste infrastructure, and with infrastructure proposed under other NPS currently being drafted.

Secondary or indirect effects – are effects that are not a direct result of the NPS, but occur away from the original effect or as a result of a complex pathway. Examples of secondary effects are a development that changes a water table and thus affects the ecology of a nearby wetland.

Synergistic effects – interact to produce a total effect greater than the sum of the individual effects. Synergistic effects often happen as habitats, resources or human communities get close to capacity. For instance a wildlife habitat can become progressively fragmented with limited effects on a particular species until the last fragmentation makes the areas too small to support the species at all.

8.10.2 **Table 8.3** below, presents the cumulative effects identified as part of the assessment of the draft Hazardous Waste NPS.

8.10.3 The assessment of the Hazardous Waste NPS identified seven significant cumulative effects in relation to hazardous waste, climate change and adaptation, biodiversity, flora and fauna, water quality and resources, flood risk, soils and geodiversity, and health and wellbeing.

Table 8.3: Cumulative effects identified in the assessment of the NPS

Relevant section(s) of the NPS	Effects	Causes	Potential significance
All	Cumulative effects of hazardous waste management	The measures set out in the NPS are likely to result in a net benefit through the provision of facilities that are more sustainable than the business as usual case. This will contribute to reducing potential impacts on all AoS objectives.	Minor positive
4.5, 3.3, 4.1, 4.2, 4.13, 4.14, 5.14, 5.15	Cumulative effects on resources and raw materials	The implementation of the NPS will provide cumulative constraints on the use of raw materials and resources in the development of hazardous waste management facilities, thus contributing to their sustainable use and reducing overall consumption.	Minor positive
4.1, 4.2, 4.5, 4.6, 4.7, 4.13, 4.14, 4.15, 4.16, 4.17, 4.18, 4.19, 5.2, 5.7	Cumulative effects on climate change and adaptation	New hazardous waste infrastructure has the potential for direct cumulative effects on climate change and adaptation to climate change. The development of new infrastructure through increased air emissions which contribute to climate change. Indirect cumulative effects may also arise due to the transportation of hazardous waste to facilities. However, the NPS encourages more sustainable options for hazardous waste management and modes of transportation, which have the potential to positively affect the rate of climate change especially when compared to the business as usual case. The NPS also sets out measures aimed at ensuring resilience to climate change. The overall net effect, when compared to the business as usual case, however, is likely to be minor positive.	Minor positive

4.1, 4.2, 4.5, 4.6, 4.7, 4.13, 4.14, 4.15, 4.16, 4.17, 4.18, 4.19, 4.6, 4.7, 5.2, 5.7	Cumulative effects on air quality and greenhouse gas emissions	There is potential for direct impacts to air quality from hazardous waste facility development, particularly in relation to construction activities, emissions from operational activities and secondary emission from traffic related to both construction and operation. There is also the potential for adverse cumulative effects on sensitive receptors from these air quality impacts with other impact types (e.g. noise and air emissions impacts on flora and fauna). Negative effects may arise where a number of proposals are consented in close proximity and/or are co-located with other similar facilities, where net emissions are increased. However, the NPS sets out a range of measures to control emissions, including consideration of design, siting and refusal of consent for infrastructure proposed in or close to existing AQMAs. It also encourages more sustainable options for hazardous waste management, which have the potential to positively affect the rate of climate change, and measures aimed at ensuring resilience to climate change, especially when compared to the business as usual case. Overall, the cumulative effect is likely to be positive, depending on the exact location of facilities in relation to other new / existing facilities.	Minor negative or minor positive, depending on the location of new facilities
4.1, 4.2, 4.10, 4.13, 4.14, 4.15, 4.16, 4.18, 4.20, 5.2, 5.3, 5.4, 5.6, 5.11, 5.13	Cumulative effects on receptors from traffic and transport	Any increased traffic levels, particularly HGVs often associated with construction and hazardous waste management have the potential for adverse cumulative effects, including a reduction in air quality and increased noise emissions. However, the NPS requires for the most sustainable methods of transportation to be used and this to be taken into consideration during the design process. As such the overall effect should be minor positive.	Minor positive

Relevant section(s) of the NPS	Effects	Causes	Potential significance
4.1, 4.2, 4.3, 4.7, 4.13, 4.14, 4.17, 4.19, 4.20, 5.2, 5.3,5.8	Cumulative effects on biodiversity, flora and fauna	There is the potential for cumulative effects on biodiversity, flora and fauna from the development of hazardous waste facilities, directly, e.g. through the loss of habitat for development, or indirectly, e.g. through pollution of groundwater, emissions to air, noise, etc. However, the NPS has set out measures to minimise impacts to the environment, in terms of footprint, site layout, transportation requirements, etc thus the effect compared to the business as usual case can be considered to be minor positive. However, these requirements do not necessarily avoid all adverse effects to biodiversity, flora and fauna. As such, cumulative effects may be negative or positive, depending on the specific location of facilities, their size and design.	Minor negative and minor positive, depending on the specific location of facilities
3.3, 4.1, 4.2, 4.6, 4.7, 4.19, 4.20, 5.2, 5.7, 5.13, 5.15	Cumulative effects on water quality and resources	Hazardous waste management facilities have the potential to have adverse effects on water quality and water resources, through potential contaminant issues and certain processes that require a substantial amount of water. The measures outlined in the NPS have the potential for positive cumulative effects on water quality and resources, including measures to minimise emissions of pollutants and contaminants to the environment, and measures to reduce water demand.	Minor positive
4.1, 4.2, 4.6, 4.7, 4.14, 4.20, 5.2, 5.5, 5.7	Cumulative effects on flood risk	The NPS includes measures to keep the development of hazardous waste facilities away from area of flood risk, or to mitigate acceptable flood risks. Furthermore, ensuring the potential for adaptation to climate change should have a beneficial cumulative effect on flood risk.	Minor to major positive

4.1, 4.2, 4.15, 4.17, 4.18, 4.20, 5.3, 5.10,	Cumulative effects on soils and geodiversity	There are inherent risks of impacts to soils and geodiversity from hazardous waste management and the construction and operation of hazardous waste management facilities. However, measures outlined in the NPS are designed to minimise these risks, including favouring low sensitivity sites (e.g. brownfield sites, where available) for new developments and measures to avoid emissions that could damage soils. The cumulative effect with landscape constraints also has the potential to be beneficial in preventing development in areas of geological significance. There is also a potential positive effect that will be brought about by the appropriate treatment of contaminated soils using soil treatment facilities.	Minor positive
4.1, 4.2, 4.6, 4.16, 4.17, 4.19, 4.20, 5.2, 5.5, 5.7, 5.10, 5.15	Cumulative effects on coastal change and the marine environment	There is potential for beneficial cumulative effects on coastal change and the marine environment from the measures proposed in the NPS to site the development of hazardous waste management facilities in appropriate areas and limit emissions that could harm the marine environment.	Minor positive
3.3, 4.1, 4.2, 4.5, 4.7, 4.13, 4.14, 5.2	Cumulative effects on landscape	The NPS includes measures to minimise or mitigate potential adverse impacts to landscape from the development of hazardous waste management facilities, including appropriate siting of such facilities. However, given the nature of such infrastructure, avoidance of all adverse impacts is not possible. Cumulative effects will also depend on the location of new facilities in relation to other new and existing facilities. Thus depending on the type of facility, design and location overall cumulative effects may be positive or negative.	Minor negative and positive

Relevant section(s) of the NPS	Effects	Causes	Potential significance
4.1, 4.2, 4.5, 4.14, 4.15, 4.16, 4.17, 4.18, 5.3, 5.4, 5.7, 5.8, 5.9, 5.15	Cumulative effects on historic environment	The development of hazardous waste management facilities has the potential to cause adverse impacts on the historic environment, e.g. through the damage or destruction of sub surface archaeology, or the potential to adversely affect areas of heritage value. However, the NPS contains measures to minimise impacts on the historic environment, while in addition, measures such as the constraints on developments in areas of landscape/ townscape importance, may have beneficial cumulative effects on the historic environment.	Minor positive
4.1, 4.2, 4.4, 4.13, 4.10, 5.4, 5.5, 5.8, 5.15	Cumulative effects on population	Cumulative effects from the development of hazardous waste management facilities have the potential for adverse effects on the local population through severance, increased noise levels, air emissions, etc. The NPS contains measures to minimise and, where possible, mitigate these adverse effects, including the requirement for a social impact assessment. However, the overall cumulative effect on populations will depend on the specific location of facilities in relation to the population, and in relation to other new/existing facilities, and also the design employed at each facility. Cumulative effects on population is therefore uncertain, and could be positive if all measures identified in the NPS are taken on board.	Minor negative to minor positive, depending on the location of new facilities in relation to other facilities and the specific design of each facility

4.1, 4.2, 4.4, 4.10, 4.11, 4.13, 4.14, 4.15, 4.19, 4.17, 4.18, 5.4, 5.5, 5.8, 5.10, 5.11, 5.13, 5.14, 5.15	Cumulative effects on health and wellbeing	The development of hazardous waste management facilities has the potential for adverse cumulative effects on health and wellbeing, largely from the potential for sensitive receptors to come into contact with hazardous waste and/or harmful emissions. These effects may be greater where new facilities are located in close proximity to other new or existing facilities. However, there is potential for beneficial cumulative effects on health and wellbeing from the measures identified in the NPS, e.g. those measures to mitigate pollution to soil, water and air, those to limit noise impact or to limit visual impact.	Minor positive or minor negative, depending on the location of new facilities in relation to other facilities and the specific design of each facility
4.1, 4.2, 4.4, 4.10, 4.13, 5.4, 5.5, 5.8, 5.13	Cumulative effects on equality	The EqIA identified potential impacts from the NPS on equality, particularly regarding age, disability, gender and race. There is potential for cumulative effects from the NPS on these equalities. However, measures set out in the NPS may also contribute to minimising such effects when compared to the business as usual case.	Minor negative or minor positive
4.1, 4.2, 4.5, 4.7, 4.10, 4.11, 4.15, 4.17, 5.4, 5.11,5.12, 5.13	Cumulative effects on receptors from noise	The operation of hazardous waste management facilities has the potential to increase noise levels at nearby sensitive receptors. In addition, any increase in construction and/or operational traffic following NPS approved hazardous waste management facilities has the potential for adverse cumulative effects on noise sensitive receptors. However, the NPS outlines requirements for noise mitigation and minimisation.	Minor positive
4.1, 4.2, 4.5, 4.6, 4.7, 4.10, 5.3 5.4, 5.5, 5.6, 5.7, 5.10,5.12, 5.13, 5.15	Cumulative effects on spatial planning and land use	There is the potential for conflicts between decisions made using the NPS and the requirements of Local Planning Authorities. Cumulative effects on spatial planning however are reduced by the requirements set out in the NPS to take land use planning into consideration in the siting of any new infrastructure.	Minor positive

Relevant section(s) of the NPS	Effects	Causes	Potential significance
4.1, 4.2	Cumulative effects on military and civil aviation	Cumulative effects of the NPS on military and civil aviation are not considered to be significant.	Neutral
4.1, 4.2, 4.4, 5.2, 5.4, 5.5, 5.8, 5.9, 5.10, 5.12, 5.13	Cumulative effects on economy	There is potential for cumulative effects of the measures proposed in the NPS for the provision of hazardous waste management facilities on the economy. These have the potential to be both adverse and positive. On the one hand, requirements of the NPS may constrain development and reduce related economic benefits or fail in providing sufficient incentives to developers to realise cumulative economic impacts. On the other hand, appropriate design and siting of hazardous waste management facilities has the potential for beneficial cumulative effects on the economy, for example by reducing development in inappropriate areas (e.g. areas of landscape beauty that may be an attraction for tourism).	Minor negative and positive
4.1, 4.2, 4.5, 4.7, 4.13, 4.14, 5.2, 5.4, 5.12	Cumulative effects on employment and business	Cumulative effects upon business and employment will be similar to those cumulative effects on the economy.	Minor negative and positive
4.1, 4.2, 4.5, 4.7, 4.13, 4.14, 5.2	Cumulative effects on education and training	The NPS sets out requirements for Applicants to consider education and training, however effects are likely to only be felt very locally.	Neutral to minor positive

8.10.4 Secondary or indirect positive effects on health and well-being could occur as a result of employment opportunities and increased demand for skilled labour through the provision of new hazardous waste infrastructure.

8.10.5 New hazardous waste infrastructure may also have indirect health impacts, for example if it in some way affects access to key publicservices, transport or the use of open space for recreation and physical activity and indirect impacts on biodiversity and geological conservation, landscape and visual impacts.

Mitigation measures

8.10.6 In addition to the mitigation measures proposed to improve the performance of the draft NPS against each objective, it is also recommended that in the provision of infrastructure (Section 4.13), the NPS should encourage applicants to demonstrate that potential cumulative effects have been considered.

Cumulative effects to the Adoption of other NPSs

8.10.7 **Table 8.4** below presents potential cumulative effects of the Hazardous Waste NPS in combination with other draft NPS.

Table 8.4: Cumulative effects identified in combination with other plans

Plans	Effects	Causes	Potential significance
Draft Nuclear NPS	Cumulative effects on biodiversity, flora and fauna, coastal change and the marine environment, soil and geodiversity, and water resources	New nuclear infrastructure will have adverse impacts on receptors through the provision of further development. Potential impacts identified include changes in water quality, direct habitat and species loss and habitat fragmentation of wildlife corridors, from the construction of facilities and related infrastructure to manage and handle waste, disturbance, and gaseous emissions. Nuclear power sites may also generate minor negative impacts of cooling water abstraction and discharge on water quality scale; and adverse effects on water on coastal processes, hydrodynamics and sediment transport. The development, operation and decommissioning of nuclear power sites may also result in the increased risk of pollution and potential contamination of soils and controlled waters. In addition, the impacts from decommissioning nuclear plants are also considered potentially negative, with the long term impacts of nuclear waste storage having the potential to be of significance for biodiversity over a long time period. These effects will contribute to those associated with the development of new hazardous waste infrastructure at a national scale, for example the cumulative effect of the loss of flora from the footprint of such facilities. However, significance of the local cumulative effect will depend on the location of new hazardous waste infrastructure in relation to new nuclear waste infrastructure.	Minor Negative

Plans	Effects	Causes	Potential significance
Draft Ports NPS	Cumulative effects on climate change and adaptation. GHG emissions, and transport	Greenhouse gases can be a direct impact of port development, particularly concerning construction, general operation of buildings (and lighting systems) and day- to-day operational activities, but also secondary/indirect impacts associated with ships accessing ports and land transport associated with port activities. Greenhouse gases are also a direct impact of new hazardous waste infrastructure. Thus, the cumulative effect of both developments on climate change and air emissions could be negative. That said, both NPSs set out measures to control such effects thus, when considered against the business as usual case, it is likely that the overall cumulative effect will be minor positive.	Minor Positive
Draft Ports NPS	Cumulative effects on hazardous waste, water quality	The Ports NPS considers the handling and treatment of hazardous waste, and There is also the need to consider potentially hazardous waste in terms of spillages during port operations. The hazardous waste NPS also requires the development of hazardous waste infrastructure that pushes hazardous waste up the waste hierarchy. The cumulative effect of a compliant port development and a compliant hazardous waste facility is likely to result in a net improvement in the handling of hazardous waste.	Minor Positive
The Government's Renewable Energy Strategy	Cumulative effects on climate change and adaptation, resources and raw materials	The Government's Renewable Energy Strategy[42] is seeking to increase the percentage of energy generated from renewable sources to 15% by 2020 from 1.8% in 2007). New hazardous waste facilities may also contribute to a reduction in emissions related to improved technologies and pushing waste up through the waste hierarchy.	Minor Positive

42 The UK Renewable Energy Strategy – Consultation, June 2008; BERR

Mitigation measures

8.10.8 The draft NPS (Section 4.1) states that it has taken account of relevant PPSs and older-style PPGs and that in the event of a conflict between any of these other documents or a development plan and a NPS, the NPS prevails for purposes of IPC decision making given the national significance of the infrastructure. It is recommended that the NPS should include a reference to the implementation of other NPSs and their potential environmental, social and economic effects.

8.10.9 In the provision of infrastructure (Section 4.13), the NPS should encourage Applicants to demonstrate that potential cumulative effects have been considered, including cumulative effects with other NSIPs, e.g. the provision of hazardous waste infrastructure should avoid development for example in close proximity to nuclear power plants where both development are likely to have a secondary or cumulative adverse effect on receptors such as coastal processes, flood risk and water quality (i.e. a greater impact than if only a hazardous waste facility or if only a nuclear facility were developed in the same area).

8.11 Quality Assurance

8.11.1 The Government's guidance on SEA contains a checklist to help ensure that the requirements of the SEA Directive are met. This has been completed and is presented in Appendix B.

Section 9: Monitoring

9.1 Introduction

9.1.1 This section sets out the monitoring requirements proposed to measure potentially significant effects associated with the implementation of the Hazardous Waste NPS.

> The SEA Directive requires:
>
> *"Member States shall monitor the significant environmental effects of the implementation of plans or programmes in order, inter alia, to identify at an early stage unforeseen adverse effects, and to be able to undertake appropriate remedial action."* Article 10, SEA Directive.

9.1.2 Monitoring helps to compare the effects predicted through the AoS process against the actual effects of the NPS when it is implemented. In identifying the monitoring requirements of the significant effects of the Hazardous Waste NPS, the following have been considered:

- What should be monitored, with reference to the AoS framework?
- What should be monitored, with reference to the AoS framework?
- What sort of information is required?
- What are the existing sources of monitoring information?
- Are there any gaps in the existing information, and how can these be filled?
- Who is responsible for the various monitoring activities, when should these be carried out, and what is the appropriate format for presenting the monitoring results?

9.2 Monitoring Methodology

What should be monitored, with reference to the AoS framework?

9.2.1 For the purposes of this AoS, significant effects requiring monitoring have been taken to mean those effects on AoS objectives identified as either 'major' or 'minor' adverse effects, as well as 'uncertain' effects. No major adverse effects on AoS objectives were identified in the AoS. The following were identified as minor adverse or uncertain effects during the AoS:

- Minor negative effect of hazardous waste infrastructure on the following AoS objectives: Air quality and Emissions; Population; Health and Well Being; Noise; and Spatial Planning and Land Use.
- Minor negative effect of ship recycling facilities on the following AoS objectives: Waste Management; and Biodiversity, Flora and Fauna.
- Minor negative effect of landfill infrastructure on the following AoS objectives: Climate change Adaptation and Resilience; Air Quality and Emissions; Traffic and Transport; and Landscape.
- Minor negative effect of oil regeneration infrastructure on the following AoS objective: Water Quality and Resources.
- Uncertain effect of all hazardous waste infrastructure on the following AoS objective: Health and Well Being.
- Uncertain effect of WEEE, oil regeneration and ship recycling facilities on the following AoS objective: Flood Risk.
- Uncertain effect of oil regeneration and ship recycling facilities on the following AoS objectives: Coastal Change and the Marine Environment.

9.2.2 The SEA guidance[43] notes that monitoring can be incorporated into existing monitoring arrangements, where they exist; however if monitoring is not already established then new arrangements for monitoring will be required. **Table 9.1** presents a list of monitoring indicators for the above mentioned adverse and uncertain effects. Other monitoring may be considered to ensure that positive effects of the NPS are also achieved.

43 Office of the Deputy Prime Minister (ODPM) (September 2005), *A Practical Guide to Strategic Environmental Assessment Directive.* London: HMSO.

Table 9.1: Monitoring Indicators for Adverse and Uncertain Effects

AoS objective	Topic	Significance	Monitoring	Possible Source of information	Limitations / Data gaps (if applicable)
AoS 1	Criteria applicable to ship recycling facilities: potential impact associated with waste types removed from ship recycling facilities and need to treat these wastes separately and in accordance with the waste hierarchy.	Minor negative	• Hazardous waste recycled, recovered or reclaimed per region (% / annum) • Type of hazardous waste managed (tonnes per classification / annum)	• Environment Agency	• Future forecasts for hazardous waste arisings in England per hazardous waste type • Future forecasts for hazardous waste arisings in England per hazardous waste type • Waste arising from different hazardous waste infrastructure types
AoS 3	Criteria applicable to landfill Infrastructure: need to demonstrate methods for the reduction of emissions related to new landfill, including transport impacts.	Minor Negative	• Carbon dioxide or other GHG output per facility (CO2 emissions per facility type of known capacity)	• Local authorities • National Statistics Online • Environment Agency	• No specific data are available on the contribution of the hazardous waste sector/ facility to greenhouse gas emissions. • Efficiency of and greenhouse gas emissions associated with each hazardous recovery and disposal facility
AoS 4	Criteria related to generic impacts of all hazardous waste infrastructure: in identifying the most sustainable options, reducing impacts upon the environment as a whole and emissions in particular should be taken into consideration.	Minor negative	• Compliance with emission limits specified in environmental permits • Compliance with health based ambient air quality standards	• Local authorities • National Statistics Online • Environment Agency Defra	• Data available on environmental permits • Air quality standards set by Government
AoS 5	Criteria applicable to landfill Infrastructure impacts: Currently there is no requirement to demonstrate transportation impacts specifically related to new landfill infrastructure, which can generate significant transport movements.	Minor Negative	• Distance hazardous waste transported between origin and disposal/treatment site (kilometres or miles per annum) • Volume of hazardous waste treated / disposed of outside of region of origin (tonnes or % by region per annum)	• Environment Agency	• Transport requirements per management type (and potential impact on traffic)
AoS 6	Criteria applicable to Ship recycling facilities: due to siting criteria, this type of infrastructure may have greater potential for adverse impacts on European sites and other flora, fauna and biodiversity, although it is recognised that other types may also have an impact.	Minor Negative	• Risk to designated site (quantified or qualified risk impact on named designated site)	• Complete list of SACs, SPAs, and Ramsar sites in England (JNCC)	• Potential effect of each type of hazardous waste facility on SACs / SPAs / Ramsar / other designated sites, ecosystems, biodiversity, flora and fauna in England and adjacent countries

AoS objective	Topic	Significance	Monitoring	Possible Source of information	Limitations / Data gaps (if applicable)
AoS 7	Criteria applicable to Oil regeneration infrastructure: water resources are an important consideration in the development of this type of infrastructure.	Minor Negative	• Volume of water consumed per management option (litres / annum)	• Environment Agency	• Consumption of water per hazardous waste management option
AoS 8	Criteria applicable to WEEE, Oil regeneration and ship recycling infrastructure: siting of these type of infrastructure may result in a location in flood plain.	Uncertain	• Number of facilities proposed for construction in a floodplain (n / annum)	• Environment Agency Flood mapping for England	• Differential impacts of various types of hazardous waste management facility
AoS 10	Criteria applicable to oil regeneration and ship recycling infrastructure: siting requirements of these type may result in locations that may affect coastal processes.	Uncertain	• Number of facilities located adjacent to the coast • Performance of such facilities against environmental permit requirements	• Environment Agency • Local authorities role in leading shoreline management plans	• Location specific requirements of hazardous waste management facilities e.g. a ship recycling facility and potential impact on coastal geomorphology
AoS 11	Criteria applicable to landfill infrastructure: lack of consideration of post-use rehabilitation within the application for a new landfill site.	Minor Negative	• Number of facilities sited in or adjacent to protected sites e.g. AONBs (n)	• AONB (www.aonb.org); National Parks (www.nationalparks.gov.uk)	• Location specific requirements of each facility type • Differential impacts of various types of hazardous waste management facility
AoS 13	Criteria applicable to all hazardous waste infrastructure: whilst potential social impacts may be identified through the assessment process, there is no requirement to avoid such impacts.	Minor Negative	• Location of hazardous waste facility in relation to deprived populations • Number of infrastructural improvements / additional services made as a result of facility development (n) • Employment rates in areas located near hazardous waste facilities (%) • Literacy rates in areas located near hazardous waste facilities (%)	• Overall Index of Multiple Deprivation (Super Output Areas)	• Social and socio-economic impacts of different types of hazardous waste facilities proposed

AoS objective	Topic	Significance	Monitoring	Possible Source of information	Limitations / Data gaps (if applicable)
AoS 14	Criteria applicable to all hazardous waste infrastructure: there is no specific requirement to comply with HSE legislation.	Minor Negative	• Have regard to long term evidence of epidemiological studies indicating adverse health effects arising from proximity to hazardous waste management facilities	• Health Profile (Department for Health) • Office of national statistics	• Impacts on health and well being from different types of hazardous waste management facilities • Health inequalities related to existing location of hazardous waste management facilities
AoS 14	Criteria applicable to all hazardous waste infrastructure: Whilst there is a requirement to assess health impacts, there is no specific requirement to avoid such impacts as part of the development of new infrastructure.	Minor Negative			
AoS 14 and AoS 16	Criteria applicable to all hazardous waste infrastructure: Common Law and Statutory Nuisance: request for the grant of a defence of statutory authority against nuisance claims	Uncertain			
AoS 16	Criteria applicable to all hazardous waste infrastructure: Common law and statutory nuisance.	Uncertain	• Average noise output during day / night time facility operation at defined receptors (LAeq 18 hr day time / 24 hr night time)	• WHO • Environment Agency • Local authority	Noise levels associated with each type of facility and their potential impact on the environment/society
AoS 16	Criteria applicable to all hazardous waste infrastructure: Noise – linkage between noise and the ES required, as well as specific reference to sub-surface and underwater noise is lacking.	Minor Negative			
AoS 17	Criteria applicable to all hazardous waste infrastructure: Health – potential for hazardous waste infrastructure to have indirect health impacts if it affects the use of open space for recreation / physical activity.	Minor Negative	• Location of new hazardous infrastructure in relation to recreational and green spaces.	• National Land Use Database	• Impact on land use of each type of hazardous waste installation • Locations / sites of future potential generation of hazardous waste and existing zones allocated for (hazardous) waste management

What should be done if adverse effects are found?

9.2.3 If adverse effects are found, the NPS will be reviewed to ensure that effective mitigation measures are implemented. A mechanism to identify if a remedial action is needed may be established by the relevant planning authority.

9.2.4 Following consultation on the draft Hazardous Waste NPS and this AoS Report, further guidance on developing aims and methods for monitoring will be undertaken to take into account responses received on the draft Hazardous Waste NPS and the AoS, HRA and EqIA.

9.2.5 This will be outlined in the AoS Statement that will be published with the adopted Hazardous Waste NPS.

9.3 Monitoring Information Sources

What sort of information is required?

9.3.1 Monitoring involves measuring indicators which establish a link between implementation of the NPS and the likely significant effect being monitored. The analysis of indicators may include:

- Change in patterns and trends of indicators;
- Baseline information and predicted effects;
- Changes in the direction of indicators against comparable locations and receptors;
- Use of quantitative and qualitative information; and
- Interpretation of monitored data results.

9.3.2 Potentially relevant contextual baseline indicators are set out in Appendix C.

What are the existing sources of monitoring information?

9.3.3 The baseline data compiled during the preparation of this AoS provides a basis for predicting and monitoring effects. Monitoring should make use of existing monitoring data provided by relevant national, regional and local environmental and planning authorities. Pollution control and environmental management monitoring is carried out by the environmental authorities; human health protection is through the health authorities. Regional Planning Bodies and Local Planning Authorities monitor the effectiveness of their spatial plans, including indicators such as employment and access to community facilities and services.

9.3.4 Potential sources of information relevant to the monitoring proposed are set out in Appendix C.

9.4 Monitoring Responsibility

9.4.1 Following the provisions of the Planning Act, the Secretary of State must review the NPS when he/she thinks it appropriate to do so.

9.4.2 Defra will be responsible for the implementation of a monitoring strategy for the NPS which will set up the following elements:

- Time and frequency and geographical extent of monitoring;
- Who will be responsible for monitoring tasks, including the collection, processing and evaluation of environmental information; and
- How to present monitoring information.

9.4.3 As part of the monitoring strategy and in line with Article 10(2) of the SEA Directive on avoiding duplication of monitoring, Defra will seek to draw on existing available information and data sources as detailed in Table 1 and Appendix C. Key information is available from the hazardous waste database for England and Wales managed by the Environment Agency. This includes data on arisings, transfers and fates of hazardous waste by region in England and Wales. In addition the Environment Agency has access to data on sites permitted under the environmental permitting regime, including sites for the management of hazardous waste. Information is available on compliance with environmental permits and on the location of sites.

9.4.4 As part of the monitoring strategy, Defra envisages producing a monitoring report, which should make recommendations for any proposed amendments or more substantial changes to the policy and the National Policy Statement.

9.4.5 The SEA Directive and the Planning Act do not prescribe the time and frequency of preparing monitoring reports. It is recommended that the first review of decisions should take place 5 years after the implementation of the NPS, followed by a subsequent monitoring review of developments 10 years after. This timeframe will be confirmed during the consultation period.

Section 10: Next Steps

10.1 Introduction

10.1.1 This AoS Report has addressed Stages B and C of the AoS process, considering the alternatives and assessing the effects of the Hazardous Waste NPS and preparing the AoS report. The next steps in the AoS process are set out below.

10.2 Consultation

10.2.1 This AoS Report will be published alongside the draft Hazardous Waste NPS for consultation, together with a Consultation document setting out the procedures for consultation. Any comments on the AoS Report and/or the NPS should be addressed to Defra via the contact point given in the Consultation document. Following consultation, Defra will issue an AoS Statement (see section 10.3 below).

10.3 Appraisal of Sustainability Statement

10.3.1 An AoS Statement will be issued to summarise how the AoS has influenced in the development of the Hazardous Waste NPS. Following on the requirements of the SEA Directive (Art 9.1(b)) the document is likely to cover the topics below.

- The AoS / SEA process undertaken to date;
- How the AoS has been taken into account;
- An overview of the responses to the public consultation on the draft Hazardous Waste NPS;
- Changes made to the draft Hazardous Waste NPS on the basis of the consultation process;
- Any clarification relating to the AoS;
- Reasons for adopting the Hazardous Waste NPS among the reasonable alternatives considered; and
- Confirmation of the final arrangements for monitoring of residual significant effects and uncertainties.

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